



Preview - Information



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Google Slides Lessons Preview





BC Math Curriculum Patterning & Equations – Grade 4

3-Part Lesson Format

Part 1 – Minds On!

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

LEARNING GOAL

We are learning to identify and describe repeating elements in different patterns so we can recognize and explain how patterns are formed and continue.

Repeating Patterns

Continue the repeating patterns below by dragging the objects from the box.

1)		
2)		
3)		
4)		
5)		
6)		

Part 2 – Action!

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

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!

EXIT CARD

How many shapes will be in the 3rd pattern?

ANSWER



BC Math Curriculum

Patterning & Equations – Grade 4

Decreasing Patterns-Word Problems

Drag the numbers to fill in the numerical sequences for the patterns below.

Olivia built a snowman, but each sunny day, some of the snow melted. She made a pattern to show how her snowman got smaller.

Day 1
 Day 2
 Day 3
 Day 4
 Day 5

Numerical Sequence

1 2 3 4 5
6 7 8 9 0

Within Number Strings (2s)

Drag the numbers to complete the increasing patterns below.

1 2 3 4 5 6 7 8 9 0

1)	6	8	10	12	___	___	___	___	___	___
2)	33	35	37	39	___	___	___	___	___	___
3)	44	46	48	50	___	___	___	___	___	___
4)	69	71	73	75	___	___	___	___	___	___

Drag the numbers to continue the patterns according to the pattern rule.

#				PATTERN	
1)	5	10	20		Multiply by 2
2)	2	8	32		Multiply by 4
3)	5	50	500		Multiply by 10
4)	3	9	27		Multiply by 3
5)	2	10	50		Multiply by 5



BC Math Curriculum Patterning & Equations – Grade 4

Input / Output Table

Drag the numbers to fill in the tables. The first one is done for you.

1 2 3 4 5 6 7 8 9 0

RULE = Add 3		RULE = Add 5		RULE = Subtract 6		RULE = Multiply by 3		RULE = Divide by 2	
In	Out	In	Out	In	Out	In	Out	In	Out
12	15	53		62		1		10	
60	63	75		97		3		16	
224	227	443		211		5		22	
617	620	511		404		11		100	
825	828	940		539		20		180	

Word Problem

The Grade 5 class is collecting bottles for recycling. They collect bottles for 5 days. The total number of bottles collected each day is shown below:

40, 80, 120, 160, 200

- How many bottles were collected on Day 3?
- How many bottles were collected on Day 5?
- How many bottles would they collect on Day 12?

1 2 3 4 5 6 7 8 9 0

Term Number (Day)	Term Value (Bottles)

How many toothpicks would be needed for...

a) 11 squares b) 35 squares

2) If you have exactly 34 toothpicks, how many connected squares can you build?

1 2 3 4 5 6 7 8 9 0

Term Number (Squares)	1	2	3	4	5	20
Term Value (# of toothpicks)						



Workbook Preview



Grade 4
Patterns



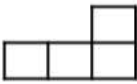
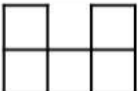



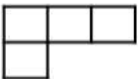



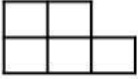



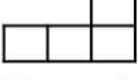
	Curriculum Expectations	Pages
P.1		
P.2	quantities	
P.3	One-step equations with an unknown number, using all operations	75 - 135

Preview of 100 pages from
this product that contains
267 pages total.

Increasing Patterns – Shapes


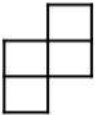

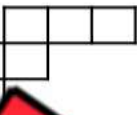

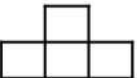
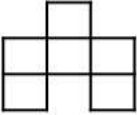
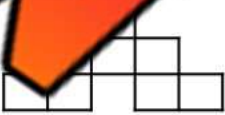
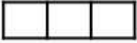
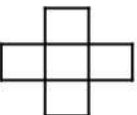
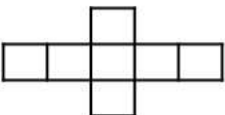
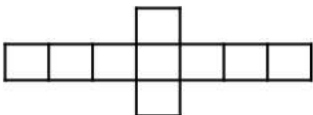

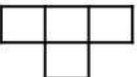
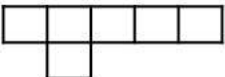
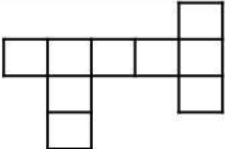
Part 1

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

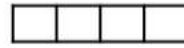
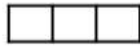
Shade in the two blocks that were added to the pattern

 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

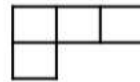


1) Figure 1

Figure 2

Figure 3

Figure 4

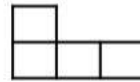


2) Figure 1

Figure 2

Figure 3

Figure 4



3) Figure 1

Figure 3

Figure 4



4) Figure 1

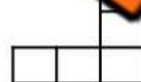
Figure 2

Figure 3

Figure 4

Part 2

Draw the next figure by adding two blocks. Highlight the added blocks

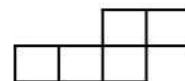


1) Figure 1

Figure 2

Figure 3

Figure 4

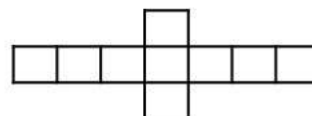
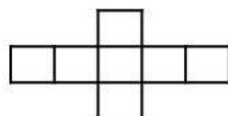
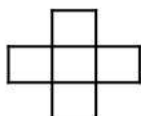


2) Figure 1

Figure 2

Figure 3

Figure 4



3) Figure 1

Figure 2






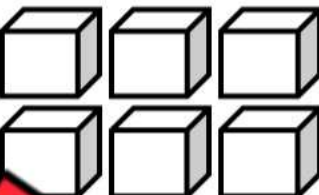

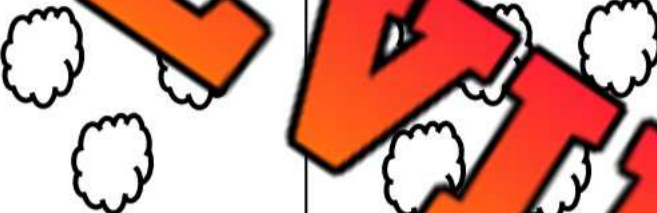
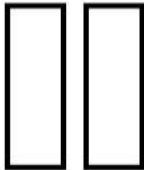


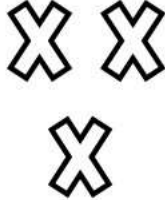
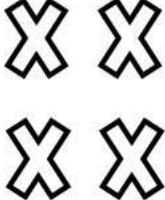
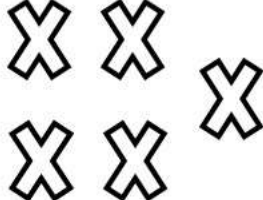



Figure 3

Figure 4

Increasing Patterns

Questions

Draw the shapes in the last column

1)				
2)				
3)				
4)				
5)				
6)				

PREVIEW

Decreasing Patterns – Emojis

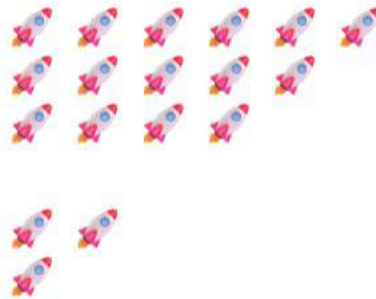
Questions

Draw the missing line of the decreasing pattern

1) Draw the missing line in the pattern.



2) Draw the missing line in the pattern.



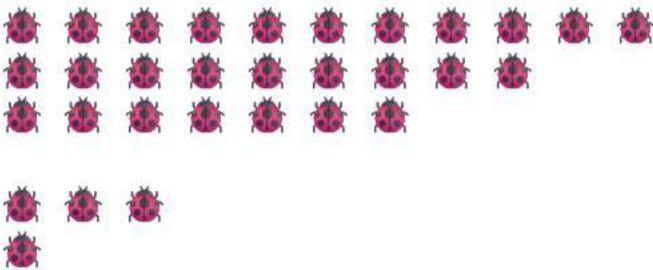
3) Draw the missing line in the pattern.



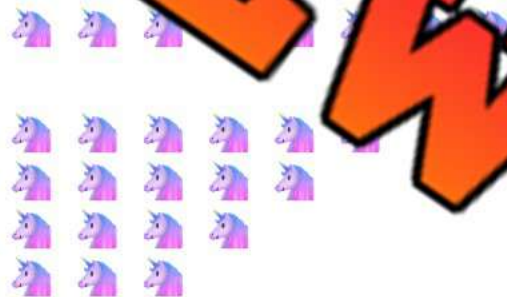
4) Draw the missing line in the pattern.



5) Draw the missing line in the pattern.



6) Draw the missing line in the pattern.



7) Draw the missing line in the pattern.




8) Draw the missing line in the pattern.




Decreasing Patterns

Questions Fill in the numerical sequences for the patterns below


1) Kerry kept track of how many cookies she ate each day using addition signs.




Numerical Sequence
____, _____, _____, _____, _____




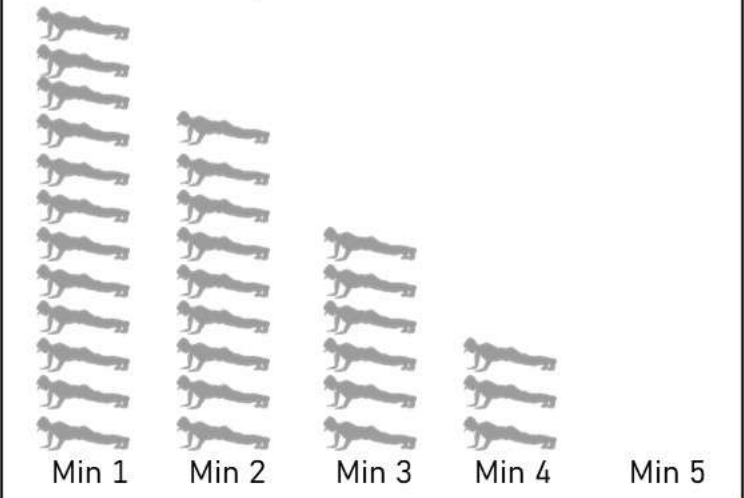
2) Ally writes down how many days it was sunny each month from June – November.



Numerical Sequence
____, _____, _____, _____, _____

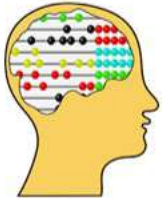


3) Sam counted how many push-ups he could do every minute for 5 minutes.



Numerical Sequence
____, _____, _____, _____, _____

Growing Patterns - Addition



Growing/Increasing Patterns

$$\begin{array}{cccccc}
 +10 & +10 & +10 & +10 & +10 & \\
 \wedge & \wedge & \wedge & \wedge & \wedge & \\
 10, & 20, & 30, & 40, & 50, & 60
 \end{array}$$

$$\begin{array}{cccccc}
 +5 & +5 & +5 & +5 & +5 & \\
 \wedge & \wedge & \wedge & \wedge & \wedge & \\
 3, & 8, & 13, & 18, & 23, & 28
 \end{array}$$



Part 1

Growing Patterns - Addition

$\wedge \wedge$ 1) 2, 4, 6, _____, _____, _____	$\wedge \wedge$ 2) 6, 10, 14, _____, _____, _____
$\wedge \wedge$ 3) 22, 27, 32, _____, _____, _____	$\wedge \wedge$ 4) 2, 5, 8, _____, _____, _____
$\wedge \wedge$ 5) 73, 80, 87, _____, _____, _____	$\wedge \wedge$ 6) 112, 117, 122, _____, _____, _____

Part 2

Follow the rule by adding the next number in the

1) (Add 2) 7, 9, 11, _____, _____, _____	2) (Add 3) 22, 25, 28, _____, _____, _____
3) (Add 6) 43, 49, 55, _____, _____, _____	4) (Add 5) 62, 67, 72, _____, _____, _____
5) (Add 10) 83, 93, 103, _____, _____, _____	6) (Add 4) 147, 151, 155, _____, _____, _____

Word Problems: Increasing Patterns - Addition**Questions**

Solve the word problems below

	Word Problems - Growing Patterns - Addition	Answers
1	Mrs. Lee has a collection of flower pots. She puts 3 on her kitchen shelf on Monday, and every day after that, she adds 2 more pots. How many flower pots will be on the shelf by Saturday?	
2	Emily is building a tower with blocks. She places 4 blocks at the base and adds 2 more blocks for each new level. What will be the total number of blocks in the tower after she adds the fourth level?	
3	Josh has an album for his stickers. On Monday, he pastes 2 stickers into it, and every day he pastes 3 more stickers each day. How many stickers will he paste on Friday?	
4	Sara collects seashells by the beach. On the first day, she finds 5 seashells. Each day, she finds 3 more seashells. How many seashells will Sara have in total by the end of the sixth day?	
5	A little puppy eats 1 cup of food every day. To help him grow, his owner decides to add an extra 1 cup of food to his daily meal every week. How much how many cups of food in total will the puppy eat in week 4?	

