Preview - Information

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

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

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

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

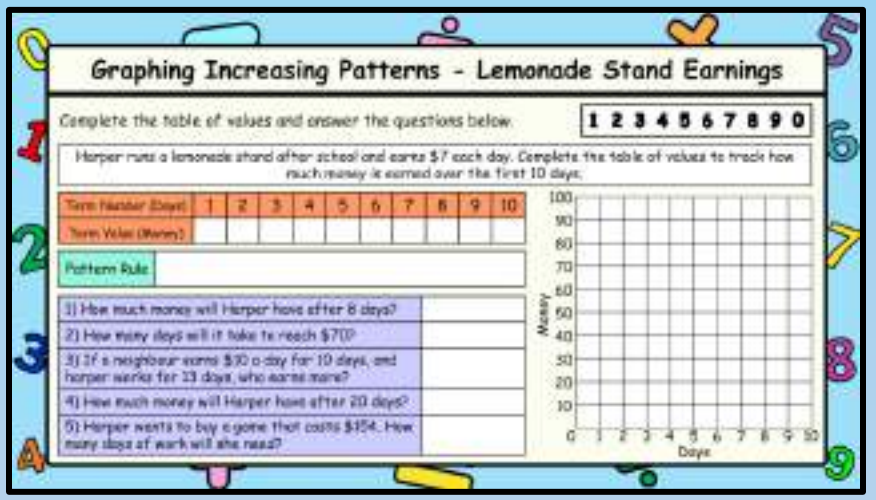
rob@supersimplesheets.com

Google Slides Lessons Preview

BC Math Curriculum
Patterning & Equations – Grade 6

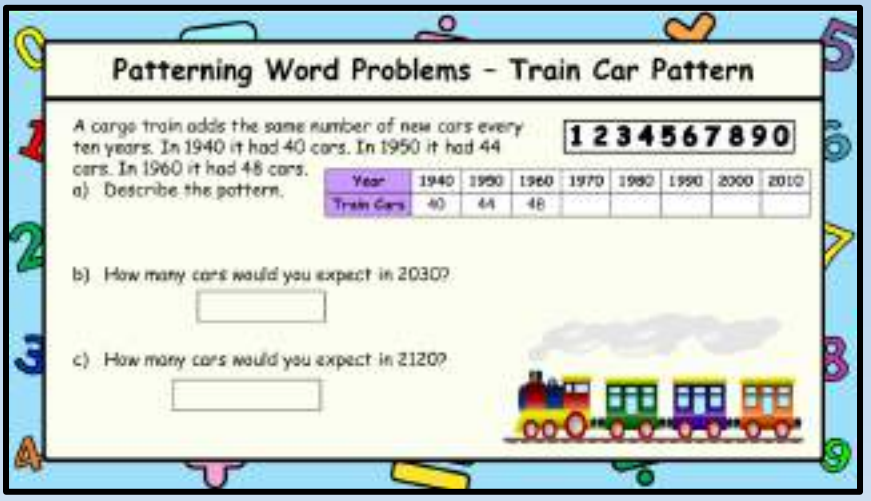
3-Part Lesson Format

Part 1 – Minds On!
- Learning Goals
- Discussion Questions
- Quotes
- And More!

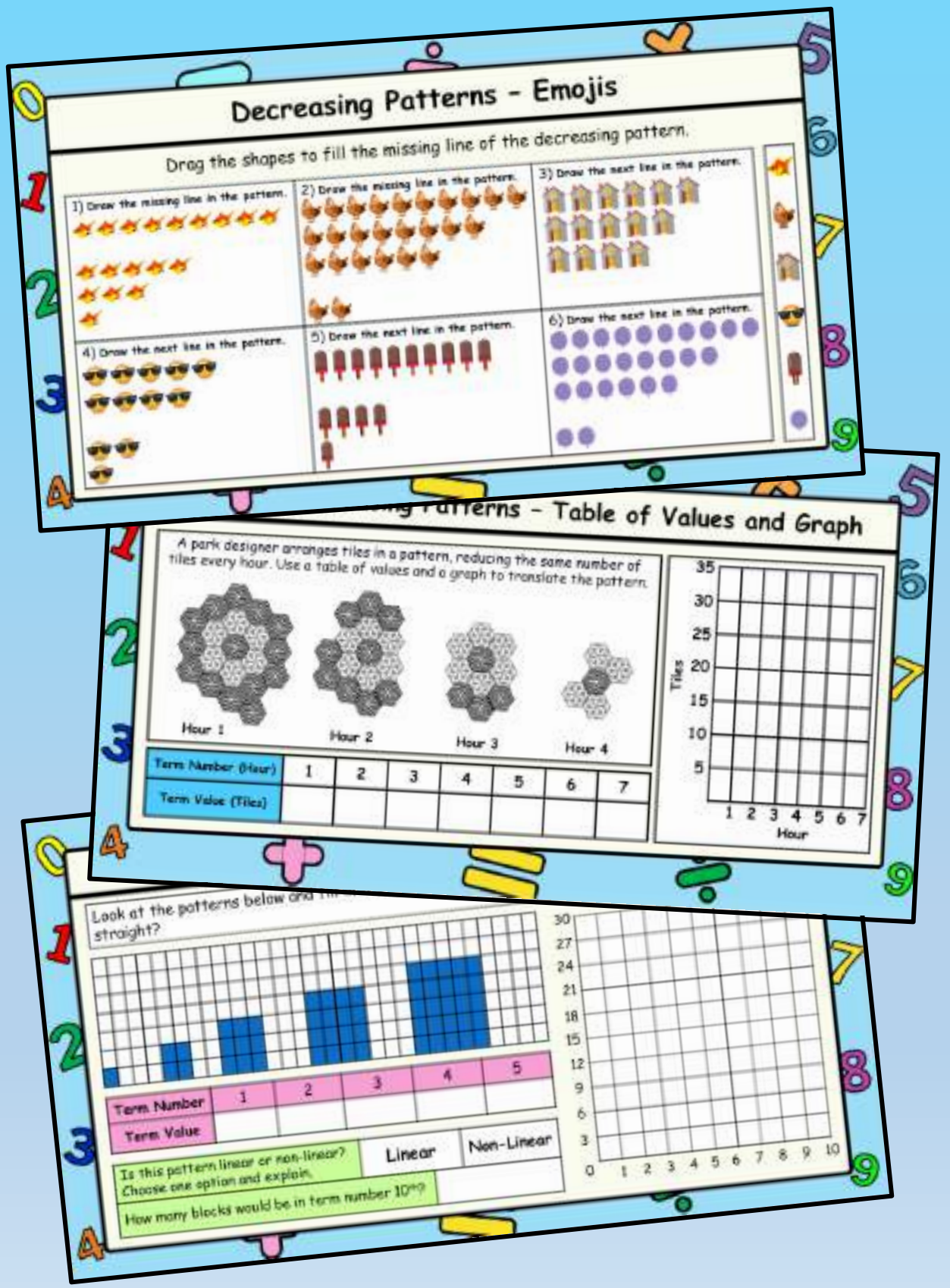


Part 2 – Action!
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

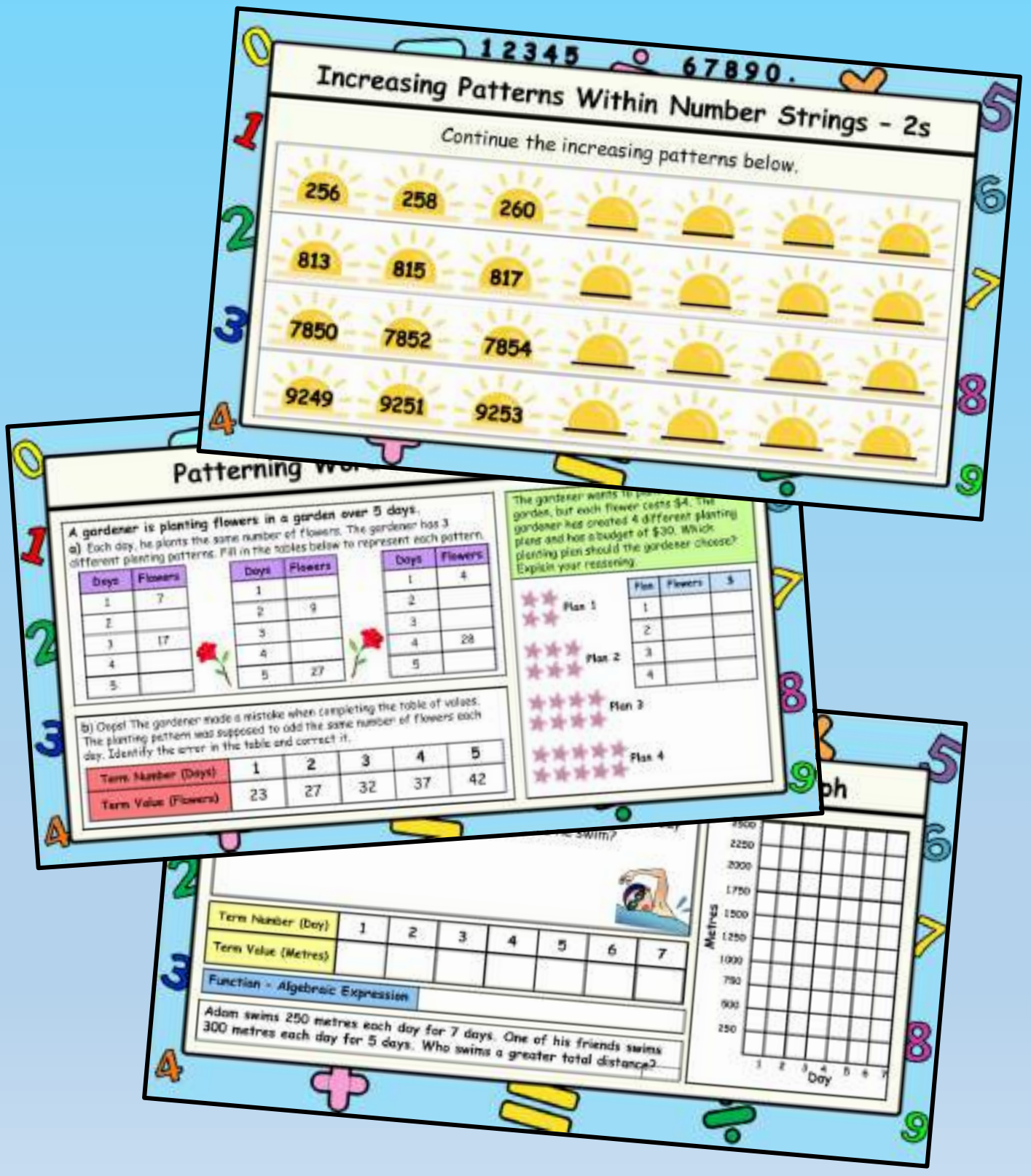
Part 3 – Consolidation!
- Exit Cards
- Quizzes
- Reflection
- And More!



BC Math Curriculum
Patterning & Equations – Grade 6



BC Math Curriculum
Patterning & Equations – Grade 6



Workbook Preview

Grade 6

Patterning

	Curriculum Expectations	Pages
PE.1	Increasing and decreasing patterns, using expressions, tables, and graphs as functional relationships	5 - 79

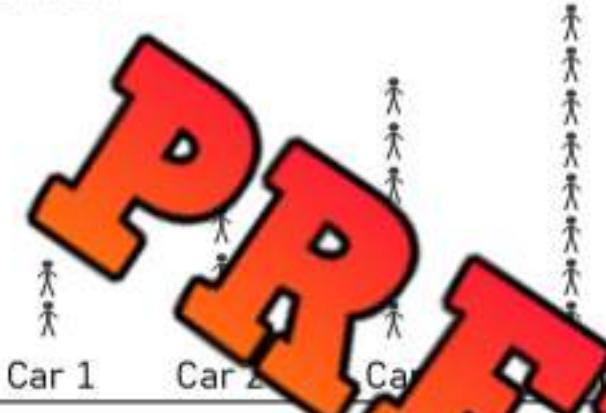
Name: _____ 7

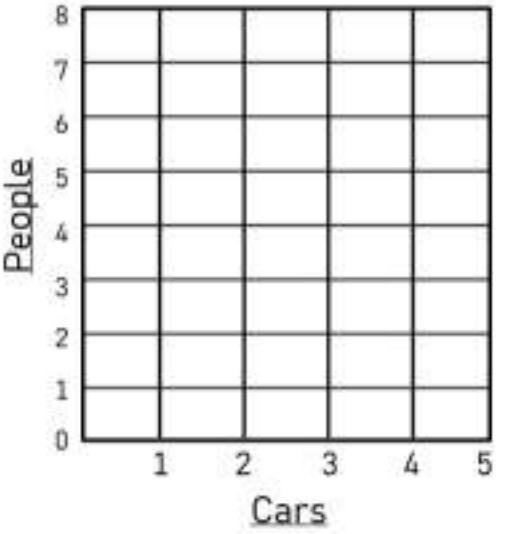
Curriculum Connection
PE.1

Graphing Increasing Patterns

Questions Translate the increasing patterns into a table of values and a line graph.

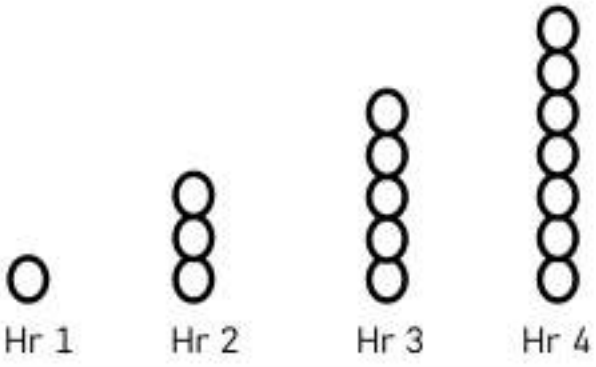
1) A train has the following people in each train car.

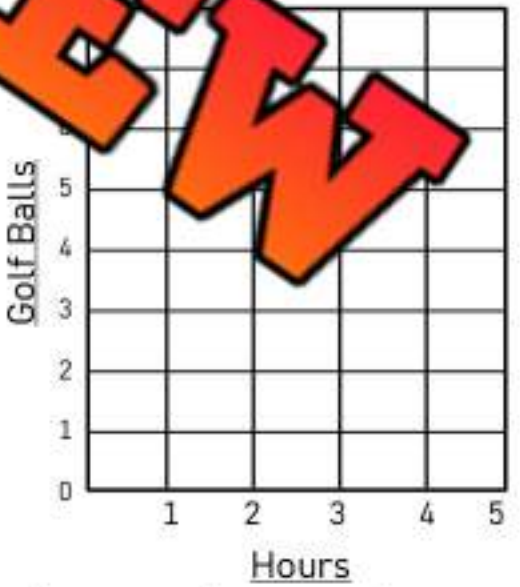




Term Number (Cars)				4	5	8
Term Value (People)						

2) Steven is looking for golf balls in the woods. He finds the following number of golf balls each hour.





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

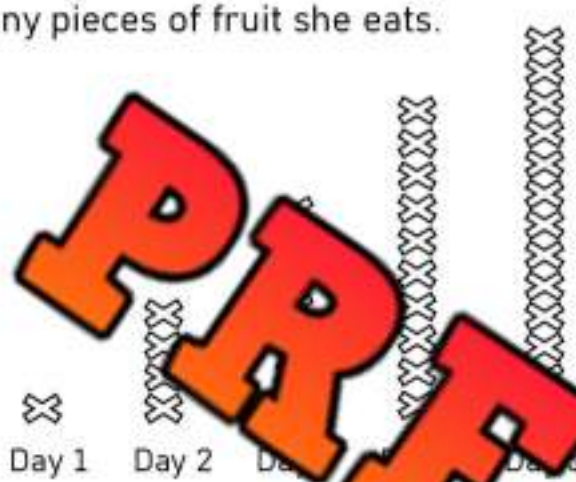
Name: _____ 8

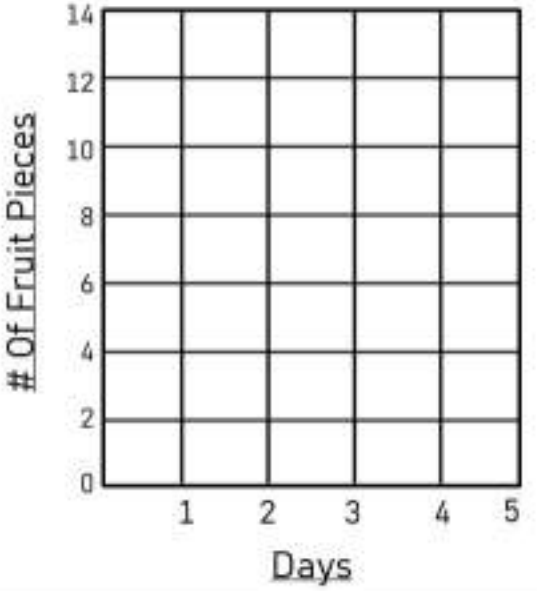
Curriculum Connection
PE.1

Graphing Increasing Patterns

Questions Translate the increasing patterns into a table of values and a line graph.

