Grade 5
D1. – Data Literacy

	Curriculum Expectations	Pages
D1.1	explain the importance of various sampling techniques for collecting a sample of data that is representative of a population	5 – 6, 49, 51, 67
D1.2	collect data, using appropriate sampling techniques as needed, to answer questions of interest about a population, and organize the data in relative-frequency tables	7 – 16, 28, 43, 45, 47, 49, 51, 63 – 64, 67
D1.3		32, 36 8, 50, 3
D1.4	representing the data in appropriate ways, including in relative-frequency tables and stacked-bar graphs, and incorporating any other relevant information that helps to tell a story about the data	19 – 20, 69 - 71
D1.5	determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers and decimal numbers, and explain what each of these measures indicates about the data	17 – 18, 21 – 25, 29 – 30, 32, 63
D1.6	analyse different sets of data presented in various ways, including in stacked-bar graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions	29 – 35, 53 – 63, 65 – 66, 72 - 87

Preview of 75 pages from this product that contains 178 pages total.

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Curriculum Connection
D1.1

Sampling Techniques

Random Sampling
When we select people in a population randomly. Each person in the population has an equal chance to be selected. For example, using a computer generator to randomly choose people from a list.



Stratified Random Sampling
Taking a population and splitting them into groups and then random sampling the groups separately. For example, a school population could be divided into two groups: (1) students who take the bus and (2) those who don't take a bus. A survey could be given to both groups by randomly selecting 10% of the people in both groups. We can learn more information about these groups by using stratified random sampling.

Systematic Random Sampling
Systematic random sampling is when you choose a random sampling strategy before beginning a survey. For example, a sample could be chosen from an alphabetized list of names, using a starting name and then every fourth name to be randomly chosen.

PREVIEW

Part 1 Write which type of sampling technique is being used in the examples below

Example of a Sampling Technique	Sampling Technique
1) Deciding randomly to choose every 5th person in	
2) Having a computer call 10% of Ontario teachers	
3) Splitting the elementary student population into primary	
4) Using a computer to randomly email 20% of the customers of a business	
5) Deciding to hand out surveys to every 10th customer who enters a store	

Part 2 Which sampling technique would you use in the situations below

Situation	Sampling Technique
1) You want to know if more men or women prefer your pizza	
2) You have a mailing list on your computer and want to sample 10% of them	
3) You work at a store and want to survey every 10 people that come in	
4) You are trying to sample 20% of everyone in Ontario by calling them	
5) You want to sample the grade 5 and grade 6's in the schools in Toronto	

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Curriculum Connection
D1.2

Qualitative vs Quantitative Data

Quantitative data	**Qualitative data**
Data that uses numbers (measured, counted) – length, height, area, weight, time, etc.	data that uses words (categories) – choices, favourites, foods, colours, etc.

Questions ad the description of the data and circle if it is quantitative or qualitative

1) M e sale last month	Quantitative Qualitative
2) Heights of t in gr	Quantitative Qualitative
3) Favourite foods of the udent	Quantitative Qualitative
4) Rainfall in April last year	Quantitative Qualitative
5) Favourite colours of the students in your clas	Quantitative Qualitative
6) The weight of different hockey skates	Qua itative e
7) The height of the grade 5 students	itative ualitative
8) Favourite season of the students in your school	Quantitative Qualitative
9) Which town/city people live in that go to your school	Quantitative Qualitative
10) Whether or not you have a pet	Quantitative Qualitative
11) How long it took to get to school	Quantitative Qualitative

PREVIEW

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Name: _____ 11

Curriculum Connection
D1.2

Quantitative vs Qualitative Observations

Qualitative Observations
use your senses to observe the results



Quantitative Observations
use measurement tools to make observations



PREVIEW

Part 1 ...icture below with your senses. Write as many qualitative ...u can (imagine the smell/noise/taste/feel)



...ell: _____

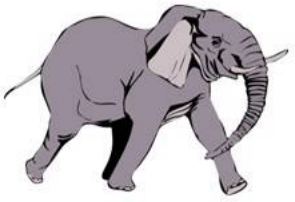
Fe... _____

H... _____

S... _____

Taste: _____

Part 2 Pretend you can measure the weight, speed, and ...ght ... ...low. Provide a quantitative observation (estimation of these ...

	Height: _____cm Weight: _____kg Speed: ____km/h		Height: _____cm Weight: _____kg Speed: ____km/h
	Height: _____cm Weight: _____kg Speed: ____km/h		Height: _____cm Weight: _____kg Speed: ____km/h

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Curriculum Connection
D1.2

Relative Frequency Tables

Instructions Fill in the relative frequency tables below

1. Coin Toss (100 Tosses)		
Result	**Frequency**	**Relative Frequency**
Heads	48	
	52	

2. [illegible]ner wit[illegible]rs (80 Spins)		
C[illegible]	**Frequency**	**Relative Frequency**
Red	25	
Blue		
Green	[illegible]	
Yellow		

3. Favourite Recess Activity (Class Surv[illegible]		
Activity	**Frequency**	**Relati[illegible]quency**
Soccer	10	
Tag	8	
Reading	6	
Basketball	6	

4. Colour of Marbles Pulled (150 Trials)		
Colour	**Frequency**	**Relative Frequency**
Red	50	
Green	40	
Black	30	
Blue	30	

PREVIEW

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Name: _____ 13

Curriculum Connection
D1.2

Relative Frequency Tables

Instructions	Fill in the relative frequency tables below

1) Ice Cream Flavours Chosen		
Flavour	**Frequency**	**Relative Frequency**
Vanilla	18	
C te	21	
y	9	
nt Chip	12	
a) How many p ur d?		
b) If 120 studen survey any would you expect to choose mint chip?		
c) If 300 students were surv w you expect to choose chocolate?		
d) What would happen if another flavour was ad nd g tes. Would the relative frequencies of the other fl go u		

2) Colours of Beads in a Bracelet Kit		
Flavour	**Frequency**	**R**
Red	50	
Blue	40	
Green	60	
Yellow	50	
a) How many beads are there?		
b) If the total number of beads doubled, how would the relative frequencies change?		
c) If there were 400 beads in total, how many green beads would there be?		

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Curriculum Connection
D1.2

Relative Frequency Word Problems

Instructions Answer the questions below

1) A dice was rolled 50 times. It landed on the number 4 a total of 12 times. What is the relative frequency of rolling a 4?

2) Ou[illegible] said their favourite subject is Math. What is the relative frequ[illegible] of stud[illegible] like Math?

3) A class of 30 students w[illegible]ed [illegible]ey like best. 10 chose apples, 12 chose bananas, and 8 chose or[illegible]ges. [illegible]tive frequency for each fruit?

4) In a survey of 60 students, 18 walked to school, 24 to[illegible]e b[illegible] were driven by car. What is the relative frequency of each mod[illegible]on?

5. In a survey of 40 people, 16 drank tea, 12 drank coffee, and the rest drank juice. What is the relative frequency of each drink?

PREVIEW

Name: _____ 15

Curriculum Connection
D1.2

Relative Frequency Tables

Instructions Fill in the relative frequency tables below

1) Coin Toss (Total = 10 tosses)		
Pet	**Frequency**	**Relative Frequency**
Heads		0.6
		0.4

2) urite F = 20 students)		
A	**Frequency**	**Relative Frequency**
Appl		0.4
Banana		0.3
Orange		0.3

3) Spinner Results (Total = 50 spins)		
Colour	**Freque**	**Frequency**
Red		
Blue		
Green		

4) Dice Rolls (Total = 60 rolls)		
Number	**Frequency**	**Relative Frequency**
1		0.1
2		0.2
3		0.1
4		0.2
5		0.3
6		0.1

PREVIEW

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Curriculum Connection
D1.2

Relative Frequency Tables

Instructions Fill in the relative frequency tables below

1) A pet shelter recorded the relative frequencies of animals adopted:
Dogs: 0.5, Cats: 0.3, Rabbits: 0.2. If 120 animals were adopted, how many of each type were adopted?

2) A [illegible] contains [illegible]les. 0.6 of the marbles are green. The rest are red. How many re[illegible] marbl[illegible]e b[illegible]g?

3) A spinner was spun 200 t[illegible] The [illegible]me up with a relative frequency of 0.15. How many times did the spin[illegible] on [illegible]

4) A store tracks purchases:
0.25 of customers bought shoes, 0.5 bought shirts, 0.25 bought [illegible]e made purchases, how many bought each item?

5) In a class vote, the relative frequency of students who chose vanilla ice cream was 0.25. If 10 students chose vanilla, how many students were in the class?

PREVIEW

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Curriculum Connection
D1.5

MEAN

When we calculate the mean, we are finding the average of set of numbers.

Example: Three brothers named Josh, Cameron, and Morgan went on an easter egg hunt. Josh found 6 eggs, Cameron found 4, and Morgan found 5. At the end of the hunt, their mother told them to split the eggs equally. So, they decided to put all the eggs in the middle and then divide them equally amongst themselves. They had 6 + 4 + 5 = 15 eggs and 15 ÷ 3 kids = 5 eggs each.

Josh		Morgan		Total		Josh	Cameron	Morgan
9 Candy B		7 Candy Bag	=	21 Candy Bag	=	7 Candy Bag	7 Candy Bag	7 Candy Bag

Mean = 5

Questions allo… total up the candy and then fair share it

Claire	Katie				Claire	Katie	Ashley
5 Candy Bag	3 Candy Bag	Candy Ba	=	=	_____ Candy Bag	_____ Candy Bag	_____ Candy Bag

Mean = _____

Emma	Olivia	Ava		Total				Ava
2 Candy Bag	6 Candy Bag	4 Candy Bag	=	_____ Candy Bag	=	Ca…	…ia	_____ …ndy Bag

Mean = _____

Mia	Harper	Charlotte		Total		Mia	Harper	Charlotte
14 Candy Bag	8 Candy Bag	8 Candy Bag	=	_____ Candy Bag	=	_____ Candy Bag	_____ Candy Bag	_____ Candy Bag

Mean = _____

Liam	Noah	William		Total		Liam	Noah	William
10 Candy Bag	15 Candy Bag	11 Candy Bag	=	_____ Candy Bag	=	_____ Candy Bag	_____ Candy Bag	_____ Candy Bag

Mean = _____

PREVIEW

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Curriculum Connection
D1.5

MEAN

Mean = the average in a set of data

Step 1: Add the numbers in the data set

Step 2: Divide the sum by the amount of numbers in the set.

Example:

Data set: 5, 3, 8, 8

Step 1: 5 + 3 + 8 + 8 = 24

2: 24 ÷ 4 = (6)



Ques' Fi mean for each data set below

, 4	2) 8, 4, 12, 4
3) 12, 6, 10, 8	) 20, 10, 30, 20
5) 23, 35, 24, 30	46
7) 12, 19, 12, 26, 31	8) 15, 8, 20, 16, 11
9) 13, 18, 17, 22, 30	10) 42, 36, 55, 23, 14

PREVIEW

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Curriculum Connection
D1.4

MODE

Mode: The mode is the number that happens the most in a group of data. It shows what is most popular.

For example:
Thirteen Grade 5 students were asked how old they are. Their answers were:
9, 10, 10, 9, 10, 10, 9, 10, 10, 9, 9, 10, 10

- **9 years old**: 5 students
- **10 years old**: 8 students

Age	9	10
Frequency	5	8

So, the **mode** is 10 because more students are 10 than 9.
👉 If two numbers are picked the same amount, both are the mode.
👉 The **mean** is not always the mode — the one that shows up the most is!

PREVIEW

Questions

Grade 5 people were asked their age. They are listed in the data sets below. Order them in the table and write the mode(s).

Data Set	Ordered List	Mode
1) 13, 15, 11, 16, 11, 13, 11	<table><tr><td></td><td></td><td>13</td><td>15</td><td>16</td></tr><tr><td>Frequency</td><td></td><td></td><td></td><td></td></tr></table>	
2) 22, 25, 23, 22, 25, 28	<table><tr><td>#</td><td>22</td><td></td><td>25</td><td></td></tr><tr><td>Frequency</td><td></td><td></td><td></td><td></td></tr></table>	
3) 37, 49, 35, 37, 49, 35, 49, 35	<table><tr><td>#</td><td>35</td><td>37</td><td>49</td></tr><tr><td>Frequency</td><td></td><td></td><td></td></tr></table>	
4) 65, 54, 58, 58, 54, 65, 54, 58	<table><tr><td>#</td><td>54</td><td>58</td><td>65</td></tr><tr><td>Frequency</td><td></td><td></td><td></td></tr></table>	

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Name: _____ 20

Curriculum Connection
D1.4

Mode and Frequency Tables

Questions | Answer the questions below

1) Mason kept track of how many books he read each month for the last 7 months: 3, 6, 4, 4, 3, 5, 5.

a) Fill in the frequency table

B[illegible]d				
[illegible]y				

b) What is the m[illegible]

c) Can there be [illegible]n one [illegible]plain.