Increasing Addition Patterns - Rules



+4 +4

^ ^

2, 6, 10, 14, 18, 22

Pattern Rule: Start at 2, add 4 each time.

Directions

Growing Addition Patterns

29, 38, 47, 56, 65, 74, 83

Start at _____, add _____ each time

47, 155, _____, 179, 187

Start at _____, add _____ each time

203, 210, 217, 224, _____, 238

Start at _____, add _____ each time

370, 374, 378, 382, 386, 390

Start at _____, add _____ each time

547, 553, 559, 565, 571, 577

Start at _____, add _____ each time

803, 814, 825, 836, 847, 858

Start at _____, add _____ each time

Increasing Addition Patterns - Rules

Questions

Write your own sequences using the pattern rule



1) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 203, add 10 each time

Pattern Rule: Start at 14, add 6 each time

3) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 661, add _____ each time

4) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 717, add 7 each time

5) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 971, add 5 each time

PREVIEW

Exit Cards

Cut Out

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

Name: _____

Increasing Addition Pattern Questions

1) (Add 7)
54, 61, 68, _____, _____, _____

2) 439, 451, 463, 475, 487, 499
Start at _____, add _____ each time.

3) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 305, add 8 each time.

Name: _____

Increasing Addition Pattern Questions

1) (Add 7)
54, 61, 68, _____, _____, _____

2) 439, 451, 463, 475, 487, 499
Start at _____, add _____ each time.

3) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 305, add 8 each time.

Name: _____

Increasing Addition Pattern Questions

1) (Add 7)
54, 61, 68, _____, _____, _____

2) 439, 451, 463, 475, 487, 499
Start at _____, add _____ each time.

3) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 305, add 8 each time.

Name: _____

Increasing Addition Pattern Questions

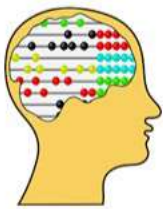
1) (Add 7)
54, 61, 68, _____, _____, _____

2) 439, 451, 463, 475, 487, 499
Start at _____, add _____ each time.

3) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 305, add 8 each time.

Increasing Addition Patterns

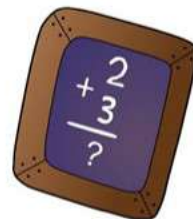


$$+4 \quad +4$$



$$2, 6, 10, 14, 18, 22$$

Pattern Rule: Start at 2, add 4 each time.



Questions Increasing Patterns - Addition

1) 5, 10, 15, _____

Pattern Rule: _____

5) 100, 200, 300, _____, _____, _____

Pattern Rule: _____

2) 3, 6, 9, _____, _____, _____

Pattern Rule: _____

6) 40, 70, _____, _____, _____

Pattern Rule: _____

3) 29, 38, 47, _____, _____, _____

Pattern Rule: _____

7) 81, 90, 99, _____, _____, _____

Pattern Rule: _____

4) 104, 112, 120, _____, _____, _____

Pattern Rule: _____

8) 147, 155, 163, _____, _____, _____

Pattern Rule: _____

Pattern Rule - Addition

Part 1

Continue the growing/increasing patterns below

1) 10, 20, 30, _____, _____, _____

Pattern Rule: Start at 10, add _____ each time

2) 2, 5, 8, _____, _____

Pattern Rule: Start at _____ add _____ each time

3) 35, _____, 51, _____, _____

Pattern Rule: Start at _____ add _____ each time

4) 50, 72, 94, _____, _____

Pattern Rule: Start at _____ add _____ each time

5) 73, 88, 103, _____, _____, _____

Pattern Rule: Start at _____ add _____ each time

**Part 2**

Write your own patterns using the pattern rule

1) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 41, add 5 each time

2) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 200, add 11 each time

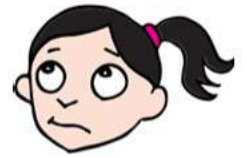
3) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 121, add 6 each time

4) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 142, add 12 each time

Decimal Patterns - Adding

**Questions**

Increasing Patterns - Addition

1) 4.0, 5.0, 6.0, _____, _____, _____

Pattern Rule: _____

2) 6.3, 7.0, _____, _____, _____

Pattern Rule: _____

3) 4.5, 5.0, 5.5, _____, _____, _____

Pattern Rule: _____

4) 10.1, 11.2, 12.3, _____, _____, _____

Pattern Rule: _____

5) 17.2, 17.3, 17.4, _____, _____, _____

Pattern Rule: _____

6) 22.2, 22.4, 22.6, _____, _____, _____

Pattern Rule: _____

7) 35.3, 35.8, 36.3, _____, _____, _____

Pattern Rule: _____

8) 42.1, 42.8, 43.5, _____, _____, _____

Pattern Rule: _____

PREVIEW

Exit Cards

Cut Out

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

Name: _____

Increasing Addition Decimal Pattern

- 1) 7.2, 9.2, 11.2, _____, _____, _____
- 2) 92.4, 92.8, 93.2, _____, _____, _____
- 3) 41.6, 42.8, 44.0, _____, _____, _____
- 4) 20.5, 23.0, 25.5, _____, _____, _____

Name: _____

Increasing Addition Decimal Pattern

- 1) 7.2, 9.2, 11.2, _____, _____, _____
- 2) 92.4, 92.8, 93.2, _____, _____, _____
- 3) 41.6, 42.8, 44.0, _____, _____, _____
- 4) 20.5, 23.0, 25.5, _____, _____, _____

Name: _____

Increasing Addition Decimal Pattern

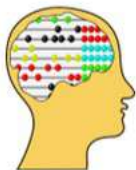
- 1) 7.2, 9.2, 11.2, _____, _____, _____
- 2) 92.4, 92.8, 93.2, _____, _____, _____
- 3) 41.6, 42.8, 44.0, _____, _____, _____
- 4) 20.5, 23.0, 25.5, _____, _____, _____

Name: _____

Increasing Addition Decimal Pattern

- 1) 7.2, 9.2, 11.2, _____, _____, _____
- 2) 92.4, 92.8, 93.2, _____, _____, _____
- 3) 41.6, 42.8, 44.0, _____, _____, _____
- 4) 20.5, 23.0, 25.5, _____, _____, _____

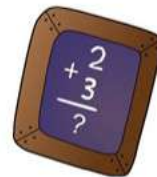
Decreasing Patterns - Subtraction



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) $\wedge \wedge$ 12, 10, 8, _____	2) $\wedge \wedge$ 23, 19, 15, _____, _____, _____
3) $\wedge \wedge$ 32, 26, 20, _____, _____, _____	4) \wedge 75, 55, _____, _____, _____
5) $\wedge \wedge$ 56, 48, 40, _____, _____, _____	6) \wedge 80, 65, _____, _____, _____

Part 2

Follow the rule by adding the next number in the

1) (Subtract 2) 18, 16, 14, _____, _____, _____	2) (Subtract 3) 30, 27, 24, _____, _____, _____
3) (Subtract 5) 58, 53, 48, _____, _____, _____	4) (Subtract 10) 102, 92, 82, _____, _____, _____
5) (Subtract 6) 127, 121, 115, _____, _____, _____	6) (Subtract 12) 175, 163, 151, _____, _____, _____

Pattern Rule - Subtraction



Part 1

Continue the shrinking/decreasing patterns below

1) 12, 10, 8, _____, _____, _____

Pattern Rule: Start at 12, subtract _____ each time

2) 22, 19, _____, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

3) 50, 43, 38, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

4) 84, 70, 56, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

5) 97, 91, 85, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

Part 2

Write your own patterns using the pattern rule

1) _____, _____, _____, _____, _____

Pattern Rule: Start at 218, subtract 0 each time

2) _____, _____, _____, _____, _____

Pattern Rule: Start at 175, subtract 4 each time

3) _____, _____, _____, _____, _____

Pattern Rule: Start at 147, subtract 9 each time

4) _____, _____, _____, _____, _____

Pattern Rule: Start at 186, subtract 13 each time

Decreasing Decimal Number String Patterns

Part 1

Continue the decreasing patterns below

1) 5.0, 4.0, 3.0, _____, _____, _____

Pattern Rule: Start at 5.0, subtract 1.0 each time

2) 8.5, 8.0, _____, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

3) 9.1, 8.1, 7.1, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

4) 18.5, 17, 15.5, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

5) 20.2, 19.8, 19.4, _____, _____

Pattern Rule: Start at _____ subtract _____ each time

Part 2

Write your own patterns using the pattern rule

1) _____, _____, _____, _____, _____

Pattern Rule: Start at 9.0, subtract 1.0 each time

2) _____, _____, _____, _____, _____

Pattern Rule: Start at 12.5, subtract 0.5 each time

3) _____, _____, _____, _____, _____

Pattern Rule: Start at 15.8, subtract 1.1 each time

4) _____, _____, _____, _____, _____

Pattern Rule: Start at 20.0, subtract 2.5 each time

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
- Student answer sheets
- Pencils

1 2 3 4 5
6 7 8 9 0

Instructions

What you will do for the activity

1. Introduce the concept of patterns in mathematics 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 to document their responses.
4. Encourage teamwork by having students collaborate on their problem-solving 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 4. Add 3 to get the next number in the pattern. What is the fifth number?

- a) 13
- b) 16
- c) 19

Card 5:

Start with 7. Subtract 1 and then multiply by 2 for the next number. What is the third number?

- a) 22
- b) 24
- c) 26

Start with 15. Subtract 2 to get the next number. What is the fourth number?

- a) 9
- b) 8
- c) 7

Card 6:

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

- a) 25
- b) 27
- c) 29

Card 3:

Start with 5. Multiply by 2 to get the next number. What is the fourth number?

- a) 30
- b) 40
- c) 50

Start with 20. Divide by 2 to get the next number. What is the third number?

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

Card 4:

Start with 48. Divide by 2 to get the next number. What is the fourth number?

- a) 12
- b) 24
- c) 6

Card 8:

Start with 8. Double the number and add 4 to get the next number. What is the third number?

- a) 36
- b) 48
- c) 44

Task Cards

Cut out the task cards below

Card 9:

Begin with 10. Add 10 to get the next number. What is the ninth number?

- a) 80
- b) 90
- c) 10

Card 13:

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

- a) 15
- b) 24
- c) 12

Card 14:

Start with 25. Divide by 5 and then add 6 for the next number. What is the second number?

- a) 11
- b) 5
- c) 16

Card 11:

Start with 16. Add 4, then multiply by 2 for the next number. What is the third number?

- a) 40
- b) 80
- c) 88

Card 15:

Begin with 10. Subtract 5 and then add 5 to get the next number. What is the third number?

- a) 5
- b) 25
- c) 30

Card 12:

Start with 12. Subtract 2 and then take away half for the next number. What is the second number?

- a) 4
- b) 5
- c) 10

Card 16:

Start with 2. Add 0.5 repeatedly to get the next numbers. What is the fifth number?

- a) 3.5
- b) 4
- c) 4.5

PREVIEW

Task Cards

Cut out the task cards below

Card 17:

Start with 6. Subtract 0.6 repeatedly to get the next numbers. What is the fourth number?

- a) 3.8
- b) 4.2
- c) 4.8

Card 21:

Start with 5. Add 4, multiply by 2, then add 4 repeatedly. What is the second number?

- a) 22
- b) 18
- c) 13

Start with 7. Subtract 0.5 to get the next number. What is the third number?

- a) 7.5
- b) 10
- c) 8.5

Card 22:

Start with 18. Subtract 2, divide by 2, then subtract 2 repeatedly. What is the third number?

- a) 6
- b) 7
- c) 0

Card 19:

Start with 10. Add 2, subtract 1, then add 2 repeatedly. What is the fourth number?

- a) 13
- b) 16
- c) 19

Begin with 10. Subtract 2, then add 10 repeatedly. What is the second number?

- a) 10
- b) 90
- c) 82

Card 20:

Start with 30. Subtract 3, add 2, subtract 3 repeatedly. What is the third number?

- a) 26
- b) 22
- c) 31

Card 24:

Start with 14. Add 1, multiply by 2, then add 1 repeatedly. What is the third number?