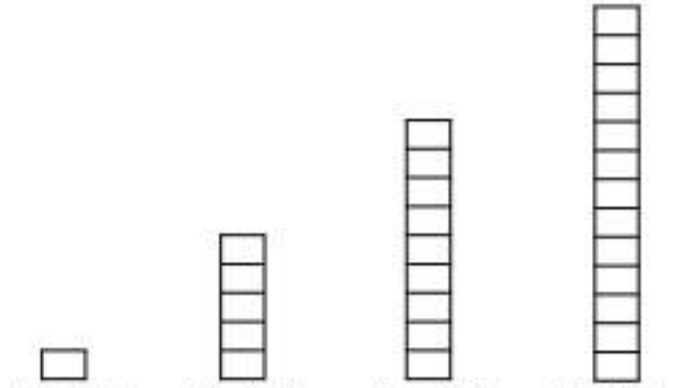
1) Stacy marks an x each day for how many pieces of fruit she eats.

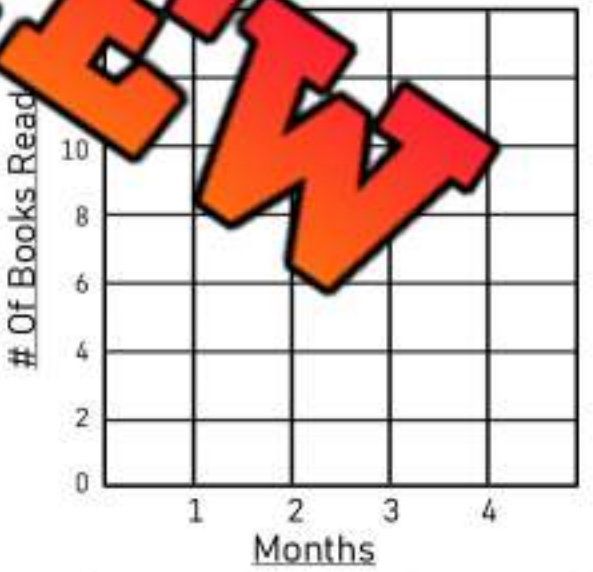




Term Number (Day)	1	2	3	4	5	6	10
Term Value (Fruit Pieces)							

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





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

Name: _____ 9

Curriculum Connection
PE.1

Increasing Pattern Challenge

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

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

Term Number	Term Value

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

2) Write an expression that represents the function

3) Which shape would use 63 blocks?

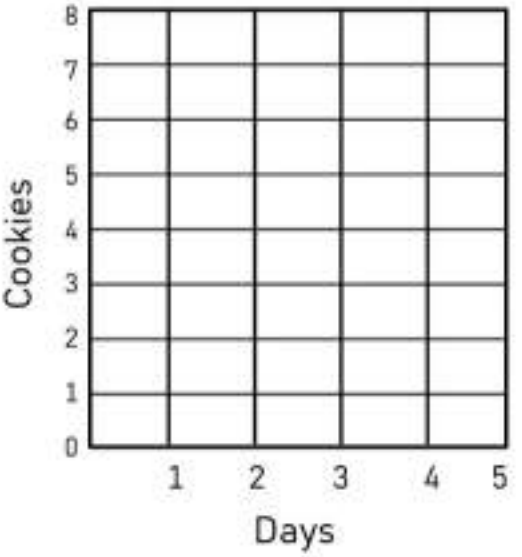
Name: _____ 11

Curriculum Connection
PE.1

Graphing Decreasing Patterns

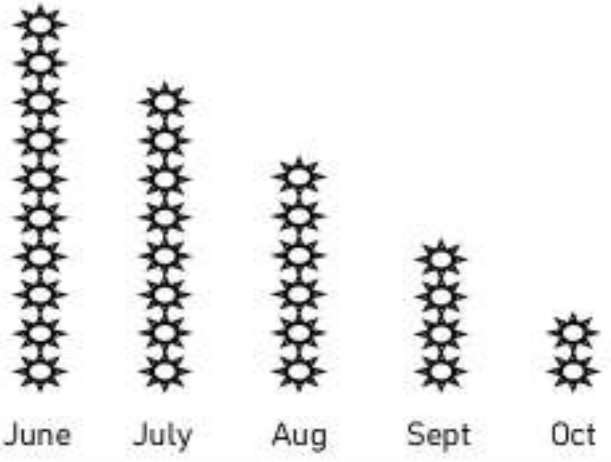
Questions Translate each decreasing pattern into a table of values and a line graph.

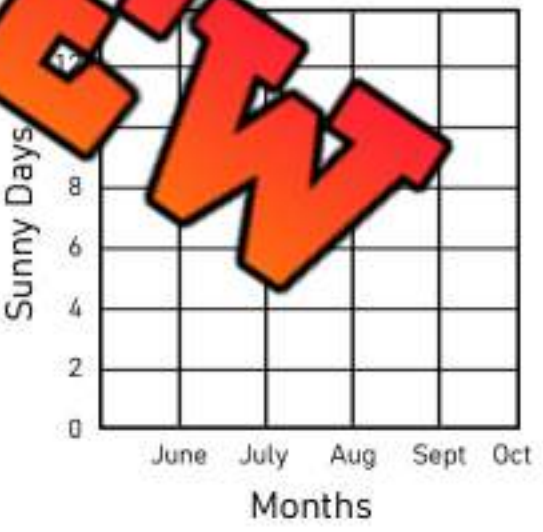
1) Kerry kept track of how many cookies she ate each day using addition signs.



Term Number (Day)					
Term Value (Cookies)					

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





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

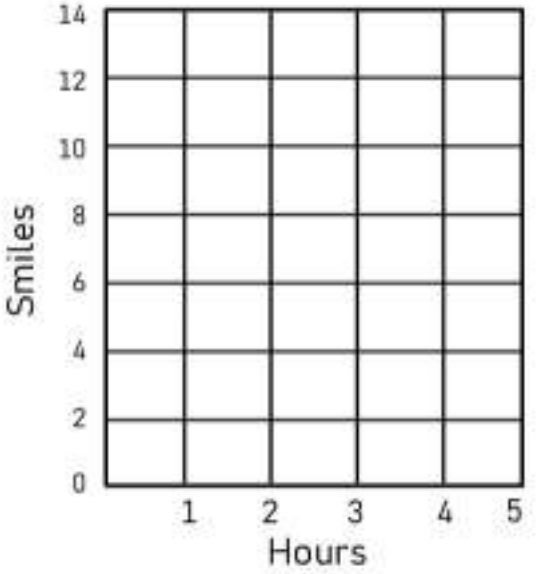
Name: _____ 12

Curriculum Connection
PE.1

Graphing Decreasing Patterns

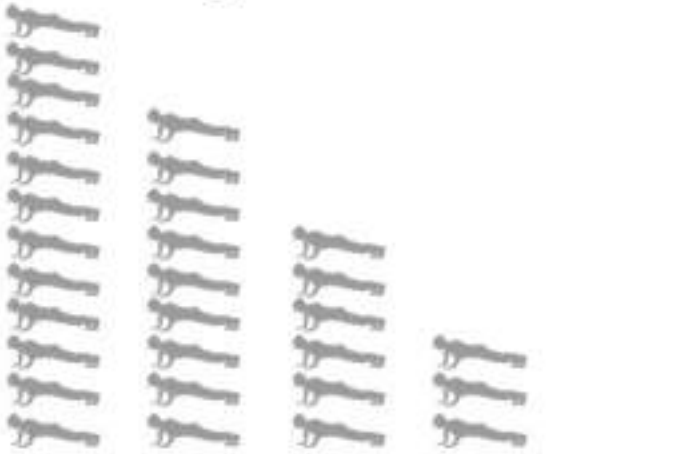
Questions Translate each decreasing pattern into a table of values and a line graph.

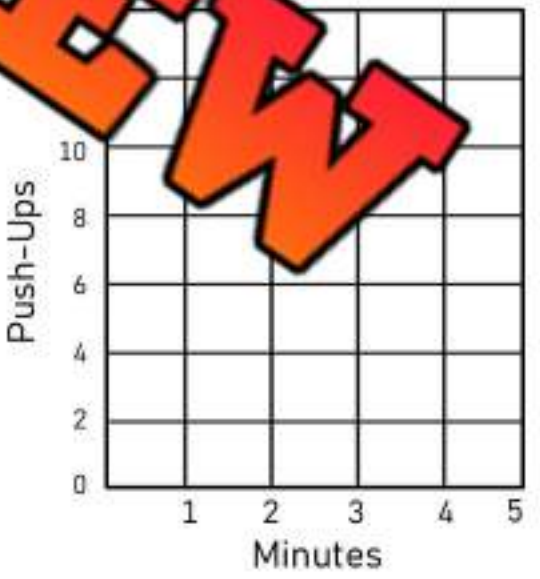
1) Jane kept track of how many times she smiled in an hour.



Term Number					
Term Value					

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





Term Number					
Term Value					

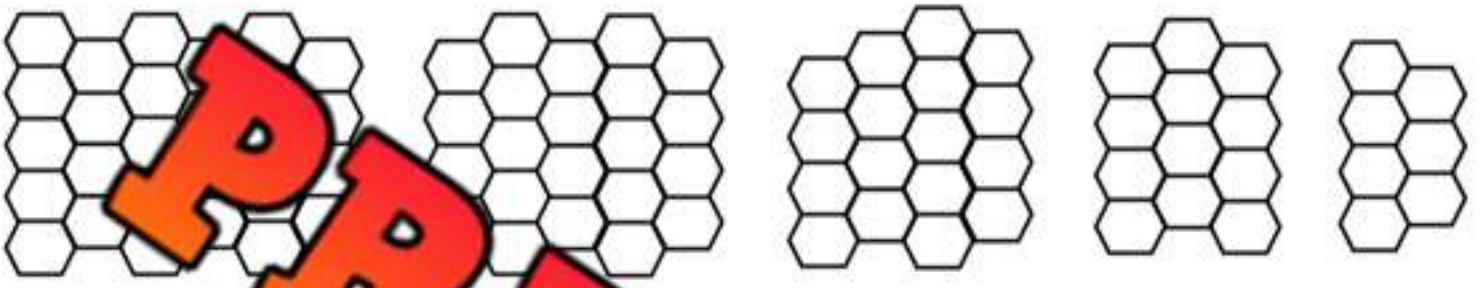
Name: _____ 13

Curriculum Connection
PE.1

Decreasing Pattern Challenge

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

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



Term Number	Term

1) What is the pattern Shrinking by each time?

2) Draw your own Shrinking pattern below

Exit Cards

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

Name: ______________________

Answer the questions below by using the table of values.

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

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

Name: ______________________

Answer the questions below by using the table of values.

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

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

Name: ______________________

Answer the questions below by using the table of values.

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

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

Name: ______________________

Answer the questions below by using the table of values.

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

# of Worksheets	Points Earned
2	
4	
6	
8	
10	

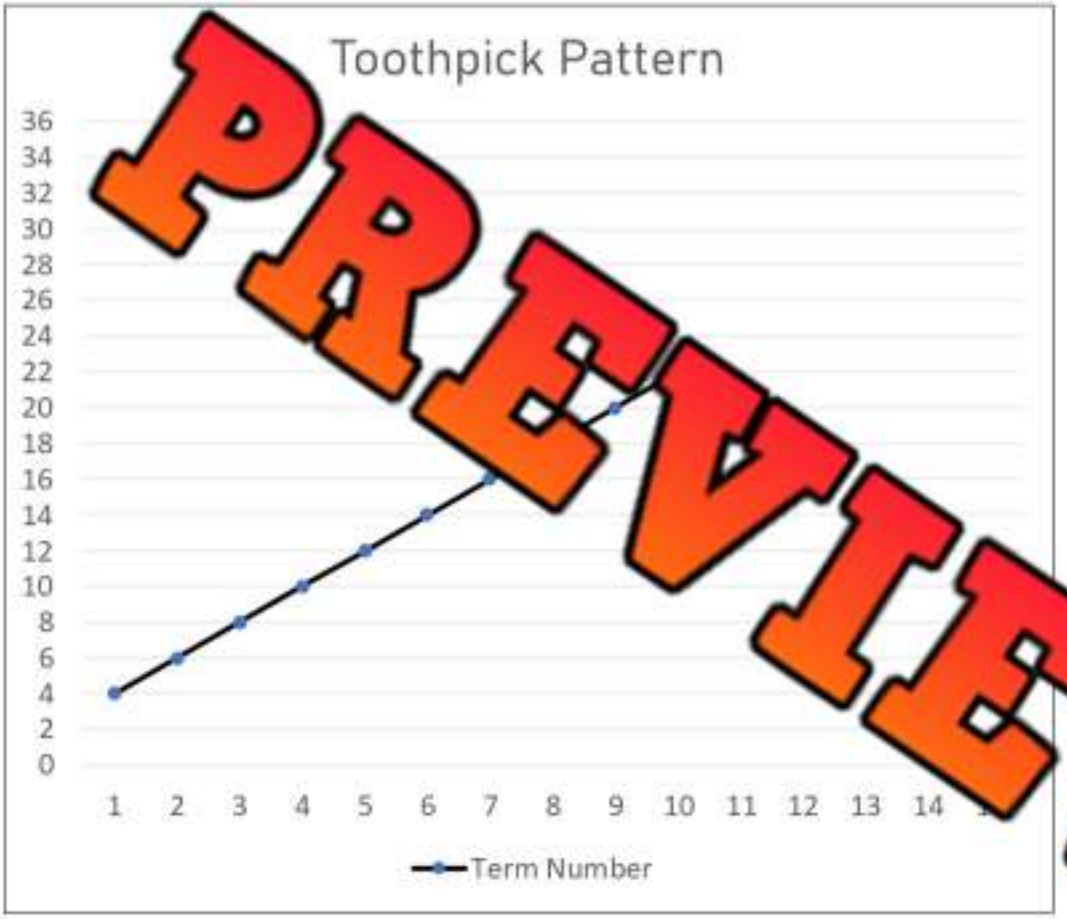
Name: _____ 15

Curriculum Connection
PE.1

Reading a Linear Pattern - Graph

A **linear** pattern is a pattern that increases or decreases by a value that remains the same. Linear patterns can be plotted as a straight line on a graph.

Instruction Continue the line on the graph and fill in the table of values



Term Number	Term Value
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

1) Draw the toothpick pattern below for the graph/table of values. Use any design you'd like.

Term 1	Term 2	Term 3	Term 4	Term 5

2) Why is this graph a linear pattern?

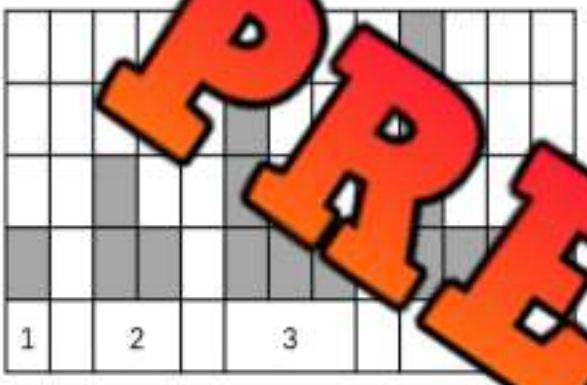
Name: _____ 16

Curriculum Connection
PE.1

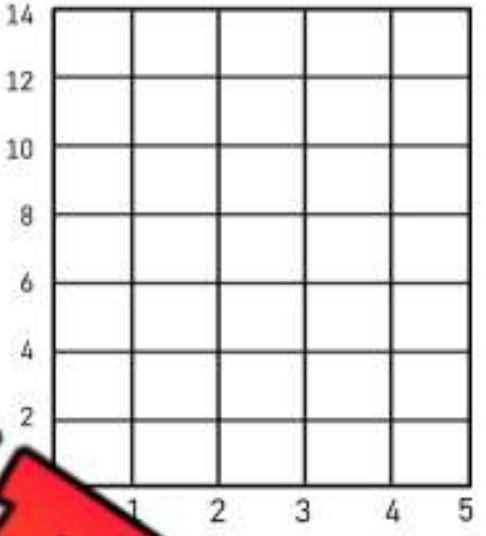
Linear and Non-Linear Patterns

Not all patterns are linear. Some patterns increase/decrease by the same amount each time, while others grow/shrink at different rates. When the pattern grows or shrinks by different amounts, it is called **non-linear.**

Instruction Look at the patterns below and fill in the table of values. Then complete the graph. Is the line straight?