2) Jasmine tracked the weather each da[illegible]wo wee[illegible]e recorded whether it was Sunny, Cloudy, or Rainy: Sunny, Rainy, Cl[illegible]y, Sunn[illegible]ny, [illegible]dy, Rainy, Sunny, Cloudy, Cloudy, Rainy, Sunny, Rainy, Cloudy

a) Fill in the frequency table

Weather Type	Rainy	Cl[illegible]	[illegible]unny
Frequency			

b) What is the mode?

3) Liam went to an arcade and recorded how many tickets he won each round. Here's what he got: 120, 150, 140, 120, 150, 200, 150, 120, 140, 150, 160, 180, 160, 180, 120

a) Fill in the frequency table

Tickets Won						
Frequency						

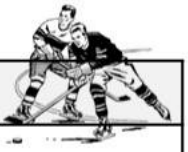
b) What is the mode?

PREVIEW

Name: _____ 22

Curriculum Connection
D1.5

Mean and Mode





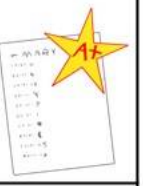
Hockey Goals	Basketball Points
6 3 2 2 7	13 22 20 15 15
Mean: _____	Mean: _____
Mode: _____	Mode: _____



PREVIEW

Minutes Read Per Day	[illegible]
12 18 42 36 12	95 [illegible]
Mean: _____	Mean: _____
Mode: _____	Mode: _____





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Curriculum Connection
D1.5

MEDIAN

Median: The median is the middle number in a data set.

Step 1: put numbers in order from least to greatest
Step 2: circle the number in the middle.



*** If there is an even amount of numbers in the data set, add the two numbers in the middle and divide by 2. This is the median.

PREVIEW

Data	Ordered List	Median
8, 12, 4, 7, 8	4, 7, 8, 8, 12, 15	8 + 8 = 16 16 ÷ 2 = 8
25, 35, 12, 53, 15, 24,		
18 17, 11, 15, 14, 41		
231, 412, 165, 132, 335, 65		
12, 28, 0, 0, 22, 0, 36, 42		
130, 265, 217, 323, 112, 203		
11, 14, 125, 214, 425, 135, 163		

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Name: _____ 24

Curriculum Connection
D1.5

MEDIAN

Part 1 — Answer the questions below

1	Five students measured how long they could balance on one foot (in seconds): 12, 18, 14, 16, 20. What is the median balance time?	
2	Eig[illegible]s counted how many marbles they had in their col[illegible] 32, 28, 35, 40, 29, 38, 36, 31. What is the median n[illegible]rbles?	
3	On a col[illegible] cha[illegible]ecorded six temperatures (in °C): −5, 5, 2, -3, [illegible]s the [illegible]temperature?	
4	A student baked mu[illegible]s si[illegible]e. The number of muffins was: 12, 16, 14, 1[illegible], 16 a) What is the median numbe[illegible]ffins? b) If they baked 6 more muffins on a 7th [illegible]end, w[illegible]he new median?	a) b)

PREVIEW

Challenge — Answer the questions below

In the first five months of the year, a store sold these numbers of p[illegible]: **January**: 120, **February**: 10 more than January, **March**: 15 fewer than Feb[illegible], **April**: 25 more than March, **May**: 20 fewer than January

1) What is the total number of puzzles sold over the five months?	
2) What is the median number of puzzles sold?	
3) Which two months had puzzle sales closest to the median value?	
4) If you removed the month with the highest number of puzzles sold, what would the new median be?	

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Name: _____ 25

Curriculum Connection
D1.5

Mean, Median, Mode - Decimals



Questions Fill in the table using the different measures of central tendency

Data Set	3.3, 1.2, 2.7, 3.3, 1.4, 2.5, 1.7
Mean	
Median	
Mode	

Data Set	11.5, 13.5, 14.6, 10.1, 11.5, 12.6
Mean	
Median	
Mode	

Data Set	3.5, 4.0, 4.5, 6.5, 7.0, 4.5
Mean	
Median	
Mode	

Data Set	12.5, 12.4, 11.0, 31.5, 21.6, 12.4
Mean	
Median	
Mode	

PREVIEW

Kevin weighed his daughter Mia every month for the first 6 months of her life. What was her average weight during her first 6 months?

8.2 11.5 13.7 15.7 18.2 19.1

Mean		**Median**		**Mode**	

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Name: _____ 26

Curriculum Connection
D1.3

Stem and Leaf Plots

A stem and leaf plot is another way to organize data so it can be better understood. The stem represents the first digit or digits, and the leaf represents the last digit.



How to create a stem and leaf plot

1. Put the numbers in order from smallest to largest.
2. Determine the stems by looking at the first number. Sometimes you will have two-digit stems.
3. Write the corresponding leaf (the last digit) under the leaf part of the table.

Question Complete the stem and leaf plots below

1) 32, 44, [illegible]

Stem	Leaf

2) 11, 65, 25, 38, 43, 11, 36, 74

Stem	Leaf

3) 156, 154, 124, 135, 164, 122, 125

Stem	Leaf

4) 252, 237, 235, 218, [illegible], 237, 254

Stem	Leaf

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Name: _____ 27

Curriculum Connection
D1.3

Stem and Leaf Plots

A stem and leaf plot is another way to organize data so it can be better understood. The stem represents the first digit or digits, and the leaf represents the last digit.



Questions	Read the stem and leaf plots and fill in the tables below

PREVIEW

1.

Stem	Leaf
	0
6	
8	

Data Set	
Median	
Mean	
Mode	

2.

Stem	Leaf
1	1
2	2, 8, 8
3	3
4	0, 4, 4, 5
5	5

Data Set	
Median	
Mean	
Mode	

3.

Stem	Leaf
1	2
2	3, 5, 5
3	4, 7
4	0, 5
5	6

Data Set	
Median	
Mean	
Mode	

4.

Stem	Leaf
2	2, 5
4	0, 2
5	5, 9
7	7
9	0, 1, 9

Data Set	
Median	
Mean	
Mode	

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Name: _____ 30

Curriculum Connection
D1.3, D1.5, D1.6

Creating a Horizontal Pictograph

Kevin and his friends went to an arcade on Saturday. They had a contest to see who could win the most tickets from the arcade games. The results are displayed in the table below.



Kevin	80
Neil	40
Steve	72
Dane	60
Chris	68



Questions r… a picto… that displays the data above

Kevin	
Neill	
Steve	
Dane	
Chris	

PREVIEW

 = 8 tickets

1) Who won the most tickets?	
2) How many more tickets did Dane win then Neil?	
3) How many total tickets did the 5 kids win?	

Mean	Median

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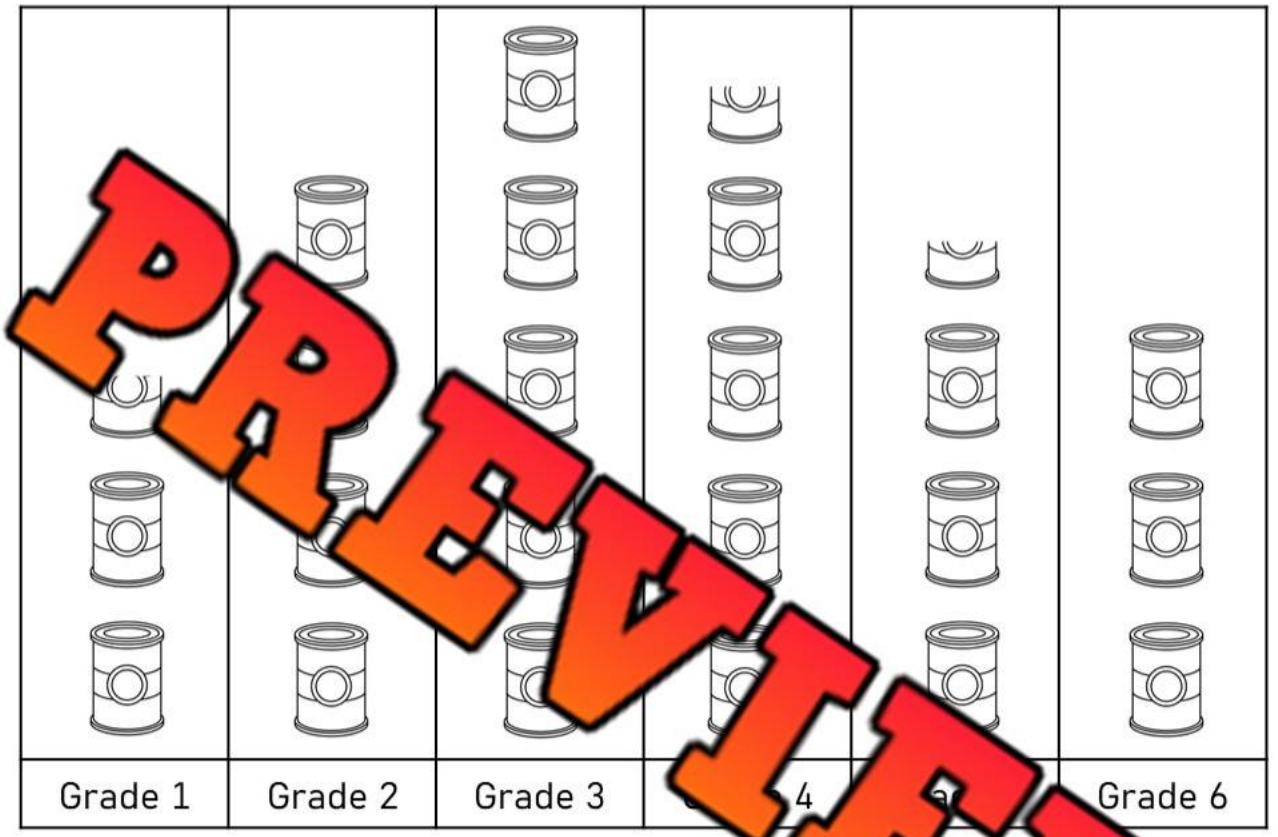
Name: _____ 31

Curriculum Connection
D1.3, D1.6

Vertical Pictograph – Canned Food

Maplewood Public School had a canned food drive last month. The students in each class brought in cans of food. The totals for each grade are displayed below in the pictograph.



= 12 cans

PREVIEW

a) How many cans is one picture worth?	
b) How many cans is half a picture worth?	
c) Which class brought the greatest number of cans?	
d) How many total cans were brought in at Maplewood Public school?	
e) How many more cans did the grade 3's bring in than the grade 6's?	
f) How many more cans did the grade 4's need to win?	

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Name: _____ 32

Curriculum Connection
D1.3, D1.5, D1.6

Creating a Vertical Pictogram

James participated in a reading challenge last week. He read each day and wrote down how many minutes he read for each day of the week.



Sunday	45
Monday	60
Tuesday	40
Wednesday	65
Thursday	45
Friday	50
Saturday	45



PREVIEW

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

 = 10 minutes

1) What day did he read the most?	
2) How many more minutes did he read on Wednesday than Friday?	

Mean	Mode	Median

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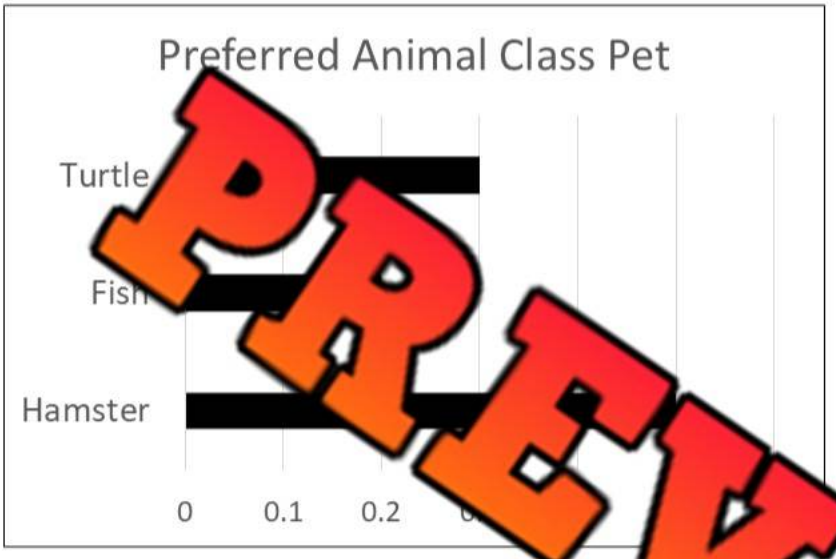
Name: _____ 34

Curriculum Connection
D1.6

Relative Frequency Bar Graph

A total of 30 students in grade 5 were asked which animal they would most like as a class pet. Each student voted, and the results have been displayed below in a horizontal bar graph.





