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Saskatchewan Math Curriculum Patterns & Relations – Grade 4

3-Part Lesson Format

Part 1 – Minds On!

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

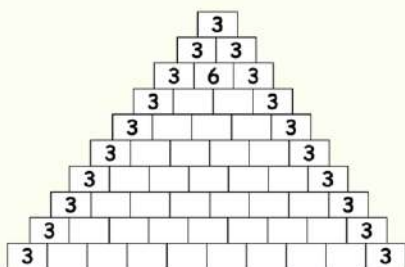
LEARNING GOAL

We are learning to create and translate patterns that have increasing numbers so we can understand how patterns grow and change in different ways.

Fibonacci Sequence

The Fibonacci sequence is a pattern in which each number is the sum of the two numbers before it. For example, the first 10 numbers of the sequence are:
0, 1, 1, 2, 3, 5, 8, 13, 21, 34

Fill in the blanks below using the Fibonacci sequence.



1 2 3 4 5
6 7 8 9 0

Discussion: How many terms can you write in the Fibonacci sequence?

Part 2 – Action!

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

Part 3 – Consolidation!

- Exit Cards
- Quizzes
- Reflection
- And More!

EXIT CARD – Word Problem

1. Create Your Pattern:

Invent a new number pattern that increases (grows).
Example: 5, 10, 15, 20...

2. Write 2 Quiz Questions:

Write two questions about your pattern for a classmate to solve.

Question Idea 1: Ask for the next two numbers.

Question Idea 2: Ask them to describe the pattern rule in words.

3. The Challenge:

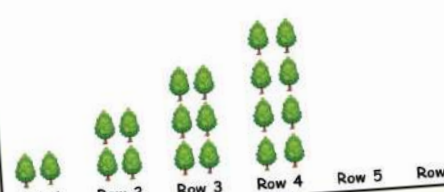
Write the answers on the back of your paper (or at the bottom) so you can grade it!

Saskatchewan Math Curriculum Patterns & Relations – Grade 4

Representing Picture Sequence With Numbers

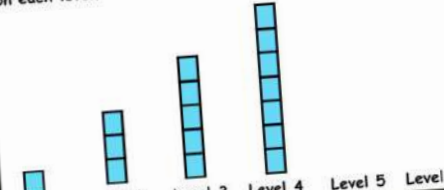
Drag the numbers to write the numerical sequence that represents the picture sequence.

A farmer plants the following number of trees in each row.



Row 1 Row 2 Row 3 Row 4 Row 5 Row 6

A tower has the following number of blocks on each level.



Level 1 Level 2 Level 3 Level 4 Level 5 Level 6

Numerical Sequence

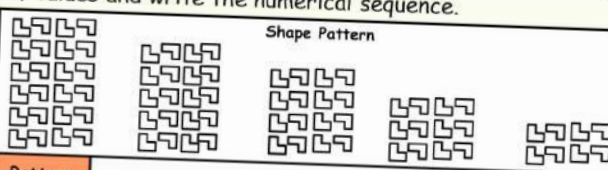
--	--	--	--	--	--	--	--	--	--

Numerical Sequence

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

Translate the pattern using the table of values and write the numerical sequence.

Shape Pattern



Pattern Rule: Start at _____ subtract _____ each time.

Numerical Sequence

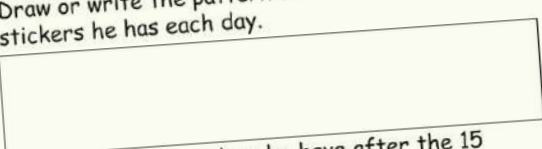
--	--	--	--	--	--	--	--	--	--

Term Number	1	2	3	4	5	6
Term Value						



Brant starts a jar with 30 stickers. Every school day he adds 6 more stickers. He adds stickers for 8 school days.

a) Draw or write the pattern to show how many stickers he has each day.



b) How many stickers does he have after the 15 days?







Saskatchewan Math Curriculum

Patterns & Relations – Grade 4

Patterns Within Number Strings (2s)

Drag the numbers to complete the decreasing patterns below.

1 2 3 4 5 6 7 8 9 0

1)	23	21	19	17						
2)	66	64	62	60						
3)	81	79	77	75						
4)	100	98	96	94						

Extending Patterns

Drag the numbers and labels to extend the patterns and determine the pattern rule.

add multiply by 1 2 3 4 5 6 7 8 9 0

#	PATTERN				RULE	
1)	2	4	8			Start at _____, _____ each time
2)	3	6	12			Start at _____, _____ each time
3)	5	15	45			Start at _____, _____ each time
4)	1	4	16			Start at _____, _____ each time
5)	6	60	600			Start at _____, _____ each time

Number less than 200

Multiple of 5		
Not a multiple of 5		

47	245	310
139	620	82
90	347	475
125	486	196
35	218	509
731	170	163



Grade 4

Patterns and Relations



	Curriculum Expectations	Pages
P4.1	Demonstrate an understanding of patterns and relations by: • identifying and describing patterns and	
Preview of 125 pages from this product that contains 291 pages total.		
P4.2	Demonstrate an understanding of equations involving symbols to represent an unknown value by: • writing an equation to represent a problem • solving one step equations.	84 – 150

Name: _____

6

Curriculum Connection
P4.1

Fibonacci Sequence

Directions

Fill in the missing numbers



1)	0	1	1	2		
----	---	---	---	---	--	--

2)		89	144	233		
----	--	----	-----	-----	--	--

3)	3	5		13		
----	---	---	--	----	--	--

4)	8	13				
----	---	----	--	--	--	--

5)	2	3	5	8		
----	---	---	---	---	--	--

6)	21	34	55	89		
----	----	----	----	----	--	--

7)	13	21	34	55		
----	----	----	----	----	--	--

8)	34	55	89	144		
----	----	----	----	-----	--	--

Name: _____

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Curriculum Connection
P4.1

Hundreds Chart Patterns

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Directions

Follow the instructions below

A number pattern needs to have a rule that the pattern follows. Colour the numbers in the hundreds chart that show the pattern rule below.

Rule: start at 5, add 5 each time

Hundreds Chart Patterns

Directions

Follow the instructions below

Colour the pattern rule: start at 2, add 12 each time

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Colour the pattern rule: start at 1, add 1 each time

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Name: _____

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Multiplication Chart - Patterns

Questions

Fill in the multiplication table below



x	1	2	3	4	5	6	7	8	9	10
1			3		5		7		9	10
2				8		12		16		
3						18			27	30
4	4	8		16			28		36	
5		10	15							
6	6		18		30					60
7		14		28	35	42			63	
8	8	16		32			56	64		80
9			27			54			81	90
10	10	20		40			70		90	

Name: _____

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Curriculum Connection
P4.1

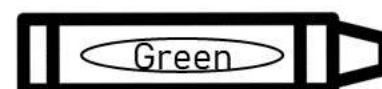
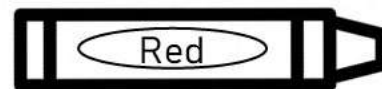
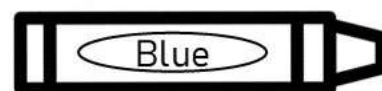
Multiplication Chart - Patterns

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Questions

Follow the instructions below

1. Count by 2's and colour the numbers
2. Count by 3's and colour the numbers
3. Count by 5's and colour the numbers
4. Count by 10's and colour the numbers



Name: _____

15

Curriculum Connection
P4.1

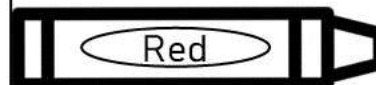
Multiplication Chart - Patterns

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Questions

Answer the questions and colour the chart based on answers

3 x 3	5 x 5	7 x 6	9 x 2
2 x 4	7 x 2	5 x 7	6 x 6
4 x 5	10 x 9	8 x 8	9 x 7
4 x 3	9 x 3	8 x 6	7 x 7



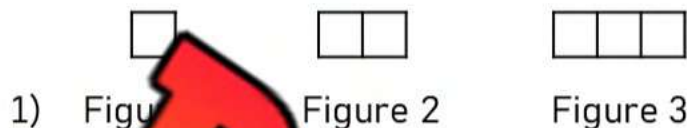
Representing Picture Sequence With Numbers

Directions

Write the numerical sequence that represents the picture sequence

Numerical Sequence

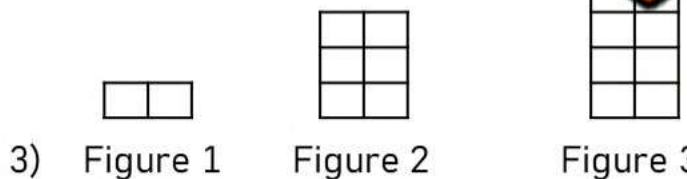
_____, _____, _____

**Numerical Sequence**

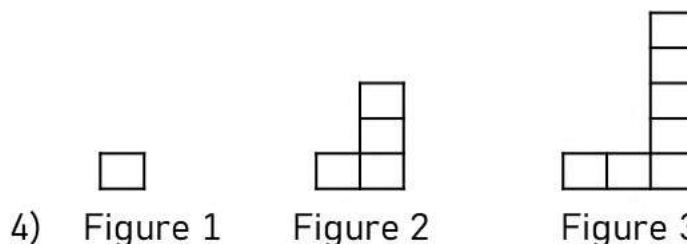
_____, _____, _____

**Numerical Sequence**

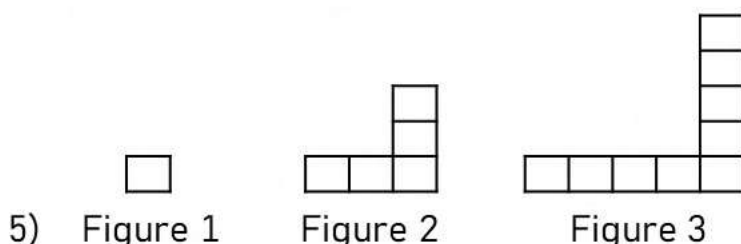
_____, _____, _____

**Numerical Sequence**

_____, _____, _____, _____

**Numerical Sequence**

_____, _____, _____, _____



Representing Picture Sequence With Numbers

Questions

Write the numerical sequence that represents the picture sequence

Numerical Sequence

____, ____, ____, ____

1) Figure 1 Figure 2 Figure 3 Figure 4

Numerical Sequence

____, ____, ____, ____

2) Figure 1 Figure 2 Figure 3 Figure 4

Numerical Sequence

____, ____, ____, ____

3) Figure 1 Figure 2 Figure 3 Figure 4

Numerical Sequence

____, ____, ____, ____

4) Figure 1 Figure 2 Figure 3 Figure 4

Representing Picture Sequence With Numbers

Questions

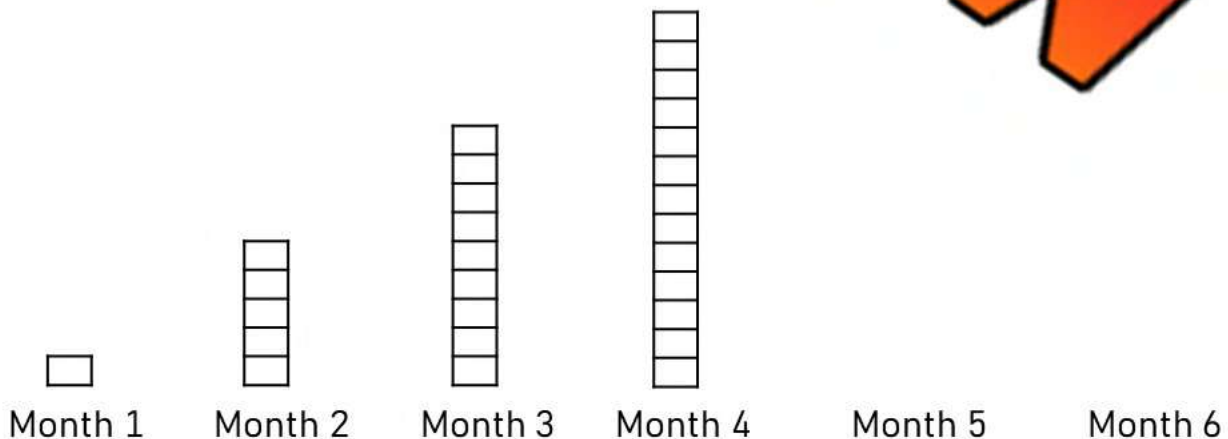
Continue the picture sequence and represent it using numbers

1) Matt had a bunch of X's to play with. He made the following pattern below.