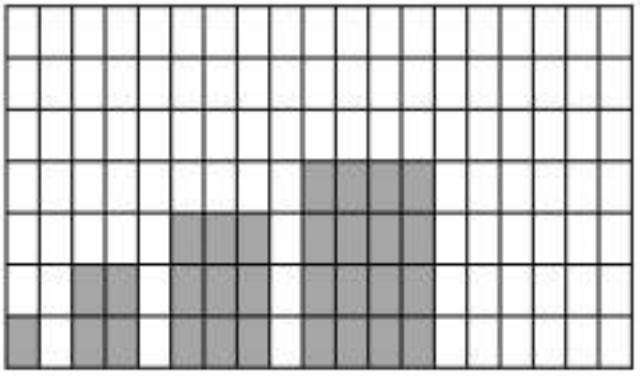
Term Number	Term Value
1	
2	
3	



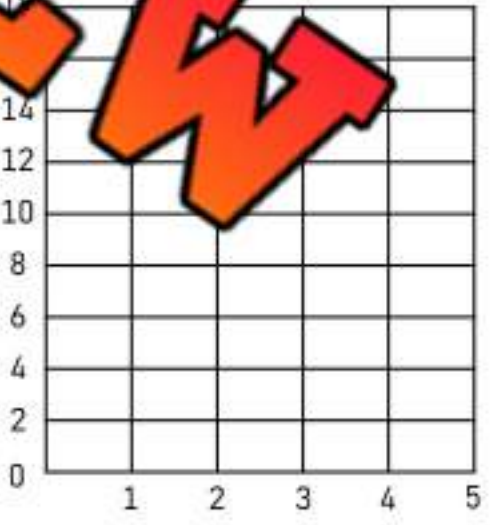
Is this pattern linear or non-linear? Explain.

_____

_____



Term Number	Term Value
1	
2	
3	
4	
5	



1) Is this pattern linear or non-linear? Explain.

_____

_____

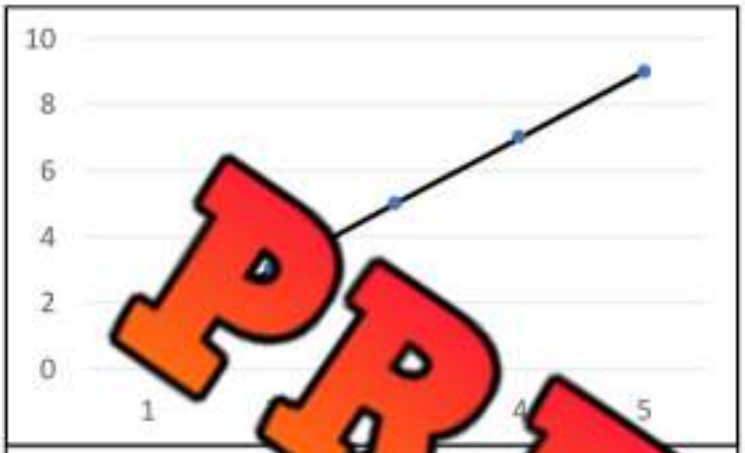
2) How many blocks would be in term number 10?

Name: _____ 17

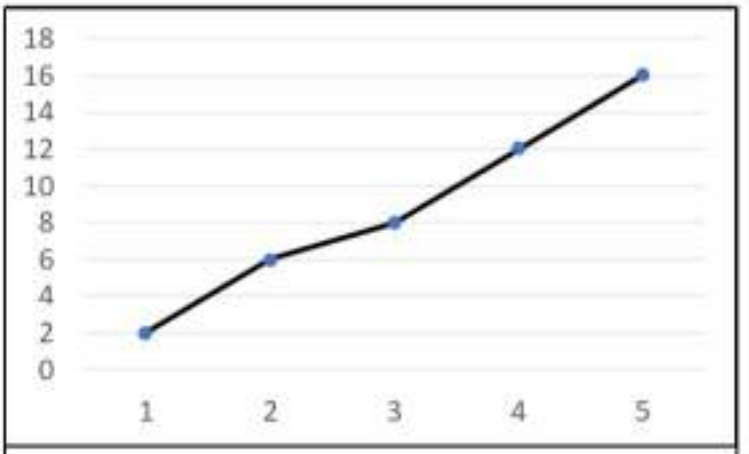
Curriculum Connection
PE.1

Increasing Linear Patterns – Yes or No?

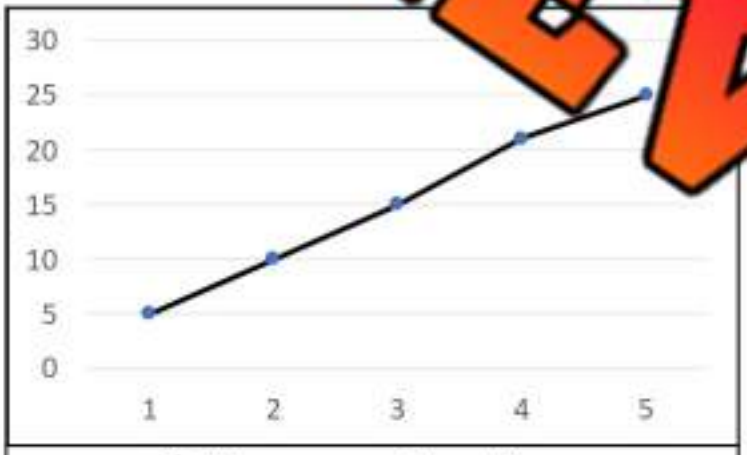
Questions	Circle if the pattern displayed on the graph is linear or not



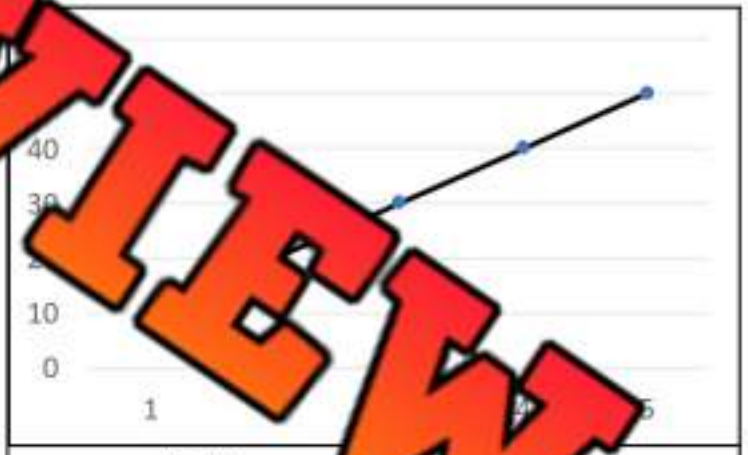
1) Linear Non-Linear



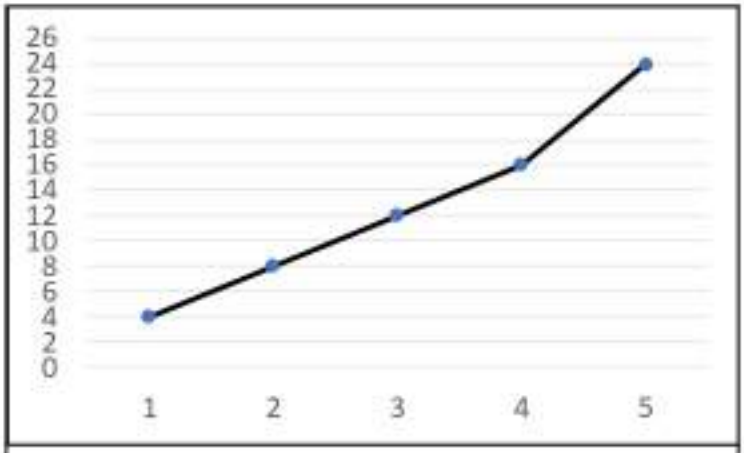
2) Linear Non-Linear



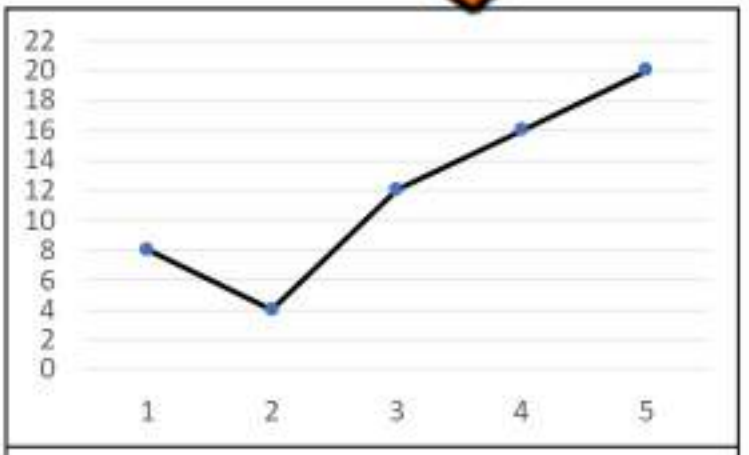
3) Linear Non-Linear



4) Linear Non-Linear



5) Linear Non-Linear



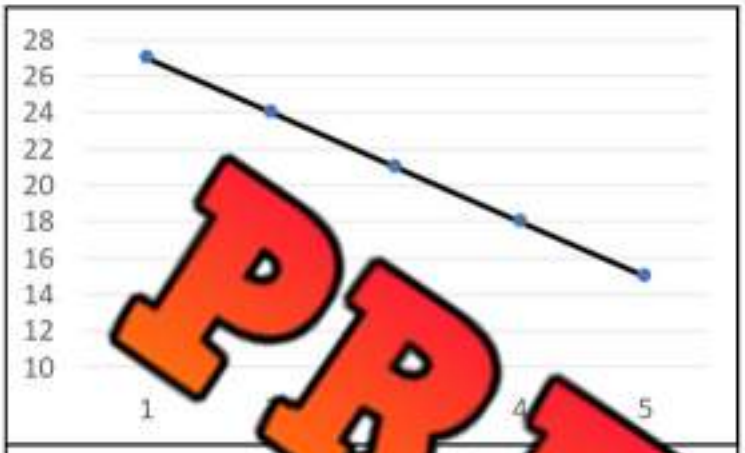
6) Linear Non-Linear

Name: _____ 18

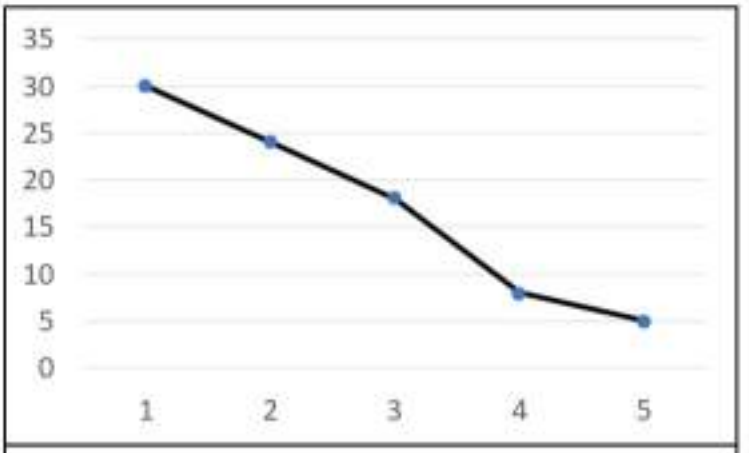
Curriculum Connection
PE.1

Decreasing Linear Patterns – Yes or No?

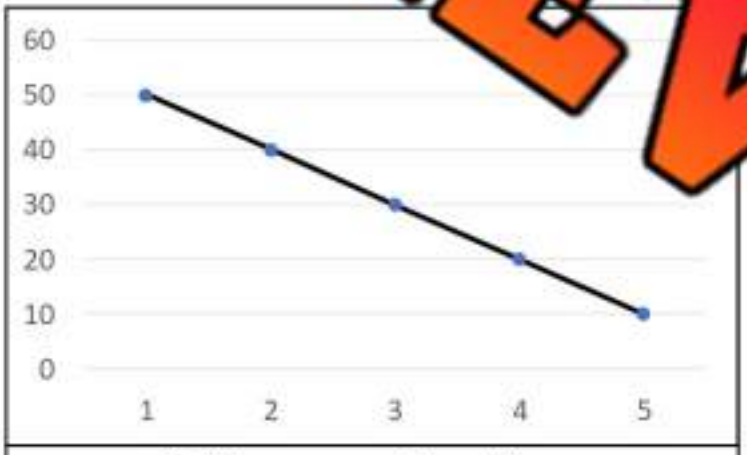
Questions	Circle if the pattern displayed on the graph is linear or not



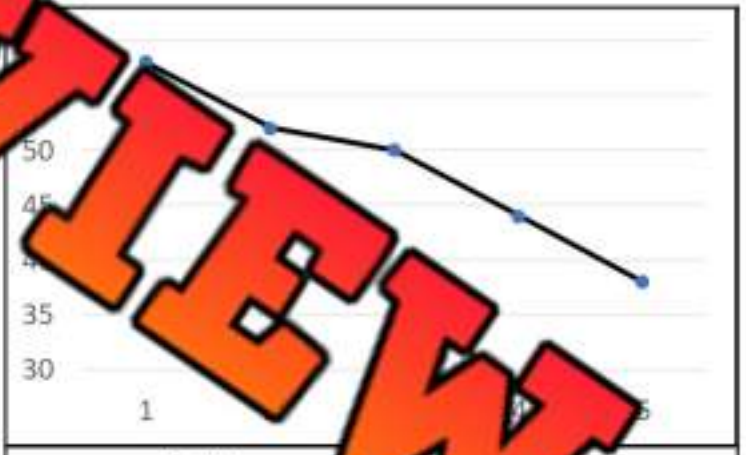
1) Linear Non-L



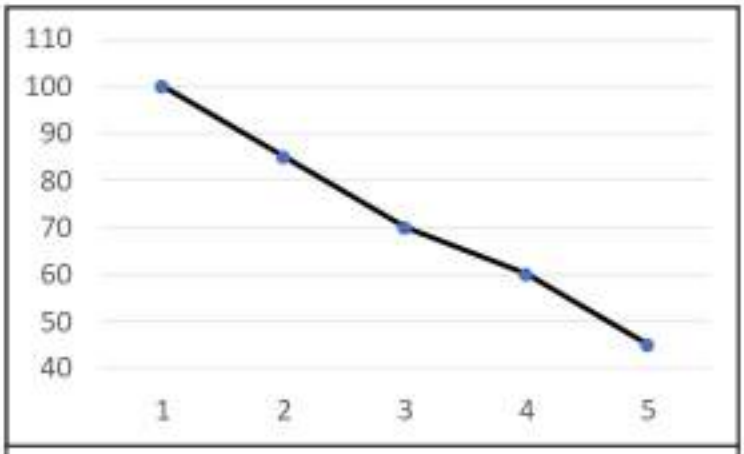
2) Linear Non-Linear



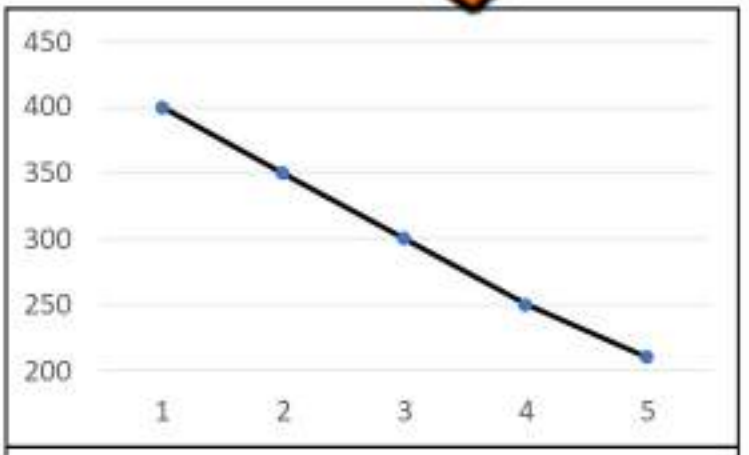
3) Linear Non-Linear



4) Linear N ar



5) Linear Non-Linear



6) Linear Non-Linear

Name: _____ 19

Curriculum Connection
PE.1

Increasing Linear Patterns – Yes or No?

Questions Circle if the pattern is linear or not, based on the table of values

Term Number	Term Value
1	2
2	6
3	10
4	
5	
Linear	Non-Linear

Term Number	Term Value
1	10
2	16
3	20
4	26
5	32
Linear	Non-Linear

Term Number	Term Value
1	15
2	18
3	21
4	25
5	28
Linear	Non-Linear

Term Number	Term Value
1	14
2	19
3	24
4	29
5	34
Linear	Non-Linear

Term Number	Term Value
1	
2	
3	
4	60
5	74
Linear	Non-Linear

Term Number	Term Value
1	25
2	75
3	125
4	175
5	
	Non-Linear

Term Number	Term Value
1	112
2	126
3	138
4	152
5	166
Linear	Non-Linear

Term Number	Term Value
1	210
2	260
3	310
4	360
5	410
Linear	Non-Linear

Term Number	Term Value
1	500
2	650
3	700
4	850
5	1000
Linear	Non-Linear

Name: _____ 20

Curriculum Connection
PE.1

Decreasing Linear Patterns – Yes or No?