PREVIEW

Instructions Answer the questions below

1) Fill in the frequency table.	**Pet**	**...y**	**...tive Frequency**
	Turtle		
	Fish		
	Hamster		

2) How many more students voted for hamsters than for fish?	
3) What is the difference in relative frequency between the most and least popular pet?	
4) If 10 more students were surveyed and all chose fish, what would the new relative frequency for fish be?	
5) Is it possible for two pets to have the same frequency but different relative frequencies?	

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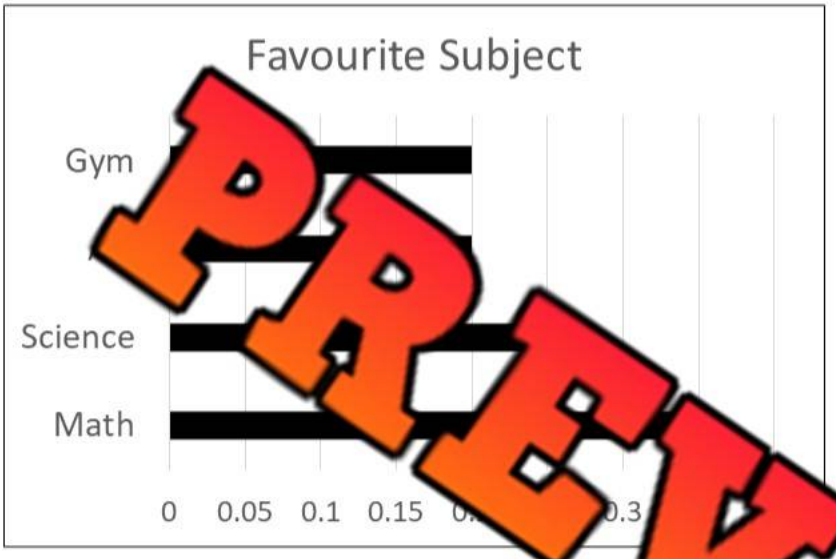
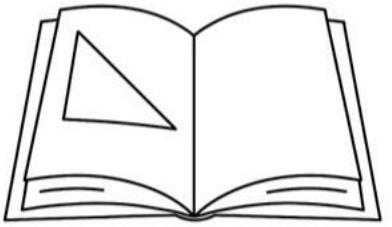
Name: _____ 35

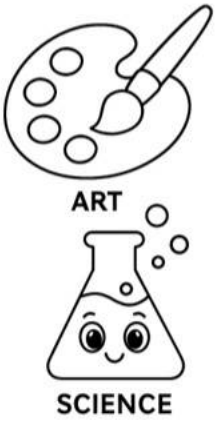
Curriculum Connection
D1.6

Relative Frequency Bar Graph

A total of 40 students in grade 5 were asked which subject they enjoy the most at school. Each student voted, and the results have been displayed below in a horizontal bar graph.







PREVIEW

Instructions Answer the questions below

	Pet	Frequency	Relative Frequency
1) Fill in the frequency table.	Math		
	Science		
	Art		
	Gym		

2) What is the difference in the number of students between the most and least popular subjects?	
3) If five more students were added to the survey and all chose art, what would the new relative frequency be for art?	
4) What is the total relative frequency of all four subjects?	
5) If there were 160 students and the relative frequencies stayed the same, how many would choose science?	

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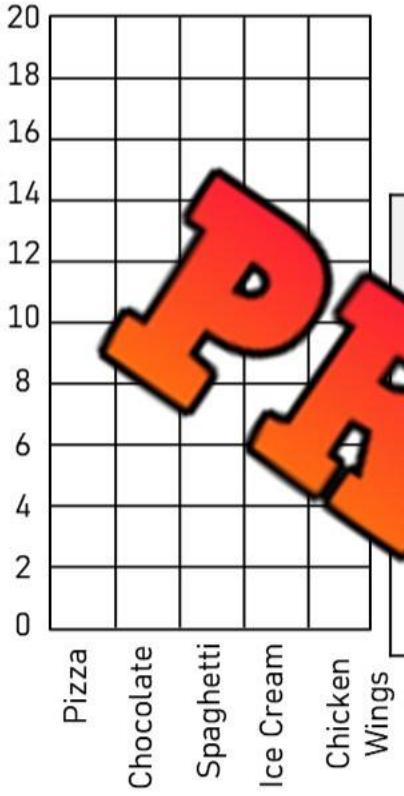
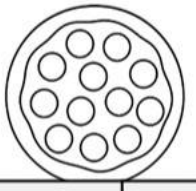
Name: _____ 36

Curriculum Connection
D1.3

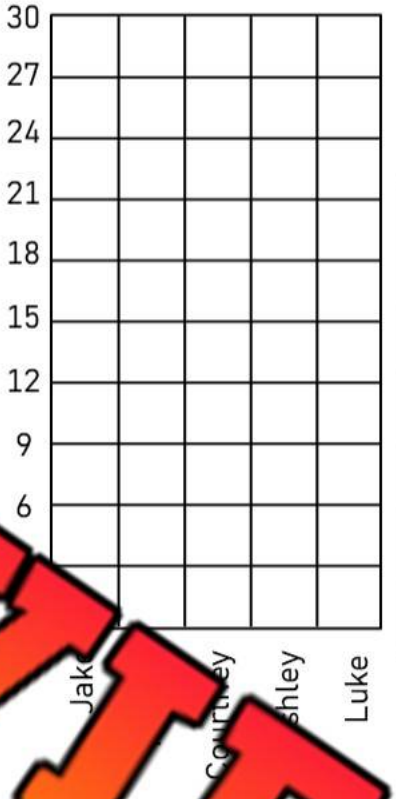
Drawing Bar Graphs

Questions | Draw the bars for each of the bar graphs below



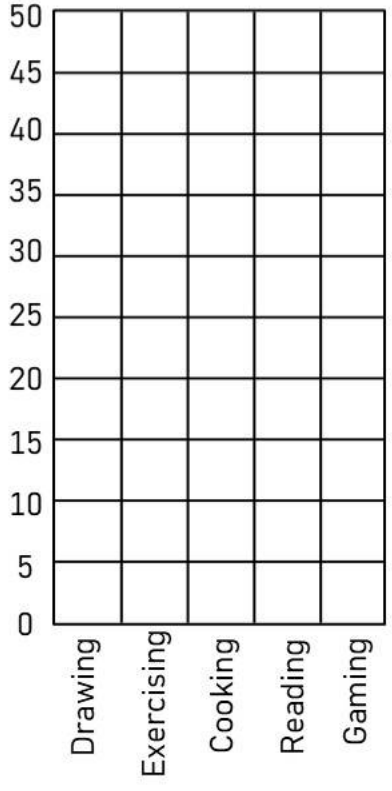


Favourite Food	# of votes
Pizza	14
Chocolate	10
Spaghetti	4
Ice Cream	8
Chicken Wings	6



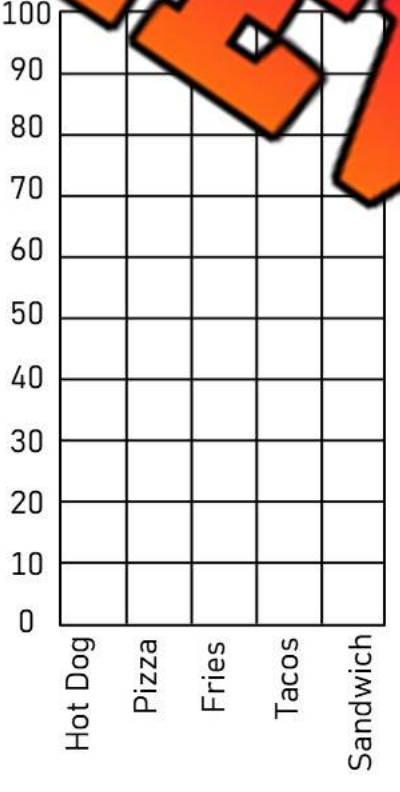


Player	# of points
Jake	30
Nathan	12
Courtney	18
Ashley	24
Luke	6





Favourite Hobby	# of votes
Drawing	10
Exercising	20
Cooking	35
Reading	25
Gaming	40





Favourite Food	# of votes
Hot Dog	30
Pizza	60
Fries	50
Tacos	80
Sandwich	35

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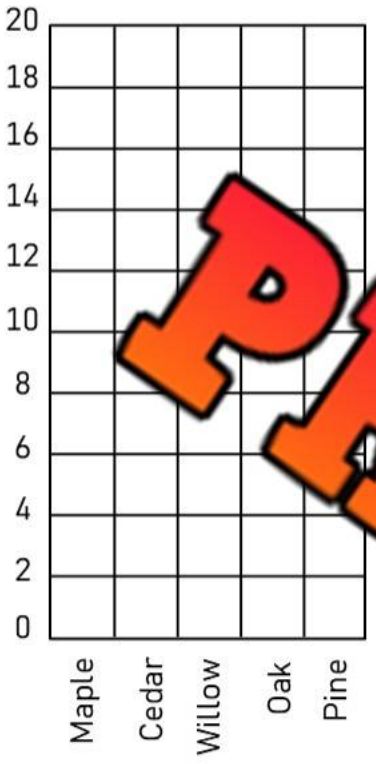
Name: _____ 37

Curriculum Connection
D1.3

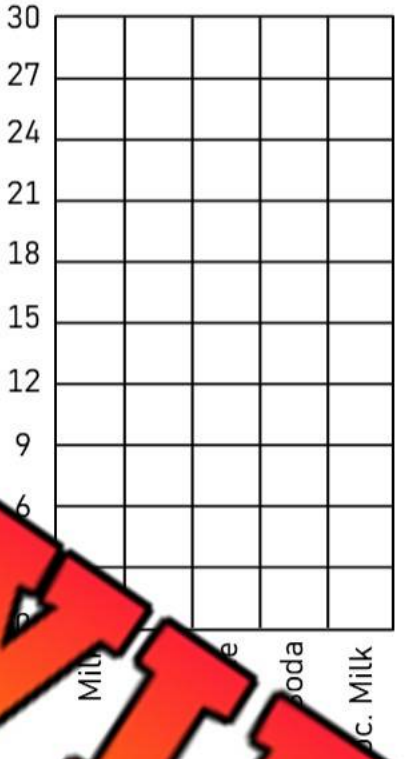
Drawing Bar Graphs

Questions Draw the bars for each of the bar graphs below



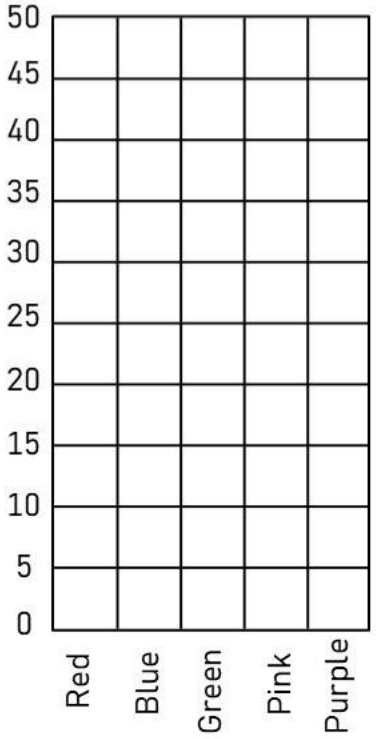


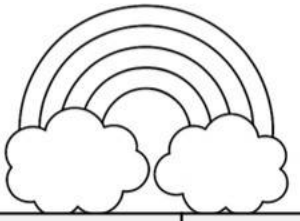
Favourite Tree	# of votes
Maple	8
Cedar	11
Willow	13
Oak	6
Pine	17



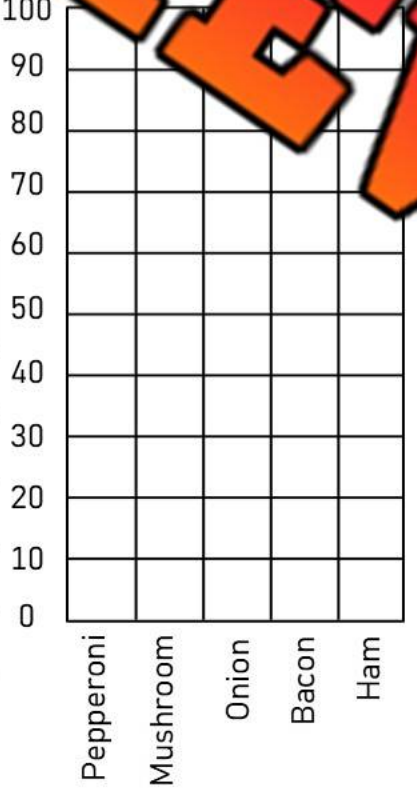


Favourite Drink	# of points
Milk	9
Water	3
Juice	16
Soda	21
Choc. Milk	25





Favourite Colour	# of votes
Red	40
Blue	30
Green	15
Pink	8
Purple	20





Pizza Topping	# of votes
Pepperoni	80
Mushroom	40
Onion	30
Bacon	60
Ham	25

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Curriculum Connection
D1.3

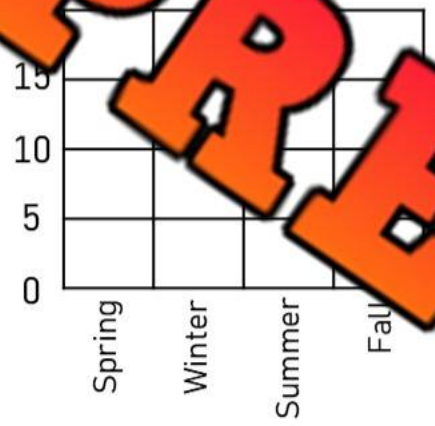
Exit Cards

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

Name: _____

Draw the bars for the bar graphs below.

