



Preview - Information



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Google Slides Lessons Preview





Ontario Math Curriculum

Algebra - Patterns, Equations - Grade 5

3-Part Lesson Format

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Quotes
- And More!



Part 2 – Action!

- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!





Ontario Math Curriculum

Algebra - Patterns, Equations - Grade 5

Increasing Patterns - Shapes

Draw the colored block on top of the block that will come to the pattern.

Part I	Part II	Part III	Part IV

Increasing Patterns - Addition

	1	2	3	4	5
1	1	3	6	10	15
2	2	5	10	16	22
3	3	7	15	22	29
4	4	9	19	28	36
5	5	11	22	32	41

Describe the pattern rule and fill in the blanks in the growing pattern.

1	1	3	6	10	15
2	2	5	10	16	22
3	3	7	15	22	29
4	4	9	19	28	36
5	5	11	22	32	41

Fill in the boxes and blanks to complete the pattern.

	1	2	3	4	5	6	7	8	9	10
1	14	19	24	29						
2	25	31	37	43						
3	36	43	50	57						
4	47	55	63	71						
5	58	67	76	85						

Start at _____ then add _____ each time.

Start at _____ then add _____ each time.

Start at _____ then add _____ each time.

Start at _____ then add _____ each time.

Start at _____ then add _____ each time.



Ontario Math Curriculum

Algebra - Patterns, Equations - Grade 5

Increasing Decimal Pattern Rules - Tenths

Fill in the blanks to complete the increasing patterns below.

	1	2	3	4	5	6	7	8	9
11	10.1	10.6	11.1	11.6					
12	15.8	16.0	16.2	16.4					
13	21.7	22.0	22.3	22.6					
14	57.6	58.3	59.0	59.7					

Patterns

Write in the boxes to describe the pattern.

	1	2	3	4	5	6	7	8	9
11	1	2	4						
12	3	6	12						
13	1	4	16						
14	4	20	100						
15	6	18	54						

Multiply by 2
 Multiply by 2
 Multiply by 4
 Multiply by 5
 Multiply by 3

Seating

1 2 3 4 5
6 7 8 9 0

How many seats are there in the 10th row?

How many seats are there in the 100th row?

How many seats are there in the 100th row?

How many seats are there in the 100th row?

Row	1	2	3	4	5	10
Number of seats						



Workbook Preview



Grade 5
C1. Patterns and Relationships

	Curriculum Expectations	Pages That Cover the Expectations
C1.1	identify and describe repeating and growing patterns, including patterns found in real-life contexts	5 - 15
C1.2	<p>Preview of 130 pages from this product that contains 415 pages total.</p>	
		69.
C1.3	determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating and growing patterns	18 - 42, 55 - 56, 62 - 79
C1.4	create and describe patterns to illustrate relationships among whole numbers and decimal tenths	22 - 25, 28 - 33, 43 - 54

Name: _____

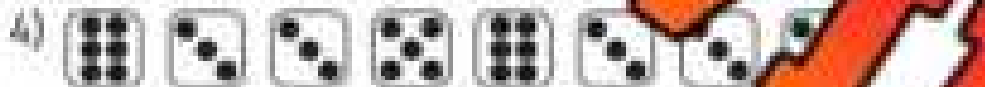
Repeating A/B Patterns

Instructions

Label the A/B/C patterns below and then continue the pattern



A A B A B



PREVIEW

Repeating Patterns – Pattern Core

Part 1

Circle the pattern core and then continue the pattern

Part 2

















Create a repeating pattern using four shapes. Label the colours underneath

Red	Blue	Green	Red	Blue	Green	Red	Blue

Increasing Patterns – Shapes







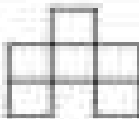


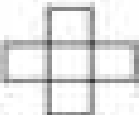
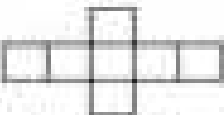
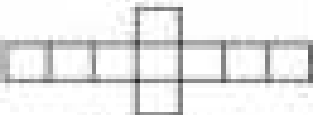



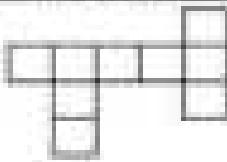
Part 1

Shade in the block that was added to the pattern

 1) Figure 1	 Figure 2	 Figure 3	 Figure 4
 2) Figure 1	 Figure 2	 Figure 3	 Figure 4
 3) Figure 1	 Figure 2	 Figure 3	 Figure 4
 4) Figure 1	 Figure 2	 Figure 3	 Figure 4

Part 2

Shade in the two blocks that were added to the pattern

 1) Figure 1	 Figure 2	 Figure 3	 Figure 4
 2) Figure 1	 Figure 2	 Figure 3	 Figure 4
 3) Figure 1	 Figure 2	 Figure 3	 Figure 4
 4) Figure 1	 Figure 2	 Figure 3	 Figure 4

Increasing Patterns – Shapes

Part 1

Draw the next figure in the pattern by adding one block



1) Figure 1



Figure 2



Figure 3

Figure 4



2)



Figure 2



Figure 3

Figure 4



3) Figure 1



Figure 3

Figure 4



4) Figure 1



Figure 2



Figure 4

Part 2

Draw the next figure by adding two blocks. How many added blocks



1) Figure 1

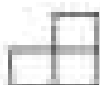


Figure 2



Figure 3

Figure 4



2) Figure 1

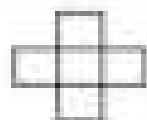


Figure 2



Figure 3

Figure 4



3) Figure 1

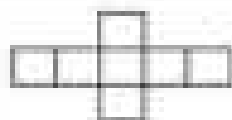


Figure 2

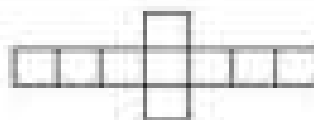


Figure 3

Figure 4

Increasing Addition Patterns



Growing/Increasing Patterns

$+10 \ +10 \ +10 \ +10 \ +10$
 $\wedge \ \wedge \ \wedge \ \wedge \ \wedge$
 10, 20, 30, 40, 50, 60

$+5 \ +5 \ +5 \ +5 \ +5$
 $\wedge \ \wedge \ \wedge \ \wedge \ \wedge$
 3, 8, 13, 18, 23, 28



Part 1

Increasing Patterns - Addition

1) $\wedge \ \wedge$
2, 4, 6, _____

2) $\wedge \ \wedge$
16, 20, 24, _____

3) $\wedge \ \wedge$
25, 32, 39, _____

4) $\wedge \ \wedge$
71, _____

5) $\wedge \ \wedge$
142, 150, 158, _____

6) $\wedge \ \wedge$
182, _____

Part 2

Follow the rule by adding the next number in the

1) (Add 2)

17, 19, 21, _____

2) (Add 4)

22, 26, 30, _____

3) (Add 6)

63, 69, 75, _____

4) (Add 5)

102, 107, 112, _____

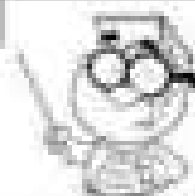
5) (Add 10)

177, 187, 197, _____

6) (Add 4)

147, 151, 155, _____

Increasing Pattern Rules - Adding

**Part 1**

Continue the increasing patterns below.

1) 40, 50, 60, _____

Pattern Rule: Start at 40, add _____ each time

2) 22, 30, _____

Pattern Rule: Start at _____ add _____ each time

3) 5, _____

Pattern Rule: Start at _____ add _____ each time

4) 120, 144, 168, _____

Pattern Rule: Start at _____ add _____ each time

5) 213, 221, 229, _____

Pattern Rule: Start at _____ add _____ each time

Part 2

Write your own patterns using the pattern rule.

1) _____

Pattern Rule: Start at 36, add 4 each time

2) _____

Pattern Rule: Start at 535, add 0 each time

3) _____

Pattern Rule: Start at 211, add 6 each time

4) _____

Pattern Rule: Start at 302, add 12 each time

PREVIEW

Increasing Decimal Pattern Rules - Tenths

Part 1

Increasing Patterns - Tenths

1) 6.0, 8.0, 10.0, _____

Pattern Rule: Start at 6.0, add 2.0 each time.

2) 5.7, _____

Pattern Rule: _____

3) 8.5, 9.0, 9.5, _____

Pattern Rule: _____

4) 14.1, 15.2, 16.3, _____

Pattern Rule: _____

5) 34.2, 34.3, 34.4, _____

Pattern Rule: _____

Part 2

Fill in the boxes below by continuing the increasing decimal pattern.

1)

76.2

76.4

76.6

2)

103.3

103.8

104.3

3)

132.1

132.8

133.5

Increasing Decimal Number Patterns - Tenths**Part 1**

Continue the increasing patterns below

1) 1.1, 1.2, 1.3, _____, _____

Pattern Rule: Start at 1.1, add 0.1 each time

2) 4.1, 5.1, _____, _____

Pattern Rule: Start at _____ add _____ each time

3) 12.1, 13.1, 14.1, _____, _____

Pattern Rule: Start at _____ add _____ each time

4) 50.3, 52.3, 54.3, _____, _____

Pattern Rule: Start at _____ add _____ each time

5) 105.3, 105.4, 105.5, _____, _____

Pattern Rule: Start at _____ add _____ each time

Part 2

Write your own patterns using the pattern rule

1) _____, _____, _____

Pattern Rule: Start at 10.0, add 1.0 each time

2) _____, _____, _____

Pattern Rule: Start at 22.5, add 0.5 each time

3) _____, _____, _____

Pattern Rule: Start at 52.1, add 1.1 each time

4) _____, _____, _____

Pattern Rule: Start at 100.0, add 2.5 each time

Increasing Decimal Pattern Rules - Hundredths**Part 1** Increasing Patterns - Hundredths

1) 8.01, 8.02, 8.03, _____

Pattern Rule: Start at 8.01, add 0.01 each time.

2) 4.75, 4.85, _____

Pattern Rule: _____

3) 15.5, 15.8, _____

Pattern Rule: _____

4) 34.11, 35.22, 36.33, _____

Pattern Rule: _____

5) 61.51, 62.52, 63.53, _____

Pattern Rule: _____

Part 2 Fill in the boxes below by continuing the pattern.

1)	82.25	82.50	82.75				
----	-------	-------	-------	--	--	--	--

2)	100.33	100.66	100.99				
----	--------	--------	--------	--	--	--	--

3)	142.12	142.14	142.16				
----	--------	--------	--------	--	--	--	--

Decreasing Subtraction Patterns



Shrinking/Decreasing Patterns

-10 -10 -10 -10 -10
 \wedge \wedge \wedge \wedge \wedge
 60, 50, 40, 30, 20, 10

-5 -5 -5 -5 -5
 \wedge \wedge \wedge \wedge \wedge
 45, 40, 35, 30, 25, 20



Part 1

Fill in the missing numbers in the pattern.

1) 22, 18, 14, _____

2) 46, 40, 34, _____

3) 67, 62, 57, _____

4) 77, _____

5) 141, 135, 129, _____

6) 100, _____

Part 2

Follow the rule by subtracting the next number in

1) (Subtract 3)

21, 18, 15, _____

2) (Subtract 6)

42, 36, 30, _____

3) (Subtract 5)

64, 59, 54, _____

4) (Subtract 4)

142, 138, 134, _____

5) (Subtract 2)

177, 175, 173, _____

6) (Subtract 10)

218, 208, 198, _____

Shrinking Decimal Patterns - Tenths**Part 1****Decreasing Patterns - Tenths**

1) 9.0, 8.0, 7.0, _____

Pattern Rule: Start at 9.0, subtract 1.0 each time.

2) 13.3, 12.3, 11.3, _____

Pattern Rule: _____

3) 18.5, 18.0, _____

Pattern Rule: _____

4) 15.9, 15.8, 15.7, _____

Pattern Rule: _____

5) 17.8, 17.6, 17.4, _____

Pattern Rule: _____

Part 2

Fill in the boxes below by continuing the decreasing pattern.

1)	19.8	19.2	18.6				
----	------	------	------	--	--	--	--

2)	27.9	27.4	26.9				
----	------	------	------	--	--	--	--

3)	32.5	31.8	31.1				
----	------	------	------	--	--	--	--

Decreasing Decimal Number Patterns - Hundredths**Part 1** Decreasing Patterns - Hundredths

1) 6.50, 6.45, 6.40, _____

Pattern Rule: Start at 6.50, subtract 0.05 each time.

2) 0.99, 0.97, _____

Pattern Rule: _____

3) 1.11, 1.09, _____

Pattern Rule: _____

4) 18.95, 18.93, 18.91, _____

Pattern Rule: _____

5) 22.18, 22.16, 22.14, _____

Pattern Rule: _____

Part 2 Fill in the boxes below by continuing the decreasing pattern.

1)	15.02	15.01	15.00				
----	-------	-------	-------	--	--	--	--

2)	24.78	24.76	24.74				
----	-------	-------	-------	--	--	--	--

3)	48.88	48.80	48.72				
----	-------	-------	-------	--	--	--	--

Increasing Patterns - Multiplication

$$\begin{array}{c}
 \times 2 \quad \times 2 \quad \times 2 \\
 \wedge \quad \wedge \quad \wedge \\
 2, 4, 8, 16, 32, 64
 \end{array}$$

Pattern Rule: Start at 2, multiply by 2 each time.



Question Increasing Patterns - Multiplication

1) 1, _____

Pattern Rule: _____

5) 1, 5, 25, _____

Pattern Rule: _____

2) 1, 3, 9, _____

Pattern Rule: _____

6) 1, _____

Pattern Rule: _____

3) 1, 4, 16, _____

Pattern Rule: _____

7) 10, 20, 40, _____

Pattern Rule: _____

4) 2, 6, 18, _____

Pattern Rule: _____

8) 10, 30, 90, _____

Pattern Rule: _____

Name: _____

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Common Core Math
1.1.2

Pattern Rules - Multiplication

$\times 3$ $\times 3$ $\times 3$
2, 6, 18, 54, 162, 486

Pattern Rule: Start at 2, multiply by 3 each time.



Instructions

Fill in the rules

2, 4, 8, 16, 32, 64

Start at _____, multiply by _____ each time

27, 81, 243, 729

Start at _____, multiply by _____ each time

1, 5, 25, 125, 625, 3125

Start at _____, multiply by _____ each time

5, 10, 20, 40, 80, 160, 320

Start at _____, multiply by _____ each time

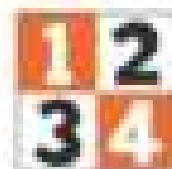
1, 10, 100, 1000, 10000, 100000

Start at _____, multiply by _____ each time

6, 18, 54, 162, 486, 1458

Start at _____, multiply by _____ each time

PREVIEW

Pattern Rules - Multiplication**Instructions**

Write your own sequences using the pattern rule

1) _____

Pattern Rule: Start at 2, multiply by 3 each time

2) _____

Pattern Rule: Start at 1, multiply by 2 each time

3) _____

Pattern Rule: Start at 10, multiply by 5 each time

4) _____

Pattern Rule: Start at 8, multiply by 2 each time

5) _____

Pattern Rule: Start at 3, multiply by 3 each time

PREVIEW

Activity: Finger Signals Quiz - Doubling Patterns**Objective**

What are we learning about?

Students will understand and reinforce their knowledge of doubling patterns using multiplication.

Materials

You will need for the activity.

- A list of questions

**Instructions**

How to complete the activity

1. Prepare a list of questions with answers labeled A, B, C, and D.
2. Explain the finger signals for each answer choice: one finger for A, two fingers for B, three fingers for C, and four fingers for D.
3. Inform the students they will show their answer by raising the appropriate number of fingers when you read each question.
4. Read the first question aloud clearly and repeat if necessary.
5. Give students a few moments to think about their answer and decide independently.
6. After a countdown (e.g., "3, 2, 1"), have all students show their answer simultaneously by raising the appropriate number of fingers.
7. Reveal the correct answer and explain why it is correct.
8. Repeat with different questions to reinforce understanding of doubling patterns.

Name _____

39

Question	A	B	C	D
Start with 2. What is the fifth number in the doubling pattern?	16	32	64	128
If the pattern starts at 3, what will the fourth number be when doubling?	24	27	48	54
Which number comes next in the pattern: 5, 10, 20, ...?	30	40	50	60
What is the sixth number in the doubling pattern starting with 6?	6	12	18	24
Start with 8. What is the seventh number in the doubling pattern?	32	64	128	256
Which number comes next in the pattern: 8, 16, 32, ...?	48	64	80	96
Which pattern starts with 10 and follows a doubling sequence?	10, 15, 20, 25	10, 15, 20, 25	10, 30, 50, 70	10, 20, 40, 80
If the pattern starts at 11, what will the sixth number be?	11	22	352	704
Which sequence is a doubling pattern starting with 12?	12, 24, 48	12, 36, 72	12, 24, 48	12, 48, 96, 192
What is the doubling pattern that starts with 13 and ends with 208?	13, 26, 52, 104, 208	13, 26, 52, 104	13, 26, 52, 104	13, 26, 78, 104, 208
Which number comes next in the pattern: 14, 28, 56, ...?	70	84	70	112
What is the doubling pattern that starts with 15 and ends with 240?	15, 30, 60, 120, 240	15, 45, 90, 180, 240	15, 60, 120, 180, 240	15, 30, 90, 120, 240
Which pattern shows a correct doubling sequence starting with 16?	16, 32, 64, 128	16, 48, 96, 192	16, 64, 128, 256	16, 32, 96, 192
What do you think is the easiest way to find the next number in a doubling pattern?	Add	Multiply	Subtract	Divide
Why do you think doubling patterns are important in math?	Easy to remember	Common in nature	Used in real life	All of the above

PREVIEW

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Growing Multiplication Patterns1) (Multiply by 2)
2, 4, 8, _____

2) 9, 45, 225, 1125, 5625, 28125

Start at _____, multiply by _____ each time

3) _____

Pattern Rule: Start at 3, multiply by 5 each time.

Name: _____

Growing Multiplication Patterns1) (Multiply by 2)
2, 4, 8, _____

2) 9, 45, 225, 1125, 5625, 28125

Start at _____, multiply by _____ each time

3) _____

Pattern Rule: Start at 3, multiply by 5 each time.

Name: _____

Growing Multiplication Patterns1) (Multiply by 2)
2, 4, 8, _____

2) 9, 45, 225, 1125, 5625, 28125

Start at _____, multiply by _____ each time

3) _____

Pattern Rule: Start at 3, multiply by 5 each time.

Name: _____

Growing Multiplication Patterns1) (Multiply by 2)
2, 4, 8, _____

2) 9, 45, 225, 1125, 5625, 28125

Start at _____, multiply by _____ each time

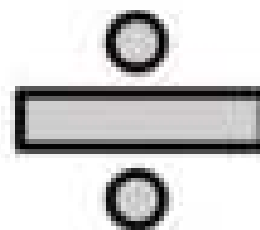
3) _____

Pattern Rule: Start at 3, multiply by 5 each time.

Decreasing Patterns - Division



Pattern Rule: Start at 32, divide by 2 each time.



Question: Complete the decreasing patterns

1) 80, 40, _____

Pattern Rule: _____

5) 162, 54, 18, _____

Pattern Rule: _____

2) 48, 24, 12, _____

Pattern Rule: _____

6) 135, _____

Pattern Rule: _____

3) 243, 81, 27, _____

Pattern Rule: _____

7) 160, 80, 40, _____

Pattern Rule: _____

4) 1024, 256, 64, _____

Pattern Rule: _____

8) 192, 96, 48, _____

Pattern Rule: _____

PREVIEW

Patterns Within Number Strings

Instructions

How many ways can you make the number below? We've made 3 ways for you.

Original Number	Ones	Tenths	Hundredths
2.51	2	+ 5 tenths	+ 1 hundredth
2.51	2	+ 4 tenths	+ 11 hundredths
2.51	1	+ 15 tenths	+ 1 hundredth
2.51 =		tenths	hundredths
2.51 =		tenths	hundredths
2.51 =		tenths	hundredths
2.51 =		tenths	hundredths
2.51 =		tenths	hundredths

Original Number	Ones	Tenths	Hundredths
6.76 =		tenths	hundredths
6.76 =		tenths	hundredths
6.76 =		tenths	hundredths
6.76 =		tenths	hundredths
6.76 =		tenths	hundredths
6.76 =		tenths	hundredths
6.76 =		tenths	hundredths
6.76 =		tenths	hundredths

Patterns Within Number Strings – Gattegno Chart

Instructions

Follow the instructions below

Create a four-digit number with two decimal places (e.g., 123.45).

Use counters to cover each digit of your number on chart below.

Multiply your number by 10. Move each counter up one row but keep it in the same column.

Predict what will happen if you multiply your new number by 10 again.

Multiply by 100. Check your prediction. Move each counter up one more row.

Think about how you can return to your original number using division. Try it!

From your original number, move each counter up two rows. What happens when you divide by 100?

10 000	20 000	30 000	40 000	50 000	60 000	70 000	80 000	90 000
1000	2000	3000	4000	5000	6000	7000	8000	9000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
00.1	00.2	00.3	00.4	00.5	00.6	00.7	00.8	00.9

Patterns Within Number Strings

Instructions

Follow the instructions below

Use the following chart to make 60 in as many ways as you can.

Use a number from column A.

Use an operation from column B.

Use a number from column C.

Write your equations you made in the workspace below.

A	B	C
0.6		0.01
6		0.1
60		1
600		10
6000		
60 000		

Workspace

Task Cards: Patterning – All Operations

Objective

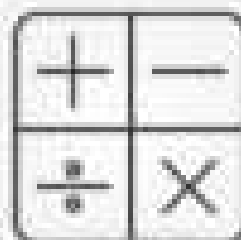
What are we learning about?

To recognize and create patterns using the four basic mathematical operations.

Materials

What you will need for the activity

- 24 task cards
- Answer recording sheet for answers
- Timer



Instructions

How you will do the activity

1. Introduce the concept of patterns using the four basic operations and their relevance to problem-solving in everyday life.
2. Organize the students into pairs and provide each pair with their sets of task cards.
3. Give each pair an answer recording sheet and a timer to track their progress.
4. Encourage teamwork by having students collaborate and help each other on finding solutions.
5. Allow students to select any task card to begin with, emphasizing that they can complete the cards in any order they prefer.
6. Instruct students to record the letter of their chosen answer (A, B, or C) on their answer sheet beside the task card's number.
7. Consider using a timer to create a dynamic challenge, adjusting the duration to fit the lesson's objectives and complexity.
8. After the activity, review the answers collectively, discussing any challenging patterns and strategies used to solve them.
9. Have students reflect on the activity, sharing the methods they applied and obstacles they overcame.

Task Cards

Cut out the task cards below

Card 1:

Start with 5. Add 4 to get the next number in the pattern. What is the fifth number?

- a) 21
- b) 25
- c) 29

Card 5:

Begin with 60. Subtract 5 and then divide by 5 for the next number. What is the second number?

- a) 11
- b) 12
- c) 13

Start with 15. Multiply by 2, then subtract 1 for the next number. What is the second number?

- a) 15
- b) 16
- c) 17

Card 6:

Start with 20. Subtract 4 and then take away half for the next number. What is the second number?

- a) 7
- b) 8
- c) 10

Card 3:

Start with 80. Divide by 2 to get the next number. What is the fourth number?

- a) 20
- b) 25
- c) 10

Start with 30. Add 2, subtract 4 to get the next number. What is the third number?

- a) 30
- b) 35
- c) 33

Card 4:

Start with 7. Multiply by 3 and then add 2 for the next number. What is the second number?

- a) 21
- b) 23
- c) 24

Card 8:

Start with 15. Divide by 3 to get the next number. What is the second number?

- a) 5
- b) 2
- c) 8

PREVIEW

Task Cards

Cut out the task cards below

Card 9:

Start with 6. Multiply by 5 and then add 4 for the next number. What is the second number?

- a) 32
- b) 34
- c) 36

Card 13:

Start with 12. Add 5 and then multiply by 2 to get the next number. What is the third number?

- a) 34
- b) 76
- c) 78

Begin with 10. Add 10, then divide by 8 for the next number. What is the second number?

- a) 10
- b) 15
- c) 20

Card 14:

Start with 16. Add 5 to get the next number in the pattern. What is the fifth number?

- a) 31
- b) 36
- c) 41

Card 11:

Start with 18. Subtract 2 and then take away half for the next number. What is the second number?

- a) 8
- b) 9
- c) 10

Start with 12. Multiply by 2 and then multiply by 3 to get the next number. What is the third number?

- a) 72
- b) 76
- c) 99

Card 12:

Start with 50. Subtract 5, add 3, subtract 5 to get the next terms. What is the third term number?

- a) 43
- b) 37
- c) 31

Card 16:

Start with 12. Multiply by 3 and then subtract 4 for the next number. What is the second number?

- a) 30
- b) 32
- c) 34

PREVIEW

Task Cards

Cut out the task cards below

Card 17:

Start with 8. Multiply by 2 and then subtract 4 to get the next number. What is the third number?

- a) 24
- b) 20
- c) 16

Card 21:

Start with 9. Add 3 and then multiply by 2 for the next number. What is the second number?

- a) 18
- b) 21
- c) 24

Start with 4. Multiply by 2 to get the next number. What is the second number?

- a) 10
- b) 8
- c) 9

Card 22:

Begin with 100. Subtract 10 and then divide by 2 for the next number. What is the second number?

- a) 30
- b) 40
- c) 45

Card 19:

Start with 25. Add 10 and then multiply by 3 to get the next number. What is the third number?

- a) 315
- b) 105
- c) 345

Start with 20. Multiply by 2 and then subtract 4 to get the next number. What is the second number?

- a) 12
- b) 14
- c) 16

Card 20:

Start with 80. Divide by 4 to get the next number. What is the third number?

- a) 20
- b) 5
- c) 10

Card 24:

Start with 15. Multiply by 2 and then subtract 5 for the next number. What is the third number?

- a) 25
- b) 35
- c) 45

PREVIEW

Task Cards: Patterning**Answers**

Record your answers below.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

PREVIEW

Table of Values

Questions

Answer the questions below by using the table of values.

When you work an hour, you get paid 35 dollars. Fill in the table to learn more about your earnings.

1) How many dollars will you make if you work 5 hours?

2) How many dollars will you make if you work 10 hours?



Hours Worked	Money Made
1	
2	
3	
4	
5	
10	

Weeks	KM Run
1	
2	
3	
4	
5	
10	

You are training for a marathon, so you run 21km a week.

1) How many kilometers will you run after 5 weeks?

2) How many kilometers will you run 21km for 10 weeks?

Chris is studying for a science test next week. Each night he studies for 25 minutes.

1) How many minutes does he study after 5 nights?

2) How many minutes does he study after 8 nights?

3) How many nights does he need to study for to study for 350 minutes?

Nights	Minutes
1	
2	
3	
4	
5	
8	

Graphing Increasing Patterns

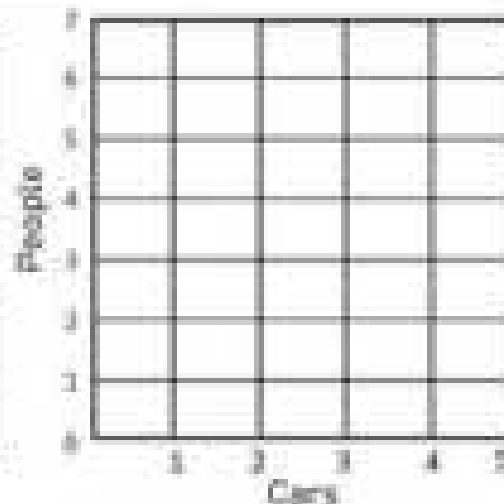
Questions

Translate the increasing patterns into a table of values and a graph

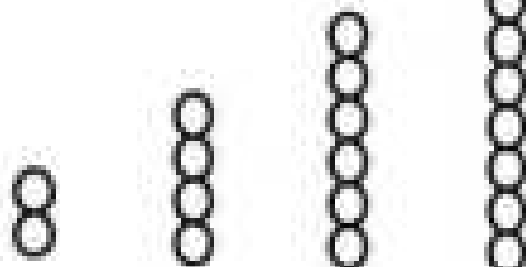
1) A train has the following people in each train car.



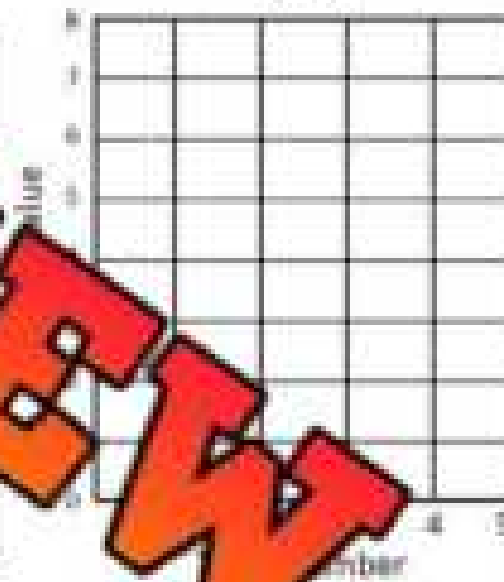
Term Number (Car)	Term Value (People)



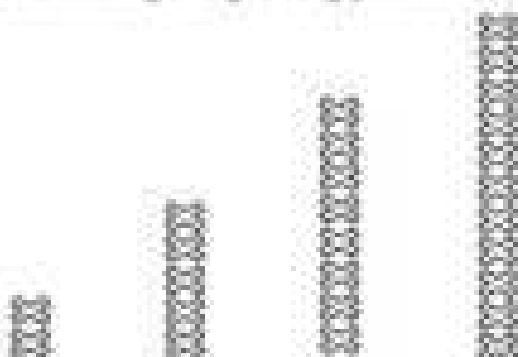
2) Fill in the table of values and the graph by translating the growing pattern.



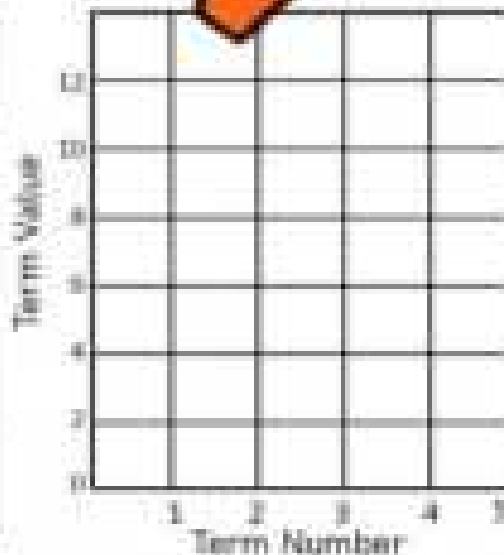
Term Number	Term Value



3) Fill in the table of values and the graph by translating the growing pattern below.



Term Number	Term Value

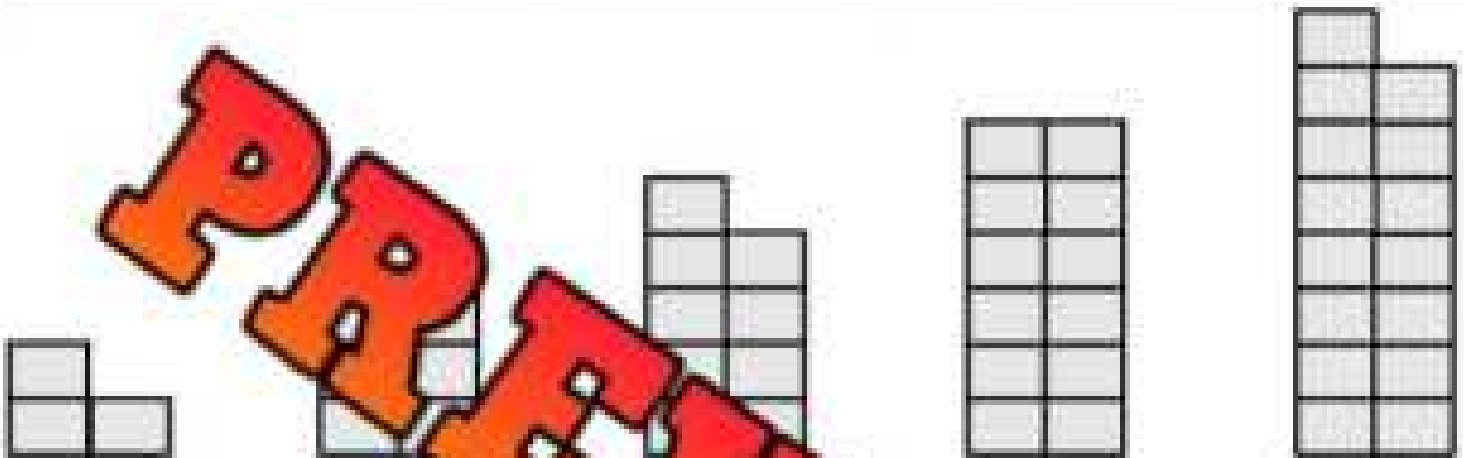


Graphing Increasing Patterns

Questions

Answer the question below using a table of values and a graph

Joel has created a pattern using his blocks. Translate the pattern using the table of values and graph.



Term Number	Term Value

1) How many blocks would Joel use in his 10th shape if he continued his pattern?

2) What is the pattern rule? How much is added to the core each time?

3) Which shape would use 63 blocks?

Graphing Shrinking Patterns

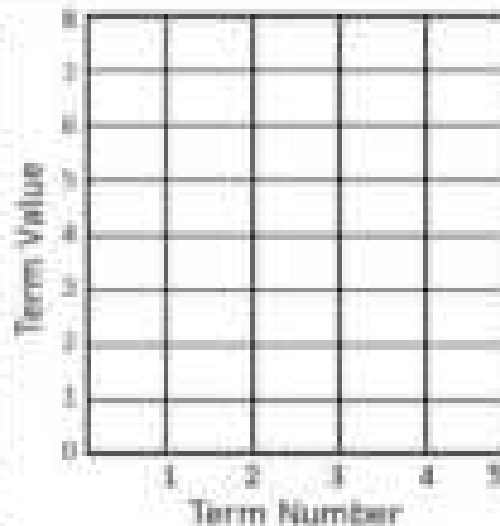
Questions

Translate the shrinking patterns into a table of values and a graph.

1) Fill in the table of values and the graph by translating the shrinking pattern below.



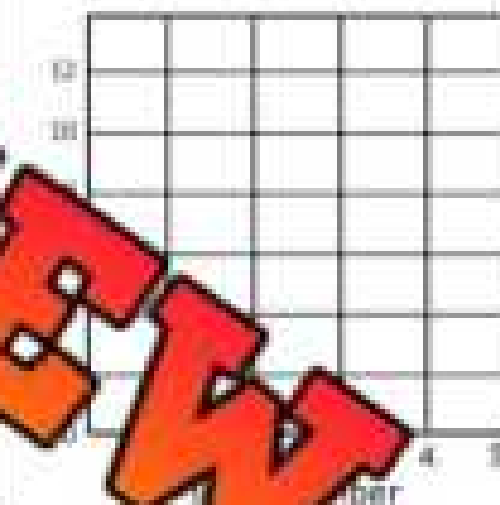
Term Number	Term Value



2) Fill in the table of values and the graph by translating the shrinking pattern below.



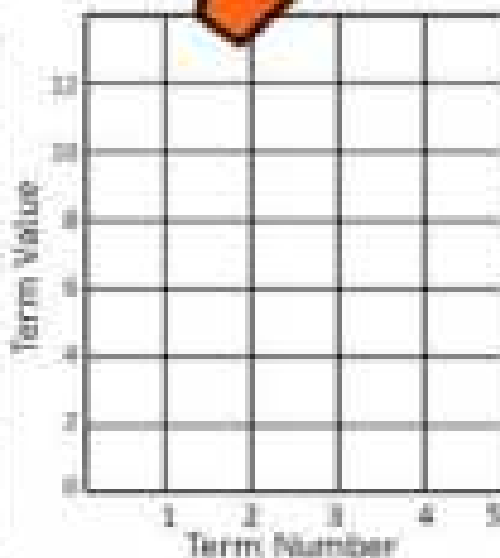
Term Number	Term Value



3) Fill in the table of values and the graph by translating the shrinking pattern below.



Term Number	Term Value

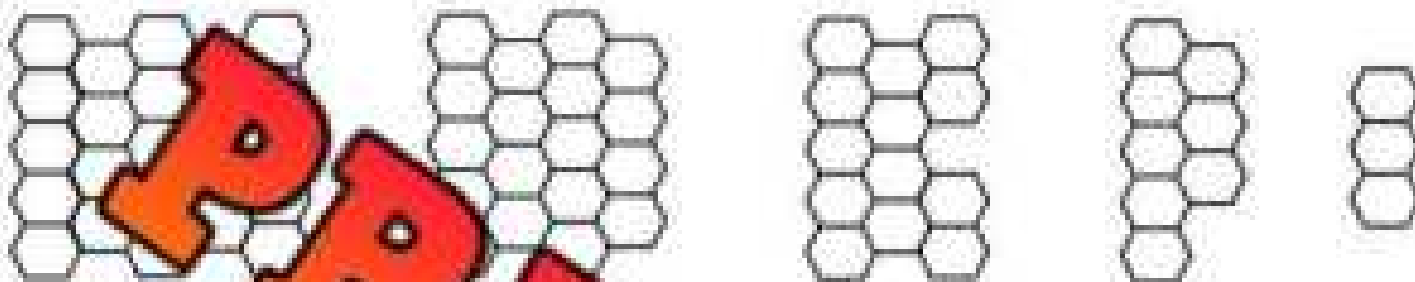


Shrinking Pattern Challenge

Questions

Answer the questions below using a table of values and a graph.

Jill makes a pattern using hexagons. Translate the pattern using the graph and table of values.



Term Number	Number of Hexagons



- 1) What is the pattern shrinking by each time?
- 2) Draw your own shrinking pattern below.

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Answer the questions below by using the table of values.

When you complete a math worksheet, you earn 2 points. Fill in the table below to learn more about your point collection.

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

Name: _____

Answer the questions below by using the table of values.

When you complete a math worksheet, you earn 8 points. Fill in the table below to learn more about your point collection.

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

Name: _____

Answer the questions below by using the table of values.

When you complete a math worksheet, you earn 8 points. Fill in the table below to learn more about your point collection.

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

Name: _____

Answer the questions below by using the table of values.








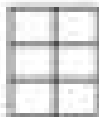



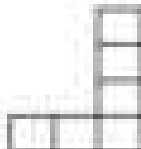


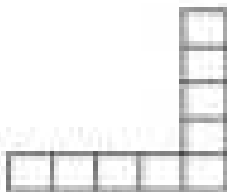
When you complete a math worksheet, you earn 8 points. Fill in the table below to learn more about your point collection.

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

T-Tables – Finding Patterns

Questions

Fill in the T-Tables by counting the blocks.

<p>1)   </p> <p>Figure 1 Figure 2 Figure 3</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #e0e0e0;">Figure</th> <th style="background-color: #e0e0e0;">Term Value</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">1</td><td></td></tr> <tr><td style="text-align: center;">2</td><td></td></tr> <tr><td style="text-align: center;">3</td><td></td></tr> <tr><td style="text-align: center;">4</td><td></td></tr> </tbody> </table>	Figure	Term Value	1		2		3		4		
Figure	Term Value											
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<p>2)   </p> <p>Figure 1 Figure 2 Figure 3</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #e0e0e0;">Figure</th> <th style="background-color: #e0e0e0;">Term Value</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">1</td><td></td></tr> <tr><td style="text-align: center;">2</td><td></td></tr> <tr><td style="text-align: center;">3</td><td></td></tr> <tr><td style="text-align: center;">4</td><td></td></tr> </tbody> </table>	Figure	Term Value	1		2		3		4		
Figure	Term Value											
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Figure	Term Value											
1												
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Figure	Term Value											
1												
2												
3												
4												
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Figure	Term Value											
1												
2												
3												
4												

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

a) Draw the next figure.




Figure 1




Figure 2




Figure 3

b) Write the number of sides that represents the figure sequence.

Fig 1 Fig 2 Fig 3 Fig 4

Name: _____

a) Draw the next figure.




Figure 1




Figure 2

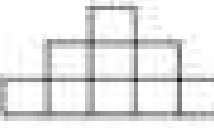


Figure 3




Figure 4

b) Write the number of sides that represents the figure sequence.

Fig 1 Fig 2 Fig 3 Fig 4

Name: _____

a) Draw the next figure.




Figure 1

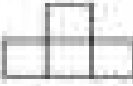


Figure 2

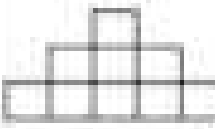


Figure 3




Figure 4

b) Write the number of sides that represents the figure sequence.

Fig 1 Fig 2 Fig 3 Fig 4

Name: _____

a) Draw the next figure.




Figure 1




Figure 2

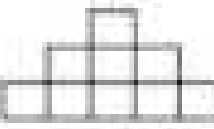


Figure 3




Figure 4

b) Write the number of sides that represents the figure sequence.

Fig 1 Fig 2 Fig 3 Fig 4

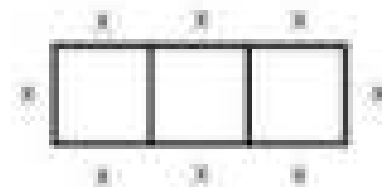
PREVIEW

Word Problem – Square Tables

Word Problem

Solve the question below.

A school cafeteria uses square tables and places them side by side in a straight row for lunch. Each table can seat 4 people when standing alone. But when tables are joined side by side, they share one side, so 2 fewer seats are available for each table added to the row.



1) Fill in the table below.

Term Number -	Term Value - Seats
1	
2	
3	
4	
5	
6	

2) How many people could sit with the following number of tables?

a) 20 tables

b) 30 tables

3) How many tables are needed for the following number of people?

a) 100 people

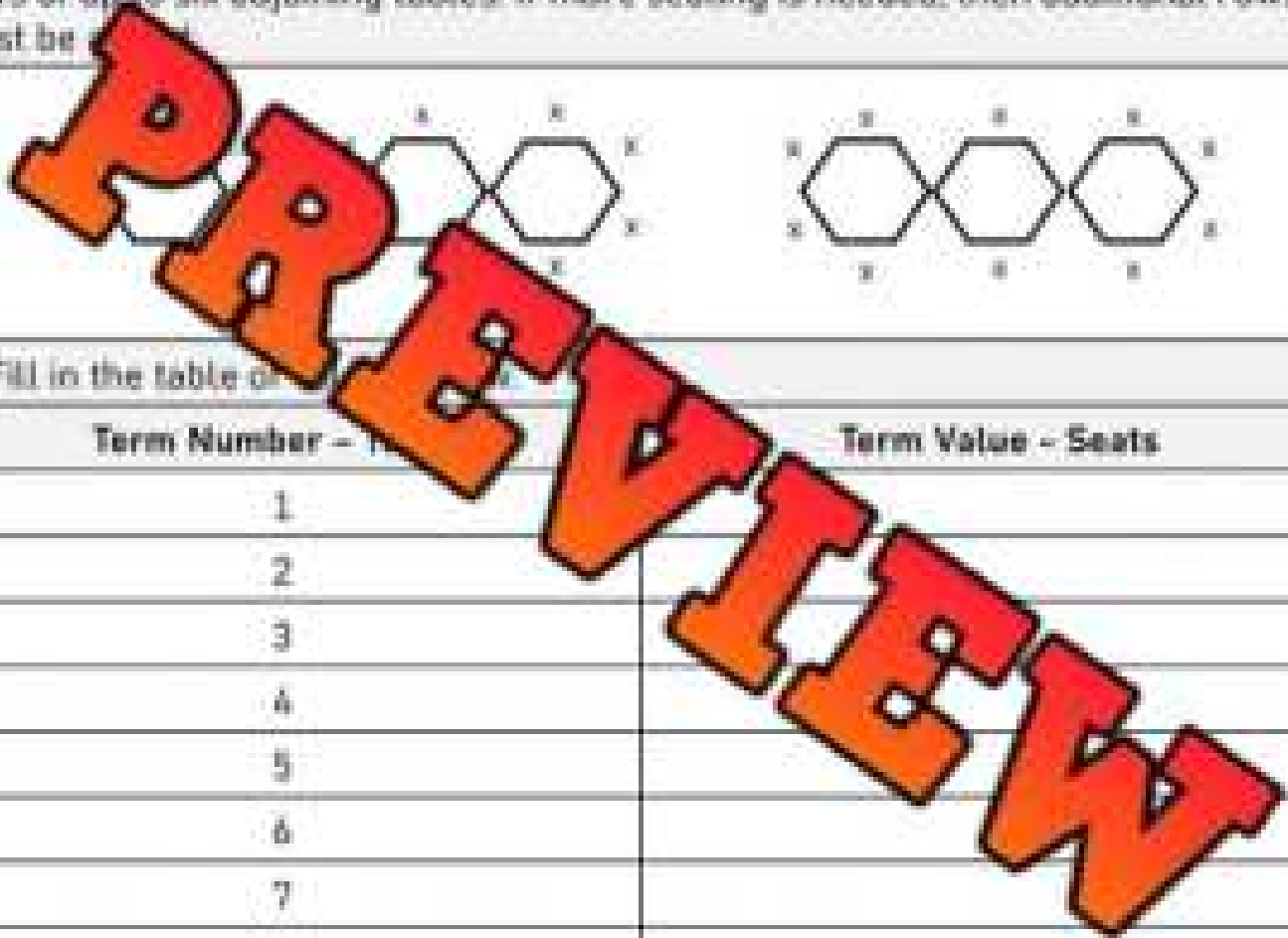
b) 152 people

Word Problem – Hexagonal Tables

Word Problem

Solve the question below.

A science museum has tables in the shape of a hexagon and sets them up for special events as shown below. There is enough space in the exhibit hall to set up rows of up to six adjoining tables. If more seating is needed, then additional rows must be



1) Fill in the table of

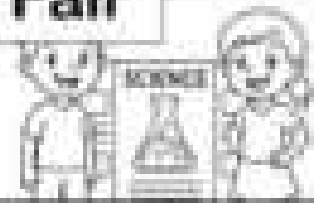
Term Number – n	Term Value – Seats
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

2) How many tables are needed for the following number of people?

a) 38 people

b) 50 people

Word Problem – Science Fair



Word Problem

Solve the question below

A history fair uses triangle-shaped tables to display student projects. Each table has 3 display panels. When triangle tables are placed in a row, they share one side with the table next to them. The room allows up to 5 tables per row. If more space is needed, a new row is started.

1) Draw _____ of one row below.

1 Table	2	4 Tables	5 Tables

2) Answer the questions.

- a) How many display panels are available with _____ tables?
- b) How many display panels are available with 8 _____?
- c) How many display panels are available with _____ table?
- d) How many tables would you need to display _____?

Workspace



Table of Values – Finding Term N

When finding a random term in a pattern, we can use a variable. Often n is used to take the place of the term number. When we use n , we can change the value to find the term value for any term number.

We can find the value for n by looking at the pattern between the term number and term value. To do this, we look across the table from the term number to the term value.

Practice Find the pattern rule when you look across the table of values.

Term Number	Term Value
1	3
2	4
3	5
4	6
5	7
6	8
7	9
8	10

$$n + 2$$

Term Number	Term Value
1	2
2	4
3	6
4	8
5	10
6	12
7	14
8	16
9	18

$$n \times 2$$

Term Number	Term Value
1	5
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45
10	50

Term Number	Term Value
1	5
2	6
3	7
4	8
5	9
6	10
7	11
8	12
9	13
10	14
11	15

Term Number	Term Value
1	3
2	6
3	9
4	12
5	15
6	18
7	21
8	24
9	27
10	30
11	33

Term Number	Term Value
10	8
15	13
20	18
25	23
30	28
35	33
40	38
45	43
50	48

Table of Values – Finding Term N

Practice

Write an expression that represents the pattern.

Term Number	Term Value
1	6
2	2
3	-2
4	-6
5	-10
8	-22

Term Number	Term Value
1	14
2	15
3	16
4	17
5	18

Term Number	Term Value
100	10
110	11
120	12
130	13
140	14
180	

Term Number	Term Value
2	0
4	2
6	4
8	6
10	8
50	

Term Number	Term Value
1	10
2	14
3	21
4	28
5	35
11	

Term Number	Term Value
1	10
2	12
3	14
4	16
90	18
200	

Word Problem

Write a table of values and find the n^{th} term.

Joe goes out looking for shells on a beach. He records how many shells he finds each day. He found 10 shells the first day, 20 shells the second day, 30 the third day, and 40 the fourth day. How many will he find on the 30th day if the pattern continues.

Finding Term N – Word Problems

Word ProblemUse a table of values and find the n^{th} term.

1) Hugh has been saving money since he was 1 years old. He is now 15. He saved \$20 when he was 1, \$40 when he was 2, \$60 when he was 3 and \$80 when he was 4.

a) If the pattern continues...

i) How much will he save when he is 10?

ii) How much will he save when he is 20?

iii) How much will he save when he is 30?



2) Pam is ramping up her exercise each week. In week 1, she exercised 40 minutes. In week 2, she exercised 80 minutes. In week 3, she exercised 120 minutes. In week 4, she exercised 160 minutes.

a) If the pattern continues...

i) How much will she exercise in week 10?

ii) How much will she exercise in week 30?

iii) How much will she exercise in one year? (week 52)



Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Emma is building a Lego tower. She started when she was 1 year old. She is now 15. She added 10 pieces to her tower when she was 1, 20 pieces when she was 2, 30 pieces when she was 3, and 40 pieces when she was 4. If the pattern continues...

a) How many pieces will she add to her tower when she is 5?

Answer: _____

b) How many pieces will she add to her tower when she is 10?

Answer: _____

c) How many pieces will she add to her tower when she is 25?

Answer: _____

Name: _____

Emma is building a Lego tower. She started when she was 1 year old. She is now 15. She added 10 pieces to her tower when she was 1, 20 pieces when she was 2, 30 pieces when she was 3, and 40 pieces when she was 4. If the pattern continues...

a) How many pieces will she add to her tower when she is 5?

Answer: _____

b) How many pieces will she add to her tower when she is 10?

Answer: _____

c) How many pieces will she add to her tower when she is 25?

Answer: _____

Name: _____

Emma is building a Lego tower. She started when she was 1 year old. She is now 15. She added 10 pieces to her tower when she was 1, 20 pieces when she was 2, 30 pieces when she was 3, and 40 pieces when she was 4. If the pattern continues...

a) How many pieces will she add to her tower when she is 5?

Answer: _____

b) How many pieces will she add to her tower when she is 10?

Answer: _____

c) How many pieces will she add to her tower when she is 25?

Answer: _____

Name: _____

Emma is building a Lego tower. She started when she was 1 year old. She is now 15. She added 10 pieces to her tower when she was 1, 20 pieces when she was 2, 30 pieces when she was 3, and 40 pieces when she was 4. If the pattern continues...

a) How many pieces will she add to her tower when she is 5?

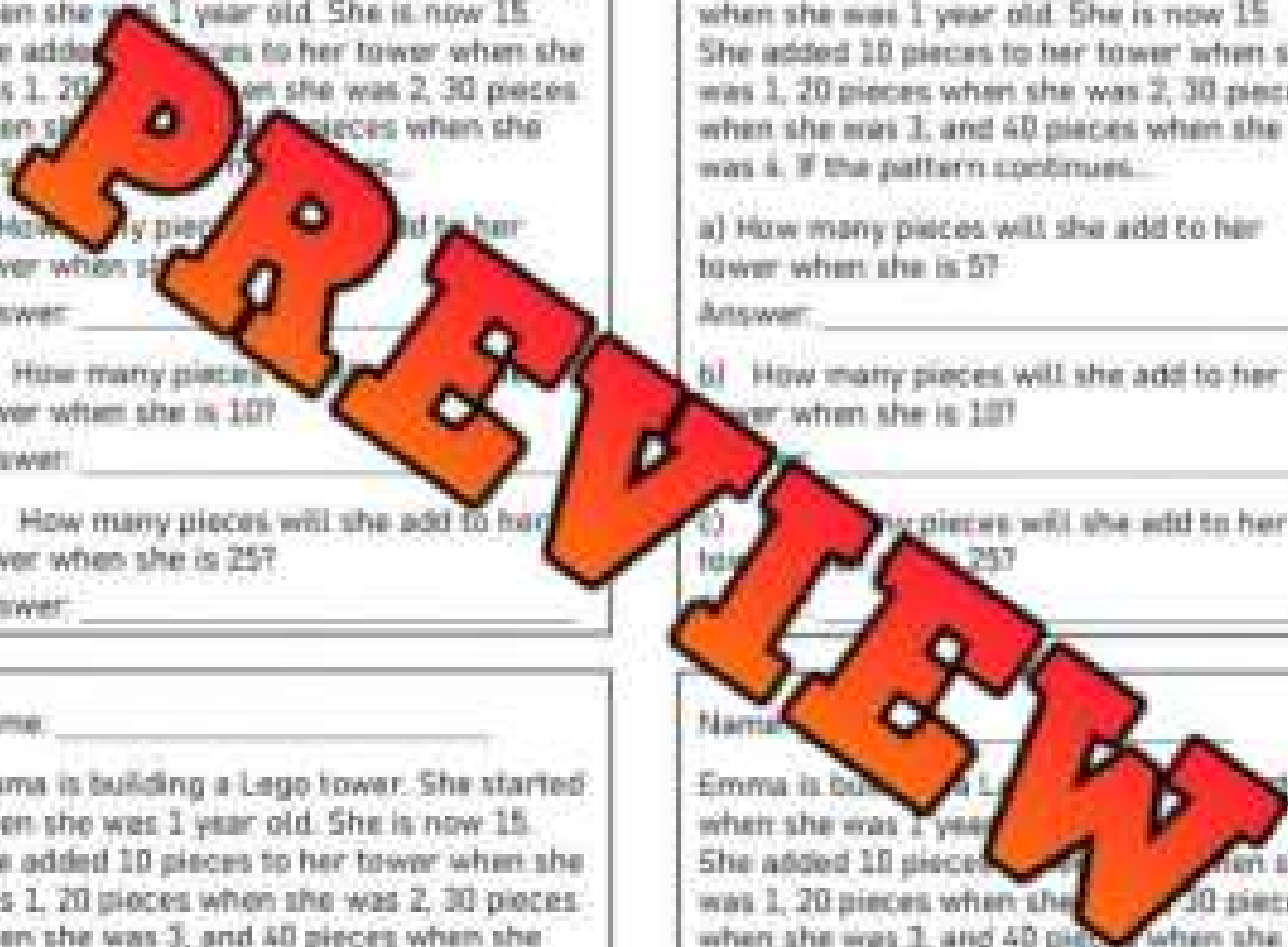
Answer: _____

b) How many pieces will she add to her tower when she is 10?

Answer: _____

c) How many pieces will she add to her tower when she is 25?

Answer: _____



Name: _____

Basketball Skills Challenge

Instructions

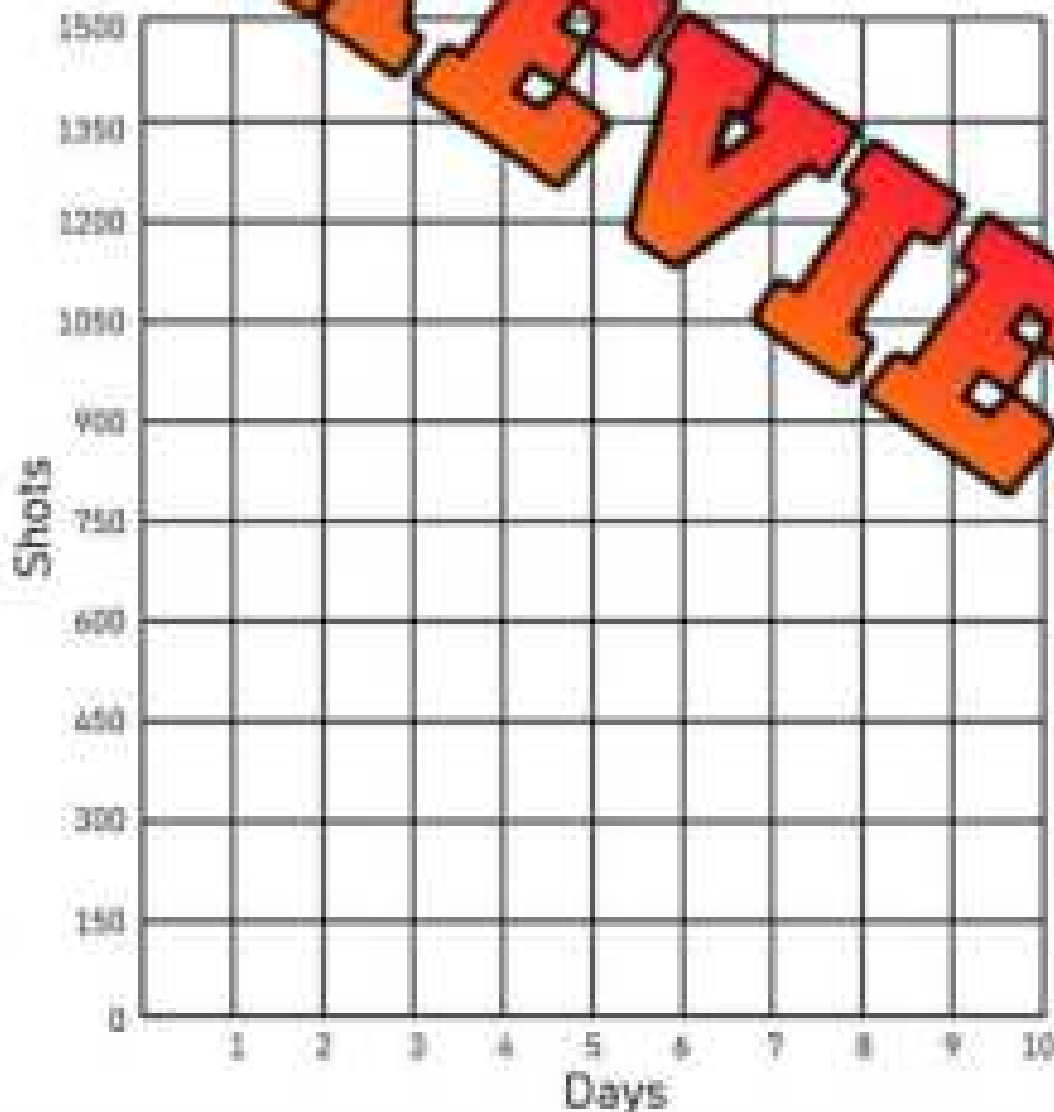
Complete the table of values and graph the results.



Connor is practicing his shooting skills in basketball. He decides to take 150 shots each day for 10 days.

Term Number (Day)	1	2	3	4	5	6	7	8	9	10
Term										

Pattern R



Questions

1. Which day did Connor finish 1000 shots?

2. How many shots did Connor take in 7 days?

3. If his friend took 200 shots for 7 days, who would have taken more? Explain.

Saving Money



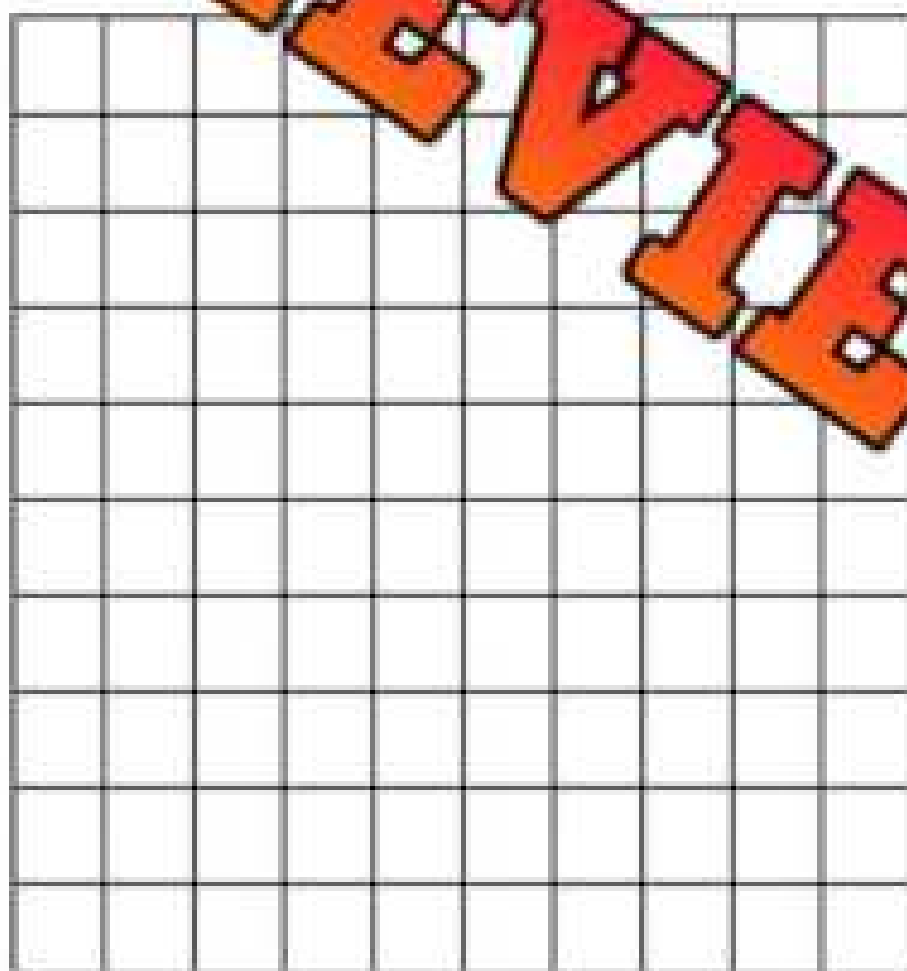
Instructions

Complete the table of values and graph the results.

Jesse is saving her pay cheques from work each week for 10 weeks. She makes \$300 each week. She is hoping she can buy a new bike for \$2500. Fill in the table below to find out.

Term No. (Week)	1	2	3	4	5	6	7	8	9	10
Term										

Pattern Rule: _____



Questions

1. Can Jesse buy her new bike after week 10?

2. How much did she have after 10 weeks?

3. If she kept saving, how many weeks would she need to save \$4200?

4. How much money would she have after 13 weeks?

The Egg Challenge

Challenge

Answer the question below. Show your thinking!

If a hen laid 3 eggs on Monday, 7 eggs on Tuesday, 11 eggs on Wednesday and the pattern continued, how many eggs would it lay on the Sunday?

PREVIEW



If the pattern continued, how many days would it take for a hen to lay 75 eggs?



Patterning - Word Problems

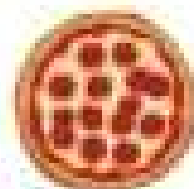
Questions

Answer the questions below

1) Heather is filling her pool with water. She doesn't want to use too much in one day, so she only fills the pool with 45L a day. The pool can hold 405L. How many days will it take her to fill the pool?



2) Graham sells pizzas for \$10 each. He sells 5 pizzas a day. How many days will it take Graham to earn \$700?



3) Tom works a summer job cleaning up playgrounds. He earns \$400 every two weeks. How much will he earn after 10 weeks?

Bonus – How many weeks will he need to work to make \$2600?



Algebra Quiz - Patterning

Part 1

Repeating A, B patterns – Label the patterns below A and B:

Part 2

Put the increasing pattern into a table of values and a graph

Fill in the table of values and the increasing pattern into a table of values and a graph by translating the growing pattern.

Term	Value

Part 3

Label the shapes below A and B and continue the increasing/decreasing patterns

1)

2)

Part 4

T-Tables

Term Number	Term Value
1	74
2	81
3	88

Term Number	Term Value
1	137
2	131
3	
4	119
5	
6	

PREVIEW

Figure 1




Figure 2

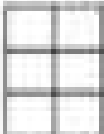


Figure 3




Figure 4




Figure	Term Value
1	
2	
3	

Part 5

Solve the word problem below. Show your work.

1) a) If you did 15 push-ups a day for 10 days, how many days would it take you to do 135 pushups?

b) On which day would you complete 105 pushups?

2) If you read 3 books on Monday, 6 books on Tuesday, 9 books on Wednesday, how many books would you read on Sunday if the pattern continued?

Part 6

Answer the questions below

At a book festival, students display their projects on square tables. Each square table has 4 display panels (one per side). When tables are placed in a straight line, they share one side with the table next to them. Each row can hold a maximum of 5 tables. If more display space is needed, a new row is added.

1) Draw a visual of one row below.

1 Table	3 Tables	4 Tables	5 Tables	

2) Answer the questions below.

a) How many display panels are on a table with 5 tables?

b) How many display panels are on a table with 8 tables?

c) How many display panels are on a table with 10 tables?

d) How many tables would you need to have 20 display panels?

space

PREVIEW

Grade 5
C2. Equations and Inequalities

	Curriculum Expectations	Pages That Cover the Expectations
C2.1	translate among words, algebraic expressions, and visual representations that describe equivalent relationships	84 - 91, 98 - 109, 117 - 125, 135 - 140, 144 - 150
C2.2	evaluate algebraic expressions that involve whole numbers	92 - 97, 101 - 102, 110 - 116, 119 - 123, 126 - 134, 137, 141 - 143, 146 - 157
C2.3	solve equations that involve whole numbers up to 100 in various contexts, and verify solutions	92 - 97, 101 - 102, 110 - 116, 119 - 123, 126 - 134, 137, 141 - 143, 146 - 150
C2.4	solve inequalities that involve one operation and whole numbers up to 50, and verify and graph the solutions	158 - 166

Equation or Expression?

An **equation** is a mathematical sentence which states that one or more quantities are equal. Equations have an equal sign with values on both sides to show they are equal. An **expression** is a mathematical sentence that does not have an equal sign.

Equation = $3 = n = 21$ or $32 + 4 = 8$

Expression = $3y + 2$ or $49 + n$

Question Is the number sentence an expression or equation?