Numerical
Sequence

2) Chris puts a rectangle for every book he reads in the first 4 months of school.



Numerical
Sequence

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.
7 kids are coming to the party. Each kid will get 7 pieces of candy.

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

2) What if 10 kids come to the party? How many pieces of candy do you need 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?

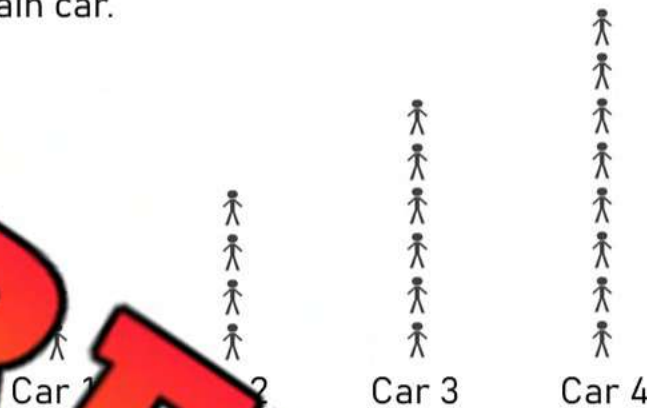
Games	Total Points Scored
1	
2	
3	
4	
5	
8	

Translating Patterns - Table of Values

Part 1

Translate the increasing patterns into a table of values

A train has the following people in each train car.

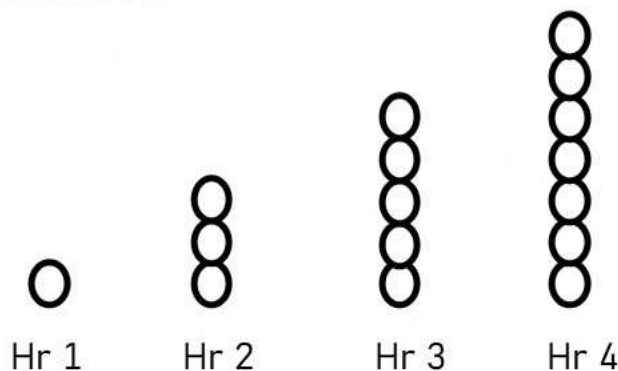


Term Number (Cars)		4	5	8
Term Value (People)				

Part 2

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.



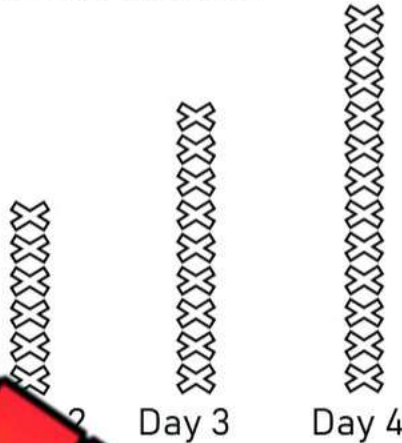
Term Number (Hour)	1	2	3	4	5	9
Term Value (Golf Balls)						

Translating Patterns - Table of Values

Questions

Translate the increasing patterns into a table of values

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



Term Number (Day)	1	2	3	4	5
Term Value (Fruit)					

2) Rob made a pattern using checkers.

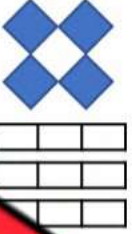
1	2	3

Figure	1	2	3	4	5
Number of Checkers					

Translating Patterns - Table of Values

Part 1

Extend the pattern by drawing the tiles below

					
1			4	5	6

Part 2

Translate the pattern into a table of values below

Figure	1	2		5	6
Tiles					

Questions

1) If I had 37 tiles, what figure could I make?

2) Can I make a figure with exactly 56 tiles?

3) Fill in the pattern rule below.

Start at _____, add _____ each time.

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 read a book, you get 5 stickers as a reward. Fill in the table to learn more about your sticker collection.

# of Books Read	Stickers Earned
2	
3	
4	
5	
10	

Name: _____

Answer the questions below by using the table of values.

When you read a book, you get 5 stickers as a reward. Fill in the table to learn more about your sticker collection.

# of Books Read	Stickers Earned
2	
3	
4	
5	
10	

Name: _____

Answer the questions below by using the table of values.

When you read a book, you get 5 stickers as a reward. Fill in the table to learn more about your sticker collection.

# of Books Read	Stickers Earned
2	
3	
4	
5	
10	

Name: _____

Answer the questions below by using the table of values.

When you read a book, you get 5 stickers as a reward. Fill in the table to learn more about your sticker collection.

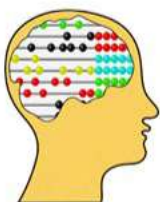
# of Books Read	Stickers Earned
2	
3	
4	
5	
10	

Name: _____

27

Curriculum Connection
P4.1

Growing Patterns - Addition

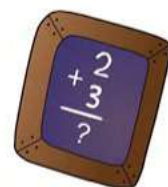


Growing/Increasing Patterns

+10 +10 +10 +10 +10

$$\begin{array}{c} \wedge \quad \wedge \quad \wedge \quad \wedge \quad \wedge \\ 10, 20, 30, 40, 50, 60 \end{array}$$

+5 +5 +5 +5 +5

$$\begin{array}{c} \wedge \quad \wedge \quad \wedge \quad \wedge \quad \wedge \\ 3, 8, 13, 18, 23, 28 \end{array}$$


Part 1

Growing Patterns - Addition

$$\begin{array}{c} \wedge \quad \wedge \\ 1) 2, 4, 6, \end{array}$$

$$\begin{array}{c} \wedge \quad \wedge \\ 2) 6, 10, 14, \end{array}$$

$$\begin{array}{c} \wedge \quad \wedge \\ 3) 22, 27, 32, \end{array}$$

$$\begin{array}{c} \wedge \quad \wedge \\ 4) 2, 5, 8, \end{array}$$

$$\begin{array}{c} \wedge \quad \wedge \\ 5) 73, 80, 87, \end{array}$$

$$\begin{array}{c} \wedge \quad \wedge \\ 6) 112, 117, 122, \end{array}$$

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)

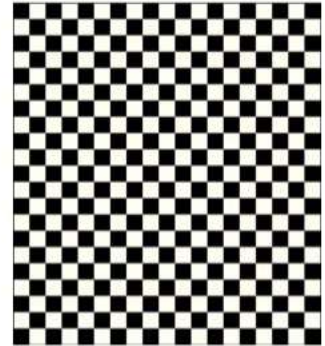
147, 151, 155, _____

Math Activity Title: Pathway to Patterns

Objective

What are we learning about?

To help students understand and create increasing addition number patterns using a simple and engaging method that involves visual aids and hands-on interaction.



Materials

What you will need for the activity.

- Colored counters or small objects (like beans or beads)
- Grid paper
- Pencils
- Rulers

Instructions

How you will complete the activity

1. Start with a discussion about what number patterns are, explaining that they involve adding the same amount to the previous number to get the next number.
2. Hand out grid paper and colored counters to each student.
3. Ask students to choose a starting number and an increment. They should write these at the top of their grid paper.
4. Students place a counter on the grid to represent their starting number in the first box at the bottom of the grid paper.
5. Students then add their chosen increment to the starting number, place another counter to represent the new number in the next box up on the grid.
6. Continue this process, adding the increment each time and moving up the grid, placing a counter for each new number, until they reach the top of the grid or a set limit.
7. Once their pattern is complete, students use their pencils and rulers to draw a line connecting the counters, creating a visual "path" of their number pattern.
8. Encourage students to write out their complete number sequence below the grid.
9. Have students present their patterns to the class, explaining their choice of starting number and increment.

Name: _____

29

Grid

Use the grid below for the activity



Number Sequence

Word Problems: Growing 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 her 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?	

Growing Addition Patterns - Rules



$$\begin{array}{cc} +4 & +4 \\ \wedge & \wedge \end{array}$$

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

2)

