



Preview – Information



Thank you for your interest in this product. Within this preview, you will see:

- ✓ **A selection of Ready-To-Use Google Slides Lessons.**
- ✓ **A selection of worksheets included in the workbook.**

When you make a purchase, you will receive a folder that contains the .pdf workbook file and a link to where you can make a copy of the Google Slides Lessons unit to your Google Drive.

Thank you for shopping with us. Please let us know if you have any questions at:

rob@supersimplesheets.com



Google Slides Lessons Preview





Saskatchewan Math Curriculum Patterns & Relations – Grade 5

3-Part Lesson Format

Part 1 – Minds On!

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

LEARNING GOAL

We are learning to find and describe increasing number patterns using addition and multiplication so we can understand how numbers grow and change.

Increasing Patterns - Shapes

Drag the shapes to draw the next line of the increasing pattern.

1) Draw the next line in the pattern. <u>Answer</u>	2) Draw the next line in the pattern. <u>Answer</u>	3) Draw the next line in the pattern. <u>Answer</u>
4) Draw the next line in the pattern. <u>Answer</u>	5) Draw the next line in the pattern. <u>Answer</u>	6) Draw the next line in the pattern. <u>Answer</u>

Legend:

Part 2 – Action!

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

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!

Exit Card: The Case of the Shrinking Supplies

The Problem: At the start of the week, the Art Club had 48 brushes.

Pattern A: Every day, they lose 4 brushes under the furniture.

Pattern B: Every day, the number of brushes is divided by 2 because they are moved to different classrooms.

Your Task:

- Write the next 3 numbers for both Pattern A and Pattern B.
- Which pattern makes the brushes disappear faster?
- Identify the rule for each (e.g., "start at ___ and subtract ___").



Saskatchewan Math Curriculum Patterns & Relations – Grade 5

Growing Number Patterns – 5s

Drag the numbers to complete the number patterns below. 1 2 3 4 5 6 7 8 9 0

32	37	42	—	—	—	—	—
255	260	265	—	—	—	—	—
468	473	478	—	—	—	—	—

Figure 1-Tables by counting the blocks.

1) Blocks

Figure	Term Value
1	
2	
3	
4	

2) Blocks

Figure	Term Value
1	
2	
3	
4	

3) Blocks

Figure	Term Value
1	
2	
3	
4	

4) Blocks

Figure	Term Value
1	
2	
3	
4	

Addition

Circle the expression that matches the shaded expression.

1)	43 + 12	22 + 33	34 + 19
2)	26 + 8	12 + 13	14 + 20
3)	27 + 15	26 + 18	20 + 22
4)	77 + 6	33 + 50	53 + 23
5)	101 + 23	98 + 26	100 + 23
6)	137 + 42	111 + 68	65 + 58



Saskatchewan Math Curriculum Patterns & Relations – Grade 5

Subtraction - Which Equation Matches?

Circle the expression that matches the shaded expression.

1) $28 - 9$	$22 - 12$	$19 - 0$
2) $75 - 7$	$70 - 2$	$74 - 8$
3) $78 - 13$	$86 - 21$	$90 - 22$
4) $108 - 15$	$100 - 17$	$120 - 27$
5) $124 - 23$	$110 - 8$	$113 - 12$
6) $143 - 19$	$150 - 26$	$125 - 7$

Pre-Algebra - Balancing Division Equations

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

Examples: $15 \div 3 = 5$ $6 \div 3 = 2$

Fill in the missing number and balance the equation.

1) $\square \div 3 = 6$	2) $14 \div \square = 2$	3) $\square \div 4 = 5$
4) $\square \div 11 = 3$	5) $\square \div 6 = 7$	6) $100 \div \square = 10$
7) $63 \div \square = 9$	8) $81 \div 9 = \square$	9) $70 \div \square = 7$
10) $\square \div 5 = 11$	11) $49 \div \square = 7$	12) $\square \div 8 = 4$

Fill in the box.

a = 5	2) $b - 9 = 32$ b = 41	3) $35 - c = 15$ c = 20
4) $47 - e = 11$ e = 36	5) $f - 56 = 0$ f = 56	6) $84 - 79 = g$ g = 5
7) $95 - i = 58$ i = 37	8) $j - 88 = 12$ j = 100	9) $k - 23 = 70$ k = 93



Workbook Preview





Grade 5

Patterns and Relations



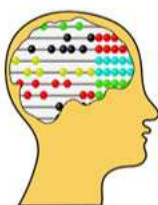
	Curriculum Expectations	Pages
P5.1	Represent, analyse, and apply patterns using mathematical language and notation.	5 – 56
P5.2	Preview of 100 pages from this product that contains 249 pages total.	
TQ	Testes and Quizzes	57- 59, 124 - 126

Name: _____

5

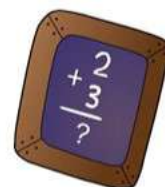
Curriculum Connection
P5.1

Increasing Addition Patterns



Growing/Increasing Patterns

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

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


Part 1

Increasing Patterns - Addition

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

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

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

 $\wedge$
 4) 72, _____, _____, _____

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

 $\wedge$
 6) 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) 55, 61, _____, _____, _____

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 given 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) _____, _____, _____, _____, _____

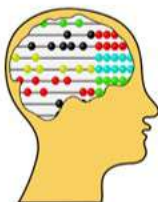
Pattern Rule: Start at 302, add 12 each time

Name: _____

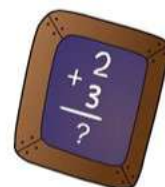
9

Curriculum Connection
P5.1

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

$\wedge$ $\wedge$
 1) 22, 18, 14, _____

$\wedge$ $\wedge$
 2) 46, 40, 34, _____, _____, _____

$\wedge$ $\wedge$
 3) 67, 62, 57, _____, _____, _____

$\wedge$ $\wedge$
 4) 97, _____, _____, _____, _____

$\wedge$ $\wedge$
 5) 141, 135, 129, _____, _____, _____

$\wedge$ $\wedge$
 6) 184, _____, _____, _____, _____

Part 2

Follow the rule by subtracting the next number in the pattern

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, _____, _____, _____

Table of Values - Train

Instructions

Translate the increasing patterns into a table of values

A train has the following people in each train car.



Car 1



Car 3



Car 4



Term Number (Cars)	1	2	4	5	8
Term Value (People)					

1) What is the pattern rule: Start at _____, _____ each time.

2) How many people would be in train car 10?

3) Is there any pattern between the number of cars and the number of people?
Look at your table and look up and down (vertically).

4) How many people would be in train car 50?

Table of Values – Golf Ball

Instructions

Translate the increasing patterns into a table of values



Steven is looking for golf balls in the woods. He finds the following balls each hour.



Hr 1



2



Hr 3



Hr 4



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

1) What is the pattern rule: Start at _____, then _____ each time.

2) How many golf balls would Steven find by hour 12?

3) Is there any pattern between the number of hours and the number of golf balls?
For this problem, you will need two operations (x _____, - _____)

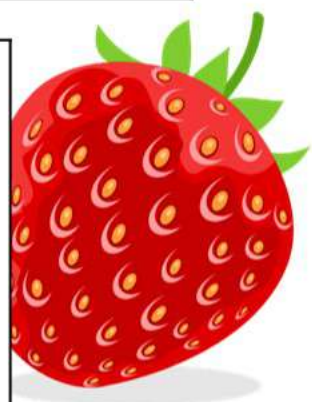
4) How many golf balls would he find by hour 24?

Table of Values - Fruit

Instructions

Translate the growing patterns into a table of values

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

XXXX

XXXXXXXXXX

Day 3

XXXXXXXXXX
XXXXXX

Day 4

XXXXXXXXXX
XXXXXXXXXX
XXXXXX

Day 5

Term Number (Day)	1	2			5	6	10
Term Value (Fruit Pieces)							

1) What is the pattern rule: Start at _____, then _____ each time.

2) How many pieces of fruit would Stacy eat on day 8?