1) $10 + 20$	2) $25 + y$
Expression Equation	Expression Equation
3) $3y + 8$	4) $2n + 5$
Expression Equation	Expression Equation
5) $8 - 4 + n = 10$	6) $10 + n$
Expression Equation	Expression Equation
7) $12 + 4 = 3$	8) $50 + 20$
Expression Equation	Expression Equation
9) $100 + n + 3$	10) $\frac{25}{n} + 10 = 15$
Expression Equation	Expression Equation
11) $\frac{40}{n} - 8$	12) $65 + 3 - n = 10$
Expression Equation	Expression Equation

Equation or Expression?

Questions

Is the number sentence an expression or equation?

<p>1) Paul has 5 cookies but needs enough for 10 people.</p> <p style="text-align: center;">$5 + c = 10$</p>	Equation	Expression
<p>2) The pattern has the following rule:</p> <p style="text-align: center;">$3n - 1$</p>	Equation	Expression
<p>3) Maria wants to run 22km this week. She has already run 22km.</p> <p style="text-align: center;">$22 + 22 = 44$</p>	Equation	Expression
<p>4) The cost to enter an arena is £20 per person plus £1 per ticket.</p> <p style="text-align: center;">$20t$</p>	Equation	Expression
<p>5) Jeff works at a garden centre and earns \$15 per hour. He can figure out his pay by using the following equation:</p> <p style="text-align: center;">$15h$</p>	Equation	Expression
<p>6) Bailey made \$200 last week working with her mom. She worked 10 hours.</p> <p style="text-align: center;">$10w = 200$</p>	Equation	Expression
<p>7) Jane had 150 candies to give away on Halloween. She has 30 left.</p> <p style="text-align: center;">$150 - c = 30$</p>	Equation	Expression
<p>8) Ashley had 200 candies to give away on Halloween. She will give 2 candies to each kid. How many kids can she give candy to?</p> <p style="text-align: center;">$200 \div 2 = k$</p>	Equation	Expression
<p>9) Candy bags come in 30 packs. The total number of candies is represented below:</p> <p style="text-align: center;">$30b$</p>	Equation	Expression

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

Is the number sentence an expression or equation? Circle the answer

1) The perimeter of a rectangle is calculated by the formula: $2(l + w)$

Expression Equation

2) Emma has read 15 pages of a book and wants to read a total of 50 pages this week.

$$15 + p = 50$$

Expression Equation

Name: _____

Is the number sentence an expression or equation? Circle the answer

1) The perimeter of a rectangle is calculated by the formula: $2(l + w)$

Expression Equation

2) Emma has read 15 pages of a book and wants to read a total of 50 pages this week.

$$15 + p = 50$$

Expression Equation

Name: _____

Is the number sentence an expression or equation? Circle the answer

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Name: _____

Is the number sentence an expression or equation? Circle the answer

1) The perimeter of a rectangle is calculated by the formula: $2(l + w)$

Expression Equation

2) Emma has read 15 pages of a book and wants to read a total of 50 pages this week.

$$15 + p = 50$$

Expression Equation

PREVIEW

Statements and Algebraic Expressions

Questions

Fill in the blanks below

Statements	Algebraic Expressions
Multiply n by 3 and add 5.	$3n + 5$
Add _____	
Subtract 4 from _____	
Multiply n by 5	
Multiply n by 2, and add 7.	
Divide 12 by n , and add 2.	
	$\frac{20 - 2}{2}$
Subtract 2 from n , multiply by 5.	
	$\frac{30}{n} - 1$

Statements and Algebraic Expressions**Questions**

Fill in the blanks below

Input	Change Rule	Output
1	Add 5	
2		
5		
n		

Input	Change Rule	Output
10	Subtract 1	
20		
30		
40		
50		
n		

Input	Change Rule	Output
2	Multiply by 3	
4		
6		
8		
10		
n		

Match the Shape to Its Formula

Instructions

Draw a line from the shape/concept to the expressions.

Shape/Concept	Possible Expressions
Perimeter of a rectangle	$(b + h) \times 2$
Perimeter of a regular pentagon	$4s$
Perimeter of a rhombus	$2l + 2w$
Perimeter of a triangle	$s + s + s + s + s$
Perimeter of a square	$s + s + s + s$
Area of a triangle	$2 \times (l + w)$
Perimeter of a parallelogram	$l = w$
Area of a square	s^2
Area of a rectangle	$l \times w$

Questions

Answer the questions below.

1) Why can the perimeter of a square be written as $4s$ instead of $s + s + s + s$?

2) Are there two shapes/concepts that have similar expressions? Explain why that is the case.

Addition – Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal.

$8 + 4 = 12$

$23 + 15 \neq 36$

$47 + 13 = 50$

Instruct:Put a slash through the equal sign (\neq) if it is not balanced

1) $7 + 10 = 17$

2) $40 + 10 = 30$

3) $48 + 7 = 45$

4) $35 + 7 = 41$

5) $20 + 20 = 40$

6) $30 + 40 = 60$

7) $61 + 9 = 70$

8) $54 + 70 = 124$

9) $67 + 7 = 74$

10) $42 + 20 = 62$

11) $54 + 14 = 67$

12) $54 + 14 = 68$

13) $61 + 14 = 65$

14) $74 + 14 = 84$

15) $66 + 12 = 76$

16) $12 + 63 = 75$

17) $80 + 8 = 88$

18) $55 + 16 = 71$

19) $11 + 81 = 92$

20) $22 + 66 = 98$

21) $56 + 43 = 99$

Addition – Which Equation Matches?

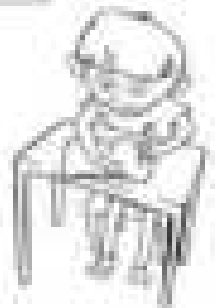
Two of the equations equal the same number, which one matches the shaded in equation?

Example

$12 + 11$

$14 + 9$

$19 + 5$



Instructions

Circle the equation that matches the shaded in equation

1) $77 + 9$

$31 + 4$

$30 + 6$

2) $36 + 12$

3

$25 + 14$

3) $42 + 18$

$51 + 9$

$47 + 12$

4) $55 + 13$

$51 + 16$

5) $72 + 15$

$75 + 12$

$52 + 33$

6) $102 + 12$

$99 + 15$

$104 + 12$

7) $124 + 24$

$131 + 16$

$129 + 19$

Pre-Algebra – Balancing Equations

Balancing equations means both sides of the equal sign must be the same.

Examples:

$$\begin{array}{c} 37 \\ \wedge \\ 22 + 15 = \boxed{37} \end{array}$$

$$\begin{array}{c} 78 \\ \wedge \\ 46 + \boxed{32} = 78 \end{array}$$

Instructions:

Fill in the missing number to balance the equation

1) $15 + \square = 28$

2) $33 + 8 = \square$

3) $54 + 3 = \square$

4) $18 + \square = 22$

5) $22 + \square = 32$

6) $32 + \square = 39$

7) $\square + 8 = 26$

8) $\square + 15 = \square + 35 = 45$

10) $45 + 14 = \square$

11) $22 + \square = 62$

9) $\square + 23 = 65$

13) $44 + \square = 88$

14) $62 + 15 = \square$

15) $72 + \square = 85$

16) $55 + \square = 89$

17) $62 + 23 = \square$

18) $17 + \square = 87$

19) $77 + \square = 98$

20) $51 + 41 = \square$

21) $57 + \square = 99$

Word Problems – Writing Addition Equations

Questions

Answer the questions below

1) Steve and James love video games. Steve has 8 games. Steve and James have 18 games in total. Which equation will tell us how many games James has?

$j + 8 = 18$	$8 + 18 = j$
$8 + j = 18$	$8 - j = 18$



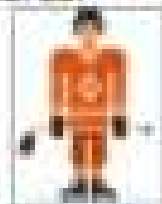
2) Jen and Rebecca are baking cookies. Rebecca made 20 cookies. They made 50 total cookies. Which equation will tell us how many cookies Jen made?

$j + 20 = 50$	$50 + c = 20$
$20 + j = 50$	$c - 20 = 50$



3) Scott and Luke love hockey cards. Scott has 25 cards and Luke has 50 cards. Which equation will tell us how many cards they have?

$c + 25 = 50$	$25 + c = 50$
$25 + c = 50$	$50 + c = 25$



4) Adam and Henry went Trick or Treating. Henry got 62 candies. They got 121 candies in total. Which equation will tell us how many candies Adam got?

$62 + c = 121$	$62 + 121 = c$
$c + 62 = 121$	$62 - c = 121$



5) Sam scored 15 points in his basketball game. He had 5 points in the first half. Which equation will tell us how many points he had in the second half?

$p + 5 = 15$	$5 + 15 = p$
$5 - p = 15$	$5 + p = 15$



Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

Jacob, Emily and Lucas have \$300 together. Jacob has \$100 and Emily has \$120. Which equation will tell us how much money Lucas has?

- a) $100 + 120 + l = 300$
- b) $l + 100 + 120 = 300$
- c) $300 = 100 + 120 + l$
- d) All of the above

Name: _____

Jacob, Emily and Lucas have \$300 together. Jacob has \$100 and Emily has \$120. Which equation will tell us how much money Lucas has?

- a) $100 + 120 + l = 300$
- b) $l + 100 + 120 = 300$
- c) $300 = 100 + 120 + l$
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- c) $300 = 100 + 120 + l$
- d) All of the above

Name: _____

Jacob, Emily and Lucas have \$300 together. Jacob has \$100 and Emily has \$120. Which equation will tell us how much money Lucas has?

- a) $100 + 120 + l = 300$
- b) $l + 100 + 120 = 300$
- c) $300 = 100 + 120 + l$
- d) All of the above

PREVIEW

Word Problems – Solving Addition Equations

Questions

Write the algebraic equations and answer the question.

1) Tim drove 138 km to get to work. Then he drove to the store. When he got to the store, he had driven 195 km in total. How many km did he drive to the store (s)?



2) Steve got 120 points for beating level 1 in a video game. He got 68 more points for beating level 2. How many total points (t) did he have after level 2?

Bonus – He had 100 points for beating level 3. How many points did he get in level 3 (l)?



3) The Lakers scored 122 total points in a game against the Toronto Raptors. Kobe Bryant had 81 points for the Lakers. How many points (p) did the rest of the team have?



4) Jessica's boat can hold a whopping 200 litres of gas. She went out on a boat ride and used up all the gas in her tank. When she docked the boat after she was done, the tank had 40 litres left. How many litres (l) did she use?



5) Becca had \$187 in her bank account. She deposited some more money after she babysat for a summer. Now she has \$410. How much money (m) did she make babysitting?



PREVIEW

Solving Addition Equations – Shopping Trip

Questions

Solve the problems below. The first one is done for you.

1) Jan spent x amount of dollars on new clothes at the mall. She bought jeans (j) for \$79, a shirt (s) for \$35, and a hat (h) for \$49. Find the value of x .

Equation: $x = j + s + h$

$x = 79 + 35 + 49$

$x = 163$ Therefore, Jan spent \$163.



2) Holly spent x amount of dollars at pet store. She bought dog food (f) for \$59 and bones (b) for \$29. She also bought a new dog toy (t) for \$22. How much did she spend? Find the value of x .

Equation: _____



3) Josiah spent \$510 total (t) at a sport store. He bought new skates (s) for \$310, new gloves (g) for \$120, and a new pair of shoes (h) for n dollars. How much is n worth?

Equation: _____



Therefore, _____

4) Barry bought 3 new t-shirts (s) that all cost the same amount of price of \$186. How much is s worth?

Equation: _____ or _____



Therefore, _____

5) Henry bought a new computer setup for a total (t) of \$799. He bought a computer for c number of dollars. He also bought a keyboard (k) for \$44 and a mouse (m) for \$35. How much is c worth?

Equation: _____



Therefore, _____

Subtraction – Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal

$12 - 4 = 8$

$42 - 11 = 30$

$34 - 17 = 17$

Instructions:

Put a slash through the equal sign (=) if it is not balanced

1) $15 - 3 = 12$	2) $17 - 4 = 14$	3) $20 - 7 = 13$
4) $28 - 11 = 17$	5) $35 - 7 = 28$	6) $42 - 10 = 33$
7) $48 - 14 = 34$	8) $45 - 14 = 31$	9) $57 - 14 = 44$
10) $62 - 12 = 50$	11) $68 - 15 = 52$	12) $70 - 12 = 58$
13) $78 - 22 = 55$	14) $74 - 13 = 61$	15) $84 - 13 = 74$
16) $89 - 0 = 0$	17) $91 - 11 = 80$	18) $86 - 15 = 72$
19) $95 - 30 = 65$	20) $97 - 16 = 82$	21) $77 - 26 = 51$

Subtraction – Which Equation Matches?

Two of the equations equal the same number. Which one matches the shaded in equation?

Example

$19 - 8$

$15 - 4$

$21 - 9$



Instructions

Circle the equation that matches the shaded in equation

1)

$47 - 11$

$38 - 9$

$45 - 15$

2)

$53 - 11$

6

$51 - 6$

3)

$73 - 8$

70

$78 - 12$

4)

$87 - 12$

$84 - 10$

5)

$103 - 12$

$99 - 8$

$105 - 13$

6)

$121 - 13$

$115 - 6$

$120 - 12$

7)

$136 - 15$

$139 - 18$

$141 - 22$

Matching Game: Do The Equations Match

Objective

What are we learning about?

To enhance students' understanding of equality within addition and subtraction equations. Students will identify and match pairs of equations that yield the same result, fostering critical thinking and problem-solving skills in a collaborative group setting.

Materials: _____ will need for the activity

- Pre-prepared addition and subtraction cards.
- Small bags or envelopes to hold the cards for each group.



Instructions

How you will complete the activity

1. Before the class, the teacher will cut out the prepared matching game cards.
2. Divide the students into small groups and give each group a small envelope containing a set of the matching cards.
3. In their groups, students will spread out the cards face down on their table.
4. Each person takes a turn to try to match two cards. They will need to solve both equations to see if they match (equal the same).
5. If they find a correct match, they keep the cards out and continue with their next turn. If the cards don't match, they turn them back over in the same place, and the next player takes a turn.
6. The activity continues until all pairs are correctly matched within each group.

Cards

Matching Game Cards

$10 + 15$

$20 + 5$

$30 - 0$

$100 + 50$

$15 + 25$

$90 - 30$

$60 -$

$75 + 25$

$100 + 0$

PREVIEW

Cards

Matching Game Cards

$200 - 50$

$150 - 0$

PREVIEW

$150 + 50 - 0$

$140 - 40$

$140 - 80$

$60 + 20$

$70 + 10$

$180 - 80$

$100 + 90 - 10$

Cards

Matching Game Cards

$110 + 50$

$120 + 40$

$150 + 20 - 10$

$130 + 40$

$140 + 30$

$170 - 70$

$120 + 20 - 20$

$90 + 90$

$150 + 30$

PREVIEW

Cards

Matching Game Cards

$200 + 50 - 30$

$210 + 10 - 0$

$100 + 40 - 10$

$130 + 0$

$60 + 50 - 10$

$70 + 30$

$150 + 20 - 10$

$140 + 10$

$220 - 70 + 30$

$180 + 0$

PREVIEW

Pre-Algebra – Balancing Subtraction Equations

Balancing equations means both sides of the equal sign must be the same.

Examples:

$$\begin{array}{c} 16 \\ \swarrow \searrow \\ 24 - 8 = \boxed{16} \end{array}$$

$$\begin{array}{c} 29 \\ \swarrow \searrow \\ 45 - 16 = \boxed{29} \end{array}$$



Instructions:

Fill in the missing number to balance the equation

1) $23 - 4 = \square$

2) $28 - 4 = \square$

3) $32 - 7 = \square$

4) $15 - \square = 5$

5) $17 - \square = 9$

6) $22 - \square = 11$

7) $\square - 8 = 13$

8) $\square - 7 = \square - 12 = 12$

10) $43 - 11 = \square$

11) $64 - \square = 44$

9) $17 - \square = 14$

13) $71 - \square = 58$

14) $77 - 12 = \square$

15) $65 - \square = 49$

16) $85 - \square = 67$

17) $74 - 15 = \square$

18) $86 - \square = 72$

19) $90 - \square = 60$

20) $86 - 16 = \square$

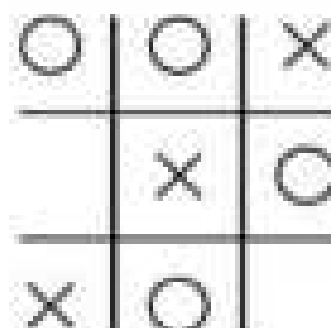
21) $98 - \square = 85$

Math Tic-Tac-Toe: Solving Variables

Objective

What are we learning about?

To help students practice solving subtraction equations involving variables in a fun and interactive way through a Tic-Tac-Toe game.



Materials

What will need for the activity?

- Tic-Tac-Toe boards

Instructions

How you will play.

1. Find a partner to play the game with.
2. The goal is to solve the algebraic equations and place your marker (X or O).
3. One player will be "X" and the other will be "O".
4. Take turns choosing a square and solving the equation in that square and the value of the variable.
5. Write down the solution below the equation and place your marker (X or O) in the square.
6. If a player chooses a square and solves the equation incorrectly, they do not get to place their marker in that square. The other player gets a chance to solve it correctly and place their marker.
7. The first player to get three markers in a row (horizontally, vertically, or diagonally) wins the game. Continue playing with different tic-tac-toe grids on the sheet.

Tic-Tac-Toe

Use the following tic-tac-toe grids for the game.

$x - 3 = 5$	$8 - y = 2$	$z - 4 = 6$
$y - 2 = 3$	$10 - x = 4$	$w - 5 = 7$
$6 - z = 1$	$1 = 5$	$n - 6 = 2$

$h - 5 = 2$	$i - 3 = 6$	$j - 7 = 3$
$k - 2 = 9$	$l - 1 = 8$	$m - 4 = 7$
$39 - h = 9$	$38 - i = 7$	$37 - j = 8$

$b - 4 = 5$	$c - 3 = 6$	$d - 2 = 7$
$e - 1 = 8$	$f - 2 = 7$	$g - 5 = 4$
$37 - b = 9$	$36 - c = 8$	$35 - d = 7$

$v - 5 = 3$	$w - 2 = 7$	$x - 4 = 5$
$y - 3 = 6$	$z - 3 = 6$	$a - 6 = 2$
$35 - v = 4$	$34 - w = 3$	$33 - x = 7$

$p - 6 = 2$	$q - 4 = 5$	$r - 5 = 3$
$s - 1 = 8$	$t - 2 = 9$	$u - 3 = 7$
$33 - p = 9$	$32 - q = 8$	$31 - r = 7$

$j - 5 = 4$	$k - 3 = 6$	$l - 6 = 1$
$m - 2 = 9$	$n - 1 = 8$	$o - 4 = 7$
$31 - j = 8$	$30 - k = 9$	$29 - l = 7$

PREVIEW

Word Problems – Writing Subtraction Equations

Questions

Answer the questions below

1) Harry bought 15 donuts. Him and a friend ate 5 of them. Which equation will tell us how many donuts there are left?

$$d - 5 = 15$$

$$15 - 5 = d$$

$$5 + d = 15$$

$$5 - d = 15$$

2) Kevin and his friends were having a fire. They had 18 logs for the fire. After the fire, they only had 4 logs left. Which equation tells us how many logs they burned?

$$b - 4 = 18$$

$$18 - 4 = b$$

$$4 - b = 18$$

$$4 - b = 18$$



3) Tom collected 73 shells on the beach. He gave 13 shells to his sister. Now he has 60 shells left. Which equation tells us how many shells he gave to his sister?

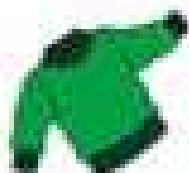
$$73 - s = 60$$

$$60 - s = 73$$

$$s - 60 = 73$$

$$s - 60 = 73$$

4) Courtney saved 75 dollars. She bought a new sweater. She now has 45 dollars left. Which equation tells us how much the sweater cost?



$$75 - s = 45$$

$$75 - 45 = s$$

$$45 + s = 75$$

$$s - 45 = 75$$

5) The movie is 93 minutes long. They have watched 31 minutes. Which equation tells us how many minutes are left?

$$m - 31 = 93$$

$$93 - 31 = m$$

$$31 + m = 93$$

$$31 - m = 93$$



Word Problems – Solving Subtraction Equations**Instructions**

Solve the word problems using equations and variables

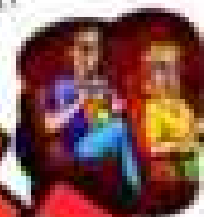
1) Bridgette started the weekend with \$214 in her bank account. She went shopping (s) at the mall and now had \$76. How much did she spend at the mall?



2) Sarah found 100 eggs during her Easter egg hunt. She gave some to her friends and now has 35 eggs left. How many did she give (g) away?



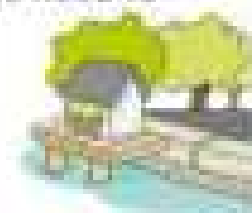
3) There are 128 minutes in a movie. Tom is watching it. He watches 41 minutes and then pauses the movie for popcorn. How many minutes (m) are left?



4) Jeremy is climbing Mount Everest to Base Camp. It is 5,464 metres high. He has a break with 1,100m left. How many metres has he climbed (c) already?



5) Pam is driving to her cottage in northern Alberta. The total distance is 721km. She has driven 315km already. How much more distance (d) does she need to drive?



Math Activity Title: Algebraic Bottle Flip Challenge**Objective**

What are we learning about?

To practice and reinforce understanding of basic one-step subtraction algebra problems through the engaging and physically active bottle flip game.

**Materials**

What you will need for the activity

- One plastic bottle (per pair/group) filled to approximately one-third with water
- Set of subtraction algebra cards
- Answer sheet for each group

Instructions

How you will do the activity

1. Start with a short lesson on one-step subtraction problems, using examples like $x - 3 = 4$.
2. Arrange the students into pairs or small groups. Give each group a bottle and a set of question cards to each.
3. Each pair or group receives an answer sheet to record their answers.
4. Explain the rules: One student draws a question card and solves the subtraction algebra problem.
5. Once they believe they have the correct answer, they write it on the answer sheet.
6. The student then gets to attempt a bottle flip. After answering each question, the student gets only one flip. After they flip their bottle, they should keep track of successful flips and unsuccessful flips.
7. Alternate turns within each group or pair until they have completed all the question cards.
8. Groups or pairs tally their successful flips and compare with the rest of the class to determine the winning team (team with the most successful flips/correct answers). For incorrect answers, deduct a point from their successful bottle flips.
9. Go through the answer sheet with the class to ensure understanding and correct any misconceptions.
10. Discuss the strategies used to solve the subtraction problems and how this type of algebra is used in real-life situations.

Questions

Cut out the questions below and use for the game

1) $x - 12 = 68$	2) $b - 13 = 37$	3) $150 - d - 8 = 92$	4) $167 - 10 - 23 = w$
5) $y - 9 = 41$	6) $n - 5 = 35$	7) $92 - g - 18 = 52$	8) $238 - t - 117 = 43$
9) $m - 16 = 74$	10) $p - 17 = 33$	11) $r - 20 - 12 = 58$	12) $v - 158 - 14 = 118$
13) Kelli had 45 stickers and lost some. Now she has 28. How many did she lose?	14) Sam had 60 marbles and lost some. Now he has 42. How many did he lose?	15) Sara set aside \$400 for school supplies. She spent \$90 on notebooks, \$125 on textbooks, and some amount on art supplies. She has \$125 left for pens and pencils. How much did she spend on art supplies?	16) Sophia decides to use \$550 for car repairs. She spent some amount on new tires, \$150 on brake pads, and \$100 on an oil change. She has \$100 left for a car wash. How much did she spend on new tires?
17) Dylan had 70 candies and gave some away. Now he has 55. How many did he give away?	18) Eva had 90 crayons and broke some. Now she has 65. How many did she break?	19) Daniel had \$700. He spent some amount on a jacket, \$180 on a hat, and \$100 on shoes. He has \$220 left for a new rug. How much did he spend on paint?	20) The Johnsons plan to improve their home. They have \$500 for a party. They spent some amount on decorations, \$150 on food, and \$100 on gifts. They have \$50 left for a new rug. How much did they spend on the party?
21) Lucy had a number of balloons. She gave 10 to her friend and now has 40 left. How many balloons did Lucy start with?	22) Mike had a number of books. He gave 12 to his friend and now has 30 left. How many books did Mike start with?	23) Liam and Olivia have \$350 for a weekend getaway. They spent \$100 on gas, some amount on lunch, and \$85 on souvenirs. They have \$95 left for dinner. How much did they spend on lunch?	24) Emma and Noah budget \$300 for dinner out for 3 nights. They spent \$75 on the first dinner, some amount on the second dinner, and \$97 left for the third dinner. How much did they spend on the second dinner?

Algebraic Bottle Flip Challenge**Answers**

Record your answers below.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

PREVIEW

Multiplication – Which Equation Matches?

Two of the equations equal the same number. Which one matches the shaded in equation?

Example

2×3

1×6

4×2



Instructions

Circle the equation that matches the shaded in equation

1)

4×4

9×2

8×2

2)

9×2

6×4

3)

6×4

8×3

9×3

4)

8×5

9×4

5)

4×3

6×2

5×3

6)

6×6

7×5

9×4

7)

5×6

10×3

8×4

Pre-Algebra – Balancing Multiplication Equations

Balancing equations means both sides of the equal sign must be the same.

Examples:

$$\begin{array}{c} 18 \\ \swarrow \quad \searrow \\ 6 \times 3 = \boxed{18} \end{array}$$

$$\begin{array}{c} 16 \\ \swarrow \quad \searrow \\ 4 \times 4 = \boxed{16} \end{array}$$



Instructions:

Fill in the missing number to balance the equation

1) $6 \times \boxed{} = 18$

2) $4 \times 3 = \boxed{}$

3) $5 \times \boxed{} = 35$

4) $3 \times \boxed{} = 12$

5) $\boxed{} \times 5 = 10$

6) $\boxed{} \times 5 = 25$

7) $7 \times 10 = \boxed{}$

8) $4 \times \boxed{} = 20$

9) $7 \times \boxed{} = 21$

10) $7 \times 3 = \boxed{}$

11) $4 \times \boxed{} = 16$

12) $4 \times 6 = \boxed{}$

13) $7 \times \boxed{} = 63$

14) $8 \times 6 = \boxed{}$

PREVIEW

Multiplication – Find the Variable

When we multiply a number by a variable, we do not need to use the multiplication sign. It is known that any variable next to a number means the operation we are using is multiplication.

Example: $7n = 14$ means $7 \times n = 14$

We can figure out the unknown number by balancing the equation.
In this equation, $n = 2$.



Instructions: Find out the value of the variable

1) $3n = 6$ $n =$	2) $n \times 8 = 16$ $n =$
3) $10 \times 4 = p$ $p =$	4) $5 \times 11 = m$ $m =$
5) $3n = 18$ $n =$	6) $7 \times 3 = k$ $k =$
7) $5n = 25$ $n =$	8) $6 \times 4 = t$ $t =$
9) $3n = 24$ $n =$	10) $10n = 100$ $n =$
11) $9s = 27$ $s =$	12) $5 \times 8 = s$ $s =$

Division – Are They Equal?

Are the equations equal? Put a slash through the equal sign for any equations that are not equal.

$8 \div 2 = 5$

$9 \div 3 = 3$

$15 \div 3 = 3$



Instruct

Put a slash (\neq) through the equal sign if it is not balanced

$2) 20 \div 10 = 10$

$3) 9 \div 3$

$4) 16 \div 2 = 6$

$5) 25 \div 5 = 5$

$6) 4 = 7$

$7) 42 \div 7 = 7$

$8) 8$

$9) 32 \div 8 = 3$

$10) 48 \div 8 = 6$

$11) 64 \div 8 = 6$

$12) 24 \div 12 = 2$

$13) 33 \div 3 = 3$

$14) 55 \div 11 = 5$

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

Put a slash (/) through the equal sign if it is not balanced

- 1) $45 + 5 = 8$
- 2) $72 + 8 = 9$
- 3) $40 + 8 = 6$
- 4) $100 + 20 = 5$

Name: _____

Put a slash (/) through the equal sign if it is not balanced

- 1) $45 + 5 = 8$
- 2) $72 + 8 = 9$
- 3) $40 + 8 = 6$
- 4) $100 + 20 = 5$

Name: _____

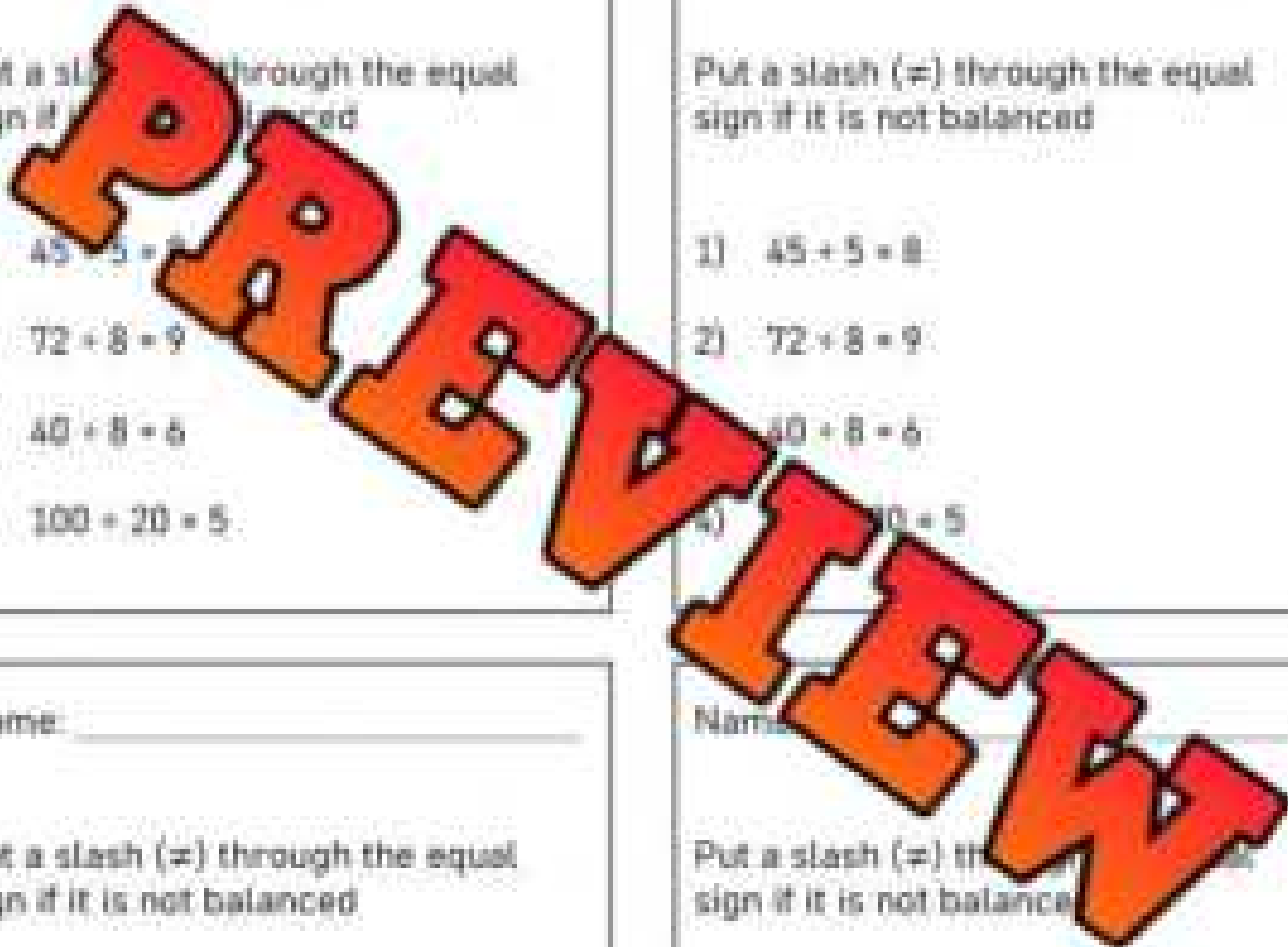
Put a slash (/) through the equal sign if it is not balanced

- 1) $45 + 5 = 8$
- 2) $72 + 8 = 9$
- 3) $40 + 8 = 6$
- 4) $100 + 20 = 5$

Name: _____

Put a slash (/) through the equal sign if it is not balanced

- 1) $45 + 5 = 8$
- 2) $72 + 8 = 9$
- 3) $40 + 8 = 6$
- 4) $100 + 20 = 5$



Division – Which Equation Matches?

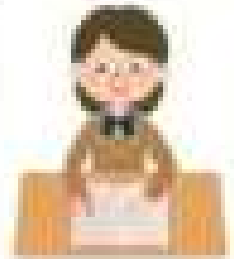
Two of the equations equal the same number. Which one matches the shaded in equation?

Example

$12 \div 4$

$9 \div 3$

$16 \div 4$



Instruct

Circle the equation that matches the shaded in equation

1)

$20 \div 5$

$10 \div 2$

$12 \div 2$

2)

$18 \div 3$

 6

$60 \div 10$

3)

$28 \div 4$

$42 \div 7$

$49 \div 7$

4)

$45 \div 5$

$18 \div 2$

5)

$36 \div 6$

$18 \div 3$

$16 \div 4$

6)

$24 \div 3$

$45 \div 5$

$40 \div 5$

7)

$32 \div 8$

$27 \div 9$

$28 \div 7$

Pre-Algebra – Balancing Division Equations

Balancing equations means both sides of the equal sign must be the same.

Examples:

$$15 \div 3 = \boxed{5}$$

$$10 \div 2 = \boxed{5}$$



Question: Fill in the missing number to balance the equation

1) $18 \div \boxed{} = 6$

2) $12 \div 3 = \boxed{}$

3) $15 \div \boxed{} = 5$

4) $22 \div \boxed{} = 2$

5) $\boxed{} \div 4 = 4$

6) $\boxed{} \div 5 = 5$

7) $42 \div 6 = \boxed{}$

8) $56 \div \boxed{} = 8$

9) $28 \div \boxed{} = 4$

10) $100 \div 10 = \boxed{}$

11) $36 \div \boxed{} = 6$

12) $63 \div 9 = \boxed{}$

13) $80 \div \boxed{} = 10$

14) $81 \div 9 = \boxed{}$

Word Problems – Writing Division Equations

Questions

Answer the questions below

1) Neil has 180 crayons that he wants to split into equal groups of 20. Which equation shows how many groups (g) of 20 he will have?

$$g + 180 = 20$$

$$\frac{180}{20} = g$$

$$\frac{g}{20} = 180$$

$$180 + g = 20$$



2) Kaitlyn is making treats for a big party. She wants to have 2 treats for each friend. If she has 25 friends, how many treats (t) she will need?

$$\frac{t}{2} = 25$$

$$25 + t = 2$$

$$\frac{t}{25} = 2$$



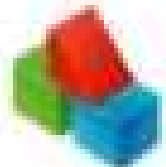
3) The kindergarten class has 300 blocks. If there are 15 students, which equation shows how many blocks (b) each student can have?

$$\frac{300}{15} = b$$

$$\frac{15}{b} = 300$$

$$b + 300 = 15$$

$$b = 300$$



4) Mrs. Wilson brought in 90 candies for her students. She has 30 students. Which equation shows how many candies (c) each student will get?

$$c + 90 = 30$$

$$\frac{90}{30} = c$$

$$90 + c = 30$$

$$30 + c = 90$$



5) Mr. Rogers is donating \$1000 to different charities. He gives \$200 to the charities of his choice. Which equation shows how many charities (c) he donated to?

$$c + 1000 = 200$$

$$1000 = 200 + c$$

$$200 + c = 1000$$

$$\frac{1000}{c} = 200$$



Word Problems – Solving Division Equations**Questions**

Solve the word problems using equations and variables.

1) Mary bought 56 burgers that came packed in packs of 8. How many packs did she buy?



2) Cooper scooped 48 scoops of ice cream evenly onto 8 cones. How many scoops did each cone get?



3) Jade is putting 72 onions into boxes. Each box holds 8 onions. How many boxes does he need?



4) A group of 9 friends buys a bunch of cookies. Each friend gets 6 cookies. How many cookies did they buy?



5) In gym class, a group of 49 students were divided into 7 groups. How many students are in each group?



Math Pictionary: Division Equations Challenge

Objective

What are we learning about?

To reinforce students' understanding and application of division through solving word problems in a fun and interactive drawing game.



Materials

What you will need for the activity

- Index cards
- Markers of various colors
- Whiteboard or chalkboard
- Timer or stopwatch

Instructions

How you will play

1. Prepare a stack of index cards with division problems.
2. Divide the class into two teams.
3. One student from Team A will draw a card and write the equation on the whiteboard.
4. Team B works together to solve the equation as quickly as possible in the correct order of operations. They have 1 minute to discuss and solve the equation.
5. If Team B solves the equation correctly within the time limit, they earn a point. If they answer incorrectly, Team A has a chance to solve it and earn a point.
6. Next, a student from a winning team (either team A or B) writes an equation on the board, and the other team works together to solve it.
7. Alternate turns between the teams, ensuring that each student gets a chance to write an equation on the board.
8. Continue the game until all index cards have been used or the designated game time is up.
9. Keep track of the points on a scoreboard. The team with the most points at the end of the game wins.

Math Equations

Cut out the equations below

Index Cards

There are 24 candies, and each child gets 4. How many children are there?

A farmer has 48 apples and packs them into bags with 6 apples each. How many bags does he need?

A classroom has 30 desks and 5 tables. How many students sit at each table?

There are 56 books on shelves, and each shelf holds 8 books. How many shelves are there?

A baker has 36 cupcakes and packs them into boxes of 6. How many boxes does he need?

A library has 72 books and wants to distribute them into 9 groups. How many books are in each group?

There are 40 marbles, and each jar can hold 5 marbles. How many jars are needed?

A teacher has 90 pencils and gives 10 pencils to each student. How many students get pencils?

A family has 20 oranges and divides them into 4 equal bags. How many oranges are in each bag?

A gardener has 50 flowers and plants them in rows of 5. How many rows are there?

There are 80 students, and they are divided into groups of 8. How many groups are there?

A store has 64 boxes of crayons and arranges them into 8 stacks. How many boxes are in each stack?

Division – Bar Model**Instructions**

Use the bar model to answer the division questions below.

1) $56 \div 8$

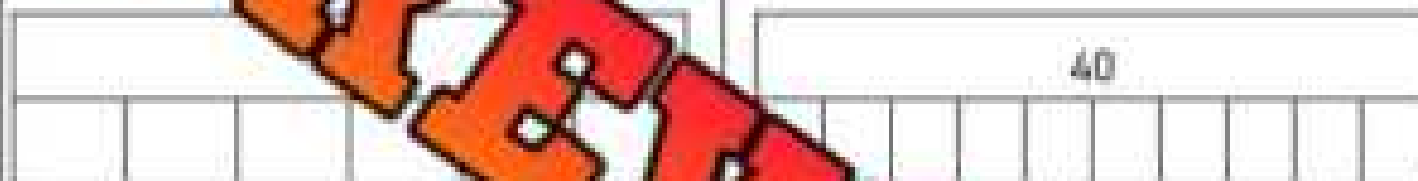


2) $28 \div 4$

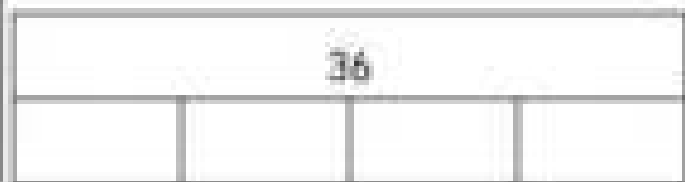


3)

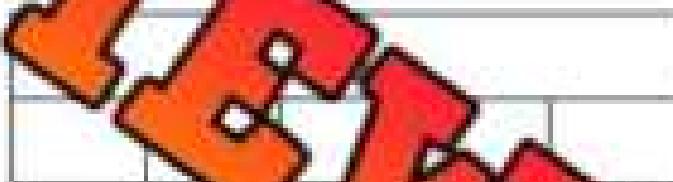
$40 \div 10$



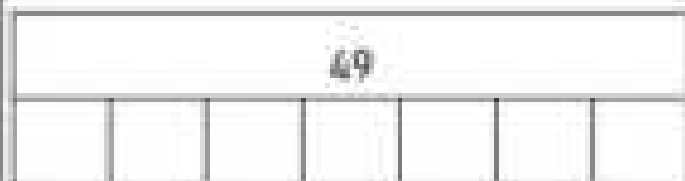
5) $36 \div 4$



6) $35 \div 5$



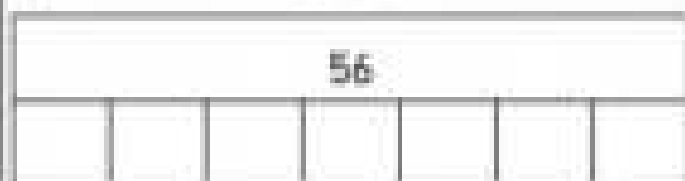
7) $49 \div 7$



8) $63 \div 7$



9) $56 \div 7$



10) $32 \div 4$



Division Word Problems – Bar Model

Instructions

Use the bar model to answer the division questions below

1) Richard has 48 candies to give away to his 6 friends. How many candies will each friend get?



48			

Division Equation Sentence: _____

2) Emma and her 5 friends made \$66 at a bake sale. How much money will each of the friends get?

66			



Division Equation Sentence: _____

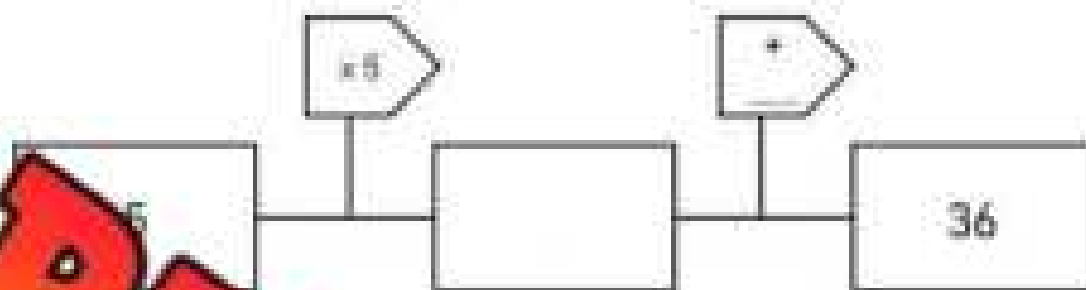
□	=	
□		

Flag Diagrams

Questions

Fill in the blanks to complete the flag diagrams below

1)



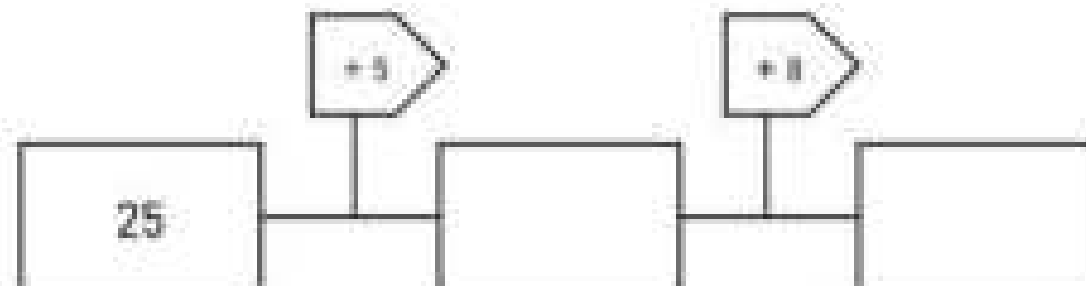
2)



3)



4)

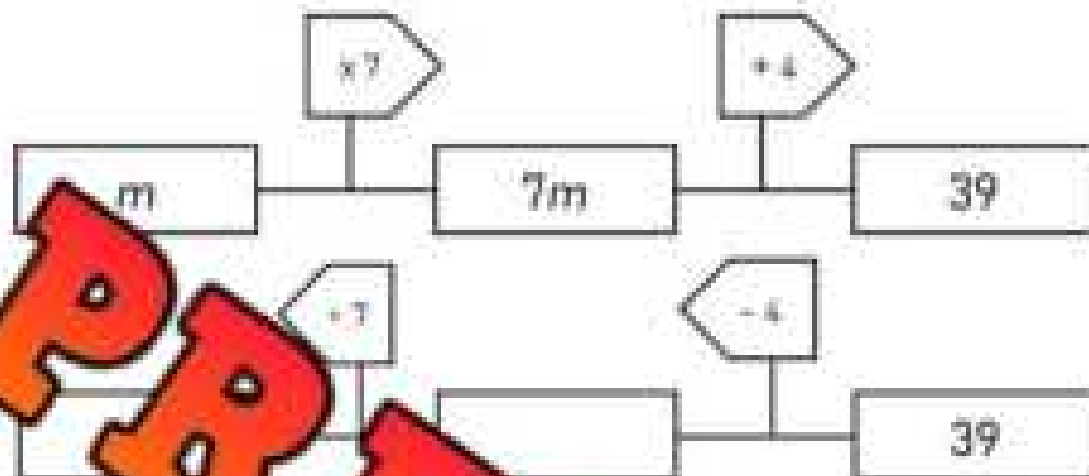


Reverse Flag Diagrams

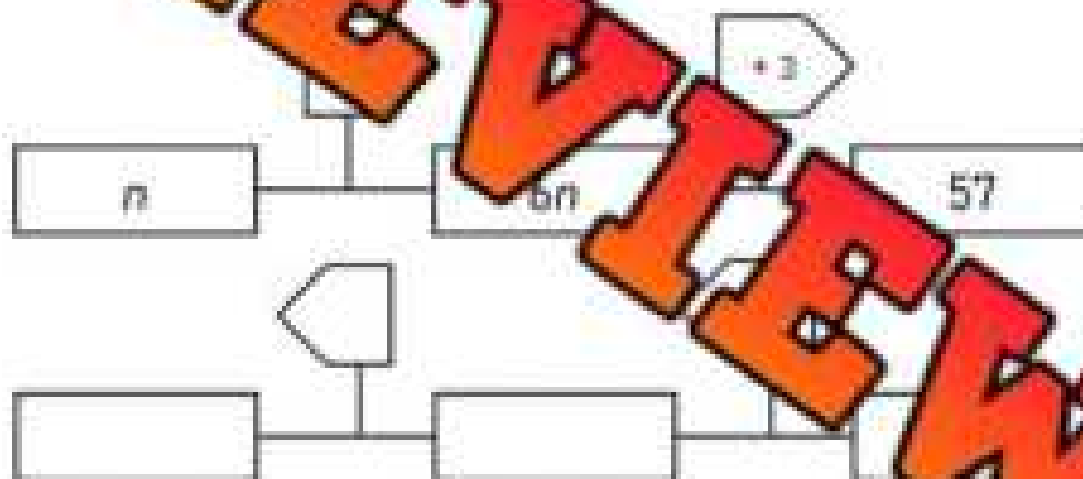
Questions

Fill in the blanks to complete the flag diagrams below

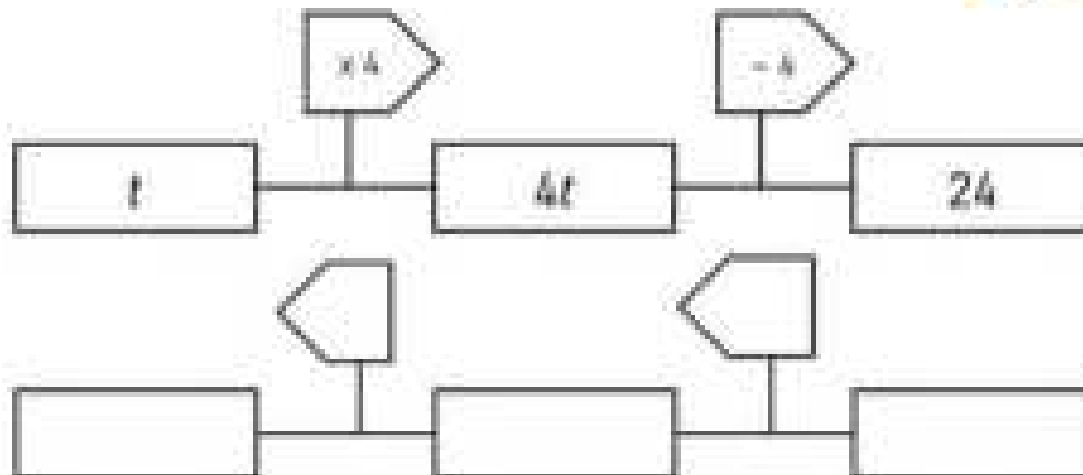
1)



2)



3)



Algebra Jeopardy

Objective

What are we learning about?

To reinforce students' understanding of basic algebraic concepts and their application to solve simple equations and word problems in a fun and competitive game format.

Materials

What you will need for the activity.

- Jeopardy board (see next page)
- Buzzer or bell



Instructions

How you will complete the activity.

1. Print the Jeopardy board on the next page.
2. Divide the class into two teams.
3. Ask one team to go first by selecting a point value.
4. Read the question aloud from the point value.
5. The first team to ring the bell or buzzer gets to answer.
6. If they answer correctly, award them the points. If not, another team can answer.
7. Continue the game until all questions have been answered.
8. Tally the points to determine the winning team.
9. Conclude by discussing what they learned about the topic in the questions.

Jeopardy Questions

Ask students the questions below

\$100	\$200	\$300	\$400	\$500
$2x = 6$. Find x .	$4y = 24$. Find y .	$5z = 10 - 25$. Find z .	If 3 apples cost \$15, what is the cost per apple?	Jack has twice as many toy cars as Oliver. If the total is 18 cars, how many does Oliver have?
$k + m = 12$. Find k .	$10 = 2t + 6$. Solve for t .	If there are 28 apples in a basket and the number of apples is 4 times the number of oranges, how many oranges are there?	Sophia's sister is 30 years old. She is 4 years older than twice Sophia's age. How old is Sophia?	
$8 - p = 3$. Find p .	$7e - 14 = 21$. What is e ?	If Sam had 45 marbles and lost 12, how many does he have left?	A rectangle has a perimeter of 120 cm. If the length is twice the width, what are the length and width?	
$3 + n = 9$. Find n .	$2d + 4 = 14$. Find d .	$18 = 3b - 3$. Find b .	Tom has 3 times as many books as Jerry. Together they have 20 books. How many books does each have?	
$10 - 2 = 7$	$6 + c = 2$. Find c .	$4r + 5 = 29$. Find r .	John had 80 pencils. After using some for his art projects, he now has 55 pencils left. How many pencils did he use?	Jason is 12 years old. He is 8 years older than twice his brother's age. How old is his brother?
$5 + x = 3$. What is x ?	$15 = 3 + 7$	$20 = 5 + 25 = 7$	There are 16 marbles in a jar. If you have 4 times as many marbles as Sarah, how many does Sarah have?	Emma's aunt is 36 years old. She is 12 years older than three times Emma's age. How old is Emma?

PREVIEW

Introduction to Inequalities

Inequalities are used to tell the relative size of two expressions or numbers. We can use the greater than sign ($>$), or the smaller than sign ($<$). We can also use a new sign (\geq) to show that a value is equal to or greater/less than the other value.

We often use a number line to graph the range of values that hold true for an inequality. An open dot on a number line is used when an inequality involves "less than" or "greater than", and a closed dot is used when it also includes "equal to".

Examples:



Questions

Graph the inequality on the number line and write the word form.

1) $x \geq 9$



Word Form - x is greater than or equal to 9.

2) $x \leq 13$



Word Form - _____

3) $x < 18$



Word Form - _____

4) $x > 15$



Word Form - _____

5) $x \geq 6$



Word Form - _____

6) $x \leq 3$



Word Form - _____

Introduction to Inequalities

Part 1

Graph the inequality on the number line and write the word form

1) $x > 2$



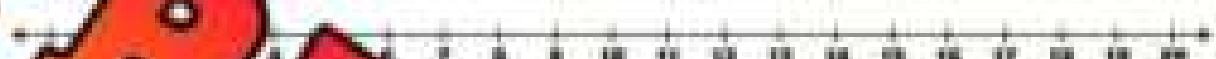
Word Form - _____

2) $x \leq 14$



Word Form - _____

3) $x < 1$



Word Form - _____

4) $x > 4$



Word Form - _____

5) $x \geq 7$



Word Form - _____

Part 2

Write the inequality shown by each number line

1)



Answer

2)



Answer

3)



Answer

4)



Answer

Addition Inequalities

Questions

Graph the addition inequalities using the number line

1) $3 + a = 10$



2) $8 + b \leq$



3) c



4) $d + 10 \leq 11$



5) $13 + e \geq 15$



6) $5 + f = 18$



7) $g + 1 = 7$



8) $10 + h \geq 18$



9) $12 + m = 20$



10) $n + 11 \leq 16$



PREVIEW

Inequalities to 100

Part 1

Graph the inequality on the number line and write the word form

1) $x = 40$



Word Form - _____

2) $x \leq 60$



Word Form - _____

3) $x < 80$



Word Form - _____

4) $x = 40$



Word Form - _____

5) $x \geq 10$



Word Form - _____

Part 2

Write the inequality shown by each number line

1)



Answer

2)



Answer

3)



Answer

4)



Answer

Addition and Subtraction Inequalities to 100**Part 1**

Graph the addition inequalities using the number line

1) $40 + a > 70$



2) $60 + b \leq 40$



3) $c < 10$



4) $d + 20 \leq 50$



5) $40 + e \geq 80$

**Part 2**

Graph the subtraction inequalities using the number line

6) $50 - f > 30$



7) $g - 10 > 70$



8) $50 - h \geq 30$



9) $100 - m < 80$



10) $n - 10 \leq 70$



Inequalities – Multiple Choice**Questions**

Circle the values that satisfy each inequality

1)

$x > 6$

5 8 10 3

2)

$x < 9$

7 2 15 23

3)

17

4)

$x > 5$

12 3 1 6

5)

$x < 8$

2 6 15 33

$x \leq 18$

5 12 1

7)

$x > 3$

15 2 12 23

8)

15 5 2

9)

$x \leq 16$

15 5 16 23

10)

$x > 14$

12 18 15 13

11)

$x < 19$

25 18 13 23

12)

$x < 24$

15 28 10 35

Algebra Quiz - Equations**Part 1**

Put a slash (/) through the equal sign if it is not balanced

1) $37 + 12 = 48$

2) $34 + 7 = 41$

3) $49 - 5 = 45$

4) $59 = 59$

5) $7 \times 4 = 21$

6) $70 \div 7 = 10$

Part 2

Write the number to balance the equation

1) $43 + 8 = \square$

30

3) $29 + \square = 36$

4) $42 + 17 = \square$

5) $\square + 55 = 98$

7) $33 - 7 = \square$

8) $\square - 14 = 46$

10) $65 - 13 = \square$

11) $\square - 22 = 60$

12) $91 - 15 = \square$

13) $\square \times 6 = 24$

14) $7 \times \square = 42$

15) $48 \div \square = 6$

16) $54 \div 6 = \square$

Part 3

Find out the value of the variable

$7 + n = 17$ $n =$	$n - 8 = 22$ $n =$	$2n = 18$ $n =$	$\frac{30}{n} = 10$ $n =$
$n + 12 = 35$ $n =$	$n - 22 = 75$ $n =$	$8n = 24$ $n =$	$\frac{36}{6} = n$ $n =$

Part 4

Find out the value of the variable

$a + b = c$ _____ + _____ = _____	$c = 12$ $c =$	$n + y + t =$ _____ + _____ + _____ = _____	$n = 3$ $n =$	$y = 22$ $y =$	$t = 8$ $t =$
$a - b = c$ _____ - _____ = _____	$a = 25$ $a =$	$e = f$ _____ = _____	$e = 32$ $e =$	$n = 16$ $n =$	$f =$
$a \times b = c$ _____ \times _____ = _____	$a = 8$ $a =$	$b = 4$ $b =$	$c = 4$ $c =$	$k =$	$k =$

Part 5

Solve the word problem below. Make sure to write an equation

Zakk shoveled snow all day and earned \$135. He now has \$215 in his bank account. How much money did he have in his bank (b) account before he was paid for shoveling snow?

Part 6

Graph the inequality on the number line and write the word form

1) $x > 60$



Word Form - _____

2) $x \leq 16$



Word Form - _____

3) $x < 12$



Word Form - _____

Part 7

Write the inequality shown by each number line

1)



Answer

2)



Answer

Part 8

Graph the addition and subtraction inequalities using a Number Line

1) $50 + a > 70$



2) $40 + b \leq 80$



3) $c - 20 > 60$



4) $40 - d \leq 20$



Grade 5
C3. Coding

	Curriculum Expectations	Pages That Cover the Expectations
C3.1	solve problems and create computational solutions of mathematical situations. write and execute code, including loops, conditional execution, sequential, concurrent, repeating, and nested events	171 - 176, 181 - 182, 185 - 210
C3.2	read and alter existing code that involves sequential, concurrent, repeating, and nested events, and how changes to the code affect the outcomes	177 - 180, 182 - 189

PREVIEW

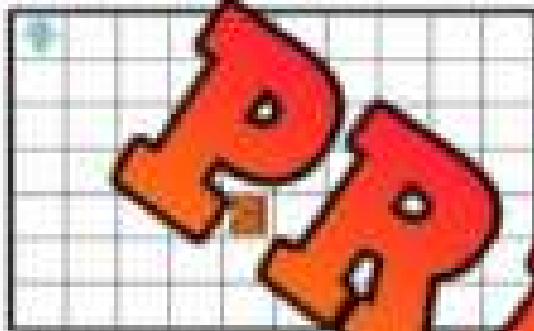
Writing Code

Writing Code - Code Bank

go right (# of spaces)
go left (# of spaces)
go down (# of spaces)
go up (# of spaces)
open door



Robot moved _____ squares



1. Write the code that gets the robot to the door

Line 1: _____

Line 2: _____

Line 3: _____

2. Write the code that gets the robot to the gym and then home.

Line 1: _____

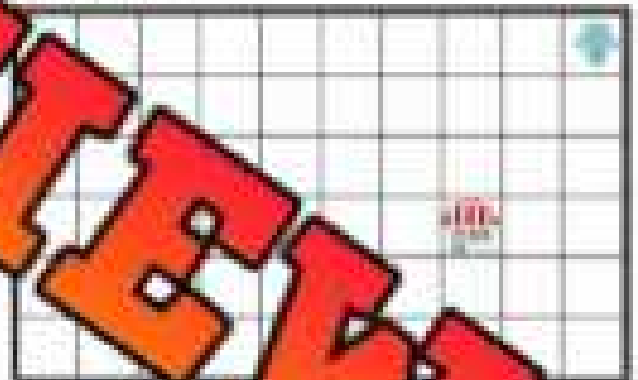
Line 2: _____

Line 3: _____

Line 4: _____

Line 5: _____

Line 6: _____



Robot moved _____ squares

3. Write the code that gets the robot to the gym and then home.

Line 1: _____

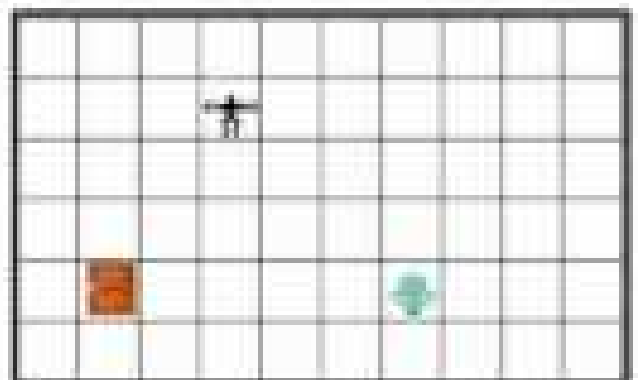
Line 2: _____

Line 3: _____

Line 4: _____

Line 5: _____

Line 6: _____



Robot moved _____ squares

Reading Code – Creating Programs

Question

Read the code and create the program

Code

```

go right 4
go down 2
open door

```

Robot moved _____ squares

Example

1.

Code

```

go down 2
go right 1
go down 2
go right 5
open door

```

Robot moved _____ squares

2.

Code

```

go right 3
go down 3
go left 2
go down 1
go right 6
open door

```

Robot moved _____ squares

PREVIEW

Reading Code – Creating Programs

Question Read the code and draw the path the robot will take.

1. **Code**
go left 3
go down 3
open door

Robot moved _____ squares

2. **Code**
go down 1
go right 2
enter school
go down 2
go right 4
open door

Robot moved _____ squares

3. **Code**
go down 3
go left 5
enter ice cream shop
go left 4
go up 4
open door

Robot moved _____ squares




Fixing Code

Questions Put the scrambled code in the correct order by labelling the steps 1-6

1. Go to school and then home

Code



- _____ - go up 1
- _____ - go down 5
- _____ - go left 2
- _____ - enter school
- _____ - enter home

2. Go to school and then home

Code




- _____ - go up 2
- _____ - go down 4
- _____ - go right 3
- _____ - enter school
- _____ - go left 1
- _____ - enter home

3. Go to school and then home

Code

- _____ - go down 2
- _____ - go down 3
- _____ - go right 2
- _____ - enter school
- _____ - go left 3
- _____ - enter home

PREVIEW


Interpreting Code

Questions

Will the code work? Circle yes or no. Re-write any code that won't work.

1.

Code
go down 5
go right 2
enter

YES NO

Line 1: _____



Line 2: _____

Line 3: _____

Line 4: _____

2.

Code
go down 4
go right 4
enter library

YES NO

Line 1: _____



Line 2: _____

Line 3: _____

Line 4: _____

3.

Code
go up 3
go right 4
enter library

YES NO

Line 1: _____

Line 2: _____

Line 3: _____

Line 4: _____

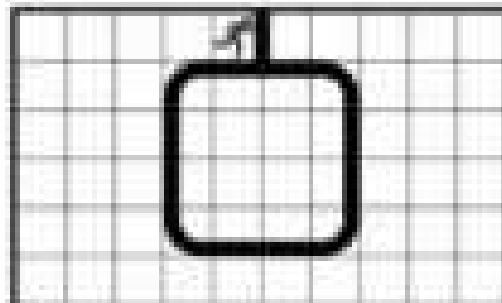
Line 5: _____

Line 6: _____

PREVIEW

Writing Code - Loops

Writing Code - Code Bank
 go right (# of spaces)
 go left (# of spaces)
 go down (# of spaces)
 go up (# of spaces)
 loop _____ times

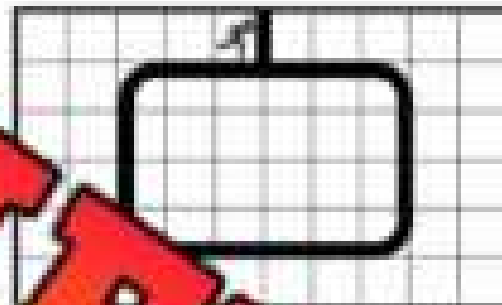


Example
 loop 5 times
 go right 3
 go down 3
 go left 3
 go up 3
 go right 2

Question Write code that sends the runner around the track

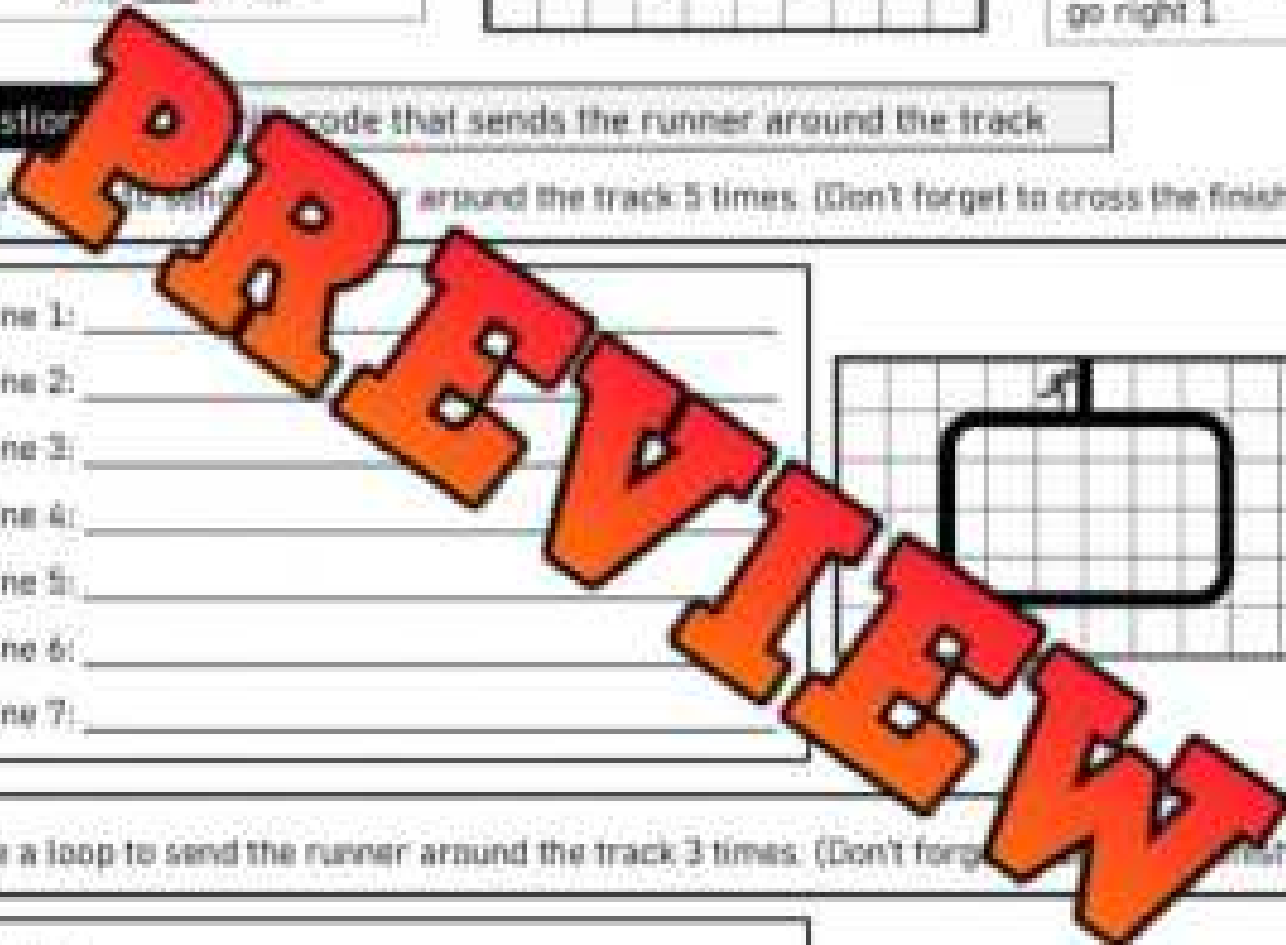
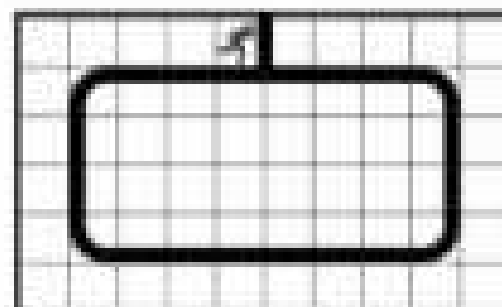
1. Use a loop to send the runner around the track 5 times. (Don't forget to cross the finish line!)