Questions Circle if the pattern is linear or not, based on the table of values

Term Number	Term Value
1	20
2	17
3	14
4	
5	
Linear	Non-Linear

Term Number	Term Value
1	48
2	42
3	38
4	32
5	26
Linear	Non-Linear

Term Number	Term Value
1	70
2	55
3	40
4	25
5	10
Linear	Non-Linear

Term Number	Term Value
1	120
2	114
3	108
4	102
5	98
Linear	Non-Linear

Term Number	Term Value
1	
2	
3	
4	167
5	161
Linear	Non-Linear

Term Number	Term Value
1	215
2	200
3	195
4	180
5	
	n-Linear

Term Number	Term Value
1	300
2	275
3	245
4	225
5	200
Linear	Non-Linear

Term Number	Term Value
1	550
2	535
3	510
4	495
5	480
Linear	Non-Linear

Term Number	Term Value
1	675
2	650
3	625
4	600
5	575
Linear	Non-Linear

Name: _____ 21

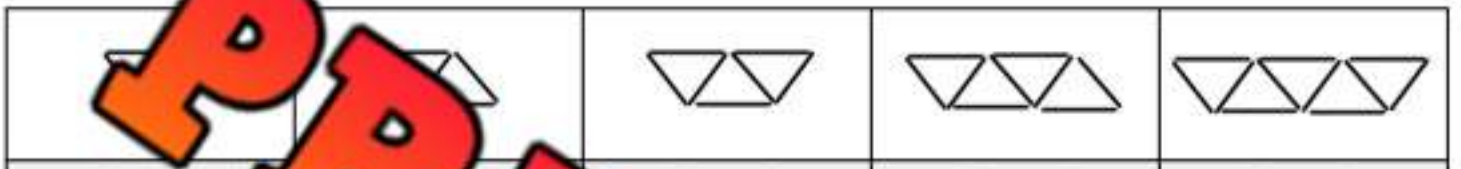
Curriculum Connection
PE.1

Toothpick Linear Patterns

A **linear** pattern is a pattern that increases or decreases by a value that remains the same. Linear patterns can be plotted as a straight line on a graph.

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

Kelly has made a pattern using toothpicks. She has displayed her pattern below.



Term 1	Term 2	Term 3	Term 4	Term 5

Term Number	Term Value

1) Why is this a linear pattern?

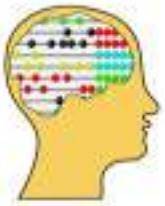
2) Extend the line on the graph. What will be the 7th and 10th term value?

7th term _____ 10th term _____

Name: _____ 23

Curriculum Connection
PE.1

Increasing Addition Patterns



Growing/Increasing Patterns

+10 +10 +10 +10 +10
10, 20, 30, 40, 50, 60

+5 +5 +5 +5 +5
3, 8, 13, 18, 23, 28

Part 1

Follow the rule by adding the next number in the pattern.

1) (Add 9) 47, 56, 65, _____, _____, _____	2) (Add 3) 71, 74, 77, _____, _____, _____
3) (Add 6) 102, 108, 114, _____, _____, _____	4) (Add 5) 149, 154, 159, _____, _____, _____
5) (Add 10) 277, 287, 297, _____, _____, _____	6) (Add 7) 312, 319, 326, _____, _____, _____
7) (Add 8) 415, 423, 431, _____, _____, _____	8) (Add 9) [illegible]

Part 2

Increasing Patterns - Addition

1) 33, 39, 45, _____, _____, _____	2) 52, 58, 64, _____, _____, _____
3) 91, 94, 97, _____, _____, _____	4) 162, 170, 178, _____, _____, _____
5) 201, 212, 223, _____, _____, _____	6) 314, 323, 332, _____, _____, _____
7) 473, 486, 499, _____, _____, _____	8) 614, 629, 644, _____, _____, _____

Name: _____ 24

Curriculum Connection
PE.1

Increasing Pattern Rules - Adding

Part 1 — Continue the increasing patterns below

1) 47, 55, 63, _____, _____, _____

Pattern Rule: Start at 47, add _____ each time

2) 108, 1[illegible] _____, _____, _____

Pattern[illegible] _____ add _____ each time

3) 20[illegible], 227, _____, _____

Pattern Rule[illegible] _____ each time

4) 326, 342, 358, _____

Pattern Rule: Start at _____ [illegible]e

5) 482, 499, 516, _____, _____, _____

Pattern Rule: Start at _____ add _____ each [illegible]

BONUS

Lily gets paid based on how fast she works. She is getting faster each day! Check out her paycheque for the last 5 weeks.

Week	Pay
1	100
2	120
3	150
4	190
5	240

Question

How much will she make in week 10 if the pattern continues?

Part 2 — Write your own patterns using the [illegible]ules

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

Pattern Rule: Start at 124, add 7 each time

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

Pattern Rule: Start at 465, add 15 each time

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

Pattern Rule: Start at 382, add 6 each time

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

Pattern Rule: Start at 505, add 12 each time

Exit Cards

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

Name: _____

Continue the increasing patterns below and determine the pattern rule.

1) _____, _____, _____, _____

Pattern Rule: _____

_____

2) 748, 770, 792, _____, _____, _____

Pattern Rule: _____

_____

Name: _____

Continue the increasing patterns below and determine the pattern rule.

1) 465, 479, 493, _____, _____, _____

Pattern Rule: _____

_____

2) 748, 770, 792, _____, _____, _____

Pattern Rule: _____

_____

Name: _____

Continue the increasing patterns below and determine the pattern rule.

1) 465, 479, 493, _____, _____, _____

Pattern Rule: _____

_____

2) 748, 770, 792, _____, _____, _____

Pattern Rule: _____

_____

Name: _____

Continue the increasing patterns below and determine the pattern rule.

1) 465, 479, 493, _____, _____, _____

Pattern Rule: _____

_____

2) 748, 770, 792, _____, _____, _____

Pattern Rule: _____

_____

Name: _____ 27

Curriculum Connection
PE.1

Writing Pattern Rules – Word Problems

Questions Write the pattern rule for each of the word problems below

1) A baby is born 50cm long. It grows 2cm each month for one year.

2) Gerry h in his bank account. He is paid $12 each week for his allowance.

3) A tree that grows e its size each year.

4) Claire is raking the leaves o er y 000 leaves on her property, and she cleans up half of the leaves ay.

5) There are 48 yogurt drinks in a pack. The chil drink y.

6) The family has to drive 500km to get home. They drive 100km eve .

7) There is 8cm of snow on the ground. During a snowstorm, 4cm of snow falls every hour.

8) A baby's hair is 3cm long. It grows triple its length each month.

Name: _____ 28

Curriculum Connection
PE.1

Increasing Patterns – Word Problems

Questions Solve the word problems below

1) Courtney is heading to college in 6 months. She begins saving more and more money. Her savings are represented in the table of values.

Month	Savings
April	500
May	800
June	1200
July	1700
August	

a) What [illegible] pattern rule?

b) [illegible] how much will she save at end o[illegible]e 6 m[illegible] she goes to college?

2) Billy is improving at ba[illegible] in the [illegible] games of the season, his points pe[illegible] cre[illegible] points have been represented i[illegible]e ta[illegible]

Games	Points
1	3
2	5
3	9
[illegible]	15
[illegible]	23
[illegible]	[illegible]3

a) What is the pattern rule?

b) If the pattern continues, how many points will he score in the 10th game?

3) Emmett has a math test next week. He plans to study each night for [illegible]ext 7 nights. The first night he will study for 10 minutes. The second night he will study for 10 minutes plus an additional 10 minutes. The third night he will study for 10 minutes plus an additional 20 minutes. The fourth night he will study for 10 minutes plus an additional 30 minutes.

a) Complete the table of values

Night	1	2	3	4	5	6	7
Minutes							

b) If his studying pattern continues, how many minutes will he study on the 10th night?

Name: _____ 29

Curriculum Connection
PE.1

Decreasing Subtraction Patterns

Shrinking/Decreasing Patterns

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

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

Part 1 Follow the rule by subtracting the number in the pattern.

1) (subt… 8… 74, _____, _____, _____	2) (subtract 3) 108, 105, 102, _____, _____, _____
3) (subtract 6) 184, 178, 172, _____	4) (subtract 5) 209, 204, 199, _____, _____, _____
5) (subtract 10) 284, 274, 264, _____, _____, _____	…ubtract 7) …331, _____, _____, _____
7) (subtract 8) 436, 428, 420, _____, _____, _____	8) (s… …377, 6… _____, _____

Part 2 Decreasing Patterns - Subtracting

1) 53, 49, 45, _____, _____, _____	2) 82, 77, 72, _____, _____, _____
3) 115, 112, 109, _____, _____, _____	4) 185, 179, 173, _____, _____, _____
5) 218, 208, 198, _____, _____, _____	6) 347, 339, 331, _____, _____, _____
7) 485, 473, 461, _____, _____, _____	8) 563, 552, 541, _____, _____, _____

Name: _____ 31

Curriculum Connection
PE.1

Increasing Patterns - Multiplication

x2 x2 x2
2, 4, 8, 16, 32, 64
Pattern Rule: Start at 2, multiply by 2 each time.

Questions Increasing Patterns – Multiplication

1) 1, _____, _____, _____, _____, _____ Pattern Rule: _____	6) 2, 8, 32, _____, _____, _____ Pattern Rule: _____
2) 4, 20, 100, _____, _____, _____ Pattern Rule: _____	7) 4, 12, 36, _____, _____, _____ Pattern Rule: _____
3) 3, 18, 108, _____, _____, _____ Pattern Rule: _____	8) 3, 15, _____, _____, _____ Pattern Rule: _____
4) 10, 100, 1000, _____, _____, _____ Pattern Rule: _____	9) 7, 21, 63, _____, _____, _____ Pattern Rule: _____
5) 10, 50, 250, _____, _____, _____ Pattern Rule: _____	10) 6, 24 96, _____, _____, _____ Pattern Rule: _____

Exit Cards

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

Name: _____

Growing Multiplication Patterns

1) (Multiply by 2)

2, 4, 8, _____, _____, _____

2) 7, 49, 343, 2401, 16807, 117649

Start at ____, multiply by ____ each time

3) _____, _____, _____, _____

Pattern Rule: Start at 1, multiply by 5 each time.

Name: _____

Growing Multiplication Patterns

1) (Multiply by 2)

2, 4, 8, _____, _____, _____

2) 7, 49, 343, 2401, 16807, 117649

Start at ____, multiply by ____ each time

3) _____, _____, _____, _____

Pattern Rule: Start at 1, multiply by 5 each time.

Name: _____

Growing Multiplication Patterns

1) (Multiply by 2)

2, 4, 8, _____, _____, _____

2) 7, 49, 343, 2401, 16807, 117649

Start at ____, multiply by ____ each time

3) _____, _____, _____, _____

Pattern Rule: Start at 1, multiply by 5 each time.

Name: _____

Growing Multiplication Patterns

1) (Multiply by 2)

2, 4, 8, _____, _____, _____

2) 7, 49, 343, 2401, 16807, 117649

Start at ____, multiply by ____ each time

3) _____, _____, _____, _____

Pattern Rule: Start at 1, multiply by 5 each time.

Name: _____ 35

Curriculum Connection
PE.1

Pattern Rule - Division

Part 1 Continue the decreasing patterns below

#	Pattern	Rule ÷ ___
1)	15 625, 3 125, 625, 125, 5	
2)	3 072, 768, 192, 48, 12, 3	
3)	5 184, 864, 144, 24, 4	
4)	189, 63, 21, 7	
5)	1 024, 32, 16, 8	
6)	18 750, 3 750, 150,	

Part 2 Write your own patterns using

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

Pattern Rule: Start at 256, divide by 2 each time

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

Pattern Rule: Start at 1 458, divide by 3 each time

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

Pattern Rule: Start at 25 000, divide by 5 each time

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

Pattern Rule: Start at 4 096, divide by 4 each time

Name: _____ 40

Curriculum Connection
PE.1

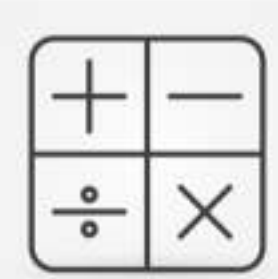
Task Cards: Patterning – All Operations

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 t
- S ets r for answers
- Pe



Instructions ou w the activity

1. Introduce the concept o s in perations and their relevance to problem-solving in everyda e.
2. Organize the students into pairs an ovide e air heir sets of task cards.
3. Give each pair an answer recording sheet t do ses.
4. Encourage teamwork by having students collabora ir p on finding solutions.
5. Allow students to select any task card to begin with, emphasiz an 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.

Name: ______________________

Curriculum Connection
PE 1

Task Cards | Cut out the task cards below

Card 9:
Start with 36. Subtract 6 and then divide by 3 for the next number. What is the second number?

a) 10
b) 12
c) 9

[illegible]
Begin with 6[illegible] an[illegible]en add 15 for the n[illegible]ber. W[illegible] secon[illegible]mbe[illegible]

a) 35
b) 20
c) 25

Card 11:
Start with 18. Multiply by 2 and then subtract 6 for the next number. What is the second number?

a) 30
b) 36
c) 24

Card 12:
Begin with 50. Add 10 and then subtract 5 for the next number. What is the second number?

a) 45
b) 55
c) 60

Card 13:
Start with 40. Subtract 5 and then add 10 for the next number. What is the second number?

a) 50
b) 45
c) 55

Card 14:
Begin with 72. Divide by 6 and then add 3 for the next number. What is the second number?

a) 15
b) 12
c) 18

[illegible]5:
S[illegible]ultip[illegible]2 and then subtra[illegible]e ne[illegible]ber. What is th[illegible]ond[illegible]

a) [illegible]
b) 48
c) 32

Card 16:
Begin with 80. Subtract 10 and then divide by 2 for the next number. What is the second number?

a) 30
b) 35
c) 40

Name: _____ 43

Curriculum Connection
PE.1

Task Cards | Cut out the task cards below

Card 17:
Start with 90. Divide by 3 and then add 5 for the next number. What is the second number?

a) 30
b) 25
c) 35

Card 21:
Start with 48. Subtract 8 and then multiply by 2 for the next number. What is the second number?

a) 70
b) 80
c) 56

Card 18:
Begin with 28. [illegible] then subtract 5 for the next number. What is the second number?

a) 30
b) 35
c) 28

Card 22:
Begin with 52. Add 6 and then divide by 2 for the next number. What is the second number?

a) 25
b) 29
c) 28

Card 19:
Start with 50. Add 10 and then multiply by 3 to get the next number. What is the third number?

a) 315
b) 325
c) 330

Card 23:
Start with [illegible] and then add 3 for the next number. What is the second number?

a) [illegible]
b) 10
c) 11

Card 20:
Begin with 64. Divide by 8 and then add 7 for the next number. What is the second number?

a) 15
b) 14
c) 12

Card 24:
Begin with 45. Subtract 10 and then divide by 5 for the next number. What is the second number?

a) 5
b) 7
c) 8

Name: _____ 44

Curriculum Connection
PE.1

Input/Output Table – Addition

Rule: add 5	
In	Out
225	230
270	275
303	308
481	486

Instru[illegible] input/output tables below

Rule: a[illegible]	
In	[illegible]
105	
113	
134	
168	

Rule: add 6	
In	Out
[illegible]215	
[illegible]233	
[illegible]26[illegible]	
291	

Rule: add 5	
In	Out
295	
303	
321	
[illegible]47	

Rule: add 3	
In	Out
301	
335	
373	
418	

Rule: add 6	
In	Out
452	
485	
498	
528	

[illegible]dd 5	
[illegible]	[illegible]ut
[illegible]	
581	
578	
593	

Rule: add 3	
In	Out
605	
631	
676	
689	

Rule: add 6	
In	Out
702	
726	
763	
799	

Rule: add 5	
In	Out
810	
831	
849	
876	

Name: _____ 45

Curriculum Connection
PE.1

Input/Output Table – Subtraction

Rule: subtract 5	
In	Out
138	133
154	149
18	176
1	191

Instru input/output tables below

Rule: sub	
In	
112	
138	
163	
195	

le: subtract 5	
	Out
206	
232	
261	
284	

Rule: subtract 3	
In	Out
297	
305	
321	
330	

Rule: subtract 7	
In	Out
308	
335	
367	
402	

Rule: subtract 10	
In	Out
508	
529	
543	
588	

R btract 8	
	ut
617	
632	
648	

Rule: subtract 6	
In	Out
623	
647	
668	
705	

Rule: subtract 12	
In	Out
854	
879	
891	
903	

Rule: subtract 15	
In	Out
905	
946	
978	
999	

Name: _____ 46

Curriculum Connection
PE.1

Input/Output Table – Multiplication

Rule: multiply by 2	
In	Out
3	6
5	10
7	14
9	18

Instru[illegible] input/output tables below

Rule: mult[illegible]	
In	[illegible]
5	
10	
20	
50	

[illegible]: multiply by 6	
	Out
3	
7	
10	
12	

Rule: multiply by 5	
In	Out
5	
10	
20	
50	

Rule: multiply by 4	
In	Out
7	
12	
15	
25	

Rule: multiply by 3	
In	Out
21	
33	
50	
110	

Ru[illegible]iply by 7	
[illegible]	[illegible]ut
[illegible]	
12	
20	

Rule: multiply by 8	
In	Out
5	
10	
20	
100	

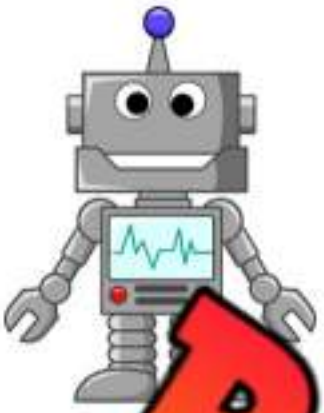
Rule: multiply by 10	
In	Out
8	
11	
16	
31	

Rule: multiply by 11	
In	Out
6	
8	
10	
20	

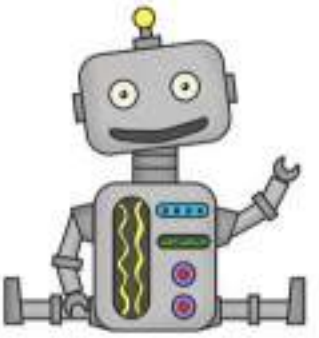
Name: _____ 47

Curriculum Connection
PE.1

Input/Output Table – Division



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



Instru[illegible] input/output tables below

Rule: divi[illegible]	
In	[illegible]
10	
25	
78	
98	

[illegible]e: divide by 2	
In	Out
[illegible]	14
[illegible]	30
[illegible]	46
[illegible]	72

Rule: divide by 5	
In	Out
25	
65	
80	
[illegible]00	

Rule: divide by 3	
In	Out
12	
24	
39	
45	

Rule: divide by [illegible]	
In	Out
16	
36	
48	
64	

R[illegible]ide by 6	
[illegible]	[illegible]ut
[illegible]	
[illegible]0	
54	
78	

Rule: divide by 9	
In	Out
18	
45	
72	
108	

Rule: divide by 10	
In	Out
20	
70	
120	
180	

Rule: divide by 8	
In	Out
16	
40	
72	
104	

Name: _____ 53

Curriculum Connection
PE.1

Table of Values

Questions Answer the questions below by using the table of values

When you work an hour, you get paid 32 dollars. Fill in the table to learn more about your earnings.