47, 155, 263, 371, 479, 587, 695, 803, 911, 1019, 1127, 1235, 1343, 1451, 1559, 1667, 1775, 1883, 1991, 2099, 2207, 2315, 2423, 2531, 2639, 2747, 2855, 2963, 3071, 3179, 3287, 3395, 3503, 3611, 3719, 3827, 3935, 4043, 4151, 4259, 4367, 4475, 4583, 4691, 4799, 4907, 5015, 5123, 5231, 5339, 5447, 5555, 5663, 5771, 5879, 5987, 6095, 6203, 6311, 6419, 6527, 6635, 6743, 6851, 6959, 7067, 7175, 7283, 7391, 7499, 7607, 7715, 7823, 7931, 8039, 8147, 8255, 8363, 8471, 8579, 8687, 8795, 8903, 9011, 9119, 9227, 9335, 9443, 9551, 9659, 9767, 9875, 9983, 10091, 10199, 10307, 10415, 10523, 10631, 10739, 10847, 10955, 11063, 11171, 11279, 11387, 11495, 11603, 11711, 11819, 11927, 12035, 12143, 12251, 12359, 12467, 12575, 12683, 12791, 12899, 13007, 13115, 13223, 13331, 13439, 13547, 13655, 13763, 13871, 13979, 14087, 14195, 14303, 14411, 14519, 14627, 14735, 14843, 14951, 15059, 15167, 15275, 15383, 15491, 15599, 15707, 15815, 15923, 16031, 16139, 16247, 16355, 16463, 16571, 16679, 16787, 16895, 17003, 17111, 17219, 17327, 17435, 17543, 17651, 17759, 17867, 17975, 18083, 18191, 18299, 18407, 18515, 18623, 18731, 18839, 18947, 19055, 19163, 19271, 19379, 19487, 19595, 19703, 19811, 19919, 20027, 20135, 20243, 20351, 20459, 20567, 20675, 20783, 20891, 20999, 21107, 21215, 21323, 21431, 21539, 21647, 21755, 21863, 21971, 22079, 22187, 22295, 22403, 22511, 22619, 22727, 22835, 22943, 23051, 23159, 23267, 23375, 23483, 23591, 23699, 23807, 23915, 24023, 24131, 24239, 24347, 24455, 24563, 24671, 24779, 24887, 24995, 25103, 25211, 25319, 25427, 25535, 25643, 25751, 25859, 25967, 26075, 26183, 26291, 26399, 26507, 26615, 26723, 26831, 26939, 27047, 27155, 27263, 27371, 27479, 27587, 27695, 27803, 27911, 28019, 28127, 28235, 28343, 28451, 28559, 28667, 28775, 28883, 28991, 29099, 29207, 29315, 29423, 29531, 29639, 29747, 29855, 29963, 30071, 30179, 30287, 30395, 30503, 30611, 30719, 30827, 30935, 31043, 31151, 31259, 31367, 31475, 31583, 31691, 31799, 31907, 32015, 32123, 32231, 32339, 32447, 32555, 32663, 32771, 32879, 32987, 33095, 33203, 33311, 33419, 33527, 33635, 33743, 33851, 33959, 34067, 34175, 34283, 34391, 34499, 34607, 34715, 34823, 34931, 35039, 35147, 35255, 35363, 35471, 35579, 35687, 35795, 35903, 36011, 36119, 36227, 36335, 36443, 36551, 36659, 36767, 36875, 36983, 37091, 37199, 37307, 37415, 37523, 37631, 37739, 37847, 37955, 38063, 38171, 38279, 38387, 38495, 38603, 38711, 38819, 38927, 39035, 39143, 39251, 39359, 39467, 39575, 39683, 39791, 39899, 40007, 40115, 40223, 40331, 40439, 40547, 40655, 40763, 40871, 40979, 41087, 41195, 41303, 41411, 41519, 41627, 41735, 41843, 41951, 42059, 42167, 42275, 42383, 42491, 42599, 42707, 42815, 42923, 43031, 43139, 43247, 43355, 43463, 43571, 43679, 43787, 43895, 44003, 44111, 44219, 44327, 44435, 44543, 44651, 44759, 44867, 44975, 45083, 45191, 45299, 45407, 45515, 45623, 45731, 45839, 45947, 46055, 46163, 46271, 46379, 46487, 46595, 46703, 46811, 46919, 47027, 47135, 47243, 47351, 47459, 47567, 47675, 47783, 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78779, 78887, 78995, 79103, 79211, 79319, 79427, 79535, 79643, 79751, 79859, 79967, 80075, 80183, 80291, 80399, 80507, 80615, 80723, 80831, 80939, 81047, 81155, 81263, 81371, 81479, 81587, 81695, 81803, 81911, 82019, 82127, 82235, 82343, 82451, 82559, 82667, 82775, 82883, 82991, 83099, 83207, 83315, 83423, 83531, 83639, 83747, 83855, 83963, 84071, 84179, 84287, 84395, 84503, 84611, 84719, 84827, 84935, 85043, 85151, 85259, 85367, 85475, 85583, 85691, 85799, 85907, 86015, 86123, 86231, 86339, 86447, 86555, 86663, 86771, 86879, 86987, 87095, 87203, 87311, 87419, 87527, 87635, 87743, 87851, 87959, 88067, 88175, 88283, 88391, 88499, 88607, 88715, 88823, 88931, 89039, 89147, 89255, 89363, 89471, 89579, 89687, 89795, 89903, 90011, 90119, 90227, 90335, 90443, 90551, 90659, 90767, 90875, 90983, 91091, 91199, 91307, 91415, 91523, 91631, 91739, 91847, 91955, 92063, 92171, 92279, 92387, 92495, 92603, 92711, 92819, 92927, 93035, 93143, 93251, 93359, 93467, 93575, 93683, 93791, 93899, 94007, 94115, 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108371, 108479, 108587, 108695, 108803, 108911, 109019, 109127, 109235, 109343, 109451, 109559, 109667, 109775, 109883, 109991, 110099, 110207, 110315, 110423, 110531, 110639, 110747, 110855, 110963, 111071, 111179, 111287, 111395, 111503, 111611, 111719, 111827, 111935, 112043, 112151, 112259, 112367, 112475, 112583, 112691, 112799, 112907, 113015, 113123, 113231, 113339, 113447, 113555, 113663, 113771, 113879, 113987, 114095, 114203, 114311, 114419, 114527, 114635, 114743, 114851, 114959, 115067, 115175, 115283, 115391, 115499, 115607, 115715, 115823, 115931, 116039, 116147, 116255, 116363, 116471, 116579, 116687, 116795, 116903, 117011, 117119, 117227, 117335, 117443, 117551, 117659, 117767, 117875, 117983, 118091, 118199, 118307, 118415, 118523, 118631, 118739, 118847, 118955, 119063, 119171, 119279, 119387, 119495, 119603, 119711, 119819, 119927, 120035, 120143, 120251, 120359, 120467, 120575, 120683, 120791, 120899, 121007, 121115, 121223, 121331, 121439, 121547, 121655, 121763, 121871, 121979, 122087, 122195, 122303, 122411, 122519, 122627, 122735, 122843, 122951, 123059, 123167, 123275, 123383, 123491, 123599, 123707, 123815, 123923, 124031, 124139, 124247, 124355, 124463, 124571, 124679, 124787, 124895, 125003, 125111, 125219, 125327, 125435, 125543, 125651, 125759, 125867, 125975, 126083, 126191, 126299, 126407, 126515, 126623, 126731, 126839, 126947, 127055, 127163, 127271, 127379, 127487, 127595, 127703, 127811, 127919, 128027, 128135, 128243, 128351, 128459, 128567, 128675, 128783, 128891, 128999, 129107, 129215, 129323, 129431, 129539, 129647, 129755, 129863, 129971, 130079, 130187, 130295, 130403, 130511, 130619, 130727, 130835, 130943, 131051, 131159, 131267, 131375, 131483, 131591, 131699, 131807, 131915, 132023, 132131, 132239, 132347, 132455, 132563, 132671, 132779, 132887, 132995, 133103, 133211, 133319, 133427, 133535, 133643, 133751, 133859, 133967, 134075, 134183, 134291, 134399, 134507, 134615, 134723, 134831, 134939, 135047, 135155, 135263, 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148871, 148979, 149087, 149195, 149303, 149411, 149519, 149627, 149735, 149843, 149951, 150059, 150167, 150275, 150383, 150491, 150599, 150707, 150815, 150923, 151031, 151139, 151247, 151355, 151463, 151571, 151679, 151787, 151895, 152003, 152111, 152219, 152327, 152435, 152543, 152651, 152759, 152867, 152975, 153083, 153191, 153299, 153407, 153515, 153623, 153731, 153839, 153947, 154055, 154163, 154271, 154379, 154487, 154595, 154703, 154811, 154919, 155027, 155135, 155243, 155351, 155459, 155567, 155675, 155783, 155891, 155999, 156107, 156215, 156323, 156431, 156539, 156647, 156755, 156863, 156971, 157079, 157187, 157295, 157403, 157511, 157619, 157727, 157835, 157943, 158051, 158159, 158267, 158375, 158483, 158591, 158699, 158807, 158915, 159023, 159131, 159239, 159347, 159455, 159563, 159671, 159779, 159887, 159995, 160103, 160211, 160319, 160427, 160535, 160643, 160751, 160859, 160967, 161075, 161183, 161291, 161399, 161507, 161615, 161723, 161831, 161939, 162047, 162155, 162263, 162371, 162479, 162587, 162695, 162803, 162911, 163019, 163127, 163235, 163343, 163451, 163559, 163667, 163775, 163883, 163991, 164099, 164207, 164315, 164423, 164531, 164639, 164747, 164855, 164963, 165071, 165179, 165287, 165395, 165503, 165611, 165719, 165827, 165935, 166043, 166151, 166259, 166367, 166475, 166583, 166691, 166799, 166907, 167015, 167123, 167231, 167339, 167447, 167555, 167663, 167771, 167879, 167987, 168095, 168203, 168311, 168419, 168527, 168635, 168743, 168851, 168959, 169067, 169175, 169283, 169391, 169499, 169607, 169715, 169823, 169931, 170039, 170147, 170255, 170363, 170471, 170579, 170687, 170795, 170903, 171011, 171119, 171227, 171335, 171443, 171551, 171659, 171767, 171875, 171983, 172091, 172199, 172307, 172415, 172523, 172631, 172739, 172847, 172955, 173063, 173171, 173279, 173387, 173495, 173603, 173711,

Exit Cards

Cut Out

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

Name: _____

Growing Addition Pattern Questions1) (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: _____

Growing Addition Pattern Questions1) (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: _____

Growing Addition Pattern Questions1) (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: _____

Growing Addition Pattern Questions1) (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.

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, _____, 61, _____, _____

Pattern Rule: Start at _____ add _____ each time

4) 150, 172, 194, _____, _____

Pattern Rule: Start at _____ add _____ each time

5) 273, 288, 303, _____, _____, _____

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 321, add 6 each time

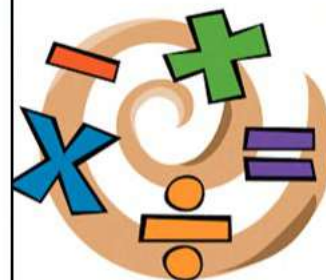
4) _____, _____, _____, _____, _____, _____

Pattern Rule: Start at 442, add 12 each time

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	

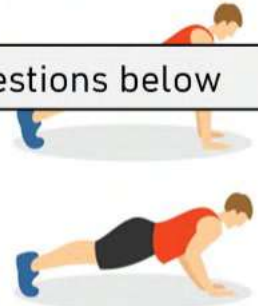
Rule: add 12	
In	Out
15	
42	
85	
124	

Push-Up Challenge

Questions

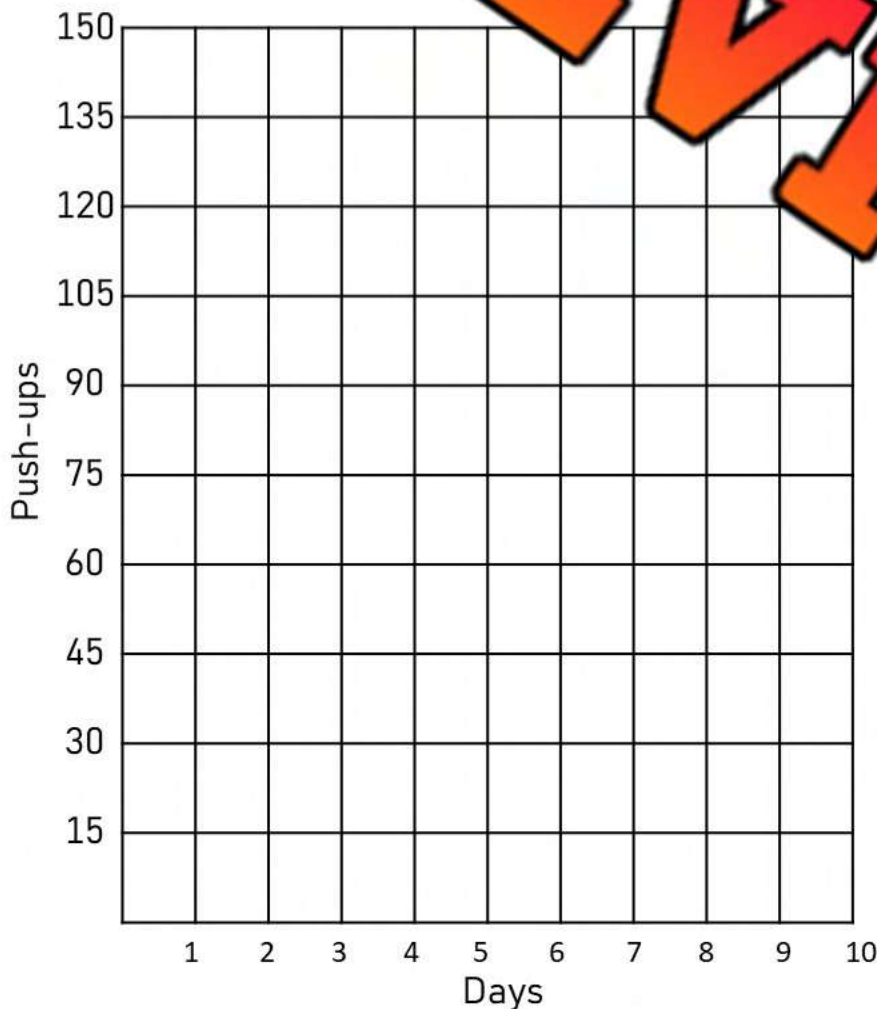
Complete the table of values and answer the questions below

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: _____



Which day did
Brayden complete
100 pushups?

2) How many
days did he
take to complete
150 pushups?

3) If his friend
pushups for 2 weeks
who would have
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?