Line 1: _____
 Line 2: _____
 Line 3: _____
 Line 4: _____
 Line 5: _____
 Line 6: _____
 Line 7: _____



2. Use a loop to send the runner around the track 3 times. (Don't forget to cross the finish line!)

Line 1: _____
 Line 2: _____
 Line 3: _____
 Line 4: _____
 Line 5: _____
 Line 6: _____
 Line 7: _____



Writing Code - Loops

1. Use a loop to send the runner 600 metres.

Line 1: _____

Line 2: _____

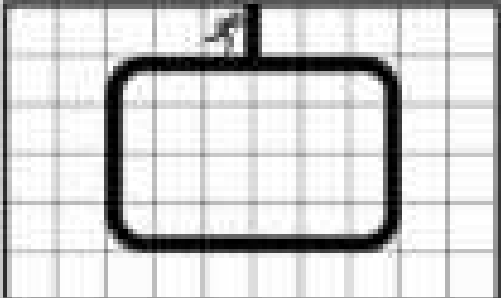
Line 3: _____

Line 4: _____

Line 5: _____

Line 6: _____

Line 7: _____



1 lap = 100 metres

2. Use a loop to send the runner 200 metres.

Line 1: _____

Line 2: _____

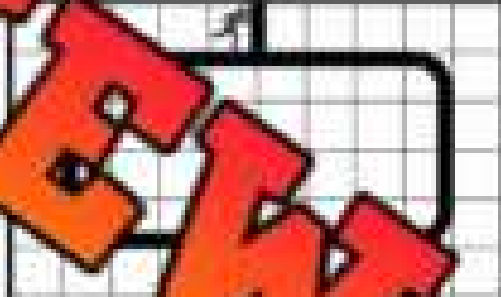
Line 3: _____

Line 4: _____

Line 5: _____

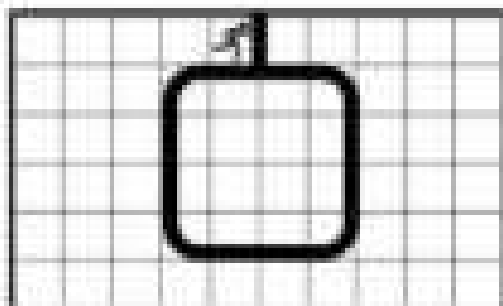
Line 6: _____

Line 7: _____



1 lap = 20 metres

3. Read the code and figure out how far the runner went.



1 lap = 10 metres

Code

```

loop 12 times
  go right 3 spaces
  go down 5 spaces
  go left 5 spaces
  go up 5 spaces
  go right 2 spaces
go right 1 space
run program

```

My Answer

Interpreting Code

Questions

Will the code work? Circle yes or no. Re-write any code that won't work.

1. Code

Loop 2 times

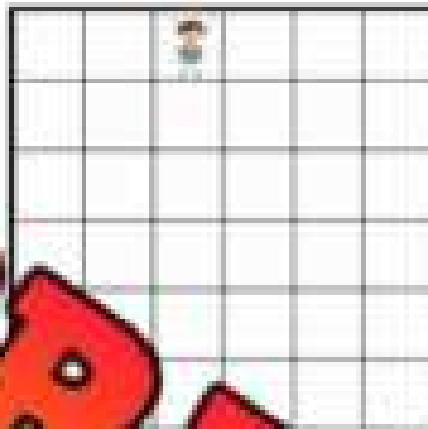
go down

Loop 2 times

go left

go down

enter library



YES NO

Line 1: _____

Line 2: _____

Line 3: _____

Line 4: _____

Line 5: _____

2.

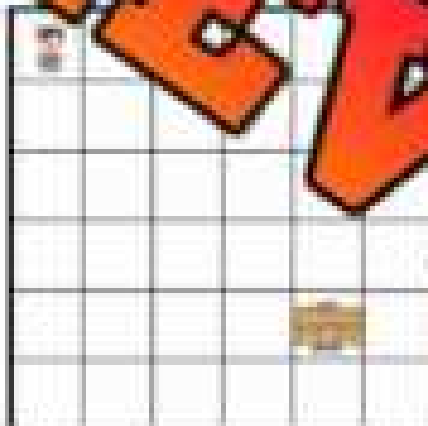
Code

loop 4 times

go down 1

go right 1

enter library



YES NO

Line 1: _____

Line 2: _____

Line 3: _____

Line 4: _____

Line 5: _____

YES

3. Code

loop 2 times

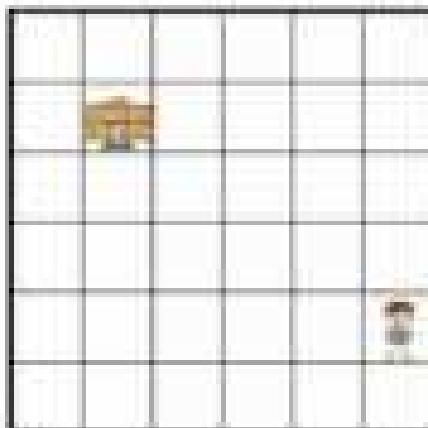
go up 1

go left 1

go right 2

go up 1

enter library



YES

Line 1: _____

Line 2: _____

Line 3: _____

Line 4: _____

Line 5: _____

Line 6: _____

Working with Code

Question

Read the code and write what will happen. The first one is done for you

1.

Code`Code1 = "VE"``Code2 = "LO"``Code3 = "VE"``Code4 = "LO"``print ("The Computer Program:", Code1, Code2, Code3, Code4)`

The Computer Program:

I LOVE CODE

2.

Code`Code1 = "I"``Code2 = "UN"``Code3 = "TH"``Code4 = "MA"``Code5 = "IS"``print ("I think", Code4, Code1, Code5, Code1, Code2)`

The Computer Program:

3.

Code`Code1 = "A"``Code2 = "PRO"``Code3 = "MER"``Code4 = "GRAM"``Code5 = "ING"``print ("I am", Code1, Code2, Code4, Code3)`

The Computer Program:

Working with Code

Code Bank

JillPeriod1 = 3

JillPeriod2 = 7

JillPeriod3 = 5

JillTotal = JillPeriod1 + JillPeriod2 +

JillPeriod3

JillShots = 15

Example - The Computer Program:

```
print ("In the second period of the game, Jill  
scored" , JillPeriod2 , "points.")
```

In the second period of the game, Jill
scored 7 points.

Quest: Use the code bank to read the codes. Write what the program will say

1. Code The Computer Program:

```
print ("In the first period  
of the game, Jill scored  
" , JillPeriod1 , "points.")
```

2. Code

```
print ("Jill had" , JillShots  
"shots on goal  
yesterday.")
```

The Computer Program:

3. Code

```
print ("Jill scored"  
JillTotal , "points in the  
game yesterday.")
```

The Computer Program:

Coding – Solving + - x ÷

Part 1

Write what the computer would reply with based on the code written

Code Written	The Computer Replied	Code Written	The Computer Replied
<code>print (5 + 8)</code>	<u>1</u> <u>6</u>	<code>print (6 * 2 * 3)</code>	_ _ _
<code>print (10 - 3)</code>	_ _ _	<code>print (80 + 2 + 2)</code>	_ _ _
<code>print (14 - 5)</code>	_ _ _	<code>print (40 + 4 + 5)</code>	_
<code>print (22 - 7 - 9)</code>	_ _ _	<code>print (23 + 12 - 15)</code>	_ _ _
<code>print (5 * 3 * 2)</code>	_ _ _	<code>print (100 - 20)</code>	_ _ _

Part 2

Write what the computer would reply with based on the code written

Code Written	The Computer Replied
<pre>number = 6 bignumber = number * 5 print ("The secret number is" bignumber ".")</pre>	_ <u>h</u> _ _ _ _ _ <u>e</u> _ _ _ <u>m</u> _ _ _ _ _
<pre>code = 48 codeword = code + 2 print ("The secret code is" codeword ".")</pre>	_ _ _ _ _ _ _ _ _ _
<pre>pin = 9 bank# = pin * 5 print ("The bank pin number is" bank# ".")</pre>	_ _ _ _ _ _ _ _ _ _

Concurrent Coding

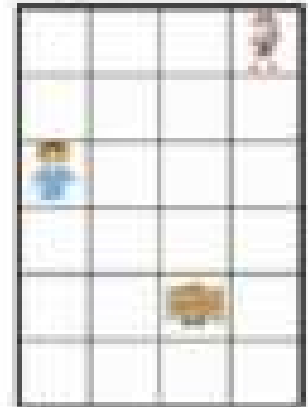
Concurrent codes are events that happen at the same time. It is the opposite of **sequential codes**, which happen one after the other.

Example - race to school - concurrent coding

Boy Go down 2 Go right 2 Enter school

Girl Go down 4 Go left 1 Enter school

Boy has traveled - boy 4 - girl 5

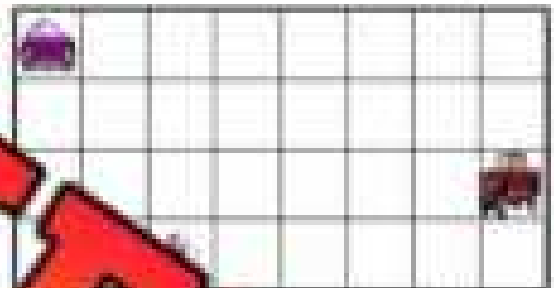


Questions

Write two sets of concurrent codes as the vehicles race to the store

Car

--	--	--



Truck

--	--	--

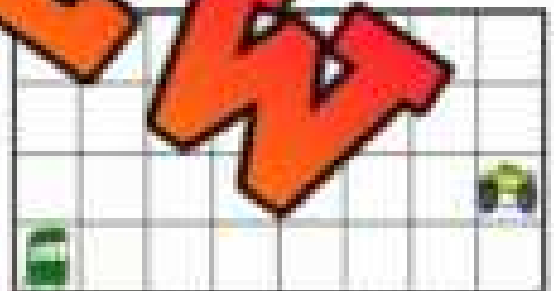
Who won? Spaces traveled - car _____ truck _____

Bus

--	--	--

Monster
Truck

--	--	--



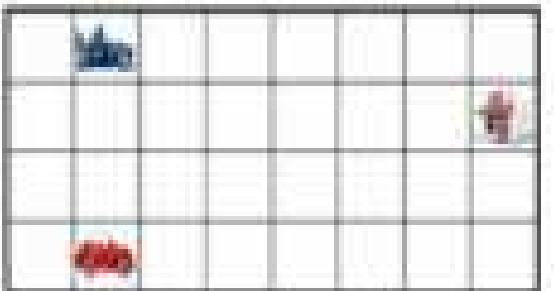
Who won? Spaces traveled - Bus _____ Monster Truck _____

F1

--	--	--

Sports
car

--	--	--



Who won? Spaces traveled - F1 _____ Sports Car _____

Concurrent Coding

Part 1

Write two separate codes as the train and plane race to the building.

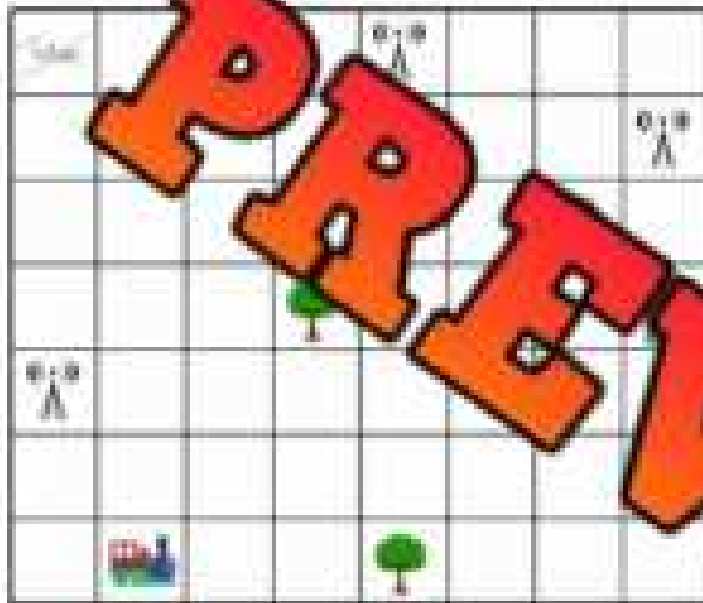
Look out for the towers and trees! Make sure you code around these obstacles.

Plane

--	--	--	--	--	--

Train

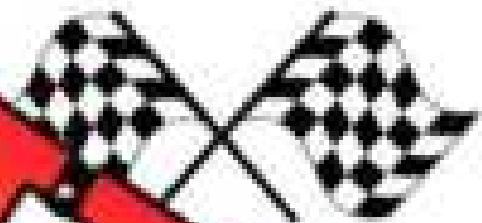
--	--	--	--	--	--



Who won?

Train = _____ spaces

Plane = _____ spaces



Part 2

Write two separate codes as the cheetah and ostrich race to the building hole.

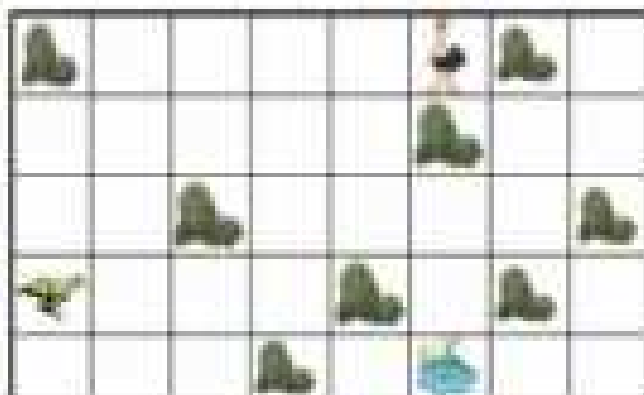
Look out for the bushes! Make sure you code around them.

Cheetah

--	--	--	--	--	--

Ostrich

--	--	--	--	--	--



Who won?

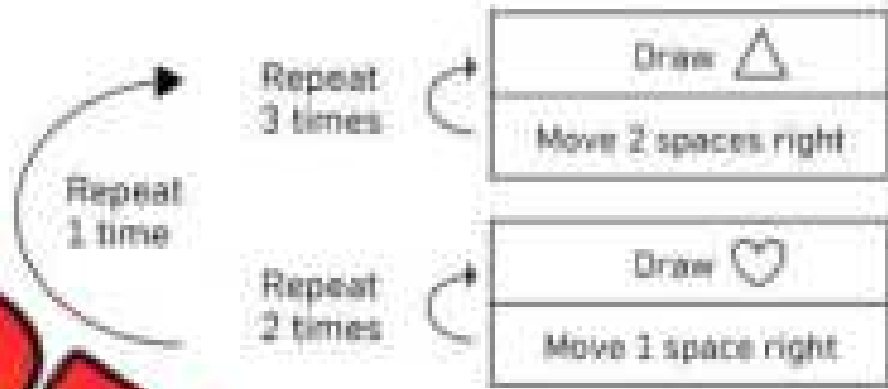
Cheetah = _____ spaces

Ostrich = _____ spaces



Nested Loops

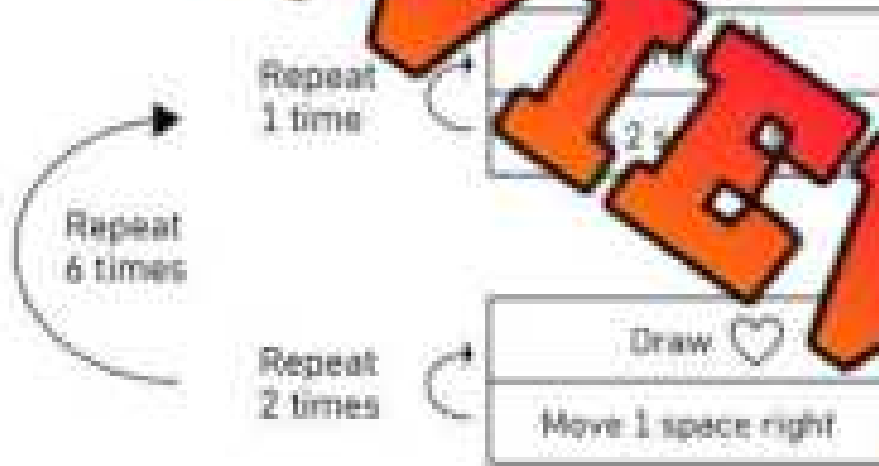
Example



Output	△	△	△	♥	♥	△	△	△	△	△	♥	♥	
--------	---	---	---	---	---	---	---	---	---	---	---	---	--

Code

Read the code and predict the output - what it will create.

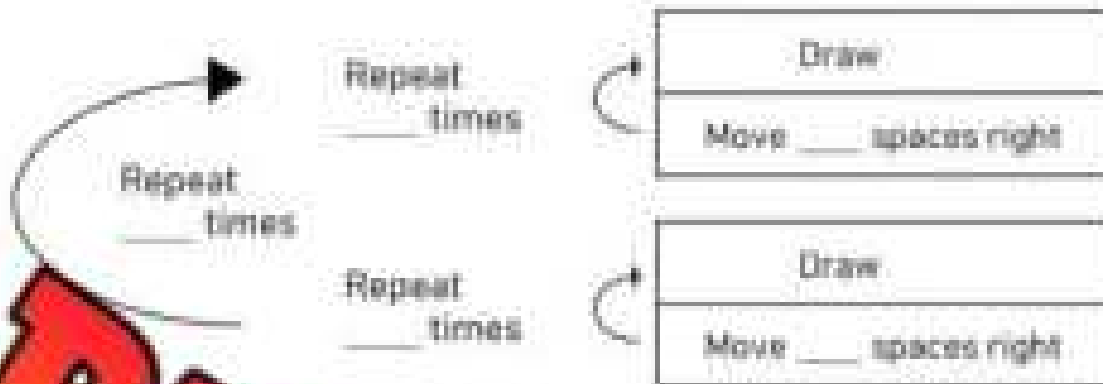


Output													
--------	--	--	--	--	--	--	--	--	--	--	--	--	--

PREVIEW

Code

Draw your own nested loops below. Use the organizer for the first one and create your own for the second.



Output																		

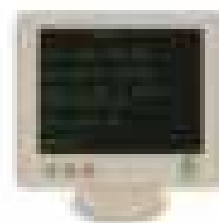
PREVIEW

Output																		

If Statements – Conditional Coding

An if statement allows a code to be run if an event has happened. If the event does not happen, the code is not run. All interactive games use if statements. For example, when a game has a button in it, the button will have an if code. This means that if the button is pushed, then a code will run that causes something to happen.

Example Code - If player gets 50 points, then print "Great Job!"



Questions Calculate the answer to the question and then run the code.

Written	The Computer Replied
If answer is 24, then print "Great job!" If answer is >20, then print "Good!" Answer: run 6 x 4	
If answer is <50, then print "Better next time!" If answer is >50, then print "Wow, great job!" Answer: run 7 x 8	
If student mark is >90/100, then print "A+" If student mark is <90/100, then print "Study more!" Student mark: run 78/100	
If student mark is >50/100, then print "You passed" If student mark is <50/100, then print "You failed" Student mark: run 59/100	
If player has >100 points, then print "You win" If player has <100 points, then print "You lose" Points: run 8 x 12	

If Statements – Dice Game

The object of the game is to get as many points as you can. Follow the if/then statements to get points.

Instructions

1. Start at question 1. Read the if/then statement to get points
2. Go through all 10 questions and add up your points at the end



Questions Use a dice to play the game below. Follow the if/then codes:

If/Then Code	Point Total
1) If you roll a 1 or 2, then you get 10 points If you roll a 3 or more, then you get 0 points	
2) If you roll a 6, then you get 10 points If you don't roll a 6, then you get 0 points	
3) If you roll a 3 or 4, then you get 5 points If you don't roll a 3 or 4, then you get 0 points	
4) If you roll a 2, then you lose all your points If you roll any other number, then you get 0 points	
5) If you roll 3 or less, then you get 10 points If you roll 4 or more, then you get 0 points	
6) If you roll a 1 or 6, then you get 10 points If you don't roll a 1 or 6, then you get 0 points	
7) If you roll 2 or more, then you get 5 points If you roll a 1, then you lose 5 points	
8) If you roll an odd number, then you get 10 points If you roll an even number, then you get 0 points	
9) If you roll a 3, then you get 10 points If you don't roll a 3, then you get 0 points	
10) If you roll a 5 or less, then you get 20 points If you roll a 6, then you lose 10 points	

If Statements – Dice Game

The object of the game is to get as many points as you can. Follow the if/then statements and solve any equation from the list you are sent to. Cross out the equation once you have used it because you can only use each equation once. You earn the answer from the equation as points. Record your points in the column on the right.



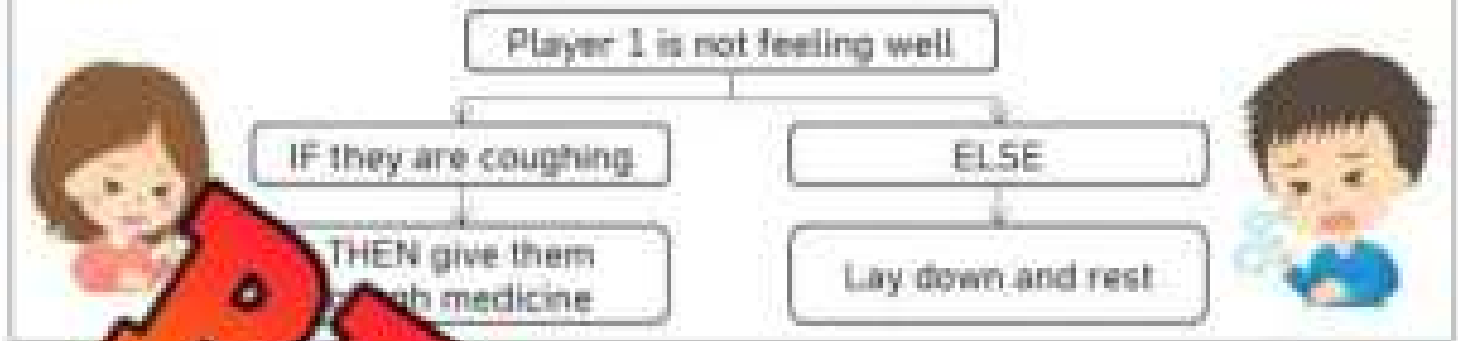
Instruction: Follow the if/then codes to solve equations and earn points.

If/Then Code	Points
1) If you roll a 1 or 2, then solve an equation from list 1. If you roll a 3 or 4, then solve an equation from list 2.	
2) If you roll a 3 or 4, then solve an equation from list 3. If you roll a 2 or less, then solve an equation from list 4.	
3) If you roll a 5, then solve an equation from list 1. If you roll a number other than 5, then solve an equation from list 2.	
4) If you roll an even number, then solve an equation from list 1. If you roll an odd number, then solve an equation from list 2.	
5) If you roll a 1 or a 6, then solve an equation from list 1. If you roll a 2, 3, 4, or 5, then solve an equation from list 2.	
6) If you roll a 2 or 5, then solve an equation from any list. If you roll a 1, 3, 4, or 6, then solve an equation from list 2.	
Total Points	

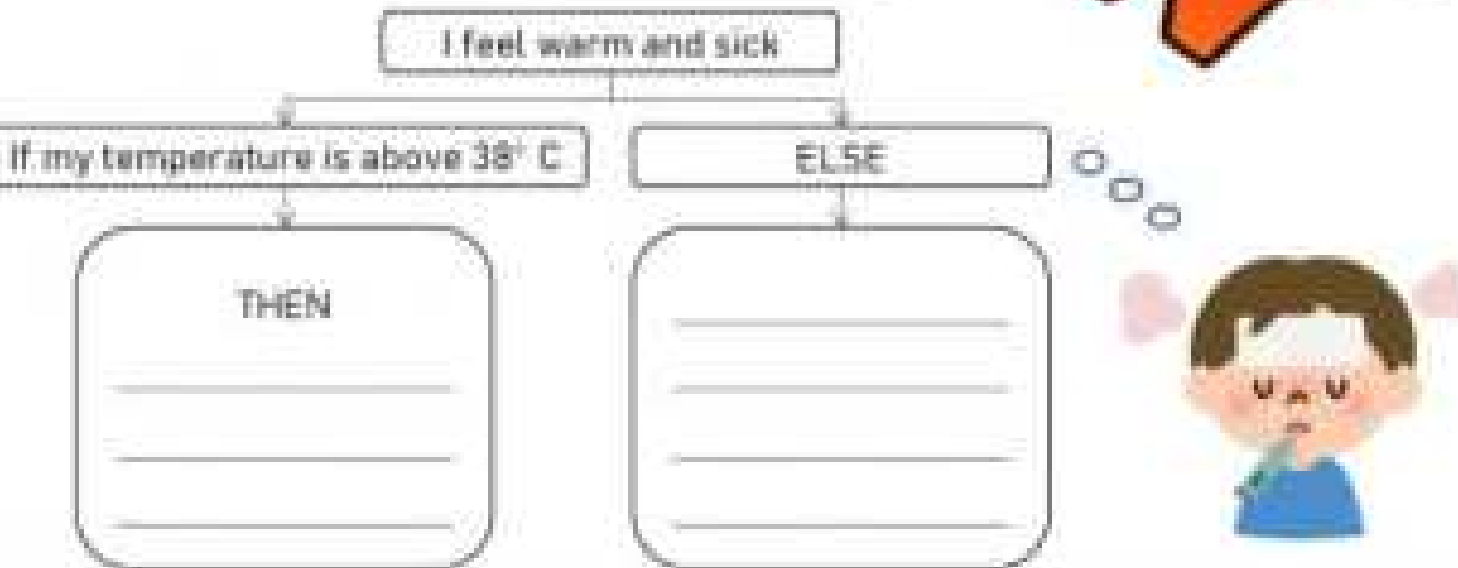
List 1	List 2	List 3	List 4	List 5	List 6
$5 + 5$	$15 - 5$	3×2	$25 \div 5$	$12 + 12$	3×3
$12 + 6$	$14 - 6$	7×5	$30 \div 10$	$23 + 5$	4×6
$13 + 8$	$40 - 32$	3×6	$20 \div 4$	$15 + 13$	7×3
$21 + 13$	$32 - 21$	4×5	$12 \div 2$	$41 - 13$	$40 \div 4$
$14 + 22$	$45 - 15$	9×4	$15 \div 3$	$50 - 10$	$48 \div 8$
$30 + 20$	$50 - 21$	6×6	$36 \div 6$	$40 - 15$	$9 \div 3$

Coding – If/Else Statements

An **else** statement works like an if statement. When an if statement is false, we can have another command, instead of nothing happening.



Direction: Use the commands below with your own ideas



Coding - Thermostat

A **thermostat** is a computer that uses code to turn our heating and air conditioning on and off. Thermostats help us save energy! When a thermostat heats our house up to the right temperature, it turns off to save energy. When the house gets cold again, it turns back on.

An **HVAC technician** is an expert in the heating and cooling of buildings. They install thermostats, air conditioners, furnaces, and the ductwork that air travels through.

You can program your thermostat to different temperatures depending on when you are home. In the winter, you don't want to let your heat turn off completely because your pipes could freeze. Instead, you would turn the temperature down to above freezing, but not too low so you'll be wasting heat (around 16°C).

The thermostat program uses coding to work. First, you need to define the time. Then you set the temperature for that time. The backend of the code will look like this:

```
define time1 as 00:00 - 07:00
set time 1 to 18
```



Directions: Help program Kyle's thermostat. Set the temperatures you think are best for the winter.

Cold - 18° C

Night - 22° C

Hot - 25° C

define time1 as 00:00 - 07:00

set time 1 to

define time2 as 07:01 - 08:30

set time 2 to

define time3 as 08:31 - 16:00

set time 3 to

define time4 as 16:01 - 22:00

set time 4 to

define time5 as 22:01 - 23:59

set time 5 to

Reading Code – Hailey's Thermostat

Directions

Read Hailey's thermostat program and write what temperature it is based on the time

	Time	Temperature
1)	8:00 am	
2)		
3)	5:00 pm	
4)	10:00 pm	
5)	1:00 am	
6)	6:00 pm	
7)	2:30 pm	
8)	6:00 am	
9)	12:00 pm	
10)	8:31 am	

Hailey's Thermostat - Winter

define time1 as 00:00 - 07:00

set time1 to 19°C

define time2 as 07:01 - 08:30

set time2 to 23°C

define time3 as 08:31 - 16:00

set time3 to 16°C

define time4 as 16:01 - 22:00

set time4 to 23°C

define time5 as 22:01 - 23:59

set time5 to 16°C

Results

What do you think of Hailey's thermostat program? What would you change?

Writing Code – My Thermostat

Directions

Write your own thermostat program below to save energy

define time1 as

set time1 to

define time2 as

set time2 to

define time3 as

set time3 to

define time4 as

set time4 to

define time5 as

set time5 to

define time6 as

set time6 to

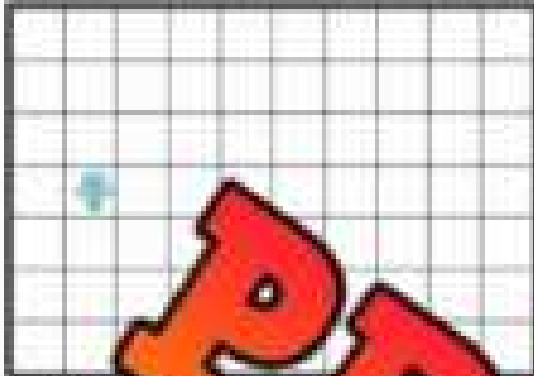
PREVIEW

Name: _____

Coding Quiz

Part 1

Write the code below



1. Write the code that gets the robot to the door

Line 1: _____

Line 2: _____

Line 3: _____

Robot moved

2. Write the code that gets the robot to the store and then home.

Line 1: _____

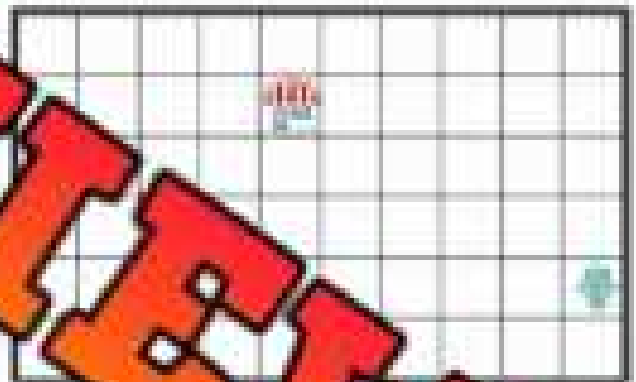
Line 2: _____

Line 3: _____

Line 4: _____

Line 5: _____

Line 6: _____



Robot moved

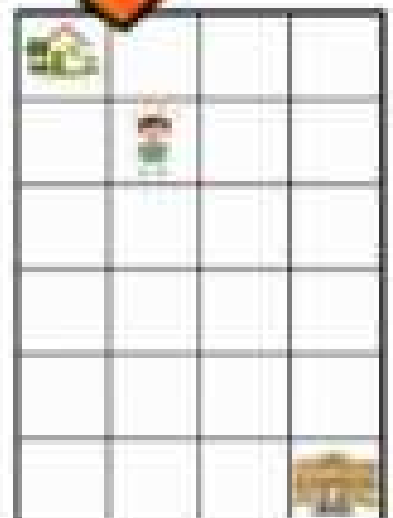
Part 2

Put the scrambled code in the correct order by labeling the lines 1-6

3. Go to school and then home

Code

- _____ - go up 5
- _____ - go down 4
- _____ - enter school
- _____ - go left 3
- _____ - enter home
- _____ - go right 2



Part 3

Write code that sends the runner around the track

4. Use a loop to send the runner around the track 3 times. (Don't forget to cross the finish line!)

Line 1: _____

Line 2: _____

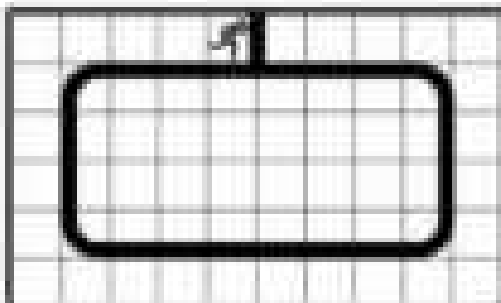
Line 3: _____

Line 4: _____

Line 5: _____

Line 6: _____

Line 7: _____



Part 4

Write a program that prints the code has programmed

5.

Code

Code1 = "SE"

Code2 = "TD"

Code3 = "T"

Code4 = "CO"

print ("I love", Code2, Code4, Code1, Code3)

Computer Program:

Part 5

Calculate the answer to the question and then run it

Code Written	The Computer Replied
If answer is >40, then print "Fantastic" If answer is >40, then print "Nice try!" Answer: run 92 - 50	
If student mark is >50/100, then print "You passed" If student mark is <50/100, then print "You failed" Student mark: run 49/100	

PREVIEW



Google Slides Lessons Preview





Ontario Math Spatial Sense Unit – Grade 5

3-Part Lesson Format

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Why Math Is Important
- And More!

Learning Goal

We are learning to plot and read coordinates in the first quadrant of a Cartesian plane so we can describe how a point moves from one position to another through translation.

Drawing With Coordinates

1,1	1,2	1,3	1,4	1,5
2,1	2,2	2,3	2,4	2,5
3,1	3,2	3,3	3,4	3,5
4,1	4,2	4,3	4,4	4,5
5,1	5,2	5,3	5,4	5,5

Part 2 – Action!

- Questions
- Matching
- Drag and Drop
- Videos
- And More!

Part 3 – Consolidation!

- Exit Cards
- Word Problems
- Quizzes
- Student Created Quizzes

Consolidation – Word Problem

Write and solve any word problems about plotting and reading coordinates in the first quadrant of a Cartesian plane.

Directions:

- 1. Read the problem carefully.
- 2. Draw the coordinate plane and plot the points that are given.
- 3. Use a ruler to connect the points to form a shape.

Example Problem:

A point starts at (2, 3) and moves 4 units right and 1 unit up. Where does it end?



Ontario Math Spatial Sense Unit – Grade 5

Clockwise and Counterclockwise Rotations

How do the shapes and sizes of the objects in the boxes change?

Labels for rotation: 90° clockwise, 180°, 270° clockwise, 90° counter-clockwise, 180°, 270° counter-clockwise.

Height - Bottles

1 2 3 4 5 6 7 8 9 0

Square Centimetres to Square Decimetres

Which one is larger? Compare the areas by drawing the square on a grid.

10000 cm ²	1 dm ²	100 cm ²	1000000 cm ²
1 cm ²	1000000 cm ²	10000 cm ²	10 cm ²
1000000 cm ²	1 dm ²	100 cm ²	1000000 cm ²
1 cm ²	10000 cm ²	1000000 cm ²	10 cm ²
1000000 cm ²	1 dm ²	100 cm ²	1000000 cm ²



Ontario Math Spatial Sense Unit – Grade 5

Measuring Angles - Protractor

Measures the angles and compares them by measuring the typical angles.

Angle	Angle	Angle

Finding Obtuse Angles

Measure the angles in the drawing and record them in the table.

Angle	Angle	Angle	Angle

Introduction to Area

Figure	Area



Workbook Preview



Grade 5
E1 – Geometric and Spatial Reasoning

	Curriculum Expectations	Pages
E1.1	identify geometric properties of triangles, and construct different types of triangles when given side or angle measurements	5 - 14
E1.2	Preview of 130 pages from this product that contains 340 pages total.	
E1.3		
E1.4	plot and read coordinates in the first quadrant of a Cartesian plane using various scales, and describe the translations that move a point from one coordinate to another	20 - 31
E1.5	describe and perform translations, reflections, and rotations up to 180° on a grid, and predict the results of these transformations	32 - 66

Name: _____

5

Geometry: Angles
1.1

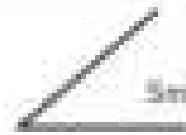
Naming Angles



Obtuse
Larger than right angle



right angle
90 degrees

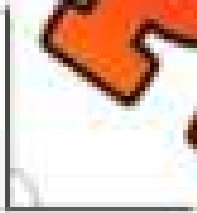


Acute
Smaller than right angle

Questions:

Label the angles acute, right or obtuse

1)

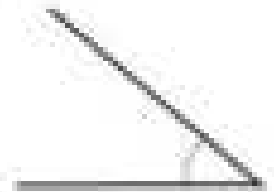


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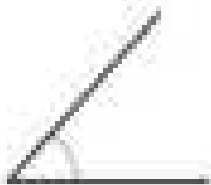


3)

4)



5)



6)



7)



8)

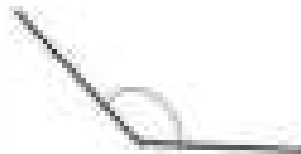
9)



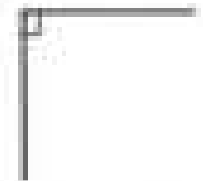
10)



11)



12)



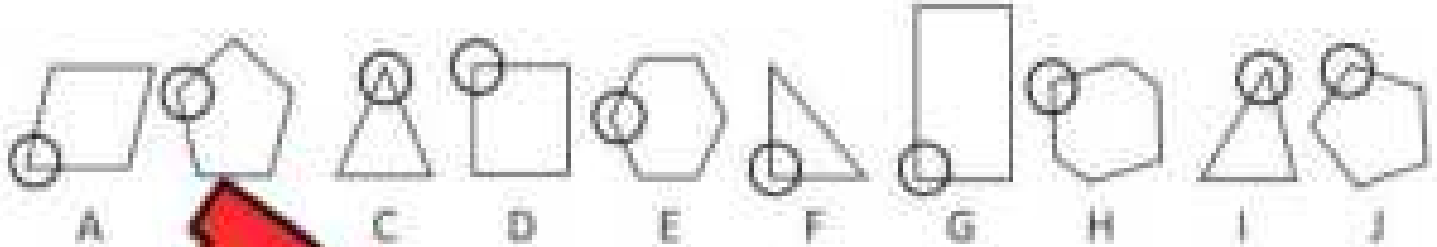
PREVIEW

Name: _____

Sorting Angles

Part 1

Sort the angles into the categories below



Angles	Right Angle	Obtuse	Acute
Letters			

Part 2

Sort the angles into the categories below



Angles	Right Angle	Obtuse	Acute
Letters			

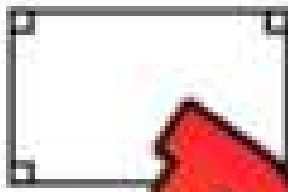
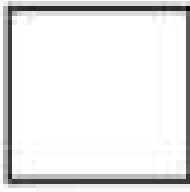
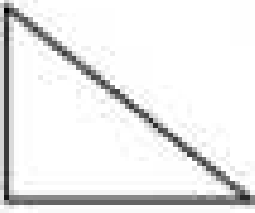

Part 3

Circle the angles below

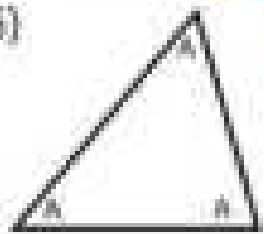

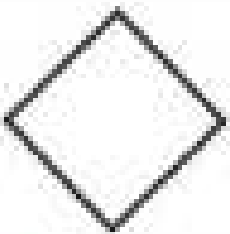
Drawings			
Angles	Right Angle	Obtuse	Acute

Angles in Triangles and Rectangles

Part 1 Label the right angles with a small square and write how many right angles there are

1) 	2) 	3) 	4) 
--	--	---	--

Part 2 Label acute (A), obtuse (O) or right (R) inside the shapes below

5) 	6) 	7) 
Acute = 3	Acute =	Acute =
Obtuse = 0	Obtuse =	Obtuse =
Right = 0	Right =	Right =

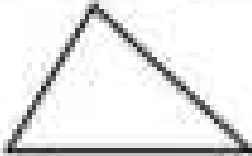


Part 3 Draw a picture of a shape with the number of angles it shows

9)	10)	11)	12)
Triangle	Triangle	Rectangle	Triangle
Acute = 2	Acute = 3	Acute = 0	Acute = 2
Obtuse = 1	Obtuse = 0	Obtuse = 0	Obtuse = 0
Right = 0	Right = 0	Right = 4	Right = 1



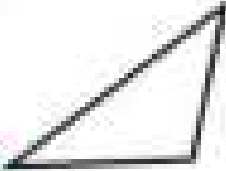

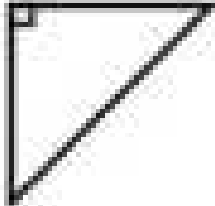

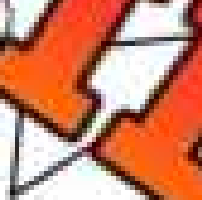

Name _____

Geometry Worksheet

Acute, Obtuse, and Right Triangles

Acute Triangle	Right Triangle	Obtuse Triangle
		
All Angles Less Than 90°	1 Angle is 90°	1 Angle is Greater Than 90°

Part 1 Classify the triangles below using the line provided

1) 	2) 	3) 	4) 
5) 	6) 	7) 	8) 

Part 2 Draw the angles below

9)	10)	11)
Acute Triangle	Obtuse Triangle	Right Triangle

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

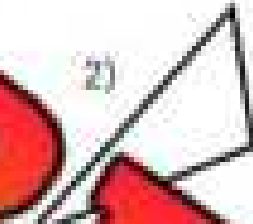
Name: _____

1) Circle the obtuse angles in the obtuse triangles below

1)



2)

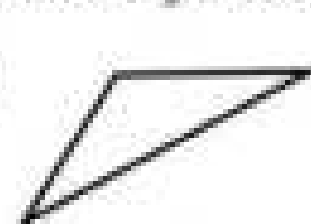


2) One angle is 126° and the other two angles are 27° . Is the triangle an acute, obtuse, or a right triangle?

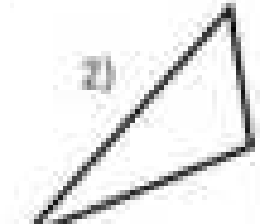
Name: _____

1) Circle the obtuse angles in the obtuse triangles below

1)



2)



2) One angle is 126° and the other two angles are 27° . Is the triangle an acute, obtuse, or a right triangle?

Name: _____

1) Circle the obtuse angles in the obtuse triangles below

1)



2)

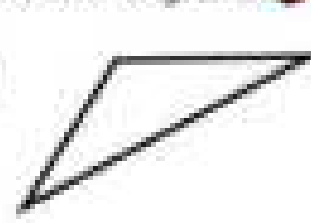


2) One angle is 126° and the other two angles are 27° . Is the triangle an acute, obtuse, or a right triangle?

Name: _____

1) Circle the obtuse angles in the obtuse triangles below

1)



2)



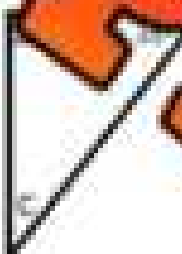
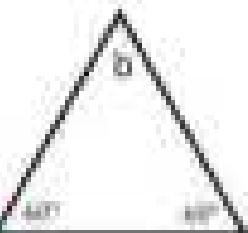
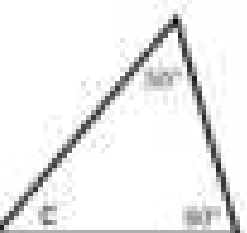
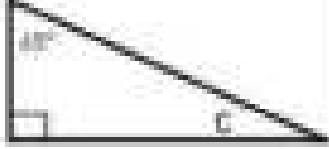


2) One angle is 126° and the other two angles are 27° . Is the triangle an acute, obtuse, or a right triangle?

Finding Missing Angles In Triangles

When we add up all the angles inside a triangle, they will always add up to 180. Therefore, we can use this information to determine the missing angle inside a triangle.

Example:  **Solution:** $90 + 45 + ? = 180$ or $180 - 90 - 45 = \boxed{45}$
 $135 + ? = 180$
 $135 + \boxed{45} = 180$ therefore, the missing angle is 45°

Part 1 Find the missing angle in the triangles below

1) 	3) 	4) 
c =	a =	c =
5) 	6) 	7) 
c =	a =	b =
		c =

Part 2 Draw the triangle below and find the missing angle

Two of the angles in the triangle are acute, measuring at 35°. What is the measurement of the third angle? What type of angle is it?

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Find the missing angle in the triangles below



2) Maria cuts a cake into 10 equal slices. Each isosceles triangle slice has two angles of 35° . What is the third angle?

Name: _____

1) Find the missing angle in the triangles below

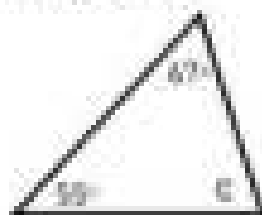


C = _____

2) Maria cuts a cake into 10 equal slices. Each isosceles triangle slice has two angles of 35° . What is the third angle?

Name: _____

1) Find the missing angle in the triangles below

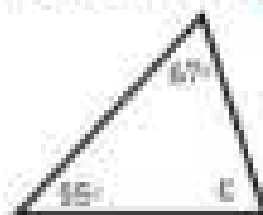


C = _____

2) Maria cuts a cake into 10 equal slices. Each isosceles triangle slice has two angles of 35° . What is the third angle?

Name: _____

1) Find the missing angle in the triangles below



C = _____



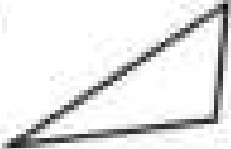
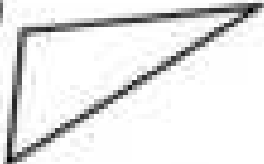
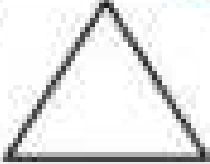


2) Maria cuts a cake into 10 equal slices. Each isosceles triangle slice has two angles of 35° . What is the third angle?

PREVIEW




Types of Triangles – Equilateral, Scalene, Isosceles

Equilateral Triangle	Isosceles Triangle	Scalene Triangle
		
3 Equal Sides 3 Equal Angles	2 Equal Sides 2 Equal Angles	No Equal Sides No Equal Angles

Part 1 Identify each triangle as equilateral, isosceles, or scalene

1) 	3) 	4) 
5) 	6) 	7) 
8) 		


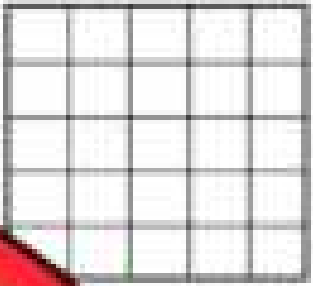
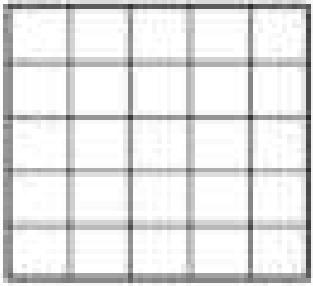
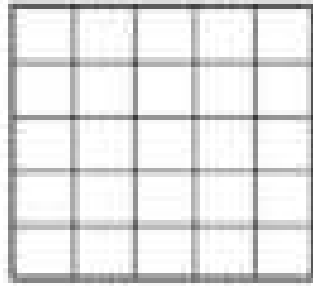

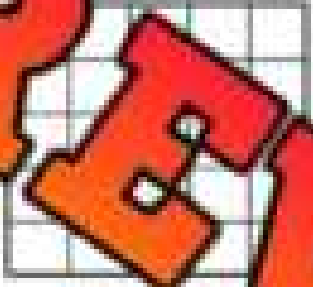
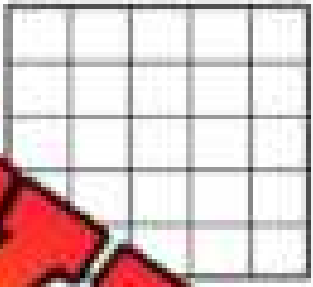
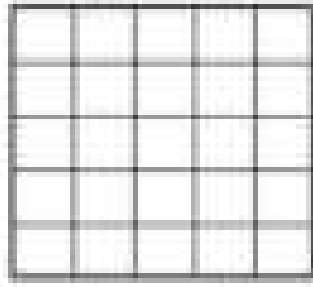
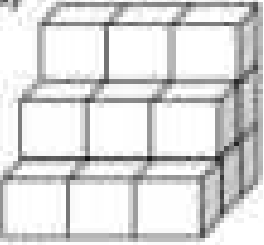
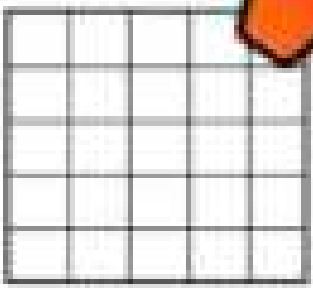
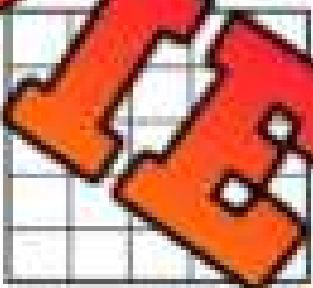
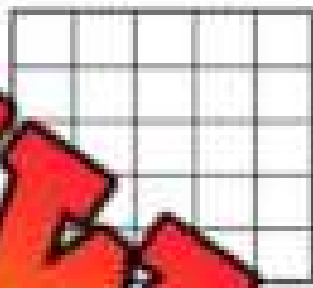
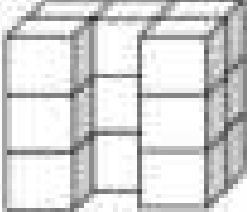
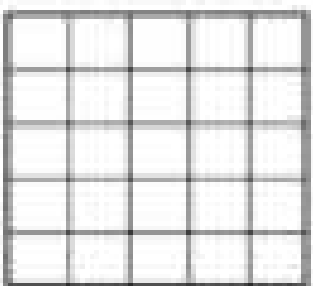
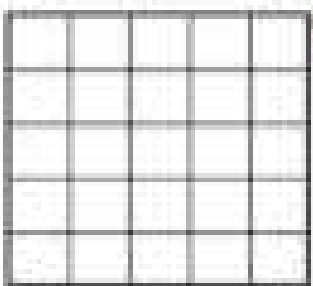
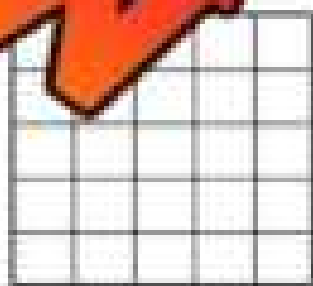
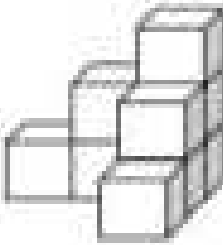
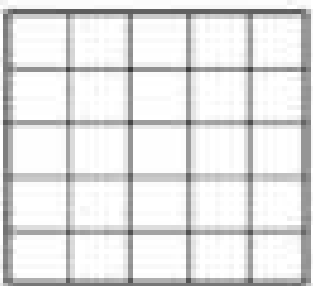
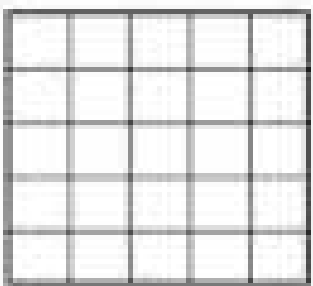
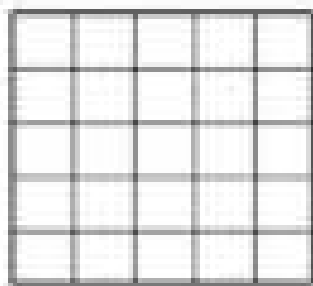
Part 2 Draw a picture of the three different types of triangles

9)	10)	11)
		
Equilateral Triangle	Isosceles Triangle	Scalene Triangle

Drawing Top, Front, and Side Views of Objects

Questions


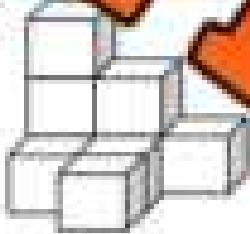
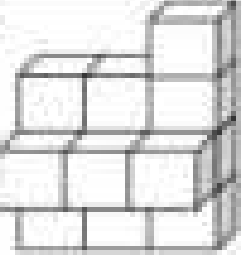
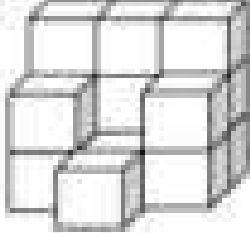
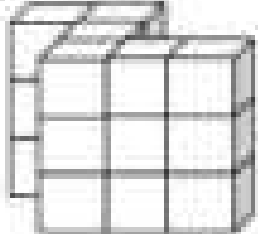
Draw the top, front, and side view of the objects below

Original Object	Top View	Front View	Side View
1) 			
2) 			
3) 			
4) 			
5) 			

PREVIEW

Drawing Top, Front, and Side Views of Objects**Questions**

Draw the top, front, and side view of the objects below:

Original Object	Top View	Front View	Side View
1) 			
2) 			
3) 			
4) 			
5) 			


PREVIEW

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

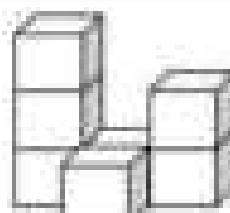
Name: _____

Questions: Draw the top, front, and side view of the objects below

Original Object	Top View	Front View	Side View																																	
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Name: _____

Questions: Draw the top, front, and side view of the objects below

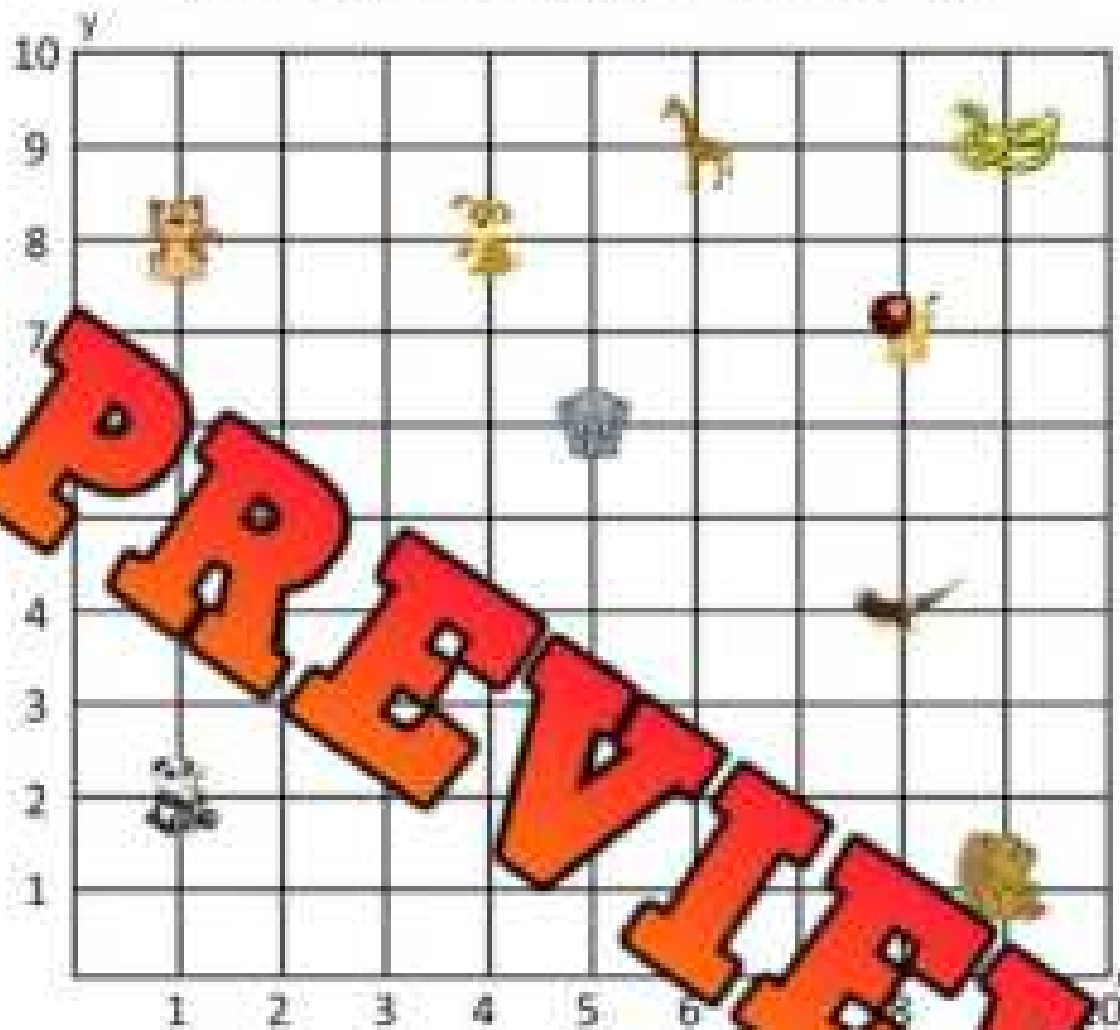
Original Object	Top View	Front View	Side View																																	
	<table border="1"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>										<table border="1"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>													<table border="1"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>												

Name: _____

Questions: Draw the top, front, and side view of the objects below

Original Object	Top View	Front View	Side View																																	
	<table border="1"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>										<table border="1"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>													<table border="1"><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>												

Using a Coordinate System



Instructions

Label the objects on the grid by using the number on the x-axis.

Symbol	Coordinates (x, y)	Symbol	Coordinates (x, y)
	(9, 9)		(,)
	(,)		(,)
	(,)		(,)
	(,)		(,)
	(,)		(,)

Using a Coordinate Grid - Challenge



Instructions

Write the letters on the grid according to the

Letter	Coordinates (x, y)
A	(60, 50)
B	(40, 60)
C	(20, 70)
D	(10, 40)
E	(80, 30)

Letter	Coordinates (x, y)
F	(70, 30)
G	(50, 50)
H	(90, 20)
I	(80, 80)
J	(90, 50)

Translating Objects on a Cartesian Grid



PREVIEW

Instructions

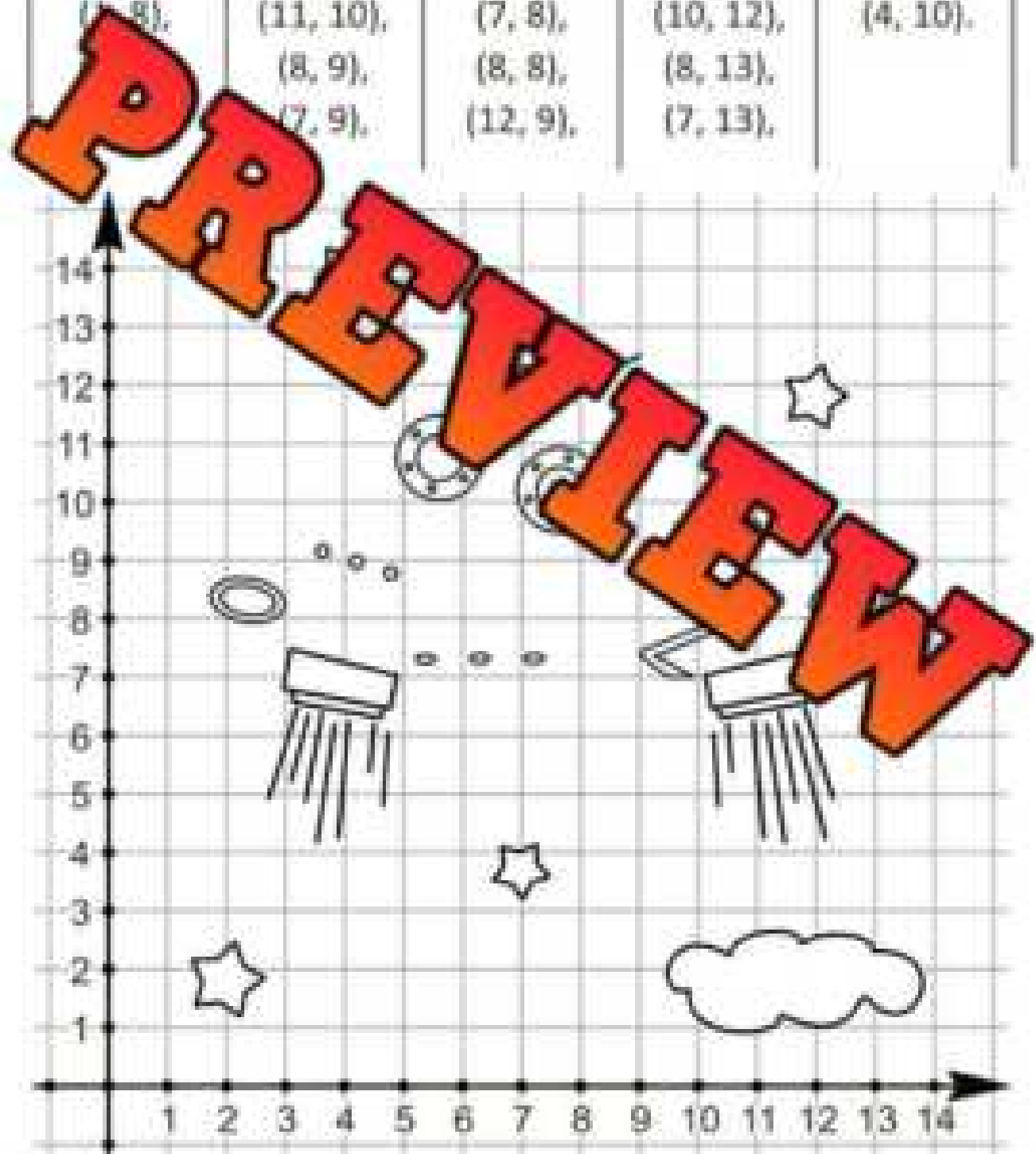
Explain the directions to get from the first symbol to the second.