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

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

Hours Worked	Money Made
1	
2	
3	
4	
5	
10	

Weeks	KM Ran
1	
2	
3	
4	
5	
10	

You are training for a marathon, so you run 42km a week.

1) How many weeks did you run after 5 weeks?

2) How many weeks did you run if you ran 42km for 10 weeks?

Chris is studying for a science test next week. Each night he studies for 45 minutes.

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

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

3) How many nights does he need to study for to study for 585 minutes?

Nights	Minutes
1	
2	
3	
4	
5	
8	

Name: _____ 56

Curriculum Connection
PE.1

Recursive vs Functional Relationships

In a linear pattern, we can have a recursive or functional relationship between variables. A **recursive relationship** describes the pattern between successive numbers in one of the rows/columns of a table of values.

A **functional relationship** is a general rule to describe the relationship between the dependent and independent variable in a table of values. To find the **function**, we look across the table instead of beside.

Part 1

Jeffrey describing the recursive or functional relationship?

						Jeffrey's Description	Recursive or Functional
1)	x	1	2	3	4	The pattern goes up by 3 each time.	
	y	5	8	11	14		
2)	x	10	20	30	40	term number is tied by 10	
	y	100	200	300	400		
3)	x	1	2	3	4	rm n is ltiplie ne then 1 ded	
	y	5	9	13	17		
4)	x	1	2	3	4	The pattern g 4 each tim	
	y	8	12	16	20		
5)	x	1	2	3	4	7x + 11	
	y	18	25	32	39		

Part 2

Provide a recursive and functional description of the patterns

	Pattern						
1)	x	1	2	3	4	Recursive	
	y	3	9	15	21	Functional	

	Pattern						
2)	x	1	2	3	4	Recursive	
	y	12	20	28	36	Functional	

Exit Cards

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

Name: _____

Provide a recursive and functional description of the pattern.

x	1	2	3	4
y	10	18	26	34

Recursive	
Functional	

Name: _____

Provide a recursive and functional description of the pattern.

x	1	2	3	4
y	10	18	26	34

Recursive	
Functional	

Name: _____

Provide a recursive and functional description of the pattern.

x	1	2	3	4
y	10	18	26	34

Recursive	
Functional	

Name: _____

Provide a recursive and functional description of the pattern.

x	1	2	3	4
y	10	18	26	34

Recursive	
Functional	

Name: _____ 58

Curriculum Connection
PE.1

Functions – Finding Term N

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

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

Tip: To find the function, determine how many is added from one term value to the next. Try using this number as multiplication in your expression. If it doesn't work, you may need to add or subtract in addition to using multiplication to find the function.

Practice Find the function by determining the pattern between the variables

Term Number	Term Value
1	3
2	6
3	9
4	12
5	15
8	

3n

Term Number	Term Value
1	1
2	3
3	5
4	7
5	9
9	

2n-1

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

_____

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

_____

Term Number	Term Value
1	4
2	7
3	10
4	13
5	16
10	

_____

Term Number	Term Value
1	16
2	22
3	28
4	34
5	40
11	

_____

Name: _____ 59

Curriculum Connection
PE.1

Functions – Finding Term N

Practice Find the function by determining the pattern between the variables

Term Number	Term Value
1	10
2	11
3	12
4	13
5	
8	

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

Term Number	Term Value
1	7
2	11
3	15
4	19
5	
11	

_____ _____

Term Number	Term Value
1	4
2	9
3	14
4	19
5	
11	

Term Number	Term Value
1	
2	
3	19
4	25
5	
11	

Term Number	Term Value
1	8
2	18
3	28
4	
5	
11	

_____ _____ _____

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

Shelly goes out looking for shells on a beach. She records how many shells she finds each day. She found 7 shells the first day, 11 shells the second day, 15 the third day, and 19 the fourth day. How many will she find on the 30^{th} day if the pattern continues.

Name: _____ 60

Curriculum Connection
PE.1

Finding Term N – Word Problems

Word Problem	Use a table of values and find the n^{th} term

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

a) If the pattern continues...

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

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

iii) How much will he save when he is 50?

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

a) If the pattern continues...

i) How much will she exercise in week 10?

ii) How much will she exercise in week 30?

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

Exit Cards

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

Name: _____

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

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

Answer: _____

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

Answer: _____

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

Answer: _____

Name: _____

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

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

Answer: _____

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

Answer: _____

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

Answer: _____

Name: _____

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

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

Answer: _____

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

Answer: _____

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

Answer: _____

Name: _____ 62

Curriculum Connection
PE.1

Task Cards: Patterning – All Operations

Objective

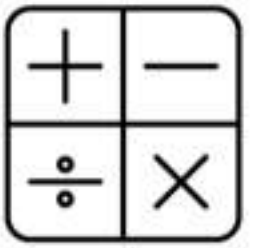
What are we learning about?

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

Materials

What you will need for the activity.

- 24 t
- [illegible] for answers
- Pen



Instructions

[illegible] the activity

1. Introduce the concept of p[illegible]ns i[illegible]rations and their relevance to problem-solving in everyday life.
2. Organize the students into pairs and provide [illegible] pair [illegible] sets of task cards.
3. Give each pair an answer recording sheet to [illegible]
4. Encourage teamwork by having students collaborate [illegible] ing solutions.
5. Allow students to select any task card to begin with, emphasizing th[illegible] can complete the cards in any order they prefer.
6. Instruct students to write their answer on the recording sheet.
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.

Name: ____________________ 63

Curriculum Connection
PE 1

Task Cards | Cut out the task cards below

Card 1

Alex saves $1 in week 1, $2 in week 2, $4 in week 3, and $8 in week 4. How much [illegible] he save in week 7?

Card 2

A savings account starts with $200. Each month, $50 is deposited and $10 is withdrawn. What will the balance be after 1 year?

[illegible]a[illegible]

A train travels 80 k[illegible] nort[illegible] km south each day. Ho[illegible] north wi[illegible] the train be after 5[illegible]

Card 4

A movie theater has 50 seats in the first [illegible]w, 55 in the second row, 60 in the third [illegible] How many seats are there in the sixth row?

Card 5

The number of visitors to a park is 100 in the first week, 150 in the second week, 200 in the third week. How many visitors are expected in the 52nd week?

Card [illegible]

If a sequenc[illegible]ts a[illegible]ws the pattern of addin[illegible], multiplying by 2, wh[illegible]s[illegible]e of the 4th term?

Card 7

A tree is 1 meter tall. Each year, it grows 0.5 meters. How tall will the tree be in the 15th year?

Card 8

A worker earns $100 per day but spends $30 on transportation and food. How much will the worker save after 30 days?

Name: _____ 64

Curriculum Connection
PE.1

Task Cards | Cut out the task cards below

Card 9

A sequence starts at 6 and is multiplied by 4 each term. What is the 4th term?

Card 10

A runner jogs 3 km on the first day, 6 km on the second day, 9 km on the third day. How many kilometers will the runner jog on the twelve day?

Card 12

A plant grows 2 cm every day for a week, doubles its growth rate every week. its growth on the fourth week?

Card 13

A factory produces 250 units but 50 are defective and removed each day. How many units will be produced in total after 15 days?

Card

A swimmer swims the morning and then the evening. How many the swimmer swim in days?

Card 15

A gardener plants 12 seeds but 3 seeds do not sprout each week. How many seeds will sprout after 8 weeks?

Card 16

A sequence starts at 68 and decreases by 2, then by 4, then by 6. What is the value of the 7th term?

Name: _____ 65

Curriculum Connection
PE.1

Task Cards | Cut out the task cards below

Card 17

Becky saved $50 in January, $75 in February, and $100 in March. How much did she save in June?

Card 18

A pattern starts at 4 and doubles every month. What is the value of the pattern in the 5th month?

Card 20

Sarah collects 5 shells in the first week, 8 shells in the second week, and 11 shells in the third week. How many shells will she collect in the sixth week?

Card 21

A runner jogs 2 km on the first day, 4 km on the second day, and 8 km on the third day. How many kilometers will the runner jog on the seventh day?

Card 23

If a sequence starts at 5 and triples each time, what is the 4th term?

Card 24

A student completes 10 math problems but makes 2 mistakes each day. How many correct problems will the student complete in 25 days?

Name: _____ 69

Curriculum Connection
PE.1

Patterning Word Problems - Blocks

Challenge | Answer the problems below

Matt is building a structure using blocks. The construction of his structure will be completed in 5 phases.

a) Matt decided to add the same number of blocks during each of the 5 phases. He ha[illegible] different design ideas. Fill in the tables below.

Pha[illegible]	[illegible]
2	
3	
4	22
5	

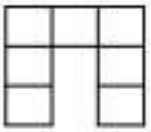
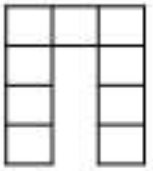
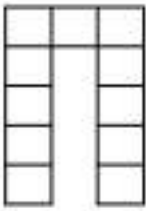
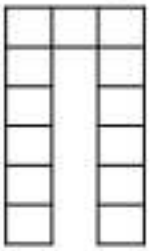
Phases	Blocks
1	
2	12
3	
4	
5	[illegible]

Phases	Blocks
1	8
2	
3	
4	
5	36

b) Whoops, Matt made a mistake when he co[illegible]ted h[illegible]ble. His structure was supposed to add the same number[illegible]cks d[illegible] phase. Find his error and correct it.

Phases	1	2	3	[illegible]
Blocks	12	17	21	

c) You want to build a house out of blocks, but each block costs $[illegible]. You have created 4 different design plans. You have $70 to spend. Which design will you choose?

Design	Blocks	$
1		
2		
3		
4		

_____

_____

Name: _____ 70

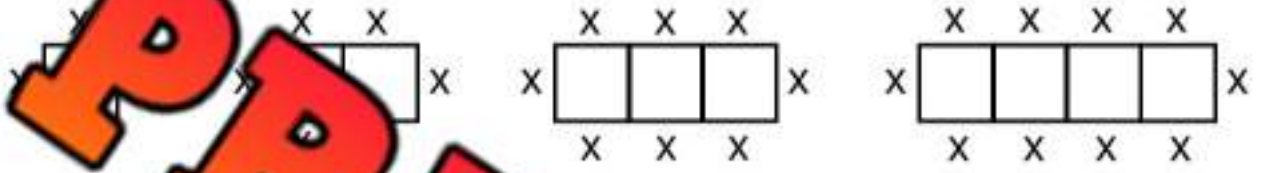
Curriculum Connection
PE.1

Picnic Word Problem – T-Tables

Challenge Answer the word problem below. Use the T-Table to help.

You have been put in charge of organizing the end of the year banquet for your baseball team. You want to have as many seats as you can.

The diagram below shows how many people can sit at the tables.



a) Fill in the t-table and describe the pattern of how many people can attend the banquet.

Tables	1			4	5
# of Seats					

b) Write an algebraic expression that represents the pattern.

c) How many people could you seat if you had...

i) 10 tables: _____

ii) 15 tables: _____

d) What if you didn't put the tables together? Would 8 tables together fit more or less than 8 tables apart?

Name: _____ 71

Curriculum Connection
PE.1

Dog Walking Word Problem – T-Tables

Challenge Answer the word problem below. Use the T-Table to help.

You start a summer dog-walking job. In the first week, you walk four dogs, earning five dollars for each dog. After that, you keep a steady schedule of three dogs a week, earning fifteen dollars each week.

a) Fill in the table to learn more about how your total earnings grow.

	1	2	3	4	5
Total Earned ($)					

b) Write an algebraic expression that represents the pattern.

c) How much money would you earn if you worked:

i) ten weeks: _____

ii) fifteen weeks: _____

d) If you could work all year, how much money would you earn?

e) What if you doubled your price and charged ten dollars per dog **after** Week 1? How much would you make after 5 weeks?

Name: _____ 72

Curriculum Connection
PE.1

Granola Bars Word Problem – T-Tables

Challenge Answer the word problem below. Use the T-Table to help.

You are helping run a snack stand at a weekend market. On the first day, you sell eight granola bars, earning two dollars for each bar. For every day after that, you sell 12 granola bars.

a) Fill in t[illegible]ble to learn more about how your earnings grow.

	1	2	3	4	5
Amou[illegible] Earne					

b) Write an algebr[illegible]xpre[illegible]resents the pattern.

c) How much money would you earn [illegible] worke[illegible]

i) Ten days: _____

ii) Twenty-five days: _____

d) If you could work all year, how much money would you earn?

e) What if you doubled your price and charged 3 dollars per bar **after** Week 1? How much would you make after 10 weeks?

Name: _____ 73

Curriculum Connection
PE.1

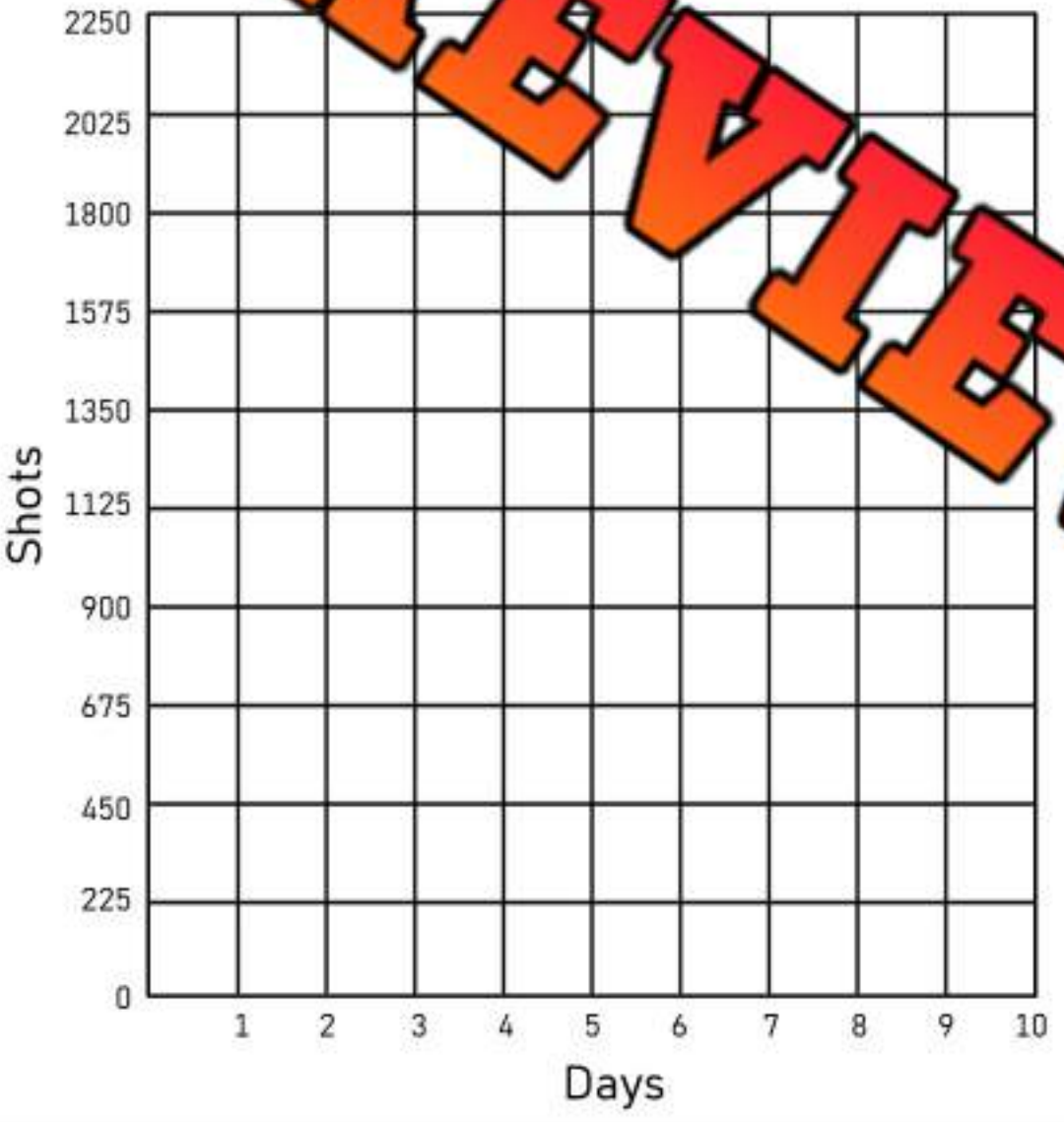
Basketball Skills Challenge

Instructions Complete the table of values and graph the results

Connor is practicing his shooting skills in basketball. He decides to take 225 shots each day for 10 days.