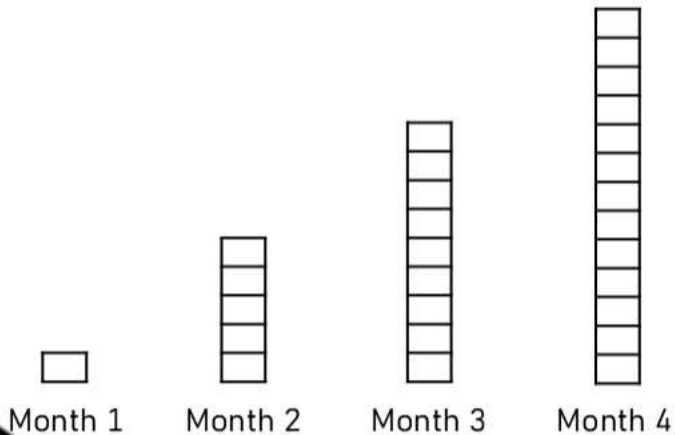
3) Is there any pattern between the number of days and fruit eaten? For this problem, you will need two operations (x _____, - _____)

4) How many pieces of fruit would Stacy eat by day 15?

Table of Values - Reading



Chris puts a rectangle for every book he reads in the first 5 months of school.



Term Number (Month)			5	9
Term Value (Books Read)				

1) What is the pattern rule: Start at _____ each time.

2) How many books would Chris read in month 11?

3) Is there any pattern between the number of months and books read? For this problem, you will need two operations (x _____, - _____)

4) How many books would Chris read in month 15?

Table of Values – Decreasing Patterns

Instructions

Translate each decreasing pattern into a table of values

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

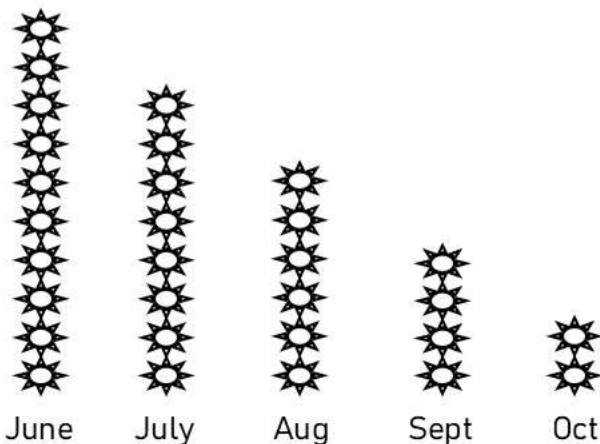


1) What is the pattern rule

2) How many total cookies did she eat in the 5 days?

Term Number (Day)				
Term Value (Cookies)				

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



1) What is the pattern rule

2) How many sunny days in total were there in the 5 months?

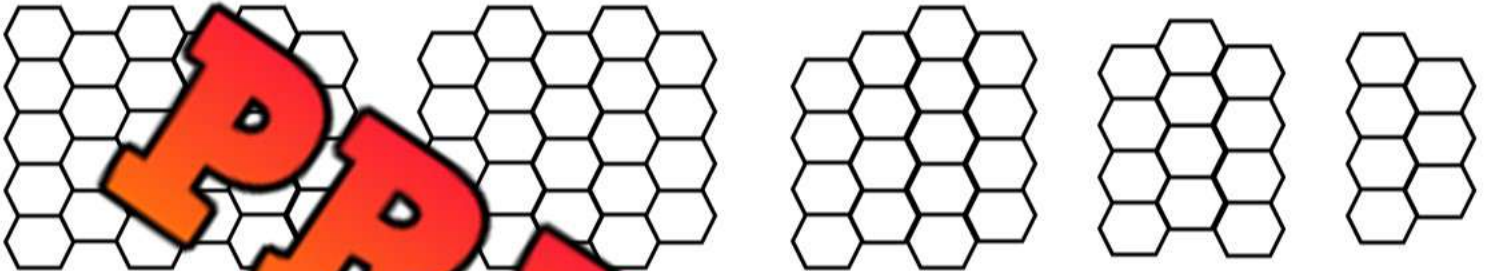
Term Number (Month)						November
Term Value (Sunny Days)						

Table of Values – Decreasing Patterns

Instructions

Answer the question below using a table of values

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



Term Number	Term	1) What is the pattern rule: Start at _____, then _____ each time.
		2) How many hexagons total were used?
		3) 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 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	

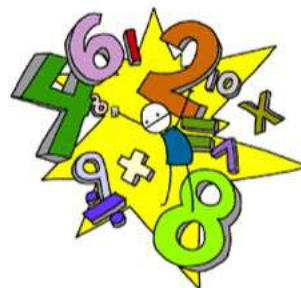
Name: _____

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	

Input/Output Table – Addition



Rule: add 5	
In	Out
25	30
45	50
65	70
85	90

Instructions: Complete the input/output tables below

Rule: add 3	
In	Out
30	
57	
78	
98	

Rule: add 4	
In	Out
23	
48	
81	
1	

Rule: add 6	
In	Out
26	
78	
104	
157	

Rule: add 8	
In	Out
52	
86	
136	
218	

Rule: add 7	
In	Out
42	
123	
255	
413	

Rule: add 12	
In	Out
75	
110	
276	
452	

Input/Output Table – Subtraction

Rule: subtract 5	
In	Out
35	30
50	45
65	60
80	75



Instructions: Complete the input/output tables below

Rule: subtract 10	
In	Out
18	
54	
122	
166	

Rule: subtract 10	
In	Out
84	
155	
342	
5	

Rule: subtract 4	
In	Out
66	
133	
186	
314	

Rule: subtract 8	
In	Out
79	
108	
210	
322	

Rule: subtract 6	
In	Out
76	
89	
116	
344	

Rule: subtract 12	
In	Out
25	
88	
115	
241	

Increasing Patterns - Multiplication

Multiplication Pattern

$\times 2$ $\times 2$ $\times 2$ $\times 2$ $\times 2$
 $\wedge$ $\wedge$ $\wedge$ $\wedge$ $\wedge$
 1, 2, 4, 8, 16, 32



Part 1

Extend the multiplication pattern

1) 2, 6, 18, _____, _____

2) 2, 4, 8, _____, _____

3) 5, 50, 500, _____, _____

4) 2, 10, 50, _____, _____

5) 5, 10, 20, _____, _____

6) 2, 225, _____, _____

Part 2

Follow the rule to continue the multiplication pattern

1) (Multiply by 2)

3, 6, 12, _____, _____

2) (Multiply by 5)

5, 25, 125, _____, _____

3) (Multiply by 3)

1, 3, 9, _____, _____

4) (Multiply by 10)

1, 10, 100, _____, _____

5) (Multiply by 4)

4, 16, 64, _____, _____

6) (Multiply by 2)

25, 50, 100, _____, _____

Input/Output Table - Multiplication



Rule: multiply by 2

In	Out
1	2
3	6
5	10
7	14

Instructions: Complete the input/output tables below

Rule: multiply by 2	
In	Out
3	
6	
9	
12	

Rule: multiply by 6	
In	Out
5	
8	
11	

Rule: multiply by 4	
In	Out
5	
10	
15	
20	

Rule: multiply by 3	
In	Out
4	
7	
10	
13	

Rule: multiply by 5	
In	Out
10	
20	
30	
40	

Rule: multiply by 10	
In	Out
10	
11	
12	
13	

Name: _____

25

Pattern Rules - Multiplication

x3 x3 x3

^ ^ ^

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, 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

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 4 each time

4) _____, _____, _____, _____, _____

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

5) _____, _____, _____, _____, _____

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

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

What you will need for the activity.

- A list of questions



Instructions

How you will complete the activity

1. Prepare a list of questions with answer choices 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 using the finger signal 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: _____

28

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 fourth number in the doubling pattern starting with 6?	6	12	18	24
Start with 4. What is the fifth 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, 20, 40, 80	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, 44, 88, 176	11, 22, 44, 88, 176	352	704
Which sequence is a doubling pattern starting with 12?	12, 24, 48	12, 36, 108	24, 48, 96	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, 208	13, 26, 52, 104, 208	13, 26, 78, 208
Which number comes next in the pattern: 14, 28, 56, ___?	70	84	98	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

Exit Cards

Cut Out

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

Name: _____

Growing Multiplication Patterns

1) (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 Patterns

1) (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 Patterns

1) (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 Patterns

1) (Multiply by 2)

2, 4, 8, _____, _____, _____

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

Start at _____, multiply by _____ each time

3) _____, _____, _____, _____

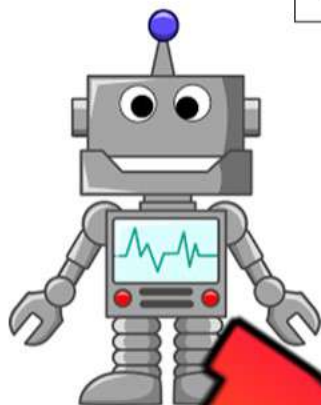
Pattern Rule: Start at 3, multiply by 5 each time.