Symbols	Directions
→	Go right 1 and down 5
→	
→	
→	
→	
→	

Drawing With Coordinates

Instructions

Plot and connect the dots with the coordinates below

 $(4, 10),$
 $(1, 9),$
 $(1, 8).$
 $(14, 8),$
 $(14, 9),$
 $(11, 10),$
 $(8, 9),$
 $(7, 9).$
 $(4, 10),$
 $(3, 9),$
 $(7, 8),$
 $(8, 8),$
 $(12, 9).$
 $(11, 10),$
 $(11, 11),$
 $(10, 12),$
 $(8, 13),$
 $(7, 13).$
 $(5, 12),$
 $(4, 11),$
 $(4, 10).$


Drawing With Coordinates

Instructions

Plot and connect the dots with the coordinates below

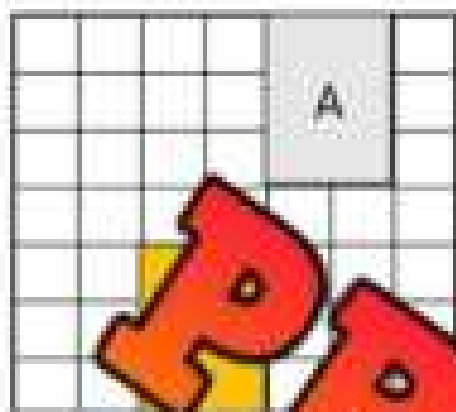
(10, 11),	(12, 3),	(12, 2),	(3, 1),	(6, 8),	(6, 13),	(8, 14),
(10, 9),	(13, 3),	(12, 1),	(3, 2),	(3, 8),	(5, 13),	(10, 14),
(9, 8),	(13, 5),	(6, 1),	(4, 2),	(3, 11),	(5, 14),	(10, 11),
(8, 7),	(12, 5),	(6, 2),	(4, 3),	(2, 11),	(7, 14),	
(8, 5),	(12, 7),	(8, 2),	(3, 4),	(2, 10),	(7, 12),	
(7, 5),	(7, 7),	(7, 3),	(3, 6),	(5, 10),	(9, 12),	
		(5, 3),	(4, 7),	(5, 11),	(9, 13),	
		(5, 1),	(6, 7),	(6, 12),	(8, 13),	



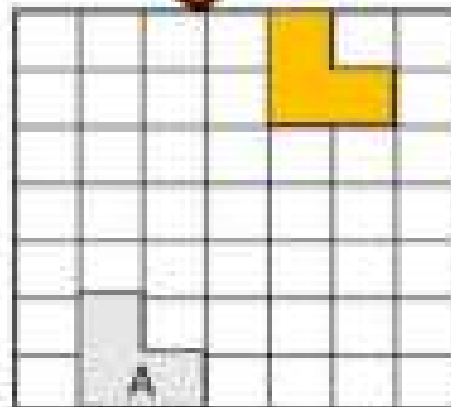
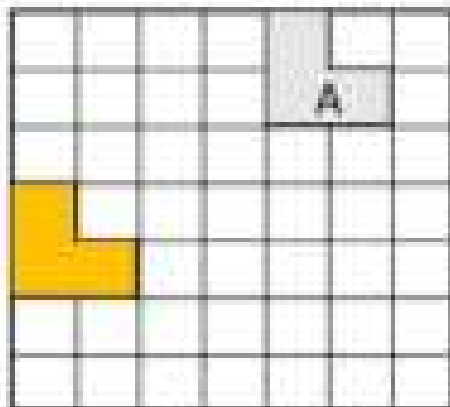
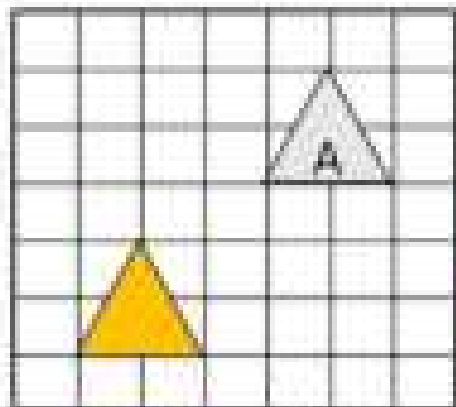
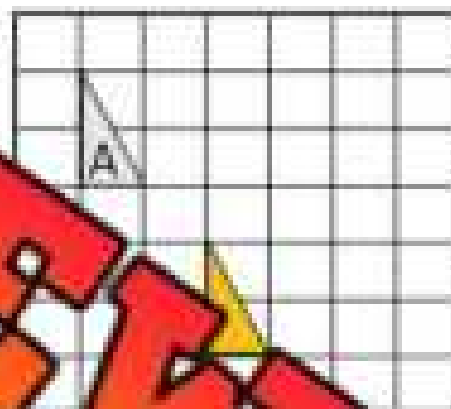
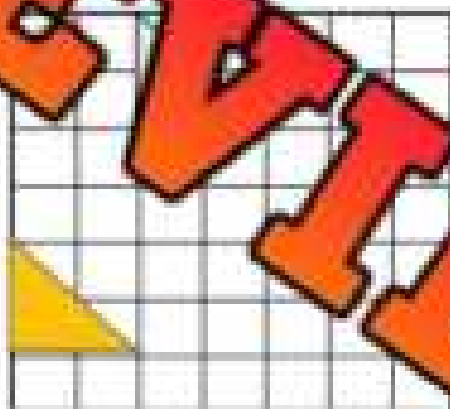
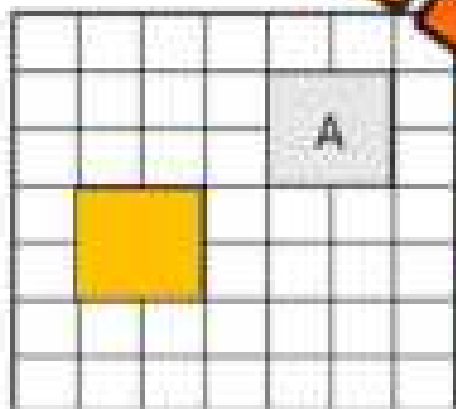
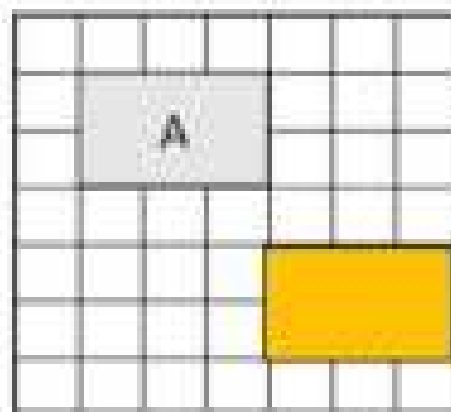
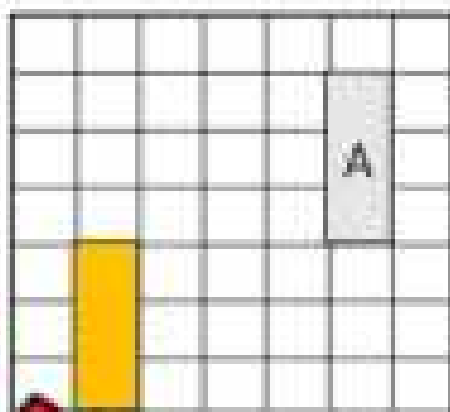
Describing Translation

Instructions

Describe the translations below using arrows. Shape A is the original object.



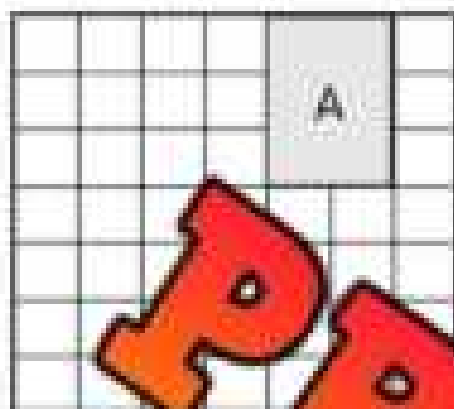
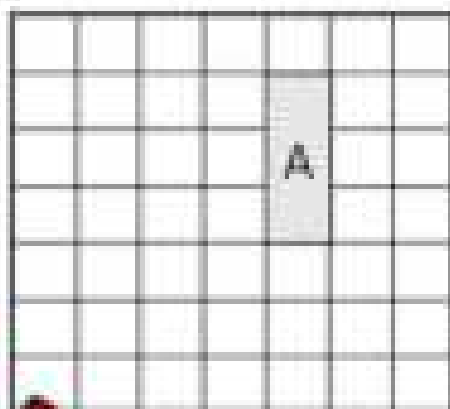
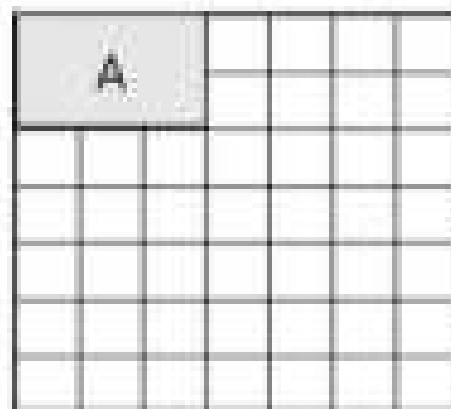
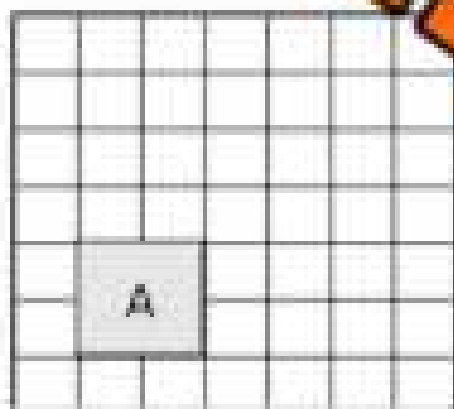
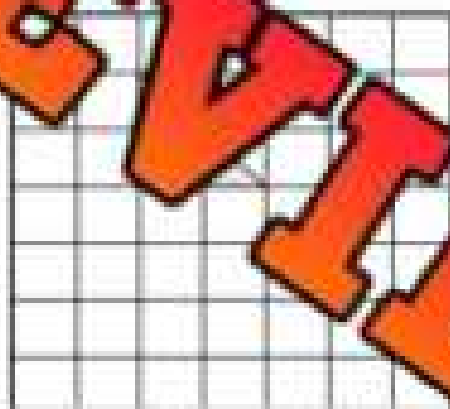
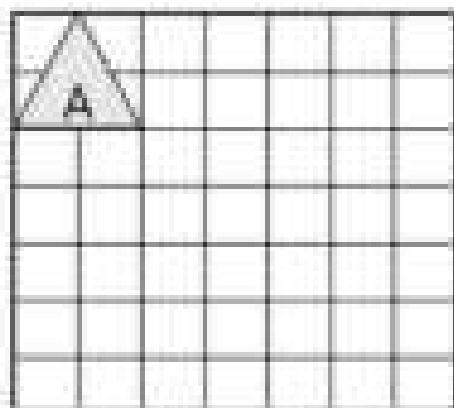
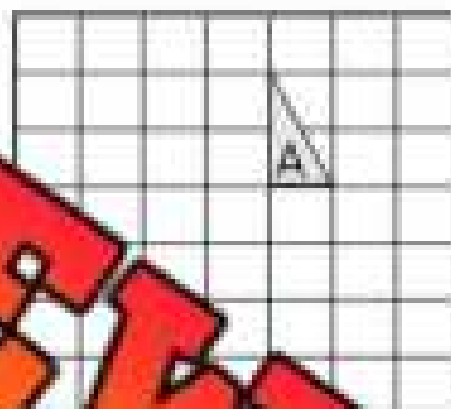
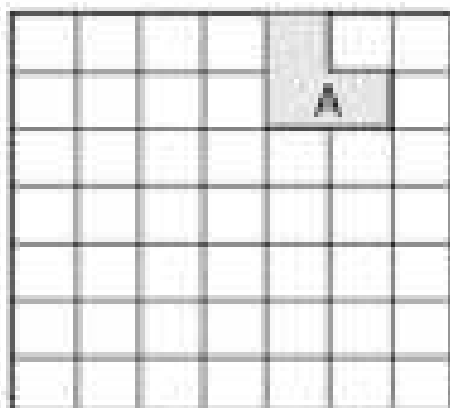
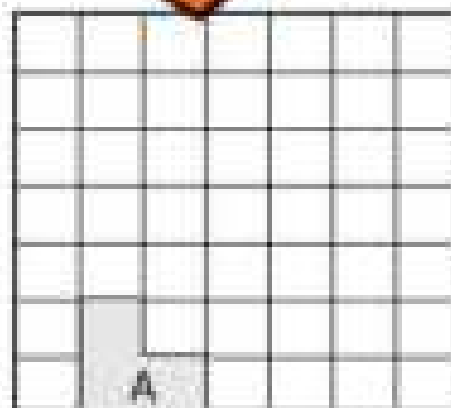
↓



PREVIEW

Performing Translations**Instructions**

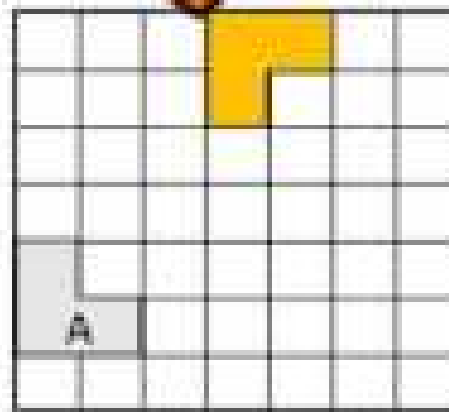
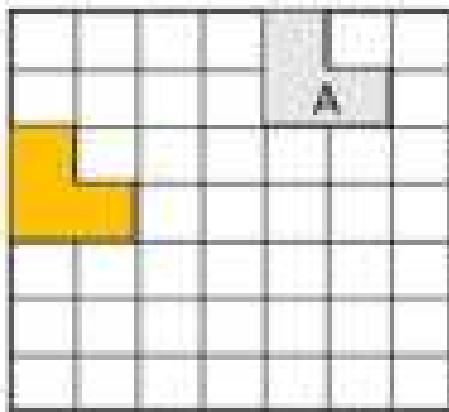
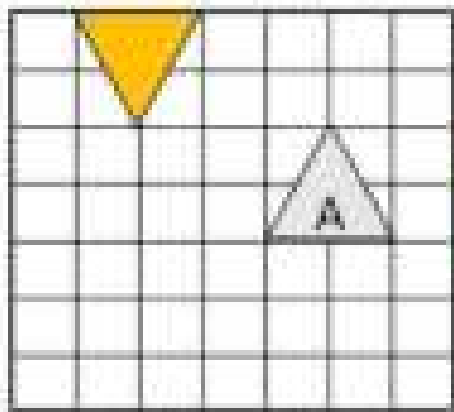
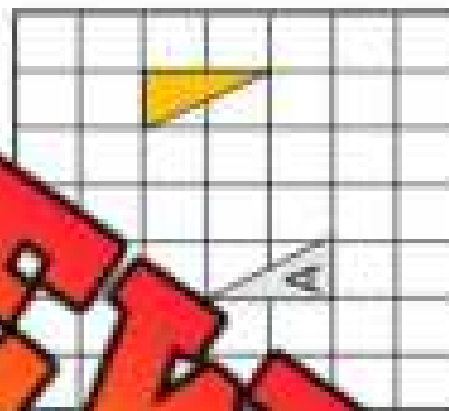
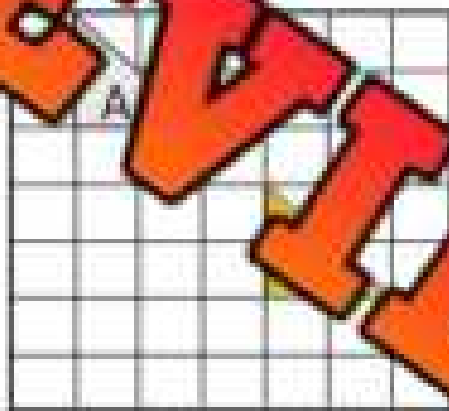
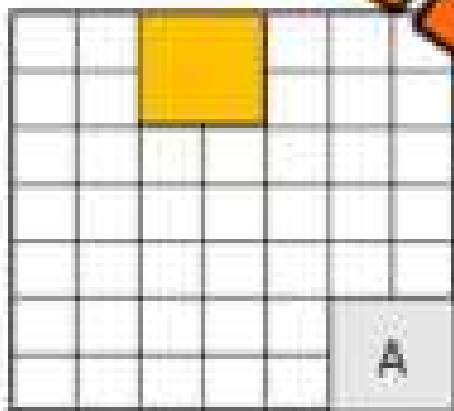
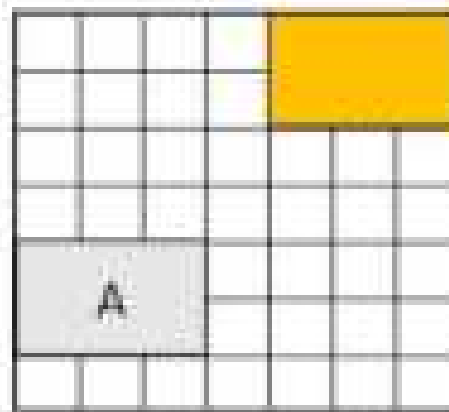
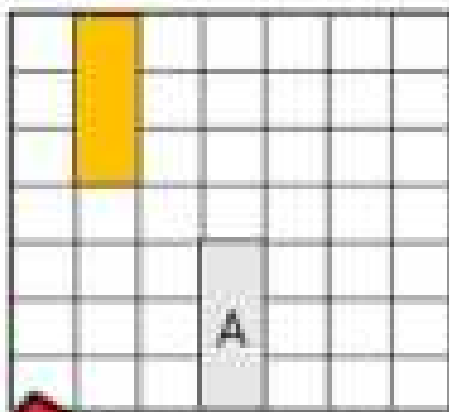
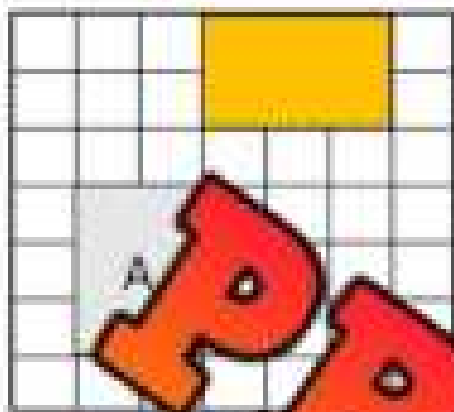
Draw the translations below. Shape A is the original object.

 $4 \downarrow$  $2 \downarrow, 3 \leftarrow$  $3 \downarrow, 2 \rightarrow$  $2 \uparrow, 4 \rightarrow$  $3 \downarrow, 2 \rightarrow$  $3 \downarrow, 4 \rightarrow$  $3 \downarrow, 4 \leftarrow$  $5 \uparrow, 4 \rightarrow$

Translation or Not?

Instructions:

Is the transformation a translation or not? Write yes or no.



PREVIEW

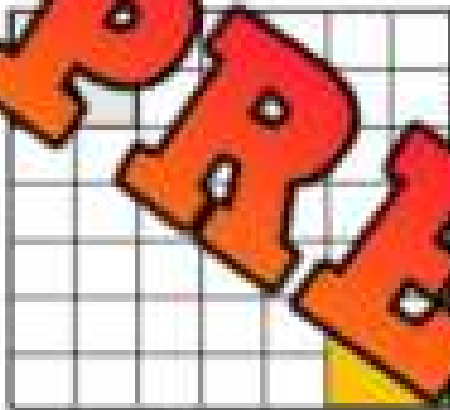
Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

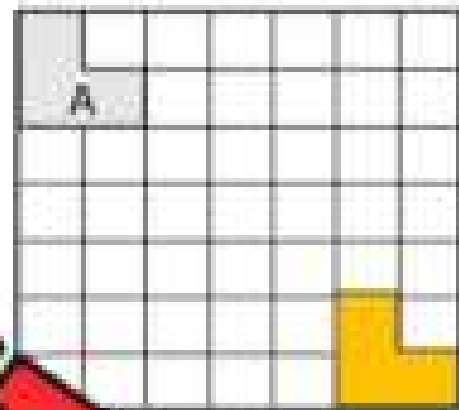
Name: _____

Describe the translation below. Shape A is the original object.



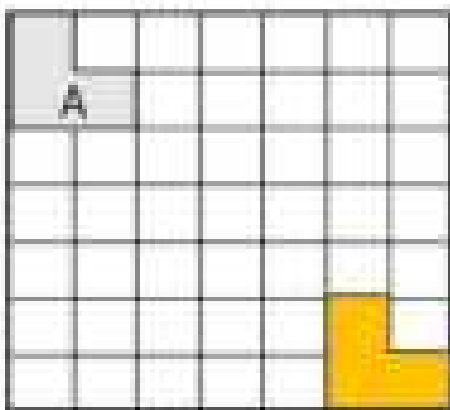
Name: _____

Describe the translation below. Shape A is the original object.



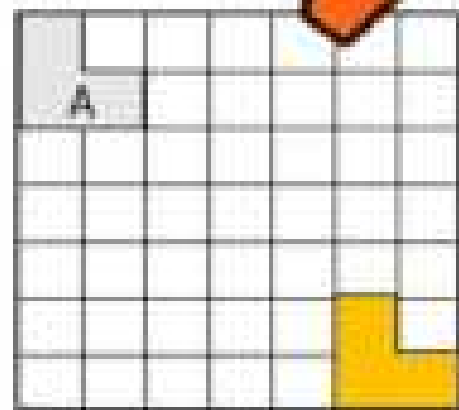
Name: _____

Describe the translation below. Shape A is the original object.



Name: _____

Describe the translation below. Shape A is the original object.



PREVIEW

Math Activity: Translation Relay Race

Objective

What are we learning about?

To help students understand and describe translations on a Cartesian plane through a fun and engaging relay race activity.

Materials

What you will need for the activity.

- Graph paper
- Colored pencils
- Pencils and erasers
- Translation task cards



Instructions

How you will do the activity

1. **Explain Translations:** Start by explaining translations on the Cartesian plane involve moving shapes without rotating or resizing them.
2. **Distribute Materials:** Provide each team with a set of graph paper and a set of translation task cards.
3. **Form Teams:** Divide the class into small teams, ensuring each team has their graph paper and task cards.
4. **Translation Task:** The first student in each team picks a translation task card and strategically draws a shape on the grid, ensuring it can fit after the translation.
5. **Perform Translation:** The student then moves the shape according to the instructions on the task card and draws the new position on the grid.
6. **Pass to Next Student:** The student then goes to the end of the line, and the next student steps up.
7. **Repeat Process:** The next student repeats the process: drawing the shape at its new position, selecting a new translation task card, and performing the translation.
8. **Continue Relay:** Continue the relay until all team members have had a turn or all task cards are used.
9. **Verification and Discussion:** The teacher verifies the translations, and the class discusses the different translations and observations.

Task Cards

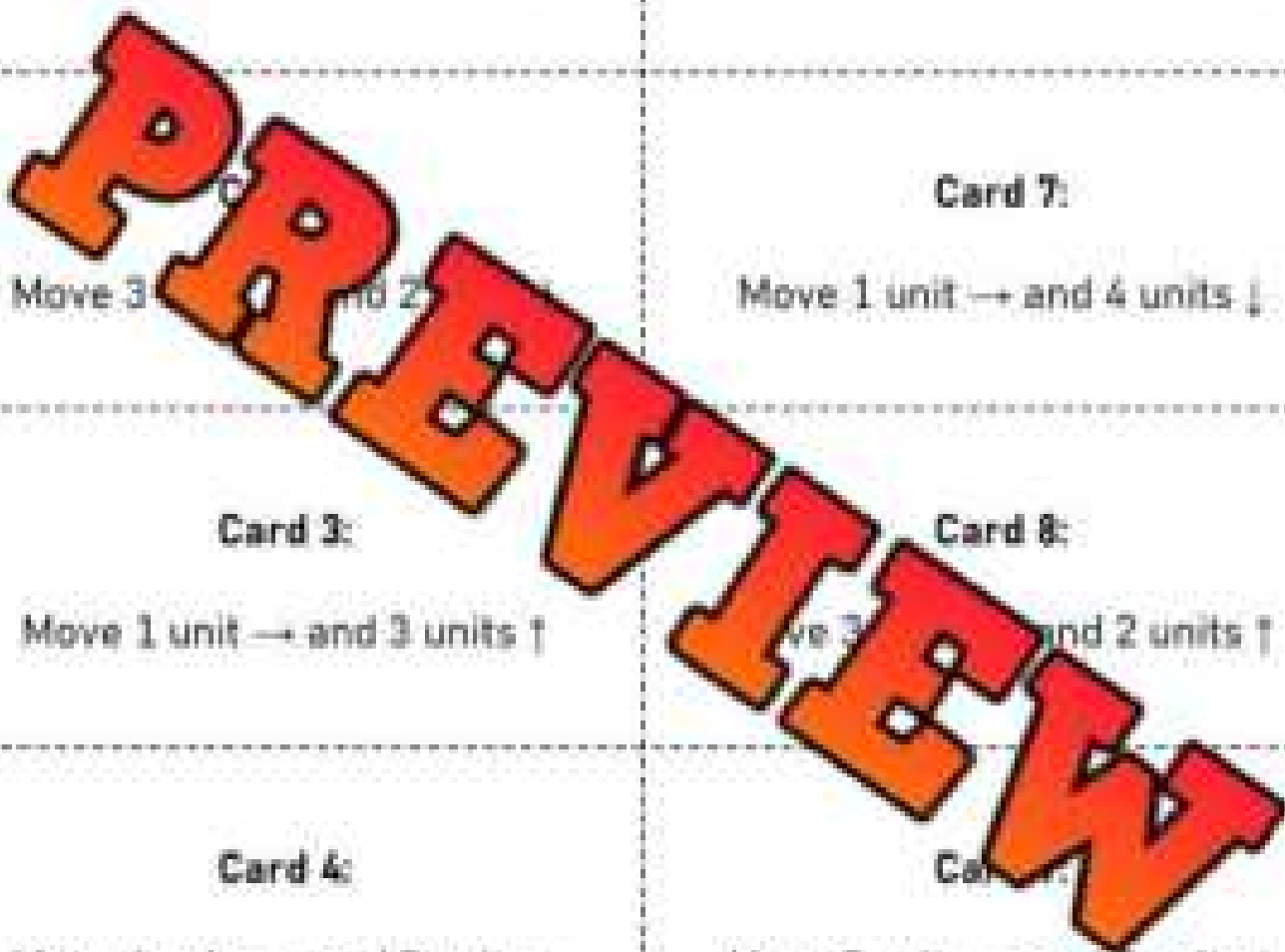
Cut out the cards below

Card 1:

Move 2 units \rightarrow and 1 unit \uparrow

Card 6:

Move 2 units \leftarrow and 3 units \uparrow



Move 3 units \rightarrow and 2 units \uparrow

Card 7:

Move 1 unit \rightarrow and 4 units \downarrow

Card 3:

Move 1 unit \rightarrow and 3 units \uparrow

Card 8:

Move 3 units \rightarrow and 2 units \uparrow

Card 4:

Move 4 units \rightarrow and 2 units \uparrow

Card 9:

Move 2 units \rightarrow and 2 units \downarrow

Card 5:

Move 1 unit \leftarrow and 2 units \downarrow

Card 10:

Move 1 unit \leftarrow and 3 units \uparrow

Task Cards

Cut out the task cards below

Card 11:Move 4 units \rightarrow and 1 unit \downarrow **Card 16:**Move 2 units \leftarrow and 2 units \uparrow Move 3 units \leftarrow and 5 units \uparrow **Card 17:**Move 2 units \rightarrow and 3 units \downarrow **Card 13:**Move 3 units \rightarrow and 2 units \downarrow **Card 18:**Move 5 units \leftarrow and 2 units \downarrow **Card 14:**Move 3 units \leftarrow and 5 units \uparrow **Card 19:**Move 5 units \rightarrow and 4 units \downarrow **Card 15:**Move 4 units \rightarrow and 3 units \uparrow **Card 20:**Move 5 units \leftarrow and 1 unit \uparrow **PREVIEW**

Grid Paper



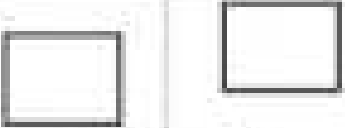






1 x 1 cm grid paper

PREVIEW

Reflection or Not?

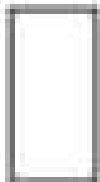



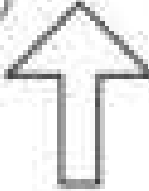
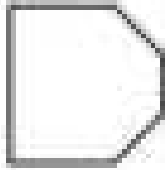
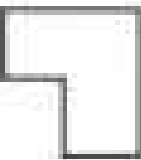

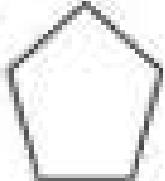
Part 1

Is the transformation a reflection? Yes or no?

1) 	2) 	3) 
4) 	5) 	6) 
7) 	8) 	9) 

Part 2

Draw the shape across the mirror line.

1) 	2) 	3) 
4) 	5) 	6) 
7) 	8) 	9) 


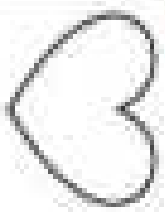
Exit Cards

Cut Out

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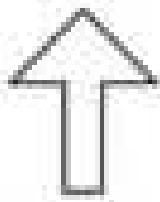

Name: _____

Draw the shape across the reflection line.

1)		
2)		

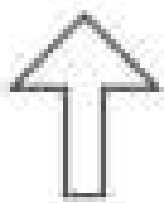
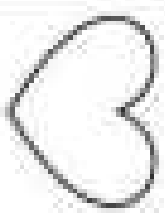
Name: _____

Draw the shape across the reflection line.

1)		
2)		

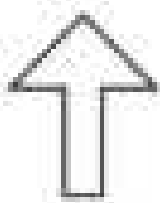
Name: _____

Draw the shape across the reflection line.

1)		
2)		

Name: _____

Draw the shape across the reflection line.

1)		
2)		

PREVIEW

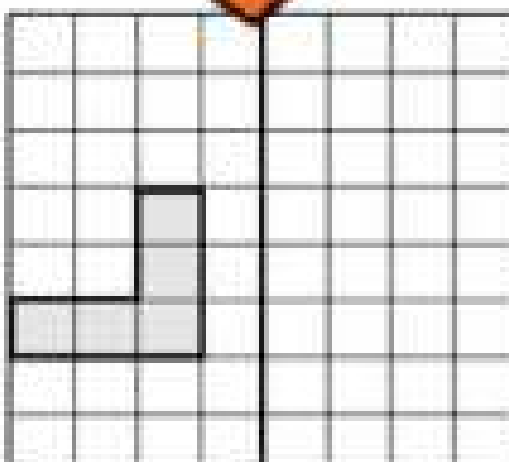
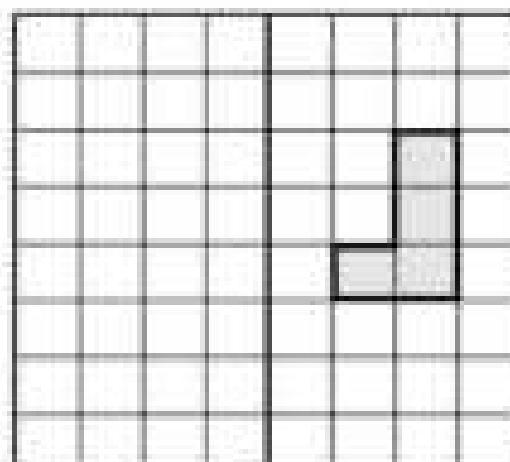
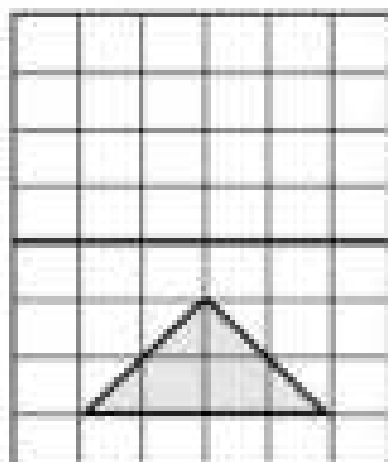
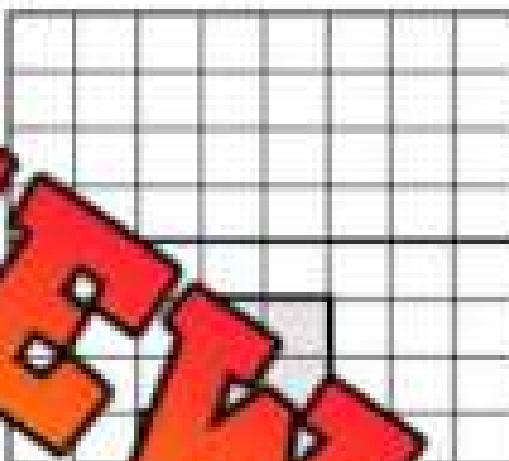
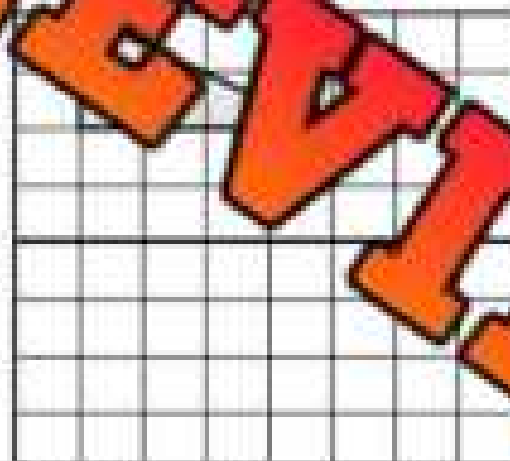
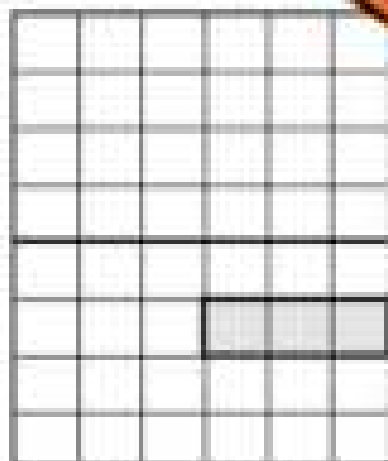
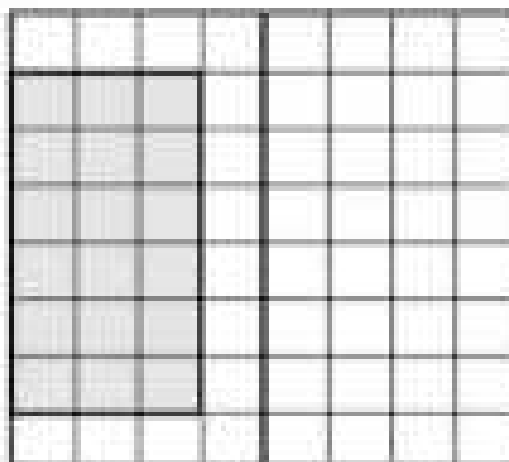
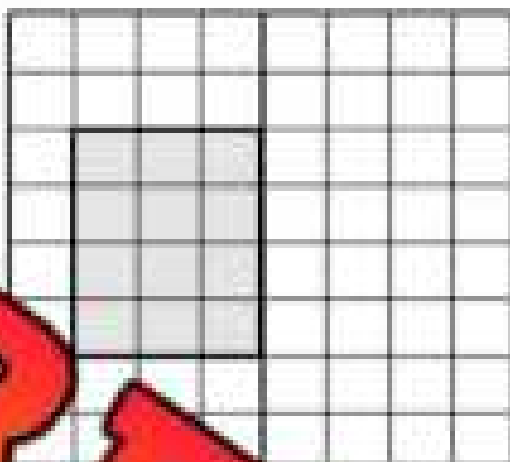
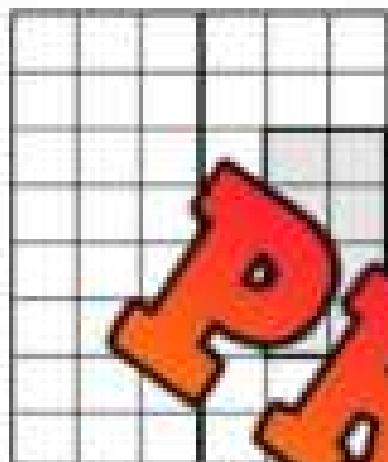
Name _____



Drawing Reflections

Instructions

Reflect the shapes across the mirror line



PREVIEW

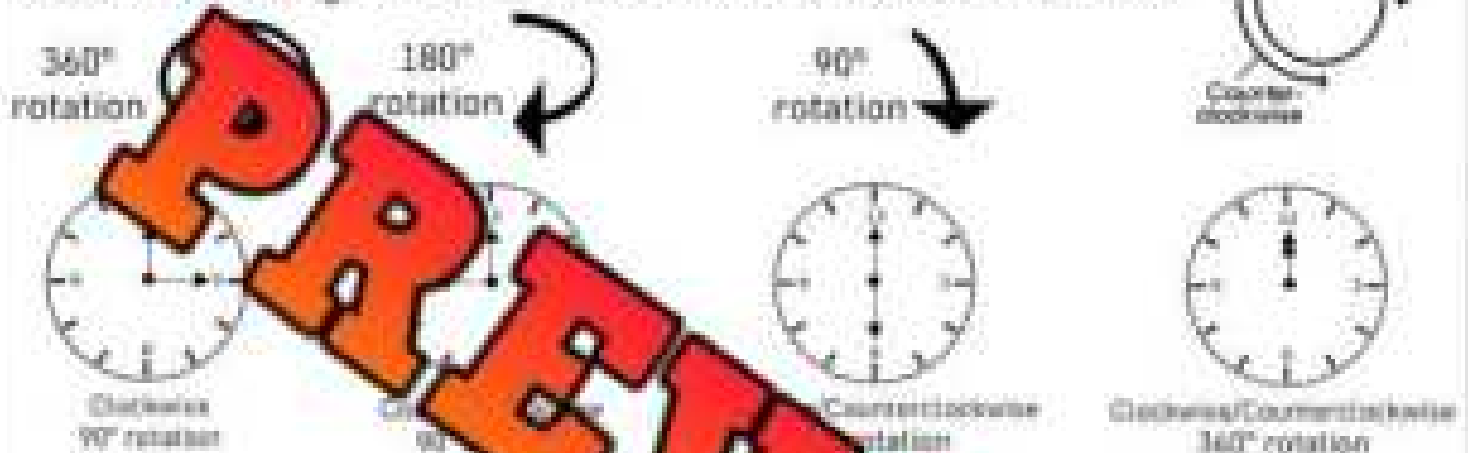
Clockwise and Counterclockwise Rotations

Rotations can either be clockwise or counterclockwise.

A **clockwise** rotation moves the same way the minute, second, and hour hands move on a clock.

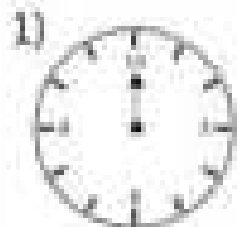
A **counterclockwise** rotation moves the opposite way of a clockwise turn.

We can rotate things a lot or a little. Check out the three turns below.



Part 1

Draw how the arrow turned on the clock.



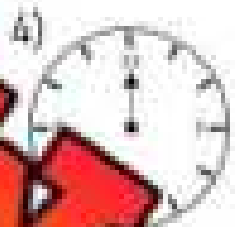
Clockwise
90° rotation



Counterclockwise
180° rotation



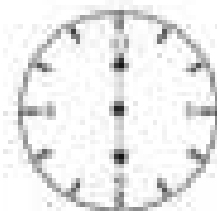
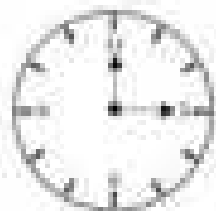
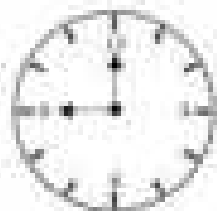
Counterclockwise
90° rotation



Clockwise
180° rotation

Part 2

Describe how the arrow turned on the clock.



Clockwise and Counterclockwise Rotations

360°
rotation180°
rotation90°
rotation

Instruction

Draw the controller after it has been rotated

1)



Clockwise 180° rotation

2)



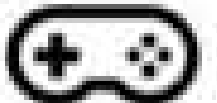
Clockwise 90° rotation

3)

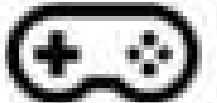


Clockwise 90° rotation

4)

Counterclockwise 360°
rotation

5)



Clockwise 360° rotation

6)

Counterclockwise 180°
rotation

Drawing Rotations

Instructions

Rotate the shapes around the point marked .



1) 90° clockwise rotation



2) 180° clockwise rotation



3) 90° counter-clockwise rotation



4) 360° clockwise rotation



5) 90° counter-clockwise rotation



6) 180° counter-clockwise rotation



7) 90° clockwise rotation



8) 180° counter-clockwise rotation

PREVIEW

Describing Rotations

Instructions

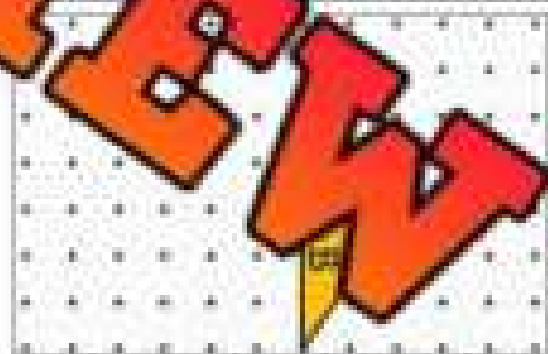
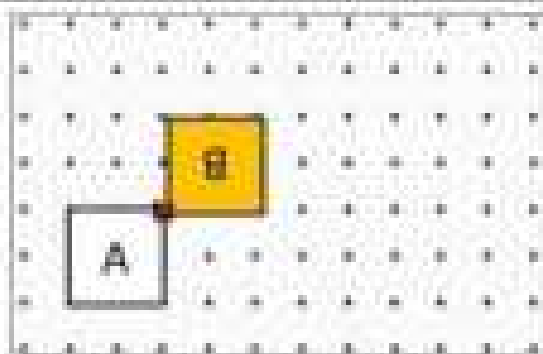
Describe the rotations. Shape A is the original shape.



2)

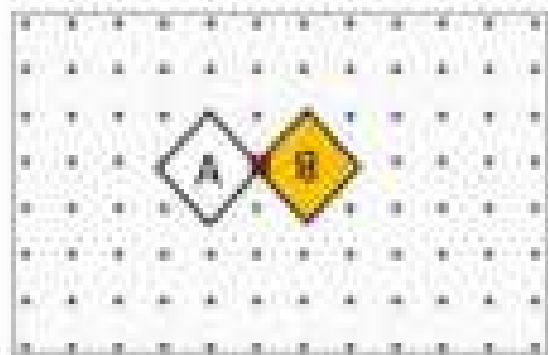
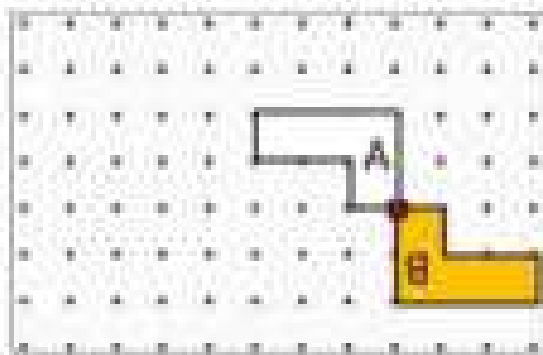


3)



5)

6)



7)

8)

PREVIEW

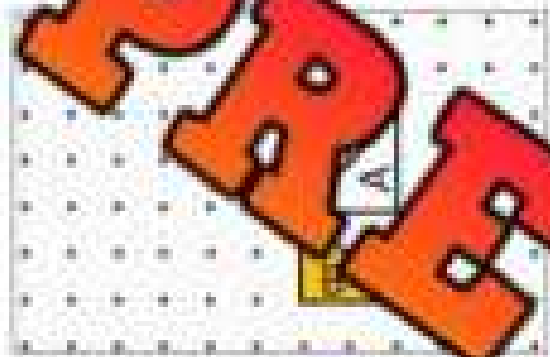
Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

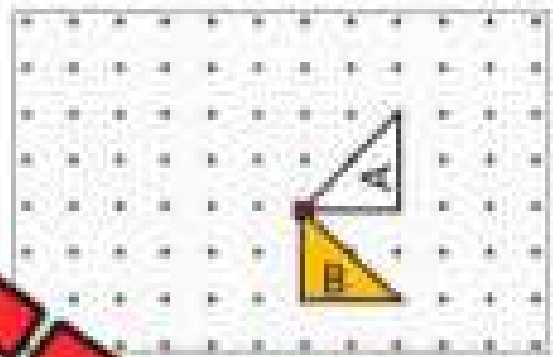
Name: _____

Describe the rotations. Shape A is the original.



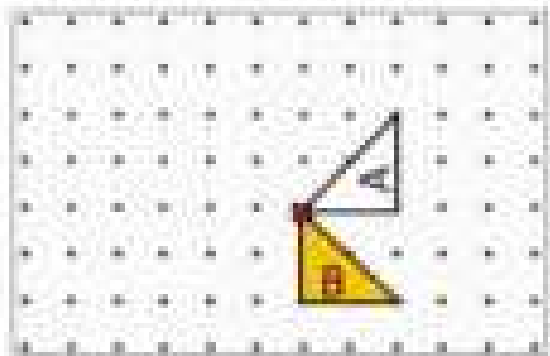
Name: _____

Describe the rotations. Shape A is the original shape.



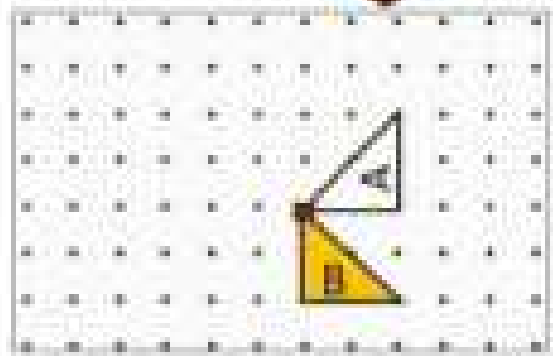
Name: _____

Describe the rotations. Shape A is the original shape.



Name: _____

Describe the rotations. Shape A is the original shape.


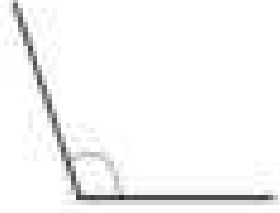
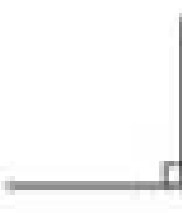
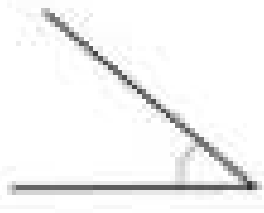


PREVIEW

Geometry Test

Part 1

Label the angles acute, right or obtuse

1) 	2) 	3) 	4) 

Part 2

Label the angles acute (A) or obtuse (O) or right (R) inside the shapes below

5) 	7) 	8) 
Acute = 3	Acute =	Acute =
Obtuse = 0	Obtuse =	Obtuse =
Right = 0	Right =	Right =

Part 3

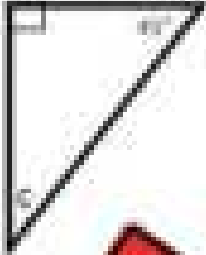

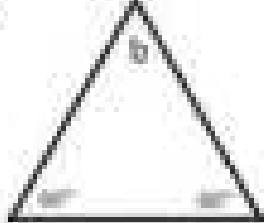
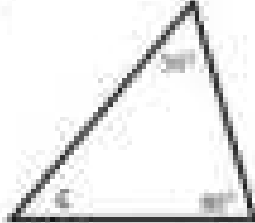
Draw a picture of a shape with the number of angles it has below

9)	10)	11)	12)
Triangle	Triangle	Rectangle	Triangle
Acute = 2	Acute = 3	Acute = 0	Acute = 2
Obtuse = 1	Obtuse = 0	Obtuse = 0	Obtuse = 0
Right = 0	Right = 0	Right = 4	Right = 1

PREVIEW

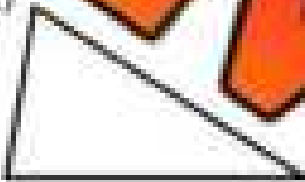
Part 4

Find the missing angle in the triangles below

1) 	2) 	3) 	4) 
c =		b =	c =

Part 5

Label the triangles as equilateral, isosceles, or scalene

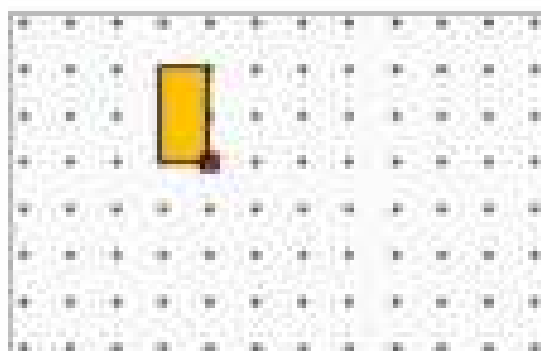
1) 	2) 	4) 

Part 6

Rotate the shapes around the point marked *



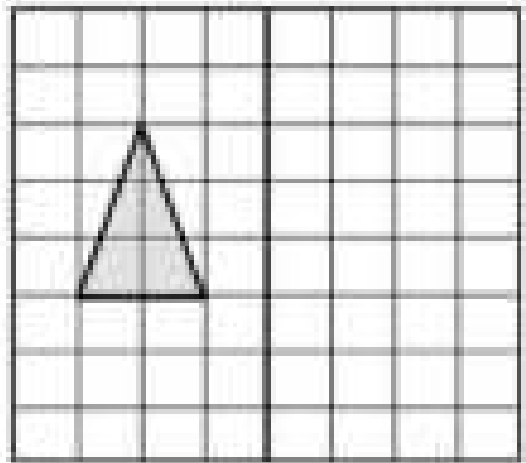
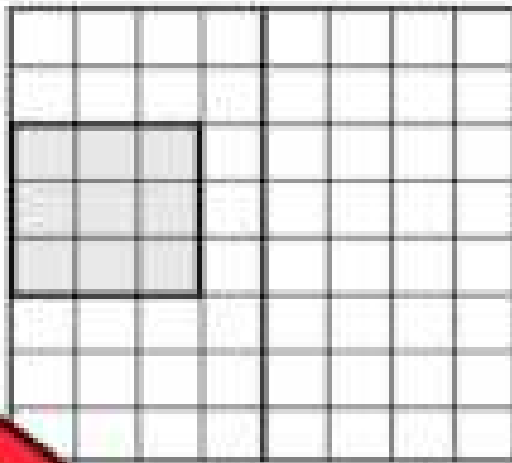
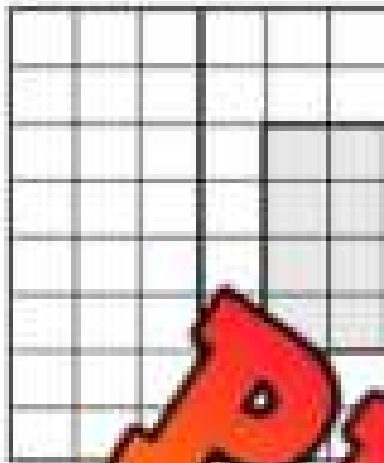
1) 90° counter-clockwise rotation



2) 180° clockwise rotation

Part 7

Reflect the shapes across the mirror line



Part 8

Use the grid to answer the questions below

1. Write the coordinates of the symbols



Symbol	Coordinates
	(,)
	(,)
	(,)
	(,)
	(,)

2. Write the letters on the grid

Letter	Coordinates
A	(30, 10)
B	(15, 45)
C	(65, 80)

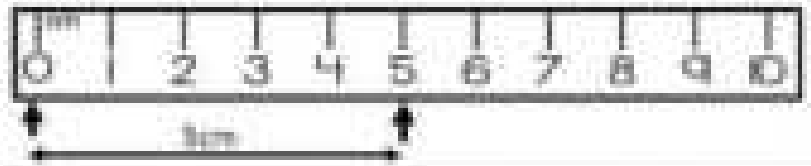
Grade 5

E2 – Measurement

	Curriculum Expectations	Pages That Cover the Expectations
E2.1	use appropriate metric units to estimate and measure length, area, mass, and capacity	66 – 72, 97 – 100, 109 – 111
E2.2	solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units	73 – 96, 101 – 108, 112 – 117, 144 – 146
E2.3	compare angles and determine their relative size by matching them and by measuring them using appropriate non-standard units	118 – 122, 127 – 128, 135, 136
E2.4	explain how protractors work, use them to measure and construct angles up to 180° , and use benchmark angles to estimate the size of other angles	123 – 126, 129 – 134
E2.5	use the area relationships among rectangles, parallelograms, and triangles to develop the formulas for the area of a parallelogram and the area of a triangle, and solve related problems	147 – 155, 164, 165, 168 – 186
E2.6	show that two-dimensional shapes with the same area can have different perimeters, and solve related problems	137 – 146, 156 – 163, 166, 167, 178 – 186

Measuring in Centimetres

We can accurately measure the length of something by using a ruler.

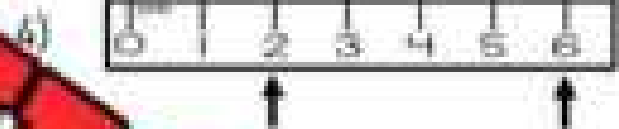


Instructions

Read the rulers below to find the distance between the arrows.



_____ cm

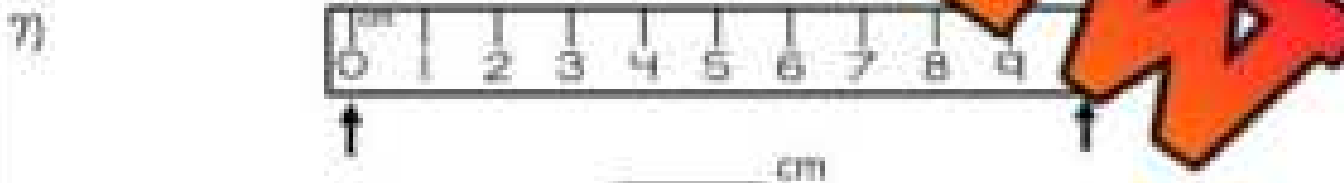


_____ cm

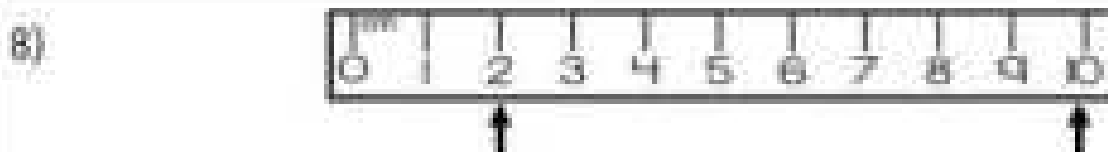
_____ cm



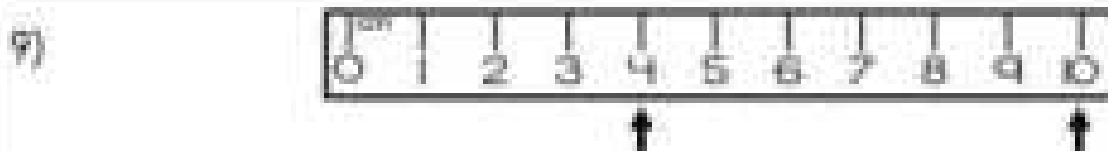
_____ cm



_____ cm






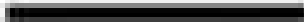



_____ cm



_____ cm

Measuring in Centimetres**Part 1**

Use a ruler to measure the lines below

1)  _____ cm	2)  _____ cm
3)  _____ cm	4)  _____ cm
5)  _____ cm	6)  _____ cm
7)  _____ cm	_____ cm

Part 2

Draw a line that is the correct length

1) _____ 7 cm	2) _____ 4 cm
3) _____ 6 cm	4) _____ 2 cm
5) _____ 3 cm	6) _____ 5 cm

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Use a ruler to measure the lines below



2) Draw a line that is the correct length.

4 cm

Name: _____

1) Use a ruler to measure the lines below



_____ cm

2) Draw a line that is the correct length.

4 cm

Name: _____

1) Use a ruler to measure the lines below



_____ cm

2) Draw a line that is the correct length.

4 cm

Name: _____

1) Use a ruler to measure the lines below



_____ cm

2) Draw a line that is the correct length.

4 cm

PREVIEW

Measuring Height – Lollipops

Questions

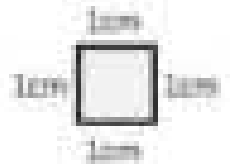
Measure the height of the lollipop sticks



1. Colour the biggest stick Red
2. Colour the shortest stick Blue
3. Colour the two sticks that are the same length green

Measuring Square Side Lengths

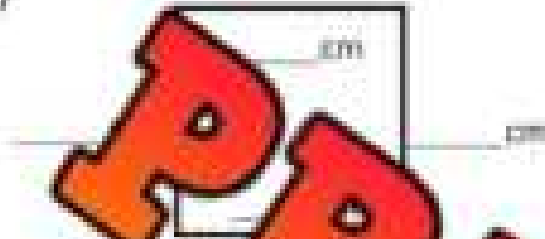
A square has 4 sides that are all the same length. We can find out if a shape is a square by measuring the side lengths.



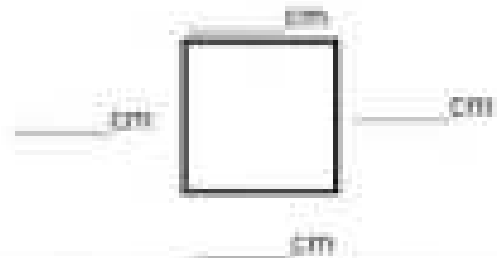
Part 1

Use a ruler to measure the squares below

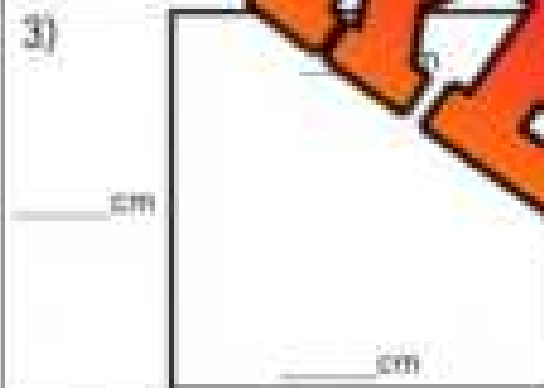
1)



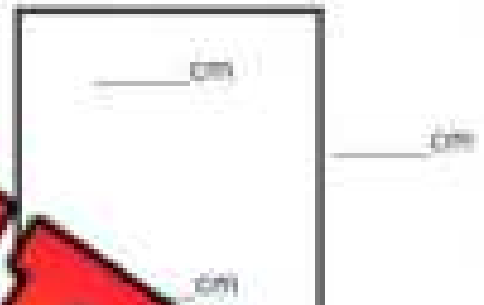
2)



3)



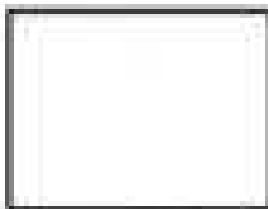
4)



Part 2

Are the shapes squares or rectangles?

1)



Square Rectangle

2)



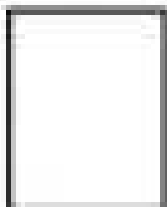
Square Rectangle

3)



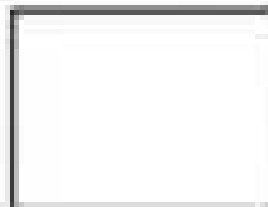
Square Rectangle

4)



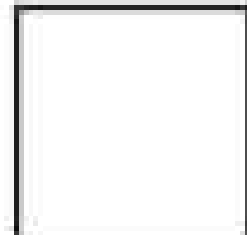
Square Rectangle

5)







Square Rectangle

6)



Square Rectangle

Metric System Units – mm, cm, m, km

			
Used to measure small distances.	Used to measure small to medium distances.	Used to measure medium to long distances.	Used to measure long distances.
Millimetre	Centimetre	Metre	Kilometre

Question: What unit of measure would you use to measure the following distances?

1) The distance from Toronto to Ontario	
2) The length of your nose	
3) The length of your eraser	
4) The length of your classroom	
5) The distance of a marathon run	
6) The distance of a 10 second race	
7) The length of your shoe	
8) The width of your fingernail	
9) The height of the classroom door	
10) The length of your school	

Metric System Units - mm, cm, m, km

In Canada, we use the metric system. The metric system has 4 main units that we use to measure distances.

10 mm = 1 cm 1000 mm = 1 m	100 cm = 1 m 1 cm = 10 mm	1 m = 100 cm 1000 m = 1 km	1 km = 1000 m
Millimetre	Centimetre	Metre	Kilometre

Part 1 Complete the tables below

mm	cm	m	m	km
10	100	1	1000	1
20	200	2	2000	2
30	300	3	3000	3
40	400	4	4000	4
50	500	5		5
60	600	6		6
70	700	7		7
80	800	8		8
90	900	9		9
100	1000			

Part 2 Convert the units of measurement below

1) 1m	_____ cm	5) 5m	_____ cm	9) 500cm	_____ m
2) 20mm	_____ cm	6) 50mm	_____ cm	10) 500mm	_____ cm
3) 2cm	_____ mm	7) 100mm	_____ cm	11) 8m	_____ cm
4) 50cm	_____ mm	8) 30cm	_____ mm	12) 300cm	_____ m

Metric System Units – Decimal Conversions

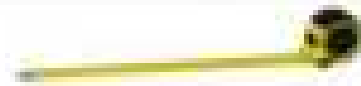
In Canada, we use the metric system. The metric system has 4 main units that we use to measure distances.

BENCHMARKS

Millimetre (mm)	Centimetre (cm)	Metre (m)	Kilometre (km)
15mm = 1.5cm 1500mm = 1.5m	150cm = 1.5m 1cm = 10mm	1.5m = 150cm 1500m = 1.5km	2.3km = 2300m

Part 1

Tables below



mm	cm	m	m	km
5		0.5	1500	
15		1.5		1.5
	2.5	250	5500	
	3.5	350	7500	
45				4.5
55		550	5500	
	6.5	650	6500	
75		7.5		7.5
85		850		8.5
	9.5	950		9.5

Part 2

Convert the units of measurement below

1) 1.3m	_____ cm	5) 6.2m	_____ cm	9) 580cm	_____ m
2) 28mm	_____ cm	6) 57mm	_____ cm	10) 87mm	_____ cm
3) 2.7cm	_____ mm	7) 134mm	_____ cm	11) 8.42m	_____ cm
4) 5.3cm	_____ mm	8) 3.6cm	_____ mm	12) 330cm	_____ m

Which is Longer?

Part 1 Which distance is farther? Circle the longest distance.

1)	10.5m	200.2cm	10.5mm	1.5km
2)	32.5cm	380mm	0.5km	1000m
3)	50m	535cm	5.5m	0.5km
4)	5m	3.3m	3000mm	156cm
5)	712cm	712mm	3000mm	4.5m

Part 2 Read the problem and solve. Show your work.

1. Fred and Norm both walk to school. Fred walks 1.9km and Norm walks 1753m. Who walks further to school?
2. Nick and Ryan both competed in long jump at the track meet. Nick jumped 3.45m and Ryan jumped 329cm. Who jumped further?
3. Max and Rudy are arguing over whose pencil is longer. Max's pencil is 9.4cm long and Rudy's is 95mm long. Whose pencil is longer?



Which is Longer?

Part 1

Order the measurements from shortest to longest

Distances	Order (Shortest to Longest)			
1) 12.5 cm, 2.5 m, 125 mm, 0.5 km				
2) 0.75 km, 750 mm, 7500 cm				
3) 150 m, 4.5 km, 15 km				
4) 9 km, 900 mm, 90 m				
5) 3200 m, 300 cm, 3200 mm, 0.32 km				

Part 2

Order the measurements from shortest to longest

Distances	Order (Shortest to Longest)			
1) 2.1 km, 950 m, 47 cm, 725 mm				
2) 1.25 m, 14 900 mm, 1.2 cm, 1.53 km				
3) 0.22 km, 195 m, 19 850 mm, 23 cm				
4) 7.05 m, 7150 mm, 74 cm, 0.72 km				
5) 1.85 km, 175 cm, 17.5 m, 1855 mm				

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Convert the units of measurement below.

- a) 5.3 km = _____ m
 b) 415 m = _____ cm
 c) 392 cm = _____ mm

2) Solve the problem below.

Sarah and Tom both ran in a race. Sarah ran 6.2 km and Tom ran 6850 m. Who ran further?

Name: _____

1) Convert the units of measurement below.

- a) 5.3 km = _____ m
 b) 415 m = _____ cm
 c) 392 cm = _____ mm

2) Solve the problem below.

Sarah and Tom both ran in a race. Sarah ran 6.2 km and Tom ran 6850 m. Who ran further?

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1) Convert the units of measurement below.

- a) 5.3 km = _____ m
 b) 415 m = _____ cm
 c) 392 cm = _____ mm

2) Solve the problem below.

Sarah and Tom both ran in a race. Sarah ran 6.2 km and Tom ran 6850 m. Who ran further?

Memory Game: Matching Equivalent Units

Objective

What are we learning about?

Students will practice converting and matching equivalent units of measurement, between millimeters, centimeters, meters and kilometers, to enhance their understanding of metric conversions.

Material

What you will need for the activity.

- Set of Memory Game cards with units of measurement (m, cm, mm, km)
- Tables or chairs to space out group to lay out their cards



Instructions

How you will complete

1. Divide the class into groups of 2, 3 or 4 students each.
2. Give each group a set of Memory Game cards.
3. Have each group lay all the cards face down in a grid on a table.
4. Students take turns flipping over two cards at a time, trying to find a match with equivalent units of measurement.
5. If a student finds a match (e.g., 1 meter and 100 centimeters), they remove those cards from the grid and keep them.
6. If the cards do not match, they are turned back over, and the next student takes a turn.
7. The game continues until all the cards have been matched.
8. After the game, review the equivalent units of measurement with the class, ensuring students understand the conversions.

Name: _____

80

Measurement Conversions
102

Cards

Memory Game Cards

100 centimeter

1000 millimeters

PREVIEW

4,000,000
centimeters

563 centimeters

5630 millimeters

398 kilometers

39,800,000
centimeters

208 meters

20800 centimeters

Cards

Memory Game Cards

51 meters

0.051 kilometers

655 centimeters

6.55 meters

421 meters

420 centimeters

8 kilometers

8000 meters

15 millimeters

1.5 centimeters

PREVIEW

Cards

Memory Game Cards

125 millimeters

12.5 centimeters

PREVIEW

12 kilometers

200 meters

345 centimeter

3.45 meters

9.5 meters

950 centimeters

Name: _____

82

Measuring Length
1.2

Cards

Memory Game Cards

111 centimeters

1110 millimeters

24.2 meters

24.2 centimeters

98 kilometers

80.9 meters

0.08 meters

8 centimeters

22.75 centimeters

227.5 millimeters

PREVIEW

Estimating Distance

Questions

Circle which distance is the largest

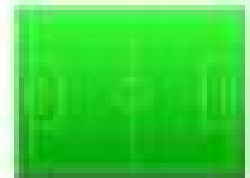
1) Length of a pencil

- a) 30cm
- b) 10mm
- c) 1km
- d) 10cm



2) Length of a soccer field

- a) 100m
- b) 500m
- c) 2km
- d) 500cm



3) Distance from Chicago to Toronto

- a) 10km
- b) 450km
- c) 500cm
- d) 500m

4) Length of a gym

- a) 15m
- b) 3m
- c) 300cm
- d) 300mm



5) Width of a computer monitor

- a) 1km
- b) 1m
- c) 30cm
- d) 20mm



6) Length of your shoe

- a) 20cm
- b) 20m
- c) 20mm
- d) 2m



7) Height of a desk

- a) 20km
- b) 2m
- c) 90cm
- d) 200mm



8) Height of an NBA player (in cm)

- a) 2km
- b) 2m
- c) 100cm
- d) 200mm



9) Length of a bus

- a) 1km
- b) 13m
- c) 300cm
- d) 2000mm



10) Width of an eraser on the end of a pencil

- a) 2km
- b) 2m
- c) 10cm
- d) 10mm



Referents For Square Centimetre

A **referent** is something that represents something else. When we measure, we don't always have measuring tools. Without tools, we can use a referent to estimate area.