Name: _____

38

Curriculum Connection
P4.1

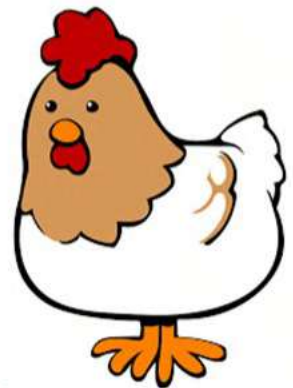
The Egg Challenge

Challenge

Answer the question below. Show your thinking!

If a hen laid 2 eggs on Monday, 4 eggs on Tuesday, 6 eggs on Wednesday and the pattern continued, how many eggs would it lay on the Sunday?

PREVIEW



How many days would the hen need to lay 10 eggs?



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 2 candies from each house he visits. He visits 10 houses.

a) Draw a pattern to solve the problem.

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?



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	

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?

Patterning Word Problem - Shapes

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 |

Ally created a pattern using triangles and trapezoids. She made 3 figures in her pattern.



Figure 1



Figure 3

a) How many triangles and trapezoids will there be in figure 5?

b) How many triangles and trapezoids will there be in figure 10?

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 used toothpicks to make a pattern. Each line is a toothpick.



Figure 1



Figure 2

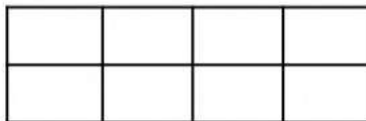


Figure 3

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.



Growing Patterns - Multiplication

Growing Pattern - Multiplication

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



Part 1

Extend the growing pattern

1) 1, 3, 9, _____

2) 2, 4, 8, _____, _____

3) 2, 6, 18, _____, _____

4) 10, 100, _____, _____

5) 5, 10, 20, _____, _____

6) _____, 180, _____, _____

Part 2

Follow the rule to continue the growing 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: Growing Patterns - Multiplication**Questions**

Solve the word problems below

	Word Problems - Growing 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 three months?	
3	A puppy weighs 2 kg at birth. Its weight increases fivefold each month. What will its weight be 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: _____

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Growing 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

Growing 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: _____

Growing 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: _____

Growing 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: _____

Growing 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: _____

Growing 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.

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 costs 2¢ and on the third day late, it is 4¢. After 4 days, 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 she have to pay?

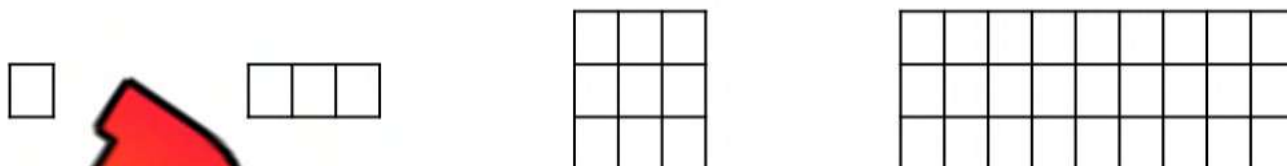
Multiplication Pattern – Word Problem

Questions

Answer the questions below



Rachel created the pattern below using blocks.



- 1) Complete the table below:

Term Number	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? How long would it take her to finish 15 laps?

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

Name: _____

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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, 150, 200, 250, 300

Start at _____, _____ each time

200, 400, 600, 800, 1000, 1200, 1400

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

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:							

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 for answers
- 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 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 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

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

Card 7:

Start with 10. Add 1 and then take away half for the next number. What is the third number?

- a) 12
- 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

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

Card 22:

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

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

- 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) 12
- 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: _____

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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	

Relationship Between Whole Numbers

Directions Investigate the relationship between addition and subtraction below

1) Fill in the blanks to see the relationship between adding and subtracting 6 tenths

Addition	Subtraction
$4.0 + 0.6 =$ _____	$4.6 - 0.6 =$ _____
$4.1 + 0.5 =$ _____	$4.6 - 0.5 =$ _____
$4.2 + 0.4 =$ _____	$4.6 - 0.4 =$ _____
$4.3 + 0.3 =$ _____	$4.6 - 0.3 =$ _____
$4.4 + 0.2 =$ _____	$4.6 - 0.2 =$ _____
$4.5 + 0.1 =$ _____	$4.6 - 0.1 =$ _____
$4.6 + 0.0 =$ _____	$4.6 - 0.0 =$ _____

2) Fill in the blanks to see the relationship between adding and subtracting 7 tenths

Addition	Subtraction
$8.0 + 0.7 =$ _____	$8.7 - 0.7 =$ _____
$8.1 + 0.6 =$ _____	$8.7 - 0.6 =$ _____
$8.2 + 0.5 =$ _____	$8.7 - 0.5 =$ _____
$8.3 + 0.4 =$ _____	$8.7 - 0.4 =$ _____
$8.4 + 0.3 =$ _____	$8.7 - 0.3 =$ _____
$8.5 + 0.2 =$ _____	$8.7 - 0.2 =$ _____
$8.6 + 0.1 =$ _____	$8.7 - 0.1 =$ _____
$8.7 + 0.0 =$ _____	$8.7 - 0.0 =$ _____

Relationship Between Whole Numbers

Part 1

Investigate the relationship between multiplication and division below

1) Fill in the blanks to see the relationship between multiplication and division.

Multiplication	Division
$8 \times 1 = \underline{\quad}$	$8 \div 1 = \underline{\quad}$
$8 \times 2 = \underline{\quad}$	$16 \div 2 = \underline{\quad}$
$8 \times 3 = \underline{\quad}$	$24 \div 3 = \underline{\quad}$
$8 \times 4 = \underline{\quad}$	$32 \div 4 = \underline{\quad}$
$8 \times 5 = \underline{\quad}$	$40 \div 5 = \underline{\quad}$
$8 \times 6 = \underline{\quad}$	$48 \div 6 = \underline{\quad}$
$8 \times 7 = \underline{\quad}$	$56 \div 7 = \underline{\quad}$
$8 \times 8 = \underline{\quad}$	$64 \div 8 = \underline{\quad}$
$8 \times 9 = \underline{\quad}$	$72 \div 9 = \underline{\quad}$
$8 \times 10 = \underline{\quad}$	$80 \div 10 = \underline{\quad}$

Part 2

Write the inverse multiplication or division sentence

Multiplication	Division
$5 \times 3 = \underline{\quad}$	
	$24 \div 6 = \underline{\quad}$
$7 \times 6 = \underline{\quad}$	
	$36 \div 4 = \underline{\quad}$

Multiplication	Division
$8 \times 4 = \underline{\quad}$	
	$56 \div 7 = \underline{\quad}$
$9 \times 8 = \underline{\quad}$	
	$45 \div 5 = \underline{\quad}$

Relationship Between Decimals/Whole Numbers

Directions Represent the number by filling in the table. The first one is done for you

Number	Tens	Ones	Tenths
37.1	3	+ 7	+ 1
37.1	2	+ 17	+ 1
37.1	1	+ 27	+ 1
37.1	0	+ 37	+ 1

Relationship Pattern

When the tens place goes down 1, the ones place goes up by _____.

Number	Tens	Ones	Tenths
37.1	3	+ 7	+ 1
37.1	3	+ 7	+ 11
37.1	3	+ 5	+ _____
37.1	3		+ _____

Relationship Pattern

When the ones place goes down 1, the tenths place goes up by _____.

How many different ways can you represent the number 37.1?

Tens	Ones	Tenths
2	+ 5	+ 121

Name: _____

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Relationship Between Decimals/Whole Numbers

Directions Represent the number by filling in the table. The first one is done for you

Number	Tens	Ones	Tenths
56.3	5	+ ____	+ 3
56.3	4	+ ____	+ 3
56.3	3	+ ____	+ 3
56.3	2	+ ____	+ 3

Relationship Pattern

When the tens place goes down 1, the ones place goes up by ____.

Number	Tens	Ones	Tenths
56.3	5	6	+ ____
56.3	5	5	+ ____
56.3	5	+ 4	+ ____
56.3	5		+ ____

Relationship Pattern

When the ones place goes down 1, the tenths place goes up by ____.

How many different ways can you represent the number 56.3?

Tens	Ones	Tenths
4	6	+ 103

Decimal Patterns - Adding

**Questions**

Growing 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: _____

Exit Cards

Cut Out

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

Name: _____

Growing 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: _____

Growing 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: _____

Growing 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: _____

Growing 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: _____

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Algebra Quiz - Patterning

Part 1

Continue the Fibonacci sequences below

1)	0	1	1	2		
----	---	---	---	---	--	--

2)	2	5	8		
----	---	---	---	--	--

3)	13	3	55		
----	----	---	----	--	--

Part 2

Follow the rules and extend the pattern

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) (Add 10)

183, 193, 203, _____, _____, _____

6) (Subtract 11)

575, 564, 553, _____, _____, _____

Questions

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		-

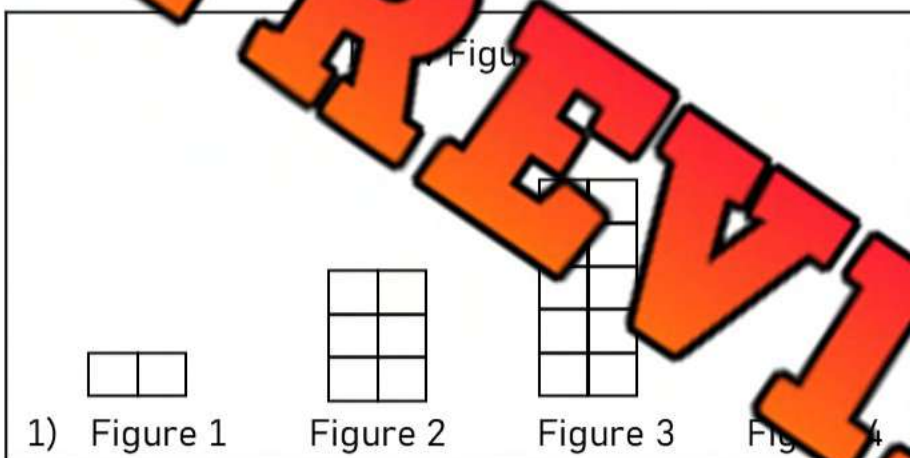


Figure	Term Value
1	
2	
3	

1) Figure 1

Figure 2

Figure 3

Figure 4

Word Problem

Solve the word problem below now

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?

Part 5

Extend the patterns below

1) 1, 3, 9, _____, _____

2) 2, 4, 8, _____, _____

3) 2, 6, 18, _____, _____

4) 10, 100, 1000, _____, _____

Part 6

Use the pattern rule to fill in the blanks

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

2) _____, _____, _____, _____
Pattern Rule: Start at 1, multiply by 3 each time

Part 7

Answer the questions below

Harper made a deal with her parents about her allowance. She gets 1 penny on day one, 2 pennies on day 2, 4 pennies on day 3, and 8 pennies on day 4.

a) Fill in the table of values showing the pattern

Days	1	2	3	4	5
Pennies					

b) How many pennies will she get on day 10?



c) Would Harper have enough money by day 12 to buy a \$20 hat?

Sorting Data – Carroll Diagram

Part 1

Sort the animals into the correct categories

						
Cow	Wolf	Dog	Cat	Goldfish	Gorilla	Human

	Has 4 Legs	Has 0-2 Legs
Can Be A Pet		
Not A Pet		

Part 2

Give examples of animals that fit the following categories

Can you think of another animal that...