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

Pattern Ru



Questions

1. Which day did Connor finish 1500 shots?

_____

2. many shots nnor take in

_____

3. If his friend took 300 shots for 7 days, who would have taken more? Explain.

_____

_____

_____

Name: _____ 76

Curriculum Connection
PE.1

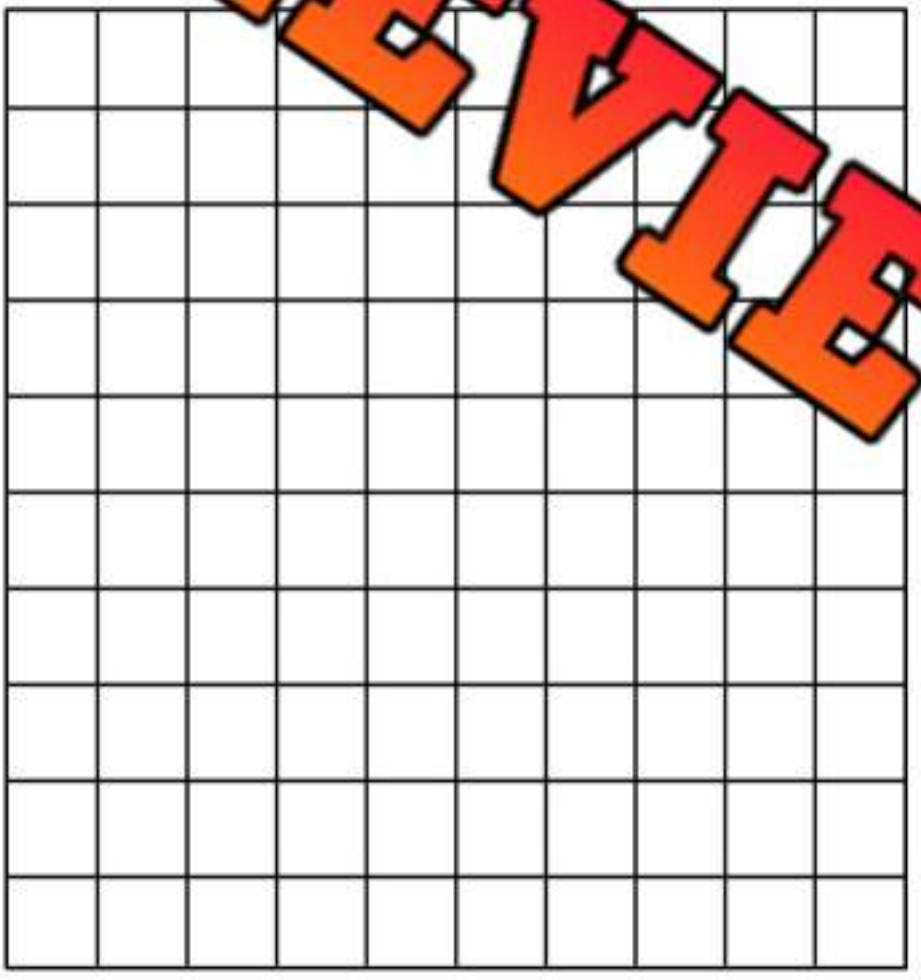
Saving Money

Instructions Complete the table of values and graph the results

Jesse is saving her pay cheques from work each week for 10 weeks. She makes $450 each week. She is hoping she can buy a new bike for $4 000. Fill in the table below to find out.

Term Nu (Wee	1	2	3	4	5	6	7	8	9	10
Ter										

Pattern Ru



Questions

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

2. How much did she have in 10

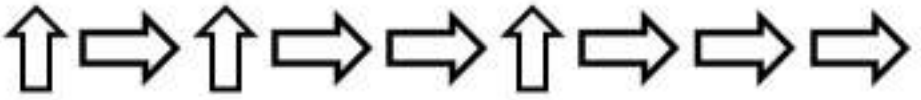
3. If she kept saving, how many weeks would she need to save $6750.

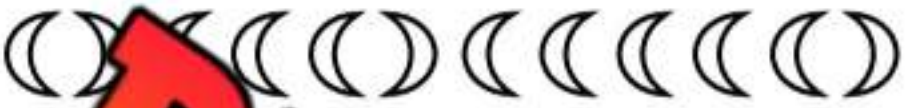
4. How much money would she have after 13 weeks?

Name: _____ 77

Algebra Quiz - Patterning

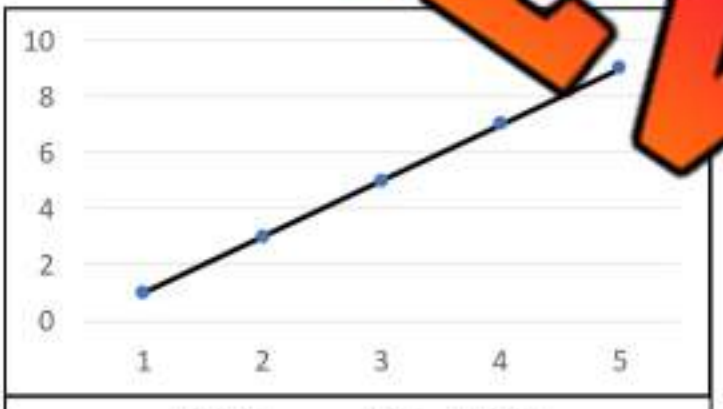
Part 1 Continue the increasing and decreasing patterns below

1) 

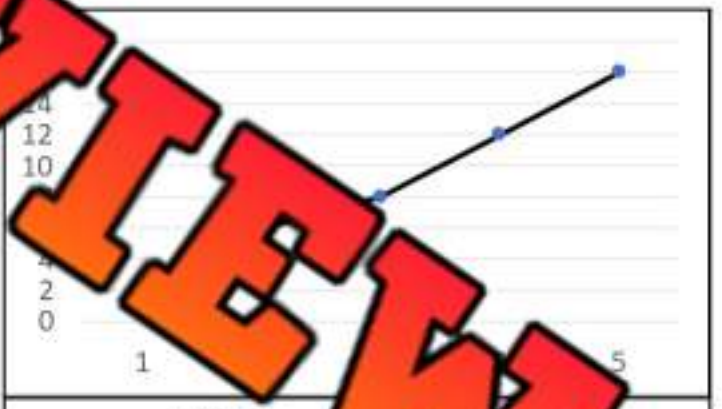
2) 

3) 

Part 2 Circle ... pa... ...d on the graph is linear or not



Linear Non-Linear



Linear

Part 3 Fill in the input/output tables below

Subtract by 9

In	Out
41	
83	
	104
	124

Rule: Add 13

In	Out
143	
172	
	206
	273

Rule: Divide by 2

In	Out
64	
110	
	62
	76

Rule: Multiply by 5

In	Out
7	
13	
	105
	145

Part 4	Answer the word problem below

Steven wants to buy a new gaming system that is on sale for $386. The sale will end in 6 days. He has $50 saved already and can make $8 an hour for cutting grass.

a) How much more money does he need to have enough to buy the gaming system?

b) How many hours does he need to work to save enough money to buy the gaming system?

c) How many hours should he work each day to make sure he can buy the gaming system within the next 6 days?

d) He can cut 2 yards in each hour. How many yards will he cut to get enough money?

e) Steven's parents decided to give him $120 extra dollars for his gaming system. How many hours will he need to work now?

Part 5 — Write an algebraic expression that represents the function

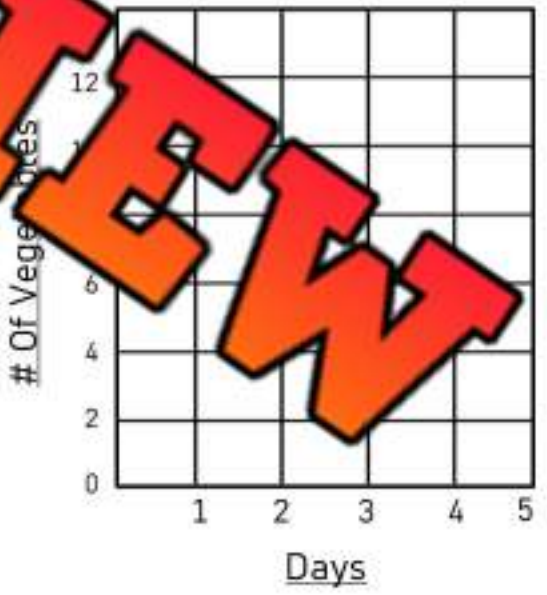
Term Number	Term Value
1	4
2	5
3	6
4	7
5	
9	

Term Number	Term Value
1	3
2	6
3	9
4	12
5	
20	

Term Number	Term Value
1	4
2	9
3	14
4	19
5	
50	

Part 6 — Translate [illegible] into a table of values and a graph

Claire marks an x each day for how many vegetables she eats.



Term Number (Day)						10	25
Term Value (Vegetables)							

Grade 6

Equations

	Curriculum Expectations	Pages That Cover the Expectations
PE.2	one-step equations with whole-number coefficients and solutions	81 - 160

Name: ______________________

Curriculum Connection
PE 2

Pre-Algebra – Balancing Addition Equations

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

Examples:

37 + 15 = [52] (37 + 15 = 52)

46 + 32 = [78] (46 + 32 = 78)

Instructions	Fill in the missing number to balance the equation

1) 44 [illegible] = [ ]	2) 53 + 9 = [ ]	3) 67 + 12 = [ ]
4) 15 + [ ] = 30	[illegible] 48 + [ ] = 57	6) 68 + [ ] = 81
7) [ ] + 12 = 95	8) [ ] + 25 = [illegible]	[illegible] [ ] + 59 = 66
10) 72 + 14 = [ ]	11) 64 + [ ] = 80	[illegible] [ ] [illegible] 65
13) 68 + [ ] = 82	14) 83 + 15 = [ ]	15) 89 + [ ] = 102
16) 105 + [ ] = 116	17) 121 + 14 = [ ]	18) 145 + [ ] = 160
19) 177 + [ ] = 198	20) 215 + 41 = [ ]	21) 217 + [ ] = 229

Name: _____ 83

Curriculum Connection
PE.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: 15 + n = 35

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

Part 1 Find out the value of the variable

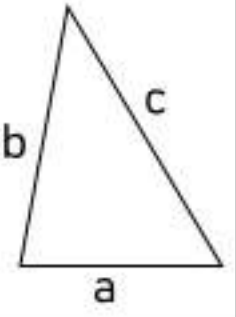
n =	n + 13 = 20 n =	27 + n = 35 n =
41 + 1[illegible] p =	[illegible] + p = 51	p + 48 = 79 p =
85 + y = 101 y =	y	124 + 15 = y y =
165 + t = 181 t =	190 + t = [illegible] t =	205 + t = 220 [illegible] =
231 + a = 245 a =	256 + a = 271 a =	2[illegible] = [illegible]5
281 + 9 = s s =	290 + n = 300 s =	s + [illegible] 300 s =

Part 2 The formula for calculating the perimeter of a shape is to add the side lengths

Find the perimeter with the measurements given for the 3 side lengths.

1) a=4 b=7 c=10	P=
2) a=7 b=12 c=16	P=
3) a=9 b=17 c=23	P=

4) a=12 b=25 c=30	P=
5) a=19 b=31 c=45	P=
6) a=15 b=23 c=36	P=



Name: _____ 85

Curriculum Connection
PE.2

Activity – Math Hot Seat: Addition Challenge

Objective

What are we learning about?

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

Material

you will need for the activity.

- Inde ards y problems
- Chairs ar rcle
- Stopwatch
- Whiteboard and ker

Instructions

How you wi mple

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

Name: _____ 87

Curriculum Connection
PE.2

The pet store sold 19 dogs and 13 cats. What was the total number of animals sold?
78 + o = 135
p + 32 = 96
56 + q = 112
The school choir performed at 3 different events. At the first event, they sang 27 songs. At the second event, they sang 19 songs. At the third event, they sang 14 songs. What was the total number of songs the choir sang?
28 + x + 14 = 87
y + 36 + 19 = 104
42 + z - 16 = 75
a + 63 - 27 = 91
The school libr 84 fic and 57 non-fiction books. They received 23 more fiction books 19 an books. How many books does the library have now?
b +
79 84 = 1
d + 16 + 2
The art classroom had 62 colored pencils and They ed 31 more colored pencils and 24 more markers. How many as do have now?
e + 72 - 19 = 118
93 + f + 11 = 159
g + 54 - 23 = 86
h + 82 + 21 = 139
115 + i - 43 = 172
j + 39 + 28 = 102
The school band had 76 trumpets and 54 trombones. They received 29 more trumpets and 18 more trombones. How many instruments do they have now?
k + 67 - 31 = 124
131 + l + 22 = 203

Name: _____ 89

Curriculum Connection
PE.2

Equation Pairs - Addition

When we add numbers or variables (letters) together, we can change the order of the numbers/letters without affecting the answer. This is called the **communitive property.**

Directions: Isaac works at a fast-food truck. He sells burgers (b) and fries (f). His job is to calculate how much the customer owes in total (t) for their order.

Instructi Write 2 equations for the orders below

#	Fri	ur	Equation 1 (f + b = t)	Equation 2 (b + f = t)
1	3		3 + 8 = 11	8 + 3 = 11
2	5			
3	3	6		
4	7	8		
5	5	9		
6	7	6		
7	3	4		
8	5	7		
9	7	9		
10	5	8		

Name: _____ 90

Curriculum Connection
PE.2

Addition Equations – Perimeter of a Rectangle

When we calculate the perimeter of a rectangle, we need to add all the sides together. The order of how we decide to add the sides together will not affect the answer due to the communitive property of addition.

Formula 1: p = a + b + a + b
p = 12 + 4 + 12 + 4
p = 32

a = 12cm

b = 4cm

Formula 2
p = 2(a + b)
p = 2 x (12 + 4) = 32

Part 1 Write 2 equations for the side lengths below

#	Side length A	Side Length B	Equation 1	Equation 2
1	7			
2	5			
3	9			
4	11	8		
5	13	16		
6	20	17		
7	17	11		
8	22	14		
9	19	22		
10	27	14		

Part 2 Using multiplication and addition, write two equations for the side lengths

#	Side length A	Side Length B	Equation 1	Equation 2
1	7	3	2(7 + 3) = 20	2(3 + 7) = 20
2	5	4		
3	9	5		
4	6	8		

Name: _____ 91

Curriculum Connection
PE.2

Writing Addition Equations – Candy Shop

Alice works at a candy shop. She sells suckers (s), gum (g), and chocolate bars (b). Her job is to calculate how much their order costs (c).

Instructions Write the equation and find the answer

#	omers Order ($)	Equation	Answer
1	g 5 s = 9	c = g + b + s c = 5 + 8 + 9	22
2	g = b =		
3	g = 7 s = 15		
4	g = 9 b = 8 s = 5		
5	b = 15 s = 12		
6	g = 31 b = 16		
7	g = 24 b = 18 s = 16		
8	g = 38 s = 24		

Name: _____ 92

Curriculum Connection
PE.2

Word Problems – Writing Addition Equations

Instructions | Answer the questions below

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

a + 21 = 37	37 + 21 = a
21 + a = 37	21 – a = 37

2) B[illegible] $75 together at work. Bruce can't remember how much he ma[illegible]ut Ha[illegible]e made $39. Which equation will tell us how much Bruce made?