A square centimetre (cm^2) is an area equivalent to the area of a square measuring 1 centimetre by 1 centimetre. A good referent for a square centimetre could be your pinky fingernail.



Instructions

Find a referent for a centimetre squared

1) What referent did you choose?

2) Draw the

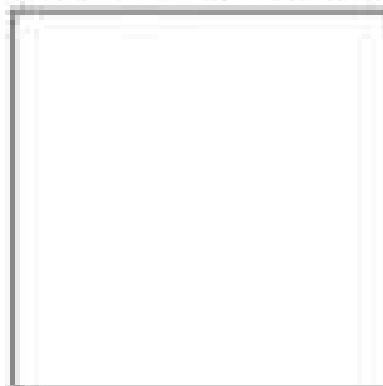
3) Measure the lengths of each side of your referent. What is the base and height?

Base

Height

4) Is this a good referent? Explain why or why not.

5) Use your pinky fingernail as a referent for a cm^2 . How many fingernails will fit in the rectangles below? Write your answer inside the quadrilaterals.



Estimating Area – Square Centimetre

Instructions

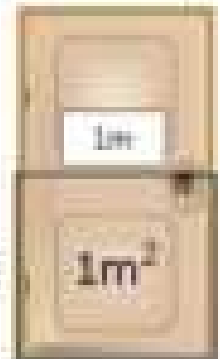
Use your referent to estimate the area of the spaces below

Objects/Spaces	Estimated Area
1) Your desk/tabletop	
2) The	
3) A book in yo	
4) The door to the classroom	
5) A whiteboard/chalkboard in your room	
6) A window in your room	
7) The front of a pencil case	
8) A computer screen	
9) The bottom of your chair (part you sit on)	
10) An eraser	

PREVIEW

Referents For Square Metres

A square metre (m^2) is an area equivalent to the area of a square measuring 1 metre by 1 metre. A good benchmark for a square metre is the area of a door from the doorknob to the bottom of the door.



Instructions

Think of a referent for a square metre.

1) What referent did you choose?

2) Draw the referent.

3) Measure the lengths of each side of your referent. What are the base and height?

Base		
------	--	--

4) Is this a good referent? Explain why or why not.

5) Using your referent to help visualize a square metre, estimate the area in metres squared of the following

1) Area of your classroom	
2) Area of your gym	
3) Area of the biggest window in your class	

Estimating Area – Square Metres**Instructions**

Visualize a square metre and estimate the areas below

Objects/Spaces	Estimated Area
1) Your driveway	
2) The playground	
3) A chalkboard in your classroom	
4) A football field	
5) A hockey rink	
6) Your bedroom	
7) Your bed	
8) The bathroom you use at school	
9) A basketball court	
10) The wall in your classroom that has the door you enter through	

PREVIEW

Square Centimetres to Square Metres

There are 10 000 square centimetres in a square metre. So how do we know this?

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ m} \times 1 \text{ m} = 100 \text{ cm} \times 100 \text{ cm}$$

$$\rightarrow 1 \text{ m}^2 = 10\,000 \text{ cm}^2$$



Part 1

Fill in the tables below

Square Metres	Square Centimetres
1	10 000
2	
3	
4	
5	
6	
	70 000
8	
	90 000
10	

Square Metres	Square Centimetres
1.5	
2.3	
	36 000
	41 000
7	
	74 000
	80 000
9.7	
10.5	

Part 2

Which area is larger? Compare the areas using > , < , =

1)	12 500 cm ²	1.1 m ²
----	------------------------	--------------------

3)	6 m ²	6 800 cm ²
----	------------------	-----------------------

5)	95 000 cm ²	9.1 m ²
----	------------------------	--------------------

2)	27 000 cm ²	2.7 m ²
----	------------------------	--------------------

4)	150 m ²	15 000 cm ²
----	--------------------	------------------------

6)	66 250 cm ²	6.7 m ²
----	------------------------	--------------------

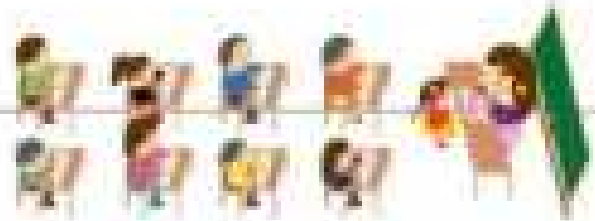
Square Metres to Square Kilometres

There are 1 000 000 square metres in a square kilometre. So how do we know this? Kilo means thousand, so there are 1000 metres in a kilometre.

$$1 \text{ km} = 1\,000 \text{ m}$$

$$1 \text{ km} \times 1 \text{ km} = 1\,000 \text{ m} \times 1\,000 \text{ m}$$

$$\rightarrow 1 \text{ km}^2 = 1\,000\,000 \text{ m}^2$$



Part 1 Fill in the tables below

Square Kilometres	Square Metres
1	
2	
3	
	4 000 000
5	
6	
	7 000 000
8	
	9 000 000
10	

Square Kilometres	Square Metres
1.3	
2.6	
	3 300 000
	4 600 000
5.7	
7	
	600 000
9.5	
10.3	

Part 2 Answer the question below

Rob and Brad both bought land to build on. Rob bought 1 220 000 m² and Brad bought 1.25 km². Who bought more land?

Choosing An Appropriate Unit

Part 1

Which unit would you use to describe the areas below?



#	Area	Unit (cm^2 , m^2 , km^2)
1)	The area of a classroom	
2)	The area of a tennis court	
3)	The area of a piece of paper	
4)	The area of a football field	
5)	The area of a square meter	
6)	The area of a window	
7)	The area of a computer screen	
8)	The area of a country	
9)	The area of a dinner plate	
10)	The area of a large amusement park	

PREVIEW

Part 2

Josh told a friend the area of things. Did he use an appropriate unit?

#	Area	Yes	No	Better Unit
1)	The area of my property is 4 200 000 m^2	Yes	No	
2)	The area of my pencil case is 0.052 m^2	Yes	No	
3)	The area of Canada is 9 985 000 km^2	Yes	No	
4)	The area of my garage is 0.00043 km^2	Yes	No	
5)	The area of my pool is 300 000 cm^2	Yes	No	

Research Assignment - Areas

Directions

Research the areas of the following things below. If you find the area in hectares or acres, you may need to convert them to cm^2 , m^2 , km^2 .

#	Region, Space, Object	Area
1)	The area of Canada	
2)	The area of the USA	
3)	The area of a triangle	
4)	The area of a square	
5)	The area of an NHL hockey rink	
6)	The area of a CFL football field	
7)	The area of an NFL football field	
8)	The area of a tennis court	
9)	The area of your city	
10)	The area of Toronto	
11)	The area of Ottawa	

PREVIEW

Research Assignment - Areas


Directions

Research the areas of the following things below. If you find the area in hectares or acres, you may need to convert them to cm^2 , m^2 , km^2 .

#	Region, Space, Object	Area
12)	The area of Ontario	
13)	The area of Nunavut	
14)	The area of Alberta	
15)	The area of Saskatchewan	
16)	Choose your own mall to research	
17)	Area of West Edmonton Mall	
18)	Choose your own mall to research	
19)	Area of Calgary International Airport	
20)	Area of Toronto Pearson Airport	

PREVIEW

Measuring Capacity – mL, cL, L, kL

Millilitre (mL)	Centilitre (cL)	Litre (L)	Kilolitre (kL)
Used to measure volume and capacity of small liquids/containers	Used to measure volume and capacity of small to mid sized liquids/containers	Used to measure volume and capacity of mid to large sized liquids/containers	Used to measure volume and capacity of large sized liquids/containers
			

Part 1

Use your knowledge to decide which unit you would use to measure

1) Cup of apple juice	6) Wheelbarrow of liquid
2) Dump truck of cement	7) Spoonful of medicine
3) Can of pop	8) Bucket of water
4) Spoonful of medicine	9) Wheelbarrow of liquid
5) Bucket of water	10) Bathtub full of water

Part 2

Write something that you would measure using the unit of measurement

1) Millilitre		5) Millilitre	
2) Centilitre		6) Centilitre	
3) Litre		7) Litre	
4) Kilolitre		8) Kilolitre	

Metric System Units – Capacity – Decimal Conversions

Millilitre (mL)	Litre (L)	Kilolitre (kL)
1000 mL = 1L	1000L = 1kL	1kL = 1000L
		

Part 1 Complete the tables below

mL	L	L	L	kL	L	kL
1000		1000		1000	1	1100
2000					2	1200
3000		3500	3.5		3	
	4	4500				1.3
	5	5500				1.4
6000		6500				1500
7000			7.5			1.6
8000		8500		8000		1.7
	9		9.5			
	10	10500		10000		1.9

Part 2 Convert the units of measurement below

1) 1.7L	_____ mL	5) 6.4kL	_____ L	9) 4.5L	_____ mL
2) 5.4L	_____ mL	6) 4700mL	_____ L	10) 5500mL	_____ L
3) 8400mL	_____ L	7) 8400mL	_____ L	11) 4.5kL	_____ L
4) 3200L	_____ kL	8) 7.7kL	_____ L	12) 2500L	_____ kL

Which has the Largest Capacity?

Part 1

Which measurement has the largest capacity?

1)	5.2L	510mL	2300mL	1.9L
2)	10.3L	3500mL	2.1kL	1600L
3)	67L	608L	2300L	3.5kL
4)	4500mL	6500L	1.6kL	3600mL
5)	3600mL	2300mL	3.1L	1.6kL

Part 2

Read the problem and choose the correct answer below.

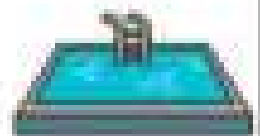
- 1) Henry and Ruby both have juice boxes. Henry's juice box is 231ml and Ruby's is 0.5L. Who's juice box has a larger capacity?



- 2) Jesse is ordering soup from a restaurant. She can choose between a bowl of 1100mL soup. Which option should she choose if she wants the larger amount of soup?



- 3) Traci and Emma are arguing over who has the larger pool. Emma's pool has a capacity of 1200L and Traci's can hold 1.3kL. Whose pool has the larger capacity?



Ordering Capacity

Part 1

Order the Capacities from Smallest to Largest

Measurements	Order (Smallest to Largest)			
1) 4.2 L, 5500 mL, 3.8 L, 5 L				
2) 5000 mL, 3400 L, 10.5 L				
3) 2200 mL, 2 L, 3 L				
4) 4.5 kL, 3.7 kL, 4 kL				
5) 9000 mL, 8.2 L, 7.1 L, 6.8 L				

Part 2

Order the Capacities from Largest to Smallest

Measurements	Order (Largest to Smallest)			
1) 3.5 kL, 6000 L, 2.4 kL, 4.8 kL				
2) 5 kL, 3.9 kL, 4 kL, 2.1 kL				
3) 8.5 L, 9800 mL, 9.9 L, 7.7 L				
4) 6 kL, 5.2 kL, 5400 L, 4.8 kL				
5) 8000 mL, 7.8 L, 6.2 L, 9 L				

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Convert the units of measurement below:

- a) 2.4 kL = _____ L
- b) 9800 L = _____ kL
- c) 8.8 L = _____ mL

2) Solve the problem below:
Alice is buying a drink. She can choose the 1.2 kL bottle or the 900 L bottle. Which option should she choose if she wants more to drink?

Name: _____

1) Convert the units of measurement below:

- a) 2.4 kL = _____ L
- b) 9800 L = _____ kL
- c) 8.8 L = _____ mL

2) Solve the problem below:
Alice is buying a drink. She can choose the 1.2 kL bottle or the 900 L bottle. Which option should she choose if she wants more to drink?

Name: _____

1) Convert the units of measurement below:

- a) 2.4 kL = _____ L
- b) 9800 L = _____ kL
- c) 8.8 L = _____ mL

2) Solve the problem below:
Alice is buying a drink. She can choose the 1.2 kL bottle or the 900 L bottle. Which option should she choose if she wants more to drink?

Name: _____

1) Convert the units of measurement below:

- a) 2.4 kL = _____ L
- b) 9800 L = _____ kL
- c) 8.8 L = _____ mL

2) Solve the problem below:
Alice is buying a drink. She can choose the 1.2 kL bottle or the 900 L bottle. Which option should she choose if she wants more to drink?

PREVIEW

Around the World Math Race: Converting kL, L and mL**Objective** What are we learning about?

Students will practice converting between kiloliters, liters, and milliliters in a competitive and engaging game format.

Materials What you will need for the activity

- Conversion questions (e.g., converting kiloliters to liters and milliliters)
- Optional: Timer
- Chairs arranged in a circle

**Instructions** How to complete the activity

1. **Setup:** Arrange chairs in a circle. One student is seated in a chair. One student stands behind a seated student to start the game.
2. **Explain the Game:** Explain to the students they are competing in a race around the circle by answering conversion questions. The student who answers correctly first moves around the entire circle and return to their original position.
3. **Start the Game:** The teacher reads out a conversion question (e.g., "How many milliliters are in 2.2 liters?").
4. **Answering the Question:** The standing student and the seated student in front of them compete to answer the question first. The student who answers correctly first moves to stand behind the next seated student, while the other student remains seated.
5. **Continue the Race:** The teacher continues reading out questions, and the process repeats. The standing student continues to move around the circle, answering questions at each stop.
6. **Winning the Game:** The first student to make it around the entire circle and return to their original position wins the race.
7. **Review:** After the game, review some of the questions and answers with the class to reinforce the concepts and ensure understanding.

Questions

Use the questions below for the game

Questions

What is the equivalent of 1.5 liters in milliliters?

How many milliliters are in 2.2 liters?

How many liters are in 600 milliliters?

How many liters are in 6200 liters?

What is the equivalent of 0.75 liters in milliliters?

How many liters are in 5 kiloliters?

How many liters are in 450 milliliters?

How many liters are in 1500 milliliters?

What is the equivalent of 75 milliliters?

How many milliliters are in 4.5 liters?

How many liters are in 1200 milliliters?

How many kiloliters are in 5000 liters?

What is the equivalent of 1.25 liters in milliliters?

How many liters are in 6.3 kiloliters?

How many liters are in 700 milliliters?

How many liters are in 3600 milliliters?

What is the equivalent of 250 liters in kiloliters?

How many milliliters are in 5.8 liters?

How many kiloliters are in 900 liters?

How many liters are in 4700 milliliters?

How many liters are in 0.005 kiloliters?

How many milliliters are in 7.4 liters?

PREVIEW

Questions

Use the questions below for the game

Questions

How many kiloliters are in 300 liters?

How many liters are in 2.4 kiloliters?

What is the equivalent of 3 liters in milliliters?

How many liters are in 8.5 kiloliters?

How many kiloliters are in 1500 milliliters?

How many kiloliters are in 6800 liters?

What is the equivalent of 1.5 liters in milliliters?

How many milliliters are in 0.5 liters?

How many liters are in 1000 milliliters?

How many kiloliters are in 4250 liters?

What is the equivalent of 0.9 liters in milliliters?

How many liters are in 10.1 kiloliters?

How many liters are in 2000 milliliters?

How many liters are in 5600 milliliters?

What is the equivalent of 4.5 liters in milliliters?

How many liters are in 12 kiloliters?

How many liters are in 800 milliliters?

How many liters are in 3300 milliliters?

What is the equivalent of 0.4 kiloliters in liters?

How many milliliters are in 2.75 liters?

How many liters are in 950 milliliters?

How many kiloliters are in 3750 liters?

Which Capacity is the Largest?

Instructions

Circle which capacity is the largest

1) A pool

- a) 50L
- b) 10kL
- c) 1000L
- d) 5L



2) A cup

- a) 300L
- b) 1kL
- c) 250mL
- d) 3L



3) A bowl

- a) 1L
- b) 3kL
- c) 100mL
- d) 5000mL

4) A spoon

- a) 10kL
- b) 1L
- c) 500mL
- d) 100mL



5) A wheelbarrow

- a) 100L
- b) 5kL
- c) 10L
- d) 500mL



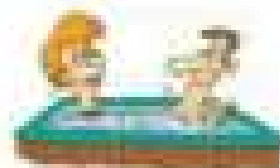
6) A bucket

- a) 100L
- b) 10kL
- c) 5L
- d) 300mL



7) A hot tub

- a) 5L
- b) 10kL
- c) 700L
- d) 500mL



8) A juice box

- a) 250mL
- b) 1L
- c) 20L
- d) 5kL



9) A bath tub

- a) 5L
- b) 300L
- c) 5kL
- d) 500mL



10) A gas tank

- a) 50L
- b) 500mL
- c) 1kL
- d) 3kL



Measuring Mass - Grams

In Canada, we use the metric system. The metric system has 3 main units that we use to measure the mass of objects. The centigram is not used as often.

Milligram (mg)	Centigram (cg)	Gram (g)	Kilogram (kg)
Measure light objects	Measure light to medium objects	Measure average objects	Measure heavy objects

Part 1 Use the information above to decide which unit you would use to measure

1) A basketball		6) A grain of sand	
2) A book		7) A pencil	
3) A chocolate bar		8) A paper airplane	
4) A car		9) A paper plate	
5) A TV		10) A sheet of paper	

Part 2 Write things that you would measure using the unit

1) Milligram		5) Milligram	
2) Gram		6) Gram	
3) Centigram		7) Centigram	
4) Kilogram		8) Kilogram	

Measuring Mass - Grams

Milligram (mg)	Gram (g)	Kilogram (kg)
1000 mg = 1g	1000g = 1kg	1kg = 1000g
		

Part 1 Complete the tables below.

mg	g	g	g	kg	g	kg
1000	1	1000	1	1000	1	1000
2000	2	2000	2	2000	2	2000
3000	3	3000	3	3000	3	3000
4000	4	4000	4	4000	4	4000
5000	5	5000	5	5000	5	5000
6000	6	6000	6	6000	6	6000
7000	7	7000	7	7000	7	7000
8000	8	8000	8	8000	8	8000
9000	9	9000	9	9000	9	9000
10000	10	10000	10	10000	10	10000

Part 2 Convert the units of measurement below.

1) 1.5g	_____ mg	5) 5.4kg	_____ g	9) 5.3g	_____ mg
2) 3.3g	_____ mg	6) 3400mg	_____ g	10) 7500mg	_____ g
3) 5300mg	_____ g	7) 1800mg	_____ g	11) 8.5kg	_____ g
4) 2600g	_____ kg	8) 3.7kg	_____ g	12) 3500g	_____ kg

Which Has The Most Mass ?

Part 1

Which measurement has the most mass? Circle it.

1)	10.5g	230mg	1200mg	1.1kg
2)	257g	299mg	5.2kg	2890g
3)	5g	550g	1600g	1.9kg
4)	5500mg	2200g	1.2kg	
5)	5300mg	2500mg	1.3g	

Part 2

Read the problem and answer the question below.

1) Elyssa bought 1200g of candy at the store. Her friend Stacy bought 1.1kg of candy. Who bought more candy?



2) At a Hot Dog Eating Competition, Kyle and Hugh were in the final round. Kyle ate 4.2kg of hot dogs. Hugh ate 5200g of hot dogs. Who won the round?



3) Courtney is trying to decide which medication to buy. Bottle 1 has 2g for \$1.00. Bottle 2 has 3000mg for \$2. Which bottle should she buy?



Ordering Measurements

Part 1

Order the measurements from lightest to heaviest

Masses	Order (Lightest to Heaviest)			
1) 3200 mg, 2.95 kg, 290 g, 35 g				
2) 1.45 kg, 140 mg, 18 g				
3) 2.1 kg, 2050 g, 1.8 kg				
4) 520 g, 5.3 kg, 460 g, 5.2 kg				
5) 680 mg, 6.9 kg, 6.8 g, 69 kg				

Part 2

Order the measurements from lightest to heaviest

Masses	Order (Lightest to Heaviest)			
1) 11.7 g, 260 mg, 1150 mg, 1.15 kg				
2) 265 g, 305 mg, 5.1 kg, 2885 g				
3) 4 mg, 540 g, 1580 g, 1.85 kg				
4) 125 g, 5600 mg, 2250 g, 1.25 kg				
5) 5250 mg, 4.05 g, 2550 mg, 1.35 kg				

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

a) Convert the units of measurement below

- $8.5\text{kg} = \underline{\hspace{2cm}}\text{g}$
- $2400\text{g} = \underline{\hspace{2cm}}\text{kg}$

b) A box of apples weighs 2kg , and a box of oranges weighs 1800grams . Which is heavier?

Name: _____

a) Convert the units of measurement below

- $8.5\text{kg} = \underline{\hspace{2cm}}\text{g}$
- $2400\text{g} = \underline{\hspace{2cm}}\text{kg}$

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- $2400\text{g} = \underline{\hspace{2cm}}\text{kg}$

b) A box of apples weighs 2kg , and a box of oranges weighs 1800grams . Which is heavier?

PREVIEW

Estimating Mass**Questions**

Circle which mass fits the description

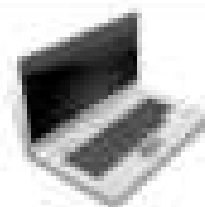
1) A pencil

- a) 500g
- b) 1kg
- c) 5mg
- d) 5g



2) A computer

- a) 200g
- b) 2kg
- c) 50mg
- d) 1000mg



3) A can

- a) 900kg
- b) 100kg
- c) 500mg
- d) 1000mg

4) A cup

- a) 500kg
- b) 5kg
- c) 50g
- d) 500mg



5) A brick

- a) 100g
- b) 2kg
- c) 3000mg
- d) 100kg



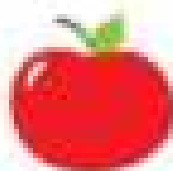
6) A remote control

- a) 100g
- b) 10kg
- c) 50g
- d) 100mg



7) An apple

- a) 20kg
- b) 1kg
- c) 100g
- d) 200mg



8) A pill of medicine

- a) 400mg
- b) 2kg
- c) 20g
- d) 100g



9) Piece of paper

- a) 500g
- b) 5g
- c) 5kg
- d) 5mg




10) A toothpick

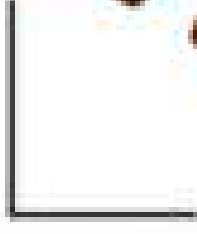



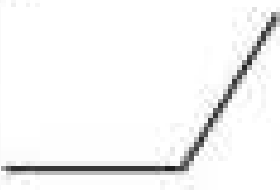



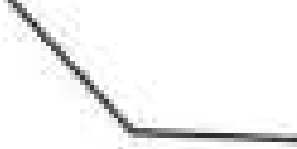

- a) 900g
- b) 100mg
- c) 1kg
- d) 3kg



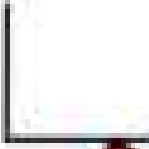
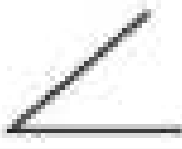
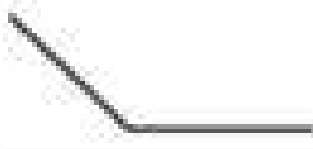

Naming Angles – Right, Obtuse, Acute, and Straight

Right Angle - 90° angle	Acute Angle - smaller than 90° angle	Obtuse Angle - larger than 90° angle	Straight Angle - A straight line
			

Question Label the angle - straight, acute, obtuse, or right.

1) 	2) 	3) 	
4) 	5) 	6) 	
7) 	8) 	9) 	10) 

Drawing Angles – Right, Obtuse, Acute, and Straight

Right Angle - 90° angle	Acute Angle - smaller than 90° angle	Obtuse Angle - larger than 90° angle	Straight Angle - A straight line
			

Question Draw examples of acute, straight, obtuse, and right angles

1)	3)	4)
Acute	Obtuse	Straight

5)	6)	7)	8)
Obtuse	Right	Acute	Straight

9)	10)	11)	12)
Right	Acute	Obtuse	Straight


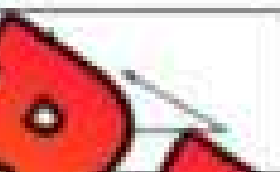

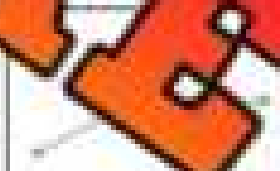
Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

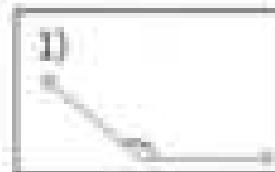
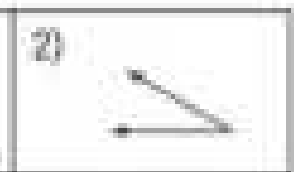
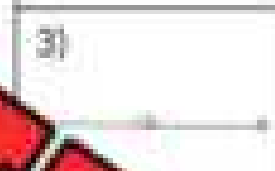

Name: _____

Label the angle - acute, obtuse or right

1) 	
3) 	





Name: _____

Label the angle - acute, obtuse or right

1) 	2) 
3) 	4) 



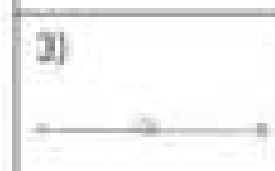

Name: _____

Label the angle - acute, obtuse or right

1) 	2) 
3) 	4) 

Name: _____

Label the angle - acute, obtuse or right

1) 	2) 
3) 	4) 

PREVIEW

Angle Adventure: Create a Landscape!

Draw

Follow the instructions below

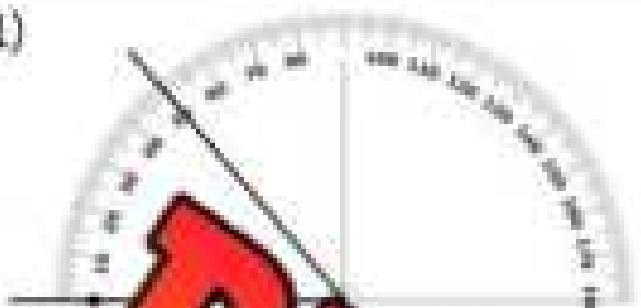
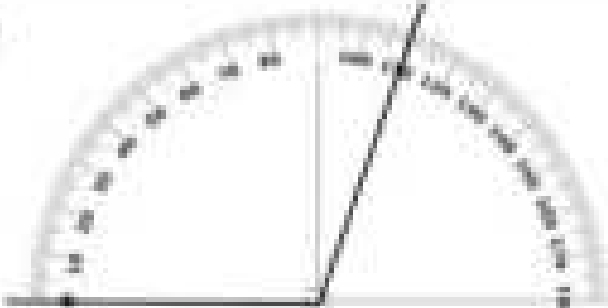




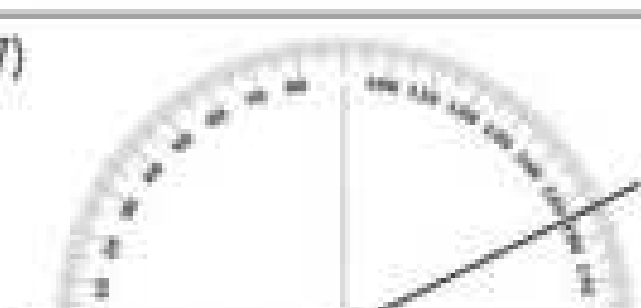
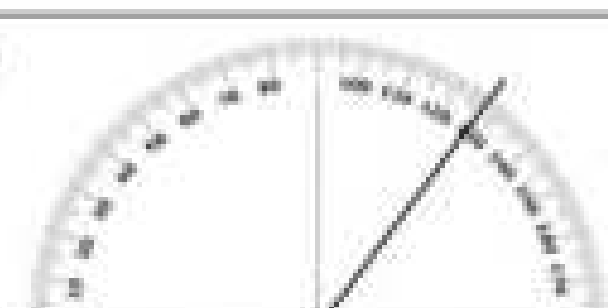
- 1) Draw a landscape (mountains, city, park, or farm).
- 2) Include and label at least one acute, obtuse, right, and straight angle.
- 3) Examples:
 - **Acute:** Roof peak, tree branch
 - **Obtuse:** Open barn door, leaning sign
 - **Right:** Building corner, window
 - **Straight:** Road, horizon

PREVIEW

Measuring Angles - Printed Protractor

Instructions

Measure the angles and label them acute, right or obtuse

1) 	2) 
Angle = _____ Type of Angle = _____	Angle = _____ Type of Angle = _____
3) 	4) 
Angle = _____ Type of Angle = _____	Angle = _____ Type of Angle = _____
5) 	6) 
Angle = _____ Type of Angle = _____	Angle = _____ Type of Angle = _____
7) 	8) 
Angle = _____ Type of Angle = _____	Angle = _____ Type of Angle = _____

PREVIEW

Measuring Angles

Questions

Measure the angles and label them acute, right or obtuse

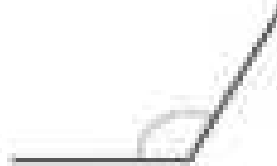
1)



2)



3)



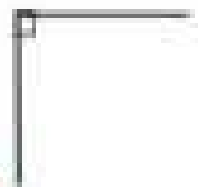
4)



5)



6)



9)



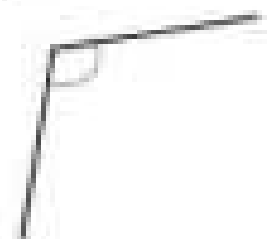
10)



11)



12)



PREVIEW

Measuring Angles



Equilateral Triangle – All sides lengths are equal

Isosceles Triangle – Two side lengths are equal

Scalene Triangle – All three side lengths are different



Instructions

Measure the angles and label the triangles equilateral, isosceles, or scalene

1)		3)		4)	
$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$
$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$
$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$
Scalene					
5)		6)		7)	
$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$	$\angle A =$
$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$	$\angle B =$
$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$	$\angle C =$

Measuring Angles Word Problems**Questions**

Answer the questions below

	Word Problems	Answers
1	Three friends draw triangles: Emma (5 cm, 5 cm, 6 cm), Noah (8 cm, 8 cm, 8 cm), and Lucas (7 cm, 10 cm, 12 cm). Which triangle is scalene?	
2	Sophia draws a triangle with two sides measuring 8 cm each and the third side measuring 10 cm. What type of triangle did Sophia draw?	
3	A triangle has sides measuring 7 cm, 7 cm, and 10 cm. What type of triangle is this?	
4	Mia draws an equilateral triangle with one side labeled s . She knows the perimeter is 24 cm. What is the length of each side?	
5	A triangle has a perimeter of 36 cm. Each side measures the same length. What type of triangle is it, and how long is each side?	

Constructing Angles - Estimating

Use your knowledge of obtuse, acute, and right angles to help you estimate the angle measurements below. You can also use these angles to assist you with your estimations.

45°

90°

140°

180°



Part 1 Estimate the angles below using the line provided without a protractor

1)

 $\angle = 50^\circ$

3)

 $\angle = 130^\circ$

Part 2

Draw the angles below without using a protractor

1)

 $\angle = 80^\circ$

2)

 $\angle = 70^\circ$ $\angle = 165^\circ$

4)

 $\angle = 120^\circ$

5)

 $\angle = 30^\circ$

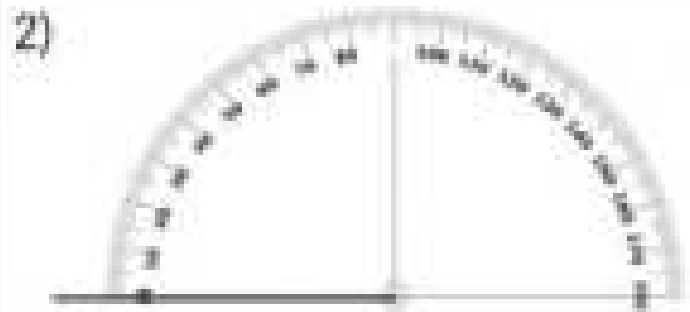
6)

 $\angle = 140^\circ$

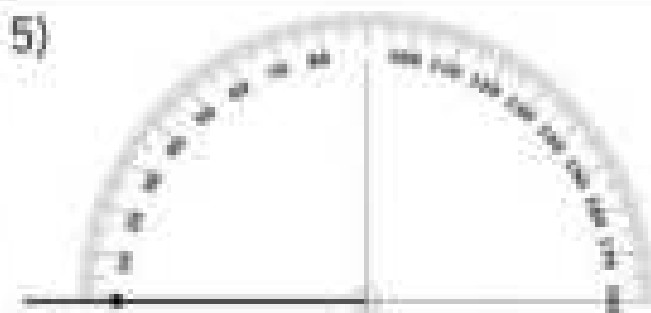
Constructing Angles – Printed Protractor

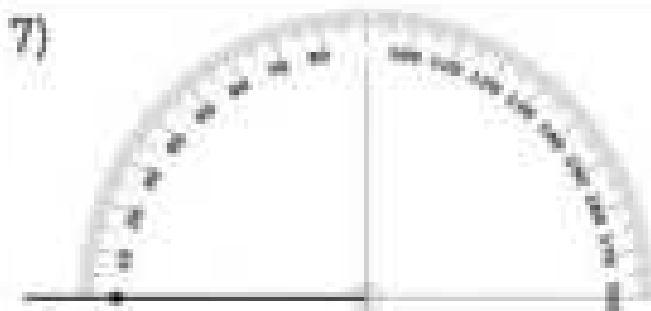
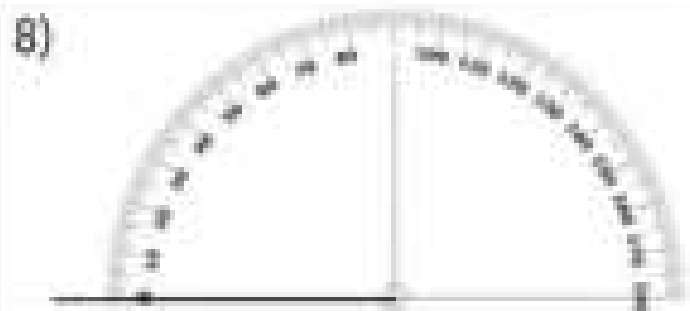
Instructions

Construct the angles and label them acute, right or obtuse


 Angle = $\angle = 35^\circ$ Type of Angle = _____

 Angle = $\angle = 110^\circ$ Type of Angle = _____

 Angle = $\angle = 42^\circ$ Type of Angle = _____

 Angle = $\angle = 105^\circ$ Type of Angle = _____

 Angle = $\angle = 124^\circ$ Type of Angle = _____

 Angle = $\angle = 168^\circ$ Type of Angle = _____

 Angle = $\angle = 49^\circ$ Type of Angle = _____

 Angle = $\angle = 173^\circ$ Type of Angle = _____

PREVIEW

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Construct the angle and label it.



Angle = \angle = 175°

Type of Angle = _____

Name: _____

Construct the angle and label it.

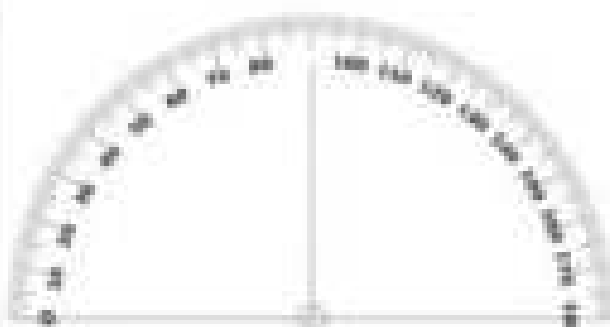


Angle = \angle = 175°

Type of Angle = _____

Name: _____

Construct the angle and label it.



Angle = \angle = 175°

Type of Angle = _____

Name: _____

Construct the angle and label it.



Angle = \angle = 175°

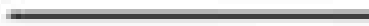
Type of Angle = _____

Constructing Angles**Part 1** Use a protractor to draw the angles below using the line provided

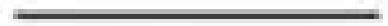
1)

 $\angle =$

2)

 $\angle = 70^\circ$

3)

 $\angle = 120^\circ$ **Part 2** Use a protractor to draw the angles below

1)

 $\angle = 95^\circ$

2)

 $\angle = 115^\circ$

3)

4)

 $\angle = 60^\circ$

5)

 $\angle = 25^\circ$

6)

 $\angle = 170^\circ$

Constructing Triangles

Questions

Draw triangles below that fit the description

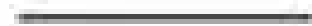
1)

1 angle at 60° 1 angle at 60° 1 angle at 60°

2)

1 angle at 90° 1 angle at 45° 1 angle at 45°

3)

1 angle at 100° 1 angle at 35° 1 angle at 45°

4)

1 angle at 80° 1 angle at 80° 1 angle at 20°

5)

1 angle at 40° 1 angle at 30° 1 angle at 110° 1 angle at 55° 1 angle at 75° 1 angle at 50°

Build a Bridge - Challenge**Draw**

Follow the instructions below

- **Step 1:** Draw two vertical pillars, each 10 cm tall, ensuring all angles at the base are 90° .
- **Step 2:** Connect the tops of the pillars with an arch forming a semi-circle and mark each 45° segment along the arch with an 'x'.
- **Step 3:** Construct diagonal supports under the bridge at 30° and 60° angles.

PREVIEW

Finding Obtuse, Acute, Straight, and Right Angles



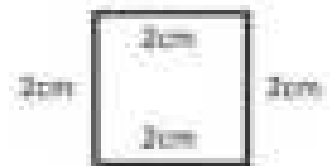
Questions: What are the names of the angles with a letter - Straight, Acute, Obtuse, or Right?

Letters	Name of Angle	Name of Angle
A		
B		
C		K
D		L
E		M
F		N
G		O
H		P

Finding the Perimeter of Shapes

The **perimeter** is the distance around a shape. We can find the perimeter by adding up all the side-lengths.

Example: $2 + 2 + 2 + 2 = 8\text{cm}$



Part 1

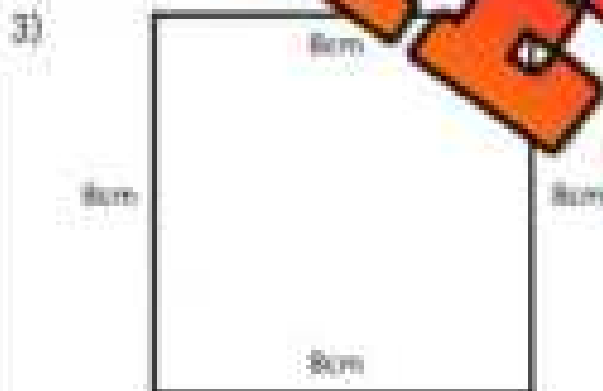
Find the perimeter of the squares below



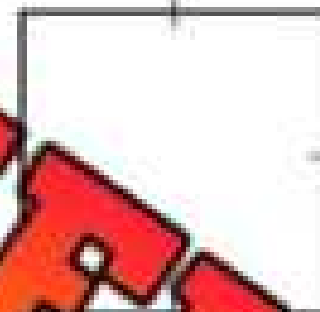
Perimeter = _____



Perimeter = _____



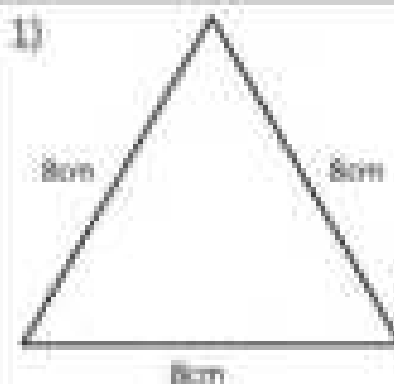
Perimeter = _____



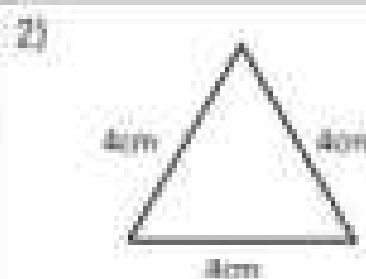
Perimeter = _____

Part 2

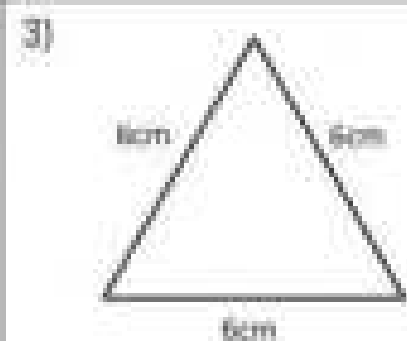
Find the perimeter of the triangles below



Perimeter = _____



Perimeter = _____



Perimeter = _____

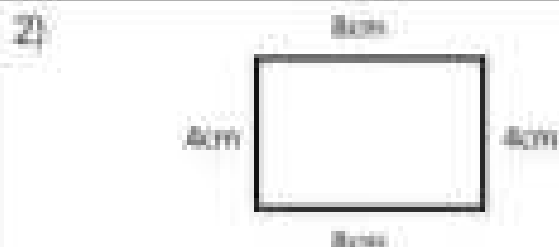
Finding the Perimeter of Irregular Shapes

Part 1

Find the perimeter of the rectangles below



Perimeter = _____



Perimeter = _____



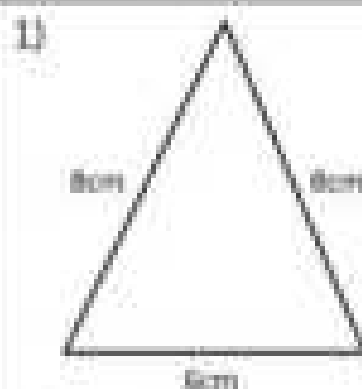
Perimeter = _____



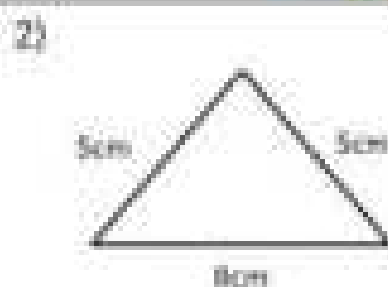
Perimeter = _____

Part 2

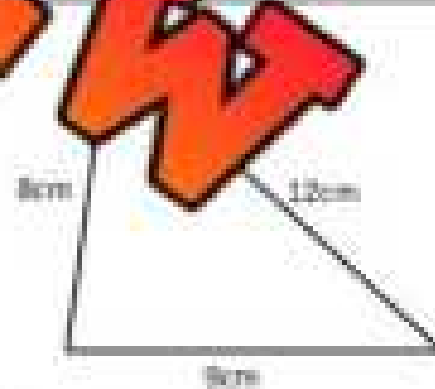
Find the perimeter of the triangles below



Perimeter = _____



Perimeter = _____



Perimeter = _____

4) Draw two triangles with the same perimeter with different side lengths:

1) 2) 

Finding the Perimeter of Rectangles

Part 1

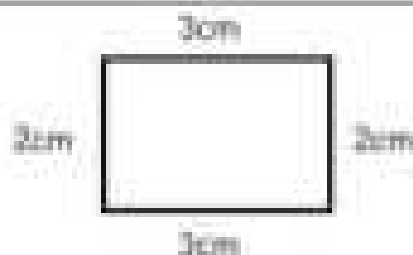
Find the perimeter of the rectangles below

1)



Perimeter = _____

2)



Perimeter = _____

3)



Perimeter = _____

4)



Perimeter = _____

Part 2

Answer the word problems below

1) A rectangular basement has a length of 15m and a width of 7m. What is the perimeter of the basement?



2) The perimeter of a rectangular playground is 40m. If the length of the playground is 15m, what is the width?



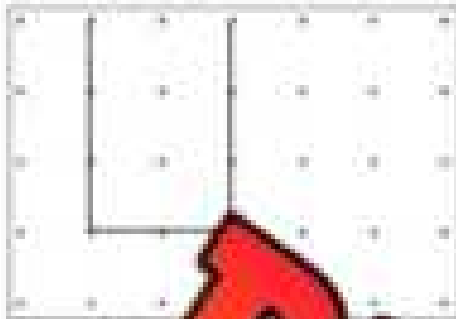
3) The basketball court has a width of 12 metres and a perimeter of 72 metres. What is the length of the basketball court?



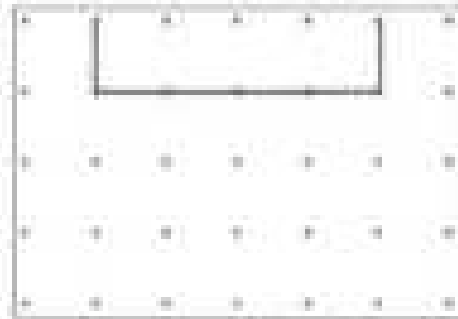
Finding the Perimeter of Irregular Shapes

Part 1

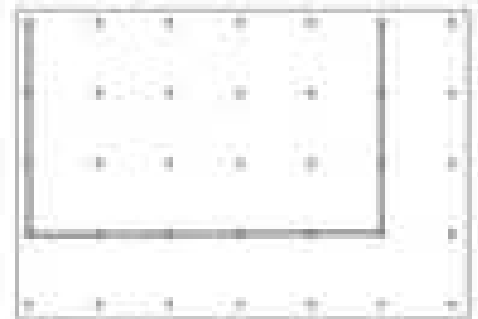
Find the perimeter of the rectangles below



1) Perimeter = _____



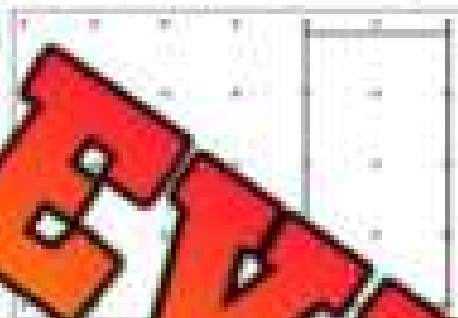
2) Perimeter = _____



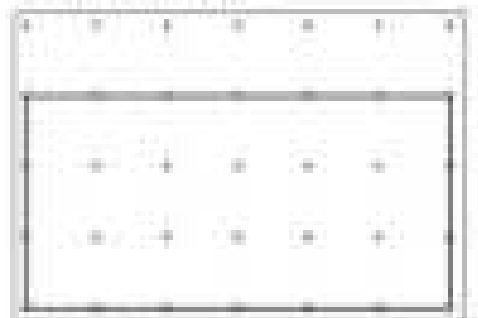
3) Perimeter = _____



4) Perimeter = _____



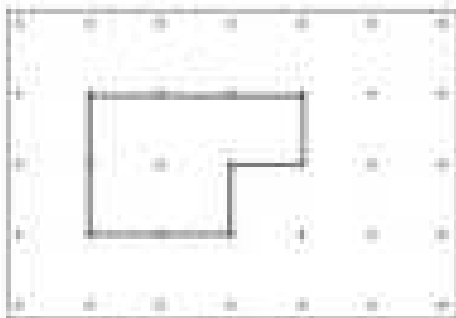
5) Perimeter = _____



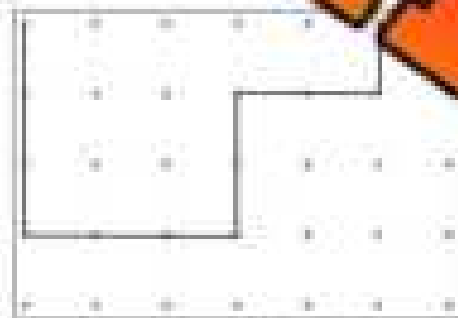
6) Perimeter = _____

Part 2

Find the perimeter of the polygons below



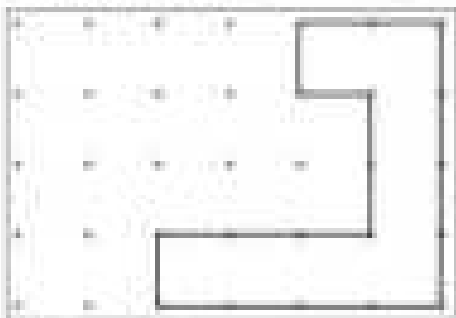
1) Perimeter = _____



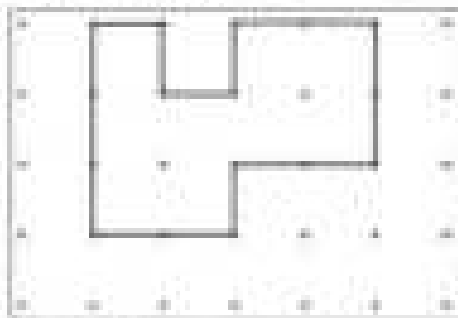
2) Perimeter = _____



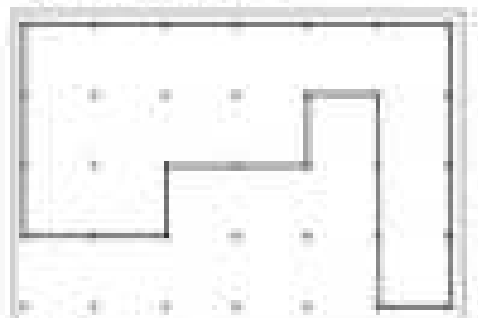
3) Perimeter = _____



4) Perimeter = _____



5) Perimeter = _____



6) Perimeter = _____

PREVIEW

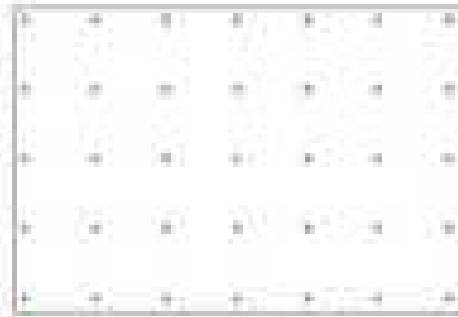
Drawing Shapes Using Perimeter

Part 1

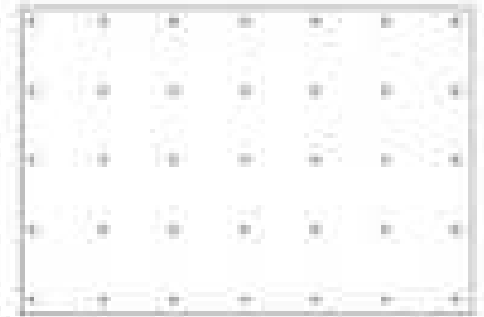
Draw a square with the perimeter that is given to you



1) Perimeter = 4



2) Perimeter = 6



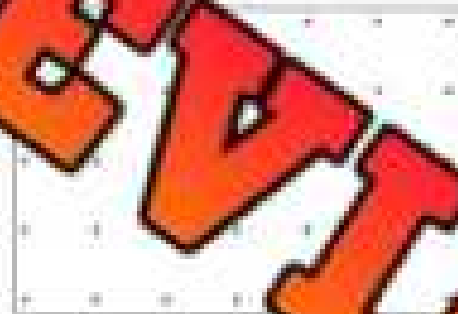
3) Perimeter = 12

Part 2

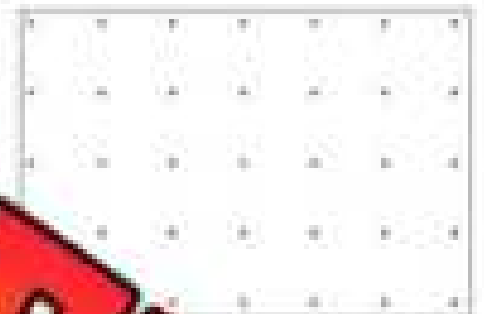
Draw a square with the perimeter that is given to you



4) Perimeter = 4



5) Perimeter = 6



6) Perimeter = 16



7) Perimeter = 8



8) Perimeter = 14



9) Perimeter = 18



10) Perimeter = 20



11) Perimeter = 12

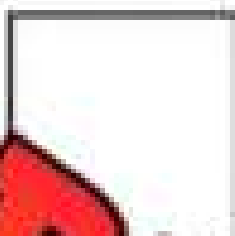
PREVIEW

Perimeter the perimeter with Different Units**Part 1**

Step 1 - Convert the units so they are all the same
Step 2 - Add up all the units

1)

5cm



2)

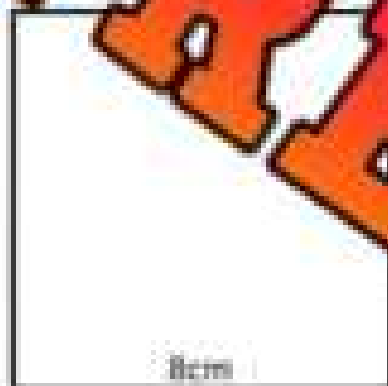
90mm

5cm



3)

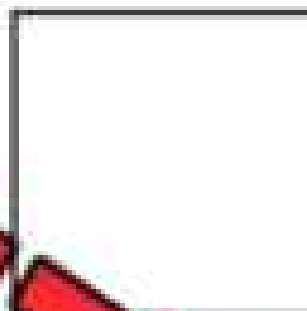
100mm



8cm

4)

20cm

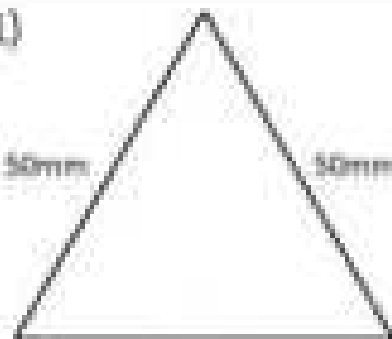
**Part 2**

Find the perimeter of the equilateral triangles below

1)

50mm

50mm

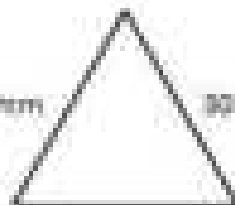


5cm

2)

30mm

30mm



3cm

3)

40mm

40mm



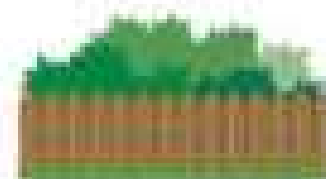
4cm

Perimeter Word Problems**Instructions**

Draw a picture of the problem and then find the perimeter.

1) A computer screen is 23cm by 12cm. What is the perimeter of the screen?

2) Pat is putting a fence around his yard. His yard is 25m by 12m. What is the perimeter of his yard?

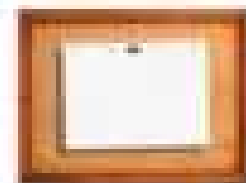


3) The school yard is a rectangle that is 30m by 20m. What is the perimeter of the yard?

4) A poster is 1.2m by 160cm. What is the perimeter of the poster?



5) Mrs. Wilson is putting a border around her bulletin board. The board is 320cm by 1.6m. What is the perimeter of the bulletin board?



Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Convert the units so they are all the same and calculate the perimeter.



Perimeter = _____

2) A soccer field has a length of 20m and a perimeter of 90m. What is the width of the soccer field?

Name: _____

1) Convert the units so they are all the same and calculate the perimeter.



Perimeter = _____ cm _____ mm

2) A soccer field has a length of 20m and a perimeter of 90m. What is the width of the soccer field?

Name: _____

1) Convert the units so they are all the same and calculate the perimeter.



Perimeter = _____ cm _____ mm

2) A soccer field has a length of 20m and a perimeter of 90m. What is the width of the soccer field?

Name: _____

1) Convert the units so they are all the same and calculate the perimeter.



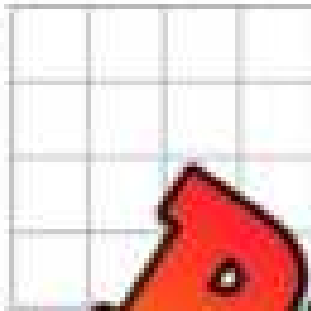
Perimeter = _____ cm _____ mm

2) A soccer field has a length of 20m and a perimeter of 90m. What is the width of the soccer field?

Introduction to Area**Instructions**

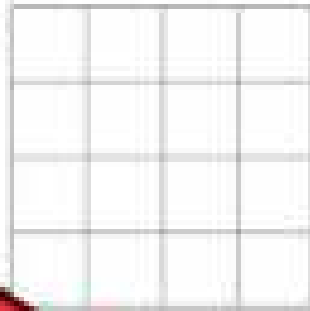
Shade in the area

1)



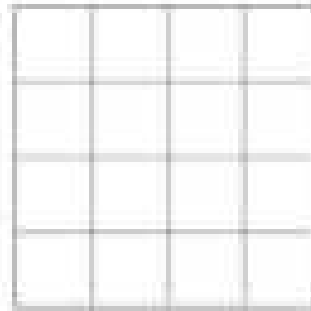
1 square

2)



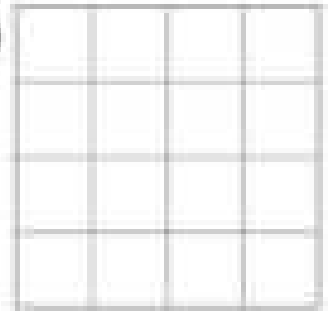
2 squares

3)



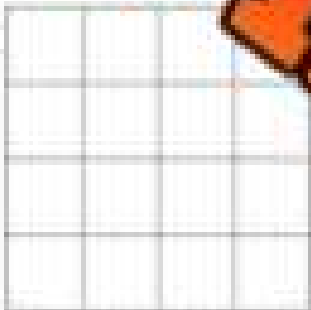
4 squares

4)



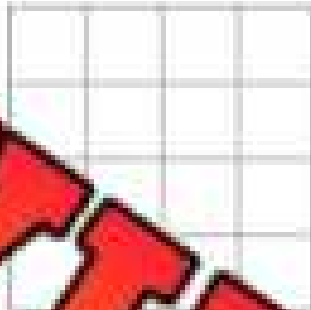
5 squares

5)



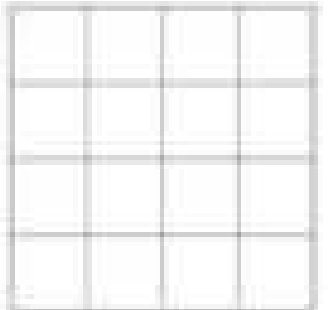
6 squares

6)



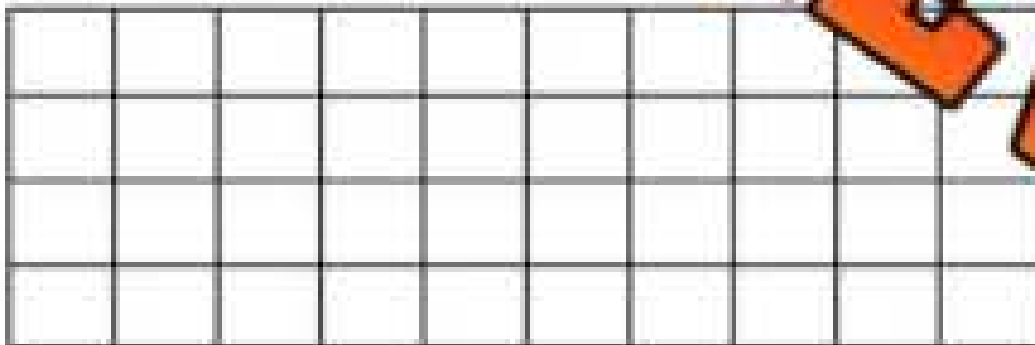
7 squares

7)



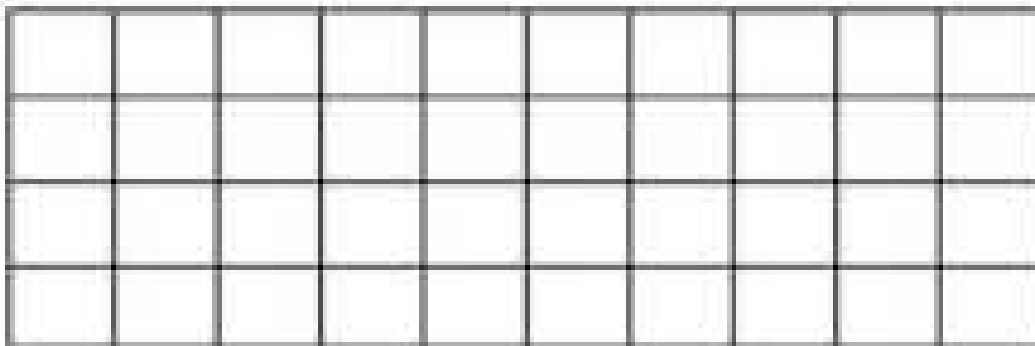
8 squares

8)



12 squares

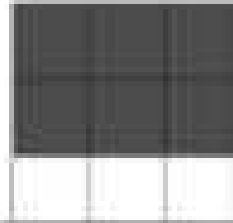
9)



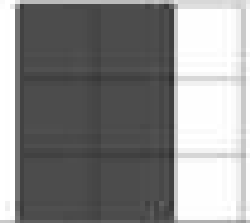
36 squares

Comparing Area

The area of two shapes can be the same, but they may look different. The two shapes just need to take up the same amount of space.



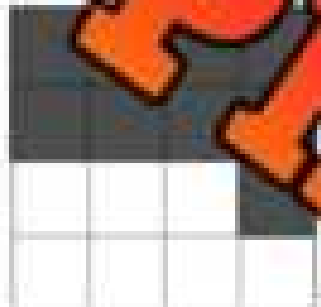
Area = 4 Squares



Area = 4 Squares

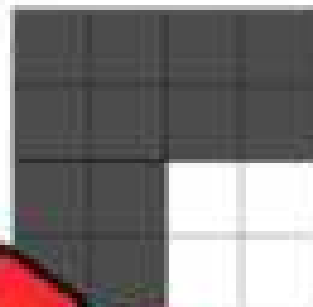
Instruction: Draw a shape that has the same area but looks different.