1. Is a pet with 4 legs? _____
2. Has 4 legs and is not a pet? _____
3. Has 0-2 legs and is a pet? _____
4. Has 0-2 legs and is not a pet? _____

Name: _____

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Sorting Data – Carroll Diagram

Part 1

Sort the numbers into the correct categories



	Number greater than 100	Number less than 100
Odd number		
Even Number		

Part 2

Give examples of numbers that fit the following categories

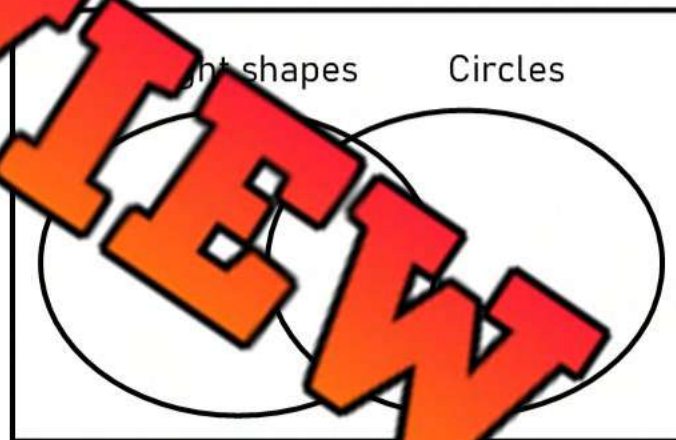
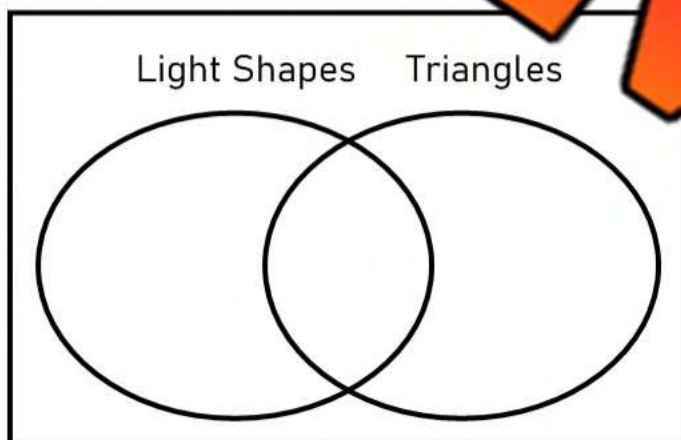
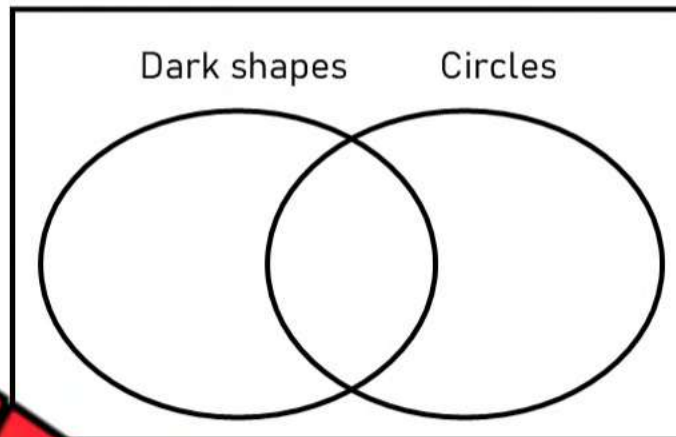
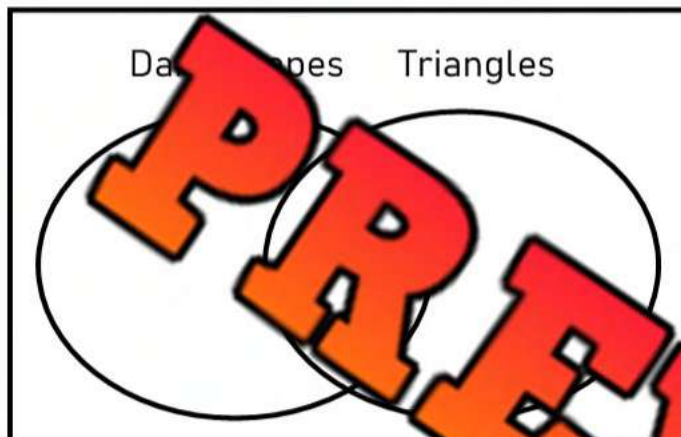
Can you think of another number that...

1. Is odd and greater than 100? _____
2. Is odd and less than 100? _____
3. Is even and greater than 100? _____
4. Is even and less than 100? _____
5. Is even and between 50 and 100? _____
6. Is odd and between 300 and 1000? _____

Sorting Data – Venn Diagram

Part 1

Sort the shapes into the correct categories

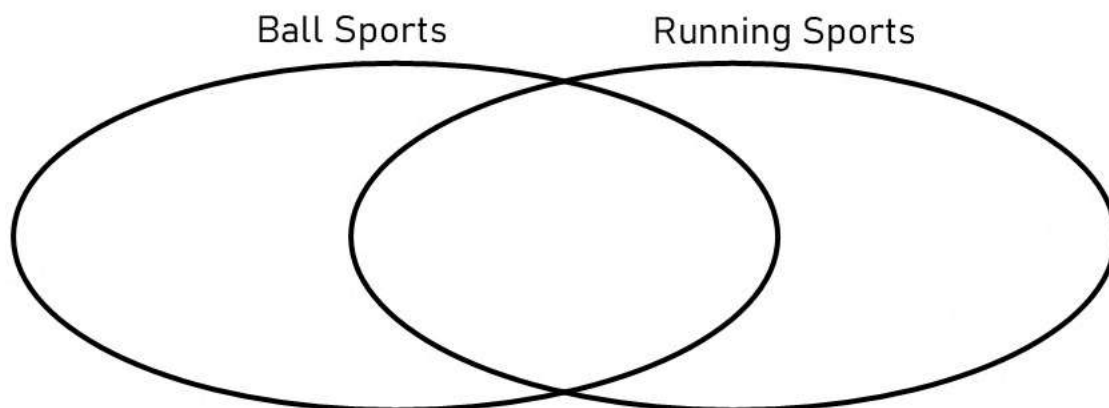


Part 2

Sort the sports into the correct categories

Sports

- Basketball
- Soccer
- 100 metre run
- Marathon run
- Tennis
- Golf
- Bowling



Name: _____

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Sorting Data – Venn Diagram

Directions

Sort the animals into the correct categories



Butterfly



Duck



Fish



Fly



Eagle



Eel



Snake



Exit Cards

Cut Out

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

Name: _____

Sort the animals into the correct categories.

Animals

- Horse
- Bear
- Lion
- Wolf
- Cow
- Human

Eats AnimalsEats Plants

Name: _____

Sort the animals into the correct categories.

Animals

- Horse
- Bear
- Lion
- Wolf
- Cow
- Human

Eats AnimalsEats Plants

Name: _____

Sort the animals into the correct categories.

Animals

- Horse
- Bear
- Lion
- Wolf
- Cow
- Human

Eats AnimalsEats Plants

Name: _____

Sort the animals into the correct categories.

Animals

- Horse
- Bear
- Lion
- Wolf
- Cow
- Human

Eats AnimalsEats Plants

Name: _____

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Sorting Data – Carroll Diagram

22	36	13	75	56
25	41	27	47	1

Part 1

Sort the numbers into the correct categories in the Carroll diagram

	Less Than 30	More Than 30
Odd Numbers		
Even Numbers		

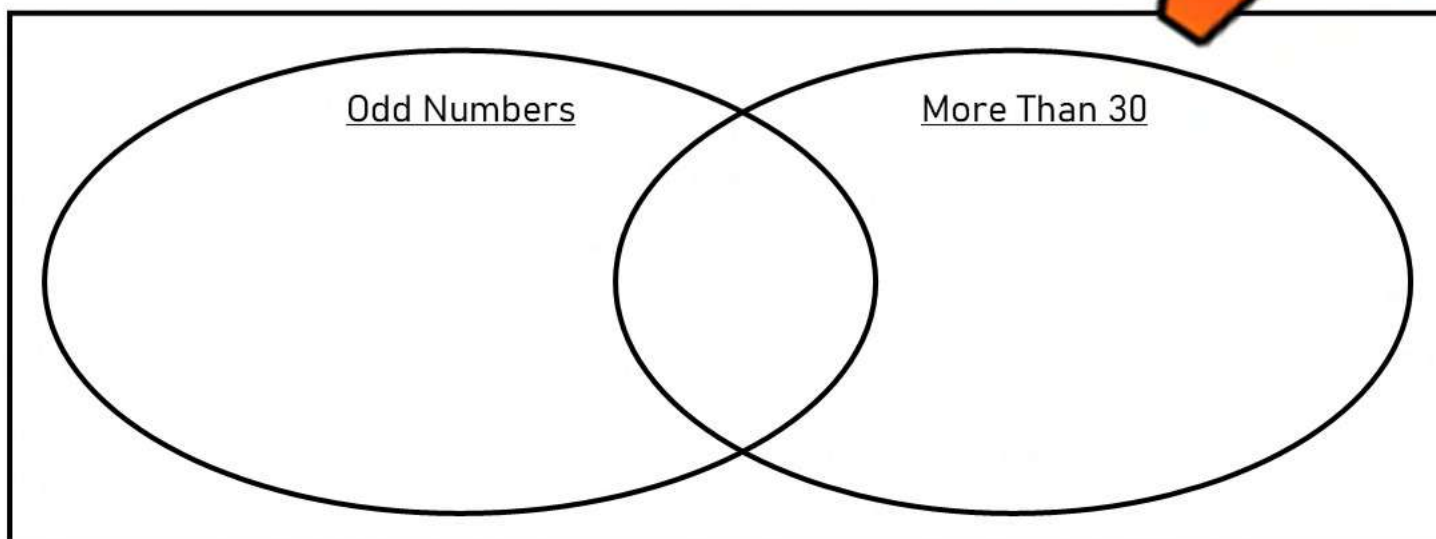
Part 2

Fill in the following table below

	Less Than 30	More Than 30	Total
Odd Numbers	4		
Even Numbers			
Total			

Part 3

Sort the numbers using the Venn Diagram



Name: _____

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Sorting Numbers – Venn, Two-Way, Carroll

43	77	132	103	22
38	135	126	98	163

Part 1

Sort the numbers into the correct categories in the Carroll diagram

	Less Than 100	More Than 100
Odd		
Even Number		

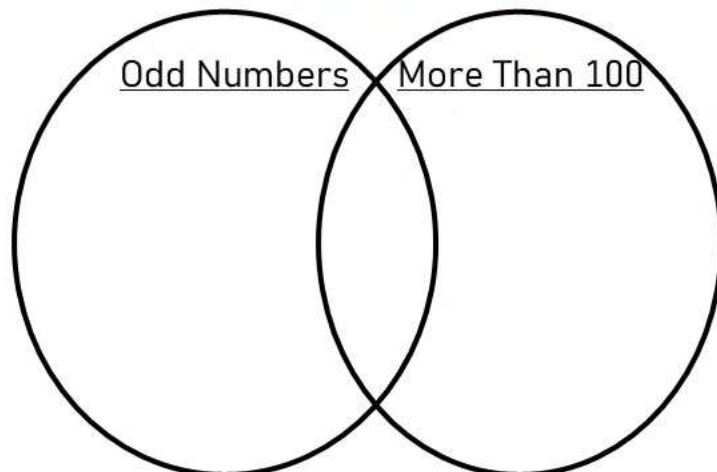
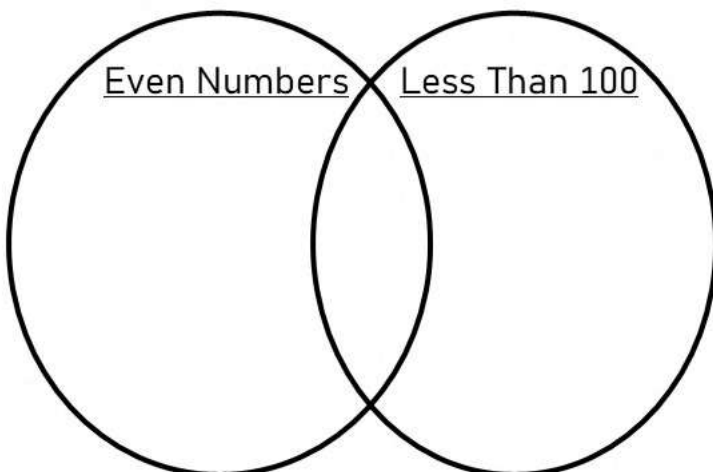
Part 2