- a) 65
- b) 31
- c) 64

Name: _____

37

Task Cards: Patterning

Answers

Record your answers below

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

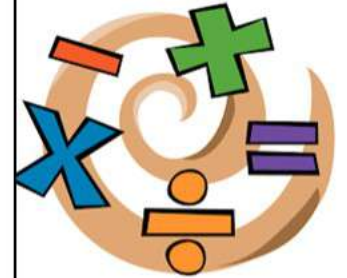
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

PREVIEW

Input/Output Table - Addition

Rule: add 5

In	Out
25	30
45	50
65	70
85	90



Que Fill in the input/output tables below

In	Out
20	
30	
50	
120	

Rule: add 4

In	Out
15	
47	
78	
11	

Rule: add 6

In	Out
2	
18	
44	
92	

Rule: add 8

In	Out
73	
98	
117	
168	

Rule: add 7

In	Out
22	
33	
54	
85	

Rule: add 12

In	Out
15	
42	
85	
124	

Increasing Patterns - Multiplication

Growing Pattern - Multiplication

$$\begin{array}{cccccc} & \times 2 & \times 2 & \times 2 & \times 2 & \times 2 \\ \wedge & \wedge & \wedge & \wedge & \wedge & \\ 1, & 2, & 4, & 8, & 16, & 32 \end{array}$$



Part 1

Extend the increasing pattern

1) 1, 3, 9, _____	2) 2, 4, 8, _____, _____
3) 2, 6, 18, _____, _____	4) 100, 1000, _____, _____
5) 5, 10, 20, _____, _____	6) _____, 180, _____

Part 2

Follow the rule to continue the increasing pattern

1) (Multiply by 2) 1, 2, 4, _____, _____	2) (Multiply by 5) 5, 25, 125, _____, _____
3) (Multiply by 3) 2, 6, 18, _____, _____	4) (Multiply by 10) 1, 10, 100, _____, _____
5) (Multiply by 4) 1, 4, 16, _____, _____	6) (Multiply by 2) 25, 50, 100, _____, _____

Word Problems: Increasing Patterns - Multiplication

Questions

Solve the word problems below

	Word Problems - Increasing Patterns - Multiplication	Answers
1	Emma plants 2 trees on the first day and doubles the number of trees she plants each day. How many trees will she plant on the fourth day?	
2	Noah starts with 1 book. Each month, he triples the number of books he has in the library. How many books will Noah have after the third month?	
3	A puppy weighs 2 kg at birth. Its weight increases fivefold each month. How much will it weigh at the end of the third month?	
4	At the first party, Luca had 4 balloons. For each following party he brought three times as many balloons as the previous party. How many balloons did he have at the sixth party?	
5	In a garden, there are 5 flowers. Each week, the number of flowers doubles. How many flowers are there at the end of the 8 th week?	
6	Emma bakes 3 cookies on the first day and decides to bake four times that amount each subsequent day. How many cookies does she bake on the 4 th day?	

Input/Output Table - Multiplication



Rule: multiply by 2

In	Out
1	2
3	6
5	10
7	14

Questions: Complete the input/output tables below

Rule: multiply by 2

In	Out
2	
5	
10	
20	

Rule: multiply by 6

In	Out
2	
4	
6	
8	

Rule: multiply by 4

In	Out
2	
4	
6	
8	

Rule: multiply by 3

In	Out
3	
6	
9	
10	

Rule: multiply by 5

In	Out
1	
3	
5	
7	

Rule: multiply by 10

In	Out
2	
5	
8	
10	

Name: _____

43

Increasing Pattern - Multiplication - Rules

x3 x3 x3

^ ^ ^

2, 6, 18, 54, 162, 486

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



Question

Fill in the rules

1, 4, 16, 64, 256, 1024

Start at _____, multiply by _____ each time

2, 6, 18, 54, 162, 486

Start at _____, multiply by _____ each time

1, 2, 4, 8, 16, 32, 64, 128

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

4, 12, 36, 108, 324, 972

Start at _____, multiply by _____ each time

PREVIEW

Increasing Pattern - Multiplication - Rules

Questions

Write your own sequences using the pattern rule

1) _____, _____, _____, _____, _____

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

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

3) _____, _____, _____, _____, _____

Pattern Rule: Start at 5, multiply by 4 each time

4) _____, _____, _____, _____, _____

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

5) _____, _____, _____, _____, _____

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

Exit Cards

Cut Out

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

Name: _____

Increasing Multiplication Patterns

1) 6, 12, _____, _____

2) 2, 6, 18, 54, 162, 486

Start at _____, multiply by _____ each time.

3) _____, _____, _____, _____, _____

Pattern Rule: Start at 4, multiply by 2 each time.

Name: _____

Increasing Multiplication Patterns

1) 6, 12, 24, _____, _____

2) 2, 6, 18, 54, 162, 486

Start at _____, multiply by _____ each time.

3) _____, _____, _____, _____, _____

Pattern Rule: Start at 4, multiply by 2 each time.

Name: _____

Increasing Multiplication Patterns

1) 6, 12, 24, _____, _____

2) 2, 6, 18, 54, 162, 486

Start at _____, multiply by _____ each time.

3) _____, _____, _____, _____, _____

Pattern Rule: Start at 4, multiply by 2 each time.

Name: _____

Increasing Multiplication Patterns

1) 6, 12, 24, _____, _____

2) 2, 6, 18, 54, 162, 486

Start at _____, multiply by _____ each time.

3) _____, _____, _____, _____, _____

Pattern Rule: Start at 4, multiply by 2 each time.

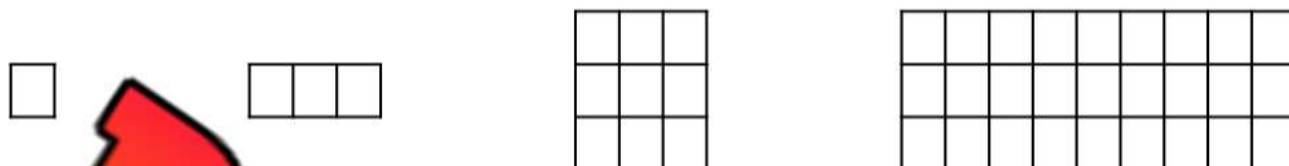
Multiplication Pattern – Word Problem

Questions

Answer the questions below



Rachel created the pattern below using blocks.



1) Complete the table below:

Term Num	2	3	4	5
Term Value (Blocks)				

2) How many blocks would she need for fifth shape?



3) How many blocks would she need to make her sixth shape?

4) Write the first 6 terms in the sequence using numbers below.

_____, _____, _____, _____, _____, _____

Multiplication Pattern – Word Problem

Questions

Answer the questions below

Amber runs one lap of the track in 1 minute, two laps in 2 minutes, three laps in 4 minutes, and four laps in 8 minutes. As you can see, she slows down as she gets more tired.

- 1) Fill in the table of values below



Term (Laps)	1	2	3	4	5
Term Value (Minutes)					

- 2) If she ran 5 laps, how long would it take her to finish?



- 3) If she ran 10 laps, how long would it take her to finish?

- 4) Write the first 6 terms in the sequence using numbers below.

Name: _____

48

Pattern Rules



Questions

Fill in the rules

18, 25, 32, 39, 46, 53

Start at _____, _____ each time

1, 3, 9, 27, 81, 243, 729

Start at _____, _____ each time

50, 100, 150, 200, 250, 300

Start at _____, _____ each time

25, 50, 100, 200, 400, 800

Start at _____, _____ each time

200, 400, 600, 800, 1000, 1200

Start at _____, _____ each time

1, 10, 100, 1000, 10000, 100000

Start at _____, _____ each time

2, 6, 18, 54, 162, 486

Start at _____, _____ each time

20, 40, 60, 80, 100, 120, 140

Start at _____, _____ each time

PREVIEW

Extending Patterns

Questions

Determine the pattern rule and then fill in the blanks

1)	0	100	200	300			
Pattern Rule:							

2)		250	375	500			
Pattern Rule:							

3)	2	4		16			
Pattern Rule:							

4)	1	5	25	125			
Pattern Rule:							

5)	10	50	250	1250			
Pattern Rule:							

6)	30	100	170	240			
Pattern Rule:							

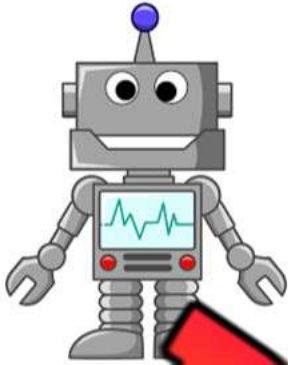
7)	500	1000	1500	2000			
Pattern Rule:							

8)	1	4	16	64			
Pattern Rule:							

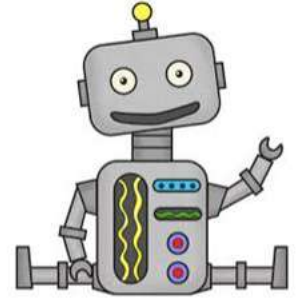
Name: _____

50

Input/Output Table – Division



Rule: divide by 2	
In	Out
10	5
8	4
6	3
4	2



Questions: Complete the input/output tables below

Rule: divide by 1	
In	Out
1	
5	
10	
20	

Rule: divide by 2	
In	Out
6	
10	
14	
20	

Rule: divide by 3	
In	Out
6	
9	
12	
15	

Rule: divide by 4	
In	Out
4	
8	
16	
32	



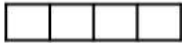


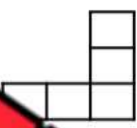

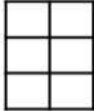


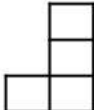
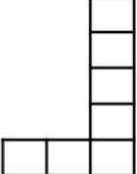

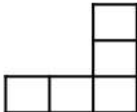
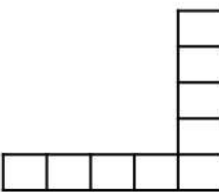
Rule: divide by 5	
In	Out
10	
20	
40	
50	

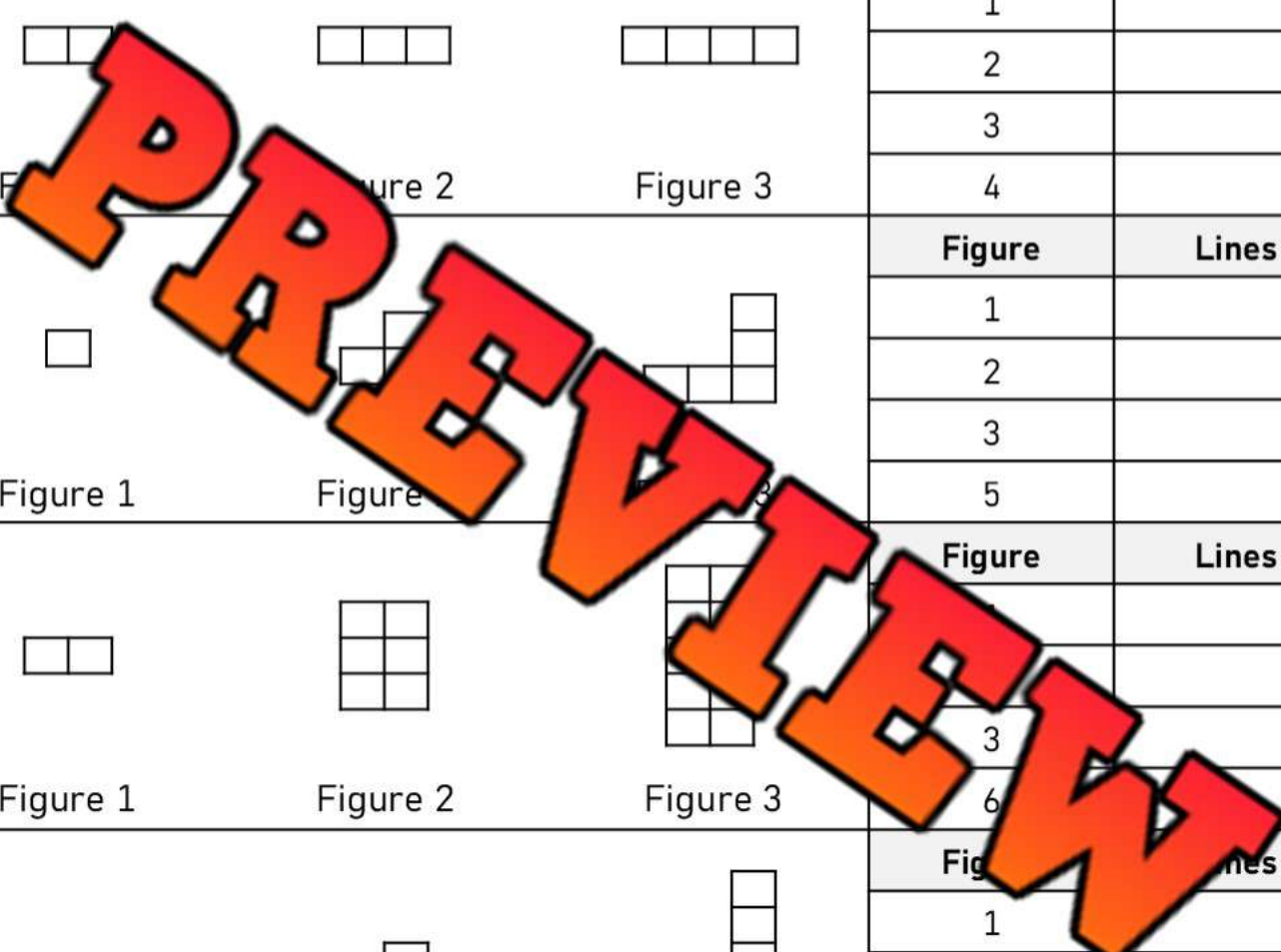
Rule: divide by 10	
In	Out
10	
20	
50	
100	