1)



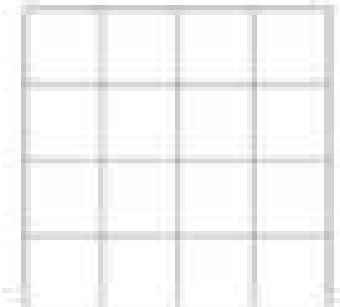
_____ squares

2)



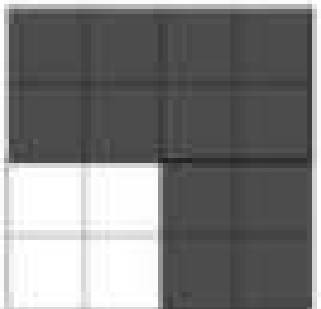
_____ squares

_____ squares

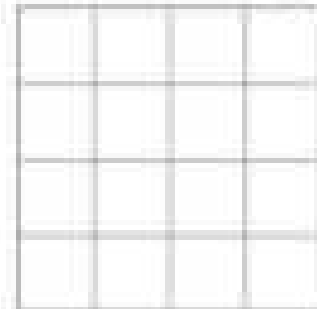


_____ squares

3)

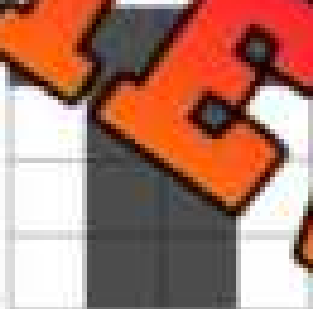


_____ squares

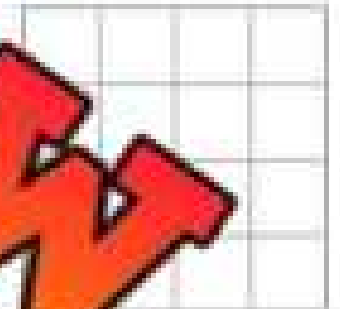


_____ squares

4)

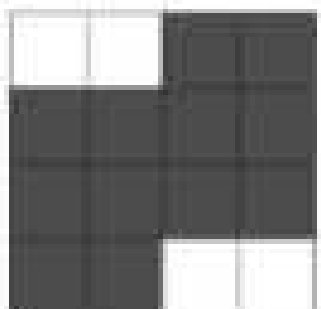


_____ squares

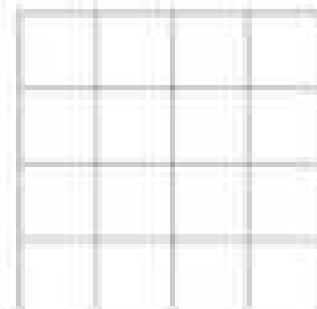


_____ squares

5)

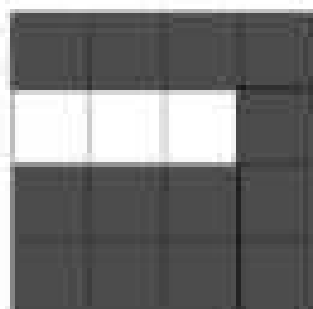


_____ squares

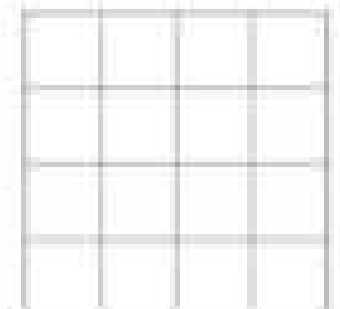


_____ squares

6)



_____ squares

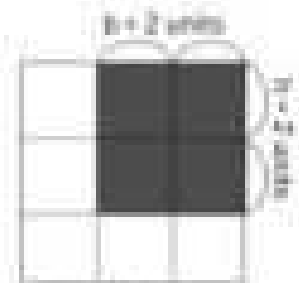
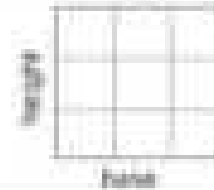


_____ squares

Area - Units Squared

When we calculate the area of a shape, we can use the following formula

$$A = \text{base (b)} \times \text{height (h)}$$

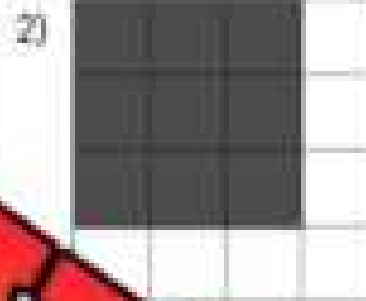
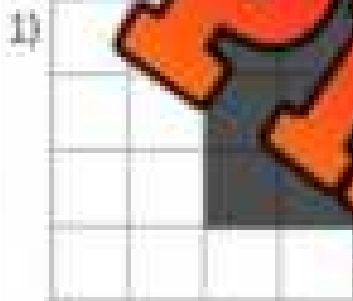


$$A = b \times h$$

$$A = 2 \times 2$$

$$A = 4 \text{ units}^2$$

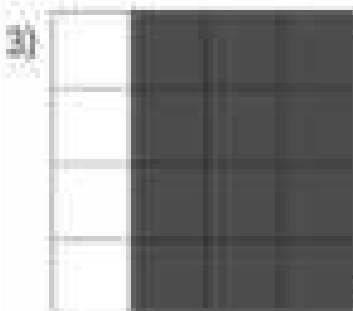
Instructions: Find the area of the shapes below



$$A = b \times h$$

$$A = _ \times _$$

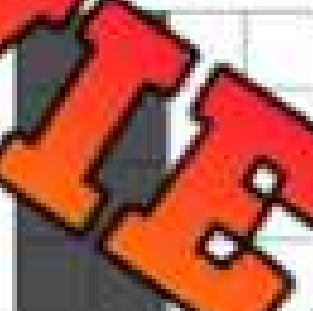
$$A = _ \text{ units}^2$$



$$A = b \times h$$

$$A = _ \times _$$

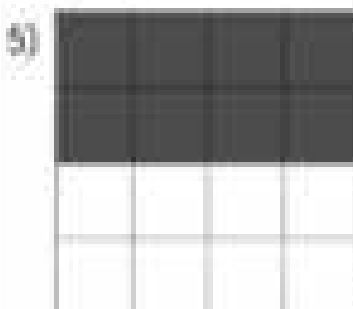
$$A = _ \text{ units}^2$$



$$A = b \times h$$

$$A = _ \times _$$

$$A = _ \text{ units}^2$$



$$A = b \times h$$

$$A = _ \times _$$

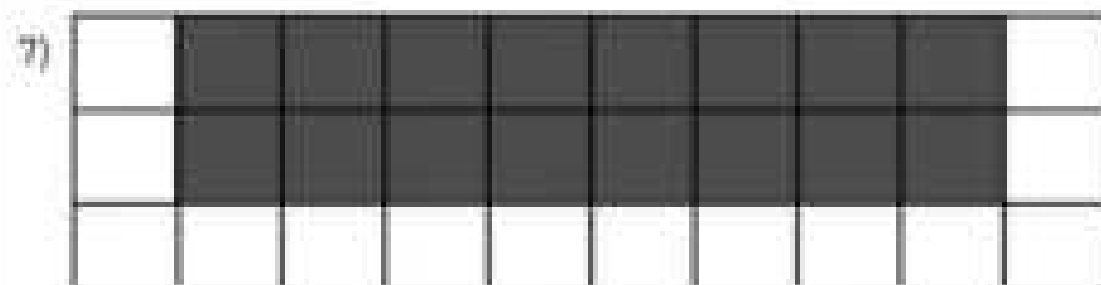
$$A = _ \text{ units}^2$$



$$A = b \times h$$

$$A = _ \times _$$

$$A = _ \text{ units}^2$$



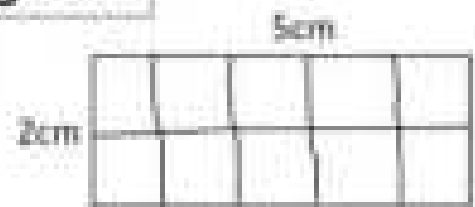
$$A = b \times h$$

$$A = _ \times _$$

$$A = _ \text{ units}^2$$

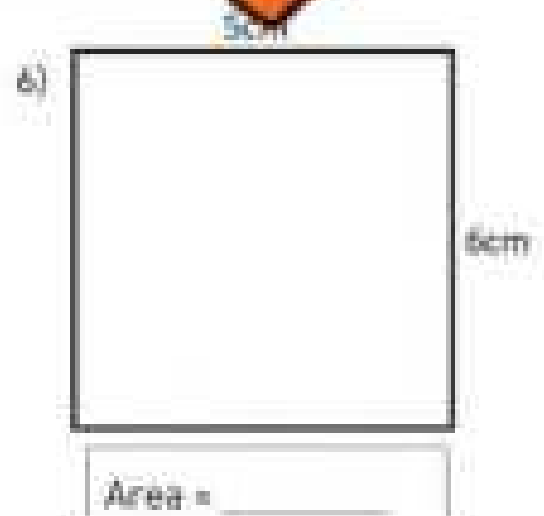
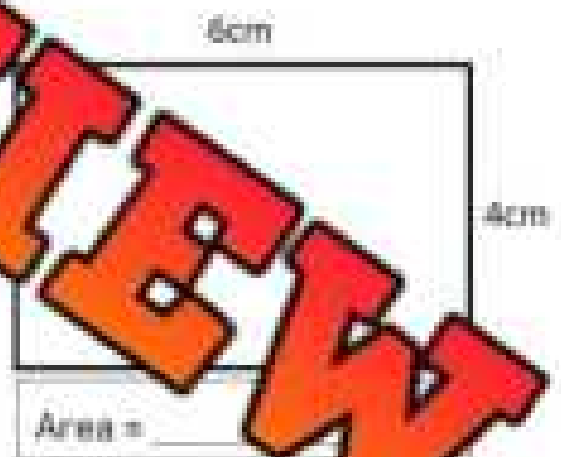
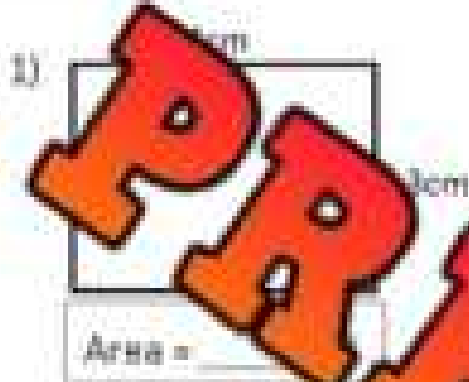
Calculating Area Using CM

We can draw lines on shapes to segment them into cm squares. Try your best to make the squares equal.



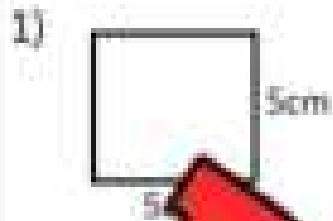
Instructions

Draw lines in the shapes below to create cm squares. Then count the squares.

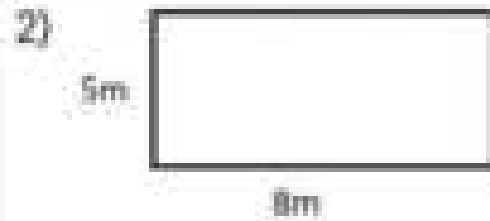


Finding the Area of Rectangles**Instructions**Find the area ($A = b \times h$)

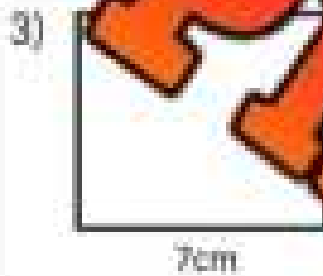
*Not to Scale



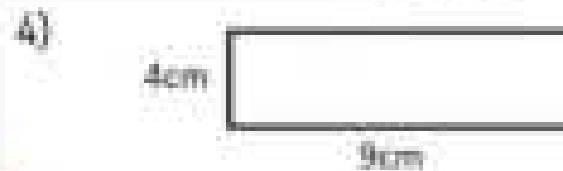
Area = _____



Area = _____



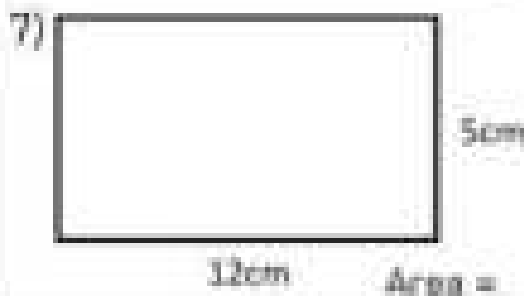
Area = _____



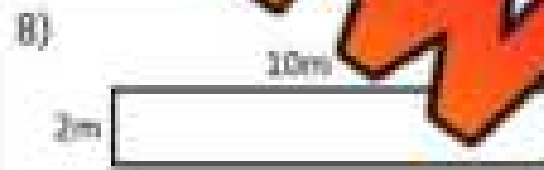
Area = _____



Area = _____



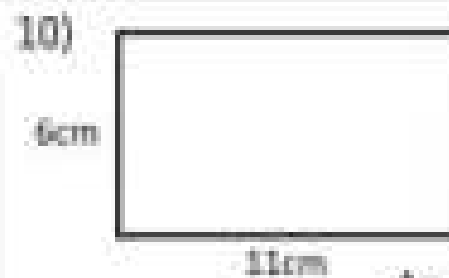
Area = _____



Area = _____



Area = _____



Area = _____

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

Find the area ($A = b \times h$)



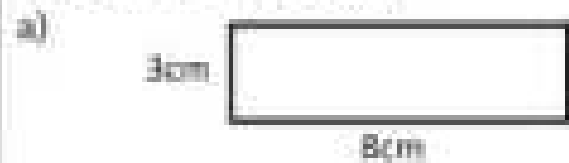
b)



$A = b \times h$
 $A = \underline{\quad} \times \underline{\quad}$
 $A = \underline{\quad} \text{ m}^2$

Name: _____

Find the area ($A = b \times h$)



Area = _____

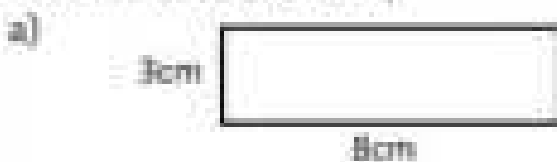
b)



$A = b \times h$
 $A = \underline{\quad} \times \underline{\quad}$
 $A = \underline{\quad} \text{ m}^2$

Name: _____

Find the area ($A = b \times h$)



Area = _____

b)



$A = b \times h$
 $A = \underline{\quad} \times \underline{\quad}$
 $A = \underline{\quad} \text{ m}^2$

Name: _____

Find the area ($A = b \times h$)



Area = _____

b)



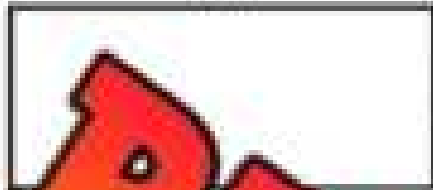
$A = b \times h$
 $A = \underline{\quad} \times \underline{\quad}$
 $A = \underline{\quad} \text{ m}^2$

Perimeter and Area**Instructions**

Step 1 – Find the perimeter (add up all the sides)
Step 2 – Find the area ($A = b \times h$)

1)

6m



3m

Perimeter: _____

Area: _____

2)

7m



4m

Perimeter: _____ m

Area: _____ m²

3)

6m



4m

Perimeter: _____

Area: _____

4)

10m



7m

Perimeter: _____

Area: _____

5)

8m



6m

Perimeter: _____

Area: _____

6)

9m



5m

Perimeter: _____

Area: _____

Calculating Area and Perimeter - House



Instructions

Calculate the area and perimeter of each room in the house.

Room	Perimeter	Area
Garage		
Front Porch		
Living Room		
Entrance		
Hallway		
Dining Room		
Kitchen		
Balcony		

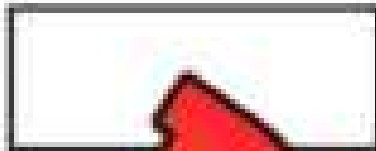
Room	Perimeter	Area
Back Deck		
Bathroom 1		
Bathroom 2		
Bathroom 3		
Bedroom 1		
Bedroom 2		
Bedroom 3		

Same Area – Different Perimeter**Instructions**

Is it possible for a shape to have the same area and a different perimeter?

1)

8m



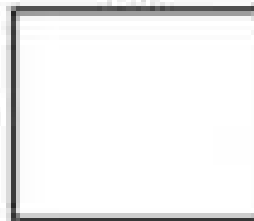
2m

Perimeter: _____ m

Area: _____ m²

2)

4m



4m

Perimeter: _____ m

Area: _____ m²

3)

16m



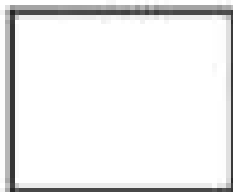
1m

Perimeter: _____ m

Area: _____ m²

4)

6cm



4cm

Perimeter: _____ cm

Area: _____ cm²

5)

3cm



Perimeter: _____ cm

Area: _____ cm²

6)

24cm

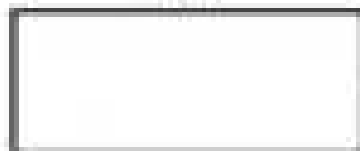


Perimeter: _____ cm

Area: _____ cm²

7)

12m



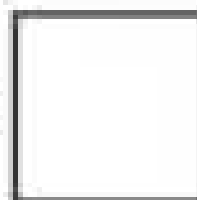
3m

Perimeter: _____ m

Area: _____ m²

8)

6m



6m

Perimeter: _____ m

Area: _____ m²

9)

18m



2m

Perimeter: _____ m

Area: _____ m²

Perimeter and Area – Room Size



Instructions

Answer the word problems below

Ben and Brayden are arguing over who's room is larger. Both of their rooms are rectangular. Ben's room has a perimeter of 14 metres and Brayden's room has a perimeter of 18 metres.

1) Whose room is larger? Explain why you think that?

2) Draw rectangles for Ben's room and Brayden's room below. Label them with the dimensions (length and width, in metres).

Ben's Room

Brayden's Room

3) a) What is the area of Ben's room? _____

b) What is the area of Brayden's room? _____

4) Could Brayden and Ben have different shaped rooms? Draw them again.

Ben's Room

Brayden's Room

5) a) What is the area of this version of Ben's room? _____

b) What is the area of this version of Brayden's room? _____

Calculating Area and Perimeter - Gym**Questions**

Answer the word problems below



Roger is building a gym. His walls can have a perimeter of 44 metres. He wants the largest area possible for his gym.

1) Draw the gym below. Label the walls with the dimensions (measurements in metres).

2) What is the area of the gym?

3) What is the perimeter of the gym?

4) What shape is the gym? Why does this shape give the largest area?

5) What perimeter of the gym would provide the smallest area? Draw the gym and label the walls with the new dimensions.

PREVIEW

Perimeter and Area - Garden**Questions**

Answer the word problems below.

Rob is building a flower garden in his backyard. His garden has an area of 36m^2 .

- 1) What is the least amount of fencing that he needs to enclose the garden?



- 2) What is the perimeter of the garden?

- 3) What shape is the garden?

PREVIEW

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Find the perimeter and the area of the shape below



Perimeter: _____ m

Area: _____ m²

2) A kitchen table is 3m by 100cm. What is the area of the kitchen table?

Name: _____

1) Find the perimeter and the area of the shape below



Perimeter: _____ m

Area: _____ m²

2) A kitchen table is 3m by 100cm. What is the area of the kitchen table?

Name: _____

1) Find the perimeter and the area of the shape below



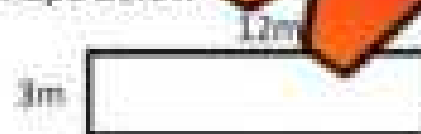
Perimeter: _____ m

Area: _____ m²

2) A kitchen table is 3m by 100cm. What is the area of the kitchen table?

Name: _____

1) Find the perimeter and the area of the shape below



Perimeter: _____ m

Area: _____ m²

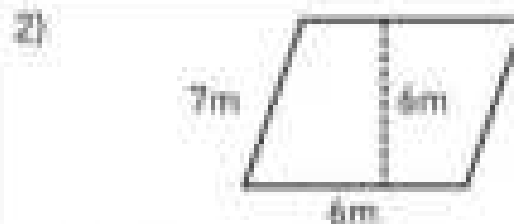
2) A kitchen table is 3m by 100cm. What is the area of the kitchen table?

Perimeter and Area of Parallelograms

Instructions:

 Find the perimeter and area of the parallelograms below ($A = b \times h$)

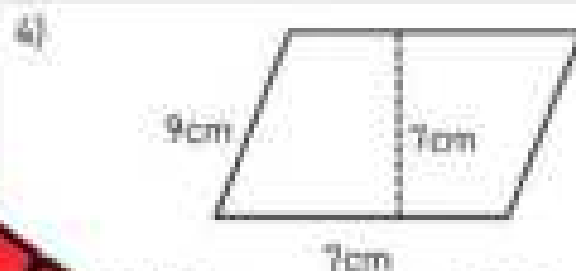

Perimeter = _____ Area = _____



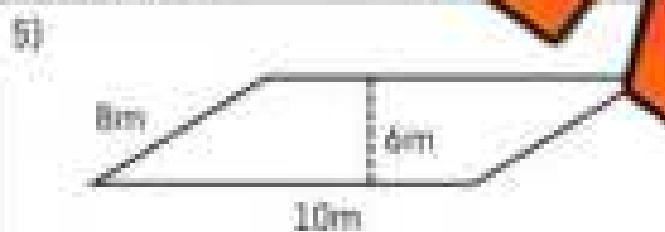
Perimeter = _____ Area = _____



Perimeter = _____ Area = _____



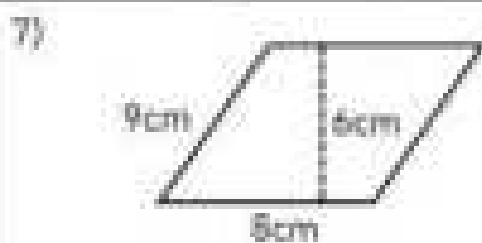
Perimeter = _____ Area = _____



Perimeter = _____ Area = _____



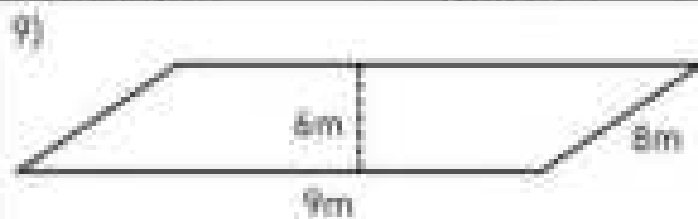
Perimeter = _____ Area = _____



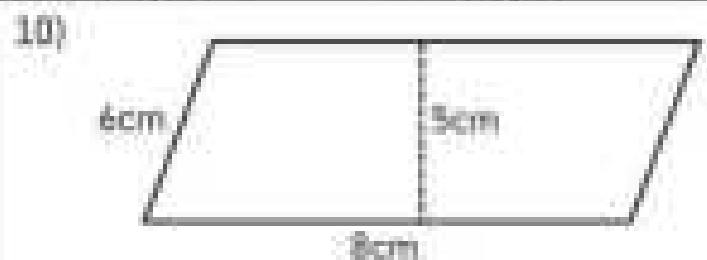
Perimeter = _____ Area = _____



Perimeter = _____ Area = _____



Perimeter = _____ Area = _____



Perimeter = _____ Area = _____

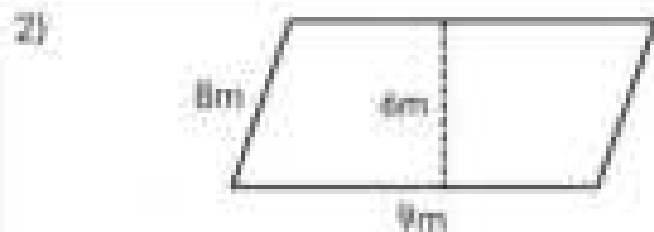
PREVIEW

Perimeter and Area of Parallelograms

Part 1

 Find the perimeter and area of the parallelograms below ($A = b \times h$)

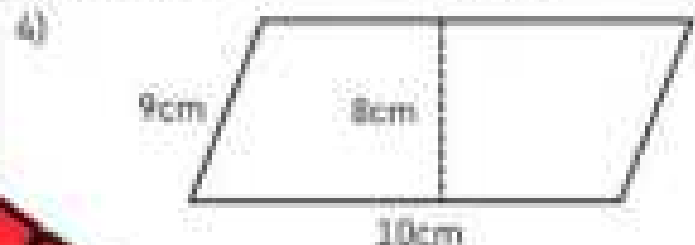

Perimeter = _____ Area = _____



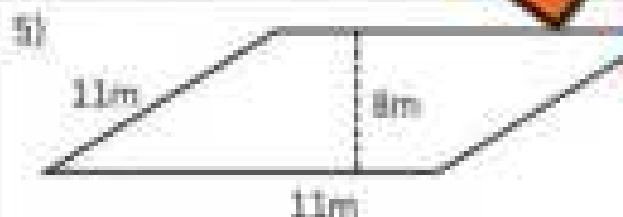
Perimeter = _____ Area = _____



Perimeter = _____ Area = _____



Perimeter = _____ Area = _____



Perimeter = _____ Area = _____



Perimeter = _____ Area = _____

Part 2

Answer the word problems below

- 1) A parallelogram has a top side length of 12cm. The height of the parallelogram is 7cm. What is the area of the parallelogram?

- 2) A parking lot is constructed in the shape of a parallelogram. What is the area of the parking lot?

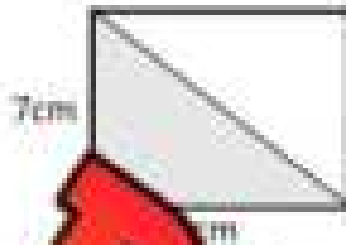


Introduction – Area of a Triangle

Instruction

 Find the area of the triangles below ($A = b \times h \div 2$)

1)


 Area of a rectangle = _____
 Area of a triangle = _____

2)


 Area of a rectangle = _____
 Area of a triangle = _____

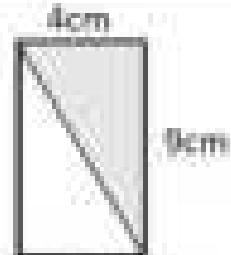
3)


 Area of a rectangle = _____
 Area of a triangle = _____

4)


 Area of a rectangle = _____
 Area of a triangle = _____

5)


 Area of a rectangle = _____
 Area of a triangle = _____

6)

8cm

 Area of a square = _____
 Area of a triangle = _____

7)


 Area of a rectangle = _____
 Area of a triangle = _____

8)

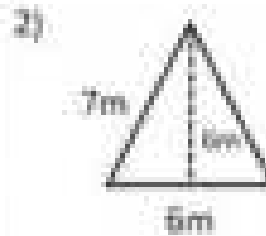

 Area of a rectangle = _____
 Area of a triangle = _____

Area of a Triangle

Instruction

 Find the area of the triangles below ($A = b \times h \div 2$)

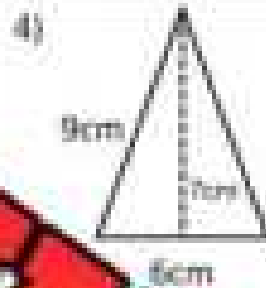

Area = _____



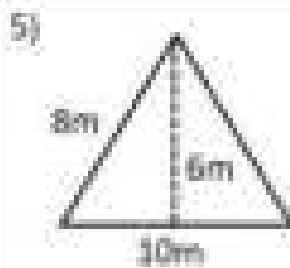
Area = _____



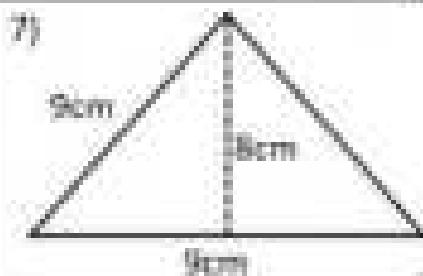
Area = _____



Area = _____



Area = _____



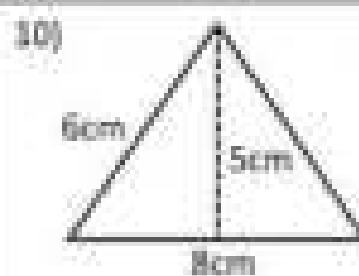
Area = _____



Area = _____



Area = _____



Area = _____

PREVIEW

Area of a Triangles/Parallelogram Word Problems**Questions**

Draw a picture of the problem and then find the area.

1) Jake is building a triangular garden. He needs to know how much fertilizer he needs to cover the space. If the garden has a base of 5m and a height of 3m, what is the area of the garden?



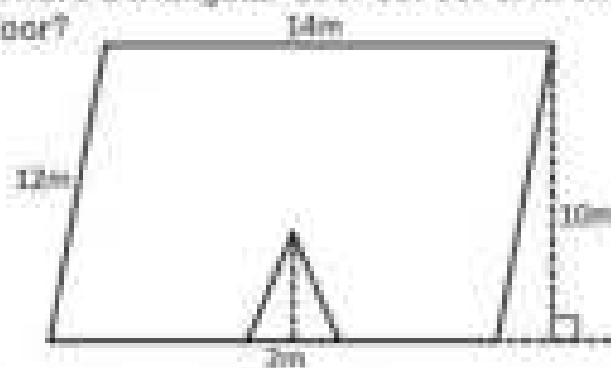
2) A farmer is buying a new piece of farmland. His land is shaped like a parallelogram. It has a base of 10m and a height of 5m. What is the area of his farmland?



3) Christina is painting her triangular artwork. The artwork has a base of 12cm and a height of 8cm. What is the area of her artwork?



4) Harold is building a unique house. The shape of the front of the house is a parallelogram. It will have a triangular door cut out of it. What is the area of the front of his house without the door?



Finding the Missing Information**Instructions**Find the missing value ($A = b \times h$)

1)



Base = _____

Height = _____

Area = _____

2)



Base = _____

Height = _____

Area = _____

3)



Base = _____

Height = _____

Area = _____

4)



Base = _____

Height = _____

Area = _____

5)



Base = _____

Height = _____

Area = _____

6)



Base = _____

Height = _____

Area = _____

7)



Base = _____

Height = _____

Area = _____

8)



Base = _____

Height = _____

Area = _____

9)



Base = _____

Height = _____

Area = _____

10)



Base = _____

Height = _____

Area = _____

Finding the Missing Information - Word Problems**Instructions**

Use the information you have to find the missing height or base

1) A piece of paper has an area of 88cm^2 . The base of the paper is 8cm . What is the height of the paper?



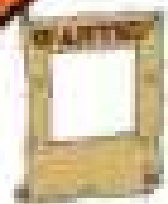
2) Jan's yard has an area of 56m^2 . The height of the yard is 8m . What is the base?



3) A bus has an area of 24m^2 . The height of the bus is 3m . What is the base?



4) A square poster has an area of 36cm^2 . What is the base and height?



5) A cookie sheet has an area of 72cm^2 . The base of the sheet is 9cm . What is the height of the cookie sheet?



Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class

Name: _____

1) Find the missing value ($A = b \times h$)



Base = _____

Height = _____

Area = _____

2) A garden has an area of 45m^2 . The base of the sheet is 9m. What is the height of the garden?

Name: _____

1) Find the missing value ($A = b \times h$)



Base = _____

Height = _____

Area = _____

2) A garden has an area of 45m^2 . The base of the sheet is 9m. What is the height of the garden?

Name: _____

1) Find the missing value ($A = b \times h$)



Base = _____

Height = _____

Area = _____

2) A garden has an area of 45m^2 . The base of the sheet is 9m. What is the height of the garden?

Name: _____

1) Find the missing value



Base = _____

Height = _____

Area = _____

2) A garden has an area of 45m^2 . The base of the sheet is 9m. What is the height of the garden?

Scavenger Hunt: Area and Perimeter

Objective

What are we learning about?

Students will practice calculating the area and perimeter of various shapes, enhancing their understanding of these geometric concepts through a fun and engaging scavenger hunt.

Materials

What you will need for the activity

- Student index cards with area and perimeter questions (provided)
- Small bags or envelopes for each team to collect their cards
- Small prizes or checkmarks for correct answers
- Tape to hide cards around the classroom or in a designated safe outdoor area

$$5 + 3 = 8$$



Instructions

How you will complete the activity

- 1) **Prepare the Cards:** Write different area and perimeter questions on index cards. Use the questions generated above.
- 2) **Hide the Cards:** Hide the cards around the classroom or in a designated safe outdoor area. Tape them under chairs, desks, or tuck them into non-obvious places.
- 3) **Divide into Teams:** Divide the class into small teams and give each team a small bag or envelope to collect their cards.
- 4) **Explain the Game:** Explain the game to the students. Each team will hunt for a card, solve the problem on it as quickly as they can, and return to you for verification.
- 5) **Start the Game:** Say "Go!" and each team rushes to find their first card.
- 6) **Verify Answers:** When a team thinks they have the correct answer, they come back to you. If correct, they receive a small prize (or a checkmark) and move on to find the next card.
- 7) **Continue Playing:** The game continues until all cards are found or you call time. The team with the most correct answers wins.
- 8) **Discuss:** After the game, discuss the problems and solutions each team encountered, focusing on the methods used to calculate the area and perimeter.

Index cards

Cut out the cards below

A garden has an area of 45m^2 . The base of the garden is 9m . What is the height of the garden?

Henry built a fence using stones in his yard. The fence was shaped like a regular pentagon. The regular pentagon had side lengths of 13m . What is the perimeter of the shape?

Find the missing value (A)
Base = 8cm , Height = 5cm
Area = _____

A computer screen is 22cm by 12cm . What is the perimeter of the screen?

A piece of paper has an area of 88cm^2 . The base of the paper is 8cm . What is the height of the paper?

A rectangular base has a length of 10m and a width of 7m . What is the perimeter of the basement?

A phone is 12cm by 6cm . What is the area of the phone?

A square has a side length of 10cm . What is the area of the square?

Index cards

Cut out the cards below

A rectangle has a perimeter of 50m. If the length is 15m, what is the width?

A rectangle has an area of 120cm^2 . If the height is 10cm, what is the base?

A rectangular garden has a length of 12m and a width of 8m. What is the area of the garden?

A rectangular field has an area of 200m^2 . If the width is 10m, what is the length?

A square playground has an area of 81m^2 . What is the length of one side of the playground?

A square garden has a side length of 6m. What is the area of the garden?

A rectangular sheet of paper has a perimeter of 60cm. If the width is 10cm, what is the length?

A rectangular box has a length of 10cm, a width of 5cm, and a height of 3cm. What is the perimeter of the base?

PREVIEW

Index cards

Cut out the cards below

A rectangular piece of fabric has an area of 42cm^2 . If the width is 6cm , what is the length?

A rectangular fence has a length of 15m and a width of 9m . What is the perimeter of the fence?

A square tile has a side length of 9cm . What is the area of the tile?

A rectangular piece of wood has an area of 32cm^2 . If the height is 4cm , what is the base?

A rectangular field has a width of 10m and a length of 25m . What is the area of the field?

A rectangular glass has a perimeter of 40m . If the width is 12m , what is the length?

A rectangle has an area of 84cm^2 . If the base is 7cm , what is the height?

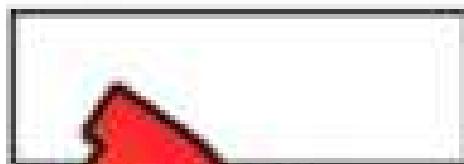
A rectangle has an area of 48m^2 . If the width is 6m , what is the length?

Measurement Unit Test

Part 1

Measure the side lengths and then find the area and perimeter

1)



Perimeter: _____

Area: _____ cm^2

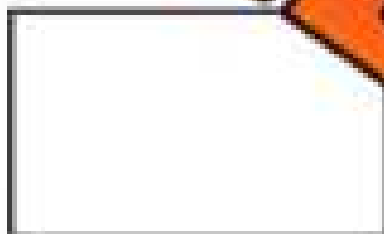
2)



Perimeter: _____ cm

Area: _____ cm^2

3)



Perimeter: _____ cm

Area: _____ cm^2

Perimeter: _____ cm

Area: _____ cm^2

Part 2

Convert the units of measurement below

1) 1m

_____ cm

2) 8.3m

_____ cm

3) 750cm

_____ m

4) 1.2L

_____ mL

5) 6.6kL

_____ L

6) 4.5L

_____ mL

7) 3.3g

_____ mg

8) 3600mg

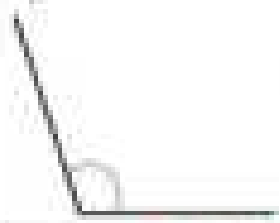


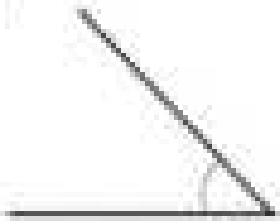
_____ g

9) 7500mg

_____ g

Part 3

Measure the angles and label them acute, right or obtuse

1) 	2) 	3) 	4) 

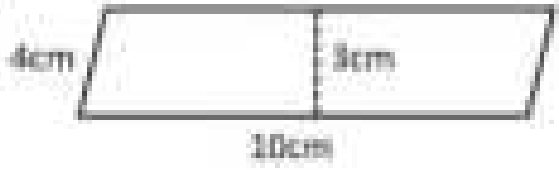
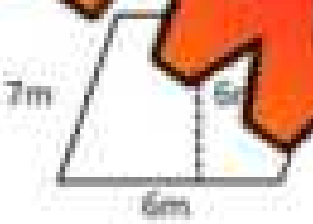
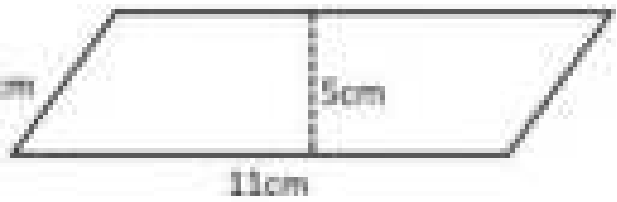
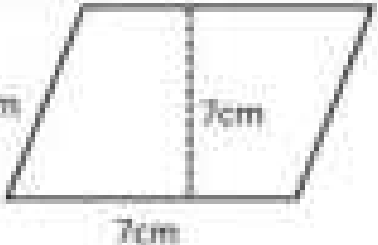
Part 4

Use a protractor to draw the angles below

1) 	3) 
$\angle = 95^\circ$	$\angle = 155^\circ$

Part 5

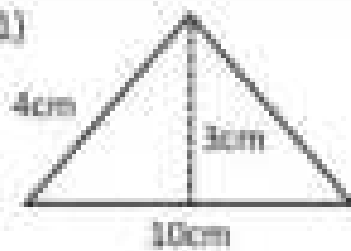
Find the perimeter and area of the following trapeziums ($A = b \times h$)

1)  Perimeter = _____ Area = _____	2)  Perimeter = _____ Area = _____
3)  Perimeter = _____ Area = _____	4)  Perimeter = _____ Area = _____

Part 6

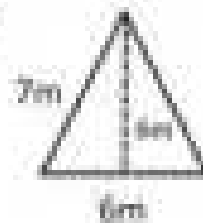
Find the area of the triangles below ($A = b \times h \div 2$)

1)



Area = _____

2)



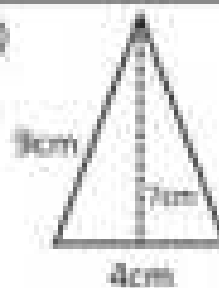
Area = _____

3)



Area = _____

4)



Area = _____

Part 7

Solve the word problems. Use a diagram to show your work.

1) A piece of paper is 11cm wide and 6cm high. What is the area of the paper?

2) Jeremy's triangular picture frame has a base of 10cm and a height of 4cm. What is the area of the triangular frame?

3) A painting that is shaped like a parallelogram has a base of 1m and a height of 80cm. What is the area of the parallelogram?



Google Slides Lessons Preview





Ontario Math Curriculum

Data – Graphing and Probability – Grade 5

3-Part Lesson Format

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Quotes
- And More!

SAMPLING METHODS

Learning Goal

We are learning to explain and compare different sampling methods, to use collected data that fairly represents a population and understand why the way we choose a sample is important.

SAMPLING METHODS

Which type of sampling method was used in the examples below?

Sampling Method	Sampling Method
Example 1: A survey of 100 students in a school.	Systematic Sampling
Example 2: A survey of 100 students in a school.	Systematic Sampling
Example 3: A survey of 100 students in a school.	Systematic Sampling

Part 2 – Action!

- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!

RELATIVE FREQUENCY

Fill in the relative frequency table.

Candy Bar Sales			General Election (Total Votes)			Sports Team (Total Wins)		
Ball	Frequency	Relative Frequency	Ball	Frequency	Relative Frequency	Ball	Frequency	Relative Frequency
Red	10	1/10	Blue	10	1/10	Red	10	1/10
Green	10	1/10	Green	10	1/10	Green	10	1/10
Yellow	10	1/10	Yellow	10	1/10	Yellow	10	1/10
Orange	10	1/10	Orange	10	1/10	Orange	10	1/10



Ontario Math Curriculum

Data – Graphing and Probability – Grade 5

STEM AND LEAF PLOT

Read the stem and leaf plots and fill in the tables below.

1 2 3 4 5 6 7 8 9 0

Stem	Leaf
1	
2	
3	
4	
5	
6	
7	
8	
9	
0	

Stem	Leaf
1	
2	
3	
4	
5	
6	
7	
8	
9	
0	

PICTOGRAPH

Answer the questions about the pictograph.

A pictograph shows how many tickets were sold for each of the sports.

Sport	# of tickets sold	Frequency
Baseball	1000 1000	
Football	1000 1000 1000	
Basketball	1000	
Hockey	1000 1000 1000 1000	
Ice Skating	1000 1000 1000	

1000 = 5 Students

1. How many tickets were sold for each sport?

2. Which sport was the most popular?

3. How many more tickets were sold for hockey than for basketball?

4. How many tickets were sold for ice skating?

5. What is the total number of tickets sold for the four sports?

Stacked Bar Graphs

Category	Blue	Red	Green	Total
1	2	1	1	4
2	2	1	1	4
3	2	1	1	4
4	1	1	1	3
5	1	1	1	3

1. How many items are in each category?

2. Which category has the most items?

3. How many items are in the red category?

4. How many items are in the green category?

5. How many items are in the blue category?

6. What is the total number of items in all categories?



Workbook Preview



Grade 5

D1. – Data Literacy

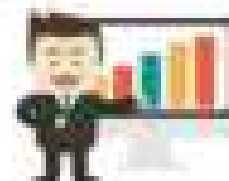
	Curriculum Expectations	Pages
D1.1	explain the importance of various sampling techniques for collecting a sample of data that is representative of a population	5 – 6, 49, 51, 67
D1.2	collect data, using appropriate sampling techniques as needed, to answer questions of interest about a population, and organize the data in relative-frequency tables	7 – 16, 28, 43, 45, 47, 49, 51, 63 – 64, 67
D1.3		32, 36, 48, 50, 61
D1.4	representing the data in appropriate ways, including in relative-frequency tables and stacked-bar graphs, and incorporating any other relevant information that helps to tell a story about the data	19 – 20, 69 – 71
D1.5	determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers and decimal numbers, and explain what each of these measures indicates about the data	17 – 18, 21 – 25, 29 – 30, 32, 63
D1.6	analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions	29 – 35, 53 – 63, 65 – 66, 72 – 87

Preview of 75 pages from
this product that contains
178 pages total.

Sampling Techniques

Random Sampling

When we select people in a population randomly. Each person in the population has an equal chance to be selected. For example, using a computer generator to randomly choose people from a list.



Stratified Random Sampling

Taking a population and splitting them into groups and then random sampling the groups separately. For example, a school population could be divided into two groups: (1) students who take a bus and (2) those who don't take a bus. A survey could be given to both groups by selecting 10% of the people in both groups. We can learn more information about both groups by using stratified random sampling.

Systematic Random Sampling

Systematic random sampling is when you choose a random sampling strategy before beginning a study. For example, people could be chosen from an alphabetized list of names, using a starting name and every fourth name to be randomly chosen.

Part 1 Write which type of sampling technique is being used in the examples below

Example of a Sampling Technique	Sampling Technique
1) Deciding randomly to choose every 5 th person in a line	
2) Having a computer call 10% of Ontario teachers	
3) Splitting the elementary student population into primary and secondary	
4) Using a computer to randomly email 20% of the customers of a business	
5) Deciding to hand out surveys to every 10 th customer who enters a store	

Part 2 Which sampling technique would you use in the situations below

Situation	Sampling Technique
1) You want to know if more men or women prefer your pizza	
2) You have a mailing list on your computer and want to sample 20% of them	
3) You work at a store and want to survey every 10 people that come in	
4) You are trying to sample 20% of everyone in Ontario by calling them	
5) You want to sample the grade 5 and grade 6's in the schools in Toronto	

Qualitative vs Quantitative Data

Quantitative data

Data that uses numbers (measured, counted)
- length, height, area, weight, time, etc.

Qualitative data

data that uses words (categories)
- choices, favourites, foods, colours, etc.

Questions Read the description of the data and circle if it is quantitative or qualitative.

1) Money spent on sale last month	Quantitative Qualitative
2) Heights of children in grade 5	Quantitative Qualitative
3) Favourite foods of the students in your class	Quantitative Qualitative
4) Rainfall in April last year	Quantitative Qualitative
5) Favourite colours of the students in your class	Quantitative Qualitative
6) The weight of different hockey skates	Quantitative Qualitative
7) The height of the grade 5 students	Quantitative Qualitative
8) Favourite season of the students in your school	Quantitative Qualitative
9) Which town/city people live in that go to your school	Quantitative Qualitative
10) Whether or not you have a pet	Quantitative Qualitative
11) How long it took to get to school	Quantitative Qualitative

Quantitative vs Qualitative Observations

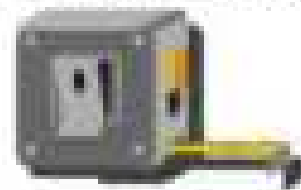
Qualitative Observations

use your senses to observe the results



Quantitative Observations

use measurement tools to make observations



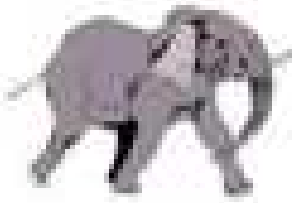
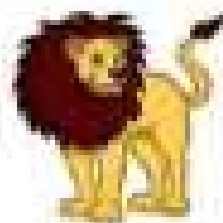
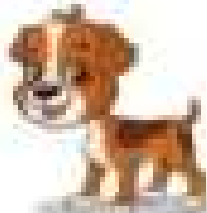

Part 1 Observe the picture below with your senses. Write as many qualitative observations as you can (imagine the smell/noise/taste/feel)



Smell: _____

Taste: _____

Part 2 Pretend you can measure the weight, speed, and height of the animals below. Provide a quantitative observation (estimation of these values)

	Height: _____ cm Weight: _____ kg Speed: _____ km/h		Height: _____ cm Weight: _____ kg Speed: _____ km/h
	Height: _____ cm Weight: _____ kg Speed: _____ km/h		Height: _____ cm Weight: _____ kg Speed: _____ km/h

Relative Frequency Tables

Instructions

Fill in the relative frequency tables below

1. Coin Toss (100 Tosses)

Result	Frequency	Relative Frequency
Heads	48	
Tails	52	

2. Spinner with 4 Colours (80 Spins)

Colour	Frequency	Relative Frequency
Red	25	
Blue		
Green		
Yellow		

3. Favourite Recess Activity (Class Survey)

Activity	Frequency	Relative Frequency
Soccer	10	
Tag	8	
Reading	6	
Basketball	6	

4. Colour of Marbles Pulled (150 Trials)

Colour	Frequency	Relative Frequency
Red	50	
Green	40	
Black	30	
Blue	30	

Relative Frequency Tables

Instructions

Fill in the relative frequency tables below

1) Ice Cream Flavours Chosen

Flavour	Frequency	Relative Frequency
Vanilla	18	
Chocolate	21	
Mint chip	9	
Strawberry	12	
a) How many students were surveyed?		
b) If 120 students were surveyed, how many would you expect to choose mint chip?		
c) If 300 students were surveyed, how many would you expect to choose chocolate?		
d) What would happen if another flavour was added? How would the relative frequencies of the other flavours go?		

2) Colours of Beads in a Bracelet Kit

Flavour	Frequency	Relative Frequency
Red	50	
Blue	40	
Green	60	
Yellow	50	
a) How many beads are there?		
b) If the total number of beads doubled, how would the relative frequencies change?		
c) If there were 400 beads in total, how many green beads would there be?		

Relative Frequency Word Problems

Instructions

Answer the questions below.

1) A dice was rolled 50 times. It landed on the number 4 a total of 12 times. What is the relative frequency of rolling a 4?

2) Out of 100 students, 35 said their favourite subject is Math. What is the relative frequency of students who like Math?

3) A class of 30 students were asked what fruit they like best. 10 chose apples, 12 chose bananas, and 8 chose oranges. What is the relative frequency for each fruit?

4) In a survey of 60 students, 18 walked to school, 24 took the bus, and 18 were driven by car. What is the relative frequency of each mode of transportation?

5) In a survey of 40 people, 16 drank tea, 12 drank coffee, and the rest drank juice. What is the relative frequency of each drink?

PREVIEW

Relative Frequency Tables

Instructions

Fill in the relative frequency tables below

1) Coin Toss (Total = 10 tosses)

Pet	Frequency	Relative Frequency
Heads		0.6
Tails		0.4

2) Favourite Fruit (Total = 20 students)

Fruit	Frequency	Relative Frequency
Apple		0.4
Banana		0.3
Orange		0.3

3) Spinner Results (Total = 50 spins)

Colour	Frequency	Relative Frequency
Red		
Blue		
Green		

4) Dice Rolls (Total = 60 rolls)

Number	Frequency	Relative Frequency
1		0.1
2		0.2
3		0.1
4		0.2
5		0.3
6		0.1

Relative Frequency Tables

Instructions

Fill in the relative frequency tables below

1) A pet shelter recorded the relative frequencies of animals adopted. Dogs: 0.5, Cats: 0.3, Rabbits: 0.2. If 120 animals were adopted, how many of each type were adopted?

2) A bag contains 100 marbles. 0.6 of the marbles are green. The rest are red. How many red marbles are there?

3) A spinner was spun 200 times. The number 3 came up with a relative frequency of 0.15. How many times did the spinner land on 3?

4) A store tracks purchases. 0.25 of customers bought shoes, 0.5 bought shirts, 0.25 bought hats. If 100 customers made purchases, how many bought each item?

5) In a class vote, the relative frequency of students who chose vanilla ice cream was 0.25. If 10 students chose vanilla, how many students were in the class?

PREVIEW

MEAN

When we calculate the mean, we are finding the average of set of numbers.

Example: Three brothers named Josh, Cameron, and Morgan went on an easter egg hunt. Josh found 6 eggs, Cameron found 4, and Morgan found 5. At the end of the hunt, their mother told them to split the eggs equally. So, they decided to put all the eggs in the middle and then divide them equally amongst themselves. They had $6 + 4 + 5 = 15$ eggs and $15 \div 3 \text{ kids} = 5$ eggs each.

Josh 6 Candy Bag	Cameron 4 Candy Bag	Morgan 5 Candy Bag	=	Total 15 Candy Bag	=	Josh 5 Candy Bag	Cameron 5 Candy Bag	Morgan 5 Candy Bag
Mean = 5								

Questions

Calculate the mean for each set of numbers. Remember to add up the total up the candy and then fair share it.

Clare 5 Candy Bag	Kate 3 Candy Bag	_____	=	Total _____	=	Clare _____	Kate _____	_____
Mean = _____								

Emma 2 Candy Bag	Oli 6 Candy Bag	Sam 4 Candy Bag	=	Total _____	=	Emma _____	Oli _____	Sam _____
Mean = _____								

Mia 14 Candy Bag	Harper 8 Candy Bag	Charlotte 8 Candy Bag	=	Total _____	=	Mia _____	Harper _____	Charlotte _____
Mean = _____								

Liam 10 Candy Bag	Noah 15 Candy Bag	William 11 Candy Bag	=	Total _____	=	Liam _____	Noah _____	William _____
Mean = _____								

Name: _____

18

Mathematics Operations
1.1

MEAN

Mean - the average in a set of data

Step 1: Add the numbers in the data set

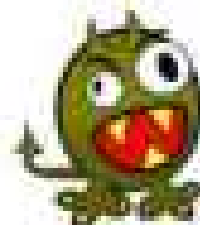
Step 2: Divide the sum by the amount of numbers in the set

Example:

Data set: 5, 3, 8, 8

Step 1: $5 + 3 + 8 + 8 = 24$

Step 2: $24 \div 4 = 6$



Question: Find the mean for each data set below

2) 8, 4, 12, 4

3) 12, 6, 10, 8

4) 20, 10, 30, 20

5) 23, 35, 24, 30

6) 14, 14, 14, 14

7) 12, 19, 12, 26, 31

8) 15, 8, 20, 16, 11

9) 13, 18, 17, 22, 30

10) 42, 36, 55, 23, 14

MODE

Mode: The mode is the number that happens the most in a group of data. It shows what is most popular.

For example:

Thirteen Grade 5 students were asked how old they are. Their answers were:

9, 10, 10, 9, 10, 10, 9, 10, 10, 9, 9, 10, 10

- 9 years old: 5 students
- 10 years old: 8 students

Age	9	10
Frequency	5	8

So, the mode is 10 because more students are 10 than 9.

• If two numbers are picked the same amount, both are the mode.

• The number that is picked the most always the mode — the one that shows up the most is!

Questions

1) People were asked their age. They are listed in the data sets below. Put them in the ordered list table and write the mode(s).

Data Set	Ordered List	Mode								
1) 13, 15, 11, 16, 11, 13, 11	<table border="1"> <thead> <tr> <th>#</th> <th>13</th> <th>15</th> <th>16</th> </tr> </thead> <tbody> <tr> <td>Frequency</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	#	13	15	16	Frequency				
#	13	15	16							
Frequency										
2) 22, 25, 23, 22, 25, 28	<table border="1"> <thead> <tr> <th>#</th> <th>22</th> <th>25</th> <th>28</th> </tr> </thead> <tbody> <tr> <td>Frequency</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	#	22	25	28	Frequency				
#	22	25	28							
Frequency										
3) 37, 49, 35, 37, 49, 35, 49, 35	<table border="1"> <thead> <tr> <th>#</th> <th>35</th> <th>37</th> <th>49</th> </tr> </thead> <tbody> <tr> <td>Frequency</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	#	35	37	49	Frequency				
#	35	37	49							
Frequency										
4) 65, 54, 58, 58, 54, 65, 54, 58	<table border="1"> <thead> <tr> <th>#</th> <th>54</th> <th>58</th> <th>65</th> </tr> </thead> <tbody> <tr> <td>Frequency</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	#	54	58	65	Frequency				
#	54	58	65							
Frequency										

Mode and Frequency Tables

Questions

Answer the questions below

1) Mason kept track of how many books he read each month for the last 7 months: 3, 6, 4, 4, 3, 5, 5

a) Fill in the frequency table

Books Read					
Frequency					

b) What is the mode?

c) Can there be only one mode?

2) Jasmine tracked the weather each day and recorded whether it was Sunny, Cloudy, or Rainy. Sunny, Rainy, Cloudy, Sunny, Rainy, Cloudy, Rainy, Sunny, Cloudy, Cloudy, Rainy, Sunny, Rainy, Cloudy

a) Fill in the frequency table

Weather Type	Rainy	Cloudy	
Frequency			

b) What is the mode?

3) Liam went to an arcade and recorded how many tickets he won each round. Here's what he got: 120, 150, 140, 120, 150, 200, 150, 120, 140, 150, 140, 180, 140, 180, 120

a) Fill in the frequency table

Tickets Won					
Frequency					

b) What is the mode?

Mean and Mode

Hockey Goals 				
6	3	2	2	7

Basketball Points 				
13	22	20	15	15

PREVIEW

Minutes Read Per Day				
12	18	42	36	12

Points Scored				
95	85	75	65	55

Mean: _____ 

Mean: _____ 

Mode: _____

Mode: _____

MEDIAN

Median: The median is the middle number in a data set.

Step 1: put numbers in order from least to greatest

Step 2: circle the number in the middle.



*** If there is an even amount of numbers in the data set, add the two numbers in the middle and divide by 2. This is the median.

	Ordered List	Median
8, 1, 10, 12, 15, 18	4, 7, <u>8</u> , 8, 12, 15	$8 + 8 = 16$ $16 \div 2 = 8$
25, 35, 12, 53, 15, 24		
18, 17, 11, 15, 14, 41		
231, 412, 165, 132, 335, 65		
12, 28, 0, 0, 22, 0, 36, 42		
130, 265, 217, 323, 112, 203		
11, 14, 125, 214, 425, 135, 163		

MEDIAN**Part 1**

Answer the questions below

1	Five students measured how long they could balance on one foot (in seconds): 12, 18, 14, 14, 20. What is the median balance time?	
2	Eric counted how many marbles they had in their collection: 32, 28, 35, 40, 29, 38, 36, 31. What is the median number of marbles?	
3	One collection of thermometers recorded six temperatures (in °C): -5, 5, 2, -3, 1, 0. What is the median temperature?	
4	A student baked muffins on a 7th day. The number of muffins was: 12, 14, 14, 12, 14, 12, 14. a) What is the median number of muffins? b) If they baked 6 more muffins on a 7th day and 12 on the 8th, what is the new median?	a)
		b)

Challenge

Answer the questions below

In the first five months of the year, a store sold these numbers of puzzles: January: 120, February: 10 more than January, March: 15 fewer than February, April: 25 more than March, May: 20 fewer than January	
1) What is the total number of puzzles sold over the five months?	
2) What is the median number of puzzles sold?	
3) Which two months had puzzle sales closest to the median value?	
4) If you removed the month with the highest number of puzzles sold, what would the new median be?	

Mean, Median, Mode - Decimals

Questions

Fill in the table using the different measures of central tendency



Data Set	33, 12, 27, 33, 14, 25, 17
Mean	
Median	
Mode	

Data Set	11.5, 13.5, 14.6, 16.1, 11.5, 12.6
Mean	
Median	
Mode	

Data Set	3.5, 4.0, 4.5, 6.5, 7.0, 4.5
Mean	
Median	
Mode	

Data Set	12.4, 11.0, 31.5, 21.6, 32.4
Mean	
Median	
Mode	

Kevin weighed his daughter Mia every month for the first 6 months of her life. What was her average weight during her first 6 months?

8.2 11.5 13.7 15.7 18.2 19.1

Mean		Median		Mode	
------	--	--------	--	------	--

Stem and Leaf Plots

A stem and leaf plot is another way to organize data so it can be better understood. The stem represents the first digit or digits, and the leaf represents the last digit.



How to create a stem and leaf plot

1. Put the numbers in order from smallest to largest.
2. Determine the stems by looking at the first number. Sometimes you will have two-digit stems.
3. Write the corresponding leaf (the last digit) under the leaf part of the table.

Question: Complete the stem and leaf plots below

1) 32, 44, 55, 66

Stem	Leaf

2) 11, 65, 25, 38, 43, 11, 36, 74

Stem	Leaf

3) 156, 154, 124, 135, 164, 172, 125

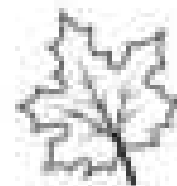
Stem	Leaf

4) 252, 237, 235, 218, 237, 254

Stem	Leaf

Stem and Leaf Plots

A stem and leaf plot is another way to organize data so it can be better understood. The stem represents the first digit or digits, and the leaf represents the last digit.



Questions

Read the stem and leaf plots and fill in the tables below

1.	<table border="1"> <thead> <tr> <th>Stem</th> <th>Leaf</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>1</td> </tr> <tr> <td>8</td> <td>2</td> </tr> </tbody> </table>	Stem	Leaf	6	1	8	2	<table border="1"> <tr> <th>Data Set</th> <td></td> </tr> <tr> <th>Median</th> <td></td> </tr> <tr> <th>Mean</th> <td></td> </tr> <tr> <th>Mode</th> <td></td> </tr> </table>	Data Set		Median		Mean		Mode	
Stem	Leaf															
6	1															
8	2															
Data Set																
Median																
Mean																
Mode																

2.	<table border="1"> <thead> <tr> <th>Stem</th> <th>Leaf</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>2, 8, 8</td> </tr> <tr> <td>3</td> <td>3</td> </tr> <tr> <td>4</td> <td>0, 4, 4, 5</td> </tr> <tr> <td>5</td> <td>5</td> </tr> </tbody> </table>	Stem	Leaf	1	1	2	2, 8, 8	3	3	4	0, 4, 4, 5	5	5	<table border="1"> <tr> <th>Data Set</th> <td></td> </tr> <tr> <th>Median</th> <td></td> </tr> <tr> <th>Mean</th> <td></td> </tr> <tr> <th>Mode</th> <td></td> </tr> </table>	Data Set		Median		Mean		Mode	
Stem	Leaf																					
1	1																					
2	2, 8, 8																					
3	3																					
4	0, 4, 4, 5																					
5	5																					
Data Set																						
Median																						
Mean																						
Mode																						

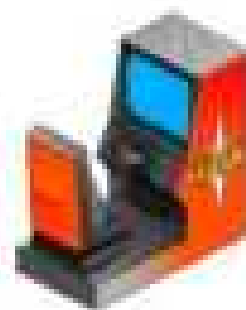
3.	<table border="1"> <thead> <tr> <th>Stem</th> <th>Leaf</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> </tr> <tr> <td>2</td> <td>3, 5, 5</td> </tr> <tr> <td>3</td> <td>4, 7</td> </tr> <tr> <td>4</td> <td>0, 5</td> </tr> <tr> <td>5</td> <td>6</td> </tr> </tbody> </table>	Stem	Leaf	1	2	2	3, 5, 5	3	4, 7	4	0, 5	5	6	<table border="1"> <tr> <th>Data Set</th> <td></td> </tr> <tr> <th>Median</th> <td></td> </tr> <tr> <th>Mean</th> <td></td> </tr> <tr> <th>Mode</th> <td></td> </tr> </table>	Data Set		Median		Mean		Mode	
Stem	Leaf																					
1	2																					
2	3, 5, 5																					
3	4, 7																					
4	0, 5																					
5	6																					
Data Set																						
Median																						
Mean																						
Mode																						

4.	<table border="1"> <thead> <tr> <th>Stem</th> <th>Leaf</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2, 5</td> </tr> <tr> <td>4</td> <td>0, 2</td> </tr> <tr> <td>5</td> <td>5, 9</td> </tr> <tr> <td>7</td> <td>7</td> </tr> <tr> <td>9</td> <td>0, 1, 9</td> </tr> </tbody> </table>	Stem	Leaf	2	2, 5	4	0, 2	5	5, 9	7	7	9	0, 1, 9	<table border="1"> <tr> <th>Data Set</th> <td></td> </tr> <tr> <th>Median</th> <td></td> </tr> <tr> <th>Mean</th> <td></td> </tr> <tr> <th>Mode</th> <td></td> </tr> </table>	Data Set		Median		Mean		Mode	
Stem	Leaf																					
2	2, 5																					
4	0, 2																					
5	5, 9																					
7	7																					
9	0, 1, 9																					
Data Set																						
Median																						
Mean																						
Mode																						

Creating a Horizontal Pictograph

Kevin and his friends went to an arcade on Saturday. They had a contest to see who could win the most tickets from the arcade games. The results are displayed in the table below.

Kevin	80
Neil	40
Steve	72
Dane	60
Chris	68



Questions

Draw a pictograph that displays the data above.

Kevin	
Neil	
Steve	
Dane	
Chris	



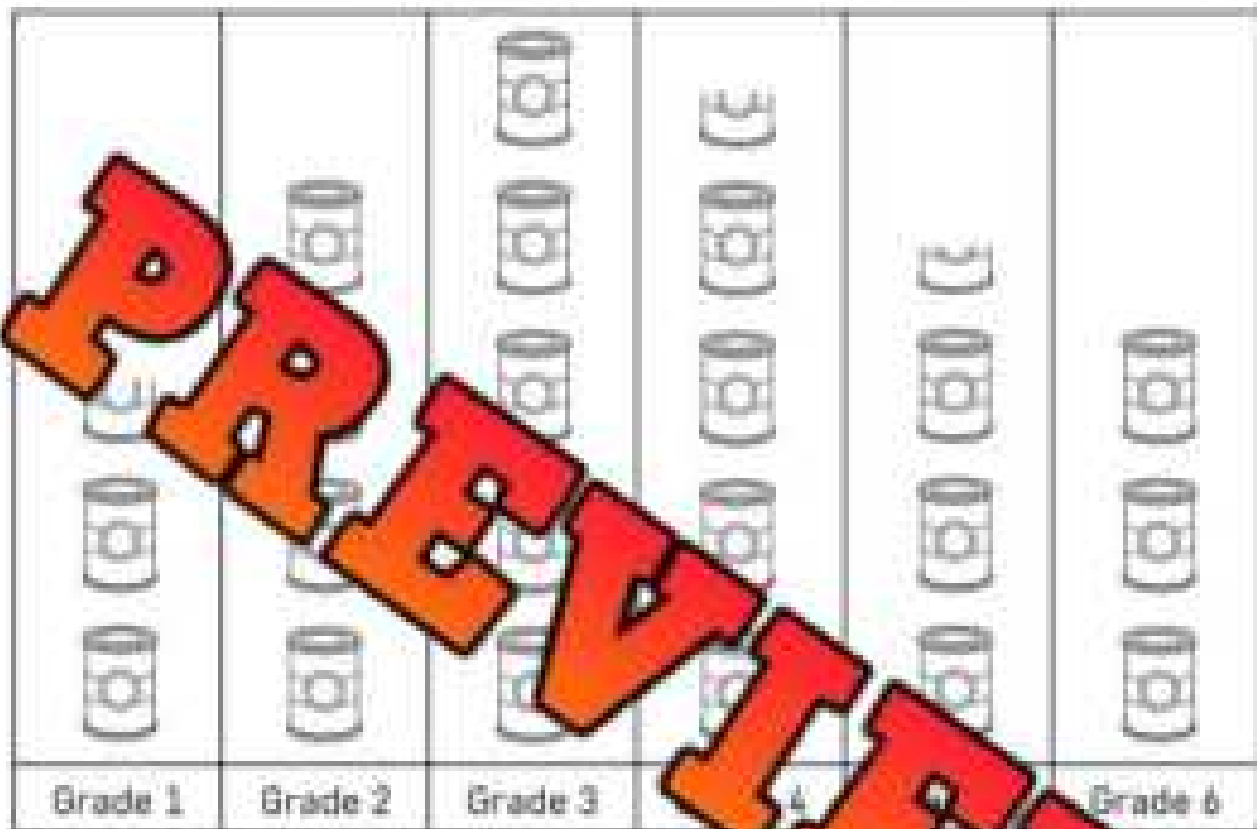
= 8 tickets

- 1) Who won the most tickets?
- 2) How many more tickets did Dane win than Neil?
- 3) How many total tickets did the 5 kids win?

Mean	Median

Vertical Pictograph – Canned Food

Maplewood Public School had a canned food drive last month. The students in each class brought in cans of food. The totals for each grade are displayed below in the pictograph.



= 12 cans

- | | |
|--|--|
| a) How many cans is one picture worth? | |
| b) How many cans is half a picture worth? | |
| c) Which class brought the greatest number of cans? | |
| d) How many total cans were brought in at Maplewood Public school? | |
| e) How many more cans did the grade 3's bring in than the grade 6's? | |
| f) How many more cans did the grade 4's need to win? | |

Creating a Vertical Pictogram

James participated in a reading challenge last week. He read each day and wrote down how many minutes he read for each day of the week.



Sunday	45
Monday	60
Tuesday	40
Wednesday	65
Thursday	45
Friday	50
Saturday	45



PREVIEW

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday



= 10 minutes

1) What day did he read the most?

2) How many more minutes did he read on Wednesday than Friday?

Mean	Mode	Median

Relative Frequency Bar Graph

A total of 30 students in grade 5 were asked which animal they would most like as a class pet. Each student voted, and the results have been displayed below in a horizontal bar graph.



Instructions

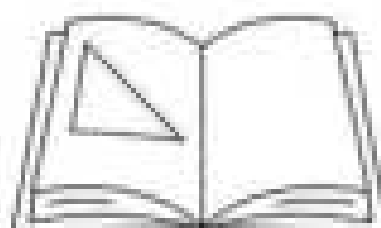
Answer the questions below.

	Pet	Relative Frequency
1) Fill in the frequency table.	Turtle	
	Fish	
	Hamster	

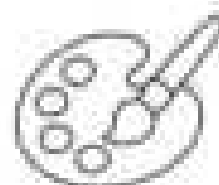
2) How many more students voted for hamsters than for fish?	
3) What is the difference in relative frequency between the most and least popular pet?	
4) If 10 more students were surveyed and all chose fish, what would the new relative frequency for fish be?	
5) Is it possible for two pets to have the same frequency but different relative frequencies?	

Relative Frequency Bar Graph

A total of 40 students in grade 5 were asked which subject they enjoy the most at school. Each student voted, and the results have been displayed below in a horizontal bar graph.