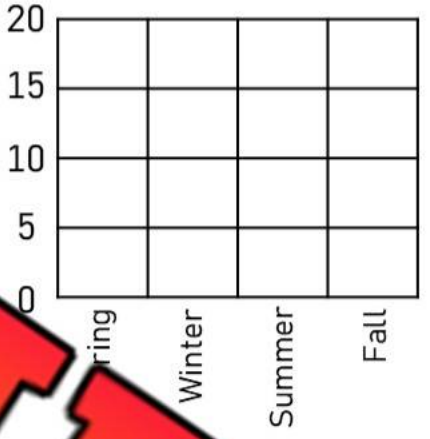
Season		Winter	Summer	Fall
Votes		10	5	15



Name: _____

Draw the bars for the bar graphs below.

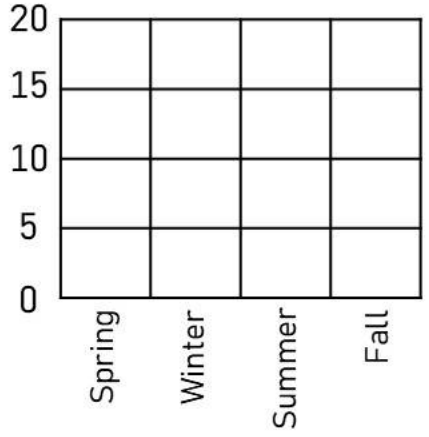
Season	Spring	Winter	Summer	Fall
Votes	20	10	5	15



Name: _____

Draw the bars for the bar graphs below.

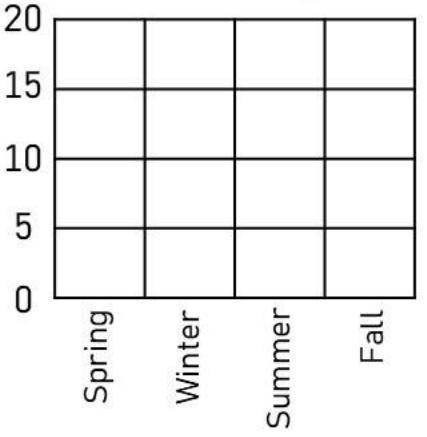
Season	Spring	Winter	Summer	Fall
Votes	20	10	5	15



Nam

Draw the bars for the bar graphs below.

Season	Spring			Fall
Votes	20	10		15



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Name: _____ 39

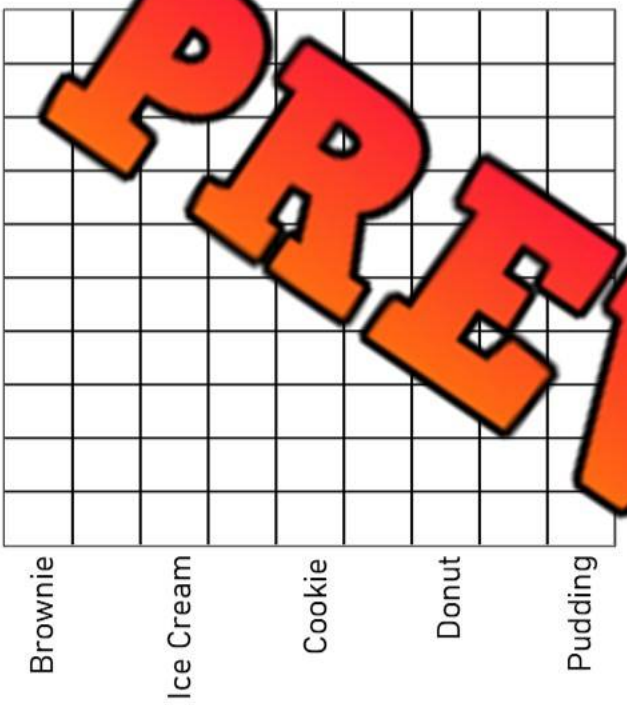
Curriculum Connection
D1.3

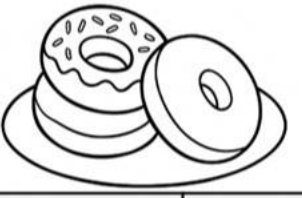
Creating Scale

When you create a scale for your graph, you need to look at the data so you can decide what to go up by. The goal is to create a graph that will fill the graph area.

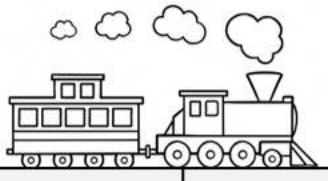
Step 1: Look at the data. Find the lowest and highest numbers.
Step 2: Count how many lines you have to plot your data.
Step 3: Decide what to go up by to ensure you have enough space to plot ALL the data.

PREVIEW

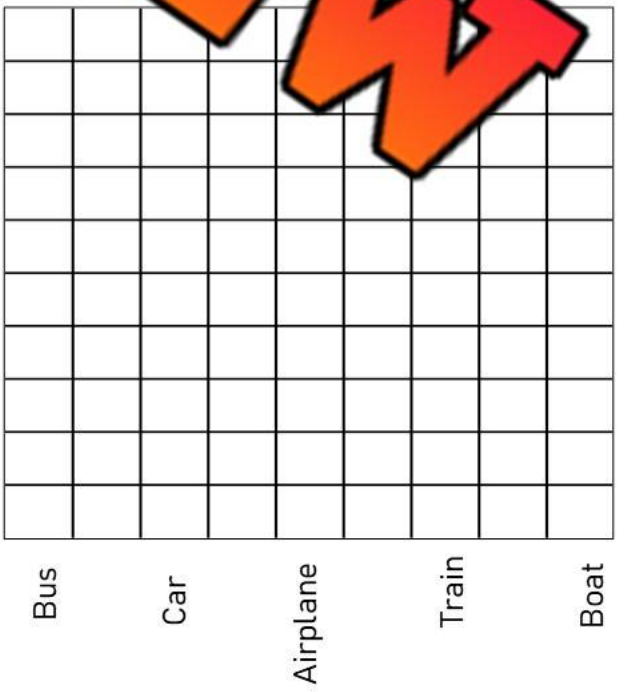




Favourite Dessert	# of votes
Brownie	14
Ice Cream	12
Cookie	2
D	16
P	6



Transportation Method	# of votes
Bus	5
Car	15
Airplane	30
Train	25
Boat	40



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Name: _____ 40

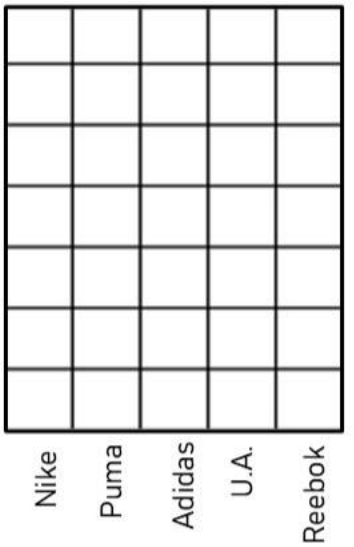
Curriculum Connection
D1.3

Creating Scale

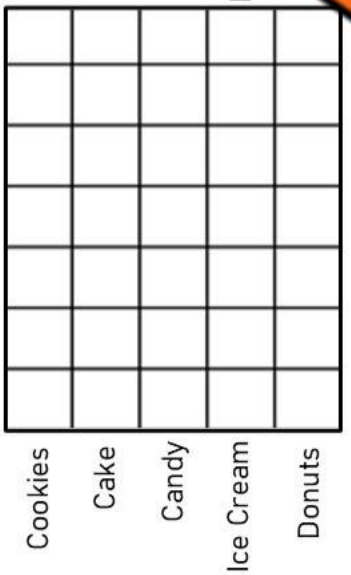
Instruction Read the numbers and decide which scale to use. Next, draw your bar graphs



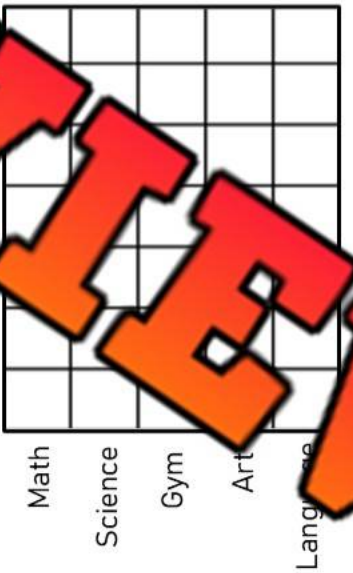
Pets	Votes
Dog	8
Cat	14
Bunny	2
Hamster	6
[illegible]rtle	10



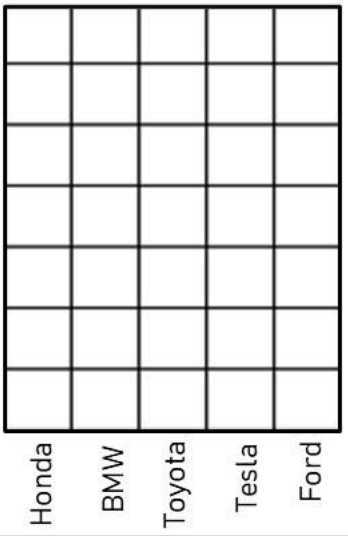
Brand	Votes
Nike	7
Puma	2
Adidas	4
Under Armour	5
Reebok	3



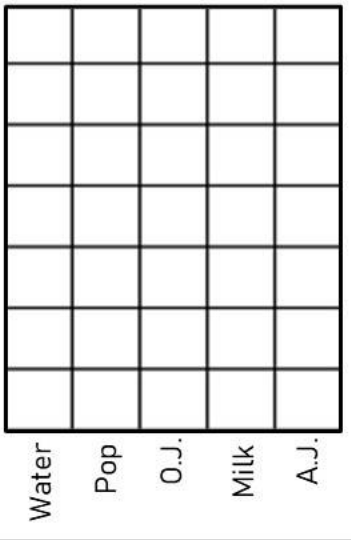
[illegible]	Votes
Cookie[illegible]	[illegible]
Cake	[illegible]
Candy	21
Ice Cream	15
Donuts	18