T-Tables – Finding Patterns

Questions








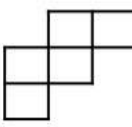
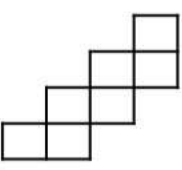

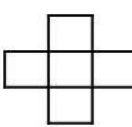
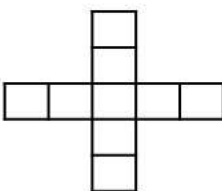
Fill in the T-Tables by counting the lines in each figure

			Figure	Lines
1) Figure 1	Figure 2	Figure 3	1	
			2	
			3	
			4	
			Figure	Lines
2) Figure 1	Figure 2	Figure 3	1	
			2	
			3	
			5	
			Figure	Lines
3) Figure 1	Figure 2	Figure 3	3	
			6	
			9	
			12	
			Figure	Lines
4) Figure 1	Figure 2	Figure 3	1	
			2	
			3	
			8	
			Figure	Lines
5) Figure 1	Figure 2	Figure 3	1	
			2	
			3	
			10	



T-Tables – Drawing Blocks

Questions Fill in the T-Tables and draw figure 4

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

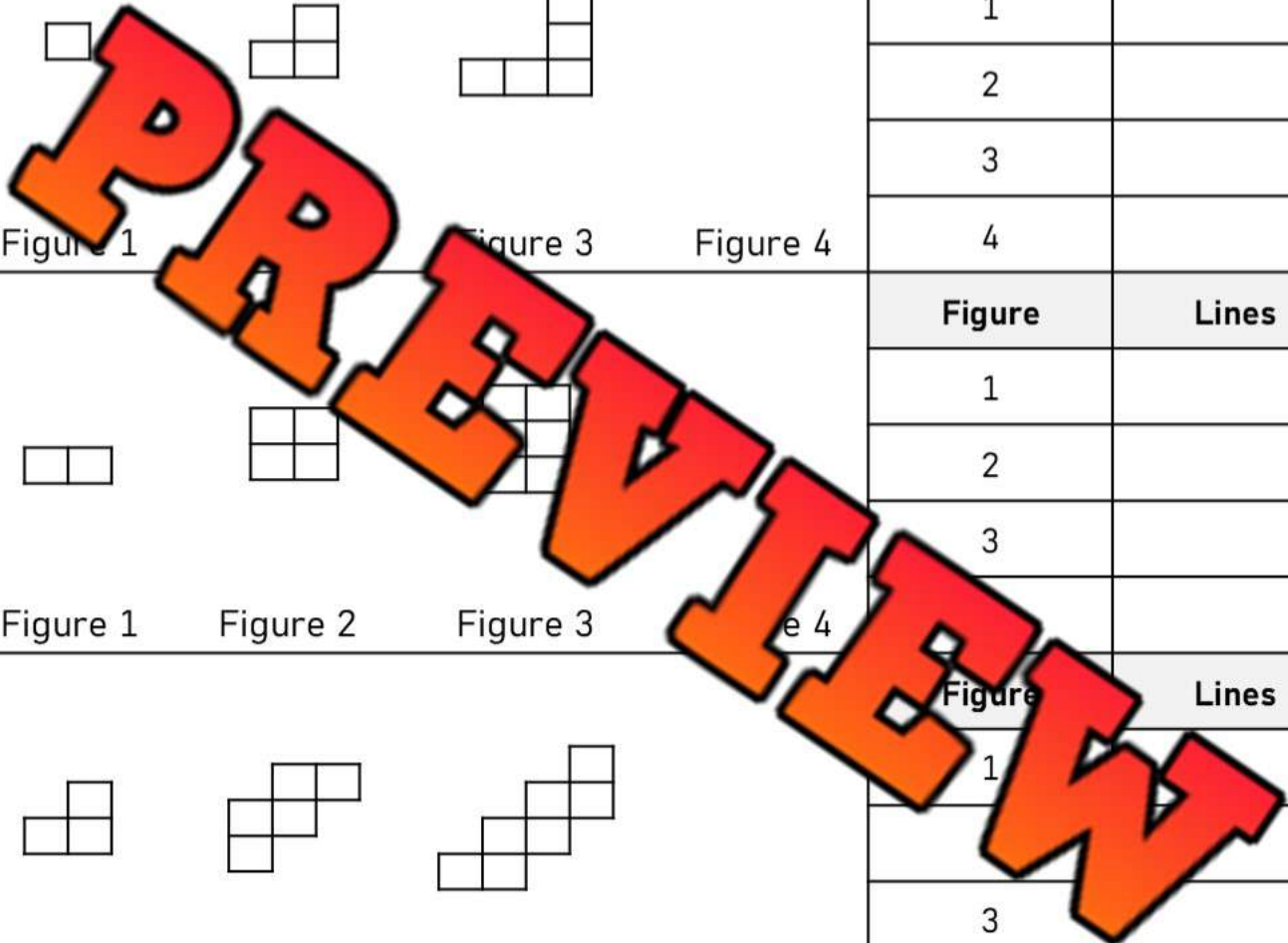


Table of Values

Questions

Answers the questions below by using the table of values

When you work an hour, you get paid 22 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	

Kids	Pieces of Candy
1	
2	
3	
4	
5	
10	

your family is having a birthday party for your brother. Each kid will get 7 pieces of candy.

1) How many pieces of candy do you need to buy?

2) What if 10 kids show up to the party? How many pieces of candy do you need to buy now?

You scored 16 points in each basketball game this season. Fill in the table of values showing your game scores.



1) After your third game, how many points did you score?

2) There were 8 games this season. How many points did you score in the season?

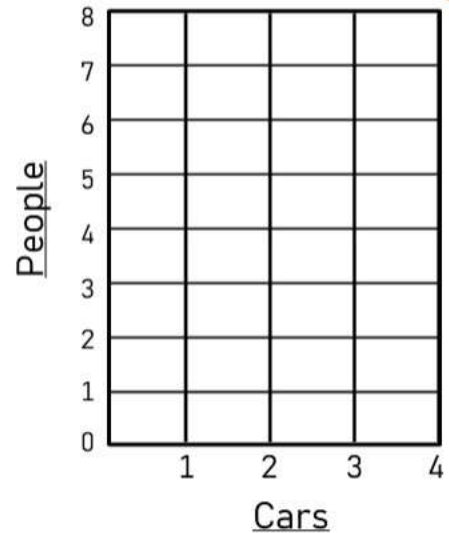
Games	Total Points Scored
1	
2	
3	
4	
5	
8	

Translating Patterns – Table of Values and Graph

Part 1 Translate the increasing pattern into a table of values and a graph



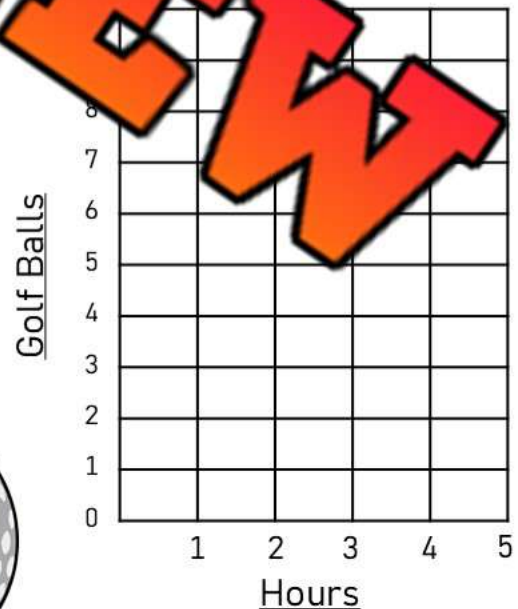
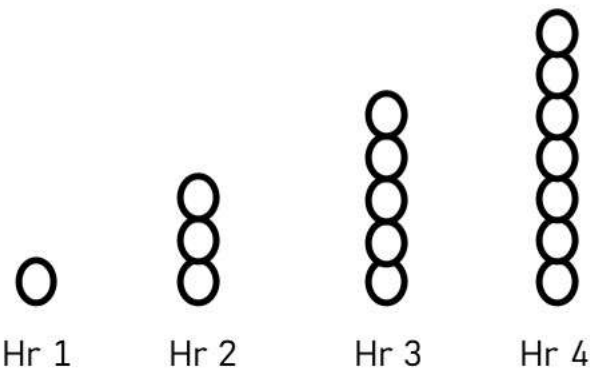
A train has the following people in each train car.



Term Number (Cars)			4	5	8
Term Value (People)					

Part 2 Translate the increasing pattern into a table of values and a graph

Steven is looking for golf balls in the woods. The number of balls he has each hour is displayed below.



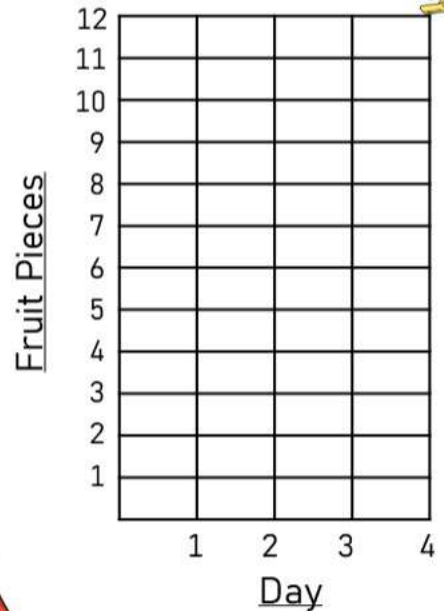
Term Number (Hour)	1	2	3	4	5	9
Term Value (Golf Balls)						

Translating Patterns – Table of Values and Graph

Questions

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

1) Stacy marks an x each day for how many pieces of fruit she eats.



Term Number (Day)	1	3	4	5
Term Value (Fruit)				

2) Rob made a pattern using checkers.