Fill in the two-way table below

	Less Than 100	More Than 100	Total
Odd Numbers	2		
Even Numbers			
Total			

Part 3

Sort the numbers using the Venn Diagram



Name: _____

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Sorting Food – Venn, Two-Way, Carroll



A



B



C



D



E



F



G



H



I



J



K



L

Part 1

Sort the food/drinks into the correct categories in the Carroll diagram

	Food	Drink
Hot		
Cold		

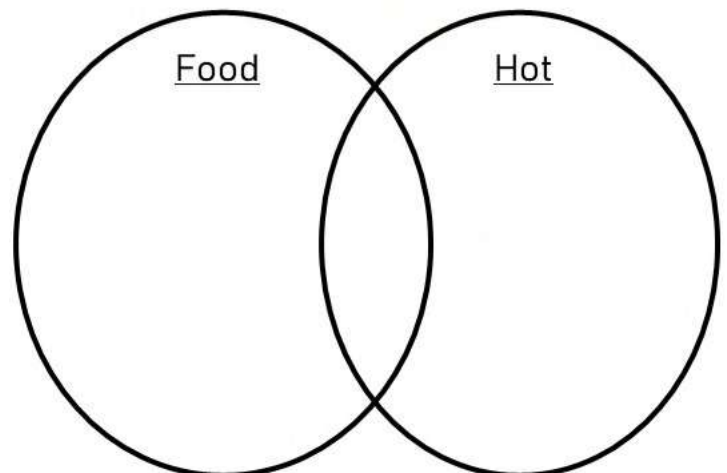
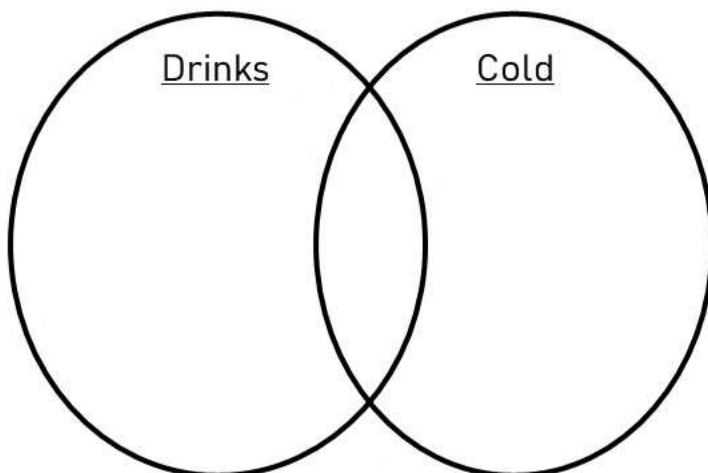
Part 2

Fill in the two-way frequency table below

	Food	Drink	Total
Hot	3		
Cold			
Total			

Part 3

Sort the food and drinks using the Venn Diagrams



Collecting Data – Carrol Diagram

Directions

Survey your classmates using the survey question and fill in the Carrol Diagram

Survey Question: Do you prefer chocolate or vanilla ice cream? Do you prefer your ice cream in a cone or in a bowl?

Type of Ice Cream	Type of Ice Cream Treat	
	Chocolate	Vanilla
Cone		
Bowl		



Part 2

Fill in the following table below

	Chocolate	Vanilla	Total
Cone			
Bowl			
Total			

- How many people participated in the survey? _____
- Which type of ice cream is the most popular? _____
- Which type of ice cream is the least popular? _____
- What did you learn about the data?

Name: _____

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Quiz – Carrol and Venn Diagram

Part 1

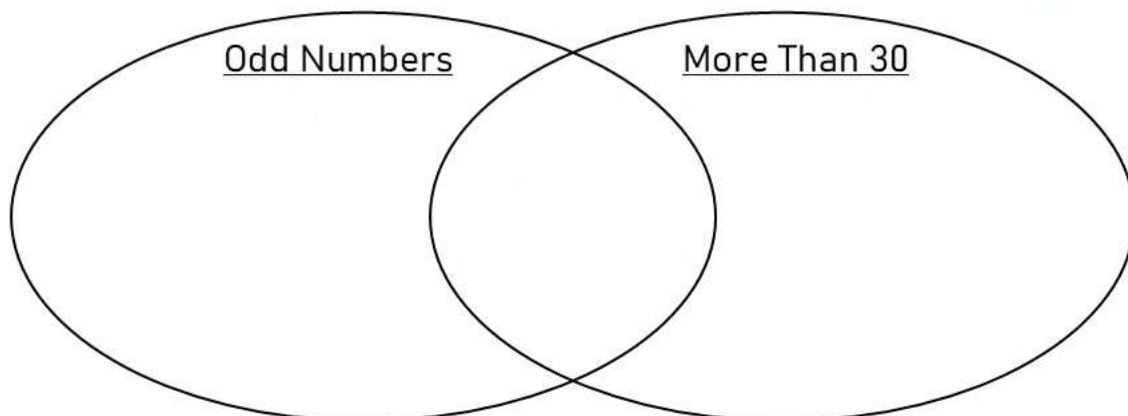
Sort the numbers into the correct categories in the Carroll Diagram

22	36	13	75	56
25	41	27	47	1

	Less Than 30	More Than 30
Odd Number		
Even Numbers		

Part 2

Sort the numbers using the Venn Diagram



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 = $3 + n = 21$

Expression = $3y + 2$

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) $10 + n$ Expression Equation
7) $12 \div 4 = 3$ Expression Equation	8) 56 Expression Equation
9) $100 \div n + 3$ Expression Equation	10) $\frac{25}{n} + 10 = 15$ Expression Equation
11) $\frac{40 - 8}{n}$ 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 pattern has the following rule: $3n - 1$	Equation	Expression
3) Maria wants to run 22km in the week. She has already run 22km. $22 + 0$	Equation	Expression
4) The cost to enter an amusement park is \$20 per ticket. $20t$ or $(t \times 20)$	Equation	Expression
5) Jeff works at a garden centre and earns \$15 an hour. He can figure out his pay by using the following: $15h$ or $(h \times 15)$	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

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.



3	+	6	=	9
---	---	---	---	---

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



8	+		=	11
---	---	--	---	----



6	+		=	10
---	---	--	---	----



8	+		=	14
---	---	--	---	----



5	+		=	9
---	---	--	---	---



7	+		=	12
---	---	--	---	----



2	+		=	13
---	---	--	---	----



6	+		=	10
---	---	--	---	----



3	+		=	14
---	---	--	---	----



1	+		=	12
---	---	--	---	----

Name: _____

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Curriculum Connection
P4.2

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) $22 + 15 = 38$
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) $12 + \boxed{} = \boxed{}$

5) $9 + \boxed{} = 28$

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

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

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

9) $\boxed{} + 33 = 50$

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

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

12) $\boxed{} + 10 = 40$

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 made a necklace with x beads, then adds 5 more beads and has a total of 18 beads. How many beads were on Thomas's necklace to start?	
3	Oliver has x pencils in his case. He borrowed 3 pencils from his friend, and now he has 10 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)	$16 + 12$	$21 + 11$	$15 + 14$
3)	$21 + 8$	$19 + 11$	$17 + 12$
4)	$25 + 10$	$15 + 15$	$20 + 12$
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) $33 + \text{yellow circle} = 58$ $\text{yellow circle} =$	3) $\text{blue circle} + 61 = 97$ $\text{blue circle} =$
4) $47 + \text{blue diamond} = 82$ $\text{blue diamond} =$	5) $45 + \text{green triangle} = 76$ $\text{green triangle} =$	6) $72 + \text{red circle} = 105$ $\text{red circle} =$
7) $\text{orange diamond} + 105 = 150$ $\text{orange diamond} =$	8) $140 + \text{blue diamond} + 172 = 181$ $\text{blue diamond} =$	

Part 2

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

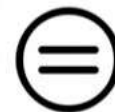
1)	2)

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

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

Activity – Mystery Number Challenge

Objective

What are we learning about?

To help students understand how to use symbols to represent unknown values in equations, enhancing their problem-solving skills by writing equations that correspond to given problems.

$$X+10=25$$

Material

What you will need for the activity.

- Small white sheets of paper
- Dry erase marker or pen
- Set of simple word problems on cards
- Tokens or stickers

Instructions

How you will complete it

1. Distribute a sheet of paper and a pencil to each student.
2. Hand out a card with a simple word problem to each student. Each problem should involve a basic arithmetic operation (addition or subtraction) and include a place for an unknown value, like "Sam has some apples. He bought 10 more and now he has 25. How many did he start with?"
3. Ask the students to read their problem and think about what the unknown value is.
4. Instruct the students to write an equation on their paper using a symbol (like x or a blank line) to represent the unknown value.
5. Once they have written their equation, students should come up to the front of the class one by one to present their equation and explain their thinking process in determining how to set up their equation.
6. Give feedback on each equation, discussing as a class whether the equation makes sense and if it accurately represents the word problem.
7. Award tokens or stickers for correctly written equations and good explanations.

Word Problems

Cut out the questions below and distribute to each student.

Lucy has some stickers. She gets 7 more from her friend, and now she has 10 stickers. How many stickers did Lucy start with?

Josh had some books. He bought 6 more books at the book fair, and now he has 11 books. How many books did Josh have originally?

Mia had some crayons. She found 8 more in her desk drawer, and now she has 15 crayons. How many crayons did Mia have to begin with?

Aidan had some cars. His aunt gave him 9 more cars for his birthday, and now he has 20 cars. How many cars did Aidan have before his birthday?

Ella had some pieces of paper. She found 3 more to share with her brother, and now they have 12 pieces of paper together. How many pieces did Ella have initially?

Noah had some balloons. 4 more balloons were given to him at the party, and now he has 10 balloons. How many balloons did Noah have with?

Sophia had some pencils. She won 5 more pencils as a prize and now she has 18 pencils. How many pencils did Sophia have at first?

Liam had some cookies. He made 8 more cookies with his grandmother. Now he has 14 cookies. How many cookies did Liam have before baking?

Olivia had some marbles. She traded 2 more marbles with her friend and now she has 9 marbles. How many marbles did Olivia have originally?

Ben had some action figures. He received 6 more action figures as gifts, and now he has 17 action figures. How many action figures did Ben start with?

Amelia had some beads. She bought 10 more beads for her craft project, and now she has 25 beads. How many beads did Amelia have to begin with?

James had some puzzle pieces. He found 7 more pieces under the couch, and now he has 12 pieces. How many puzzle pieces did James have initially?

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

_____ + _____ + _____ = _____

Name: _____

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Curriculum Connection
P4.2

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

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

$\underline{\hspace{2cm}} + 8 = 61$

3)

$\underline{\hspace{2cm}} + 7 = 72$

4)

23	31

$23 + 31 = \underline{\hspace{2cm}}$

5)

53	
39	

$39 + \underline{\hspace{2cm}} = 53$

6)

76	

$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = 76$

7)

43	18

$43 + 18 = \underline{\hspace{2cm}}$

8)

82	
22	

$22 + \underline{\hspace{2cm}} = 82$

9)

93	
15	

$15 + \underline{\hspace{2cm}} = 93$

10)

67	24

$67 + 24 = \underline{\hspace{2cm}}$

Name: _____

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Curriculum Connection
P4.2

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	

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

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)

25	17	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 are 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?