Subject	Votes
Math	20
Science	30
Gym	70
[illegible]rt	50
[illegible]	40



Cars	Votes
Honda	40
BMW	100
Toyota	60
Tesla	120
Ford	30



Drinks	Votes
Water	200
Pop	500
Orange Juice	400
Milk	300
Apple Juice	600

PREVIEW

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Name: _____ 41

Curriculum Connection
D1.3

Graphing Relative Frequency – Bar Graph

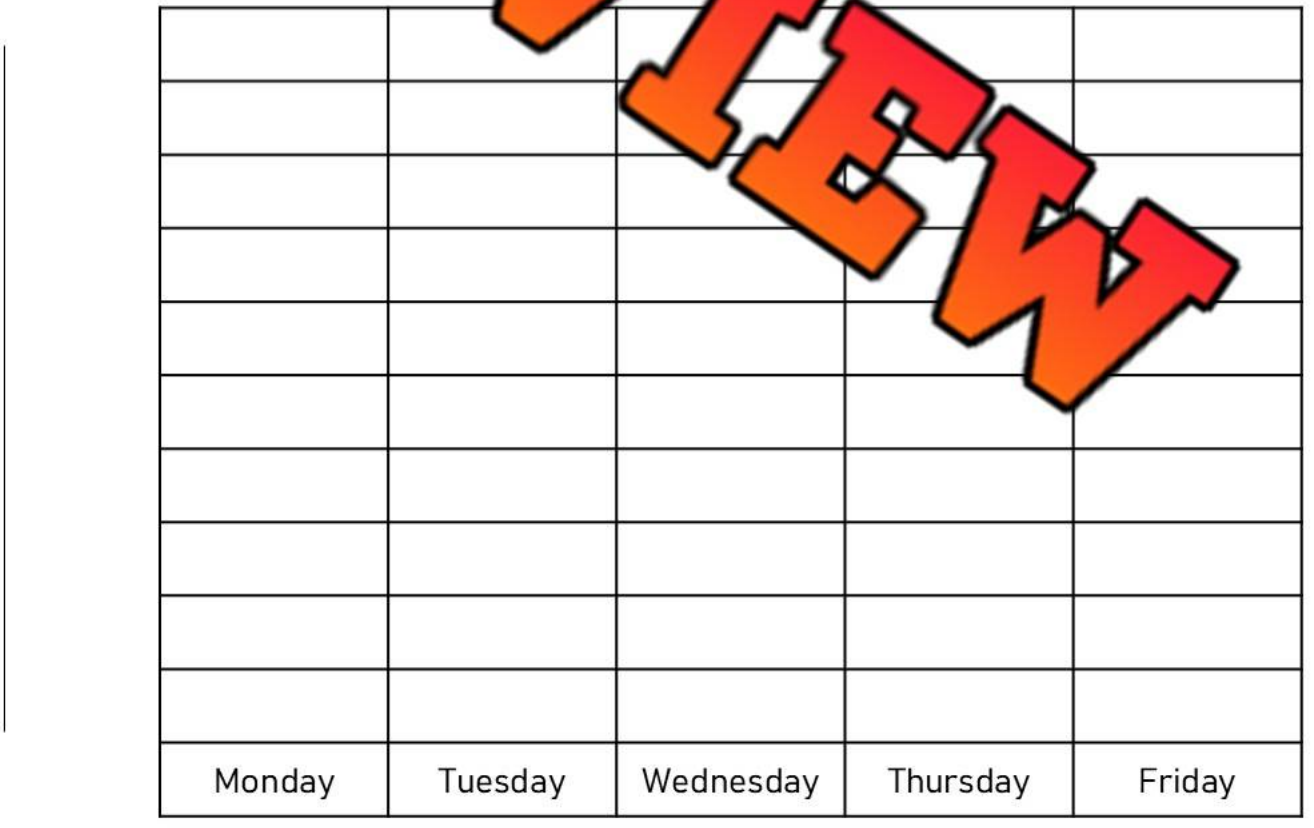
The Grade 5 students tracked the number of books borrowed from the school library over five days. Their data is listed below.

Instructions Fill in the relative frequency in the table below. Then **graph** the **relative frequency** data.

Day	Number of Books	Relative Frequency
Monday	3	
Tuesday	5	
Wednesday	12	
Thursday	6	
Friday		



PREVIEW



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Curriculum Connection
D1.3

Graphing Relative Frequency – Bar Graph

The Grade 5 students measured how many pieces of litter were collected from the schoolyard each day during a cleanup week. Their data is listed below.

Instructions Fill in the **relative frequency** in the table below. Then graph the relative frequency data.

Da	Pieces of Litter	Relative Frequency
Mo	10	
	10	
Wednesday	20	
Thursday		
Friday		



PREVIEW

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Name: _____

Curriculum Connection
D1.2

Collecting Data - Qualitative

We collect data so that we can learn more about something we are interested in. We also collect data to solve a problem.



Examples:
Area of Interest: "What is your favourite animal?"
Solving a Problem: "Are you coming to the party on Saturday?" (this solves the problem of how many will be attending the party).

Survey Q[illegible] Area of [illegible]	Collect data by asking your classmates your survey question

Survey [illegible]estion
Example: Wh[illegible]
favourite colour[illegible]

Categories					
Tally					
Frequency					

PREVIEW

Interpreting Your Survey Results



1. How many people did you survey? _____

2. Which category was the most popular? _____

3. Which category was the least popular? _____

4. If you asked your entire school, which category do you think would win? Explain.

_____

5. Did any of the survey results surprise you?

I'm surprised that _____

_____

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Curriculum Connection
D1.3

Creating a Bar Graph

Use the data you collected to plot your graph. Remember the following labels:

☐ X axis ☐ Y axis ☐ Title ☐ Scale ☐ Categories



PREVIEW

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Name: _____ 49

Curriculum Connection
D1.1, D1.2

Collecting Data - Quantitative

Survey Question Solving a Problem	Collect data by asking your classmates your survey question

Solve a problem in your life by asking your classmates for their opinion. For a quantitative question, the answers should be a number, or a number range.
For example: "How many books should I read a week?" –
Answer options: 0-3, 4-7, 7-10, 11+

Example
1 – "H… week should I practice my favourite sport"
2 – "… ep should I get a night?"
3 – "How many f… ables should I eat a day?"



PREVIEW

Survey Questi… *Example: How many pencils do I need for school?*					
Categories					
Tally					
Frequency					

Interpreting Your Survey Results

1. How many people did you survey? _____
2. Which category was the most popular? _____
3. Which category was the least popular? _____
4. Was your problem solved? Will you follow the data and listen to your classmates?

_____

_____

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Name: _____ 50

Curriculum Connection
D1.3

Graphing Quantitative Data

Use the data you collected to plot your graph. Remember the following labels:

☐ X axis label ☐ Y axis lab ☐ Title ☐ Scale ☐ Categories



PREVIEW

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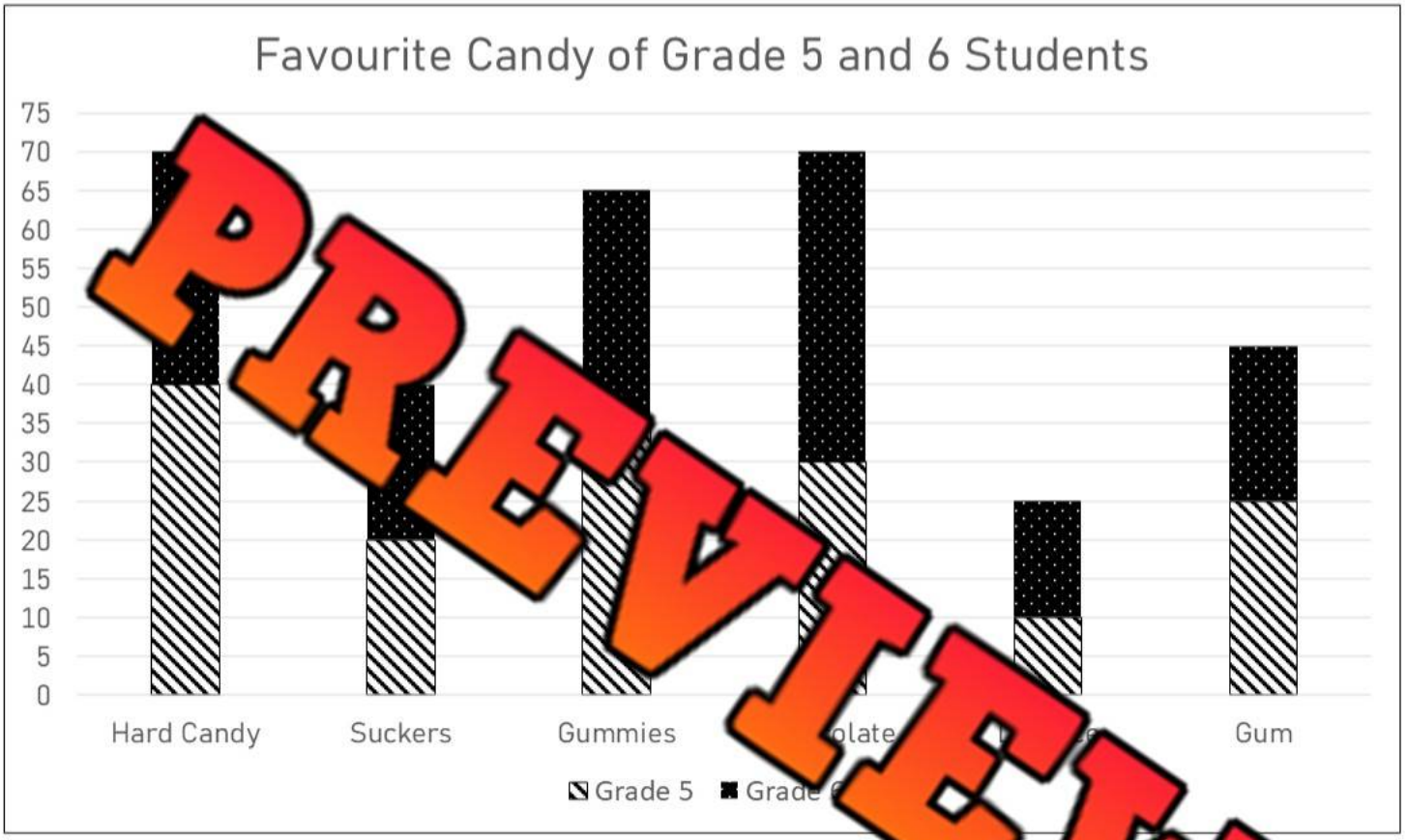
Name: _____ 54

Curriculum Connection
D1.6

Interpreting a Stacked Bar Graph

The students in grades 5 and 6 were asked which candy was their favourite. The results have been sorted by grade in the stacked bar graph below.



PREVIEW

a) Which candy did the grade 5's like the most?	
b) Which candy did the grade 6's like the most?	
c) Which candy got the most votes combined?	
d) How many more votes did hard candy get in total over suckers?	
e) How many more grade 5s liked hard candy than grade 6s?	
f) How many grade 5's and grade 6's were surveyed?	Grade 5s Grade 6s

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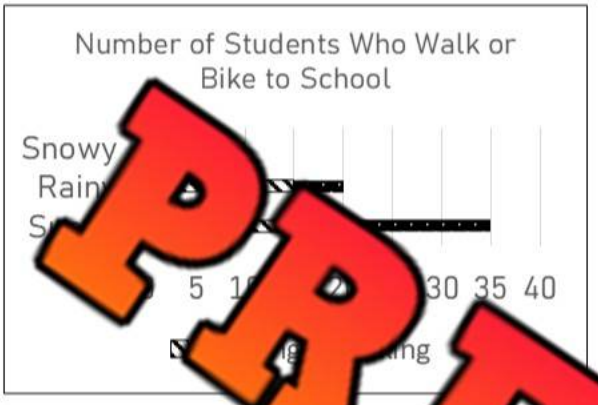
Curriculum Connection
D1.6

Exit Cards

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

Name: _____



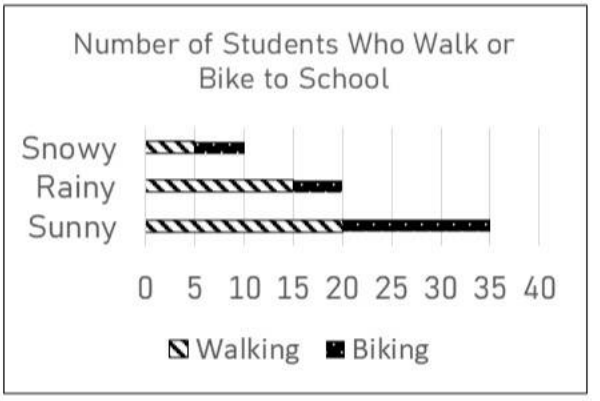
1) How many more students bike in sunny weather than walk in snowy weather?

_____

2) How many people walk to school? _____

3) How many people bike to school? _____

Name: _____



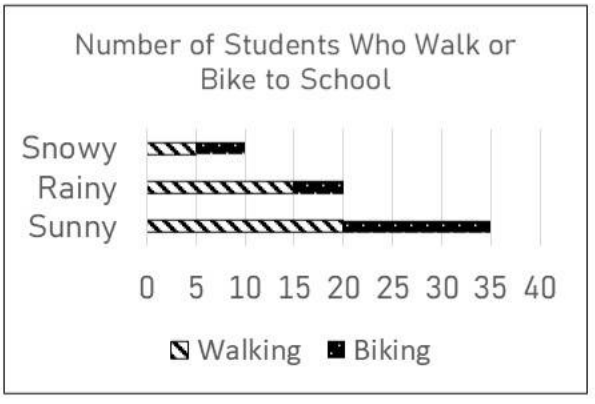
1) How many more students bike in sunny weather than walk in snowy weather?