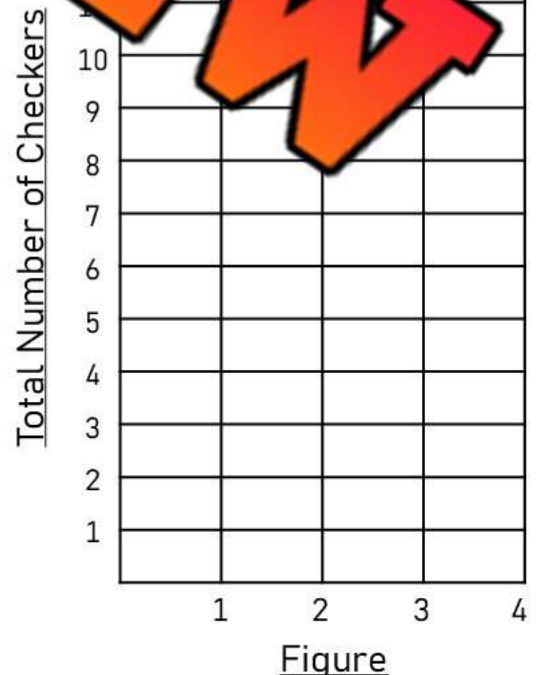
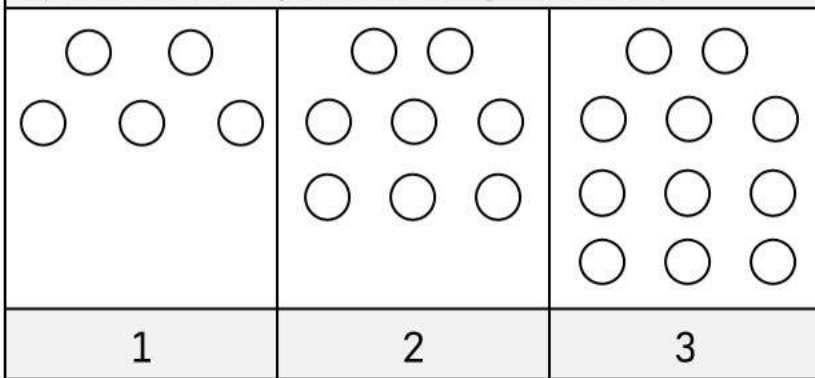


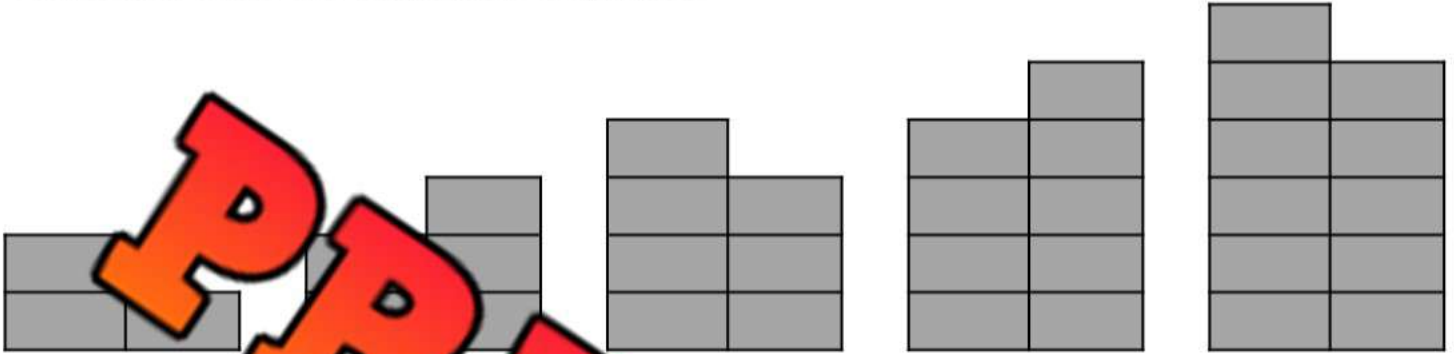
Figure	1	2	3	4	5
Number of Checkers					

Representing Picture Sequence With Numbers

Questions

Fill in the table of values and write the numerical sequence

Joel has created a pattern using his blocks. Translate the pattern using the table of values and write the numerical sequence.



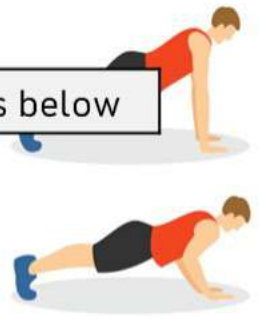
Numerical Sequence										
Term Number	1	2	3	4	5	6	7	8	9	10
Term Value										

Pattern Rule: _____

1) How many blocks would Joel use in his 10th shape if he continued his pattern?	
2) Which shape (term number) would use 27 blocks?	
3) How many blocks would it take to create the 15 th shape (term number)?	
4) How many blocks would it take to create the 32 nd shape (term number)?	

Name: _____

Push-Up Challenge



Questions

Complete the table of values and answer the questions below

Brayden was challenged by a friend to do 15 push-ups a day for 2 weeks. Complete the table of values below to see his push-up progress.

Term Number (Days)	1	2	3	4	5	6	7	8	9	10
Term Value (Pushups)										

Pattern Rule: _____

1) Which day did Brayden complete 100 pushups?	
2) How many pushups did he complete in 10 days?	
3) If his friend did 20 pushups for 7 days, who would have done more? Explain.	
4) How many pushups would he do if he continued his challenge for 3 weeks?	
5) How many days would it take him to do 375 pushups?	

PREVIEW

Allowance Saving

Questions

Complete the table of values and answer the questions below

Martha is given a weekly allowance of \$12. She is saving her money for a new tablet that costs \$100. Fill in the table of values and graph below to find out when she can buy her new tablet.



Term Num (Week)	1	2	3	4	5	6	7	8	9	10
Term Value (Money)										

Pattern Rule: _____

1) In how many weeks can Martha buy a new tablet?

2) How much would she save in 10 weeks?

3) If she kept saving, How many weeks would she need to save \$180.

4) How much money would she have after 20 weeks?

5) Martha changed her mind and now wants a new computer that costs \$276. How many weeks will she need to save her allowance?

Patterning Word Problem - Halloween

Questions

Follow the problem-solving steps below

- Read the problem carefully Underline important information Draw pictures
 Create a table or chart Solve the problem Check your answer

Ben is trick or treating for Halloween. He leaves his house with 13 candies to start. He gets _____ for each house he visits. He visits 10 houses.

a) Draw a patten _____



b) How many total candies does he get after visiting the 10 houses?



Patterning Word Problem – Growing Hair

Questions

Follow the problem-solving steps below

- Read the problem carefully Underline important information Draw pictures
 Create a table or chart Solve the problem Check your answer

Tyler's hair is 50mm long in January. In February, his hair is 62mm long. In March, his hair is 74mm long.

a) How long will his hair be in April if the pattern continues?

b) How long will his hair be in July?



PREVIEW

Patterning Word Problem – Overdue Book

Questions

Follow the problem-solving steps below

- Read the problem carefully Underline important information Draw pictures
 Create a table or chart Solve the problem Check your answer

Berlin checked out a book at her library. She hasn't returned it yet and is worried about late fees. If she returns it one day late, it costs an extra 1¢. If she brings it back 2 days late, it will cost 2¢ and on the third day late, it is 4¢. After that, it will cost 8¢ and the pattern will continue.

a) How much will Berlin have to pay if she brings back the book 7 days late?



b) Whoops, Berlin didn't bring back the book for 12 days! How much will it cost her?

Patterning Word Problem - Toothpicks

Questions

Follow the problem-solving steps below

- Read the problem carefully
 Underline important information
 Draw pictures
 Create a table or chart
 Solve the problem
 Check your answer

Juan uses toothpicks to make a pattern. Each line is a toothpick.



Figure 1



Figure 2

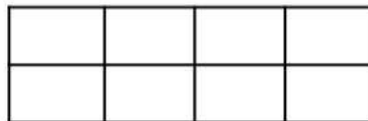


Figure 3

a) How many toothpicks will Juan need to make figure 4?

b) Juan thinks he will need 55 toothpicks to make the 10th figure. Is he right? Explain.



Life Expectancy Pattern

Questions

Answer the questions below



Life expectancy is the average period of time that a person may expect to live. Canada ranks 16th in the world for life expectancy at 82.66 years. Since 1950, Canadians can expect to live 14 years longer.

Check out the historical life expectancy data below.



Year	1950	1960	1970	1980	1990	2000	2010	2020
Life Expectancy	70	72	74	76	78	80	82	82

a) Describe the pattern of life expectancy in Canada over the last 70 years.

b) What do you predict the life expectancy will be in 2030?

c) What do you predict the life expectancy will be in the year 2050?

d) Why do you think the life expectancy rises over time?

Sockeye Salmon - Patterns



Questions

Answer the questions below

The number of sockeye salmon in the Fraser River has been estimated since the year 1940. The estimates have been displayed in the graph below. Fill in the table to represent the data from the graph.

Year	1940	1950	1960	1970	1980	1990	2000	2010	2020
Number of Sockeye in millions									



1)	Describe the pattern of number of sockeye salmon in the Fraser River since 1940.	
2)	If the pattern continues, how many sockeye salmon will be in the Fraser River in the year 2030?	
3)	If the pattern continues, how many sockeye salmon will be in the Fraser River in the year 2120?	

Algebra Quiz - Patterning

Part 1

Fill in the input/output tables below

Rule: add 5

In	Out
7	
1	
	28
	41

Rule: subtract 3

In	Out
12	
	16
	23
47	

Rule: multiply by 6

In	Out
4	
	42
9	

Rule: divide by 4

In	Out
20	
	7
32	
	10

Part 2

Follow the rule to extend the growing/shrinking patterns

1) (Add 5)

13, 18, 23, _____, _____, _____

2) (Add 7)

23, 30, 37, _____, _____, _____

3) (Subtract 6)

57, 51, 45, _____, _____, _____

4) (Subtract 12)

82, 70, 58, _____, _____, _____

5) (Multiply by 2)

3, 6, 12, _____, _____, _____

6) (Divide by 2)

160, 80, 40, _____, _____, _____

Part 3

T-Tables

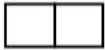
Term Number	Term Value
1	4
2	8
3	12

+
+
+
+
+

Term Number	Term Value
1	89
2	79
3	69
4	
5	
6	

-
-
-
-
-

Figure 1



1) Figure 1

Figure 2

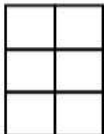


Figure 3




Figure 4

Figure	Term Value
1	
2	
3	

Part 4

Solve the word problem below. Show your work!

If you read 2 books on Monday, 4 books on Tuesday, 6 books on Wednesday, how many books would you read on Sunday if the pattern continued?

How many days would it take you to read 132 books?

Pre-Algebra – Balancing Addition Equations

Balance the scales by putting the same amount of circles on each scale

Answer: Add 6 circles to the scale to make them equal.



$$\boxed{3} + \boxed{6} = \boxed{9}$$

Question: How many balls do you need to add to balance the scales?



$$\boxed{8} + \boxed{} = \boxed{11}$$



$$\boxed{6} + \boxed{} = \boxed{9}$$



$$\boxed{8} + \boxed{} = \boxed{14}$$



$$\boxed{5} + \boxed{} = \boxed{9}$$



$$\boxed{7} + \boxed{} = \boxed{12}$$



$$\boxed{2} + \boxed{} = \boxed{13}$$



$$\boxed{6} + \boxed{} = \boxed{10}$$



$$\boxed{3} + \boxed{} = \boxed{14}$$



$$\boxed{1} + \boxed{} = \boxed{12}$$

Addition – Are They Equal?

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

$5 + 3 = 8$

$21 + 10 \neq 30$

$17 + 11 = 28$

Questions

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

	2) $20 + 10 = 30$	3) $36 + 5 = 41$
4) $23 + 6 = 30$	5) $12 + 13 = 40$	6) $10 + 40 = 50$
7) $41 + 9 = 49$	8) $12 + 7 = 50$	9) $38 + 7 = 45$
10) $28 + 12 = 30$	11) $34 + 11 = 45$	12) $12 + 15 = 28$
13) $36 + 14 = 50$	14) $28 + 14 = 32$	15) $46 + 3 = 49$
16) $18 + 20 = 48$	17) $42 + 8 = 50$	18) $16 + 16 = 31$
19) $20 + 30 = 45$	20) $39 + 9 = 48$	21) $22 + 23 = 44$

Pre-Algebra – Balancing Addition Equations

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

$$\begin{array}{c} 10 \\ \wedge \\ 3 + 7 = \boxed{10} \end{array}$$

Examples:

$$\begin{array}{c} 30 \\ \wedge \\ 24 + 6 = \boxed{30} \end{array}$$

Questions

Fill in the missing number to balance the equation

1) $15 + \boxed{} = \boxed{}$

2) $23 + 6 = \boxed{}$

3) $34 + 5 = \boxed{}$

4) $12 + \boxed{} = \boxed{} + 9 = 28$

6) $26 + \boxed{} = 40$

7) $\boxed{} + 6 = 28$

8) $\boxed{} + 17 = 31$ $\boxed{} + 33 = 50$

10) $35 + 13 = \boxed{}$

11) $22 + \boxed{} = 32$ $\boxed{} + 10 = 40$

13) $24 + \boxed{} = 31$

14) $26 + 12 = \boxed{}$

15) $40 + \boxed{} = 50$

16) $26 + \boxed{} = 42$

17) $35 + 15 = \boxed{}$

18) $13 + \boxed{} = 25$

19) $44 + \boxed{} = 52$

20) $18 + 22 = \boxed{}$

21) $41 + \boxed{} = 50$

Word Problems: Balancing Addition Equations**Questions**

Solve the word problems below

	Word Problems - Balancing Addition Equations	Answers
1	An aquarium has x fish. After 2 new fish are added, there are 9 fish swimming in the tank. What was the original number of fish?	
2	Thomas has x beads on his necklace. He adds 5 more beads and now has 12 beads. How many beads were on Thomas's necklace initially?	
3	Oliver has x pencils in his case. He adds 3 pencils from his friend, and now he has 16 pencils. How many pencils were in Oliver's case to begin with?	
4	Clara bakes x cookies, then bakes 7 more and has 15 cookies total. How many cookies did Clara bake first?	
5	Sam has a bag with x marbles. He finds 4 more marbles, and now he has 13 marbles altogether. How many marbles were in the bag initially?	
6	Leah has x stickers. Her friend gives her 7 stickers, and now Leah has 20 stickers. How many stickers did Leah start with?	