Name: _____

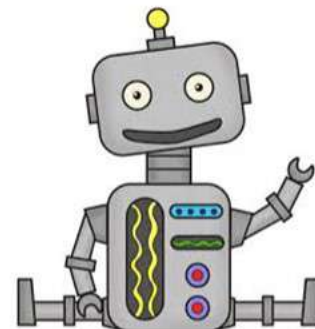
30

Curriculum Connection
P5.1

Input/Output Table - Division



Rule: divide by 10	
In	Out
70	7
80	8
90	9
100	10



Instructions: Complete the input/output tables below

Rule: divide by 10	
In	Out
1	
5	
10	
20	

Rule: divide by 2	
In	Out
6	
10	
14	

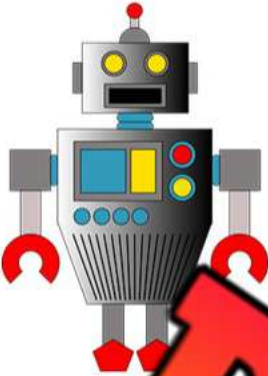
Rule: divide by 3	
In	Out
6	
9	
12	
15	

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	

Pattern Rule – Input/Output Tables



Add 10 or Subtract 10	
In	Out
20	30
30	40
50	60
90	100



Instructions: Complete the input/output tables below

Rule: subtract 10	
In	Out
32	
	66
	79
104	

Rule: add 3	
In	Out
13	
38	
	75
	94

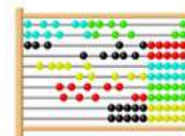
Rule: subtract 6	
In	Out
	24
75	
94	
	122

Rule: subtract 4	
In	Out
32	
	84
136	
	188

Rule: subtract 2	
In	Out
52	
85	
	102
	143

Rule: add 6	
In	Out
16	
67	
	123
	214

Table of Values – Term Numbers/Values



Instructions

Fill in the table of values below

Term Number	Term Value	
1	15	
2	22	+
3	29	+
4		+
5		+
6		+

Term Number	Term Value	
1	10	+
2	18	+
3	26	+
4		+
5		+
6		+

Term Number	Term Value	
1	74	-
2	65	-
3	56	-
4		-
5		-
6		-

Term Number	Term Value	
1	136	-
2	126	-
3	116	-
4		-
5		-
6		-

Term Number	Term Value	
1	168	+
2	181	+
3		+
4	207	+
5		+
6		+
10		

Term Number	Term Value	
1	284	-
2	277	-
3		-
4	263	-
5		-
6		-
10		

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 km will you run after 5 weeks?

2) How many km will you run if you ran 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	

T-Tables – Drawing Blocks



Instructions

Fill in the T-Tables, counting the lines in each figure. Draw figure 4.

				Figure	Boxes
				1	
				2	
				3	
				4	
				8	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				3	
				4	
				10	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	
				Figure	Boxes
				1	
				2	
				3	
				4	

Activity Title: Pattern Pass Along**Objective**

What are we learning about?

To engage students in understanding and creating growing patterns using blocks, enhancing their pattern recognition skills and encouraging cooperative learning. Students will start a pattern and then adapt and extend patterns started by their peers.

Materials What will you need for the activity.

- A variety of coloured stacking cubes
- Timers or stopwatches
- Paper and pencils for each student to record their original pattern and observations

**Instructions**

How you will complete the activity

1. Each student receives an equal number of blocks in different colours.
2. Allow three minutes for every student to start their own growing pattern on their desk or designated workspace.
3. After three minutes, instruct every student to move to the desk next to theirs.
4. Give students two minutes to analyze the pattern in front of them and then add on to it, continuing the growing sequence. They should only add 1 more figure.
5. Repeat step 4 until each student has returned to their original starting position or until students begin running out of blocks.
6. Once back at their starting position, each student should observe how their initial pattern has evolved.
7. Have students write down any changes they notice and what additions were made by others. Does the pattern still work?

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.



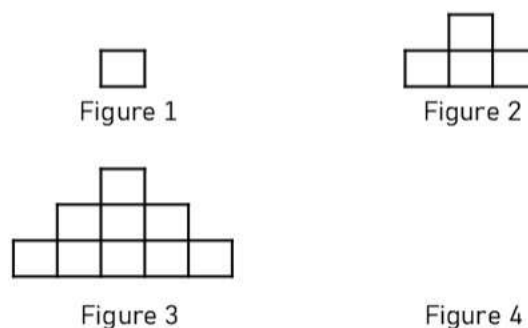
b) Write the number of sides that represents the figure sequence.

Fig 1 Fig 2 Fig 3 Fig 4

_____, _____, _____, _____

Name: _____

a) Draw the next figure.



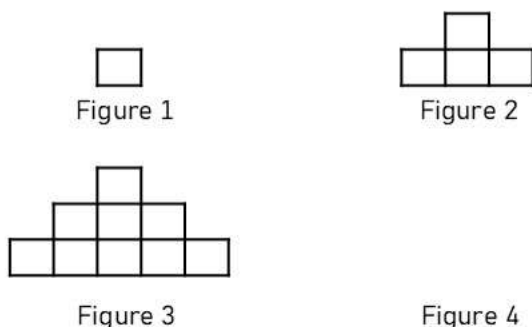
b) Write the number of sides that represents the figure sequence.

Fig 1 Fig 2 Fig 3 Fig 4

_____, _____, _____, _____

Name: _____

a) Draw the next figure.



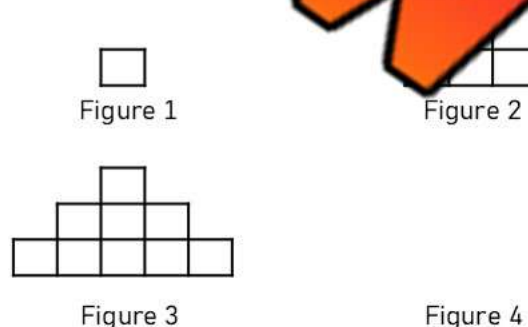
b) Write the number of sides that represents the figure sequence.

Fig 1 Fig 2 Fig 3 Fig 4

_____, _____, _____, _____

Name: _____

a) Draw the next figure.



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

Fig 1 Fig 2 Fig 3 Fig 4

_____, _____, _____, _____

Increasing Patterns – Tables of Values

Instructions

Fill in the table of values and write the pattern rule

1) Larry is sorting beads in different bottles.



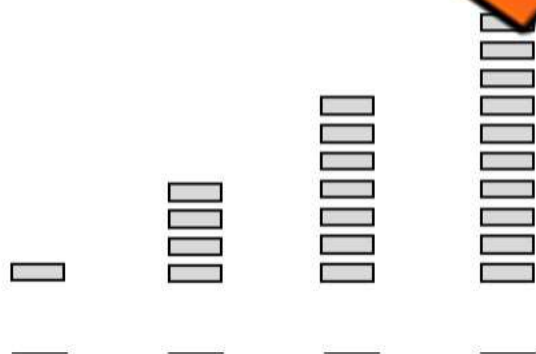
Term Number (bottles)	Term Value (beads)
1	
2	
3	
4	
7	

Pattern Rule

Start at _____, add _____ each time.



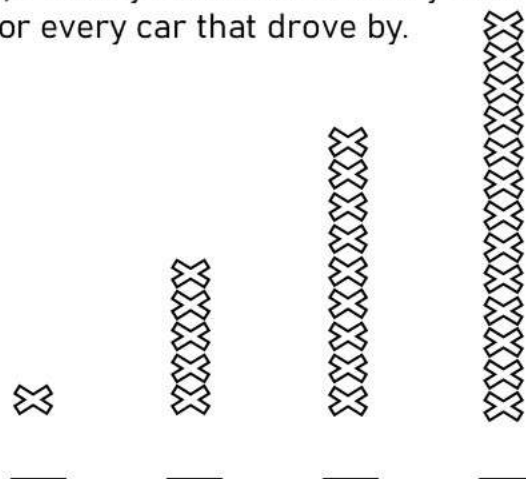
2) The first child got 2, the second got 4, the third got 6, and the fourth got 10.



Term Number	Term Value
2	
4	
6	
10	

Pattern Rule

3) Lindsay recorded x's every hour for every car that drove by.