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

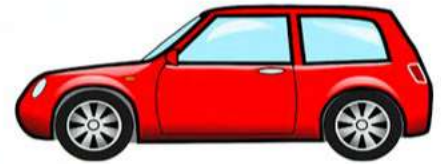


Word Problems – Writing Addition Equations

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?

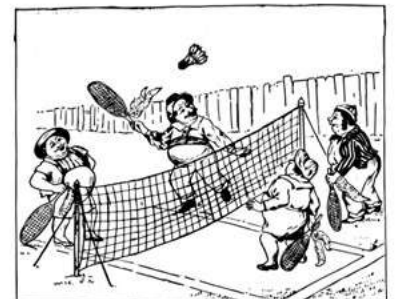


2) Steve got 25 points for beating level 1 in a video game. He got 33 more points for beating level 2. How many points did he have after level 2?



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?



$$11 - \square = 8$$



$$8 - \square = \square$$



$$10 - \square = 4$$



$$8 - \square = 1$$



$$11 - \square = 3$$



$$13 - \square = 2$$



$$10 - \square = 4$$



$$14 - \square = 1$$



$$4 - \square = 0$$

Name: _____

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Curriculum Connection
P4.2

Subtraction – Are They Equal?

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

$7 - 2 = 5$

$25 - 6 \neq 18$

$15 - 11 = 4$

Questions

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

1) $12 - 4 = 6$	2) $12 - 4 = 6$	3) $16 - 3 = 13$
4) $25 - 8 = 1$	5) $16 = 22$	6) $29 - 13 = 16$
7) $32 - 14 = 17$	8) $11 = 11$	9) $47 - 14 = 34$
10) $48 - 10 = 38$	11) $45 - 4 = 42$	12) $5 - 3 = 12$
13) $53 - 24 = 28$	14) $52 - 8 = 45$	15) $60 - 16 = 55$
16) $50 - 0 = 50$	17) $43 - 8 = 35$	18) $45 - 15 = 30$
19) $68 - 30 = 38$	20) $57 - 16 = 42$	21) $75 - 26 = 48$

Pre-Algebra – Balancing Subtraction Equations

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

Examples:

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

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

Questions

Fill in the missing number to balance the equation

1) 15 - 2) 11 - 6 = 3) 10 - 5 = 4) 10 - = 55) - 6 = 66) 14 - = 107) - 6 = 108) - 5 = 129) - 8 = 1210) 35 - 10 = 11) 52 - = 4012) 40 - = 3013) 24 - = 1714) 28 - 6 = 15) 18 - = 1616) 43 - = 3517) 45 - 15 = 18) 25 - = 1019) 46 - = 3120) 25 - 21 = 21) 45 - = 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. 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 video game for \$15. Now he has \$9 left. How much money did Alex have at first?	
5	Chloe has 13 storybooks. She donates n number of books to the 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?	

Name: _____

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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)

$25 - 2$

$21 - 9$

$19 - 6$

2)

$33 - 11$

$20 - 8$

$30 - 8$

3)

$41 - 7$

$50 - 10$

$48 - 13$

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)

$$133 - \blacktriangle = 70$$

$$\blacktriangle =$$

9)

$$189 - \bullet = 151$$

$$\bullet =$$

Part 2

Write your own questions using any symbol you can get. Send 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) $\bullet - 56 = 8$



=

2) $39 - \blacktriangle = 29$



=

3) $76 - 25 = \blacklozenge$



=

4) $183 - 32 = \bullet$



=

Name: _____

Find out the value of the symbol.

1) $\bullet - 56 = 8$



=

2) $39 - \blacktriangle = 29$



=

3) $76 - 25 = \blacklozenge$



=

4) $183 - 32 = \bullet$



=

Name: _____

Find out the value of the symbol.

1) $\bullet - 56 = 8$



=

2) $39 - \blacktriangle = 29$



=

3) $76 - 25 = \blacklozenge$



=

4) $183 - 32 = \bullet$



=

Name: _____

Find out the value of the symbol.

1) $\bullet - 56 = 8$



=

2) $39 - \blacktriangle = 29$



=

3) $76 - 25 = \blacklozenge$



=

4) $183 - 32 = \bullet$



=

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

$18 - n = 5$ $n =$	$n - 5 = 5$ $n =$	$22 - n = 10$ $n =$
$25 - 10 = p$ $p =$	$10 - p = 5$ $p =$	$p - 8 = 15$ $p =$
$31 - y = 30$ $y =$	$y - 14 = 1$ $y =$	$55 - 35 = y$ $y =$
$65 - t = 50$ $t =$	$28 - t = 20$ $t =$	$59 - t = 39$ $t =$
$24 - a = 17$ $a =$	$50 - a = 30$ $a =$	$63 - a = 50$ $a =$
$76 - 30 = s$ $s =$	$62 - s = 22$ $s =$	$51 - s = 39$ $s =$

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

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



3) Tom collected 73 shells on the beach. He gave 30 shells to his sister. Now he has 60 shells left. Which equation tells us how many shells he gave to his sister?

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

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
- 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 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

$x - 4 = 12$

$y - 3 = 15$

$z - 2 = 20$

$a - 5 = 25$

$b - 6 = 24$

$c - 7 = 23$

$d - 8 = 32$

$e - 9 = 41$

$r - 6 = 54$

$s - 5 = 55$

$t - 7 = 73$

$u - 8 = 82$

$v - 12 = 48$

$w - 11 = 49$

$x - 13 = 87$

$y - 14 = 86$

$z - 1 = 98$

$a - 1 = 99$

$b - 2 = 98$

$c - 3 = 97$

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 the beginning?

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 100 bees, and 49 flew away, how many are left?

If you have 100 coins, spend 14 and 86 remain. How many were spent?

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

If there are 100 days left of school, and 13 pass, 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 broke, 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		30	
7		19		31	
8		20		32	
9		21		33	
10		22		34	
11		23		35	
12		24		36	

Name: _____

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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) $4 \times 2 = 8$	6) $3 \times 5 = 16$
7) $10 \times 2 = 12$	8) $10 \times 5 = 50$	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) $10 \times 4 = 40$

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)

$$\bullet \times 3 = 12$$

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)

$$2 \times \blacktriangle = 60$$

$$\blacktriangle =$$

9)

$$10 \times \bullet = 150$$

$$\bullet =$$

Part 2

Write your own questions using any symbol you want. In groups, find an answer.

1)

2)

3)

4)

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: $5n = 15$ means $5 \times n = 15$

We can figure out the unknown number by balancing the equation: $n = 3$.



Question

Find out the value of the variable

	$n \times 5 = 20$ $n =$
$10 \times 1 = p$ $p =$	$5p = 30$ $p =$
$10n = 30$ $n =$	$5n = 20$ $n =$
$2n = 16$ $n =$	$8 \times 5 = t$ $t =$
$5n = 45$ $n =$	$10n = 100$ $n =$
$10s = 50$ $s =$	$5 \times 7 = s$ $s =$

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) $9 \times 7 = t$

$t =$

2) $4n = 44$

$n =$

3) $8 \times 5 = t$

$t =$

4) $6n = 42$

$n =$

Name: _____

Find out the value of the variable.

1) $9 \times 7 = t$

$t =$

2) $4n = 44$

$n =$

3) $8 \times 5 = t$

$t =$

4) $6n = 42$

$n =$

Name: _____

Find out the value of the variable.

1) $9 \times 7 = t$

$t =$

2) $4n = 44$

$n =$

3) $8 \times 5 = t$

$t =$

4) $6n = 42$

$n =$

Name: _____

Find out the value of the variable.

1) $9 \times 7 = t$

$t =$

2) $4n = 44$

$n =$

3) $8 \times 5 = t$

$t =$

4) $6n = 42$

$n =$

Using Variables to Solve Multiplication Equations

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

$$ab = c$$

$$a = 5$$

$$b = 2$$

$$5 \times 2 = c$$

$$c = 10$$



Question

Find out the value of the variable

$ab = c$ $a = 5$ _____ x _____ = c $c =$	$en = f$ $e = 10$ $n = 4$ _____ x _____ = f $f =$
$ry = k$ $r = 3$ $y =$ _____ _____ x _____ = k $k =$	$gh = t$ $t = 10$ $g = 6$ _____ x _____ = h $h =$
$ab = c$ $a = 5$ $b = 5$ _____ x _____ = c $c =$	$en = f$ $e = 6$ $n =$ _____ _____ x _____ = f $f =$
$ry = k$ $r = 4$ $y = 2$ _____ x _____ = k $k =$	$tg = h$ $t = 10$ $g =$ _____ _____ x _____ = h $h =$
$ab = c$ $a = 7$ $b = 5$ _____ x _____ = c $c =$	$en = f$ $e = 4$ $n = 5$ _____ x _____ = f $f =$
$ry = k$ $r = 5$ $y = 7$ _____ x _____ = k $k =$	$tg = h$ $t = 7$ $g = 2$ _____ x _____ = h $h =$

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 paper
- Dry erase marker or pen
- 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 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.

Name: _____

Multiplication Equations

Cut out the questions below and distribute to each student.

$12a = 36$

$11b = 44$

$15c = 45$

$13d = 52$

$14e = 56$

$16f = 64$

$17h = 68$

$19i = 76$

$12j = 48$

$13k = 39$

$11l = 33$

$15m = 60$

$20n = 60$

$21o = 63$

$22p = 66$

$25q = 75$

$24r = 72$

$23s = 46$

$19t = 57$

$16v = 64$

$17w = 51$

$14x = 42$

$13y = 39$

$21z = 84$

$22a = 44$

$20b = 100$

$12c = 36$

$15d = 75$

Pre-Algebra – Balancing Division Equations

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

Examples:

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

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

Questions

Fill in the missing number to balance the equation

1) 8

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

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

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

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

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

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

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

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

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

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

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

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

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

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)

$24 \div 6$

$49 \div 7$

$40 \div 10$

Division – Using Symbols

**Part 1**

Find out the value of the symbol

1)

$$\bullet \div 3 = 5$$

2)

$$25 \div \blacktriangle = 5$$

$$\blacktriangle =$$

3)

$$32 \div \bullet = 8$$

$$\bullet =$$

4)

$$\div 2 =$$



5)

$$\blacklozenge \div 6 = 4$$

$$\blacklozenge =$$

6)

$$60 \div 10 = \blacklozenge$$

$$\blacklozenge =$$

7)

$$48 \div \blacktriangle = 6$$

$$\blacktriangle =$$

9)

$$90 \div \bullet = 10$$

$$\bullet =$$

Part 2

Write your own questions using any symbol you want. In your group, find an answer.

1)

2)

3)

4)

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: $15 \div n = 3$

We can figure out the unknown number by balancing the equation: $n = 5$.