Exit Cards

Cut Out

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

Name: _____

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

1) $16 + 13 = 27$

2) $47 + 16 = 63$

2. Fill in the missing number to balance the equation.

1) $28 + 7 = \square$

2) $\square + 19 = 76$

Name: _____

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

1) $16 + 13 = 27$

2) $47 + 16 = 63$

2. Fill in the missing number to balance the equation.

1) $28 + 7 = \square$

2) $\square + 19 = 76$

Name: _____

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

1) $16 + 13 = 27$

2) $47 + 16 = 63$

2. Fill in the missing number to balance the equation.

1) $28 + 7 = \square$

2) $\square + 19 = 76$

Name: _____

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

1) $16 + 13 = 27$

2) $47 + 16 = 63$

2. Fill in the missing number to balance the equation.

1) $28 + 7 = \square$

2) $\square + 19 = 76$

Addition – Which Equation Matches?

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

Example

$12 + 11$

$14 + 9$

$19 + 5$



Question Circle the equation that matches the shaded in equation

1)	$17 + 8$	$22 + 4$	$13 + 12$
2)	$16 + 12$	$21 + 12$	$15 + 14$
3)	$21 + 8$	$19 + 11$	$17 + 12$
4)	$25 + 10$	$15 + 15$	$12 + 12$
5)	$31 + 11$	$35 + 7$	$22 + 22$
6)	$35 + 12$	$40 + 6$	$25 + 22$
7)	$41 + 23$	$30 + 32$	$32 + 32$

Addition – Using Symbols

When we do not know the value of an addend in a question, we can use any symbol to replace the unknown.



Part 1

Find out the value of the symbol

1) $67 + \triangle = 111$ $\triangle =$	2) $33 + \bullet = 58$ $\bullet =$	3) $\bullet + 61 = 97$ $\bullet =$
4) $47 + \blacklozenge = 82$ $\blacklozenge =$	5) $\blacklozenge + 6 = 76$ $\blacklozenge =$	6) $72 + \bullet = 105$ $\bullet =$
7) $\blacklozenge + 105 = 150$ $\blacklozenge =$	8) $140 + \blacklozenge + 172 = 181$ $\blacklozenge =$	

Part 2

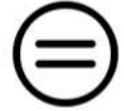
Write your own questions using any symbol you want. Then get a friend to answer.

1)	2)
----	----

Addition – Find the Variable

A **variable** is a letter that represents an unknown number. When we don't know a number, we can use a letter to take the place of the unknown number.

Example: $8 + n = 15$



We can figure out the unknown number by balancing the equation. In this equation, $n = 7$.

Question Find out the value of the variable

$n + 7 = 12$ $n =$	$n + 5 = 12$ $n =$	$22 + n = 30$ $n =$
$18 + 12 = p$ $p =$	$15 + 12 = p$ $p =$	$p + 13 = 30$ $p =$
$15 + y = 30$ $y =$	$y + 14 = 30$ $y =$	$10 + 35 = y$ $y =$
$38 + t = 45$ $t =$	$14 + t = 33$ $t =$	$40 + t = 50$ $t =$
$14 + a = 22$ $a =$	$35 + a = 50$ $a =$	$50 + a = 50$ $a =$
$12 + 16 = s$ $s =$	$21 + s = 43$ $s =$	$33 + s = 46$ $s =$

Using Variables to Solve Addition Equations

There are some instances where we know the values of variables and need to plug them into an equation. For example:

$$a + b + c = ?$$

$$5 + 3 + 7 = 15$$

$$a = 5$$

$$b = 3$$

$$c = 7$$



Question

Find out the value of the variable

$a + b + c = 8$ $c = 6$ _____ + _____ = _____	$n + y + t =$ $n = 8$ $y = 10$ $t = 5$ _____ + _____ + _____ = _____
$c + r + p =$ $c = 4$ $r = 4$ _____ + _____ + _____ = _____	$h + k =$ $g = 8$ $h = 4$ $k = 2$ _____ + _____ = _____
$e + c + g =$ $e = 3$ $c = 7$ $g = 10$ _____ + _____ + _____ = _____	$a + b + c =$ $a = 8$ $b = 8$ $c = 3$ _____ + _____ + _____ = _____
$a + b + c =$ $a = 15$ $b = 12$ $c = 12$ _____ + _____ + _____ = _____	$n + y + t =$ $n = 5$ _____ + _____ + _____ = _____
$c + r + p =$ $c = 14$ $r = 8$ $p = 10$ _____ + _____ + _____ = _____	$g + h + k =$ $g = 18$ $h = 12$ $k = 10$ _____ + _____ + _____ = _____
$e + c + g =$ $e = 16$ $c = 15$ $g = 11$ _____ + _____ + _____ = _____	$a + b + c =$ $a = 25$ $b = 15$ $c = 10$ _____ + _____ + _____ = _____

Exit Cards

Cut Out

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

Name: _____

Solve these addition equations using the variables.

1) $n + y + t =$ $n = 6$ $y = 19$ $t = 5$

_____ + _____ + _____ = _____

2) $g + h + k =$ $g = 8$ $h = 13$ $k = 11$

_____ + _____ + _____ = _____

3) $a + b + c =$ $a = 12$ $b = 18$ $c = 16$

_____ + _____ + _____ = _____

Name: _____

Solve these addition equations using the variables.

1) $n + y + t =$ $n = 6$ $y = 19$ $t = 5$

_____ + _____ + _____ = _____

2) $g + h + k =$ $g = 8$ $h = 13$ $k = 11$

_____ + _____ + _____ = _____

3) $a + b + c =$ $a = 12$ $b = 18$ $c = 16$

_____ + _____ + _____ = _____

Name: _____

Solve these addition equations using the variables.

1) $n + y + t =$ $n = 6$ $y = 19$ $t = 5$

_____ + _____ + _____ = _____

2) $g + h + k =$ $g = 8$ $h = 13$ $k = 11$

_____ + _____ + _____ = _____

3) $a + b + c =$ $a = 12$ $b = 18$ $c = 16$

_____ + _____ + _____ = _____

Name: _____

Solve these addition equations using the variables.

1) $n + y + t =$ $n = 6$ $y = 19$ $t = 5$

_____ + _____ + _____ = _____

2) $g + h + k =$ $g = 8$ $h = 13$ $k = 11$

_____ + _____ + _____ = _____

3) $a + b + c =$ $a = 12$ $b = 18$ $c = 16$

_____ + _____ + _____ = _____

Part Part Whole – Numbers to 20**Questions**

How do the parts below equal the whole at the top

1)

11	

2)

14	
	8

3)

4)

6	5

5)

12	
7	

6)

17	

7)

10	5

8)

18	
12	

9)

14	
8	

10)

12	8

PREVIEW

Part Part Whole – Numbers to 100

Questions

How do the parts below equal the whole at the top

1)

44	
10	

$$= 44$$

2)

61	
	8

$$+ 8 = 61$$

3)

$$+ 7 = 72$$

4)

23	31

$$23 + 31 =$$

5)

53	
39	

$$39 + = 53$$

6)

76	

$$= 76$$

7)

43	18

$$43 + 18 =$$

8)

82	
22	

$$22 + = 82$$

9)

93	
15	

$$15 + = 93$$

10)

67	24

$$67 + 24 =$$

Part Part Whole – Numbers to 1000**Questions**

How do the parts below equal the whole at the top

1)

320	
85	

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

2)

475	
	60

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

3)

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

4)

250	250

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

5)

445	
395	

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

6)

625	

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

7)

750	125

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

8)

715	
685	

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

9)

840	
125	

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

10)

445	405

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

Part Part Part Whole – Numbers to 20**Questions**

How do the parts below equal the whole at the top

1)

12		
3	5	

2)

11		
	2	6

3)

5		

4)

5	5	5

5)

15		
7		4

6)

2		6

7)

10	4	3

8)

17		
11		4

9)

19		
6	6	

10)

20		
11		6

Part Part Part Whole – Numbers to 100**Questions**

How do the parts below equal the whole at the top

1)

18		
6	6	

$$\underline{\quad} = 18$$

2)

25		
	10	8

$$\underline{\quad} + 10 + 8 = 25$$

3)

7		

$$7 + \underline{\quad} + 15 = \underline{\quad}$$

4)

13	15	8

$$13 + 15 + 8 = \underline{\quad}$$

5)

57		
11	18	

$$11 + 18 + \underline{\quad} = 57$$

6)

2	2	17

$$25 + 17 + \underline{\quad} = \underline{\quad}$$

7)

23	18	25

$$23 + 18 + 25 = \underline{\quad}$$

8)

78		
35		24

$$35 + \underline{\quad} + 24 = 78$$

9)

86		
61		15

$$61 + \underline{\quad} + 15 = 86$$

10)

99		
22		44

$$22 + \underline{\quad} + 44 = 99$$

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 love making 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 both have?

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



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?

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

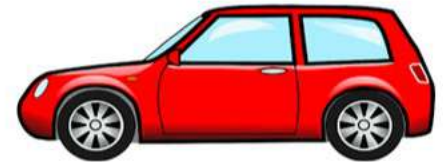


Word Problems – Writing Addition Equations

Questions

Answer the questions below – Write the addition equation sentences

1) Tim drove 31km to get to work. Then he drove to the store. When he got to the store, he had driven 58 km in total. How many km did he drive to the store?



2) Steve got 25 points for beating level 1 in a video game. He got 33 more points for beating level 2. How many points did he have after level 2?



Bonus – He had 78 total points after beating level 2. How many points did he get in level 3?

3) In badminton, Jessica and Erin won their game. They scored 21 points and their opponents only scored 16. Jessica scored 13 of the 21 points. How many points did Erin score?



Pre-Algebra – Balancing Subtraction Equations

Balance the scales by taking away circles from the scale

Answer: take 4 circles from the scale to make them equal.



$$7 - 4 = 3$$

Question: How many balls do you need to take away to balance the scales?



$$11 - \square = 8$$



$$8 - \square = \square$$



$$10 - \square = 4$$



$$8 - \square = 1$$



$$11 - \square = 3$$



$$13 - \square = 2$$



$$10 - \square = 4$$



$$14 - \square = 1$$



$$4 - \square = 0$$

Pre-Algebra – Balancing Subtraction Equations

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

$$\begin{array}{c} 9 \\ \wedge \\ 15 - 6 = \boxed{9} \end{array}$$

Examples:

$$\begin{array}{c} 21 \\ \wedge \\ 27 - 6 = \boxed{21} \end{array}$$

Questions

Fill in the missing number to balance the equation

1) $15 - \boxed{} =$

2) $11 - 6 = \boxed{}$

3) $10 - 5 = \boxed{}$

4) $10 - \boxed{} = 5$

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

6) $14 - \boxed{} = 10$

7) $\boxed{} - 6 = 10$

8) $\boxed{} - 5 = 12$

9) $\boxed{} - 8 = 12$

10) $35 - 10 = \boxed{}$

11) $52 - \boxed{} = 40$

12) $20 - \boxed{} = 10$

13) $24 - \boxed{} = 17$

14) $28 - 6 = \boxed{}$

15) $18 - \boxed{} = 16$

16) $43 - \boxed{} = 35$

17) $45 - 15 = \boxed{}$

18) $25 - \boxed{} = 10$

19) $46 - \boxed{} = 31$

20) $25 - 21 = \boxed{}$

21) $45 - \boxed{} = 10$

Word Problems: Balancing Subtraction Equations

Questions

Solve the word problems below

	Word Problems Balancing Subtraction Equations	Answers
1	At a bake sale, there are x cupcakes. If 5 cupcakes are sold and there are 10 left, how many were there to start with?	
2	There are n pencils in a box. After giving away 7 pencils to classmates, there are 10 pencils left. How many pencils were in the box originally?	
3	There were 28 balloons at the party. After a certain number of balloons popped, and now there are 15 balloons left. How many balloons popped?	
4	Alex had x dollars saved up. He bought a book for \$12 and now has \$9 left. How much money did Alex have at first?	
5	Chloe has 13 storybooks. She donates n number of books to a library and still has 7 books. How many books did Chloe have at first?	
6	Ava collected x seashells on the beach. She gave 10 to her friend and has 5 left. How many seashells did she collect at first?	
7	Omar had y stickers. After trading away 9 stickers, he has 14 stickers remaining. How many stickers did Omar have to begin with?	