Term Number	Term Value
1	
2	
3	
4	
7	

Pattern Rule

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
8	

$n + 2$

Term Number	Term Value
3	4
4	8
5	
9	

$n \times 2$

Term Number	Term Value
1	5
2	10
3	15
4	20
5	25

Term Number	Term Value
1	5
2	6
3	7
4	8
5	9
11	

Term Number	Term Value
1	3
2	6
3	9
4	12
5	15
11	

Term Number	Term Value
10	8
15	13
20	18
25	23
30	28
50	

Table of Values – Finding Term N

Practice

Write an expression that represents the pattern

Term Number	Term Value
1	6
2	12
3	18
4	24
5	30
8	

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
10	10
8	12
14	14
16	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 50?



- 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?

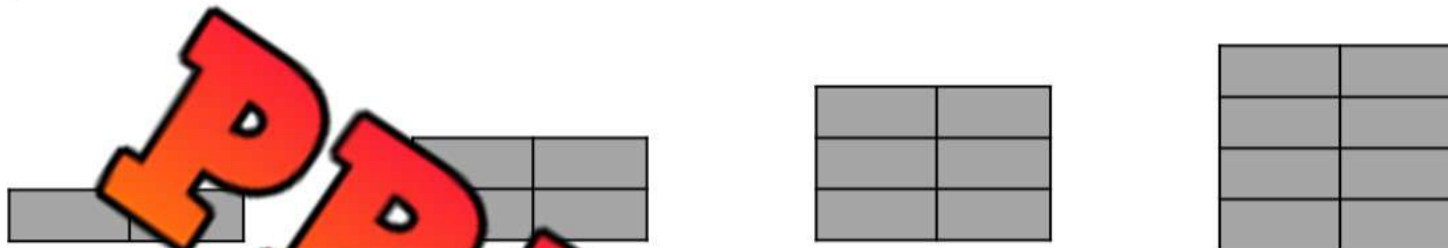
Answer: _____

Increasing Pattern Challenge

Instructions

Complete the table of values and answer the questions below

Joel has created a pattern using his blocks. Fill in the table of values to learn more about the pattern.



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 44 blocks?

3) How many blocks would it take to create the 15th shape (term number)?

4) How many blocks would it take to create the 32nd shape (term number)?

5) Write an expression that represents the pattern
Example: $n + 5$

Name: _____

47

Push-Up Challenge

**Instructions**

Complete the table of values and answer the questions below

Brayden was challenged by a friend to do 20 push-ups a day for 2 weeks. Complete the table of values below to see his push-up progress.

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

Pattern Rule: _____

1) How many pushups did Brayden do in 2 weeks?	
2) Which day did Brayden complete 200 pushups?	
3) How many pushups would he do if he continued the challenge for 3 weeks?	
4) If his friend did 50 pushups for 5 days, and Brayden did 20 pushups for two weeks, who would have done more?	
5) How many days would it take him to do 600 pushups?	
6) Brayden thinks he could do 1000 pushups in 50 days if he continued the same pattern. Is he correct?	
7) Write an expression that represents the situation.	

Name: _____

48

Curriculum Connection
P5.1

Allowance Saving

Instructions

Complete the table of values and answer the questions below

Martha is given a weekly allowance of \$25. She is saving her money for a new tablet that costs \$200. Fill in the table of values to find out when she can buy her new tablet.



Term Number (Weeks)	3	4	5	6	7	8	9	10
Term Value (Money)								

Pattern Rule: _____

1) In how many weeks can Martha buy her new tablet?	
2) How much money would she save in 10 weeks?	
3) If she kept saving, how many weeks would she need to save \$600?	
4) How much money would she have after 20 weeks?	
5) Martha changed her mind and now wants a new computer that costs \$800. How many weeks will she need to save her allowance?	
6) Write an expression that represents her saving pattern.	

Basketball Skills Challenge

Instructions

Complete the table of values to learn more about the pattern

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



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

Pattern Rule: _____

1. Which day did Connor finish 1000	
2. How many shots did Connor take in 10 days	
3. If his friend took 200 shots for 7 days and Connor took 150 shots for 10 days, who would have taken more shots? Explain.	
4) How many days would it take Connor to shoot his 2000 th shot?	
5) How many shots would Connor take if he took 150 shots for 21 days?	
6) Write an expression that represents Connor's practicing pattern.	

Name: _____

50

Curriculum Connection
P5.1

Saving Money

Instructions

Complete the table of values to learn more about the pattern

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 Numb (W)	1	2	3	4	5	6	7	8	9	10
Term Value (Money)										

Pattern Rule: _____

1) Can Jesse buy her new bike after 10 weeks?	
2) How much did she save in 10 weeks?	
3) If she kept saving, How many weeks would she need to save \$4200?	
4) How much money would she have after 15 weeks?	
5) Jesse changed her mind and now wants to buy a car for \$5400. How many weeks will she need to save her pay cheques?	
6) Write an expression that represents Jesse's saving pattern.	

Table of Values to Concrete Pattern

Instructions

Answer the questions below

Laura created a cool pattern yesterday using trapezoids. Her brother messed up the pattern, but she remembers how it went. She wrote the table of values below.

- 1) Draw a pattern using trapezoids that uses the same number of trapezoids that Laura used.

Term Number	1	2	3	4	5
Term Value	3	4	5	6	7



Pattern Rule: _____

2) What is the pattern increasing by each time?	
3) How many total blocks did Laura use to make the pattern?	
4) If Laura continued the pattern, how many trapezoids would she need to make the 8 th term?	
5) Laura kept the pattern going. She used 29 trapezoids for the last term. How many terms are in her pattern?	
6) Write an expression that represents the pattern.	

Task Cards: Patterning – All Operations

Objective

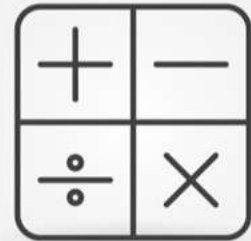
What are we learning about?

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

Materials

What you will need for the activity.

- 24 task cards
- Student answer sheet for answers
- Pencil



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 record their answers.
4. Encourage teamwork by having students collaborate 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 and 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 100. Divide by 2, add 2, subtract 4 to get the next number. What is the third number?

- a) 50
- 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

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

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

Card 12:

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

- a) 43
- b) 36
- 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

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. Add 6 and then divide by 2 to get the next number. What is the second number?

- a) 10
- b) 8
- c) 5

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 12. Divide by 2 and then subtract 1 for the next number. What is the second number?

- a) 6
- 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

Name: _____

56

Curriculum Connection
P5.1

Task Cards: Patterning

Answers

Record your answers below

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

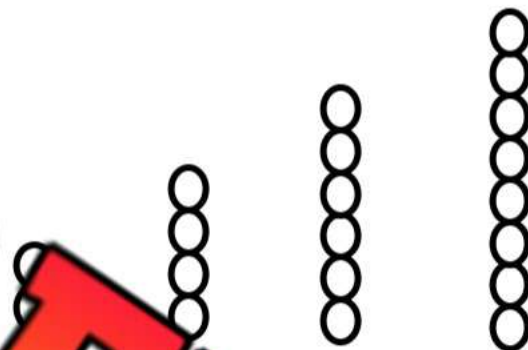
13	
14	
15	
16	
19	
20	
21	
22	
23	
24	

Unit Quiz - Patterns

Part 1

Translate the increasing pattern into a table of values

Fill in the table of values by translating the growing pattern below.



Term Number	1	4	5	8
Term Value				

Pattern rule: _____

1) How many circles would be in the 10 th term?	
2) How many circles would term 20 have?	
3) Is there a pattern between the term number and term value?	
4) How many total shapes were used in the first 4 terms?	

Part 2

T-Tables

Term Number	Term Value	
1	74	+
2	81	+
	88	+
		+
		+
		+
6		

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

Part 3

Answer the questions below about the pattern. Draw the 4th figure

Draw Figure 4



Figure 1



Figure 2

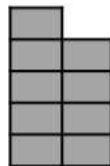


Figure 3

Figure 4

Figure	Term Value
1	
2	
3	
4	

1) Is this an increasing or decreasing pattern?

2) How many rectangles would figure 25 have?

3) Write an expression that represents the pattern

Part 4

Solve the word problem below. Show your work!

1) Answer the questions about the push-up pattern below.

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

b) Fill in the table below to represent doing 15 push-ups a day.

Term Num (Days)	1	3	4	5	10
Term Value (Push-Ups)					

c) On which day would you complete 135 pushups?

d) If you continued this pattern of pushups, how many pushups could you do by day 50

e) Write an expression that represents the pattern.