_____

2) How many people walk to school? _____

3) How many people bike to school? _____

Name: _____



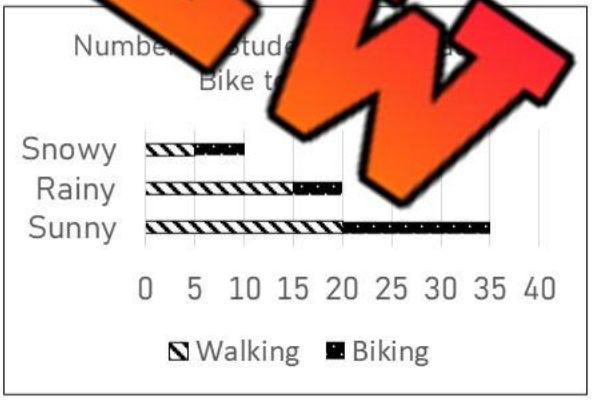
1) How many more students bike in sunny weather than walk in snowy weather?

_____

2) How many people walk to school? _____

3) How many people bike to school? _____

Name: _____



1) How many more students bike in sunny weather than walk in snowy weather?

_____

2) How many people walk to school? _____

3) How many people bike to school? _____

PREVIEW

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Name: _____ 56

Curriculum Connection
D1.6

Activity Title: Flip the Data

Objective

What are we learning about?

Students will engage in a fun and active game where they read data from a bar graph and answer questions to earn the opportunity to flip a bottle or cup. This activity combines data interpretation skills with a physical challenge, adding excitement and a competitive element to learning.

Materials

What you will need for the activity.

- B or cups g
- A sm tboard r t display bar graphs
- Timer (sto h martp pp)
- Question card on th data
- Scoreboard to ke





Instructions

How you wi mpl

1. Divide the class into small teams, ideally of 5 tude ch.
2. Prepare a series of bar graphs to display c smart d, with corresponding question cards that ask about t gr
3. One team at a time comes to the front where the gr play
4. Display the first bar graph on the smartboard.
5. The first student from the active team reads the graph and sel card. Start the timer when the question is first shown.
6. The student answers the question based on the data presented in the graph. The teacher checks the answer.
7. If the student answers correctly, they flip their bottle or cup repeatedly until they land it upright. When they do, the next teammate can take their turn.
8. If the student's answer is incorrect, they must try another question card before they can attempt to flip.
9. The team's turn ends either when all members have successfully flipped their bottle/cup or when the timer reaches a set limit (e.g., 3 minutes).
10. Record the team's time or number of successful flips on the scoreboard.
11. Repeat steps 4-10 for each team. The team with the fastest time wins.

PREVIEW

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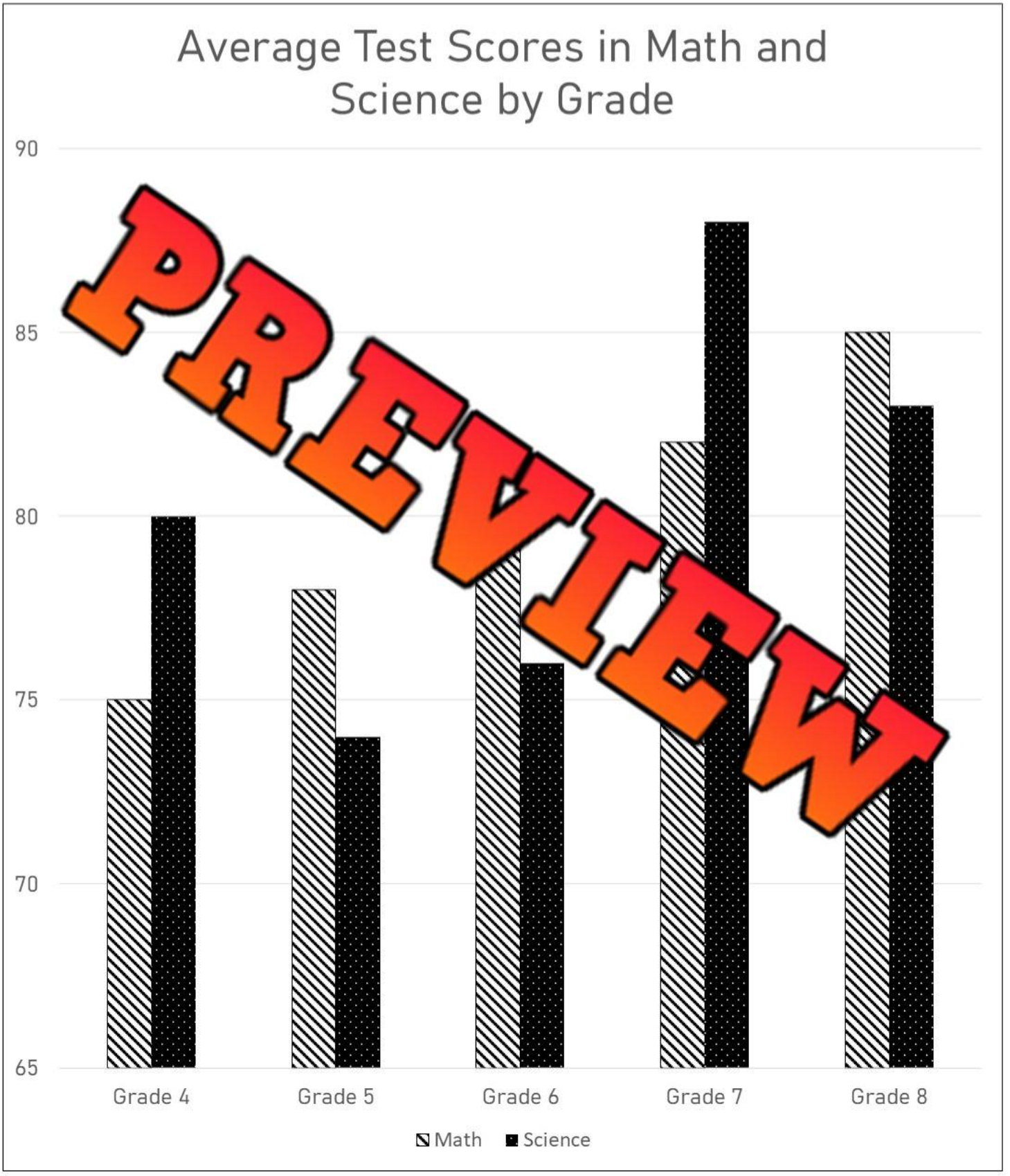
Name: _____ 57

Curriculum Connection
D1.6

Graph 1 | Analyze the graph below



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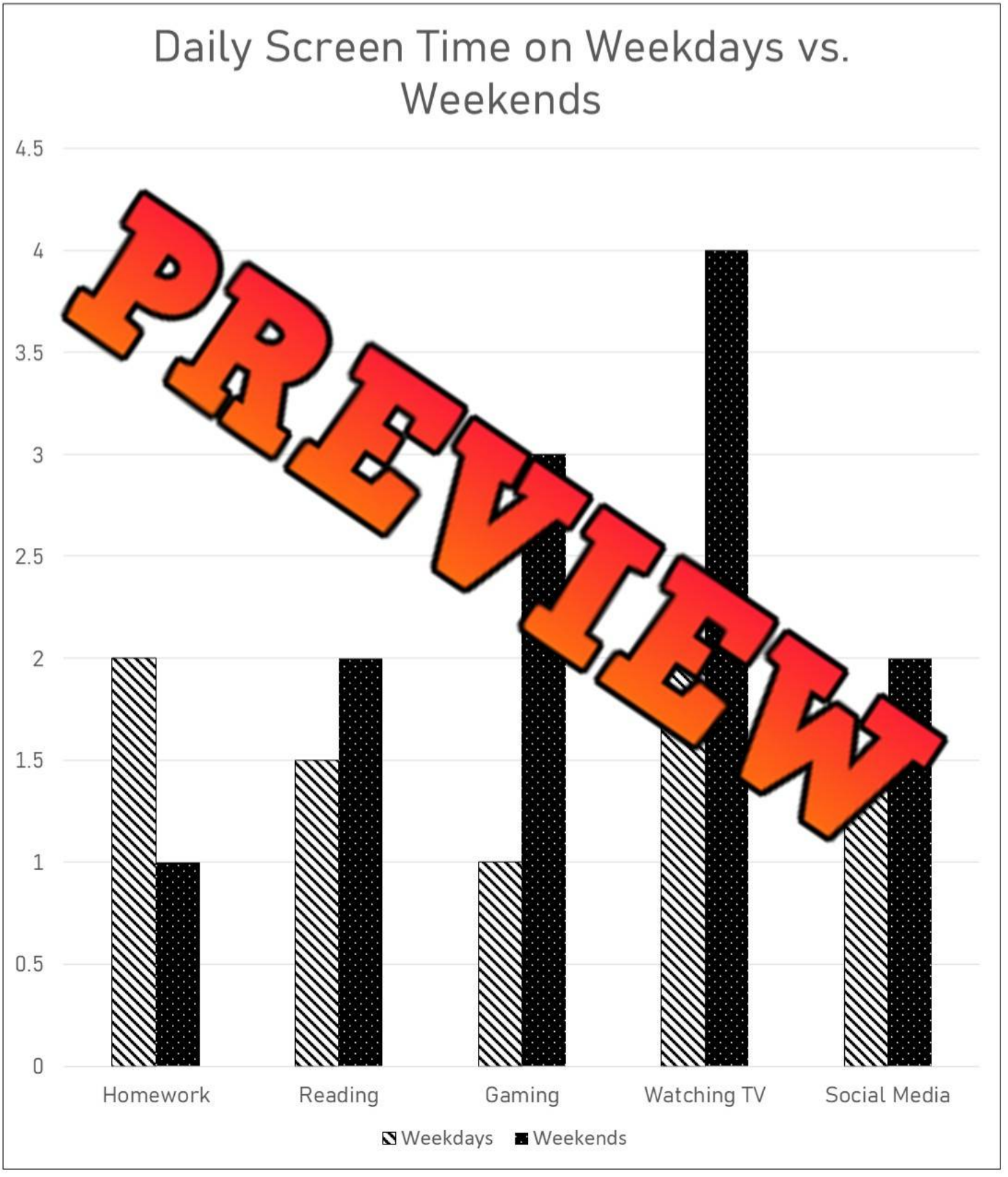
Curriculum Connection
D1.6

Graph 5 | Analyze the graph below



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Name: _____ 62

Curriculum Connection
D1.6

Questions Choose a question to ask the student who is about to flip their bottle

What is the title of the graph?
What is the title of the Y-axis?
What is the title of the X-axis?
What does each bar on the graph represent?
Which category shows the highest values for both bars?
Which category has the lowest values for both bars?
How many categories are displayed on the graph?
What is the range of values shown on the Y-axis?
What is the total number of units represented by all bars?
What is the difference in value between the highest and lowest categories for both bars?
Are there any categories that have similar values? Which ones?
How does the value of one specific category compare to others?
What could be a possible reason for the highest value?
What could be a possible reason for the lowest value?
What trends can you observe from the graph?
How might this data be useful?
If you could add another category to this graph, what would it be?
How would you describe the overall distribution of data?
What insights or conclusions can you draw from this graph?
How might the information on the graph impact decisions or opinions?

PREVIEW

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Name: _____ 63

Curriculum Connection
D1.2, D1.5, D1.6

Survey: Double Bar Graph

When creating a double bar graph, start by collecting data from two different groups of people. You could survey teachers vs students, boys vs girls, grade 4s vs grade 5s.

Directions: Complete this organizer to setup your data so you can graph it later. Find a group of people to survey!