Subtraction - Which Equation Matches?

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

Example

$19 - 8$

$15 - 4$

$21 - 9$



Question

Circle the equation that matches the shaded in equation

1)

$25 - 9$

$21 - 9$

$19 - 6$

2)

$33 - 11$

$20 - 8$

$30 - 8$

3)

$41 - 7$

$50 - 12$

$48 - 13$

4)

$47 - 20$

$31 - 5$

5)

$58 - 13$

$65 - 20$

$63 - 19$

6)

$89 - 14$

$80 - 15$

$90 - 15$

7)

$110 - 10$

$109 - 8$

$113 - 13$

Subtraction – Using Symbols

**Part 1**

Find out the value of the symbol

1) $\bullet - 30 = 8$ $\bullet =$	2) $51 - \blacktriangle = 29$ $\blacktriangle =$	3) $95 - \bullet = 65$ $\bullet =$
4) $\blacktriangle - 42 = 7$ $\blacktriangle =$	5) $\blacklozenge - 20 = 47$ $\blacklozenge =$	6) $120 - 70 = \blacklozenge$ $\blacklozenge =$
7) $133 - \blacktriangle = 70$ $\blacktriangle =$	8) $\bullet - 45 = 12$ $\bullet =$	9) $189 - \bullet = 151$ $\bullet =$

Part 2

Write your own questions using any symbol you like. You can get help from the symbols above to answer.

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: _____

Find out the value of the symbol.

1) $\bullet - 56 = 8$

$\bullet =$

2) $39 - \blacktriangle = 29$

$\blacktriangle =$

3) $76 - 25 = \blacklozenge$

$\blacklozenge =$

4) $183 - 32 = \bullet$

$\bullet =$

Name: _____

Find out the value of the symbol.

1) $\bullet - 56 = 8$

$\bullet =$

2) $39 - \blacktriangle = 29$

$\blacktriangle =$

3) $76 - 25 = \blacklozenge$

$\blacklozenge =$

4) $183 - 32 = \bullet$

$\bullet =$

Name: _____

Find out the value of the symbol.

1) $\bullet - 56 = 8$

$\bullet =$

2) $39 - \blacktriangle = 29$

$\blacktriangle =$

3) $76 - 25 = \blacklozenge$

$\blacklozenge =$

4) $183 - 32 = \bullet$

$\bullet =$

Name: _____

Find out the value of the symbol.

1) $\bullet - 56 = 8$

$\bullet =$

2) $39 - \blacktriangle = 29$

$\blacktriangle =$

3) $76 - 25 = \blacklozenge$

$\blacklozenge =$

4) $183 - 32 = \bullet$

$\bullet =$

Subtraction – Find the Variable

A **variable** is a letter that represents an unknown number. When we don't know a number, we can use a letter to take the place of the unknown number.

Example: $18 - n = 5$

We can figure out the unknown number by balancing the equation. In this equation, $n = 13$.

Question Find out the value of the variable

$18 - n = 5$ $n =$	$n - 5 = 5$ $n =$	$22 - n = 10$ $n =$
$25 - 10 = p$ $p =$	$10 - p = 5$ $p =$	$p - 8 = 15$ $p =$
$31 - y = 30$ $y =$	$y - 14 = 5$ $y =$	$55 - 35 = y$ $y =$
$65 - t = 50$ $t =$	$28 - t = 20$ $t =$	$59 - t = 5$ $t =$
$24 - a = 17$ $a =$	$50 - a = 30$ $a =$	$63 - a = 50$ $a =$
$76 - 30 = s$ $s =$	$62 - s = 22$ $s =$	$51 - s = 39$ $s =$

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) Ken 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?

$b - 4 = 18$	$18 - 4 = b$
$b = 4$	$4 - b = 18$



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?

$73 - s = 60$	$73 - 60 = s$
$s - 60 = 73$	$73 = 60$

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

Questions

Answer the questions below. Write the subtraction equation sentences

1) Mrs. Wilson had 64 pencils at the start of the school year. She gave all the kids in her class one pencil. She now has 36 pencils. How many students are in Mrs. Wilson's class?

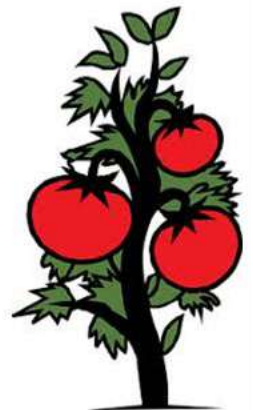


2) Hudson saved 95 dollars and bought a new toy for 26 dollars. How many dollars does he have left?



Bonus: He saved 15 more dollars. Can he buy a new game for 100 dollars?

3) The grade 4 class planted 149 tomato seeds but only 37 tomato plants grew. How many plants did not grow?



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.

- Plastic bottles (one per pair/group) filled to approximately one-third with water
- (or use cups)
- Set of subtraction algebra cards
- Answer sheet for each group

Instructions

How you will complete the activity.

1. Start with a short lesson on one-step subtraction algebra problems, using examples like $x - 3 = 4$.
2. Arrange the students into pairs or small groups and give each a bottle and a set of question cards to each.
3. Each pair or group receives an answer sheet to record answers.
4. Explain the rules: One student draws a question card and tries to solve the subtraction algebra problem.
5. Once they believe they have the correct answer, they write it down on their answer sheet.
6. The student then gets to attempt a bottle flip. A successful flip means they can move on to the next question; an unsuccessful flip means they need to try to solve another question card before flipping again.
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.
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

$x - 4 = 12$

$y - 3 = 15$

$z - 2 = 20$

$a - 5 = 25$

$b - 6 = 24$

$c - 7 = 23$

$d - 8 = 32$

$e - 9 = 41$

$r - 6 = 54$

$s - 5 = 55$

$t - 7 = 73$

$u - 8 = 82$

$v - 12 = 48$

$w - 11 = 49$

$x - 13 = 87$

$y - 14 = 86$

$z - 1 = 100$

$a - 1 = 99$

$b - 2 = 98$

$c - 3 = 97$

Sam had 30 marbles and lost some. Now he has 15. How many did he lose?

Leah had 24 books and gave some away. Now she has 9. How many did she give away?

Max had 20 cards and traded some away. Now he has 8. How many did he trade?

Chris had 35 pencils and lost some. Now he has 20. How many did he lose?

Dana had 40 stickers and used some. Now she has 12. How many did she use?

Nora had 45 beads and broke some. Now she has 30. How many did she break?

Claire had some candies. She eats 12 and now has 20 left. How many did she have to start with?

Emma had a certain number of toy cars. She lost 8 of them and now she has 16 left. How many did she have before?

Sophie had a number of pencils. She gave 7 to her friend and now has 28 left. How many pencils did Sophie start with?

Mia had a bunch of grapes. She ate 20 grapes and now has 35 left. How many grapes were there in the bunch initially?

Questions

Cut out the questions below and use for the game

Lucas had some stickers. He gave away 15 and now has 30 left. How many stickers did he have at first?

Aiden had some balloons. 10 balloons popped and now he has 25 left. How many balloons did Aiden have at first?

Oliver collected some seashells. He gave 14 to his sister and now has 21 left. What was the original number of seashells Oliver had?

Ethan had some trading cards. He traded away 18 and now has 40 left. How many trading cards did Ethan have at the beginning?

Harper had some pages left to read in her book. After reading 32 pages, she has 48 pages left. How many pages were in her book?

If there are 60 bees, and 15 fly away, 49 are left. How many flew away?

If you have 100 coins, spend 15 and 86 remain. How many were spent?

If you have 100 pencils, and 49 are left. How many broke?

Start with 100 toys, donate 41 and 41 are left. How many were donated?

If there are 100 days left of school, and 13 are left. How many days have gone by?

There are 100 marbles, 34 go missing, and 66 are left. How many went missing?

If you have 100 pencils, and 49 are left. How many broke?

Find the missing number:
 $___ - 15 = 65$

Solve for x:
 $x - 4 = 44$

What is y if
 $y - 3 = 57$?

What is z if
 $z - 5 = 55$?

Name: _____

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Algebraic Bottle Flip Challenge

Answers Record your answers below

1		13		25	
2		14		26	
3		15		27	
4				28	
5				29	
6		18			
7		19		31	
8		20		32	
9		21		33	
10		22		34	
11		23		35	
12		24		36	

PREVIEW

Multiplication – Are They Equal?

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

$2 \times 2 \neq 5$

$3 \times 3 = 9$

$5 \times 2 \neq 11$

Questions

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

1) $10 \times 3 = 30$	2) $10 \times 3 = 30$	3) $2 \times 3 = 5$
4) $5 \times 5 = 25$	5) $2 \times 2 = 8$	6) $3 \times 5 = 16$
7) $10 \times 2 = 12$	8) $5 \times 5 = 50$	9) $5 \times 4 = 20$
10) $10 \times 10 = 90$	11) $2 \times 7 = 14$	12) $2 \times 2 = 4$
13) $10 \times 4 = 40$	14) $5 \times 1 = 10$	15) $10 \times 6 = 16$
16) $2 \times 10 = 20$	17) $5 \times 8 = 40$	18) $3 \times 10 = 30$
19) $2 \times 7 = 14$	20) $7 \times 5 = 30$	21) $10 \times 4 = 40$

Pre-Algebra – Balancing Multiplication Equations

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

$$\begin{array}{c} 15 \\ \swarrow \quad \searrow \\ 5 \times \boxed{3} = 15 \end{array}$$

Examples:

$$\begin{array}{c} 6 \\ \swarrow \quad \searrow \\ 2 \times \boxed{3} = 6 \end{array}$$

Questions

Fill in the missing number to balance the equation

1) 5

2) $10 \times 3 = \boxed{}$

3) $10 \times \boxed{} = 40$

4) $3 \times \boxed{} = 6$

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

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

7) $5 \times 10 = \boxed{}$

8) $2 \times \boxed{} = 10$

9) $5 \times \boxed{} = 20$

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

11) $2 \times \boxed{} = 8$

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

13) $10 \times \boxed{} = 60$

14) $2 \times 9 = \boxed{}$

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



Question

Circle the equation that matches the shaded in equation

1) 5×2

10×1

6×2

2) 6×3

2×9

3) 5×4

10×2

6×3

4) 8×2

4×4

5) 9×4

7×5

6×6

6) 10×3

7×5

6×5

7) 8×3

6×4

7×3

Multiplication – Using Symbols

**Part 1**

Find out the value of the symbol

1) $\bullet \times 3 = 12$ $\bullet =$	2) $5 \times \blacktriangle = 45$ $\blacktriangle =$	3) $4 \times \bullet = 32$ $\bullet =$
4) $\blacktriangle \times 9 =$ $\blacktriangle =$	5) $\blacklozenge \times 4 = 44$ $\blacklozenge =$	6) $7 \times 10 = \blacklozenge$ $\blacklozenge =$
7) $2 \times \blacktriangle = 60$ $\blacktriangle =$	8) $\bullet \times 5 = 25$ $\bullet =$	9) $10 \times \bullet = 150$ $\bullet =$

Part 2

Write your own questions using any symbol you want. In your question, give the number and the answer.

1)	2)
3)	4)

Activity – Equation Explorers

Objective

What are we learning about?

To help students understand and solve one-step equations using symbols to represent unknown values.



Materials: What you will need for the activity.

- Small white sheets of paper
- Dry erase marker or pencil
- A set of equation cards (one-step equations like $3n = 6$)
- Tokens or small rewards

Instructions

How you will complete the activity

1. Begin the activity by explaining what a one-step equation is and demonstrate a few examples on the board. Explain that the symbol x (or n) stands for an unknown value that we need to find.
2. Distribute a paper and pencil to each student.
3. Hand out one equation card to each student. Ensure the questions are challenging but remain simple enough to solve in one step.
4. Give the students a few minutes to solve the equation on their cards, writing the solution on their paper.
5. Once everyone has a solution, ask students to swap their boards or papers with a partner to check each other's work.
6. Discuss as a class some of the solutions, especially any that were tricky or where mistakes were made, to clarify the correct methods.
7. For correctly solved equations, award tokens or small rewards to encourage participation and effort.

Multiplication Equations

Cut out the questions below and distribute to each student.