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 $32 \div 4 = 8$

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

Question: Is the number sentence an expression or equation?

1) $1 + 20$ Expression Equation	2) $25 + y$ Expression Equation
3) $3y + 8 =$ Expression Equation	4) $2n + 5$ Expression Equation
5) $8 - 4 + n = 10$ Expression Equation	6) $7 + n$ Expression Equation
7) $12 \div 4 = 3$ Expression Equation	8) $56 \div 7 =$ Expression Equation
9) $100 \div n + 3$ Expression Equation	10) $\frac{25}{n} + 10 = 15$ Expression Equation
11) $\frac{40}{n} - 8$ Expression Equation	12) $65 + 3 - n \div 10$ Expression Equation

Equation or Expression?

Questions

Is the number sentence an expression or equation?

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

- 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: _____

63

Curriculum Connection
P5.2

Addition – Are They Equal?

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

$8 + 4 = 12$

$23 + 15 \neq 36$

$47 + 13 = 50$

Instructions

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

1) $25 + 10 = 35$	2) $40 + 10 = 30$	3) $48 + 7 = 45$
4) $35 + 7 = 41$	5) $25 + 40 = 65$	6) $30 + 40 = 60$
7) $61 + 9 = 70$	8) $54 + 7 = 61$	9) $67 + 7 = 74$
10) $42 + 20 = 62$	11) $54 + 14 = 67$	12) $45 + 20 = 65$
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)

$27 + 9$

$31 + 4$

$30 + 6$

2)

$36 + 12$

$31 + 4$

$25 + 14$

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

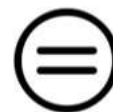
1) $15 + \boxed{} = \boxed{}$	2) $33 + 8 = \boxed{}$	3) $54 + 3 = \boxed{}$
4) $18 + \boxed{} = 27$	5) $12 + \boxed{} = 32$	6) $32 + \boxed{} = 39$
7) $\boxed{} + 8 = 26$	8) $\boxed{} + 15 = \boxed{}$	9) $\boxed{} + 35 = 45$
10) $45 + 14 = \boxed{}$	11) $22 + \boxed{} = 62$	12) $\boxed{} + 11 = 65$
13) $44 + \boxed{} = 88$	14) $62 + 15 = \boxed{}$	15) $72 + \boxed{} = 85$
16) $55 + \boxed{} = 89$	17) $62 + 23 = \boxed{}$	18) $17 + \boxed{} = 87$
19) $77 + \boxed{} = 98$	20) $51 + 41 = \boxed{}$	21) $57 + \boxed{} = 99$

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: $15 + n = 35$

We can figure out the unknown number by balancing the equation.
In this equation, $n = 20$.



Instruct

Find out the value of the variable

1) $5 + n = 15$ $n =$	2) $n + 7 = 14$ $n =$	3) $22 + n = 32$ $n =$
4) $32 + 16 = p$ $p =$	5) $12 + p = 25$ $p =$	6) $p + 33 = 65$ $p =$
7) $35 + y = 55$ $y =$	8) $y + 17 = 40$ $y =$	9) $15 + y = 30$ $y =$
10) $55 + t = 75$ $t =$	11) $36 + t = 68$ $t =$	12) $6 + t = 25$ $t =$
13) $75 + a = 89$ $a =$	14) $82 + a = 95$ $a =$	15) $73 + a = 97$ $a =$
16) $68 + 22 = s$ $s =$	17) $63 + 31 = 43$ $s =$	18) $67 + s = 93$ $s =$

Activity – Math Hot Seat: Addition Challenge

Objective

What are we learning about?

Students will practice solving addition problems to find unknown values by participating in a fun and interactive game, enhancing their arithmetic skills and quick thinking.

$$X+10=25$$

Material

What you will need for the activity.

- Index cards with addition problems
- Chairs arranged in a circle
- Stopwatch or timer
- Whiteboard and marker

Instructions

How you will complete the activity.

1. Prepare a stack of index cards with various addition problems. Ensure some problems require finding a missing number.
2. Arrange chairs in a circle with one "hot seat" in the center.
3. Explain the rules of the game to the students. One student will sit in the hot seat while the rest sit in the surrounding chairs.
4. The teacher will read an addition problem from the stack. The student in the hot seat has a limited time (e.g., 30 seconds) to solve the problem.
5. If the student in the hot seat answers correctly within the time limit, they stay in the hot seat for the next round. If they answer incorrectly or run out of time, they switch places with another student from the circle.
6. Continue the game until each student has had the opportunity to sit in the hot seat multiple times, or until the designated game time is up.
7. Keep track of the number of correct answers each student provides while in the hot seat. The student with the most correct answers at the end of the game wins.

Index Cards

Use the math problems below

$$\underline{\hspace{1cm}} + 15 = 37$$

$$12 + x = 29$$

$$25 + \underline{\hspace{1cm}} = 54$$

$$8 + y = 26$$

A farmer has 80 chickens. He gets some more. Now he has 125 chickens. How many chickens did he get?

Emily had 45 marbles. She won some more in a game. Now she has 195 marbles. How many more did she win?

$$\underline{\hspace{1cm}} + 20 = 68$$

$$10 + x = 57$$

$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = 85$$

$$\underline{\hspace{1cm}} = 49$$

$$120 + \underline{\hspace{1cm}} = 155$$

$$100 + \underline{\hspace{1cm}} = 145$$

$$\underline{\hspace{1cm}} + 10 = 465$$

$$180 + y = 220$$

$$275 + \underline{\hspace{1cm}} = 320$$

$$125 + z = 289$$

John had 320 stickers. He bought some more. Now he has 700 stickers. How many stickers did he buy?

The class collected 200 cans for a food drive. They collected some more cans the next day. Now they have 275 cans. How many cans did they collect the next day?

The library has 400 books. They bought some more books. Now they have 485 books. How many books did they buy?

A store had 250 toys in stock. They received a shipment of some more toys. Now they have 390 toys. How many toys did they receive?

$$50 + \underline{\hspace{1cm}} = 123$$

$$60 + x = 141$$

$$\underline{\hspace{1cm}} + 85 = 172$$

$$95 + y = 183$$

Name: _____

69

$$200 + \underline{\quad} = 278$$

$$110 + x = 198$$

$$\underline{\quad} + 210 = 315$$

$$140 + y = 271$$

$$220 + \underline{\quad} = 345$$

$$180 + x = 296$$

Sarah had 36 candies. Her friend gave her some more. Now she has 65 candies. How many candies did her friend give her?

A library had 15 books. They received some more books. Now they have 212 books. How many books did they receive?

There were 312 students in a school. Some more students joined. Now there are 420 students. How many students joined?

A box contained 8 pencils. It was filled with some more pencils. Now it has 385 pencils. How many pencils were added?

$$90 + \underline{\quad} = 154$$

$$13 + \underline{\quad} = 45$$

$$\underline{\quad} + 457 = 567$$

$$10 + y = 275$$

$$200 + \underline{\quad} = 278$$

$$240 + x = 370$$

$$\underline{\quad} + 45 = 92$$

A baker made 120 cookies in the morning. She baked some more cookies in the afternoon. Now she has 185 cookies. How many cookies did she bake in the afternoon?

Tom had 75 toy cars. He bought some more at the store. Now he has 125 toy cars. How many toy cars did he buy?

$$34 + y = 87$$

$$55 + \underline{\quad} = 108$$

$$150 + x = 225$$

A gardener planted 50 flowers. He planted some more flowers later. Now there are 110 flowers in the garden. How many more flowers did he plant?

There were 180 students in the auditorium. Some more students entered. Now there are 250 students in total. How many students entered the auditorium?