Survey Question		_____						
Example: Favourite colour		_____						
Option								
Group 1	Group 2							
Tally	Tally							

PREVIEW

Interpreting Your Survey Results

1. Did any of the survey results surprise you?

_____

_____

2. Was there a big difference between the two groups? Explain why you think this was the case.

_____

_____

3. Was there a mean, median, or mode? Explain.

_____

_____

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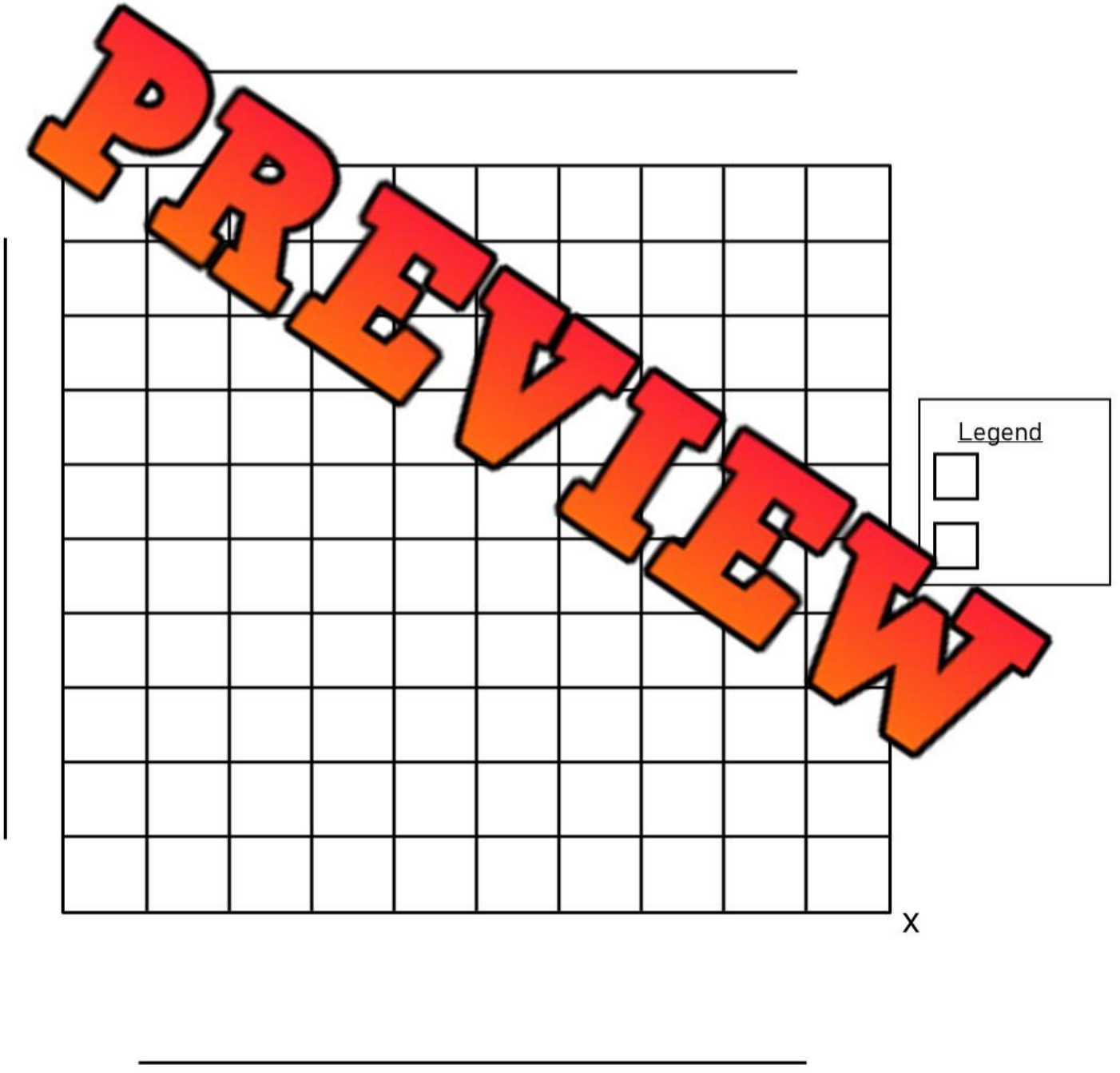
Name: _____ 64

Curriculum Connection
D1.3

Creating a Double Bar Graph

Use the data you collected to plot your graph. Remember the following labels:

X axis label ☐ **Y axis label** ☐ **Title** ☐ **Scale** ☐ **Options** ☐ **Legend** ☐



PREVIEW

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Name: _____ 66

Curriculum Connection
D1.6

Stacked-Bar Graph – Favourite Beverage

A restaurant wants to know which drinks to keep in stock. They decide to sample three different age groups – kids under 12, teenagers, and adults 20 years or older. They randomly select 30 individuals from each group.



PREVIEW

Part 1 Fill in the frequency table by reading the [illegible]-bar graph above

Age Group	Coffee	Juice	Pop	T[illegible]	[illegible]ate Milk
12 and Under					
Teenagers					
Adults (20+)					

Part 2 Answer the questions below

a) How many people in each age group were surveyed?	
b) Which drinks would you keep in stock?	
c) Which type of sample was chosen? (random, stratified, or systematic)	

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Curriculum Connection
D1.1, D1.2

Survey – Creating a Stacked-Bar Graph

Assignment	Creating a stacked-bar graph using data you have collected

1. Choose a population that you can segment into 2 or more groups.
   Example - Grade 4 and Grade 5 students

Groups within Population: _____

2. Choose a survey question you would like to learn more about. Think about how the answers may be different based on your different groups.

PREVIEW

Survey Question					
Categories					
Tally					
Frequency					

Interpreting Your Survey Results

1. How many people did you survey? _____

2. Which category was the most popular? _____

3. What did you learn about the different groups in your population? Did the results surprise you? Explain.

_____

_____

4. What is the range of your data? Lowest number: ____ Highest Number: ___ Range: ____

5. If your graph has ten lines on the y axis (up and down), what scale will you go up by?

_____

6. Which type of sampling did you choose? _____

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Curriculum Connection
D1.3

Creating a Stacked-Bar Graph

Use the data you collected to plot your graph. Remember the following labels:

X axis label ☐ **Y axis label** ☐ **Title** ☐ **Scale** ☐ **Categories** ☐



PREVIEW

Group					

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Curriculum Connection
D1.4

Creating an Infographic

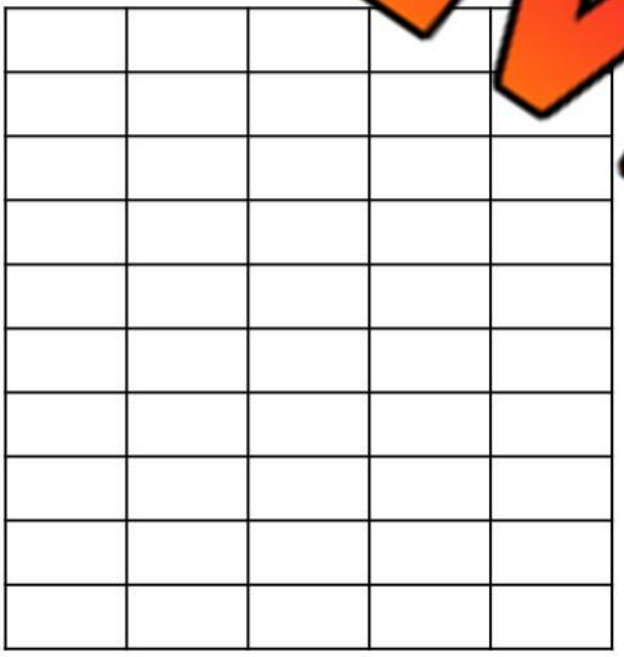
An **infographic** shares information about a topic in multiple ways. Infographics are great for displaying data that can teach an audience about a topic.

Directions Display the data set in different ways below. Write in the boxes and draw pictures

The Power[illegible]ge Pro Hockey Clinic is advertising how popular hockey is to parents in their city. They t[illegible]ample of 50 local kids by randomly asking 1 out of 5 kids they saw at a park. The[illegible]e in!

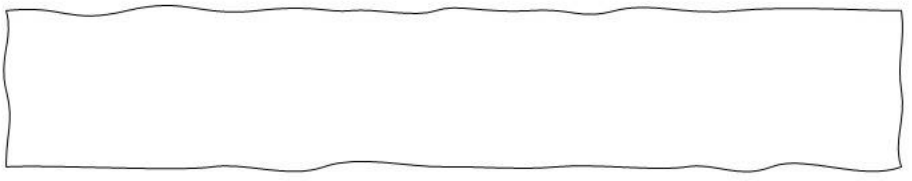
[illegible]ort	[illegible]key	Basketball	Soccer	Baseball	Gymnastics
Frequen[illegible]	17	10	9	5	9
Relative Frequen[illegible]					

PREVIEW





Stem	Leaf



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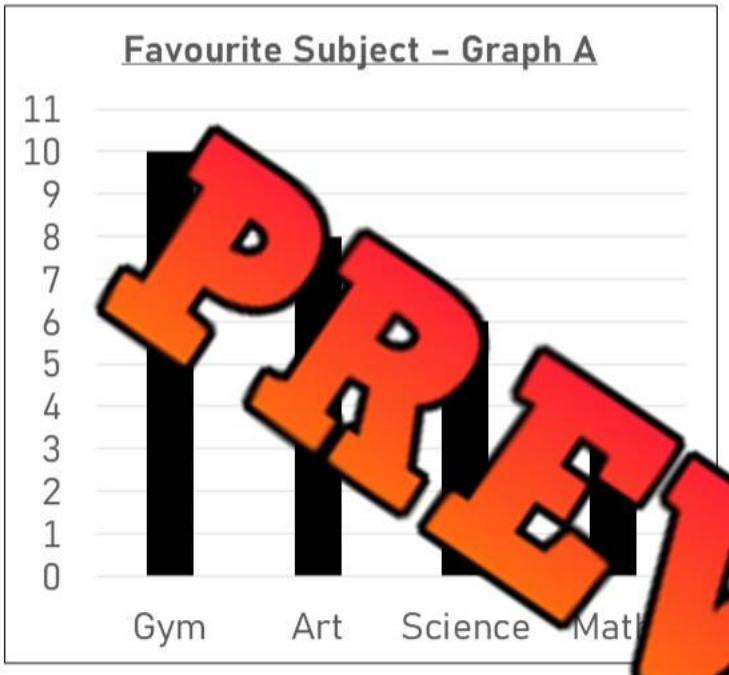
Name: _____ 72

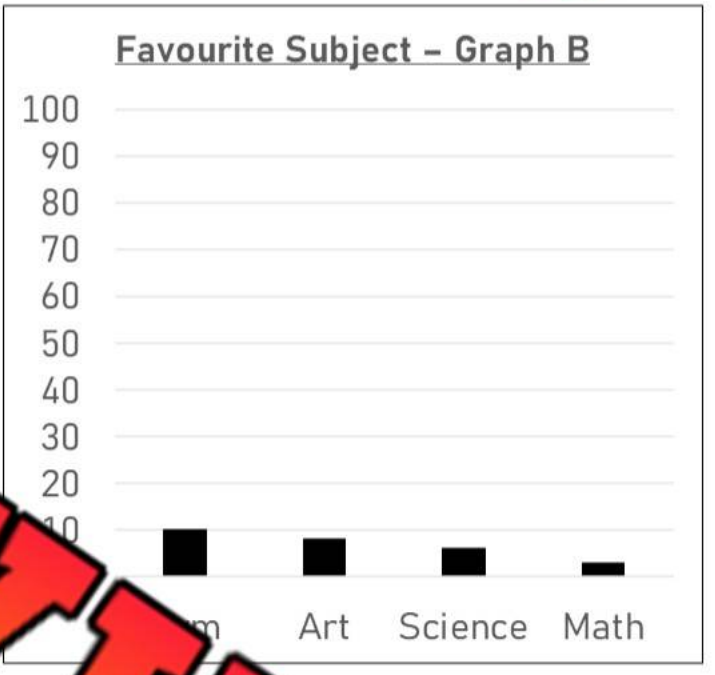
Curriculum Connection
D1.6

Favourite Subject – Examining Scale

The two graphs below display the same data. Examine both graphs and answer the questions below.







PREVIEW

Questions	What do you noti ut th hs?

a) What is the scale in Graph A?	
b) What is the scale in Graph B?	
c) Which graph uses more of the space?	
d) Which graph is easier to read and interpret? Why is that graph better?	
e) Why is it important to choose an appropriate scale?	