MATH



ART



SCIENCE

Instructions

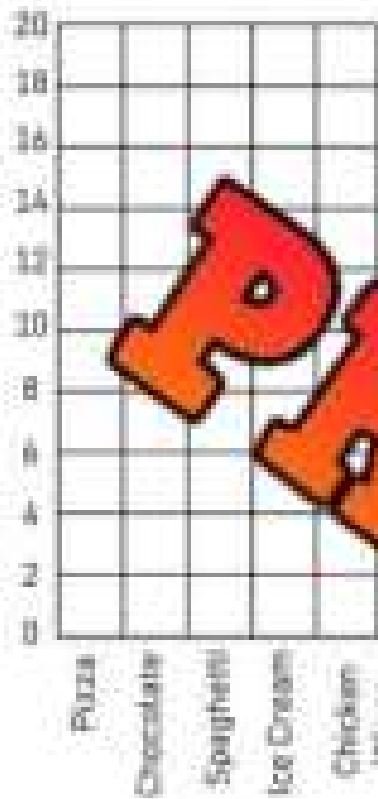
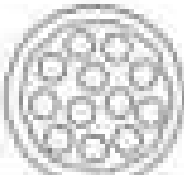
Answer the questions below.

1) Fill in the frequency table.	Pat	Relative Frequency
	Math	
	Science	
	Art	
	Gym	

2) What is the difference in the number of students between the most and least popular subjects?	
3) If five more students were added to the survey and all chose art, what would the new relative frequency be for art?	
4) What is the total relative frequency of all four subjects?	
5) If there were 160 students and the relative frequencies stayed the same, how many would choose science?	

Drawing Bar Graphs

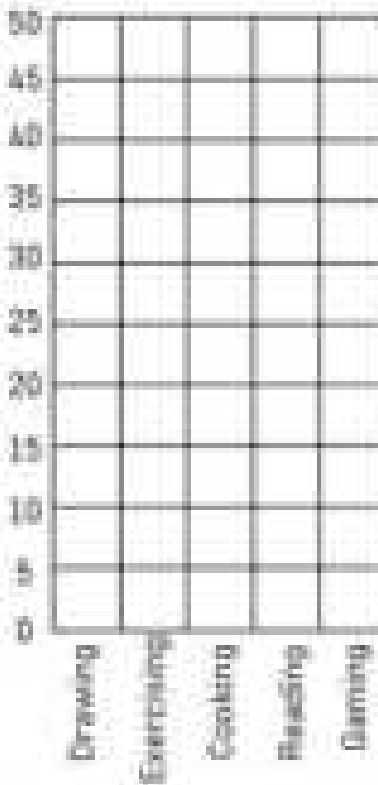

Questions Draw the bars for each of the bar graphs below

Favourite Food	# of votes
Pizza	14
Chocolate	10
Spaghetti	8
Ice Cream	6
Chicken Wings	4




Player	# of points
Jake	30
Nathan	12
Courtney	18
Ashley	24
Luke	6

Favourite Hobby	# of votes
Drawing	10
Exercising	20
Cooking	35
Reading	25
Gaming	40



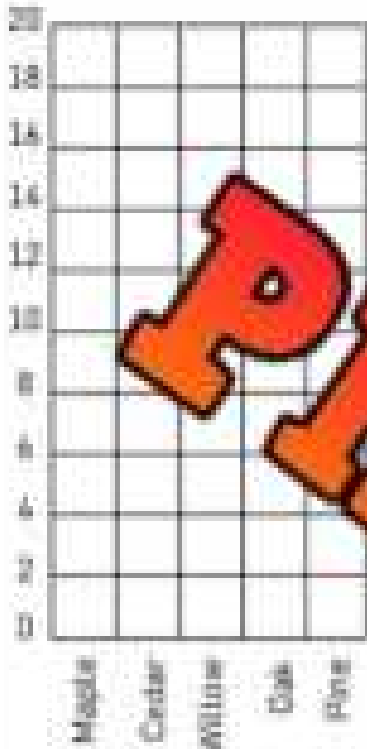
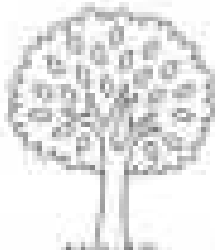

Favourite Food	# of votes
Hot Dog	30
Pizza	60
Fries	50
Tacos	80
Sandwich	35

PREVIEW


Drawing Bar Graphs

Questions

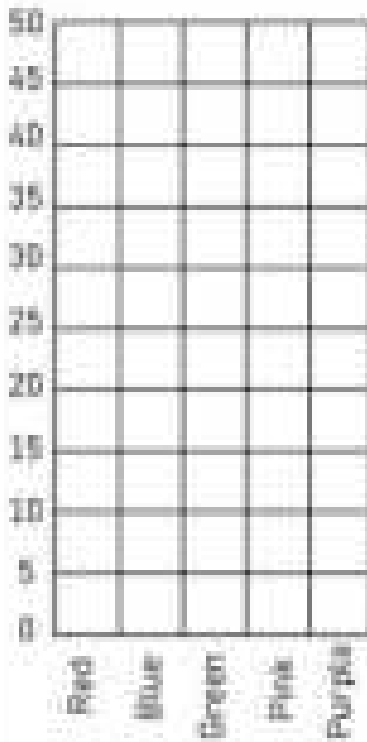

Draw the bars for each of the bar graphs below


Favourite Tree	# of votes
Maple	8
Cedar	4
Willow	6
Oak	10
Pine	12

Favourite Drink	# of points
Milk	9
Water	3
Juice	16
Soda	21
Choc. Milk	25

Favourite Colour	# of votes
Red	40
Blue	30
Green	15
Pink	8
Purple	20

Pizza Topping	# of votes
Pepperoni	80
Mushroom	40
Onion	30
Bacon	60
Ham	25

PREVIEW

Exit Cards

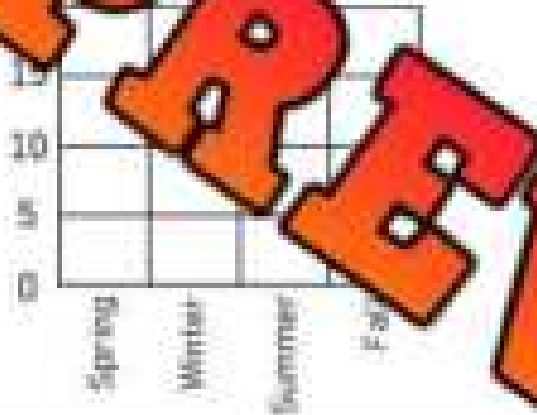
Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Draw the bars for the bar graphs below.

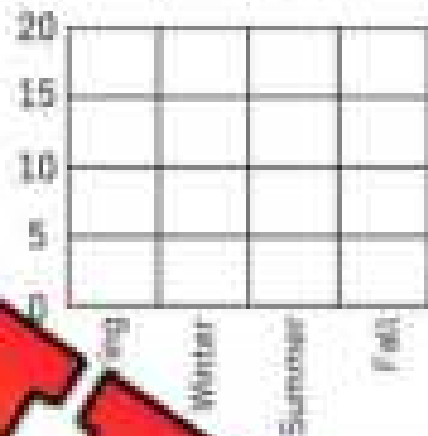
Season	Winter	Summer	Fall
Votes	15	5	15



Name: _____

Draw the bars for the bar graphs below.

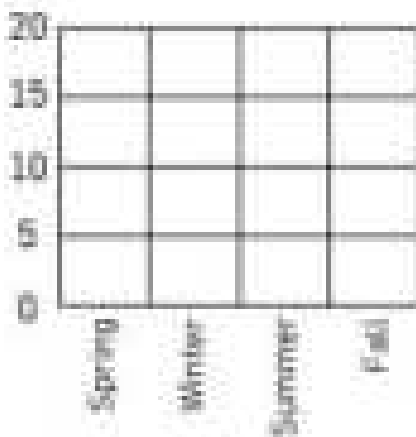
Season	Spring	Winter	Summer	Fall
Votes	20	10	5	15



Name: _____

Draw the bars for the bar graphs below.

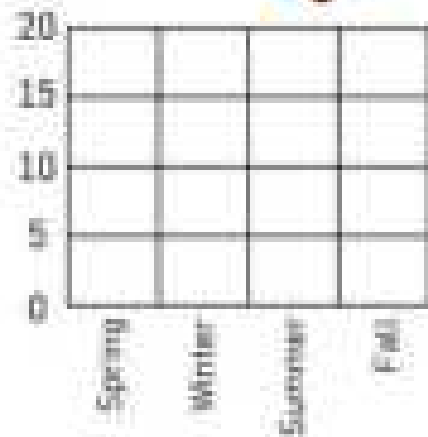
Season	Spring	Winter	Summer	Fall
Votes	20	10	5	15



Name: _____

Draw the bars for the bar graphs below.

Season	Spring	Winter	Summer	Fall
Votes	20	10	5	15



PREVIEW

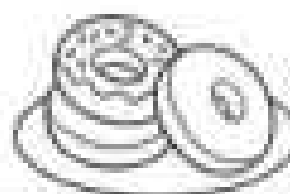
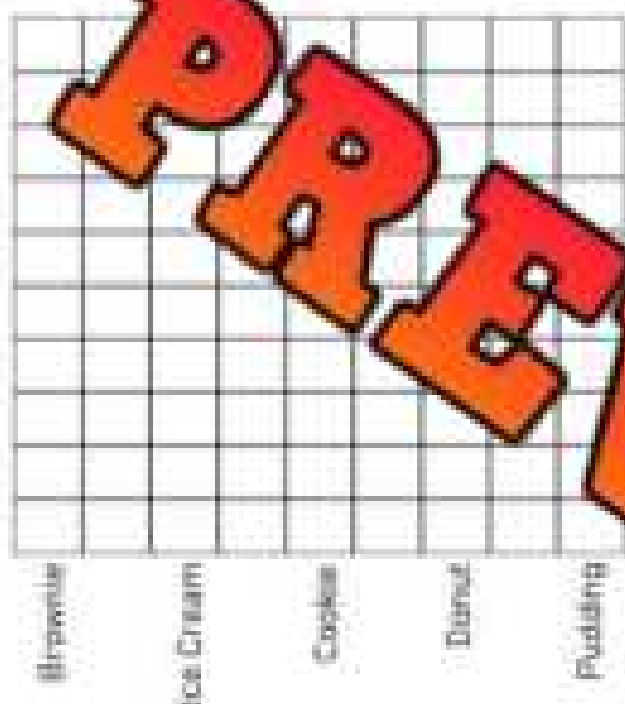
Creating Scale

When you create a scale for your graph, you need to look at the data so you can decide what to go up by. The goal is to create a graph that will fill the graph area.

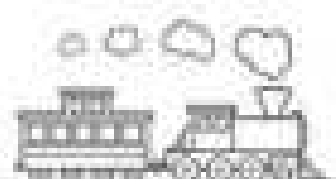
Step 1: Look at the data. Find the lowest and highest numbers.

Step 2: Count how many lines you have to plot your data.

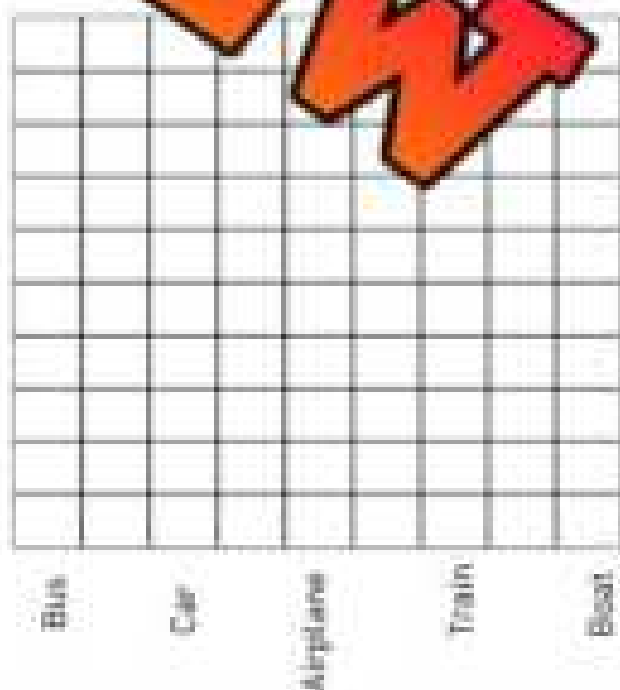
Step 3: Decide what to go up by to ensure you have enough space to plot ALL the data.



Favourite Dessert	# of votes
Brownie	14
Ice Cream	12
Cookie	2
Donut	16
Pudding	6



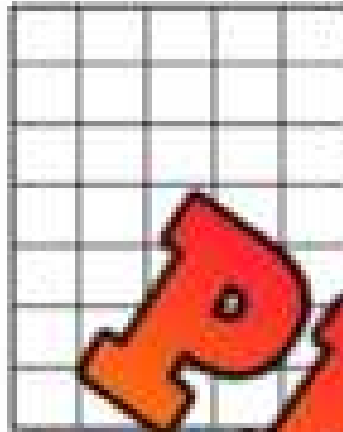
Transportation Method	# of votes
Bus	5
Car	15
Airplane	30
Train	25
Boat	40



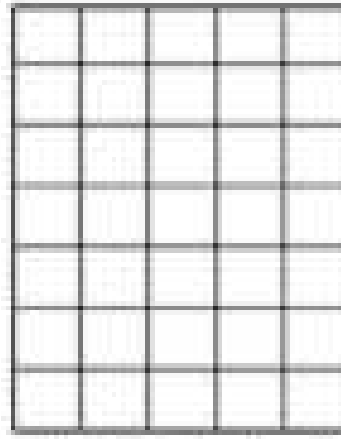
Creating Scale

Instruction

Read the numbers and decide which scale to use. Next, draw your bar graphs.



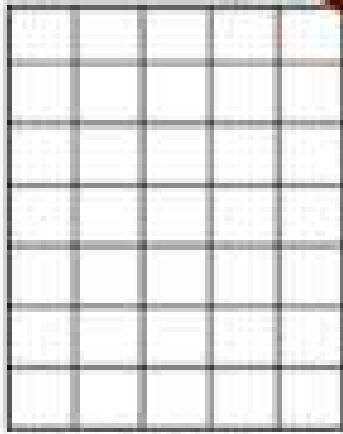
Pets	Votes
Dog	8
Cat	14
Bunny	2
Hamster	6
Guinea Pig	10



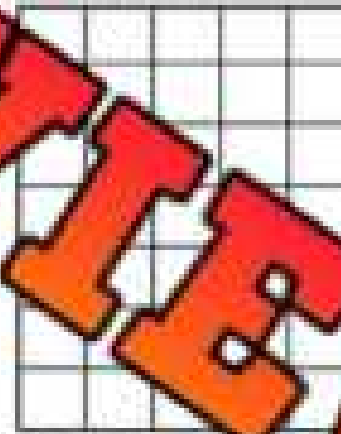
Brand	Votes
Nike	7
Puma	2
Adidas	4
Under Armour	5
Reebok	3

Dog
Cat
Bunny
Hamster
Guinea Pig

Nike
Puma
Adidas
U.A.
Reebok



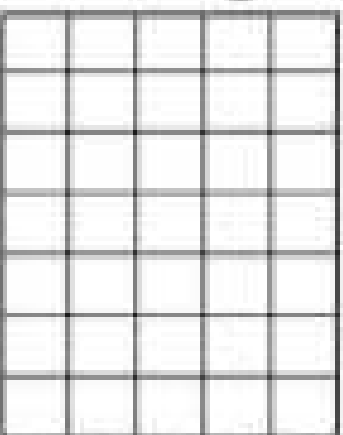
Food	Votes
Cookies	12
Cake	18
Candy	21
Ice-Cream	15
Donuts	18



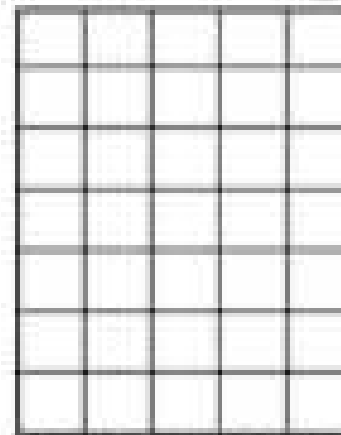
Subject	Votes
Math	20
Science	30
Gym	70
Art	50
Language	40

Cookies
Cake
Candy
Ice-Cream
Donuts

Math
Science
Gym
Art
Language



Cars	Votes
Honda	40
BMW	100
Toyota	60
Tesla	120
Ford	30



Drinks	Votes
Water	200
Pop	500
Orange Juice	400
Milk	300
Apple Juice	600

Honda
BMW
Toyota
Tesla
Ford

Water
Pop
O.J.
Milk
A.J.

PREVIEW

Graphing Relative Frequency – Bar Graph

The Grade 5 students tracked the number of books borrowed from the school library over five days. Their data is listed below.

Instructions

Fill in the relative frequency in the table below. Then graph the relative frequency data.

Day	Number of Books	Relative Frequency
Monday	3	
Tuesday	5	
Wednesday	12	
Thursday	4	
Friday		



Monday	Tuesday	Wednesday	Thursday	Friday

Collecting Data - Qualitative

We collect data so that we can learn more about something we are interested in. We also collect data to solve a problem.

Examples:

Area of Interest: "What is your favourite animal?"

Solving a Problem: "Are you coming to the party on Saturday?" (this solves the problem of how many will be attending the party).



Survey D

Area of

Collect data by asking your classmates your survey question

Survey Question

Example: What is your favourite colour?

Categories

Tally

Frequency

Interpreting Your Survey Results

1. How many people did you survey? _____
2. Which category was the most popular? _____
3. Which category was the least popular? _____
4. If you asked your entire school, which category do you think would win? Explain.

5. Did any of the survey results surprise you?

I'm surprised that _____

Creating a Bar Graph

Use the data you collected to plot your graph. Remember the following labels:

X axis Y axis Title Scale Categories



Collecting Data - Quantitative

Survey Question Solving a Problem

Collect data by asking your classmates your survey question

Solve a problem in your life by asking your classmates for their opinion. For a quantitative question, the answers should be a number, or a number range.

For example: "How many books should I read a week?" -

Answer options: 0-3, 4-7, 7-10, 11+

Example

1 - "How many hours a week should I practice my favourite sport?"

2 - "How many hours of sleep should I get a night?"

3 - "How many grams of vegetables should I eat a day?"



Survey Question

Example: How many pencils do I need for school?

Categories

Tally

Frequency

Interpreting Your Survey Results

1. How many people did you survey? _____
2. Which category was the most popular? _____
3. Which category was the least popular? _____
4. Was your problem solved? Will you follow the data and listen to your classmates?



Graphing Quantitative Data

Use the data you collected to plot your graph. Remember the following labels:

- X axis label Y axis label Title Scale Categories



Interpreting a Stacked Bar Graph

The students in grades 5 and 6 were asked which candy was their favourite. The results have been sorted by grade in the stacked bar graph below.

Favourite Candy of Grade 5 and 6 Students



a) Which candy did the grade 5's like the most?

b) Which candy did the grade 6's like the most?

c) Which candy got the most votes combined?

d) How many more votes did hard candy get in total over suckers?

e) How many more grade 5s liked hard candy than grade 6s?

Grade 5s

f) How many grade 5's and grade 6's were surveyed?

Grade 6s

Exit Cards

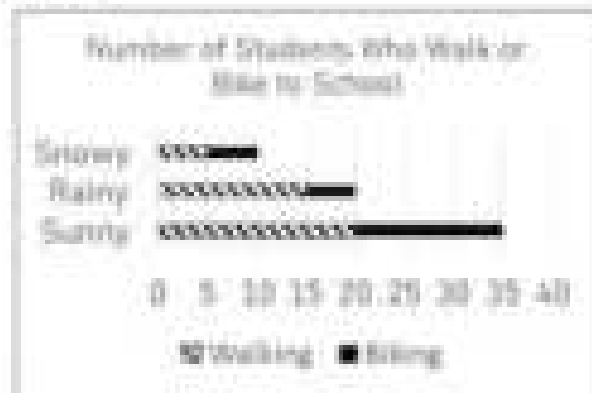
Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____



- How many more students bike in sunny weather than walk in snowy weather? _____
- How many people walk to school? _____
- How many people bike to school? _____

Name: _____



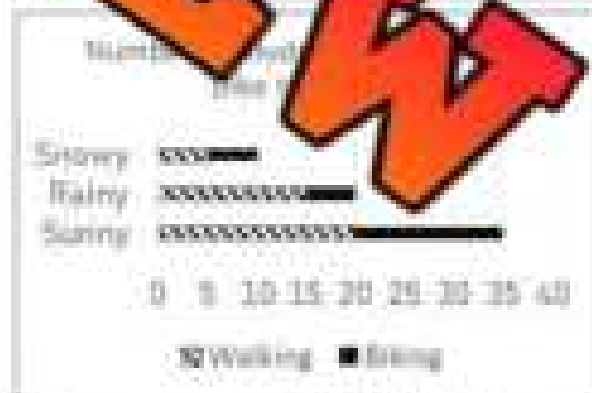
- How many more students bike in sunny weather than walk in snowy weather? _____
- How many people walk to school? _____
- How many people bike to school? _____

Name: _____



- How many more students bike in sunny weather than walk in snowy weather? _____
- How many people walk to school? _____
- How many people bike to school? _____

Name: _____



- How many more students bike in sunny weather than walk in snowy weather? _____
- How many people walk to school? _____
- How many people bike to school? _____

PREVIEW

Activity Title: Flip the Data**Objective**

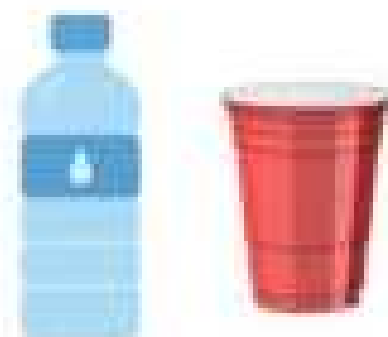
What are we learning about?

Students will engage in a fun and active game where they read data from a bar graph and answer questions to earn the opportunity to flip a bottle or cup. This activity combines data interpretation skills with a physical challenge, adding excitement and a competitive element to learning.

Materials

What you will need for the activity.

- Bottle or cup
- A smartboard (to display bar graphs)
- Timer (stopwatch or timer app)
- Question cards on bar graph data
- Scoreboard to keep track of wins

**Instructions**

How you will complete

1. Divide the class into small teams, ideally of 3-5 students.
2. Prepare a series of bar graphs to display on the smartboard with corresponding question cards that ask about the data.
3. One team at a time comes to the front where the graph is displayed.
4. Display the first bar graph on the smartboard.
5. The first student from the active team reads the graph and selects a question card. Start the timer when the question is first shown.
6. The student answers the question based on the data presented in the graph. The teacher checks the answer.
7. If the student answers correctly, they flip their bottle or cup repeatedly until they land it upright. When they do, the next teammate can take their turn.
8. If the student's answer is incorrect, they must try another question card before they can attempt to flip.
9. The team's turn ends either when all members have successfully flipped their bottle/cup or when the timer reaches a set limit (e.g., 3 minutes).
10. Record the team's time or number of successful flips on the scoreboard.
11. Repeat steps 4-10 for each team. The team with the fastest time wins.

Graph 1

Analyze the graph below

Average Test Scores in Math and Science by Grade



Graph 5

Analyze the graph below

Daily Screen Time on Weekdays vs. Weekends



Questions

Choose a question to ask the student who is about to flip their bottle

What is the title of the graph?

What is the title of the Y-axis?

What is the title of the X-axis?

What does each bar on the graph represent?

Which category shows the highest values for both bars?

Which category shows the lowest values for both bars?

How many categories are displayed on the graph?

What is the range of values on the Y-axis?

What is the total number of items represented by all bars?

What is the difference in value between the highest and lowest categories for both bars?

Are there any categories that have similar values for both bars?

How does the value of one specific category compare to the other?

What could be a possible reason for the highest value?

What could be a possible reason for the lowest value?

What trends can you observe from the graph?

How might this data be useful?

If you could add another category to this graph, what would it be?

How would you describe the overall distribution of data?

What insights or conclusions can you draw from this graph?

How might the information on the graph impact decisions or opinions?

Survey: Double Bar Graph

When creating a double bar graph, start by collecting data from two different groups of people. You could survey teachers vs students, boys vs girls, grade 4s vs grade 5s.

Directions: Complete this organizer to setup your data so you can graph it later. Find a group of people to survey!

Survey Question					
Example: Is your favorite color _____?					
Option _____					
Group 1	Group 2				
Tally	Tally				

Interpreting Your Survey Results

1. Did any of the survey results surprise you?

2. Was there a big difference between the two groups? Explain why you think this was the case.

3. Was there a mean, median, or mode? Explain.

Creating a Double Bar Graph

Use the data you collected to plot your graph. Remember the following labels:

- X axis label Y axis label Title Scale Options Legend



Stacked-Bar Graph – Favourite Beverage

A restaurant wants to know which drinks to keep in stock. They decide to sample three different age groups - kids under 12, teenagers, and adults 20 years or older. They randomly select 30 individuals from each group.



Part 1

Fill in the frequency table by reading the stacked bar graph.

Age Group	Coffee	Juice	Pop	Tea	Chocolate Milk
12 and Under					
Teenagers					
Adults (20+)					

Part 2

Answer the questions below

a) How many people in each age group were surveyed?	
b) Which drinks would you keep in stock?	
c) Which type of sample was chosen? (random, stratified, or systematic)	

Survey – Creating a Stacked-Bar Graph

Assignment

Creating a stacked-bar graph using data you have collected

1. Choose a population that you can segment into 2 or more groups.

Example - Grade 4 and Grade 5 students

Groups within Population: _____

2. Choose a survey question you would like to learn more about. Think about how the answers will differ based on your different groups.

Survey Question	Category 1	Category 2	Category 3	Category 4
Tally				
Frequency				

Interpreting Your Survey Results

1. How many people did you survey? _____ 

2. Which category was the most popular? _____

3. What did you learn about the different groups in your population? Did the results surprise you? Explain.

4. What is the range of your data? Lowest number: _____ Highest Number: _____ Range: _____

5. If your graph has ten lines on the y axis (up and down), what scale will you go up by?

6. Which type of sampling did you choose? _____

Creating a Stacked-Bar Graph

Use the data you collected to plot your graph. Remember the following labels:

- X axis label Y axis label Title Scale Categories



Group					

Creating an Infographic

An **infographic** shares information about a topic in multiple ways. Infographics are great for displaying data that can teach an audience about a topic.

Directions Display the data set in different ways below. Write in the boxes and draw pictures.

The Power Up Pro Hockey Clinic is advertising how popular hockey is to parents in their city. They surveyed a sample of 50 local kids by randomly asking 1 out of 5 kids they saw at a park. The results are shown below.

Sport	Hockey	Basketball	Soccer	Baseball	Gymnastics
Frequency	17	10	7	5	7
Relative Frequency					

Stem	Leaf

Favourite Subject – Examining Scale

The two graphs below display the same data. Examine both graphs and answer the questions below.



Favourite Subject – Graph A



Favourite Subject – Graph B



Questions

What do you not see about the data?

a) What is the scale in Graph A?

b) What is the scale in Graph B?

c) Which graph uses more of the space?

d) Which graph is easier to read and interpret? Why is that graph better?

e) Why is it important to choose an appropriate scale?

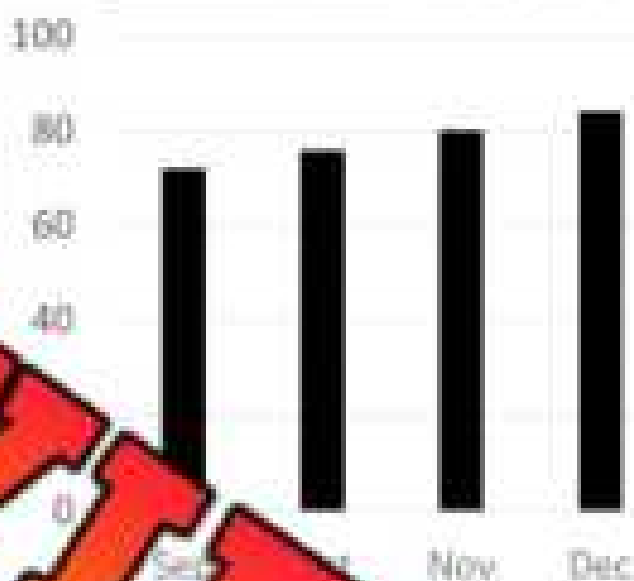
Misleading Graphs

Pretend you just started a necklace-making business. You want to show your customers that business is growing like crazy, and they need a necklace to fit in. Which graph would you choose for an infographic?

Necklace Sales – Graph A



Necklace Sales – Graph B



Questions

What do you notice about the two graphs?

a) Which graph would you use to show customers that your business is growing massively? Why?

b) How are the graphs different? Do they have the same data?

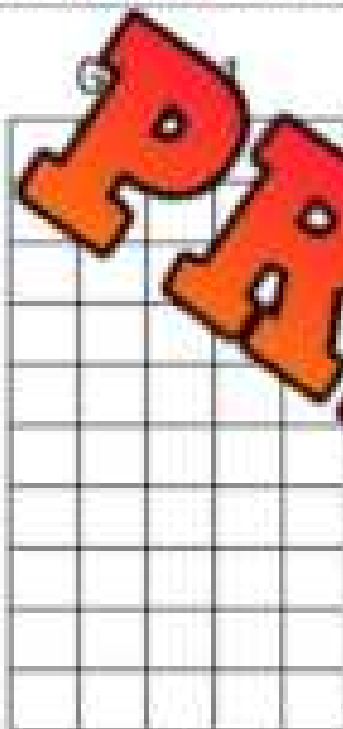
c) Why is it important to read a graph carefully?

Misleading Graphs

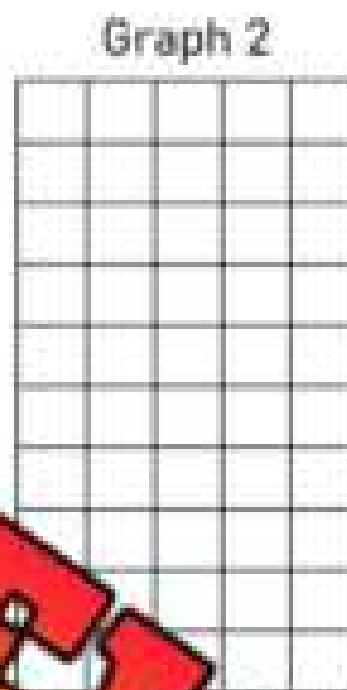
Part 1

Draw two graphs - one that is misleading and one that is honest

If you were selling cola as a business, how would you graph the data to make it look like your product is much more popular than the other products?



Favourite Sop	# of votes
Cola	10
Soft Drink	30
Energy	
Ginger Ale	



Part 2

What do you notice about the two graphs?

a) Which graph would the cola business use? Explain why.

b) How did you make the graphs different?

Truth or Lie? Graph Edition

Objective What are we learning about?

Students will learn to identify and explain misleading elements in graphs, developing critical thinking skills and understanding how data can be manipulated in visual representations.

Materials What you will need for the activity

- A set of 8 different graphs (some accurate, some misleading)
- Smartboard or projector to display the graphs
- Classroom index cards for students to record and view the graphs



Instructions How to complete the activity

1. Begin by explaining the concept of misleading graphs to the students, highlighting common ways graphs can be manipulated (e.g., misleading scales, omitting data, exaggerating differences).
2. Divide the class into small groups or pairs to discuss the graphs among students.
3. Show each graph one at a time on the smartboard or projector. Make sure all students can see the graph clearly.
4. After showing each graph, ask the students to use finger cards to make their decision. They show one finger if they believe the graph is true and two fingers if they believe the graph is misleading in some way.
5. Once all students have made their decisions, invite a few students or groups to explain their reasoning. Ask them to point out specific elements of the graph that make it true or misleading, such as the use of a misleading scale or omitted data.
6. Facilitate a class discussion to reinforce key concepts, summarizing the points made by the students and providing additional examples if necessary.
7. Repeat steps 3-6 for each graph in the set. Encourage students to look for new elements that might be misleading as they view different graphs.
8. After all graphs have been discussed, ask the students to reflect on what they have learned. Provide them with questions to think about or answer in their math journals or as a group.

Graph

What do you notice about the graph?

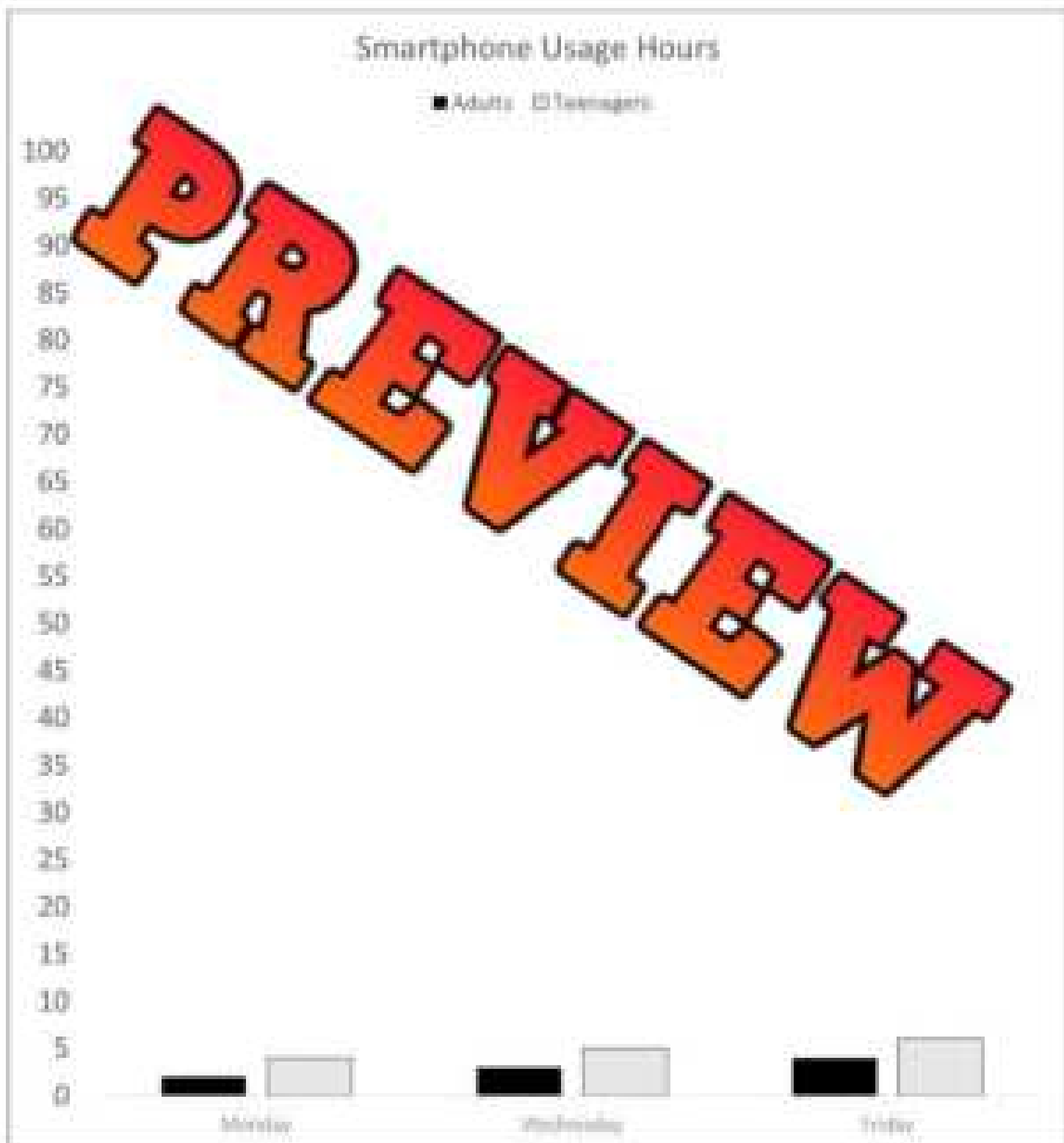
A graph showing the average commuting times for two different routes (Route 1 and Route 2) during rush hour and non-rush hour periods.



Graph

What do you notice about the graph?

We will compare the daily average hours spent on smartphones by adults and teenagers over a week (7 days). This graph was made by teenagers.



Graph

What do you notice about the graph?

A coach is comparing gym attendance between two locations (Gym A and Gym B) across three time periods (Morning, Afternoon, Evening).



Graph

What do you notice about the graph?

A restaurant is comparing satisfaction ratings for two meals, Burger and Pizza, based on customer reviews.

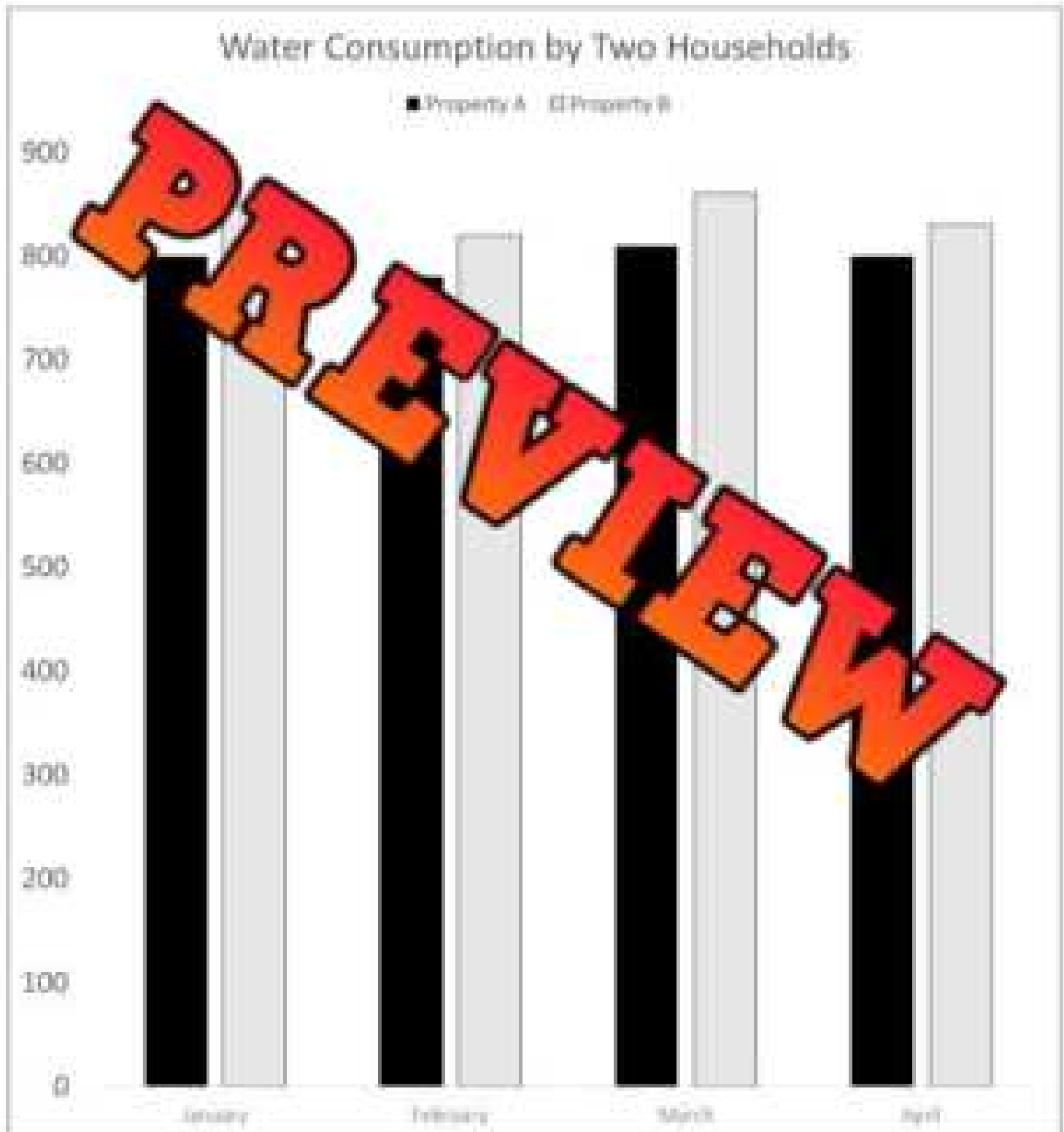


PREVIEW

Graph

What do you notice about the graph?

A landlord is reviewing the monthly water consumption (in gallons) of his two properties, Property A and Property B over four months (January to April).



Choosing an Appropriate Graph

Questions Read the data below and decide which type of graph you would use to represent the data.

1) You surveyed your classmates asking which colour is their favourite. The results are listed below.

Blue	Red	Green	Pink	Purple
15	8	4	10	6

Which type of graph would you use to represent the data? Explain your choice.

2) You surveyed the teachers and students at your school asking them which drink was their favourite. The results are listed below.

	Pop	Tea	Coffee	Juice	Water
Students	8	1	10	1	1
Teachers	4	8	1	1	5

Which type of graph would you use to represent the data? Explain your choice.

3) A music store randomly asked 1 of 5 customers what their favourite music genre is. The results are below.

Rock	Jazz	Rap/Hip Hop	Country	Pop
7	2	13	6	15

Which type of graph would you use to represent the data? Explain your choice.

Unit Quiz – Data Literacy

Part 1 Read the description of the data and circle if it is quantitative or qualitative

1) Number of cans collected for the food drive	Quantitative Qualitative
2) Heights of the animals in a zoo	Quantitative Qualitative
3) Favourite food of the grade 4 students	Quantitative Qualitative

Part 2 Circle which sampling technique is being used in the examples below

Description of Sampling Technique	Sampling Technique
1) Deciding randomly to interview every 5th person in a lineup	
2) Having a computer call 15th grade parents	
3) Splitting the elementary student population into primary and junior	

Part 3 Draw the bars for each of the bar graphs below. Circle the averages

Pizza
Chocolate
Spaghetti
Ice Cream
Chicken Wings

Favourite Food	# Of People	Relative Frequency
Pizza	12	
Chocolate	6	
Spaghetti	8	
Ice Cream	16	
Chicken Wings	8	

Mode = _____

Median = _____

Mean = _____

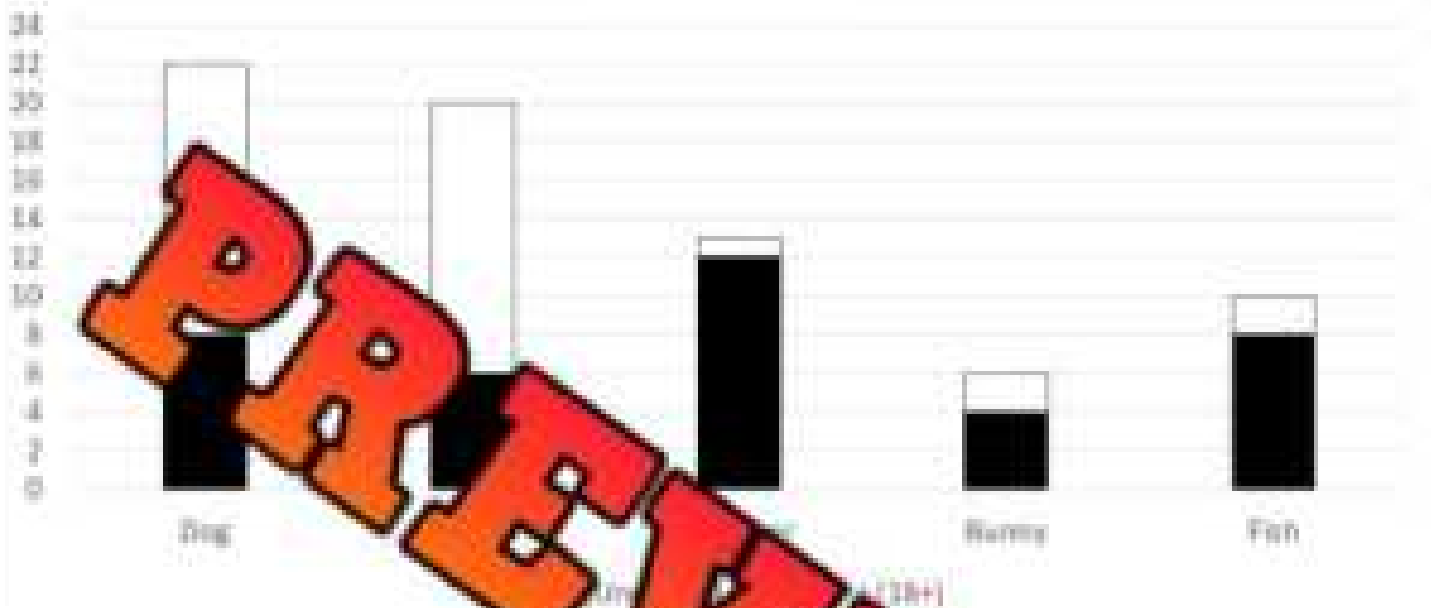
If 10 more people chose ice cream, what would the new relative frequency for ice cream be?

Part 4

Read the graph and answer the questions below

Customers at a pet store were surveyed to see which pet was their favourite.

Favourite Pet



Answer the following questions about the graph above

1. Fill in the frequency table

	Dog	Cat	Hamster	Bunny	Fish
Under 18					
Adults					
Totals					

2. How many customers were surveyed? _____

3. What is the scale of the graph? _____

4. Which pet do kids like the most? _____ Adults? _____

5. How much more popular are dogs than bunnies? _____

Part 5

Graph the data below in a stacked bar graph

You surveyed the grade 4s and 5s by asking which sport they liked the best. The results are below.

Hockey		Basketball		Soccer		Baseball		Gymnastics	
Gr 4	Gr 5	Gr 4	Gr 5	Gr 4	Gr 5	Gr 4	Gr 5	Gr 4	Gr 5
8	12	6	10	6	3	7	5	8	5



- Which sport is the most popular? _____
- Which sport is the least popular? _____
- How many grade 4s were surveyed? _____ Grade 5s: _____
- Is this a qualitative or quantitative study? _____
- How would you sample the grade 4 and 5 students in your school for this survey?


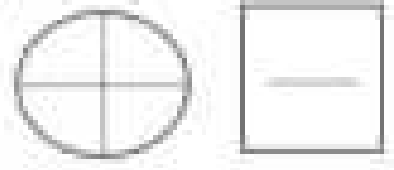


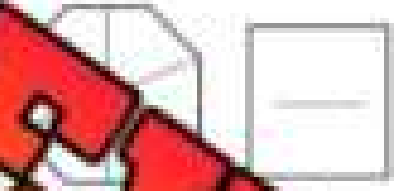
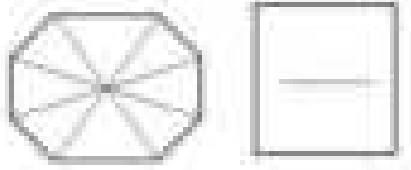
Grade 5

D2. Probability

	Curriculum Expectations	Pages That Cover the Expectations
D2.1	use fractions to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions.	93 - 101
D2.2	determine and compare the theoretical and experimental probabilities of an event happening	102 - 105

Describing the Likelihood – Equally Likely

Part 1 Shade in one quarter of the shapes. Write the fraction of shaded shapes to total shapes.

<p>a)</p>  <p>Circle: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p> <p>Circle: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p>	<p>b)</p>  <p>Circle: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p> <p>Circle: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p>	<p>c)</p>  <p>Circle: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p> <p>Circle: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p>
<p>d)</p>  <p>Octagon: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p> <p>Octagon: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p>	<p>e)</p>  <p>Octagon: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p> <p>Octagon: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p>	<p>f)</p>  <p>Octagon: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p> <p>Octagon: $\frac{\quad}{\quad}$ Square: $\frac{\quad}{\quad}$</p>

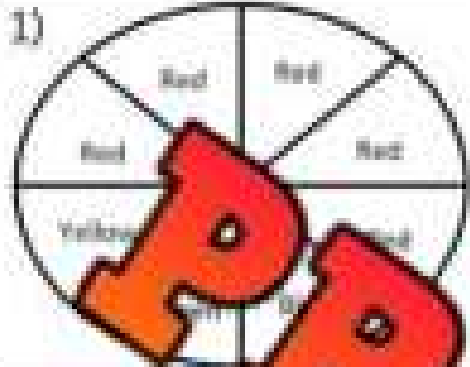
Part 2 What is half of the numbers below? Write the fraction.

	Number	Half	Fraction
1	20	10	
2	8		
3	12		
4	26		
5	40		
6	32		
7	70		

Describing the Likelihood – Unlikely, Likely

Instruction

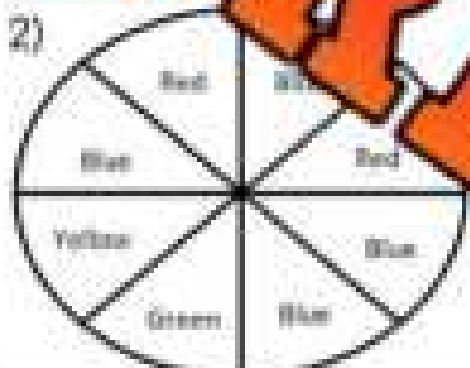
Read the spinner and describe if the event is unlikely or likely. Then write the fraction



a) Spinning a red is _____

b) Spinning a blue is _____

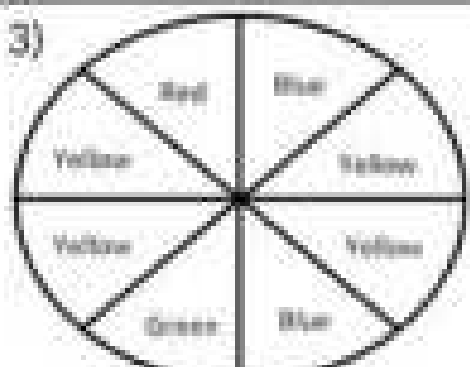
c) Spinning a blue or red is _____



a) Spinning a red is _____

b) Spinning a blue is _____

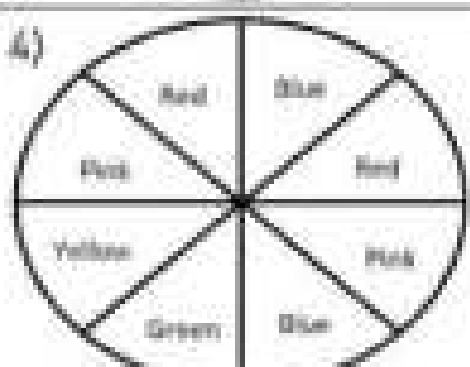
c) Spinning a red or blue is _____



a) Spinning a red or blue is _____

b) Spinning a green is _____

c) Spinning a yellow or red is _____



a) Spinning a red or green is _____

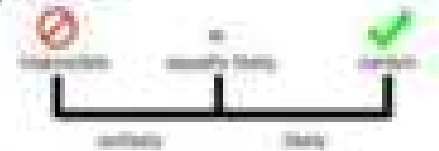
b) Spinning a blue, pink or red is _____

c) Spinning a green or pink is _____

PREVIEW

Describing the Likelihood of Events

We can describe the likelihood of events by using the following terms:
impossible, unlikely, equally likely, likely, certain



Impossible - Cannot happen

Unlikely - Will probably not happen

Equally likely - There is an equal chance it could happen and that it won't happen

Likely - Will probably happen

Certain - Will definitely happen

Instr. Use the terms to describe the likelihood of the events below

1) You will have a ham for lunch today 	
2) You will drink water today	
3) You will play on an electronic toy 	
4) You will win the lottery today	
5) You will see an alien today 	
6) You will ride in a vehicle today	
7) You will sleep tonight 	
8) You will eat chips today	
9) You will go swimming today 	
10) You will play a sport today	

Theoretical Probability – Rolling a Dice

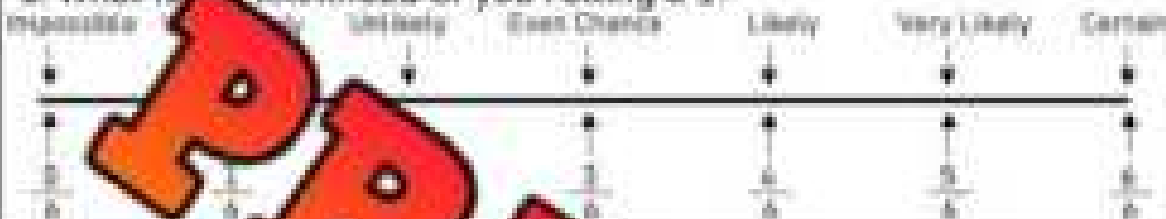
Rolling a Dice: A dice has 6 sides. Each side has a number of dots between 1 and 6. When you roll a dice, you have an unlikely chance of rolling a certain number.



Questions

Circle the fraction that represents the probability of the event

1. What is the likelihood of you rolling a 1?



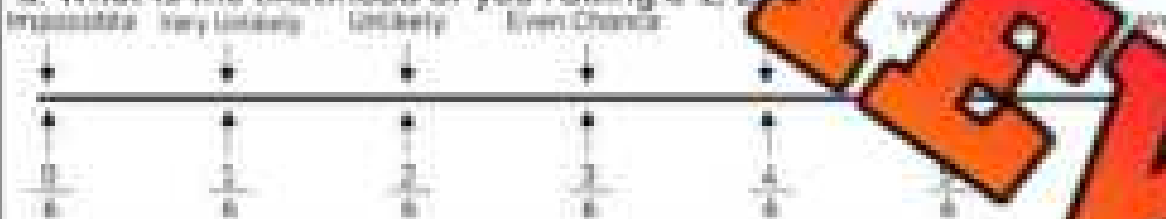
Fraction

2. What is the likelihood of you rolling a 5?



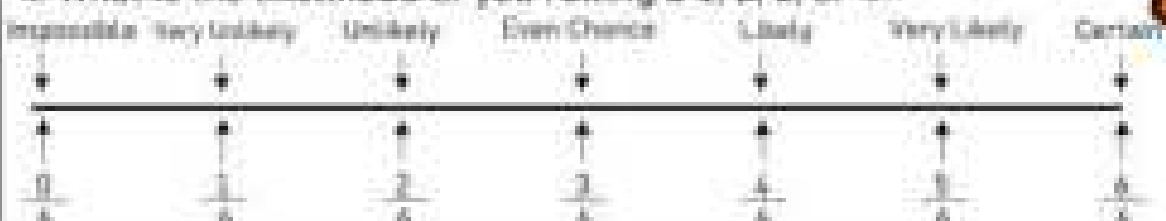
Fraction

3. What is the likelihood of you rolling a 1, 2, or 3?



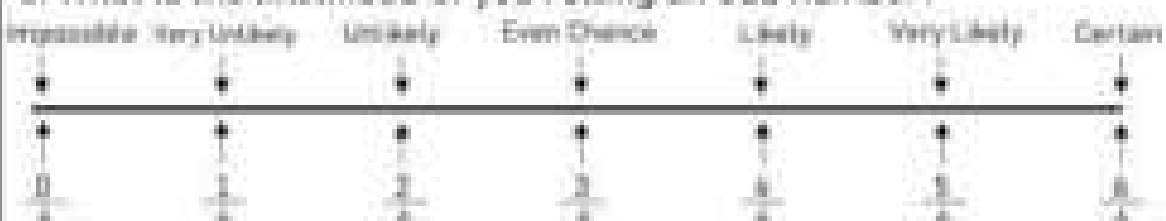
Fraction

4. What is the likelihood of you rolling a 1, 2, 3, or 4?



Fraction

5. What is the likelihood of you rolling an odd number?



Fraction

Describing the Likelihood of Events – Probability Line

Questions

Circle the probability of each event happening on the probability line and write the fraction.

1) It has rained 33 out of the last 100 days. What is the probability it will rain tomorrow?



Fraction



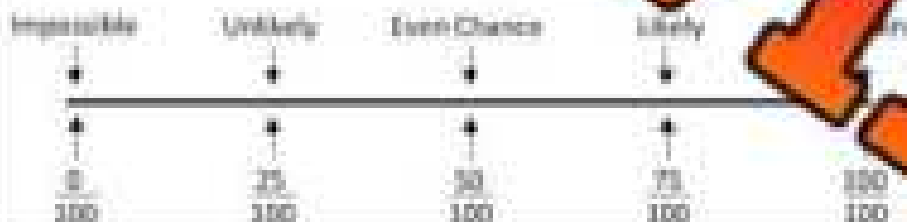
2) Steve makes 5 out of 100. What is the probability he will make his next shot?



Fraction



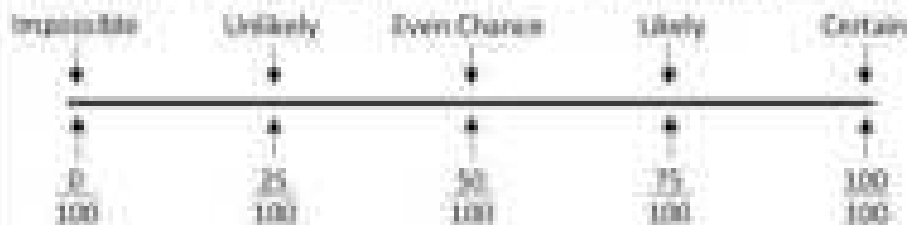
3) Heather hits 4 out of 10 balls in baseball. What is the probability she will hit the next ball?



Fraction



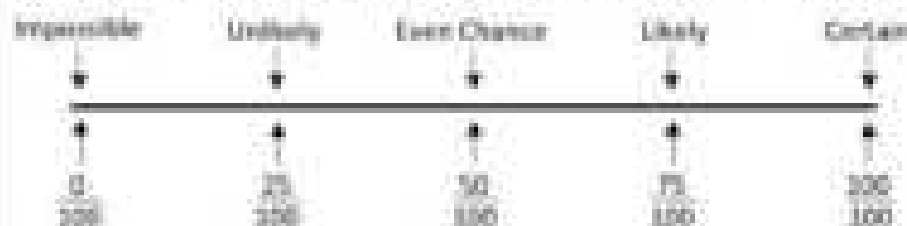
4) Ryan is flipping a coin. What is the probability she gets a tails on the next flip?



Fraction



5) In a box of 5 chocolates, 3 are caramel. What is the probability you will get a caramel?

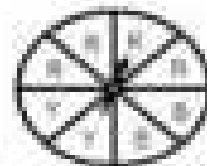


Fraction



Describing the Likelihood of Events

Spinner: The spinner has different coloured parts on it. When you spin the arrow, it will land on one of the colours. The likelihood of landing on a yellow part is unlikely.



Questions Write the fraction for each of the situations below. Then circle the probability.

1. What is the likelihood of landing on a red part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	
↓	↓	↓	↓	↓	
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

2. What is the likelihood of landing on a blue part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	
↓	↓	↓	↓	↓	
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

3. What is the likelihood of landing on a red or yellow part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	
↓	↓	↓	↓	↓	
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

4. What is the likelihood of landing on a red, blue, green, or yellow part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	
↓	↓	↓	↓	↓	
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

5. What is the likelihood of landing on a purple part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	
↓	↓	↓	↓	↓	
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

A bookshelf contains 20 books: 8 are fiction, 7 are non-fiction, and 5 are graphic novels.

Circle the probability term and write the fraction.

1. What is the likelihood of picking a fiction book?

Impossible Unlikely Even Chance Likely Certain

$\frac{0}{20}$ $\frac{5}{20}$ $\frac{10}{20}$ $\frac{15}{20}$ $\frac{20}{20}$

Fraction:

2. What is the likelihood of picking a fiction or non-fiction book?

Impossible Unlikely Even Chance Likely Certain

$\frac{0}{20}$ $\frac{5}{20}$ $\frac{10}{20}$ $\frac{15}{20}$ $\frac{20}{20}$

Fraction:

Name: _____

A bookshelf contains 20 books: 8 are fiction, 7 are non-fiction, and 5 are graphic novels.

Circle the probability term and fraction.

1. What is the likelihood of picking a fiction book?

Impossible Unlikely Even Chance Likely Certain

$\frac{0}{20}$ $\frac{5}{20}$ $\frac{10}{20}$ $\frac{15}{20}$ $\frac{20}{20}$

Fraction:

2. What is the likelihood of picking a fiction or non-fiction book?

Impossible Unlikely Even Chance Likely Certain

$\frac{0}{20}$ $\frac{5}{20}$ $\frac{10}{20}$ $\frac{15}{20}$ $\frac{20}{20}$

Fraction:

Describing the Likelihood of Events

Marbles

There are 14 marbles in a bag. What is the likelihood of you pulling out a white, grey, or black marble?



Frequency

Fill in the frequency table below.

Colour	Frequency

Questions

Describe the probability (impossible, unlikely, equally likely, likely, certain) and write the fraction.

Event	Fraction
1. What is the probability of pulling out a black marble? Probability:	
2. What is the probability of pulling out a grey marble? Probability:	
3. What is the probability of pulling out a white marble? Probability:	
4. What is the probability of pulling out a black, white, or grey marble? Probability:	
5. What is the probability of pulling out a black or white marble? Probability:	
6. What is the probability of pulling out a green marble? Probability:	

Theoretical vs Experimental Probability

Theoretical Probability

What should happen

Example - The theoretical probability of flipping a heads is 1 time out of 2 or $\frac{1}{2}$.

Experiment Probability

What did happen after the event (experiment)

Example - You flipped a coin 10 times and got 7 heads. The experimental probability is $\frac{7}{10}$.

Part 1

Write the theoretical probability of the events happening below

Question	Fraction
1) What is the theoretical probability of flipping a heads?	
2) What is the theoretical probability of flipping a tails?	
3) What is the theoretical probability of getting a heads if you flipped the coin 20 times?	

Part 2

Experimental Probability - Flip a coin 20 times and record your results

1) How many heads and tails do you think you will get?

Heads

Tails

2) Perform the experiment by flipping a coin 20 times. Record how many heads and tails you get.

	Tallies	Frequency	Fraction	Decimal	Percent
Heads					
Tails					

3) Was the theoretical probability and experimental probability the same? Should it be the same? Explain.

Theoretical vs Experimental Probability

Examples of Theoretical and Experimental Probability

Theoretical: You should roll a 3 once every 6 rolls = $\frac{1}{6}$

Experimental: You rolled a 3 twice when you rolled a dice 6 times = $\frac{2}{6}$



Part 1

Circle if the example is theoretical or experimental.

Example	Theoretical or Experimental
1) If you flip a coin 50 times, you should flip tails 25 times.	Theoretical Experimental
2) You flipped a coin 100 times and got heads 70 times.	Theoretical Experimental
3) When pulling a random card from a deck of cards, you have a $\frac{1}{4}$ chance of getting a spade.	Theoretical Experimental
4) You pulled a spade 5 times out of 100 pulls, pulling randomly from a deck of cards.	Theoretical Experimental
5) You made 8 out of 10 free throws in your basketball game.	Theoretical Experimental
6) You are a 75% free throw shooter, so you should make 75 free throws out of 100.	Theoretical Experimental

Part 2

Is the example theoretical or experimental probability? Write the fraction.

Example	Theoretical or Experimental	Fraction
1) You should get a hit in baseball 1 in every 4 at bats.		
2) The Weather Network says there is a 40% chance of it raining today.		
3) You won 15 out of 25 games of hockey last season.		

Theoretical vs Experimental Probability – Sock Drawer

Part 1

Write the theoretical probability of the events happening below

Your sock drawer is a mess! You have 50 socks in there in 5 different colours – white, blue, black, green, and red. Here is the breakdown of the socks in your drawer.

Colour of Sock	White	Yellow	Black	Green	Red
Number of Socks	18	8	14	4	6

1) If you randomly draw 50 times without looking, what is the theoretical probability of pulling each of the colours below

Colour of Sock	White	Yellow	Black	Green	Red
Fraction					

Part 2

Complete the table with your experimental probability.

2) Close your eyes and point to a random spot in the grid below with your eraser. Repeat this for 50 trials and tally your results below

W	R	B	Y	W	B	W	Y	B	W	B	W	
B	W	W	R	B	W	B	Y	B	Y	B	Y	
Y	B	B	G	W	Y	R	W	B	W	W	B	W
B	Y	G	W	G	W	Y	R	R	R	W	Y	

Colour of Sock	White	Yellow	Black	Green	Red
Tally					

a) How did the experimental probability compare with the theoretical probability? Explain.

Theoretical vs Experimental Probability – # of Events

The theoretical and experimental probability of an event happening is not guaranteed to be the same. Performing more trials in an experiment will cause the experimental probability to be closer to the theoretical probability.

Example - if you flip a coin 2 times, it is easy to picture getting heads twice in a row. That would mean the experimental probability of getting a heads was 100% or $\frac{2}{2}$. However, if you flipped the coin 100 times, it is almost impossible to get 100 heads in a row.

Part 1

Write the theoretical probability of the events happening below

Event	Theoretical Probability	Fraction
1) Rolling a 1 on a 6-sided die		
2) Rolling a 3 on a 6-sided die		
3) Rolling a 2 or a 5 on a 6-sided die		
4) Rolling a 6 on a 6-sided die		

Part 2

Follow the instructions below to perform the experiments

1) Roll the dice 6 times. Tally your results.

	1	2	3	4	5	6
Tallies						

2) Roll the dice 60 times. Record how many of each number you get.

	1	2	3	4	5	6
Tallies						
Total						

3) Did the experimental probability get closer to the theoretical probability when you rolled the dice more times? Explain why this should happen.

Unit Quiz - Probability

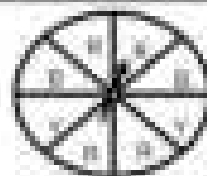
Part 1

Circle if the example is theoretical or experimental.

Example	Theoretical or Experimental
1) You should get a heads 5 out of 10 times when flipping a coin	Theoretical Experimental
2) You should make 3% times when you pull a random card from a deck	Theoretical Experimental
3) You should have a headache when you study	Theoretical Experimental
4) You rolled a 5 six out of 10 times	Theoretical Experimental

Part 2

Read the spinner and the likelihood of each scenario. Then write the fraction.



1) What is the likelihood of landing on a red part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	↓

↑	↑	↑	↑	↑	↑
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

2) What is the likelihood of landing on a blue part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	↓

↑	↑	↑	↑	↑	↑
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

3) What is the likelihood of landing on a red or yellow part?