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:

$$a + b + c = ?$$

$$a = 7$$

$$b = 9$$

$$c = 11$$

$$7 + 9 + 11 = 27$$



Question Find out the value of the variable

$a + b + c = ?$ $a = 9$ $b = 7$ $_____ + _____ + _____ = _____$	$n + y + t = ?$ $n = 4$ $y = 12$ $t = 5$ $_____ + _____ + _____ = _____$
$c + r + p = ?$ $c = 7$ $r = 8$ $p = 10$ $_____ + _____ + _____ = _____$	$g + h + k = ?$ $g = 12$ $h = 6$ $k = 4$ $_____ + _____ + _____ = _____$
$e + c + g = ?$ $e = 8$ $c = 7$ $g = 10$ $_____ + _____ + _____ = _____$	$a + b + c = ?$ $a = 12$ $b = 10$ $c = 3$ $_____ + _____ + _____ = _____$
$a + b + c = ?$ $a = 12$ $b = 11$ $c = 13$ $_____ + _____ + _____ = _____$	$n + y + t = ?$ $n = 4$ $y = 12$ $t = 15$ $_____ + _____ + _____ = _____$
$c + r + p = ?$ $c = 16$ $r = 9$ $p = 15$ $_____ + _____ + _____ = _____$	$g + h + k = ?$ $g = 20$ $h = 20$ $k = 10$ $_____ + _____ + _____ = _____$
$e + c + g = ?$ $e = 25$ $c = 15$ $g = 17$ $_____ + _____ + _____ = _____$	$a + b + c = ?$ $a = 18$ $b = 14$ $c = 13$ $_____ + _____ + _____ = _____$

Word Problems – Writing Addition Equations

Questions

Answer the questions below

1) Alex and Ryan had 37 points together in a basketball game. Ryan had 21 points. Which equation will tell us how many points Alex had?



$$a + 21 = 37$$

$$37 + 21 = a$$

$$21 + a = 37$$

$$21 - a = 37$$

2) Bruce and Hank made \$75 together at work. Bruce can't remember how much he made but Hank made \$39. Which equation will tell us how much Bruce made?



$$b + 39 = 75$$

$$39 + b = 75$$

$$b = 75$$

$$75 + 39 = b$$

3) Mary and Brianna found 121 Easter eggs together. Mary found 65. Which equation will tell us how many Brianna found?



$$121 + b = 65$$

$$65 + b = 121$$

$$b + 65 = 121$$

$$b = 65$$

4) Brad scored 38 points in a basketball game. He had 12 points in the second half. Which equation will tell us how many points he had in the first half?



$$p + 38 = 12$$

$$38 + 12 = p$$

$$38 + p = 12$$

$$12 + p = 38$$

5) It snowed 31cm in two days. The first day it snowed 14cm. Which equation will tell us how much it snowed the second day?



$$s + 14 = 31$$

$$31 + 14 = s$$

$$14 + s = 31$$

$$31 + s = 14$$

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) $300 = 100 + 120 + l$
- 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

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

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 150 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 trip and filled the 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?



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 : $x = j + s + h$

$x = 79 + 35$

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



2) Hilary spent x amount of dollars at pet store. She bought dog food (f) for \$59 and bones (b) for \$29. She 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 sports store. He bought new skates (s) for \$310, new gloves (g) for \$120, and a new hat (h) for n dollars. How much is n worth?

Equation : _____



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 _____ = _____ ÷ _____



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, _____

Name: _____

75

Curriculum Connection
P5.2

Subtraction – Are They Equal?

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

$12 - 4 = 8$

$42 - 11 \neq 30$

$34 - 17 = 17$

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

1) $8 - 3 = 5$	2) $17 - 4 = 14$	3) $20 - 7 = 13$
4) $28 - 11 = 17$	5) $35 - 28 = 7$	6) $42 - 10 = 33$
7) $48 - 14 = 34$	8) $45 - 16 = 29$	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)

$42 - 7$

$38 - 9$

$45 - 15$

2)

$53 - 11$

$6 - 2$

$51 - 6$

3)

$73 - 8$

$70 - 3$

$78 - 12$

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

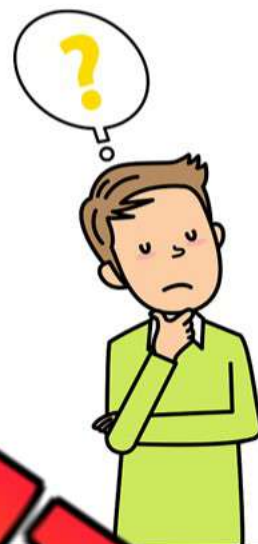
What will need for the activity.

- Pre-prepared pre-cut matching cards.
- Small bags or envelopes to hold the cards for each group

Instructions

How you will complete the

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 bag or 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.



Name: _____

78

Cards

Matching Game Cards

$$10 + 15$$

$$20 + 5$$

$$50 + 10$$

$$30 - 0$$

$$100 + 50$$

$$15 + 25$$

$$90 - 30$$

$$60 - 0$$

$$75 + 25$$

$$100 + 0$$

PREVIEW

Name: _____

80

Curriculum Connection
P5.2

Cards

Matching Game Cards

$$110 + 50$$

$$120 + 40$$

$$150 + 20 - 10$$

$$130 + 40$$

$$140 + 30$$

$$170 - 70$$

$$120 + 20 + 20$$

$$90 + 90$$

$$150 + 30$$

Name: _____

81

Curriculum Connection
P5.2

Cards

Matching Game Cards

$$200 + 50 - 30$$

$$210 + 10 - 0$$

$$100 + 40 - 10$$

$$130 + 0$$

$$60 + 50 - 10$$

$$70 + 30$$

$$150 + 20 - 10$$

$$140 + 20$$

$$220 - 70 + 30$$

$$180 + 0$$

Pre-Algebra – Balancing Subtraction Equations

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

Examples:

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

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



Instructions

Fill in the missing number to balance the equation

1) $23 - \boxed{} = \boxed{}$	2) $28 - 4 = \boxed{}$	3) $32 - 7 = \boxed{}$
4) $15 - \boxed{} = 5$	5) $\boxed{} - 7 = 9$	6) $22 - \boxed{} = 11$
7) $\boxed{} - 8 = 13$	8) $\boxed{} - 7 = \boxed{}$	9) $\boxed{} - 12 = 12$
10) $43 - 11 = \boxed{}$	11) $64 - \boxed{} = 44$	12) $\boxed{} - 11 = 44$
13) $71 - \boxed{} = 58$	14) $77 - 12 = \boxed{}$	15) $65 - \boxed{} = 49$
16) $85 - \boxed{} = 67$	17) $74 - 15 = \boxed{}$	18) $86 - \boxed{} = 72$
19) $90 - \boxed{} = 60$	20) $86 - 16 = \boxed{}$	21) $98 - \boxed{} = 85$

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: $39 - n = 25$

We can figure out the unknown number by balancing the equation. In this equation, $n = 14$.

Question Find out the value of the variable

1) $31 - n = 25$ $n =$	2) $27 - 15 = 8$ $n =$	3) $35 - n = 15$ $n =$
4) $47 - 16 = p$ $p =$	5) $42 - 15 = p$ $p =$	6) $p - 13 = 18$ $p =$
7) $53 - y = 37$ $y =$	8) $y - 45 = 0$ $y =$	9) $53 - y = y$ $y =$
10) $73 - t = 55$ $t =$	11) $42 - t = 35$ $t =$	12) $73 - t = 55$ $t =$
13) $83 - a = 67$ $a =$	14) $67 - a = 58$ $a =$	15) $95 - a = 75$ $a =$
16) $98 - 35 = s$ $s =$	17) $86 - s = 71$ $s =$	18) $96 - s = 73$ $s =$

Exit Cards

Cut Out

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

Name: _____

a) $s - g = k$ $s = 125$ $g = 47$

_____ - _____ = k

k =

b) $o - r = p$ $o = 78$ $r = 29$

_____ - _____ = p

p =

Name: _____

a) $s - g = k$ $s = 125$ $g = 47$

_____ - _____ = k

k =

b) $o - r = p$ $o = 78$ $r = 29$

_____ - _____ = p

p =

Name: _____

a) $s - g = k$ $s = 125$ $g = 47$

_____ - _____ = k

k =

b) $o - r = p$ $o = 78$ $r = 29$

_____ - _____ = p

p =

Name: _____

a) $s - g = k$ $s = 125$ $g = 47$

_____ - _____ = k

k =

b) $o - r = p$ $o = 78$ $r = 29$

_____ - _____ = p

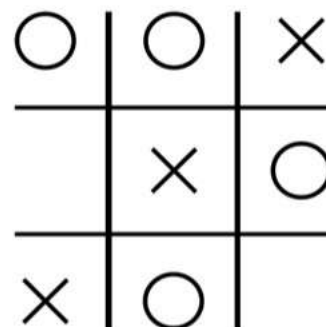
p =

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 grids

Instructions

How you will complete the activity.

1. Find a partner to play the game with.
2. The goal is to solve the algebraic equations. Each player gets a 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. Find 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.