[illegible] + 39 [illegible]	39 + b = 75
39 [illegible]	75 + 39 = b

3) Mary and Brianna found 121 easte[illegible]oget[illegible] Mary found 65. Which equation will tell us how many Brian[illegible]und?

121 + b = 65	65 [illegible]
b + 65 = 121	[illegible] 65

4) Brad scored 38 points in a basketball game. He had 12 point[illegible]. Which equation will tell us how many points he had in the secon[illegible]ha[illegible]

p + 38 = 12	38 + 12 = p
38 + p = 12	12 + p = 38

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

s + 14 = 31	31 + 14 = s
14 + s = 31	31 + s = 14

Name: _____ 93

Curriculum Connection
PE.2

Word Problems – Solving Addition Equations

Questions | Write the algebraic equations and answer the question

1) Luna drove 321km to get to a friend's house and then they drove to the mall. When they got to the mall, she had driven 418 km in total. How many km did she drive to the mall (m)?

2) Carte[illegible]ts for beating level 1 in a video game. He got 238 more poin[illegible]g[illegible]. How many total points (t) did he have after level 2?

Bonus – He ha[illegible]al poi[illegible]beating level 3. How many points did he get in level 3 (L)?

3) The Lakers scored 122 tota[illegible]oints [illegible]st the Toronto Raptors. Kobe Bryant had 81 points for the Lakers [illegible]many p[illegible]) did the rest of the team have?

4) Wyatt's boat can hold 500 litres of gas. He went out boating[illegible]len he docked the boat after he was done, the tank had 128 litres [illegible]y litres (L) did he use?

5) Leo had $736 in his bank account. He deposited some more money after gardening for a summer. Now he has $980. How much money (m) did he make gardening?

Name: _____ 95

Curriculum Connection
PE.2

Solving Addition Equations – Shopping Trip

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

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

Equation : x = j + s + h

x = 79 + 3[illegible]

x = $163 Therefore, Jan spent $163.

2) A[illegible] re. He bought dog food (f) for $78 and bones (*b*) for $49. He als[illegible]ught [illegible]oy (t) for $62. How much did he spend (s)?

Equation : _____

_____

_____ Therefor[illegible] _____

3) Josiah spent $830 total (t) [illegible] sp[illegible] re. He bought new skates (s) for $475, new gloves (g) for $190, a[illegible] stic[illegible] number of dollars. How much is *n* worth?

Equation : _____

_____

_____ Therefore, _____

4) Barry bought 4 new t-shirts (s) that all cost the same amou[illegible] total (t) price of $208. How much is s worth?

Equation : _____ = _____ + _____ + _____ + _____

_____

_____ Therefore, _____

5) Henry bought a new computer setup for a total (t) of $999. He bought a computer for c number of dollars. He also bought a keyboard (k) for $82 and a mouse (m) for $58. How much is c worth?

Equation : _____

_____

_____ Therefore, _____

Name: _____ 101

Curriculum Connection
PE.2

Pre-Algebra – Balancing Subtraction Equations

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

Examples

$54 \overset{48}{\wedge} - 6 = \boxed{48}$

$72 \overset{57}{\wedge} - 15 = \boxed{57}$

Instructi Fill in the missing number to balance the equation

1) 36 – ☐ =	2) 53 – 7 = ☐	3) 44 – 5 = ☐
4) 58 – ☐ = 45	5) ☐ – 39	6) 65 – ☐ = 55
7) ☐ – 5 = 52	8) ☐ – 3 =	☐ – 7 = 71
10) 83 – 11 = ☐	11) 91 – ☐ = 75	12)
13) 105 – ☐ = 99	14) 112 – 9 = ☐	15) 122 – ☐ = 111
16) 132 – ☐ = 119	17) 146 – 15 = ☐	18) 158 – ☐ = 136
19) 173 – ☐ = 164	20) 185 – 17 = ☐	21) 197 – ☐ = 182

Name: _____ 102

Curriculum Connection
PE.2

Subtraction – Find the Variable

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

Example: 39 - n = 25

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

Part 1 Find out the value of the variable

n =	2) n - 15 = 20 n =	3) 47 - n = 35 n =
4) 68 - 18 = p p =	- p = 53	6) p - 16 = 50 p =
7) 76 - y = 61 y =	8) = 0 y =	9) 92 - 13 = y y =
10) 105 - t = 91 t =	11) 114 - t = 1 t =	31 - t = 119 =
13) 153 - a = 137 a =	14) 168 - a = 145 a =	15

Part 2 Calculate the change a customer gets when they buy something

When a customer buys something, the formula for calculating their change (c) is money given (m) subtract the price (p) of the item. Therefore, c = m - p

m = 20 p = 15	c = 20 - 15	c = 5
m = 30 p = 19	c = ___ - ___	c =
m = 50 p = 27	c = ___ - ___	c =

m = 60 p = 51	c = ___ - ___	c =
m = 100 p = 77	c = ___ - ___	c =
m = 100 p = 61	c = ___ - ___	c =

Name: _____ 104

Curriculum Connection
PE.2

Writing Subtraction Equations - Bakery

Alice works at a bakery. Her job is to provide change (c) to customers when they pay for their baked goods (g). She must subtract their order from their payment (p).

Instructions Write the equations and find the answer

#	Payment	Baked Goods	Equation	Answer
1	50	32	c = p - g c = 50 - 32	c = 18
2	80			
3	100	72		
4	120	103		
5	100	86		
6	150	94		
7	200	118		
8	150	137		

Name: _____ 106

Curriculum Connection
PE.2

Word Problems – Solving Subtraction Equations

Instructions Write the equation using the variable and then solve the equation

1) Sofia started the weekend with $421 in her bank account. She went shopping (s) at the mall and now has $76. How much did she spend at the mall?

2) Ch[illegible] running [illegible]m race. She has run 2931m already. How many metres does she have l[illegible] e r[illegible]e?

3) Michael is driving to an amuseme[illegible] today[illegible] ark is 573km away. He will need to stop for gas at the 350km m[illegible] How m[illegible] he have left (L) after he stops?

4) Jacob is climbing Mount Everest to Base Camp. It is 5,464m[illegible] r a break with 1,650m left. How many metres has he climbed (c) al[illegible]ead[illegible]

5) Willow is driving to her cottage in northern Saskatchewan. The total distance is 801km. She has driven 427km already. How much more distance (d) does she need to drive?

Name: _____ 108

Curriculum Connection
PE.2

Solving Subtraction Equations - Vacation

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

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

Equation : L = x – f – s or x – f – s = L

L = 1350 – [illegible] 480

L = 455 [illegible] erefore, Ron and his family have 455km remaining to drive.

2) The [illegible] ide to b [illegible] $400 on dinner out for 3 nights. They spent $95 on the first (f) dinner and $1[illegible] co[illegible](s) dinner. How much do they have left for the third dinner (t)?

Equation : _____

_____

_____ efo[illegible] _____

3) The family heads to the waterslide p[illegible]ey brin[illegible] in total (t). The two adults (a) cost $48 each. The two kids (k) cost $25 each. How[illegible]n do[illegible]ave left (L)?

Equation : _____

_____

_____ Therefore, _____

4) The family buys a 50 pack of gummies (g). Ron (r) has 6 and his p[illegible]e[illegible]8. The kids (k) eat 26 together. How many gummies are left (L)?

Equation : _____

_____

_____ Therefore, _____

5) On the drive home, they take a short cut. The drive is 981km (d). They drive 311km the first day (f) and 511km the second (s) day. How many km do they have left (L)?

Equation : _____

_____

_____ Therefore, _____

Name: _____ 109

Curriculum Connection
PE.2

Math Activity Title: Algebraic Bottle Flip Challenge

Objective

What are we learning about?

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

Materials

What you will need for the activity.

- [illegible] pair/group) filled to approximately one-third with water (or [illegible] cups)
- Set of sub[illegible]ebra[illegible]on cards
- Answer shee[illegible]ch gr[illegible]

Instructions

How you[illegible]ple[illegible]ity

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

Name: _____ 110

Curriculum Connection
PE.2

Questions | Cut out the questions below and use for the game

x – 15 = 85	b – 20 = 50	200 – d – 10 = 162	190 – 30 – 54 = w
22 – g = 75	b – 33 = 67	180 – 25 – k = 110	e – 144 – 30 =82
150 – 10 = p	50 – c = 100	170 – j – 30 = 98	193 – t – 40 = 122
Dylan ha candie gav aw has 5 how many did h give away?	Eva had 90 vons and some. has ma e bre	Sarah had 200 stickers, she gave 50 to one friend and 30 to another. How many stickers does she have left?	Sara set aside $400 for school supplies. She spent $90 on notebooks, $125 on textbooks, and some amount on art supplies. She has $125 left for pens and pencils. How much did she spend on art supplies?
Max had 150 marbles and lost some. Now he has 120. How many did he lose?	Ben had 200 pencils and gave some to his friends. Now he has 140. How many did he give away?	Jane ha ooks she sold nd donated 80. H many books does s have left?	mma saved $500 for a She spent $200 on a t, $150 on acco tion, and ome unt on food. She w mu on
Lily had 120 stickers and used some. Now she has 90. How many did she use?	Charlie had 180 toys and gave some to charity. Now he has 130. How many did he give away?	Mike had 250 coins, he spent 70 and lost 50. How many coins does he have left?	Jack set aside $600 for a new computer. He spent $300 on the computer, $150 on accessories, and some amount on software. He has $50 left. How much did he spend on software?

Name: _____ 111

Curriculum Connection
PE.2

Algebraic Bottle Flip Challenge

Answers | Record your answers below

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

13	
14	
15	
16	
17	
19	
20	
21	
22	
23	
24	

Name: ______________________

Curriculum Connection
PE 2

Pre-Algebra – Balancing Multiplication Equations

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

Examples:

$8 \times 3 = 24$ (24 above 8 x 3)

$7 \times 6 = 42$ (42 above 7 x 6)

Instructions: Fill in the missing number to balance the equation

1) 6 x ☐ [illegible]	2) 5 x 7 = ☐	3) 4 x 5 = ☐
4) 8 x ☐ = 16	[illegible] x ☐ = 18	6) 4 x ☐ = 28
7) ☐ x 5 = 25	8) ☐ x 6 = [illegible]	[illegible] ☐ x 3 = 18
10) 9 x 4 = ☐	11) 7 x ☐ = 56	[illegible]
13) 3 x ☐ = 33	14) 10 x 9 = ☐	15) 6 x ☐ = 54
16) 8 x ☐ = 48	17) 20 x 3 = ☐	18) 4 x ☐ = 44
19) 12 x ☐ = 48	20) 14 x 4 = ☐	21) 11 x ☐ = 110

Name: _____ 114

Curriculum Connection
PE.2

Multiplication – Find the Variable

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

Example: 7n = 14 means 7 x n = 14

We can figure out the unknown number by balancing the equation – n = 2.

Part 1 — Find out the value of the variable

1) 3[illegible] n =	2) n x 8 = 16 [illegible]	3) s x 6 = 48 s =
4) 10 x 4 = p p =	[illegible]	6) 6k = 18 k =
7) 3n = 18 n =	[illegible] x [illegible] n =	9) n x 6 = 66 n =
10) 5n = 25 n =	11) 6 x 4 = t t =	[illegible]8 x 4 = p [illegible]
13) 3n = 24 n =	14) 10n = 100 n =	[illegible]) 7d [illegible]
16) 9s = 27 s =	17) 5 x 8 = s s =	18) [illegible] t =

Part 2 — Calculate the area using the variables for length and width

The formula for calculating area is: A = L x W

Calculate the area in the questions below using the values for the variables L and W

L = 5 W = 8	A =
L = 9 W = 7	A =
L = 6 W = 11	A =

L = 4 W = 12	A =
L = 8 W = 5	A =
L = 3 W = 13	A =

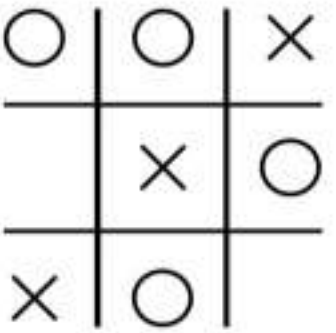
Name: _____ 115

Curriculum Connection
PE.2

Math Tic-Tac-Toe: Solving Variables

Objective What are we learning about?

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



Materials What you will need for the activity.

- Whiteboard or paper
- Markers or pens
- Math Tic-Tac-Toe grid template (can be drawn on the whiteboard or printed on paper)

Instructions How you will complete the activity.

1. Draw a large tic-tac-toe grid on the whiteboard. In each cell of the grid, write a subtraction equation involving variables (e.g., $x - 5 = 7$). Divide the class into two teams: Team X and Team O.
2. Explain to the students that they will play tic-tac-toe by placing their mark (X or O) in a cell, they must first correctly solve the equation in that cell.
3. Team X will go first. A student from Team X will choose a cell, come to the board, and solve the equation written in that cell. If they solve it correctly, they place an X in that cell.
4. If the student answers incorrectly, they do not place their mark, and it becomes Team O's turn. A student from Team O will then choose a cell, solve the equation, and place an O if correct.
5. Continue alternating turns between the two teams. The first team to get three marks in a row (horizontally, vertically, or diagonally) wins the game.
6. After the game, discuss the different strategies used to solve the equations and any challenges faced during the activity.

Name: ______________________ 117

Tic-Tac-Toe Use the following tic-tac-toe grids for the game.

5p = 40	6 × 9 = g	7n = 21
8s = 64	3 × 12 = f	4m = 28
9[illegible]	[illegible] × [illegible]	10a = 20

7p = 35	5 × 8 = w	6m = 36
9s = 63	4 × 11 = c	8n = 56
2t = 14	3 × 14 = z	10b = 80

4p = 28	6 × 12 [illegible]	[illegible] = 25
8s = 72	3 × 10 = m	7k = 42
9q = 54	2 × 16 = v	10r = 90

3p = 21	7 × 11 = q	6m = 18
[illegible]5	[illegible] × 9 = j	8n = 64
2k = 2[illegible]	[illegible] × 8[illegible]	[illegible] = 100

2p = 14	5 × 10 = d	7n = 49
9s = 81	3 × 13 = e	4m = 32
8r = 40	6 × 7 = y	10b = 70

6p = 30	4 × 12 = t	9s = 27
5k = 25	3 × 14 = r	7m = 21
8q = 64	2 × 15 = b	10a = 50

Name: _____ 118

Curriculum Connection
PE.2

Equation Pairs – Area of a Rectangle - Multiplication

Liam believes you can find the area of a rectangle in two different ways. Can you write the two equations you could use to solve the area of a rectangle?

Remember – a = l x w

Option 1
a = 7 x 3
a = 21cm²

Option 2
a = 3 x 7
a = 21cm²

Question: Write two equations that represent the area of a rectangle

#	Length	Width	Equation 1	Equation 2
1	7m			
2	5cm			
3	9km	6km		
4	10cm	8cm		
5	7m	4m		
6	9m	5m		
7	6cm	12cm		
8	8km	11km		
9	4cm	9cm		
10	7m	6m		

Name: _____ 119

Curriculum Connection
PE.2

Writing Multiplication Equations – Lottery Tickets

Amelia is selling lottery tickets for $15 a ticket. She needs to calculate how much money her customers owe her for her tickets.

Part 1 Use multiplication equations to fill in the table

#	# kets (t)	Equation 1 t x 15 = ?	Equation 2 15 x t = ?
1			
2			
3	8		
4	3		
5	7		
6	9		
7	10		
8	5		

Part 2 Amelia sells tickets to two different people in the same saction

#	# of Tickets Person 1	# of Tickets Person 2	Equation
1	5	3	(5 x 15) + (3 x 15) = 120
2	4	7	
3	9	2	
4	2	5	
5	6	6	

Name: _____ 126

Curriculum Connection
PE.2

Matching Game: Do The Variables Match

Objective — What are we learning about?

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

Materials — What you will need for the activity.

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

Instructions — How you will complete the activity

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

Name: _____ 128

Curriculum Connection
PE.2

Cards | Matching Game Cards

7c = 21	3c + 6 = 15
m = 1	20 – m = 12
4y + 2 = 18	2y + 6 = 14
6 + z = 14	3z = 2
9b – 3 = 24	5b = 15

Name: _____ 129

Curriculum Connection
PE.2

Cards | Matching Game Cards

5 + k = 17	20 – k = 8
2[illegible] = 1	2h + 3 = 21
4 + q = 16	q [illegible] = 21
2w + 3 = 13	w + 7 = [illegible]2
10 – t = 3	2t + 1 = 15

Name: _____ 130

Curriculum Connection
PE.2

Cards | Matching Game Cards

6d – 2 = 16	d + 8 = 11
4[illegible]	3f – 2 = 22
7v + 1 = 29	v[illegible] = 12
5 + u = 11	3u – 2 = [illegible]6
3 + g = 18	2g + 1 = 31

Name: _____ 131

Curriculum Connection
PE.2

Division – Are They Equal?