$12a = 36$

$11b = 44$

$15c = 45$

$13d = 52$

$14e = 56$

$16f = 64$

$17h = 68$

$19i = 76$

$12j = 48$

$13k = 39$

$11l = 33$

$15m = 60$

$20n = 80$

$21o = 63$

$22p = 66$

$25q = 75$

$24r = 72$

$23s = 46$

$19t = 57$

$16v = 64$

$17w = 51$

$14x = 42$

$13y = 39$

$21z = 84$

$22a = 44$

$20b = 100$

$12c = 36$

$15d = 75$

PREVIEW

Pre-Algebra – Balancing Division Equations

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

$$\begin{array}{c} 5 \\ \diagdown \quad \diagup \\ 15 \div 3 = \boxed{5} \end{array}$$

Examples:

$$\begin{array}{c} 5 \\ \diagdown \quad \diagup \\ \boxed{10} \div 2 = 5 \end{array}$$

Questions

Fill in the missing number to balance the equation

1) $8 \div \boxed{} = \boxed{}$

2) $6 \div 3 = \boxed{}$

3) $10 \div \boxed{} = 5$

4) $6 \div \boxed{} = 2$

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

6) $\boxed{} \div 2 = 2$

7) $5 \div 1 = \boxed{}$

8) $20 \div \boxed{} = 2$

9) $15 \div \boxed{} = 3$

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

11) $25 \div \boxed{} = 5$

12) $30 \div 6 = \boxed{}$

13) $10 \div \boxed{} = 2$

14) $18 \div 2 = \boxed{}$

Division – Which Equation Matches?

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

$12 \div 4$

Example

$9 \div 3$

$16 \div 4$



Question Circle the equation that matches the shaded in equation

1)

$10 \div 2$

$5 \div 1$

$12 \div 6$

2)

$6 \div 3$

$10 \div 2$

$12 \div 6$

3)

$16 \div 4$

$14 \div 7$

$28 \div 7$

4)

$25 \div 5$

$10 \div 2$

5)

$8 \div 2$

$15 \div 3$

$16 \div 4$

6)

$18 \div 3$

$30 \div 5$

$42 \div 6$

7)

$24 \div 6$

$49 \div 7$

$40 \div 10$

Using Variables to Solve Division Equations

There are some instances where we know the values of variables and need to plug them into an equation. For example:

$$a \div b = c$$

$$a = 8$$

$$b = 2$$

$$8 \div 2 = c$$

$$c = 4$$



Question Find out the value of the variable

$$a \div b = c$$

$$\underline{\quad} \div \underline{\quad} = c$$

$$c =$$

$$e \div n = f$$

$$e = 10 \quad n = 2$$

$$\underline{\quad} \div \underline{\quad} = f$$

$$f =$$

$$r \div y = k$$

$$r = 6 \quad y =$$

$$\underline{\quad} \div \underline{\quad} = k$$

$$k =$$

$$t \div g = h$$

$$t = 10 \quad g = 5$$

$$\underline{\quad} \div \underline{\quad} = h$$

$$h =$$

$$a \div b = c$$

$$a = 15 \quad b = 5$$

$$\underline{\quad} \div \underline{\quad} = c$$

$$c =$$

$$e \div n = f$$

$$e = \quad n = 2$$

$$\underline{\quad} \div \underline{\quad} = f$$

$$f =$$

$$r \div y = k$$

$$r = 12 \quad y = 6$$

$$\underline{\quad} \div \underline{\quad} = k$$

$$k =$$

$$t \div g = h$$

$$t = 12 \quad g =$$

$$\underline{\quad} \div \underline{\quad} = h$$

$$h =$$

$$a \div b = c$$

$$a = 20 \quad b = 5$$

$$\underline{\quad} \div \underline{\quad} = c$$

$$c =$$

$$e \div n = f$$

$$e = 30 \quad n = 10$$

$$\underline{\quad} \div \underline{\quad} = f$$

$$f =$$

$$r \div y = k$$

$$r = 18 \quad y = 2$$

$$\underline{\quad} \div \underline{\quad} = k$$

$$k =$$

$$t \div g = h$$

$$t = 25 \quad g = 5$$

$$\underline{\quad} \div \underline{\quad} = h$$

$$h =$$

Division – Bar Model**Questions**

Use the bar model to answer the division questions below

1) $48 \div 8$

48							

2) $36 \div 4$

36					

3) $36 \div 9$

36					

4) $80 \div 10$

80									

5) $24 \div 4$

24					

6) $30 \div 5$

30					

7) $42 \div 7$

42						

8) $72 \div 9$

72								

9) $49 \div 7$

49						

10) $48 \div 4$

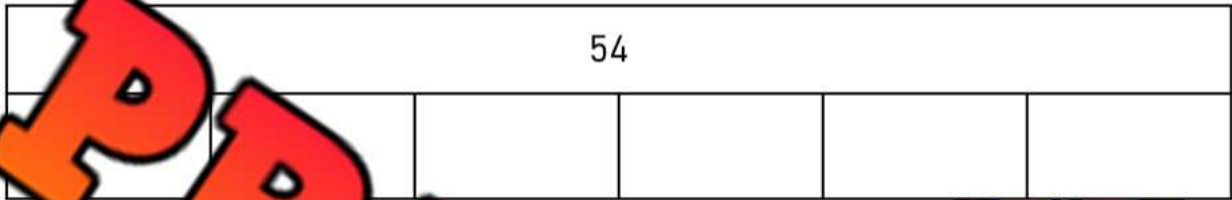
48					

Division Word Problems – Bar Model

Questions

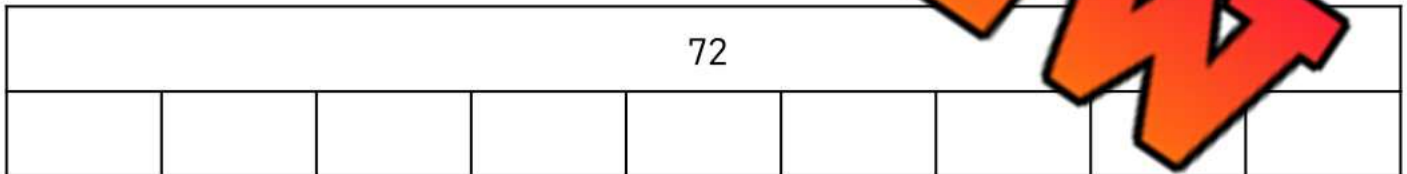
Use the bar model to answer the division questions below

1) Courtney has 54 candies to give away to her 6 friends. How many candies will each friend get?



Division Equation Sentence: _____

2) Haley has \$72 to spend on vacation. She is making a budget to find out how much she can spend each day. She is on vacation for 8 days. How much money can she spend each day?



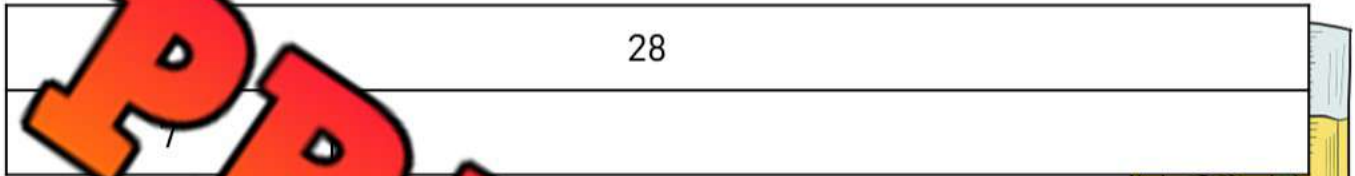
Division Equation Sentence: _____ ÷ _____ = _____

Division Word Problems – Bar Model

Questions

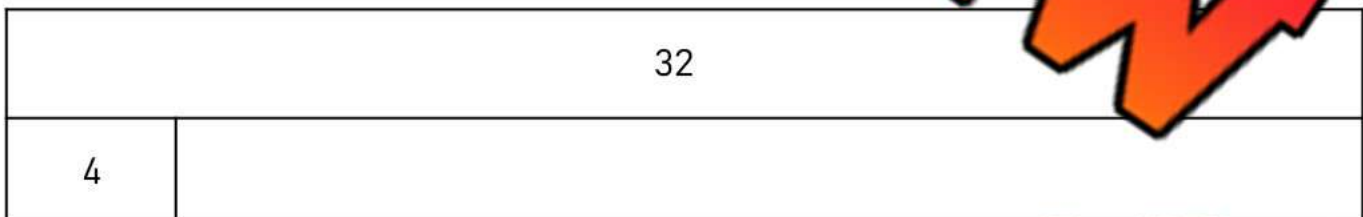
Use the bar model to answer the division questions below

1) Alex and her friends made \$28 selling lemonade. She split the \$28 equally between her and her friends. How many friends got paid \$7?



Division Equation Sentence: _____

2) Justin has 32 candies. He gives 4 candies to _____ of _____ friends. How many friends did Justin give candies to?



Division Equation Sentence: _____ ÷ _____ = _____

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 materials will need for the activity.

- Jeopardy board and questions
- 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
$5p = 30$. Find p .	$x + 7 = 12$. What is x ?	If $4n$ is 24, what is n ?	$3m - 5 = 7$. Solve for m .	Sophia's sister is 30 years old. She is 4 years older than twice Sophia's age. How old is Sophia?
$6q = 18$. Find q .	$2 = 5 + w$. What is w ?	8 is $2k$. What is k ?	$2b + 6 = 16$. Solve for b .	Mia has 3 times as many marbles as Lily. Together they have 32 marbles. How many does Lily have?
$10r = 40$. What is r ?	$w + 5 = 12$. What is w ?	Three times a number is 15. What is the number?	$4c - 8 = 8$. Find c .	There are 28 apples in a basket. The number of apples is 4 times the number of oranges. How many oranges are there?
$7s = 42$. Solve for s .	$t - 4 = 5$. Find t .	$3j$ is 27. What is j ?	What is $12 - 3$?	Oliver has twice as many cars as Mia. Mia has 12 cars. How many cars does Oliver have?
$8a = 56$. Find a .	$u + 6 = 15$. What is u ?	The product of 7 and a number is 49. What is the number?	$6e - 12 = 24$. Solve for e .	Emma saved \$27. This is 3 times the amount that Ava saved. How much did Ava save?
$9f = 63$. What is f ?	$v - 5 = 11$. What is v ?	If 9 times a number is 81, what is the number?	$7g + 14 = 35$. Find g .	A baker baked 60 cookies. He baked 4 times as many chocolate chip cookies as sugar cookies. How many sugar cookies did he bake?

Algebra Quiz - Equations

Part 1Put a slash through the equal sign (\neq) if it is not balanced

1) $15 + 10 = 25$

2) $40 + 10 = 50$

3) $46 - 5 = 42$

4) $18 \div 3 = 6$

5) $6 \times 4 = 22$

6) $30 \div 3 = 10$

Part 2

Put the missing number in the box to balance the equation

1) $15 + 8 = \square$

3) $9 + \square = 15$

4) $25 + 12 = \square$

5) $\square + 12 = 28$

7) $25 - 8 = \square$

8) $\square - 9 = 12$

10) $28 - 13 = \square$

11) $\square - 12 = 22$

12) $32 - 15 = \square$

13) $\square \times 4 = 20$

14) $10 \times \square = 30$

15) $24 \div \square = 6$

16) $30 \div 6 = \square$

Part 3

Find out the value of the variable

$7 + n = 10$ $n =$	$n - 5 = 5$ $n =$	$2 \times n = 10$ $n =$	$20 \div n = 10$ $n =$
$n + 16 = 22$ $n =$	$n - 3 = 6$ $n =$	$n \times 5 = 15$ $n =$	$12 \div 4 = n$ $n =$

Part 4

Find out the value of the variable

$a + b + c = 8$ ____ + ____ + ____ = 8 $c =$	$n + y + t = 20$ ____ + ____ + ____ = 20 $n = 5$ $y = 10$ $t = 5$
$a - b = c$ ____ - ____ = c $c =$	$e = 26$ $n = 6$ ____ = f
$a \times b = c$ ____ \times ____ = c $c =$	$r \div y = k$ ____ \div ____ = k $k =$

Part 5

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

Alexa saved 34 dollars from her allowance. She was given some money from her grandmother for her birthday. She now has 78 dollars. How much did her grandmother give her?

Part 6

Follow the problem-solving steps below

- Read the problem carefully Underline important information Draw pictures
 Create a table or chart Solve the problem Check your answer

1) Sara has 25 candies to give to her 5 friends. How many candies will each of her friends get?

2) Spencer has 24 marbles. He gives 6 marbles to each of his friends. How many friends got marbles from Spencer?

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3) Sam has 173 stickers. He gives some stickers to his friends. Now he has 141 stickers. How many stickers did he give away?