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

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

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

$v - 5 = 3$	$w - 2 = 7$	$x - 4 = 5$
$y - 6 = 1$	$z - 3 = 6$	$a - 6 = 2$
$35 - v = 8$	$34 - w = 9$	$33 - x = 7$

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

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

Tic-Tac-Toe

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

$d - 7 = 3$	$e - 5 = 2$	$f - 4 = 6$
$g - 1 = 8$	$h - 2 = 9$	$i - 3 = 7$
$29 - d =$	$- e = 7$	$27 - f = 5$

$x - 4 = 5$	$y - 3 = 7$	$z - 6 = 1$
$a - 1 = 8$	$b - 2 = 7$	$c - 5 = 3$
$27 - x = 6$	$26 - y = 8$	$25 - z = 5$

$z - 4 = 5$	$a - 2 =$	
$c - 1 = 8$	$d - 3 = 7$	$e - 2 =$
$19 - z = 5$	$18 - a = 7$	$17 - b = 8$

$l - 6 = 4$	$m - 4 = 5$	$n - 5 = 3$
$o - 1 =$	$p - 1 = 10$	$q - 3 = 8$
$23 - l =$	$22 - m =$	$21 - n = 8$

$t - 5 = 3$	$u - 4 = 5$	$v - 6 = 1$
$w - 2 = 7$	$x - 1 = 8$	$y - 3 = 6$
$17 - t = 8$	$16 - u = 7$	$15 - v = 9$

$n - 8 = 1$	$o - 6 = 2$	$p - 4 = 5$
$q - 3 = 6$	$r - 2 = 7$	$s - 1 = 8$
$15 - n = 6$	$14 - o = 8$	$13 - p = 9$

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) Sally found 100 Easter 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. 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 5,464m high. He takes 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?



Solving Subtraction Equations - Vacation

Questions

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

1) Ron is driving 1,350km (x) to a resort with his family. They drive 415km on the first (f) day and 480km on the second (s) day. How many km do they have left (l)?

Equation : $l = x - f - s$ or $x - f - s = l$

$l = 1350 - 415 - 480$

$l = 455$ km Therefore, Ron and his family have 455km remaining to drive.



2) The family decides to have dinner out for 3 nights. They spent \$75 on the first (f) dinner, and \$128 on the second (s) dinner. How much do they have left for the third dinner (t)?

Equation : _____

_____ Therefore, _____



3) The family heads to the waterslide park. They bring a total (t). The two adults (a) cost \$25 each. The two kids (k) cost \$15 each. How much do they have left (L)?

Equation : _____

_____ Therefore, _____



4) The family buys a 24 pack of mini donuts (d). Ron (r) has 4 and his sister (s) has 3. The kids (k) eat 10 together. How many donuts are left (l)?

Equation : _____

_____ Therefore, _____



5) On the drive home, they take a short cut. The drive is 950km (d). They drive 380km the first day (f) and 430km the second (s) day. How many km do they have left (l)?

Equation : _____

_____ Therefore, _____



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.

- 1 bottle (or cup) per pair/group filled to approximately one-third with water
- Set of subtraction algebra question 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 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 one-step subtraction algebra problem.
5. Once they believe they have the correct answer, they write it on their 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) $92 - q - 18 = 52$	8) $236 - t - 117 = 43$
9) $m - 16 = 74$	10) $p - 17 = 33$	11) $r - 20 - 12 = 58$	12) $v - 158 - 14 = 118$
13) Kelly had 45 stickers. She lost 10. How many did she lose?	14) Sam had 60 marbles and lost 15. How many does he have now?	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) Michael planned to allocate \$700 to improve his room. He spent some amount on paint, \$180 on curtains, and \$100 on light fixtures. He has \$220 left for a new rug. How much did he spend on paint?	20) The Johnsons plan to spend \$500 for a party. They spent \$120 on decorations, some amount on food, and \$80 on drinks. They have \$150 left for favors. How much did they spend on food?
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?

Name: _____

94

Curriculum Connection
P5.2

Algebraic Bottle Flip Challenge

Answers

Record your answers below

1	
2	
4	
5	
6	
7	
8	
9	
10	
11	
12	

13	
14	
15	
16	
19	
20	
21	
22	
23	
24	

Multiplication – Are They Equal?

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

$4 \times 3 \neq 8$

$3 \times 5 = 15$

$7 \times 4 \neq 21$

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

1) $3 \times 2 = 6$	2) $5 \times 3 = 15$	3) $7 \times 3 = 21$
4) $5 \times 5 = 30$	5) $4 \times 3 = 12$	6) $4 \times 5 = 25$
7) $10 \times 4 = 40$	8) $6 \times 5 = 30$	9) $5 \times 2 = 10$
10) $6 \times 10 = 70$	11) $2 \times 9 = 18$	
13) $4 \times 4 = 12$	14) $6 \times 1 = 6$	15) $4 \times 6 = 24$
16) $4 \times 7 = 21$	17) $5 \times 9 = 40$	18) $5 \times 10 = 50$
19) $5 \times 7 = 35$	20) $7 \times 7 = 42$	21) $8 \times 4 = 32$

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:

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

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



Instructions

Fill in the missing number to balance the equation

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

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

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) 20 $p =$
5) $3n = 18$ $n =$	6) $n = 6$ $n =$
7) $5n = 25$ $n =$	8) $6 \times 4 = t$ $t =$
9) $3n = 24$ $n =$	10) $10n = 100$ $n =$
11) $9s = 27$ $s =$	12) $5 \times 8 = s$ $s =$

Activity: Multiplication Race

Objective

What are we learning about?

Students will practice multiplication algebra questions by racing to solve equations quickly and accurately.

Materials

What you will need for the activity.

- Index cards
- Markers or pens
- Timer (optional)



Instructions

How to implement the activity

1. Prepare a stack of index cards with multiplication and one-step algebraic equation questions. Include a mix of problems for variety.
2. Have students line up in a single file.
3. Call the first two students in line to the front. They will race to answer the multiplication algebraic equation question that the teacher pulls from the stack.
4. Pull a card from the stack and read the question aloud.
5. The first student to answer correctly wins the round. If a student says the wrong answer, they are out and go to the end of the line.
6. The student who answers correctly stays at the front to compete against the next student in line.
7. The student who loses goes to the end of the line.
8. Optional: If a student wins five rounds in a row, they move to the back of the line to give others a chance to play.
9. Continue the game until all students have had a chance to compete multiple times or until the designated game time is up.

Name: _____

101

Curriculum Connection
P5.2

Multiplication Equations

Use these for the race

$3x = 21$

$2a = 30$

$12x = 180$

$4y = 48$

$3b = 60$

$11y = 121$

$5z = 35$

$4c = 44$

$10z = 100$

$6n = 72$

$5l = 65$

$9n = 81$

$7m = 91$

$6o = 54$

$8m = 64$

$8k = 96$

$7f = 126$

$7r = 49$

$9p = 135$

$8g = 160$

$4r = 20$

$10b = 150$

$9h = 153$

$5b = 25$

$11c = 143$

$10i = 190$

$4c = 12$

$12d = 144$

$11j = 121$

$3d = 9$

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 variable

1) $ch = t$ $c = 8$ $h = 10$

_____ x _____ = t

t =

2) $mp = q$ $m = 3$ $q = 15$

_____ x _____ = q

p =

Name: _____

Find out the value of the variable

1) $ch = t$ $c = 8$ $h = 10$

_____ x _____ = t

t =

2) $mp = q$ $m = 3$ $q = 15$

_____ x _____ = q

p =

Name: _____

Find out the value of the variable

1) $ch = t$ $c = 8$ $h = 10$

_____ x _____ = t

t =

2) $mp = q$ $m = 3$ $q = 15$

_____ x _____ = q

p =

Name: _____

Find out the value of the variable

1) $ch = t$ $c = 8$ $h = 10$

_____ x _____ = t

t =

2) $mp = q$ $m = 3$ $q = 15$

_____ x _____ = q

p =

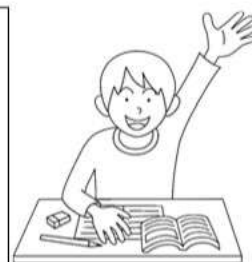
Division – Are They Equal?

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

$8 \div 2 \neq 5$

$9 \div 3 = 3$

$15 \div 3 \neq 3$

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

1) $6 \div 3 = 2$	2) $20 \div 10 = 10$
3) $9 \div 3 = 3$	4) $16 \div 2 = 6$
5) $25 \div 5 = 5$	6) $4 \div 2 = 7$
7) $42 \div 7 = 7$	8) $28 \div 4 = 7$
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) $45 \div 5 =$
- 2) $72 \div 8 = 9$
- 3) $40 \div 8 = 6$
- 4) $100 \div 20 = 5$

Name: _____

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

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

Name: _____

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

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

Name: _____

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

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

Division – Which Equation Matches?