Question

Find out the value of the variable

$n \div 5 = 3$ $n =$	$n \div 5 = 3$ $n =$
$10 \div 1 = p$ $p =$	$20 \div p = 2$ $p =$
$10 \div n = 2$ $n =$	$5 \div n = 2$ $n =$
$30 \div n = 10$ $n =$	$8 \div 2 = t$ $t =$
$50 \div n = 5$ $n =$	$10 \div n = 10$ $n =$
$10 \div s = 2$ $s =$	$20 \div 4 = s$ $s =$

Name: _____

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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) $48 \div 4$

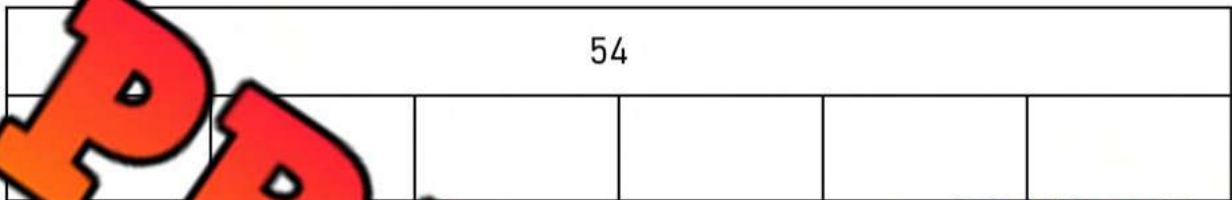
48			

Division Word Problems – Bar Model

Questions

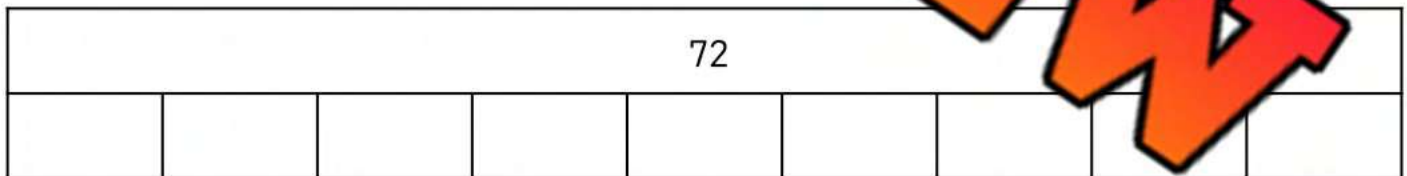
Use the bar model to answer the division questions below

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?



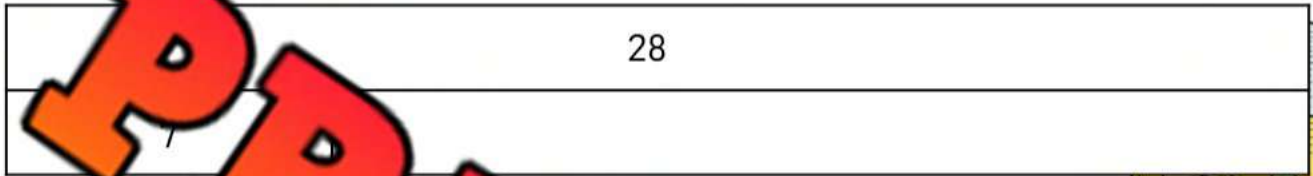
Division Equation Sentence: _____ ÷ _____ = _____

Division Word Problems – Bar Model

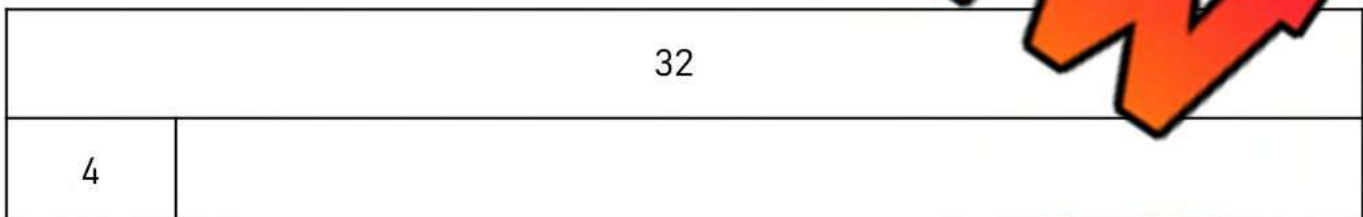
Questions

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 each of his 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 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 . 6	$x + 7 = 12$. What is x ? 5	If $4n$ is 24, what is n ? 6	$3m - 5 = 7$. Solve for m . 4	Sophia's sister is 30 years old. She is 4 years older than twice Sophia's age. How old is Sophia? 13
$6q = 18$. Find q . 3	$2x = 10$. What is x ? 5	8 is $2k$. What is k ? 4	$2b + 6 = 16$. Solve for b . 5	Mia has 3 times as many marbles as Lily. Together they have 32 marbles. How many does Lily have? 8
$10r = 40$. What is r ? 4	$w + 5 = 11$. What is w ? 6	The sum of a number and 3 is 10. What is the number? 7	$4c - 8 = 8$. Find c . 4	There are 28 apples in a basket. The number of apples is 4 times the number of oranges. How many oranges are there? 7
$7s = 42$. Solve for s . 6	$t - 4 = 5$. Find t . 9	$3j$ is 27. What is j ? 9	$12d = 60$. What is d ? 5	Tom has twice as many model cars as Oliver. If the total number of cars is 18, how many does Oliver have? 3
$8a = 56$. Find a . 7	$u + 6 = 15$. What is u ? 9	The product of 7 and a number is 49. What is the number? 7	$6e - 12 = 24$. Solve for e . 6	Emma saved \$27. This is 3 times the amount that Ava saved. How much did Ava save? \$9
$9f = 63$. What is f ? 7	$v - 5 = 11$. What is v ? 16	If 9 times a number is 81, what is the number? 9	$7g + 14 = 35$. Find g . 3	A baker baked 60 cookies. He baked 4 times as many chocolate chip cookies as sugar cookies. How many sugar cookies did he bake? 12

Exit Cards

Cut Out

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

Name: _____

Solve each side of the equation and label it = (equality) or $\neq$ (inequality).

1) $25 + 3$ $7 + 21$

2) $42 + 16$

3) $36 - 7$ $42 - 13$

4) $19 - 11$ $39 - 21$

5) $52 - 16$ $33 - 3$

Name: _____

Solve each side of the equation and label it = (equality) or $\neq$ (inequality).

1) $25 + 3$ $7 + 21$

2) $42 + 16$ $20 + 36$

3) $36 - 7$ $42 - 13$

4) $19 - 11$ $39 - 21$

5) $52 - 16$ $33 - 3$

Name: _____

Solve each side of the equation and label it = (equality) or $\neq$ (inequality).

1) $25 + 3$ $7 + 21$

2) $42 + 16$ $20 + 36$

3) $36 - 7$ $42 - 13$

4) $19 - 11$ $39 - 21$

5) $52 - 16$ $33 - 3$

Name: _____

Solve each side of the equation and label it = (equality) or $\neq$ (inequality).

1) $25 + 3$ $7 + 21$

2) $42 + 16$ $20 + 36$

3) $36 - 7$ $42 - 13$

4) $19 - 11$ $39 - 21$

5) $52 - 16$ $33 - 3$

Solve Equations – Guess and Check

When we are trying to figure out the value of a variable, we can use the guess and check method. First, we make a reasonable guess as to what the value of the variable could be. Second, we solve the equation using this guess. If our answer is too high, then we use a smaller number. If it is too low, we choose a lower number.

Questions

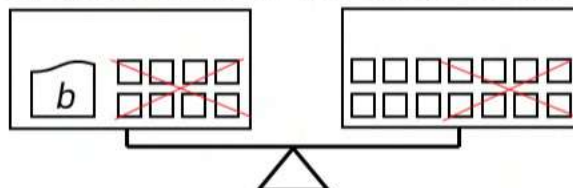
Find the value of the variable using the guess and check method

#	Equation	Guess	Calculate	Answer
Ex	$3n = 21$	6 7	$3 \times 6 = 18$ (too low) $3 \times 7 = 21$ (right on)	7
1	$4m = 32$			
2	$3 + w = 17$			
3	$33 = b + 17$			
4	$2 \times m + 1 = 19$			
5	$19 = 3 \times L - 2$			

Solve Equations – Balance Model

When we are trying to figure out the value of a variable, we can use a balance scale. Whatever we do to one side of the balance, we need to do the same to the other side.

Example $b + 8 = 14$



We can figure out the value of b by isolating it. This means we want b to be on its own. If we take 8 squares away from the left side, we need to take 8 away from the right side as well. This will leave us with $b = 6$.

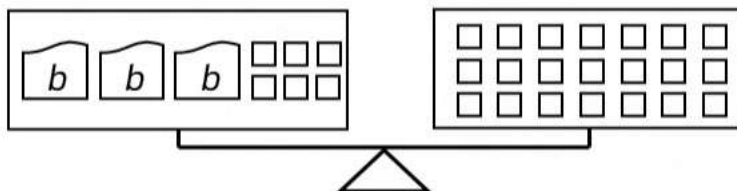
Question: _____ the value of the variable using the balance model

#	Equation	Balance Model	Answer
1	$7 + m = 18$		
2	$2 + t = 16$		
3	$15 = 2 + b + 6$		
4	$4 + n + 1 = 22$		

Solve Equations – Balance Model

When an equation has multiplication, we can still use the balance model. Check out the example below.

Example $3b + 6 = 21$



There are three groups of the variable b . To isolate the variable:

- 1) We need to subtract the 6 from the left side.
- 2) Next, we need to subtract the 6 from the right side. Our equation can now be represented as $3b = 15$.
- 3) We need to divide the variable b by itself. Since division is the opposite as multiplication, we need to divide the $3b$ by 3 to isolate it.
- 4) What we do to one side, we need to do to the other. Therefore, we need to divide the right side by 3. In the end, we get $b = 5$.

Questions

Find the value of the variable using the balance model

#	Equation	Balance Model	Answer
1	$2b + 8 = 22$		
2	$4n + 8 = 20$		
3	$25 = 3t - 5$		
4	$17 = 2m + 5$		

Solve Equations Using Number Sense/Reasoning

For some mathematicians, solving equations might not require the guess and check method or the drawing of a balance model. Instead, some are able to use their number sense and reasoning skills to solve the problem.

Example:

$$25 + 5a = 50$$

$$25 + 5a = 50 - 25$$

$$5a = 25$$

$$5a \div 5 = 25 \div 5$$

$$a = 5$$

Question

Use the reasoning above to solve the equations below.

#	Equation
1	$5n = 15$
2	$15 + m = 24$
3	$29 = a - 7$
4	$3b = 12$
5	$2y + 32 = 46$

#	Equation
6	$m + 37 = 50$
7	$49 = 5t - 1$
8	$2 = 4k$
9	$6n + 12 = 24$
10	$2m + 1 = 19$

Word Problems - Solving Equations

Questions

Solve the problems below



1) Camila had some markers and then bought 24 more. Now she has 56 markers. How many markers did she have before she bought more?

Workspace**Equation**

2) There are two boxes of muffins. Both boxes have the same number of muffins. One box has 12 chocolate chip muffins and 10 blueberry muffins. The other box has 6 bran muffins and some oatmeal muffins. How many oatmeal muffins are there?

Workspace**Equation**

3) Caleb scored a bunch of points in the first quarter of a basketball game. In the second quarter, he had 5 points. In the third quarter, he had 8 points and in the fourth quarter, he had 3 points. At the end of the game, he finished with 31 points. How many points did he score in the first quarter?

Workspace**Equation**

Word Problems - Solving Equations

Questions

Solve the problems below



1) Hunter's cousin is 24 years old. He is 2 years older than twice Hunter's age. How old is Hunter?

Workspace**Equation**

2) Cindy has \$8. Her sister has 3 times as much as her brother. The three of them have \$44. How much money does her brother have?

Workspace**Equation**

3) Carson earned \$50 from work today. He worked for 5 hours and received a bonus of \$15. How much does he earn per hour?

Workspace**Equation**

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

Find the missing number 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) $\square - 9 = 12$

9) $43 - \square = 30$

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

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) Spencer has 24 marbles. He gives 4 marbles to each of his friends. How many friends got marbles from Spencer?

24

- 2) Sam has 175 stickers. He gives some stickers to his friends. Now he has 141 stickers. How many stickers did he give away?
- 3) Ryder had some hockey cards and then bought some. Now he has 45 hockey cards. How many hockey cards did he have before he bought more?
- 4) Jesse brought 32 treats to work and gave them all away. She gave 8 to her boss and 2 to each of her friends. How many friends did she give treats to?