Impossible	Unlikely	Even Chance	Likely	Certain	Fraction
↓	↓	↓	↓	↓	↓

↑	↑	↑	↑	↑	↑
$\frac{0}{8}$	$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$	

Marbles

There are 12 marbles in a bag. What is the likelihood of you pulling out a white, grey, or black marble?



Part 3 Fill in the frequency table below

Marble Colour	Frequency

Part 4 1) Describe the probability as impossible, unlikely, equally likely, likely or certain
2) Then write the probability as a fraction

	Fraction
1. What is the probability of pulling out a black marble? Probability:	
2. What is the probability of pulling out a grey marble? Probability:	
3. What is the probability of pulling out a white marble? Probability:	
4. What is the probability of pulling out a black, white, or grey marble? Probability:	
5. What is the probability of pulling out a black or white marble? Probability:	
6. What is the probability of pulling out a green marble? Probability:	



Google Slides Lessons Preview



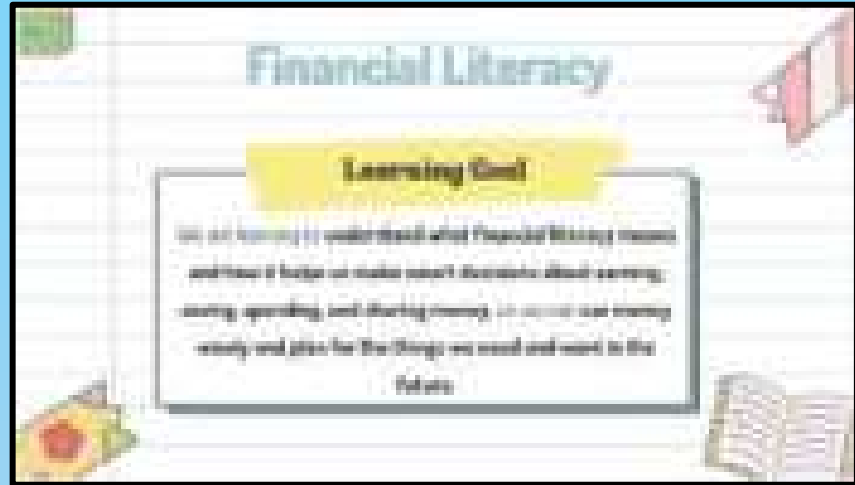


Ontario Math Curriculum Financial Literacy Unit – Grade 5

3-Part Lesson Format

Part 1 – Minds On!

- Learning Goals
- Discussion Questions
- Quotes
- And More!



Part 2 – Action!

- Surveys/Polls
- Matching
- Drag and Drop
- Videos
- And More!

Part 3 – Consolidation!

- Exit Cards
- Quick Draw
- 3-2-1 Reflection
- One-Sentence Summary





Ontario Math Curriculum Financial Literacy Unit – Grade 5

Financial Literacy

Write the words in the crossword.

Bank	Bank
Loan	Loan
Debit	Debit
Save	Invest
Spending	Spending
Interest	Interest

Banking Bill

Read the text and answer the questions.

1. How much money does the person have?
2. How much money does the person need?
3. How much money does the person have left?

Counting Canadian Coins

Divide the coins into groups under each box.

		1.00	2.00
		3.00	4.00
		5.00	6.00
		7.00	8.00
		9.00	10.00



Workbook Preview



Grade 5

F1. Money and Finances

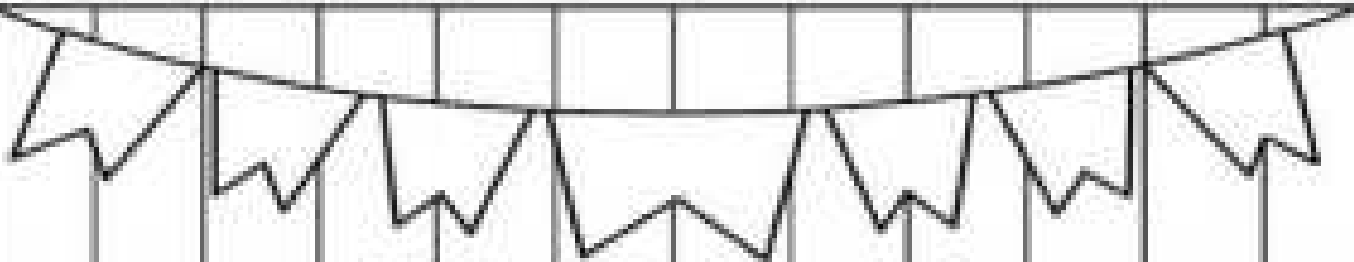
	Curriculum Expectations	Pages That Cover the Expectations
F1.1	describe several ways money can be transferred among individuals, organizations, and businesses	6 - 18
F1.2	estimate and calculate the cost of	
F1.3		50
<p>Preview of 75 pages from this product that contains 140 pages total.</p>		
F1.4	explain the concepts of credit and debt, and describe how financial decisions may be impacted by each	51 - 75
F1.5	calculate unit rates for various goods and services, and identify which rates offer the best value	76 - 79
F1.6	describe the types of taxes that are collected by the different levels of government in Canada, and explain how tax revenue is used to provide services in the community	80 - 87

NAME: _____

FINANCIAL LITERACY

LEMONADE

PREVIEW



What is Financial Literacy?

Why Financial Literacy Matters

Financial literacy means knowing how to manage your money. This knowledge helps you make informed decisions about earning, spending, saving, investing, and donating, impacting your well-being and community health.

Key Aspects of Financial Literacy

1. **Earning Money:** Exploring ways to earn, like jobs.
2. **Spending Wisely:** Distinguishing needs over wants, such as buying essential school supplies.
3. **Saving for the Future:** Setting aside money for big goals or emergencies.
4. **Investing to Grow Money:** Learning more, like saving accounts that gain interest.
5. **Donating to Help Others:** Supporting charitable community projects.



Impacts of Financial Decisions

When you make good financial decisions, you not only improve your own life but also help make the community stronger. For instance, by saving, you ensure you have enough for emergencies, and by donating, you support community projects. These actions help create a stable economy where everyone can thrive.

Examples for Understanding

- **Budgeting:** Create a plan for how to spend your allowance. If you have \$10, decide how much you want to save, spend, and share.
- **Comparison Shopping:** When buying something, compare prices at different stores to find the best deal, showing how wise spending works.

Name _____

7

Destination: **Destination: 11.3**

True or False

Is the statement true or false?

1) Financial literacy only involves saving money.	True	False
2) Everyone has the same financial goals.	True	False
3) Budgeting involves planning how to spend your allowance.	True	False
4) Saving money is only for adults.	True	False
5) Financial decisions have no impact on the community.	True	False

Question Answer the questions below

1) Why do you need to save for the future?

2) How can investing help to grow money?

Draw

Draw three goals you might save money for.

--	--	--



Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____	Mark: _____
Fill in the blank space.	
1) Financial literacy means knowing how to manage your _____	
2) It is important to save money in case of an _____	
3) When you use money to earn more money, it is called _____	
4) When you compare prices before buying, it's called _____ shopping.	

Name: _____	Mark: _____
Fill in the blank space.	
1) Financial literacy means knowing how to manage your _____	
2) It is important to save money in case of an _____	
3) When you use money to earn more money, it is called _____	
4) When you compare prices before buying, it's called _____ shopping.	

Name: _____	Mark: _____
Fill in the blank space.	
1) Financial literacy means knowing how to manage your _____	
2) It is important to save money in case of an _____	
3) When you use money to earn more money, it is called _____	
4) When you compare prices before buying, it's called _____ shopping.	

Name: _____	Mark: _____
Fill in the blank space.	
1) Financial literacy means knowing how to manage your _____	
2) It is important to save money in case of an _____	
3) When you use money to earn more money, it is called _____	
4) When you compare prices before buying, it's called _____ shopping.	

PREVIEW

Memory Game: Financial Literacy Terms

Objective

What are we learning about?

To help students understand and remember key financial terms such as "assets", "expenses" and "savings" through an engaging memory card game.

Material

What you will need for the activity.

- Memory game cards (provided) with the terms on one set and definitions on the other set.
- A flat surface like a table to lay out the cards.



Instructions

How you will complete the activity.

1. Divide the class into groups of 3 or 4. Give each group a set of Memory Game cards. (Provided)
2. Have each group lay all the cards face down in a grid on a flat surface.
3. The students take turns flipping over two cards at a time, trying to find a matching term and its definition.
4. If a student finds a match, they remove those cards from the grid and keep them.
5. If the cards do not match, they are turned back over, and the next student takes a turn.
6. The game continues until all the cards have been matched.
7. After the game, review the terms and definitions with the class.
8. Discuss each term and definition after the game to reinforce learning.

Cards

List of financial literacy terms

Financial Literacy Terms	Definition
Earning	Getting money by working jobs or selling things.
Saving	Keeping money for the future or for emergencies.
Budgeting	Planning how to spend money
Expenses	Money spent on things you need or want, like food or toys.
Income	Money that you receive, often from a job or allowance.

PREVIEW

Cards

List of financial literacy terms

Financial Literacy Terms	Definition
Invest	Using money to make more money, like buying stocks or saving in accounts that earn interest.
	Money that you owe to others, like when you borrow money to buy something.
Credit	The money you borrow money from someone else and have to pay it back.
Interest	The extra money paid for borrowing money or earned by saving money in a bank.
Loan	Money borrowed that must be paid back with interest.

PREVIEW

Cards

List of financial literacy terms

Financial Literacy Terms	Definition
Profit	The money you keep after all your costs are paid off from selling something.
Loss	When you spend more money than you make from a sale or investment.
Assets	It is the properties you own that have value, like a house or car.
Liabilities	Debts or financial obligations, like a loan you need to repay.
Financial Plan	A strategy for managing your money, including earning, spending, saving, and investing.

PREVIEW

Main Forms of Payment

Methods of Payment	Explanation
Cash 	Money in coins or bills. Mostly used to pay for smaller purchases.
Check 	A piece of paper that is signed by an individual and given to someone else as payment for something. The individual writes how much money is to be taken out of their bank account and then indicates what money is sent to the bank account of the person who is being paid.
Credit Card 	A card that allows you to borrow money. Credit cards allow you to only borrow what the banks think you can afford to pay back. You pay interest on the money you borrowed. If you borrow more money than what you borrowed.
Debit Card 	A card that allows you to pay directly from your bank account. When you use your debit card, the money is sent directly from your bank account to the store's bank account.
Gift Card 	A card that can be purchased for a specified cash value of goods or services from a particular business. For example, a business could sell a \$20 gift card to someone in exchange for \$20 in cash or from another method of payment.
Electronic Money Transfer (EMT) 	When we send money electronically. These are often in the form of email money transfers. People use these to send money from their bank account to someone else's bank account.

Methods of Payment



Part 1

Draw a line from the method of payment to the description.

Method of Payment	Description
Cash	Using a card with \$50 on it that has already been purchased from a store
Check	Paying with a card that links to your bank account
Debit Card	Paying with coins or bills.
Gift Card	Sending money to a friend using email.
Electronic Money Transfer (EMT)	Handing a piece of paper to someone that shows how much money you want them to take out of your bank account for them to put into their account
	Using a card to pay for things with borrowed money

Part 2

Which method of payment would you use in each scenario below

Scenario	Method of Payment
1) You owe your friend \$20 after buying a game from him	
2) You are buying a chocolate bar that cost \$1	
3) You want to pay rent from your bank account at the end of the month so you give someone something they can cash later	
4) You want to buy something for \$50 from your bank account right now	
5) You want to buy something expensive right now that you will pay for later	
6) You were given something that you can spend in Sport Chek.	

Different Forms of Payment

Methods of Payment	Explanation
Electronic Wallets 	<p>An electronic wallet is an app on a device that has a bank account linked to it. When we tap our smart phone or watch to a company's sales machine, the money is taken from our bank account and sent to the company's bank account. You can use debit or credit cards from your electronic wallet.</p>
Wire Transfer 	<p>A wire transfer is when you ask a bank to send your money to another bank in Canada or around the world. Wire transfers are usually used to pay for very expensive things, like a house.</p>
Automatic Deposits 	<p>An automatic deposit is when money is sent to our bank accounts automatically. Most employees use automatic deposits to pay their employees every two weeks.</p>
Automatic Payments 	<p>Automatic payments are when money is sent automatically from our bank account to pay for bills, like our cell phone bill. We can use automatic payments to pay for monthly bills, like our cell phone bill. We can set an automatic payment to these companies to pay for our bills. This helps us avoid late payment fees.</p>
Online Payments 	<p>An online payment is when money is exchanged electronically. Typically, this involves the customer using the business's online payment platform. PayPal is a commonly used platform. When we use PayPal to pay for something online, the business pays PayPal to submit the transaction. PayPal will require customers to link their bank account to their app so they can exchange the money for the business.</p>
Cryptocurrency 	<p>Cryptocurrency is a type of currency that exists only in digital or virtual form. This means there is no physical coins. The currency is secured by a mathematical encryption process that makes it nearly impossible to counterfeit. Bitcoin is one of the earliest and most well-known cryptocurrencies.</p>

Different Forms of Payment - Questions

Part 1

Label the method of payment with the description (letter)

Method of Payment	Description
_____ Electronic Wallets	a) When we pay for something online
_____ Transfers	b) When money is automatically sent to our bank account
_____ Bank Transfers	c) When a bank sends large amounts of money to another bank
_____ Payments	d) A type of or virtual currency that is very secure
_____ Online Payments	e) When you pay for something with your phone or watch
_____ Cryptocurrency	f) When money is automatically taken from our bank account

Part 2

Which method of payment would you use in the scenarios below

Scenario	Method of Payment
1) You are paying for a house and need to send \$20,000 from your bank to the seller's bank.	
2) You want to pay for something, but you forgot your wallet. Luckily, you have your bank card on your phone.	
3) You are buying something on a website.	
4) You believe that traditional currency is old technology. You buy Bitcoin and want to use it to pay for a car.	
5) You want to be paid by your employer every other week automatically.	
6) You want to pay your cell phone bill on the first day of every month.	

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Mark

/5

Circle the correct answer.

1) Which method uses a phone app connected to your bank?	Electronic Wallet	Deposit
2) When employees get paid, they often receive an automatic _____.	Deposit	Payment
3) Which type is used for large purchases like houses?	Wire Transfer	Online Payment
4) PayPal is an app that allows you to use _____.	Cryptocurrency	Online Payment
5) Which one is not a physical form of money?	Cash	Cryptocurrency

Name: _____


Circle the correct answer.


1) Which method uses a phone app connected to your bank?	Electronic Wallet	Deposit
2) When employees get paid, they often receive an automatic _____.	Deposit	Payment
3) Which type is used for large purchases like houses?	Wire Transfer	Online Payment
4) PayPal is an app that allows you to use _____.	Cryptocurrency	Online Payment
5) Which one is not a physical form of money?	Cash	Cryptocurrency

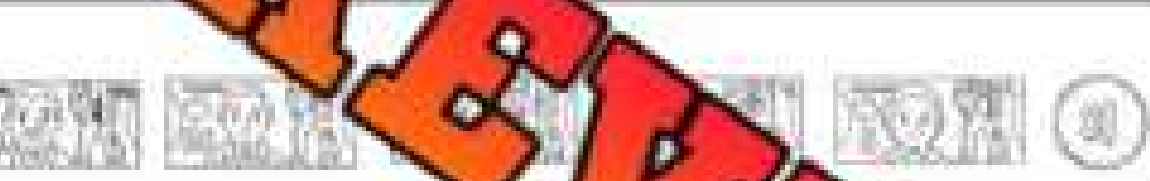
Counting Dollars

Questions


Count the money and write down the total

1)  \$ _____


2)  \$ _____

3)  \$ _____

4)  \$ _____

5)  _____

6)  \$ _____

7)  \$ _____

PREVIEW

Name: _____

20

Counting Cents
117

Counting Cents



= 25¢



= 10¢



= 5¢



= 25¢

Questions

Count the money in each column to make a benchmark cent amount



1) _____



3) _____



4) _____



5) _____



7) _____



8) _____



9) _____



10) _____



11) _____



12) _____

Converting Cents to Dollars

Money can be written as cents or dollars. When we have less than 1 dollar, we use cents. When we have more than 1 dollar, we use dollars. If we have whole dollars and cents, we can combine the two.

Examples - $100\text{¢} = \$1.00$

$50\text{¢} = \$0.50$

$142\text{¢} = \$1.42$

Part 1 Convert the cents into dollars

¢	\$
100	\$1.00
200	
300	
400	
	\$5.00
600	
700	
	\$8.00
	\$9.00
1000	

¢	\$
150	\$1.50
250	
325	
450	
	\$5.25
	\$7.20

Part 2 Circle the biggest amount of money

1)	100¢	\$1.00	350¢	\$2.30
2)	200¢	\$3.00	750¢	\$3.50
3)	300¢	\$2.00	220¢	\$1.60
4)	400¢	\$4.00	575¢	\$5.25
5)	500¢	\$7.00	250¢	\$6.40
6)	600¢	\$3.00	450¢	\$8.00

Counting Canadian Coins



= 100¢ or \$1.00



= 10¢ or \$0.10



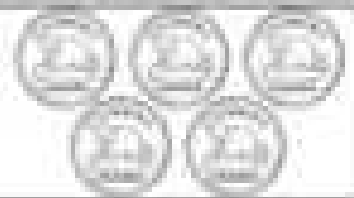
= 5¢ or \$0.05



= 200¢ or \$2.00



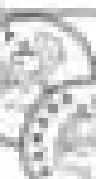
= 25¢ or \$0.25



25¢ or \$0.25

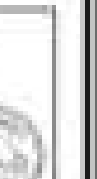
Questions

Count the coins below



1) _____ ¢ or \$ _____

3) _____ ¢ or \$ _____



4) _____ ¢ or \$ _____

5) _____ ¢ or \$ _____



7) _____ ¢ or \$ _____

8) _____ ¢ or \$ _____

9) _____ ¢ or \$ _____



10) _____ ¢ or \$ _____

11) _____ ¢ or \$ _____

12) _____ ¢ or \$ _____

Counting Money

Questions

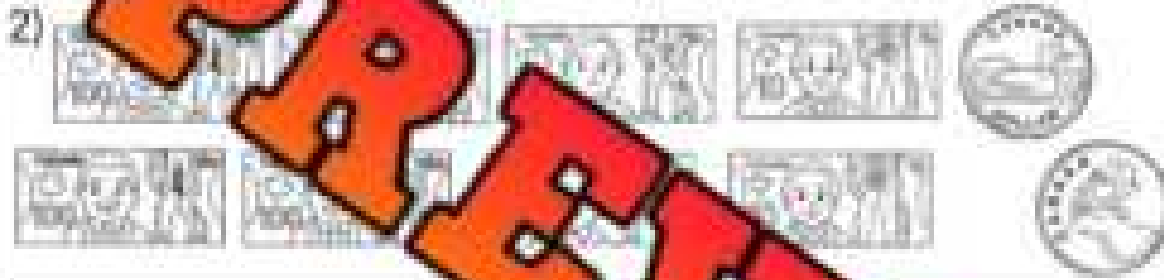
Count the money and write down the total

1)



\$ _____

2)



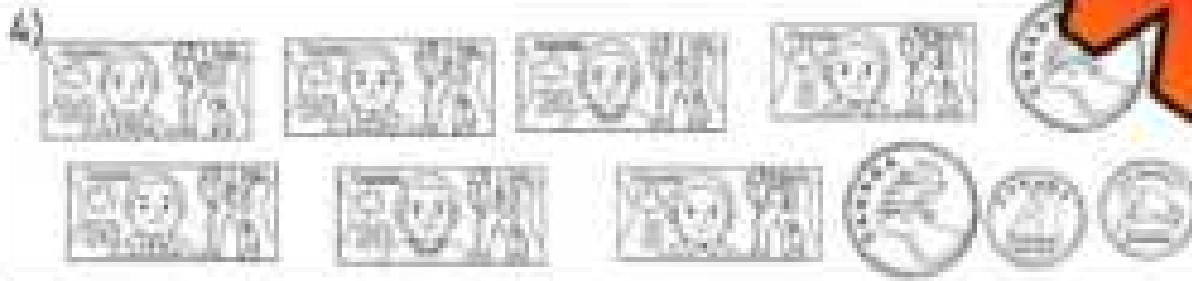
\$ _____

3)



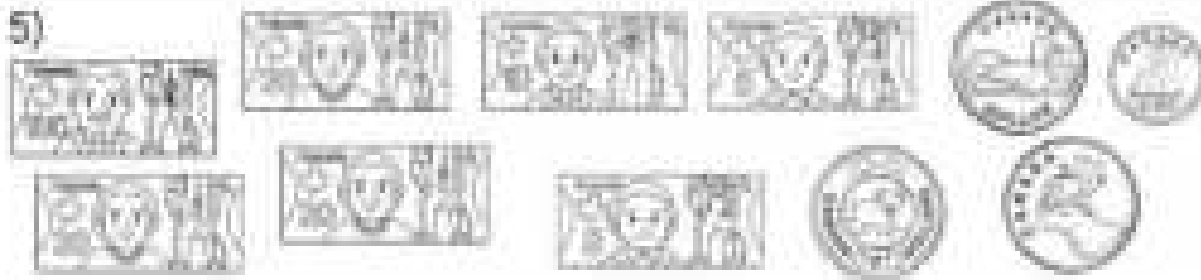
\$ _____

4)



\$ _____

5)




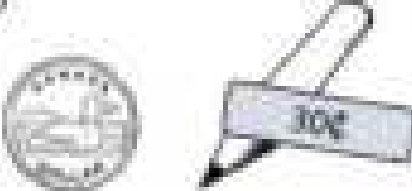






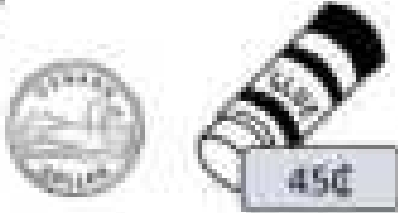

\$ _____

PREVIEW

Calculating Change Using \$1

Questions

Calculate how much change you will get.

Money Used and Item	Change Due	Money Used and Item	Change Due
1) 	= _____	6) 	= _____
2) 	= _____	7) 	= _____
3) 	= _____	8) 	= _____
4) 	= _____	9) 	= _____
5) 	= _____	10) 	= _____

Calculating Change Using \$5

Questions

Calculate how much change you will get.


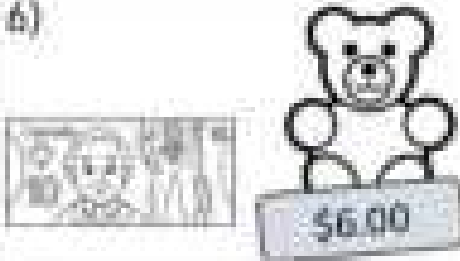







Money Used and Item	Change Due	Money Used and Item	Change Due
1) 	= _____	6) 	= _____
2) 	= _____	7) 	= _____
3) 	= _____	8) 	= _____
4) 	= _____	9) 	= _____
5) 	= _____	10) 	= _____

PREVIEW

Calculating Change Using \$10

Questions

Calculate how much change you will get.







Money Used and Item	Change Due	Money Used and Item	Change Due
1) 	= _____	6) 	= _____
2) 	= _____	7) 	= _____
3) 	= _____	8) 	= _____
4) 	= _____	9) 	= _____
5) 	= _____	10) 	= _____

PREVIEW

Calculating Change Using \$20




Questions

Calculate how much change you will get.

Money Used and Item	Change Due	Money Used and Item	Change Due
1) 	= _____	6) 	= _____
2) 	= _____	7) 	= _____
3) 	= _____	8) 	= _____
4) 	= _____	9) 	= _____
5) 	= _____	10) 	= _____

PREVIEW

Providing Change to Customers

Money Used	Item	Item	Change Due
			\$1.50




Questions




Put up the items and provide change based on what the customer paid with.

Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____




Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____

PREVIEW

Providing Change to Customers




Money Used	Item	Item	Change Due
			\$6.00


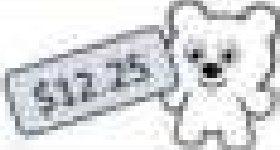

Questions Set up the items and provide change based on what the customer paid with.

Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____

PREVIEW

Estimating Sales Tax

When we pay for something, we need to pay tax. Tax is an extra cost placed on a good or service that goes to the government. In Ontario, we pay 13% harmonized sales tax (HST) on almost everything we buy.

When we purchase something, we should add 13% to the total price so we know if we can afford it. We can do this by using a calculator or by estimating. Follow these steps:

Estimating Tax

- 1) Divide the price by 10 (example - $\$32.00 \div 10 = \3.20) to determine 10% of the cost
- 2) We divide that number in half to find another 5% (example - $\$3.20 \div 2 = \1.60)
- 3) We add those two together to determine what a 15% sales tax would cost ($\$3.20 + \$1.60 = \$4.80$). So, a $\$32.00$ product would cost an additional $\$4.80$ for a total of $\$36.80$ in price based on a 15% sales tax.

Questions

Divide the price by 10 and then divide that answer by 2

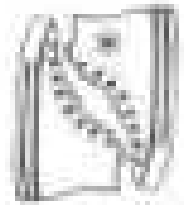
#	Product Price	10%	5%	Total Tax	Total Price
1	\$20.00	\$2.00	\$1.00	\$3.00	\$23.00
2	\$10.00				
3	\$30.00				
4	\$40.00				
5	\$50.00				
6	\$60.00				
7	\$25.00				
8	\$100.00				
9	\$42.00				
10	\$88.00				

Estimating Sales Tax – Word Problems

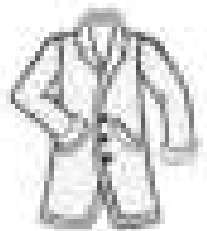
Questions

Answer the word problems below

1) Tom is shopping for new shoes. He finds a pair he likes for \$70.00. Approximately how much will these shoes cost him with sales tax included?



2) Lindsey is shopping for a winter coat. Her mom sees one for \$90.00. Approximately how much will this coat cost?



3) Joe brings \$100 to the mall to buy some new speakers. He finds a pair for \$78.00. Approximately how much will these speakers cost with sales tax included? How much will he have left?



4) Jane sees a pair of jeans she wants that costs \$46.00. She has \$60.00. Approximately how much will these jeans cost her? Approximately how much money will she have left after she buys the jeans?



Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

a) Divide the numbers by 10 and then divide that answer by 2

#	Product Price	10%	5% (half of 10%)	Total Tax	Total Price
1					
2	\$10.00				
3	\$20.00				
4	\$40.00				

b) Mia wants to buy a dress that costs \$40.00. She knows the sales tax will add a bit more. How much will the total cost be if tax was 15%?

Name: _____

a) Divide the numbers by 10 and then divide that answer by 2

#	Product Price	10%	5% (half of 10%)	Total Tax	Total Price
1	\$24.00				
2	\$16.00				
3	\$38.00				
4	\$42.00				

b) Mia wants to buy a dress that costs \$44.00. She knows the sales tax will add a bit more. How much will the total cost be if tax was 15%?



Determining Sales Tax

We can determine the exact price of a good or service by using a calculator. We can either convert the percentage to a decimal or we can use the percent button on our calculator.

Steps to use % Button on a Calculator:

- 1) Enter the cost of the product
- 2) Hit the \times button
- 3) Type the percentage (13)
- 4) Hit the % button (this will display the sales tax)
- 5) Hit the $+$ button



Questions: Use the steps above to calculate the sales tax and total price

#	Product Price	Sales Tax (13%)	Total Price
1	\$24.00		\$27.12
2	\$17.50		
3	\$27.35		
4	\$44.75		
5	\$74.25		
6	\$68.70		
7	\$125.15		
8	\$174.10		
9	\$194.65		
10	\$214.20		

Determining Sales Tax – Word Problems

Questions

Answer the word problems below

1) Kayden has a \$10 bill and wants to know if he can afford a burger and fry meal that costs \$7.99 before taxes. Calculate the total cost of the meal. Can he afford the meal?

Bonus: How much money does he have left?




2) Dexter wants to buy a new video game that costs \$100 and the game costs \$65.00 before tax. How much will he have to pay?

Bonus: How much money will he have left if he has \$100?

3) Mya is thinking of purchasing a new pair of headphones that cost \$79.99. She only has \$65.00. Does she have enough money? Explain.





Determining Final Price With Sales Tax

Item	Taxes	Total Cost	Money Used	Change
	\$0.98	\$8.48		\$1.52



Questions

Fill in the table below

Money Used	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

Money Used	Taxes	Total Cost	Money Used	Change
				

Determining Sales Tax – Multiple Items

Item #1	Item #2	Total Price	Taxes	Total Cost
		\$16.00	\$2.08	\$18.08



Question



Fill in the table below

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

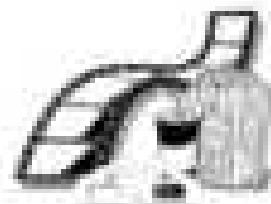
Item #1	Item #2	Total Price	Taxes	Total Cost
				

Item #1	Item #2	Total Price	Taxes	Total Cost
				

Determining Final Price – Multiple Items – Word Problems**Questions**

Answer the word problems below

1) George went to the movies with his friends. He ordered a bag of popcorn for \$6.50 and a drink for \$4.75. How much was his total purchase with tax included?



Bonus: He paid with a \$20 bill. How much will he get back?

2) Ruby went to the canteen to buy a hot dog, a bag of chips, and a drink. Her money is below:



She bought a hot dog for \$3.00, a bag of chips for \$1.50, and a drink for \$2.25. How much did it cost her with tax?

Bonus: How would you pay - would you use all three pieces of

3) Steve went to a video game store and bought a video game for \$29.99 and a controller for \$49.99. How much money total did he spend with tax?



Bonus: He paid with a \$100 bill. How much will he get back?

Story: Understanding Budgets

Benny's Budget Adventure

In a small town in Canada, Benny decided he wanted to buy a new bike. He had saved up \$100, but the bike cost \$150. Benny knew he needed to make a plan to manage his money better—this is called a budget.

A budget is like a map for money. It helps you figure out how much money you have, how you can earn more, and where it needs to go. Benny's teacher explained the three main parts of a budget: assets, income, and expenses.

Assets are things you own that have value. Benny's collection of shiny rocks, worth about \$10. Income is money you earn or receive. Benny got \$10 every week as an allowance. Expenses are costs for things you need or want. Each month, Benny spent \$20 on snacks at school and \$5 on comic books.

Benny also learned about needs and wants. Needs are things you need to live, like food and a home. Wants are things you would like to have, like a new bike or comic books. His teacher shared that an average family in Canada spends about 30% of their budget on housing, a need, and about 10% on entertainment, a want.

Armed with his new knowledge, Benny adjusted his expenses, cutting back on comic books and saving more each week. In just five more weeks, he had enough to buy his new bike!

Benny's budget helped him realize that managing money isn't just about saving but making smart choices about spending.



True or False

Is the statement true or false?

1) A budget lists only your expenses.	True	False
2) Saving money is part of a good budget.	True	False
3) Budgets help plan how you spend and save money.	True	False
4) Only adults need to use a budget.	True	False
5) Budgeting is only for people with a lot of money.	True	False

Question

Answer the questions below

1) What is a budget?

2) What might happen if you overspend your budget?

Making Connections

You've received a \$50 monthly allowance. Allocate your allowance for savings, needs, and wants you wish to buy then draw each.

Savings: \$ _____	Needs: \$ _____	Wants: \$ _____

Challenge – Restaurant Menu

Questions

Answer the word problems below

You are just sitting down to a meal at a restaurant with your friends. The waiter hands you a menu. You plan to choose an appetizer, 1 main, and 1 dessert.



Menu

Appetizer

Soup -----	\$4.50
Salad -----	\$8.25
Chicken Wings ----	\$9.75
Poutine -----	\$8.99

Mains

Pasta -----	14.99
Steak -----	\$25.99
Hamburger -----	\$8.99
Pizza -----	\$22.50

Dessert

Ice Cream -----	\$4.99
Chocolate Sundae -----	\$6.99
Cheesecake -----	\$5.25
Chocolate Cake -----	\$7.00

1) What things will you choose?

2) How much will these things cost without tax?

3) How much will these things cost with tax? (13%)

4) When you finished your meal, it is customary to leave a 15-20% gratuity (tip). What percent will you leave? _____

5) What will your entire meal cost with the tax and tip included?

6) Your friend enjoys expensive things. He orders the most expensive dinner, picking the most expensive appetizer, main, and dessert. How much would it cost him with tax and a 20% gratuity?

PREVIEW

Budgets – Financial Plans

A **budget** is a plan that lists the money you earn and the money you spend over a particular length of time. Budgets help people plan how their money is used so they can avoid wasting money on things they don't need.

Part 1

Calculate your earnings

If your job pays you \$20 per hour, how many hours would you want to work? Fill in the table below.

	Hours	Earnings (\$)
Hours per day		
Hours per week		
Hours per month		

Part 2

Brainstorm the amount of money you want to spend on each per month.

Categories	Money Spent Each Category Per Month
Food	
Rent/Mortgage	
Entertainment	
Cars	
Clothing	
Phone/TV/Internet	
Other:	
Total	

What did you learn after doing your budget for the month?

Budget – Creating a Business Plans

A budget can also be used to make a business plan. For example, a business will use a budget to determine how much they will spend on materials and packaging. They will factor in how much they can sell their product for and how many products they think they can sell. Having a budget is important for a business so they know if they will be successful in earning a profit.

Questions

Fill out the information below to complete your budget

Your class is making bracelets to sell to the rest of the school. How much will you spend on the bracelets? How much will you sell the bracelets for? Answer the questions below.

	Cost per Bracelet	Appeal /10
String	\$0.30	3
Black & White Beads	\$0.65	8
Black & White Beads	\$0.40	4
Colourful Beads	\$0.60	7
Personalized Name Beads	\$0.70	9
Plastic Gems	\$0.50	6

1) Which materials would you choose?

2) How much does 1 bracelet cost? _____ 100 Bracelets = ?

3) What will you charge for your bracelet? Explain your decision.

4) How much profit will you make per bracelet? _____

5) How many bracelets do you expect to sell? Why do you expect to sell that many?

6) How much profit (money) do you expect to earn after you sell all your bracelets?

Class Party Budgeting

Objective

What are we learning about?

Plan a fun class party without spending more than your budget. You need to choose decorations, food, drinks, and activities. Think carefully about what will make the party enjoyable for everyone while also being cost-effective!

Materials

What you will need for the activity:

- Class Party Budgeting Menu handout
- My Party Plan sheet
- Pencils
- Calculators (or a calculator app)
- Scratch paper (for math calculations)
- A copy of the menu handout for each group



Instructions

How you will complete the activity:

1. Form groups of three students each.
2. Each group will use the "Class Party Budgeting" menu to plan a party.
3. Review the menu items and their costs together.
4. Discuss with your group which items you want to include in your plan.
5. Make sure the total cost of the items you choose does not exceed \$100.
6. In the "My Party Plan" sheet, fill in the decorations, food, drinks, and activities your group has chosen, including their quantities and prices.
7. Calculate the total cost of your selected items to ensure it stays within budget.
8. Each group member should participate in selecting items and calculating costs.
9. After completing your plan, each group will present their party plan to the class and explain their choices.

Class Party Budgeting Menu

Welcome, Party Planners! You have \$100 to create the most unforgettable class party. Below is a fun menu of decorations, snacks, and activities. Can you plan the perfect party without going over budget? Let's see what you can do!

Decorations	Price
• Balloon Arch	\$10
• Streamers (Pack of 3)	\$5
• Paper Plates (10 count)	\$3
• Napkins (10 count)	\$4
• Banner (10 ft)	\$6
• Confetti (1 lb)	\$2
• Hanging Lanterns (10)	\$8

Food and Drink	Price
• Pizza Slices	\$2
• Fruit Platter	\$15
• Veggie Tray	\$12
• Cupcakes (12 count)	\$8
• Juice Boxes (10 count)	\$10
• Ice Cream Cups (10 count)	\$10
• Water Bottles (10 counts)	\$3

Activities	Price
• Pin the Tail on the Donkey	\$10
• Face Painting Kit	\$15
• Craft Corner Supplies	\$20
• Magician for an Hour	\$40
• Movie Rental	\$5
• Dance-Off Contest: No cost, just need a music player!	0

Name: _____

My Party Plan

Decorations Selected	Quantity	Price	Total

Food and Snacks	Quantity	Price	Total

Activities Selected	

TOTAL COST OF PARTY	\$
----------------------------	----

PREVIEW

Reflection

Answer the questions below.

1) Why did you choose the decorations you did?

2) How did you do with the food and drinks?

3) Did you have to leave anything out to stay in budget? What and why?

4) What was the most challenging part of staying within the budget?

PREVIEW

Credit and Debt

What is Credit?

People can apply for credit, which allows them to buy things without paying money for them. When we use credit, we are agreeing that we will pay the amount owed in the future. Banks can offer a line of credit to people so they can pay for things without using money in their bank account. The bank will study the person's finances to determine how much credit that person can have. If the person always pays back the money they owe, they will be given a higher line of credit.

Credit cards are also forms of credit. When we use a credit card, we are not using our own money. We are agreeing that we will pay back the money to the card company. If we don't, we will have to pay even more money to the credit card companies in the form of interest.



What is Debt?

Debt is the unpaid money we spend money on credit. If we use a line of credit or a credit card, the amount of money we owe is called debt. People can also borrow money from their friends or family. This is also called debt to them. This means they owe them money.

Part 1

Is the statement true or false? Write your answer.

1) Everyone has the same amount of credit.	True	False
2) People who pay their debt on time have better credit.	True	False
3) When you pay using a credit card, you are using your own money.	True	False
4) Debt is unpaid money that is owed to someone else (bank, credit card company, friend, family).	True	False
5) If you don't pay your credit card on time, you will owe more than you borrowed.	True	False

Part 2

Answer the question below

What is the difference between debt and credit?

Part 3

Provide an example of both credit and debt. Ex - Debt: you borrow \$500 from a friend

Credit:

Debt:

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Mark

/5

Circle the correct answer.

1) Can using credit mean you are borrowing money from the bank?	Yes	No
2) When someone uses a line of credit, are they using their money?	Yes	No
3) If you pay back credit late, do you have to pay extra fees?	Yes	No
4) Is debt the money you already paid to the credit card company?	Yes	No
5) Can borrowing money from a friend be considered debt?	Yes	No

Name: _____

Circle the correct answer.

1) Can using credit mean you are borrowing money from the bank?	Yes	No
2) When someone uses a line of credit, are they using their money?	Yes	No
3) If you pay back credit late, do you have to pay extra fees?	Yes	No
4) Is debt the money you already paid to the credit card company?	Yes	No
5) Can borrowing money from a friend be considered debt?	Yes	No

Need Vs Want

Needs

We need goods and services to survive. We pay for food, water, shelter, and heat so we can live comfortably. These are **needs** that we spend our money on.

Our needs have changed over the years. Centuries ago, the needs of people were more basic, as people didn't need technological advancements we have now. Some of these



needs are important because they allow us to do our jobs. For example, gas for cars was not a need in the 1800s because cars did not exist. Gas is considered a need now because many people need it to get to work. Other examples of needs are medicine for us to stay healthy and internet for us to work or learn at home.

Wants

We also spend money on things that we do not need. Wants are things that we do not need. Examples of wants are video games, and televisions.

Wants are important because they make us feel good. Having entertaining goods like toys and video games is important. However, if we spend too much on our wants, we may not have enough money for our needs.



Part 1

_____ is the description of a need or a want.

1. You buy tickets to watch your favourite hockey game.	Need	Want
2. Your parents pay the internet bill.	Need	Want
3. You pay for Netflix so you can watch TV and movies.	Need	Want
4. You buy a basketball hoop so you can practice basketball.	Need	Want
5. Your parents pay the electricity bill.	Need	Want

Part 2

Write examples of needs and wants below.

Needs	Wants

Spending and Saving

What is Spending?

We all need to spend money to get the things we need in life. For example, our families spend money on electricity, heat, and water so that we can be comfortable.

Spending money means we send our money to a business or another person in exchange for a good or service.



Spending money on needs is something every family must do. When we spend too much money, it can be difficult to save any money. This can also lead to people spending more money than they have.

Spending too much using credit can lead to debt. Debt is when you owe more than you have. Having too much

debt can be a problem when you can't pay off all the credit you have.

One way to stay out of serious debt is to avoid spending money on things we don't need.

What is Saving?

Saving means we put money in a different bank account that we don't spend it. Having savings is helpful in the event of an emergency, like a family member losing their job. Savings can also help pay for big expenses, like a new roof.



When we leave money in a savings bank account, the money will grow over time. This is known as being paid interest. The bank will pay us interest because they want us to use them to hold our money. Being paid interest is much better than paying interest to the bank. This happens when we owe the bank money because we used their credit lines or credit cards.

When we have extra money, we should consider saving it instead of spending it on things we don't need. Even if you earn money as a child, you could keep saving it to the point where it could afford you a car or a house when you are older. How cool would that be?

Spending and Saving



Part 1

Answer the questions below

1. What would you do with extra money you had? Would you spend it or save it? Explain.

2. Make a poster about what you learned about spending or saving?

Part 2

A bank pays 5% for every \$100 you put in your savings account.

Savings	Savings + Interest
1) \$300	\$315
2) \$500	
3) \$800	
4) \$1000	

Savings	Savings + Interest
5) \$1500	
7) \$2000	
8) \$2500	

Part 3

You pay 15% interest on your credit card - for every \$100 you spend, you owe \$115

Debt	Debt + Interest
1) \$200	\$230
2) \$400	
3) \$600	
4) \$700	

Debt	Debt + Interest
5) \$1000	
6) \$1400	
7) \$2000	
8) \$2400	

Exit Cards

Cut Out Cut out the exit cards below and have students complete them at the end of class.

Name: _____ Mark: _____

Is the statement true (T) or false (F)?

1) Spending too much on wants can make it harder to save money.	T
	F
2) Interest is money we lose when we leave it in a savings account.	T
	F
3) Saving is helpful if a family has an unexpected emergency.	T
	F
4) Credit cards help us avoid debt because we don't use real money.	T
	F

Name: _____ Mark: _____

Is the statement true (T) or false (F)?

1) Spending too much on wants can make it harder to save money.	T
	F
2) Interest is money we lose when we leave it in a savings account.	T
	F
3) Saving is helpful if a family has an unexpected emergency.	T
	F
4) Credit cards help us avoid debt because we don't use real money.	T
	F

Name: _____ Mark: _____

Is the statement true (T) or false (F)?

1) Spending too much on wants can make it harder to save money.	T
	F
2) Interest is money we lose when we leave it in a savings account.	T
	F
3) Saving is helpful if a family has an unexpected emergency.	T
	F
4) Credit cards help us avoid debt because we don't use real money.	T
	F

Name: _____ Mark: _____

Is the statement true (T) or false (F)?

1) Spending too much on wants can make it harder to save money.	T
	F
2) Interest is money we lose when we leave it in a savings account.	T
	F
3) Saving is helpful if a family has an unexpected emergency.	T
	F
4) Credit cards help us avoid debt because we don't use real money.	T
	F



Creating a Savings Jar

Objective

What are we learning about?

Learning the value of saving by creating a personal savings jar.

Materials

What you will need for the activity

- Clear jars (one per student)
- Decorating materials (stickers, markers, glitter)
- Label stickers
- Inspiration for saving ideas



Instructions

How you will complete the activity

1. Introduce the idea of savings goals, highlighting the importance of planning for future needs and desires.
2. Distribute one jar to each student as their personal savings jar.
3. Using the decorating supplies, customize the jars, reflecting their saving intentions.
4. Guide students to think creatively about their saving targets and represent these visually on their jars.
5. Allow sufficient time for the decorating process, fostering creativity and thoroughness.
6. Upon finishing, students will present their jars and discuss their savings plans, then take their jars home to start their savings journey.

Handout Inspiration sheet for saving ideas - Smart ways to grow your savings jar

1. **Allowance Allocation:** Decide on a percentage of your allowance to put in your jar each time you receive it.
2. **Extra Chores:** Offer to do extra chores around the house for a little bit of money to add to your savings.
3. **Gift Money:** Sometimes, you might receive money as a gift on special occasions; consider saving at least part of it.
4. **Pay-Per-Day:** Each day, add the same number of cents as the day of the month. For example, one cent on the 1st, two cents on the 2nd, and so on.
5. **Craft Sales:** Create crafts to sell to friends, family, or at school events.
6. **Read-a-thon:** Ask for a small amount of money for every book you read.
7. **Bottle and Can Return:** Collect bottles and cans for deposits.
8. **Save the Change:** When you buy something, save the change you get and add it to your jar.
9. **Goal Chart:** Create a chart to track your savings progress, a picture of your journey.
10. **Savings Club:** Start a savings club with friends to encourage each other.

Thoughts to Remember

- **Patience is Key:** Saving takes time, but it's worth it when you finally reach your goal.
- **Small Amounts Add Up:** Don't worry if you can only save a little at a time, every bit helps.
- **Keep Your Goal in Sight:** Place a picture of what you're saving for on your jar.
- **Safety First:** Keep your savings jar in a safe place where it won't get lost or broken.

Reflection

Answer the questions below.

1) What is the goal you're saving towards with your jar?

2) How do you plan to put money to your savings jar?

3) What challenges might you face while saving and how will you overcome them?

4) Has creating a savings jar changed how you think about money? Explain how.

PREVIEW

Introduction to Investing

What is Investing?

Investing means we are spending money in hopes to make more money. If you have put money into a savings account, you have already invested your money. This is because your money is making you interest, which means it is making you more money.

We can invest in many different ways. You could invest in a shovel so that you could shovel your neighbours driveway and earn money. In this example, you are investing money in the shovel so that you can make more money. You are making more money because you are buying the shovel once and you are using it multiple times to make money.

You could also invest money on stocks in the stock market. When you invest your money to a business. If the business does well and makes more money, then you will be paid more money. If the business does not make as much money, you will not get as much money back and you will lose money.

Investing can be risky. Some investments are safer than others. Buying a shovel when your neighbours have a driveway that you shovel for you is a safe investment. But, if the shovel breaks, your investment is lost. Investing in a stock can also be risky if the business loses money.



Part 1

Answer the questions below.

1) What is an investment? What are two ways you can invest your money?

2. Name an investment you would like to invest in. Explain the investment.

Part 2

An investment pays you 3x the amount of money you pay

Investment	Investment Profit
1) \$250	\$750
2) \$420	
4) \$510	

Investment	Investment Profit
4) \$850	
5) \$1230	
6) \$3420	

Newspaper Article: Investing Basic for Kids

Young Minds, Big Investments

Publish Date: May 20, 2024

Investing might sound like something only adults can do, but even kids can get a head start. Learning how it works helps you make your money grow, whether it's through buying stocks, bonds, or investing in small business ideas.

Stocks are pieces of a company that people can buy. When the company does well, the value of the stock goes up, and you can make a profit. For example, if you buy a stock for \$10 and it grows to \$15, you've made \$5.

Bonds are a bit different. When you buy a bond, you're lending money to a company or government, and they promise to pay you back with interest after a certain period. It's like giving a loan to a friend and getting more

money back later.

Dr. Susan Hartley, an economics professor, explains, "Investing is important because it helps your savings grow. Starting young gives you a big advantage because you have more time to learn and watch your investments grow."

Take the case of Jimmy Turner, a fifth-grader who started investing in a small online business. Jimmy shared, "I helped my brother sell handmade bracelets online. We started with a few dollars and more materials. Now we sell more bracelets and are planning to expand."

Understanding investing is a valuable skill, helping you make smart decisions about money from a young age. Whether it's buying stocks, bonds, or helping a family business grow, learning about investing is an exciting adventure.



Completion

Choose the word that best complete the statements

1) _____ is a way to make your money grow.	Investing	Spending
2) When the company does well, the value of the stock goes _____.	Down	Up
3) When you buy a _____ you're lending money to a company.	Stock	Bond
4) Investing is _____ without knowledge.	Risky	Safe
5) Learning about investing is _____.	Tiring	Exciting

Define _____ the terms below mean?

Stocks	
Bonds	

Pros and Cons

Make a list of pros and cons for investing in _____

Investment in Stocks	
Pros	1)
	2)
Cons	1)
	2)

Memory Game: Investing Basics

Objective

What are we learning about?

To help students understand and remember key terms related to investing, such as stocks, bonds, and business investments, through an engaging memory game.

Material

What you will need for the activity

- Memory game cards (provided) with investment terms on one side and definitions on another side.
- A flat surface (table) to lay out the cards.



Instructions

How you will complete the activity

1. Divide the class into groups of 3 or 4. Give each group 10 Memory Game cards.
2. Have each group lay all the cards face down in a 2x5 grid on the floor.
3. Students take turns flipping over two cards at a time, trying to find a matching term and its definition.
4. If a student finds a match, they remove those cards from the grid and keep them.
5. If the cards do not match, they are turned back over, and the next student takes a turn.
6. The game continues until all the cards have been matched.
7. After the game, review the terms and definitions with the class.
8. Discuss how these terms are important for understanding basic investment concepts and how they can be applied in real life.

Cards

List of business and investment terms.

Terms	Definition
Lending	Giving money to someone who will return it later.
Financial Advisor	A professional who provides expert advice on money management and investments.
Broker	A person or company licensed to buy and sell stocks and bonds.
Interest	Money earned from lending money or depositing funds in an interest-bearing account.
Profit	The money you have left over after you pay for all the costs of making or selling something.

PREVIEW

Cards

List of business and investment terms.

Terms	Definition
Risk	The potential for losing money on an investment.
Return	The money made or lost on an investment over a certain period.
Share	A unit of ownership in a company or other financial asset.
Asset	Anything of value or a resource of value that can be converted into cash.
Liability	Something a person or company owes, usually a sum of money.

PREVIEW

Cards

List of business and investment terms

Terms	Definition
Budget	A plan for making and spending money.
Revenue	Money received, especially on a regular basis, for work or through investments.
Expenses	The amount of money required for this or that, or the money spent on this or that.
Principal	The original sum of money borrowed in a loan, or the amount of the investment.
Bankruptcy	A legal proceeding involving a person or business that is unable to repay outstanding debts.

PREVIEW

Rates

A **rate** is a **comparison** between two numbers that are in **different** units. We use a colon for ratios, but we commonly use per when we describe a unit rate.

We can use rates to understand if a product or service is a good deal. For example - if they are selling 8 batteries for \$4, that means each battery is \$0.50. This helps us decide if buying more than one is a good deal.

Question: Write the rates for the questions below.

1) 6 dollars for 3 hamburgers

Rate = _____

Unit Rate = 2 dollars



2) 10 dollars for 10 pencils

Rate = _____

Unit Rate = _____



3) 15 dollars for 5 batteries

Rate = _____

Unit Rate = _____



4) 10 dollars for 2 coffees

Rate = _____

Unit Rate = _____



5) 12 dollars for 6 chocolate bars

Rate = _____

Unit Rate = _____



6) 21 dollars for 7 cookies

Rate = _____

Unit Rate = _____



7) 6 dollars for a dozen donuts (12)

Rate = _____

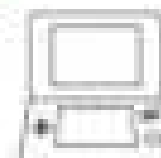
Unit Rate = _____



8) 50 dollars for 2 video games

Rate = _____

Unit Rate = _____



9) 100 dollars for 4 tickets to the game

Rate = _____

Unit Rate = _____



10) 250 dollars for 5 hockey sticks

Rate = _____

Unit Rate = _____



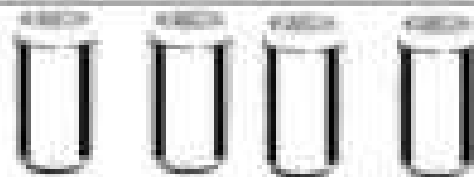
Rate Word Problems

Questions

Write the rates for the questions below.

1) Cory bought 12 drinks for \$36.

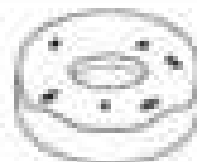
a) What is the unit rate?



b) If Cory bought 30 drinks, how much would it cost him at the same unit rate?

2) Gerry bought 12 donuts for \$6.00.

a) What is the unit rate?



b) If Gerry spent \$18 on donuts, how many donuts would he have received?

3) Larry bought 5 boxes of cereal for \$20.

a) What is the unit rate?



b) If he wanted 15 boxes of cereal, how much would it cost him at the same unit rate?

4) Lindsay bought 4 bags of chips for \$12.

a) What is the unit rate?



b) If she bought more chips and ended up spending \$36, how many bags of chips would she have?

PREVIEW

Comparing Rates

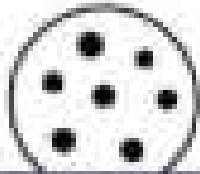
Questions

Circle the rate that is less expensive

1)



2 for \$5.00



3 for \$5.00

2)



10 for \$5.00



10 for \$5.00

3)



3 for \$6.00



6 for \$10.00

4)



2 for \$3.00



5 for \$6.00

5)



5 for \$20.00



2 for \$10.00

6)



2 for \$5.00

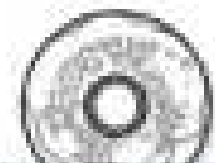


3 for \$6.00

7)



6 for \$3.00



12 for \$5.00

8)



12 for \$10.00



6 for \$10.00

9)



8 for \$4.00

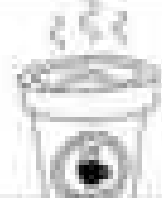


16 for \$6.00

10)



2 for \$3.00



6 for \$6.00

Choosing a Service Rate

Questions

Choose one of the options below after comparing the rates.

1) Jackson is trying to find someone to build him a skateboard ramp. He has asked two different people to build him one. Which person should he get to build the ramp?

Person 1 - Will complete the job in 10 hours and will charge \$200

Person 2 - Will work for \$25 per hour and will take 10 hours to finish the ramp.



2) Thomas needs to get his computer fixed. He takes it to 2 different computer repair shops and gets two quotes. Which shop should he choose to fix his computer?

Shop 1 - Will fix the computer in 3 hours and charge \$15 per hour.

Shop 2 - Will fix the computer in 4 hours and charge \$5 per hour.



3) Charlotte is doing a kitchen renovation. She received two quotes from different businesses. Which quote should she choose?

Quote 1 - Will complete the job in 100 hours and will charge \$20 per hour

Quote 2 - Will complete the job in 50 hours and will charge \$30 per hour



Types of Taxes

What are Taxes?

Taxes are an amount of money that you have to pay to the government. We pay taxes so that the government can pay for things like roads and schools.



Who Pays Taxes?

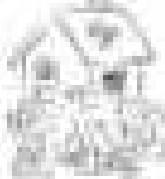


People and businesses pay taxes. When people earn money, they pay a percentage of their income to the government. We call this **income tax**. Businesses are also taxed based on the profit they make as profit.

Goods and services are taxed. In Ontario, we pay Harmonized Sales Tax (HST) which is a tax on things we buy. 7% goes to the federal government (Canada) and 6% goes to the province of Ontario.



3 Levels of Government

The 3 levels of government are **municipal**, **provincial**, and **federal**. Governments cannot operate without the tax money we pay them. The 3 levels of government collect tax money from different sources. They also provide different services. Read below to learn more.

Level	Taxes They Collect	Services They Provide
Municipal	<ul style="list-style-type: none"> - Property taxes - Dog and cat licences 	<ul style="list-style-type: none"> - Libraries - Local police, fire services - Snow removal, garbage cutting - Parks
Provincial	<ul style="list-style-type: none"> - Sales tax - Income tax - Health services tax 	<ul style="list-style-type: none"> - Education - Hospitals - Provincial Police (OPP) - Provincial Parks
Federal	<ul style="list-style-type: none"> - Sales tax - Income tax 	<ul style="list-style-type: none"> - National Defence - Banking - The Post Office - Fisheries and Natural Resources - Federal Police (RCMP)

Types of Taxes - Questions

Part 1

Answer the questions using evidence from the text

1. What are taxes? Why do we pay taxes?

2. What do you think they do with the tax money that is given to them?

Making Connections

How do you think we would be like if no one paid taxes?

True or False

Circle whether the statement is true or false

1) We pay HST in Ontario, which is 15% of the goods and services we buy	True	False
2) The municipal government is funded by property taxes	True	False
3) The federal government gets 5% of the HST	True	False
4) We would be better off if we didn't have to pay taxes because we'd have more money	True	False
5) Taxes pay for services we need, like roads, schools, and hospitals	True	False

Exit Cards

Cut Out

Cut out the exit cards below and have students complete them at the end of class.

Name: _____

Mark

/5

Circle the correct answer.

1) Which level of government collects taxes for dog and cat licences?	Municipal	Federal
2) Which tax is taken from the money people earn at work?	Sales	Income
3) What service is mainly provided by the provincial government?	Hospitals	Banking
4) Which government level is responsible for national defence?	Federal	Municipal
5) What is taxed when a business earns a profit?	Property	Income

Name: _____

Circle the correct answer.

1) Which level of government collects taxes for dog and cat licences?	Municipal	Federal
2) Which tax is taken from the money people earn at work?	Sales	Income
3) What service is mainly provided by the provincial government?	Hospitals	Banking
4) Which government level is responsible for national defence?	Federal	Municipal
5) What is taxed when a business earns a profit?	Property	Income

Role-Play: Taxes and Services

Objective

What are we learning about?

Students will act out real-life situations to understand how taxes are collected by different levels of government in Canada (municipal, provincial, and federal). They will learn the types of taxes collected, how tax money is used to provide services in the community, and why contributing to taxes helps support everyone's standard of living.

Materials

What do we need for our activity?

- Scenario cards (real-life situations) (provided)
- Props or costumes (optional)
- Timer or stopwatch (optional)

TAX REVENUE



Instructions

How will we complete this?

1. Divide the class into small groups of 3 to 4 students.
2. Provide each group with a scenario card that describes a situation and the tax and service connected to it.
3. Give out roles to each student in the group, assigning them a character to play within the scenario (e.g., shopper, cashier, mayor, doctor, firefighter).
4. If available, distribute props or costumes that may help students act out their roles more effectively.
5. Set the timer to allow groups a set amount of time to prepare their role-play.
6. Allow each group to present their role-play to the class.
7. After all groups have presented, lead a class discussion on what students noticed about the different taxes, services, and levels of government in each role-play.
8. Distribute reflection sheets for students to write about what they learned and how taxes help communities.

Criteria

Use the criteria below to complete the activity.

Criteria	Description
Creativity	Show what your character would say or do in a real tax situation. Use ideas that make the role-play clear, fun, and realistic.
Voice	Speak loudly and clearly so everyone can hear. Use your voice to show how your character feels (e.g., serious, curious, excited).
Actions	Use movements, gestures, and expressions to act out your character (e.g., cashier adding tax, firefighter explaining services, mayor at a meeting).
Stay in Role	Keep your character from start to finish. Don't slip out of role until the scene ends.
Teamwork	Work well as a group. Take turns, listen to each other, and make sure everyone has a part in the role-play.
Knowledge of Taxes and Services	Show what you know about taxes and government services. Make sure you use the right words for the type of tax, the level of government, and the service provided.

Scenario Cards

Cut out the topic cards.

Topic	Description
1. The Fire Station Call	In this scene, the class could set up a pretend town council meeting. A firefighter comes to the council to explain that their hoses and equipment need repairs. The mayor and councillors discuss how to pay for the repairs. A townsperson asks, "Where does the money come from?" The firefighter explains that property taxes collected from people's homes and businesses pay for the fire department. The councillors then take a vote, and the group decides whether to approve the funding.
2. The Dog Licence Debate	This role-play could start with a pet owner at City Hall asking about why they need to buy a dog licence. The clerk explains that the small fee goes toward animal control services, like catching strays and supporting shelters. A neighbour joins in to say they saw a stray dog in the park, and an animal control officer explains how licence fees help keep animals and people safe. The pet owner then pays for the licence and gets a little "tag" for their dog.

Scenario Cards

Cut out the topics below

	Description
3. The Grocery Store Checkout	<p>Students could act out shopping at a store. When the cashier rings up the groceries, they add sales tax to the bill. The shopper looks confused and asks why the total is higher. The cashier explains that the store collects sales tax and sends it to the government. A provincial government worker comes in and says this money helps pay for schools and hospitals. A federal worker adds that it also supports public safety and national programmes. The shopper then understands how extra money is used for the community.</p>
4. The Garbage Day Problem	<p>Students could act out a neighbourhood where people are upset because their garbage has not been picked up. A waste-collection driver comes in and explains that some bins were missed, but the service is funded by property taxes. A municipal worker explains how these taxes pay for trucks, workers, and recycling programs. The driver explains how important it is to keep streets clean and protect the environment. Neighbours feel better when they understand how their tax money is used for garbage collecting services.</p>
5. The New Playground Meeting	<p>In this role-play, students could act out a city council meeting. A parent and child stand up and ask the mayor for a new playground because the old one is broken. A parks planner explains that surveys were done and many families want safer equipment. The treasurer shows the estimated cost and says the money would come from property taxes. Councillors discuss when the new playground should be built now or later. Finally, the mayor leads a vote to approve the plan. The planner explains how builders will be hired and when the playground will be open.</p>
6. The Road Trip	<p>Students act as a family driving down a highway. They notice a pothole and a bridge under construction. A provincial transportation engineer explains that tax money is used to repair and maintain roads. A federal worker says the federal government sometimes helps with big projects like bridges. A snow plow driver joins in to explain how tax money also pays for winter plowing and sanding. The family realizes that their taxes keep roads safe and in good condition.</p>
7. Hospital Visit	<p>In this role-play, a patient goes to a hospital to see a nurse or doctor. The patient asks, "Who pays for all this?" A hospital administrator joins the scene and explains that the province collects taxes to fund health care. A representative from the Ministry of Health might explain how money from income tax and sales tax helps run hospitals, buy equipment, and pay staff. The patient realizes that taxes make sure people can get health care without paying at the hospital door.</p>



Name _____

My Role

Draw a picture of what your character did during the role-play.

PREVIEW

Rubric How did you do on the activity?

Criteria	1 Point	2 Points	3 Points	4 Points
Creativity	Did not try to act out the scenario.	Tried a little but did not add many ideas.	Used imagination to show the situation and make it clear.	Used great ideas that made the role-play exciting, realistic, and easy to understand.
Voice	Hard to hear or too quiet.	Sometimes clear, but not always loud or strong.	Clear voice that matched the character's role and feelings.	Loud, clear, and strong voice that kept the audience interested.
Actions	Did not use any actions.	A few actions, not always connected to the role.	Used actions that showed what the character would do.	Used many strong, realistic actions that made the role very believable.
Stay in Role	Did not stay in character at all.	Sometimes acted in character.	Mostly stayed in character during the scene.	Stayed in character the whole time, showing realistic behaviour.
Teamwork	Did not help or include others.	Helped others a little.	Helped others and worked with the group most of the time.	Shared, listened, and worked well with the group the entire time.
Knowledge of Taxes and Services	Did not show any knowledge of taxes or services.	Showed a piece of knowledge but was missing details.	Showed a good amount of knowledge.	Clearly showed the tax type, level of government, and amount of tax, making the presentation very clear.

PREVIEW

Teacher Comments

Mark

Student Comments - What Could You Do Better?

Financial Literacy – Unit Test

Part 1




Which method of payment would you use in the scenarios below?




Word Bank – Cash, debit, credit card, gift card, cheque, electronic wallet, e-transfer, automatic deposit, automatic payment, cryptocurrency, wire transfer

Scenario	Method of Payment
1) You owe your friend \$20 after buying a game from him.	
2) You are buying a chocolate bar that cost \$1.	
3) You are buying something, but you forgot your wallet. You have a bank card on your phone.	
4) You want to withdraw \$50 from your bank account right now.	
5) You believe that digital currency is the future of technology. You buy Bitcoin and want to use it to pay for something.	
6) You are paying for a house. You want to transfer money from your bank to the seller's bank.	
7) You want to pay your cell phone bill, which is due every month.	
8) You want to be paid by your employer every one week automatically.	

Part 2

Add up the items and provide change based on what is shown with the money.

Money Used	Item	Item	Change Due
			_____

Money Used	Item	Item	Change Due
			_____

Part 3

Calculate the sales tax and total price



#	Product Price	Sales Tax (13%)	Total Price
1	\$21.50		
2	\$23.00		
3	\$28.75		
4	\$10.55		
5	\$12.00		

Part 4

Find the tax

Item #1	Item #2	Total Price	Taxes	Total Cost
 \$3.50	 \$4.20			

Item #1	Item #2	Total Price	Taxes	Total Cost
 \$1.50	 \$1.00			

Item #1	Item #2	Total Price	Taxes	Total Cost
 \$4.50	 \$2.25			

Item #1	Item #2	Total Price	Taxes	Total Cost
 \$2.50	 \$2.75			

PREVIEW

Part 5

Circle the rate that is less expensive.

1)

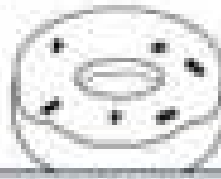


2 for \$4.00



3 for \$5.00

4)



2 for \$5.00

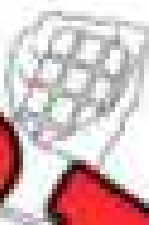


3 for \$6.00

2)



6 for \$3.00

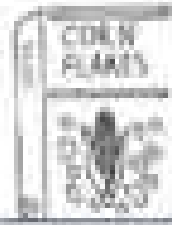


4 for \$5.00

5)



6 for \$3.00



12 for \$5.00

3)



3 for \$6.00



6 for \$10.00



3 for \$10.00



6 for \$10.00

Part 6

Answer the question below.

Trevor needs someone to design him a website for his new company. He goes to 3 different businesses and gets 3 different quotes. Which business should he choose?

Business 1 - Will take 15 hours and they charge \$60 an hour

Business 2 - Will take 10 hours and they charge \$75 an hour

Business 3 - Will take 20 hours and they charge \$40 an hour