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

Example

$12 \div 4$

$9 \div 3$

$16 \div 4$



Instructions

Circle the equation that matches the shaded in equation

1)

$20 \div 4$

$10 \div 2$

$12 \div 2$

2)

$18 \div 3$

$6 \div 2$

$60 \div 10$

3)

$28 \div 4$

$42 \div 7$

$49 \div 7$

4)

$45 \div 5$

$18 \div 2$

$3 \div 1$

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:

$$\begin{array}{c} 5 \\ \wedge \\ 15 \div 3 = \boxed{5} \end{array}$$

$$\begin{array}{c} 5 \\ \wedge \\ 10 \div 2 = \boxed{5} \end{array}$$



Questions: Fill in the missing number to balance the equation

1) $16 \div \boxed{} = \boxed{}$

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

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

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

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

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

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

Division – 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: $27 \div n = 3$ or $\frac{27}{n} = 3$

We can figure out the unknown number by balancing the equation.
In this equation, $n = 9$.



Instructions: Find out the value of the variables

1) $25 \div n = 5$ $n =$	2) $\frac{n}{3} = 3$ $n =$
3) $16 \div 4 = p$ $p =$	4) $24 \div p = 8$ $p =$
5) $\frac{42}{n} = 6$ $n =$	6) $\frac{9}{n} = 3$ $n =$
7) $80 \div n = 10$ $n =$	8) $\frac{t}{2} = 4$ $t =$
9) $\frac{48}{n} = 8$ $n =$	10) $55 \div n = 11$ $n =$
11) $36 \div s = 12$ $s =$	12) $\frac{24}{8} = s$ $s =$

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) On a hot day, a boy scooped 40 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

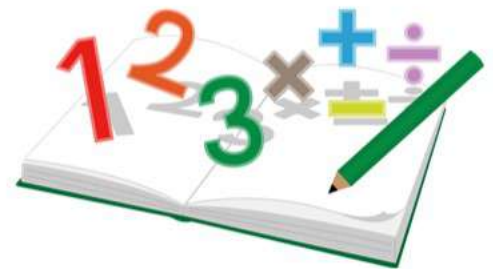
What are we learning about?

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 or pencils
- Whiteboard and sheets of paper
- Timer or stopwatch (optional)



Instructions

How you will complete the activity.

1. Divide the class into two teams.
2. One student from Team A will come to the front of the room and draw a card. The student will then read the word problem silently and draw a representation of the problem on the whiteboard.
 - They can use objects to represent the numbers in the problem and can write the numbers to label their drawings, but they cannot use mathematical symbols or operations. For example, if the problem is "56 apples divided among 7 students," the student can draw an apple and write "56" above it and draw a student and write "7" above the student.
3. Team A will observe the drawing and try to guess the word problem and solve it. For added difficulty, make students guess what is written on the index card. They have 1 minute to discuss and come up with the answer.
4. If Team A correctly identifies the word problem and solves it within the time limit, they earn a point. If they answer incorrectly, Team B gets a chance to solve it.
5. Next, a student from Team B will come to the front, draw a card, and draw a representation of the division word problem on the whiteboard.
6. Team B will then have 1 minute to discuss and solve the problem.
7. Alternate turns between the teams.
8. Continue the game until all index cards have been used or the designated game time is up.

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 seats and 5 tables. How many students sit at each table?

There are 56 books on 7 shelves. 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 evenly into 9 stacks. How many books are in each stack?

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?

A group of 14 penguins catch 56 fish. If they share the fish equally, how many fish does each penguin get?

16 monkeys find 64 bananas. If they share the bananas equally, how many bananas does each monkey get?

Name: _____

117

Math Equations

Cut out the equations below

Index Cards

A bakery has 100 cookies and packs them into boxes of 10. How many boxes are needed?

A school has 81 grade 5 students, and they are divided into 3 equal classes. How many students are in each class?

There are 12 candies in one bag and 12 candies in another. They are divided equally among 6 children. How many candies does each child get?

There are 120 fish and 50 more are added to the pond. If 10 pelicans share them equally, how many fish does each pelican get?

There are 45 chocolates, and 15 more are added. The rest are divided among 3 friends. How many chocolates does each friend get?

A group of 20 bees collect 100 flowers. If they share the flowers equally, how many flowers does each bee get?

A baker has 60 cupcakes and bakes 30 more. He packs them into boxes of 10. How many boxes does he need?

A flock of 12 birds find 36 worms. If they share them equally, how many worms does each bird get?

There are 64 apples, and 8 more are added to the basket. If 8 horses share them equally, how many apples does each horse get?

There are 80 balloons, and 40 are used for decoration. The rest are divided equally among 8 children. How many balloons does each child get?

There are 42 cookies in one jar and 14 cookies in another. They are divided equally among 7 friends. How many cookies does each friend get?

A bunch of squirrels are given 48 raspberries, and 24 more are added. They are divided equally among 8 squirrels. How many raspberries does each squirrel get?

Name: _____

119

Curriculum Connection
P5.2

Division – Bar Model

Instructions

Use the bar model to answer the division questions below.

1) $56 \div 8$

56							

2) $28 \div 4$

28			

3)

4)

$40 \div 10$

40									

5) $36 \div 4$

36			

6) $35 \div 5$

7) $49 \div 7$

49						

8) $63 \div 7$

63								

9) $56 \div 7$

56							

10) $32 \div 4$

32			

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 selling cookies at a bake sale. How much money will each of the friends get?

66					



Division Equation Sentence:

 = _____

Name: _____

123

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?
$6 + m = 12$. Find m .	$2k = 10$. 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 ?	5 is 3 times 1 . What is 5 ?	If Sam had 45 marbles and lost 15. Now he has 30. How many did he have at first?	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 .	John has 3 times as many pencils as Jerry. Together they have 40 pencils. How many pencils does each have?	Emma has 3 times as many books as Jerry. Together they have 40 books. How many books does each have?
$10 \div 2 = ?$	$6 \div c = 2$. 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 6 years older than twice his brother's age. How old is his brother?
$5 = x - 3$. What is x ?	$15 \div 3 = ?$	$20 \div 5 + 23 = ?$	There are 20 marbles between you and Sarah. 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?

Name: _____

124

Curriculum Connection
TQ

Algebra Quiz - Equations

Part 1

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

1) $37 + 12 = 48$

2) $34 + 7 = 41$

3) $49 - 5 = 45$

4) 59

5) $7 \times 4 = 21$

6) $70 \div 7 = 10$

Part 2

Put a missing number to balance the equation

1) $43 + 8 =$

2) $56 - 26 = 30$

3) $29 +$ $= 36$

4) $42 + 17 =$

5) $55 +$

6) $52 +$ $= 98$

7) $33 - 7 =$

8) $52 - 14 = 46$

9) $52 -$

10) $65 - 13 =$

11) $87 - 22 = 60$

12) $91 - 15 =$

13) $4 \times 6 = 24$

14) $7 \times$ $= 42$

15) $48 \div$ $= 6$

16) $54 \div 6 =$

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

$a + b + c = 12$ ____ + ____ + ____ = ____ $c = 12$	$n + y + t = 30$ ____ + ____ + ____ = ____ $n = 3$ $y = 22$ $t = 8$
$a - b = c$ ____ - ____ = c $a = 26$ $c = 12$	$n = f$ ____ = f $e = 32$ $n = 16$
$a \times b = c$ ____ x ____ = c $a = 8$ $b = 4$	$xy = k$ ____ = k $x = 4$

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

Is the number sentence an expression or equation?

1) $13 + 13 = 26$	2) $25 + y$
Expression Equation	Expression Equation
3) $5y + 3 = 18$	4) $4n + 8$
Expression Equation	Expression Equation
5) $5 - 4 + n = 10$	6) $20 - 5 + n$
Expression Equation	Expression Equation

Part 7

Write equations and answer the questions

- 1) Daniel had \$167 before he started work for his dad. Now he has \$215. How much did his dad pay him?
- 2) Shannon worked 9 hours today and made \$18. How much did she earn (e) per hour?
- 3) Jack needs to drive 400 km to get home. He has driven for awhile and now only has 150 km left to get home. How far has he driven (d)?
- 4) Jade is putting 72 onions into boxes. Each box holds 8 onions. How many boxes does he need?