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

$8 \div 2 \neq 5$ $9 \div 3 = 3$ $15 \div 3 \neq 3$

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

1) 16 ÷	2) 25 ÷ 5 = 4	3) 32 ÷ 4 = 8
4) 36 ÷ 6 = 6	5)	6) 28 ÷ 4 = 8
7) 50 ÷ 5 = 10	8) 48 ÷	) 36 ÷ 4 = 8
10) 99 ÷ 11 = 10	11) 35 ÷ 7 = 5	1
13) 24 ÷ 4 = 8	14) 49 ÷ 7 = 6	15) 45 ÷ 9 = 5
16) 72 ÷ 8 = 8	17) 81 ÷ 9 = 9	18) 36 ÷ 3 = 12
19) 56 ÷ 7 = 9	20) 48 ÷ 12 = 3	21) 63 ÷ 9 = 7

Name: _____ 133

Curriculum Connection
PE.2

Division – Find the Variable

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

Example: 27 ÷ n = 3

We can figure out the unknown number by balancing the equation – n = 9.

Part 1

Find out the value of the variable.

n =	2) n ÷ 9 = 3 n =	3) s ÷ 5 = 3 s =
4) 24 ÷ [illegible] p =	[illegible] 24 ÷ p = 6 [illegible]	6) 48 ÷ r = 8 r =
7) 36 ÷ n = 6 n =	8) [illegible]	9) t ÷ 11 = 5 t =
10) 90 ÷ n = 9 n =	1[illegible] ÷ 8 = t =	12) 81 ÷ 9 = p p =
13) 64 ÷ n = 8 n =	14) 77 ÷ n n =	[illegible] ÷ s = 11 [illegible]
16) 48 ÷ s = 4 s =	17) 42 ÷ 7 = s s =	[illegible]

Part 2

Solve the question below.

Servers at a restaurant share tips (t) equally at the end of the day. The number of people that share the tips depends on how many servers (s) were working. We can use a formula to find out how much money (m) each server takes home: m = t ÷ s

t = 150 s = 5	m = 150 ÷ 5	m = 30
t = 180 s = 3	m = ÷	m =
t = 250 s = 5	m = ÷	m =

t = 120 s = 3	m = ÷	m =
t = 210 s = 7	m = ÷	m =
t = 320 s = 4	m = ÷	m =

Name: _____ 135

Curriculum Connection
PE.2

Writing Division Equations - Sharing

Riley is the best boss! Every week, she brings in treats for her staff to share. Each week, there are different treats and a different number of staff members working at the office.

Questions Use a formula to find out how many treats (t) each person gets

#		# of Staff (s)	Formula	Answer
1	[illegible] donut	8	d ÷ s = t	16 ÷ 8 = 2
2	12 co[illegible]		c ÷ s = t	
3	20 muffins (m)	5		
4	16 slices of pizza (p)	4		
5	10 bagels (b)	10		
6	15 donuts (d)	5		
7	24 cookies (c)	8		
8	18 muffins (m)	6		
9	28 pastries (p)	4		
10	32 cookies (c)	8		
11	36 slices of pizza (p)	9		
12	24 bagels (b)	3		
13	25 muffins (m)	5		

Name: _____ 138

Curriculum Connection
PE.2

Solving Division Equations

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

1) Jonathon has 1000 potatoes (p) from his farm. He wants to sell them in bags (b) of 20. How many bags will he have in total (t)?

Equation : t = p ÷ b

t = 1000 ÷

t = 50 ore, Jonathon will have 50 bags of potatoes to sell.

2) M on teac jects (s) for 225 minutes total (t). If he teaches the 5 subjects equally utes (m) will he teach each subject?

Equation : _____

_____

_____ for _____

3) Jayden is inviting 9 friends (f) to a have tal of 117 cookies (c) for his friends to share evenly. How many c will e ch friend get (g)?

Equation : _____

_____

_____ Therefore, _____

4) Matthew has 228 toys (t) stored in 12 different boxes (b). Wh toys are in each box?

Equation : _____

_____

_____ Therefore, _____

5) A group of friends go on a trip together. They all agree they will equally split up the driving duties. The total (t) distance is 1950km. Each friend drove (d) 325km. How many friends (f) went on the trip?

Equation : _____

_____

_____ Therefore, _____

Name: _____ 139

Curriculum Connection
PE.2

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 for

Mat will need for the activity.

- Jeopardy b the n
- Buzzer or bell

Instructions How you will comp acti

1. Print the Jeopardy board on the next p
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.

Name: _____ 140

Curriculum Connection
PE.2

Jeopardy Questions | Ask students the questions below

$100	$200	$300	$400	$500
7 + 5 = ?	4y = 24. Find y.	4x - 5 = 15. Find x.	If 5 apples cost $10, what is the cost of one apple?	Sarah is 4 years older than twice her sister's age. If Sarah is 28, how old is her sister?
12		24 = 3x + 18. Find x.	If 4 cookies cost $8, how much does each cookie cost?	Tom has 3 times as many books as Jerry. Together they have 44 books. How many books does each have?
5 x 8 = e What is e?	5x = 25. Find x.	3 hat is	rah bought 3 for $15. h did each cost?	Sarah has 5 times as many marbles as Ben. Together they have 42 marbles. How many marbles does each have?
5x = 25. Find x.	2x + 3 = 13. Find x.	21n + 7 = 84. Solve for n?	hirt costs $1 the total c	angle's perimeter is ne side is twice the and the third nd the s.
14 - 9 = ?	6 + 7 - 4 = ?	12r - 4 = 32. What is r?	If a box contains 24 candies and you give 5 to each friend, how many friends can you give candies to?	into two piece e piece is 5 times as long as the other. Together, they are 72 meters long. How long is each piece?
5 = x - 3. What is x?	8 × 3 - 4 = ?	12 ÷ 4 + 2 = ?	If a movie ticket costs $12 and you buy 3 tickets, what is the total cost?	In a garden, the number of roses is 2 times the number of tulips. If there are 45 flowers in total, how many roses and tulips are there?

Name: _____ 141

Curriculum Connection
PE.2

Mixed Operations - BEDMAS

When solving an equation, you need to follow the order of operations. This means you have to solve the equation in the correct order, not just from left to right. Using BEDMAS helps us remember the order to solve.

1. Brackets 2. Exponents 3. Division or Multiplication (whichever is first) 4. Addition or Subtraction (whichever is first)

Exam
2 + (
2
n

Example 2
n - (2 x 3) = 4
n - 6 = 4
n = 10

Example 3
(4n) - 8 = 20
4 x 7 - 8 = 20
n = 7

Questions

out e variables using BEDMAS

1) 3 + (4 x 5) = n	21	3) (8 x 4) + (4 ÷ 2) = t
4) n + (12 ÷ 6) = 12	5) 12 + (2 + 10) =	2 = 8
7) 24 ÷ 6 + (4 + 10) = t	8) 17 - 2 x 5 = n	9) 25 - n + (5 x 5) = 25
10) 14 + n - 7 = 22	11) 6n + 5 = 35	12) 18 - 5 + (6 x 8) = t

Name: _____ 143

Curriculum Connection
PE.2

Writing Algebraic Expressions

Using algebraic expressions helps us understand mathematical situations. We can use a variable to replace a changing number, like how many tickets are sold to a game: 10t

Part 1

Write each algebraic expression in words.
Use the words, "a number" in place of the variable

1) $9 - t$

Nine su[illegible]n

2) n[illegible]

3) $6 + b$

4) $12r$

5) $\frac{y}{8} + 5$

Part 2

Write an algebraic expression for each [illegible]hen

1) Twelve times a number subtract eight

2) Divide a number by seven and multiply it by a different number

3) A number is subtracted by fourteen divided by five

4) Triple a number subtracted by double a different number

5) Divide eighty by a number, then multiply by four

Name: _____ 144

Curriculum Connection
PE.2

Algebraic Expression - Terms

An **expression** is simply numbers and at least one operation put together without an equal sign. For example, 8 + 2 is an expression.

An **algebraic expression** is when we use a variable in an expression. The **variable** represents an unknown value. We use algebraic expressions to help us solve mathematical situations.

For exam if you were selling lemonade for $2, you could use the following algebraic sion where the variable *c* represents cups sold: 2*c*

In an al sion, we have at least one term. A term could be a constant and a also include a coefficient.

Terms	Defin
Variable	An unknown value tha repre d b tter. We use a letter because the value could cha
Constant	A number on its own. It does no t clude any variables. Therefore, the number is
Coefficient	A number used to multiply a variable
Term	Is either a single number or a variable, or num bles multiplied together

Instructions Answer the questions below about the expression provided

Expression	5n – 3y – 8 + 4
List the variables	
List the constants	
List the coefficients	
How many terms are there?	

Name: _____ 145

Curriculum Connection
PE.2

Algebraic Expression - Terms

Part 1 Answer the questions below about the expression provided

Expression	$9 - 3n + 30t - (2y + 7x) - 5$
List the variables	
List the constants	
List the coefficients	
How many terms are there?	

Expression	$\frac{32}{n} + 7m + 125 + 3b - 75 + 2 \times 5$
List the variables	
List the constants	
List the coefficients	
How many terms are there?	

Part 2 Write your own expressions by following the instructions

1) Write an expression that has 4 terms, 3 coefficients, 3 variables, and 1 constant
2) Write an expression that has 5 terms, 3 coefficients, 4 variables, and 1 constant
3) Write an expression that has 6 terms, 2 coefficients, 3 variables, and 3 constants

Name: _____ 150

Curriculum Connection
PE.2

Evaluating Algebraic Expressions

When solving an equation, you need to follow the order of operations. This means you have to solve the equation in the correct order, not just from left to right. Using BEDMAS helps us remember the order to solve.

1. Brackets 2. Exponents 3. Division or Multiplication (whichever is first) 4. Addition or Subtraction (whichever is first)

Example 2
2 + (
2
2 +
14

Example 2 $y = 5$
$y - (1 + 2)$
$5 - (1 + 2)$
$5 - 3$

Example 3 $y = 3$
$10 - 3 \times y$
$10 - 3 \times 3$
$10 - 9$
1

Part 1 Evaluate t ing e s for x = 4

1) $x + 5 - 3$	2) 10	3) $42 - 3x$
4) $\frac{12}{x} + 5^2$	5) $15x - (20 + 5)$	$\frac{00}{x}$

Part 2 Evaluate the following expressions for y = 6

1) $y + 8 - 2^2$	2) $2^4 + (y - 4)$	3) $100 - (y^2 + 3)$

Name: _____ 151

Curriculum Connection
PE.2

Evaluating Algebraic Expressions

Part 1 Evaluate the following expressions for x = 4

1) $x + 16$	2) $10x$	3) $63 - x$	4) $x \div 2$
5) $16 \div$	6) $12x$	7) $4x - x$	8) $12 \div x + 8$

Part 2 Eval he f ressions for y = 7 and n = 5

1) $y - n + 22$	2) $5n$	$y + n$	4) $y \div 7 + n$
5) $35 \div y + n$	6) $11n - y$	7) y	$\div n + y$

Part 3 Evaluate the following expressions for x = 9 and p = 3

1) $x + p - 10$	2) $10x + (2p)$	3) $54 \div x - p$	4) $x + 9 + (3p)$
5) $18 \div x + (5p)$	6) $9x - (18 - p)$	7) $6x - 5p$	8) $8p + 3x$

Name: _____ 153

Curriculum Connection
PE.2

Writing Expressions

There are an endless number of expressions that represent the same number.
For example, both of the expressions below equal 10

when $y = 5$			
Equation 1	$y + 5$	**Equation 2**	$4y - 10$

Part 1 ifferent expressions that represent the number 8. Use y = 3.

1)	2)
3)	

Part 2 Write four different expressions using mor op n that represents the number 6. Use y = 10

1)	2)
3)	4)

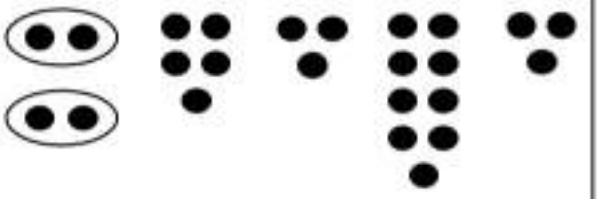
Name: _____ 155

Curriculum Connection
PE.2

Equivalent Forms of an Equation

When we add or subtract the same amount from both sides of an equal sign, the equation does not change. Investigate this theory below.

Instructions Draw circles to represent the equations

#	Original Equation	Change	New Equation
1	2n + 5 = 9 	Add 3	2n + 5 + 3 = 9 + 3 
2	5 + n		
3	12 - n = 7	Add 3	
4	3n + 4 = 13	Subtract 5	
5	3 + 4n = 15	Add 7	

Name: _____ 156

Curriculum Connection
PE.2

Equivalent Forms of an Equation

Instructions Write four equivalent forms of the equations below

#	Original Equation
1	4n = 20
	6 to each side
	2 each side
	ultipl by 8
	Divide ide b

#	O tion
2	2 = 2
Add 8 to each side	
Subtract 13 from each side	
Multiply each side by 3	
Divide each side by 6	

#	Original Equation
3	5n - 5 = 25
Add 50 to each side	
Subtract 20 from each side	
Multiply each side by 4	
Divide each side by 5	

Name: _____ 157

Curriculum Connection
PE.2

Equivalent Forms of an Equation

When we change an equation by adding, subtracting, multiplying, and dividing the same amount from both sides, does the equation change? Investigate below!

Instructions Fill in the table below

#	Original Equation	Change	New Equation
1	5n = 20 n =	Add 10 to each side	5n + 10 = 20 + 10 n = 4
2	8 =	Add 7 to each side	
3	15 + n = 2 n =	Subt from each	
4	6n = 12 n =	Multiply each by 3	
5	2n = 16 n =	Divide each side b	
6	52 – n = 34 n =	Subtract 15 from each side	
7	68 + n = 85 n =	Add 13 to each side	
8	5n = 50 n =	Multiply each side by 4	
9	3n = 27 n =	Divide each side by 3	

Name: _____ 158

Algebra Quiz - Equations

Part 1 — Find out the value of the variable

9 + n = 15 n =	124 + 15 = y y =	p + 48 = 79 p =
9[illegible] = y	76 - y = 61 y =	p - 16 = 50 p =
[illegible] n =	n x 6 = 36 n =	s x 6 = 48 s =
45 ÷ n = [illegible] n =	[illegible] = 5	24 ÷ 4 = p p =

Part 2 — Find out the value of [illegible]

a + b + c = d a = 9 b = 10 c = 8 _____ + _____ + _____ = d d =	t[illegible] g = 6 _____ h =
r ÷ y = t r = 28 y = 7 _____ ÷ _____ = t t =	en = f e = 2 _____ x _____ = f f =
ab = c a = 6 b = 8 _____ x _____ = c c =	e + c + g = t e = 9 c = 6 g = 14 _____ + _____ + _____ = t t =
a - b = c a = 108 b = 11 _____ - _____ = c c =	e - n = f e = 125 n = 22 _____ - _____ = f f =

Part 3 — Solve the word problems below

1) Jacob picked 15 apples (a) from each row of apple trees. He picked 75 apples in total (t). How many apples did he pick in each row (r)?

Equation : _____

_____

_____ Therefore, _____

2) They de[illegible] budget (b) $400 on dinner out for 4 nights. They spent $90 on the first (f) dinner [illegible] the second (s) dinner and $85 on the third (t) dinner. How much do they hav[illegible]urth dinner (f)?

Equ[illegible]

_____

_____

3) A family of 6 (f) buys [illegible]onuts. [illegible]family member gets 4 donuts (d). How many donuts were there in [illegible]

Equation : _____

_____

_____ Therefore, _____

4) Hailey spent $475 total (t) at a sporting goods s[illegible] [illegible]tes (s) for $275, new gloves (g) for $130, and a new stick for (s) [illegible]dolla[illegible] much is s worth?

Equation : _____

_____

_____ Therefore, _____

Part 4 — Use two different equations to find the area using the given measurements

#	Length	Width	Equation 1	Equation 2
1	10m	7m		
2	7cm	8cm		
3	9km	4km		

Part 5 Find the perimeter using the side lengths given. Provide 2 equations.

#	Side length A	Side Length B	Equation 1	Equation 2
1	8	5		
2	9	6		
3	11	7		
4		9		
5		15		
6	20	16		

Part 6 Wri[illegible] of the equations below

#	[illegible]
1	[illegible]n = 32
Add 7 to each side	
Subtract 12 from each side	
Multiply each side by 2	
Divide each side by 8	

#	Original Equation
2	5n + 7 = 32
Add 12 to each side	
Subtract 15 from each side	
Multiply each side by 3	
Divide each side by 5	