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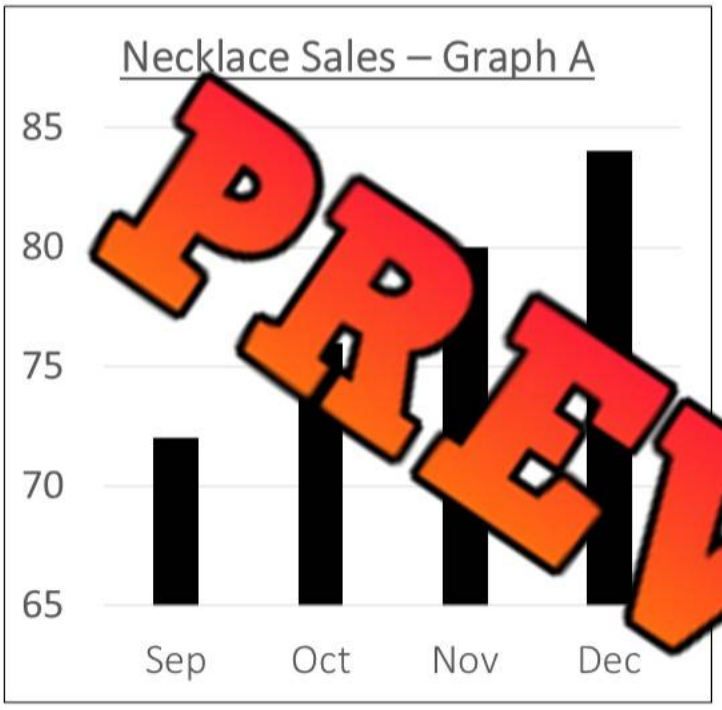
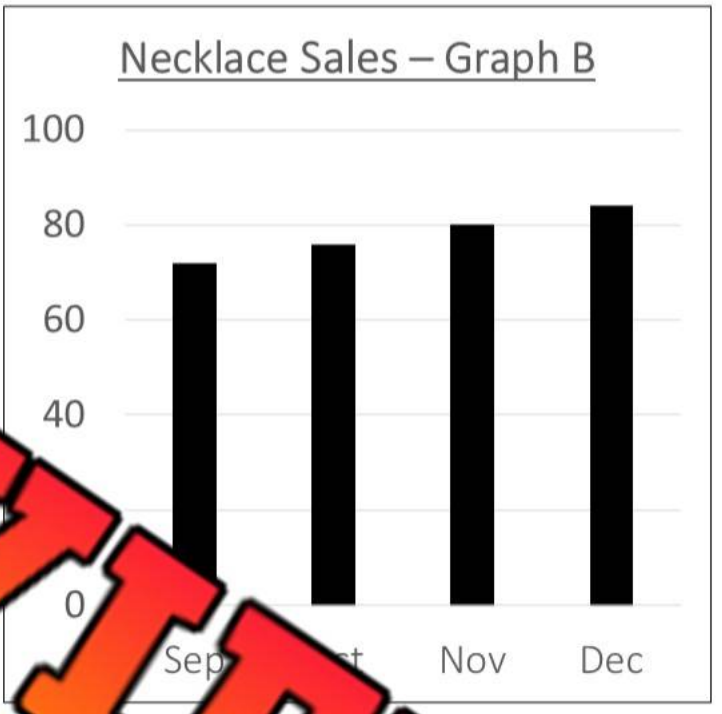
Name: _____ 74

Curriculum Connection
D1.6

Misleading Graphs

Pretend you just started a necklace making business. You want to show your customers that business is growing like crazy, and they need a necklace to fit in. Which graph would you choose for an infographic?





PREVIEW

Questions What do you notice about the two graphs?

a) Which graph would you use to show customers that your sales are growing massively? Why?

b) How are the graphs different? Do they have the same data?

c) Why is it important to read a graph carefully?

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Curriculum Connection
D1.6

Misleading Graphs

Part 1 Draw two graphs – one that is misleading and one that is honest

If you were selling cola as a business, how would you graph the data to make it look like your product is much more popular than the other products?

Graph 1

Graph 2

Favourite Pop	# of votes
[illegible]	10
Cola	20
[illegible]	[illegible]
Energy [illegible]	[illegible]
Ginger Ale	

PREVIEW

Part 2 What do you notice about the two graphs?

a) Which graph would the cola business use? Explain why.

b) How did you make the graphs different?

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Curriculum Connection
D1.6

Truth or Lie? Graph Edition

Objective

What are we learning about?

Students will learn to identify and explain misleading elements in graphs, developing critical thinking skills and understanding how data can be manipulated in visual representations.

Materials

What you will need for the activity.

- A[illegible]ed [illegible]al graphs (some accurate, some mi[illegible]ing)
- Smartboard [illegible] to [illegible]play the graphs
- Classroom [illegible]e [illegible]studen[illegible] and view the graphs



Instructions

How y[illegible]t comple[illegible]ctivity

1. Begin by explaining the concept of [illegible]g g[illegible] to the students, highlighting common ways graphs can be man[illegible]d (e.g. [illegible]n scales, omitting data, exaggerating differences).
2. Divide the class into small groups or pairs [illegible]ourag[illegible]sc[illegible]n among students.
3. Show each graph one at a time on the smartboard[illegible]bjector. M[illegible]re all students can see the graph clearly.
4. After showing each graph, ask the students to use finger [illegible]gnal[illegible]e decision. They show one finger if they believe the graph is true[illegible] [illegible]t misleading) and they show two fingers if they believe the graph is a l[illegible]leading in some way).
5. Once all students have made their decisions, invite a few students or groups to explain their reasoning. Ask them to point out specific elements of the graph that make it true or misleading, such as the use of a misleading scale or omitted data.
6. Facilitate a class discussion to reinforce key concepts, summarizing the points made by the students and providing additional examples if necessary.
7. Repeat steps 3-6 for each graph in the set. Encourage students to look for new elements that might be misleading as they view different graphs.
8. After all graphs have been discussed, ask the students to reflect on what they have learned. Provide them with questions to think about or answer in their math journals or as a group.

PREVIEW

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Curriculum Connection
D1.6

Graph | What do you notice about the graph?

A graph showing the average commuting times for two different routes (Route 1 and Route 2) during rush hour and non-rush hour periods.



PREVIEW

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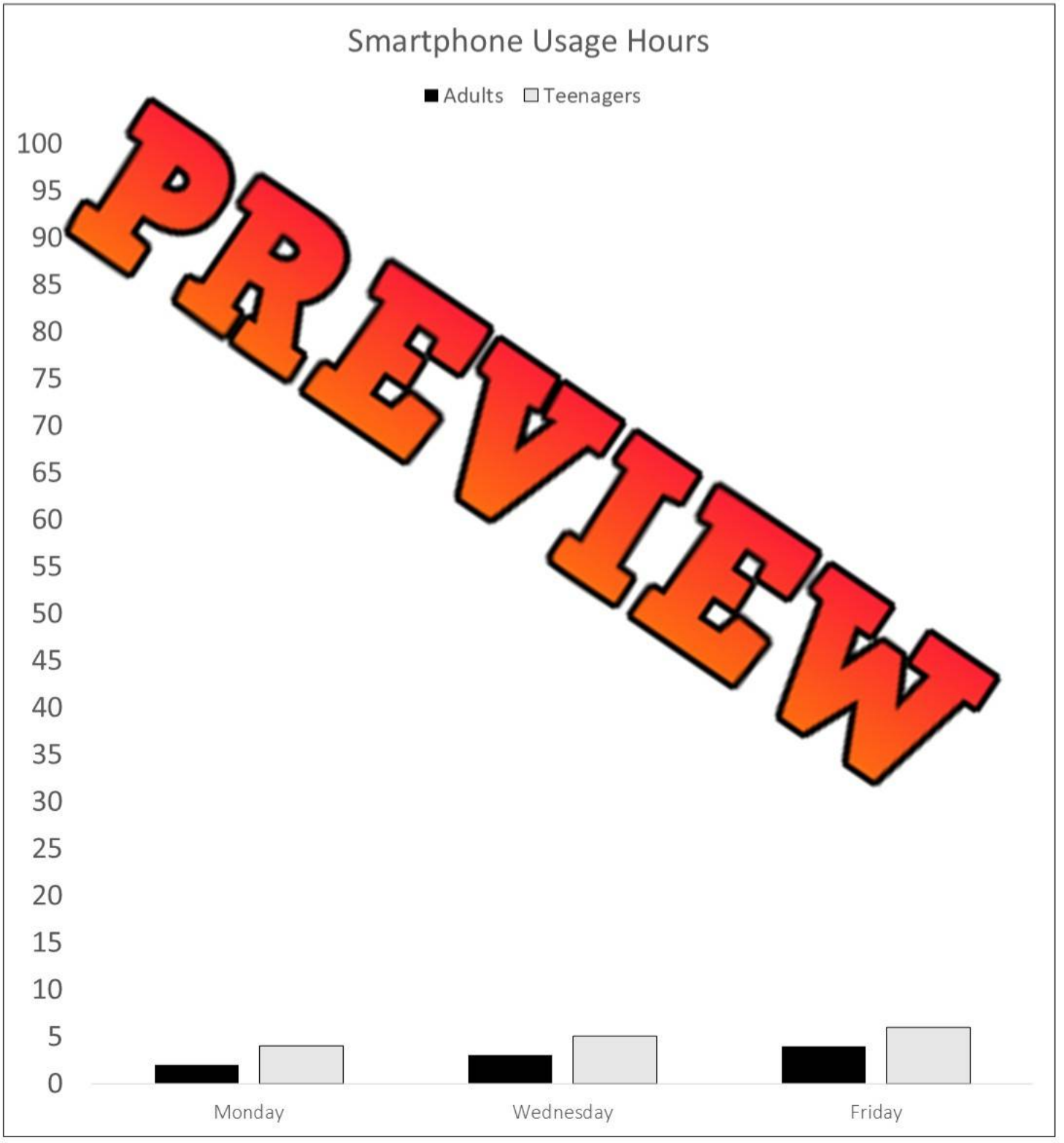
Curriculum Connection
D1.6

Graph | What do you notice about the graph?

We will compare the daily average hours spent on smartphones by adults and teenagers over a week (7 days). This graph was made by teenagers.



PREVIEW

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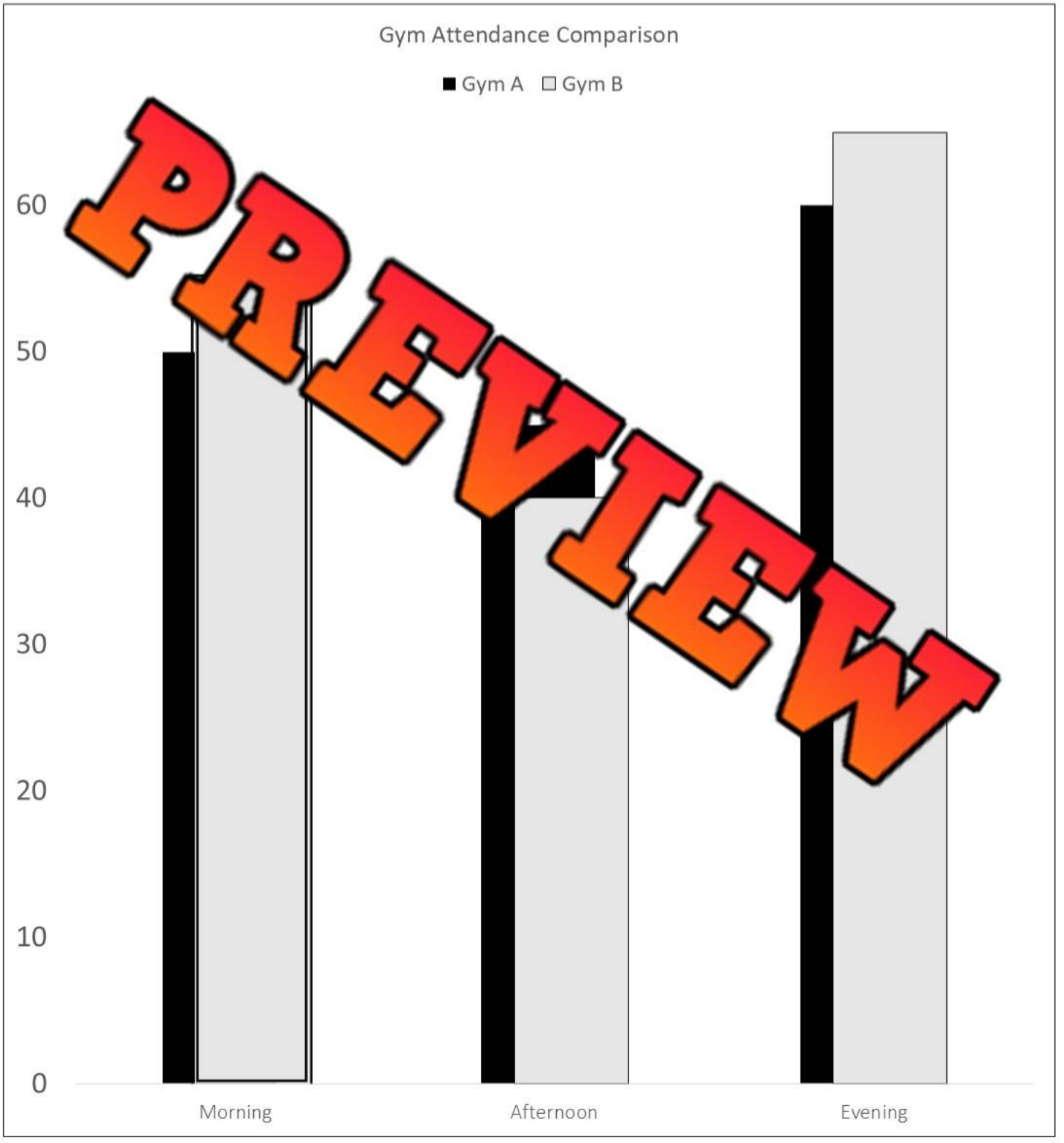
Curriculum Connection
D1.6

Graph What do you notice about the graph?

A coach is comparing gym attendance between two locations (Gym A and Gym B) across three time periods (Morning, Afternoon, Evening).



PREVIEW

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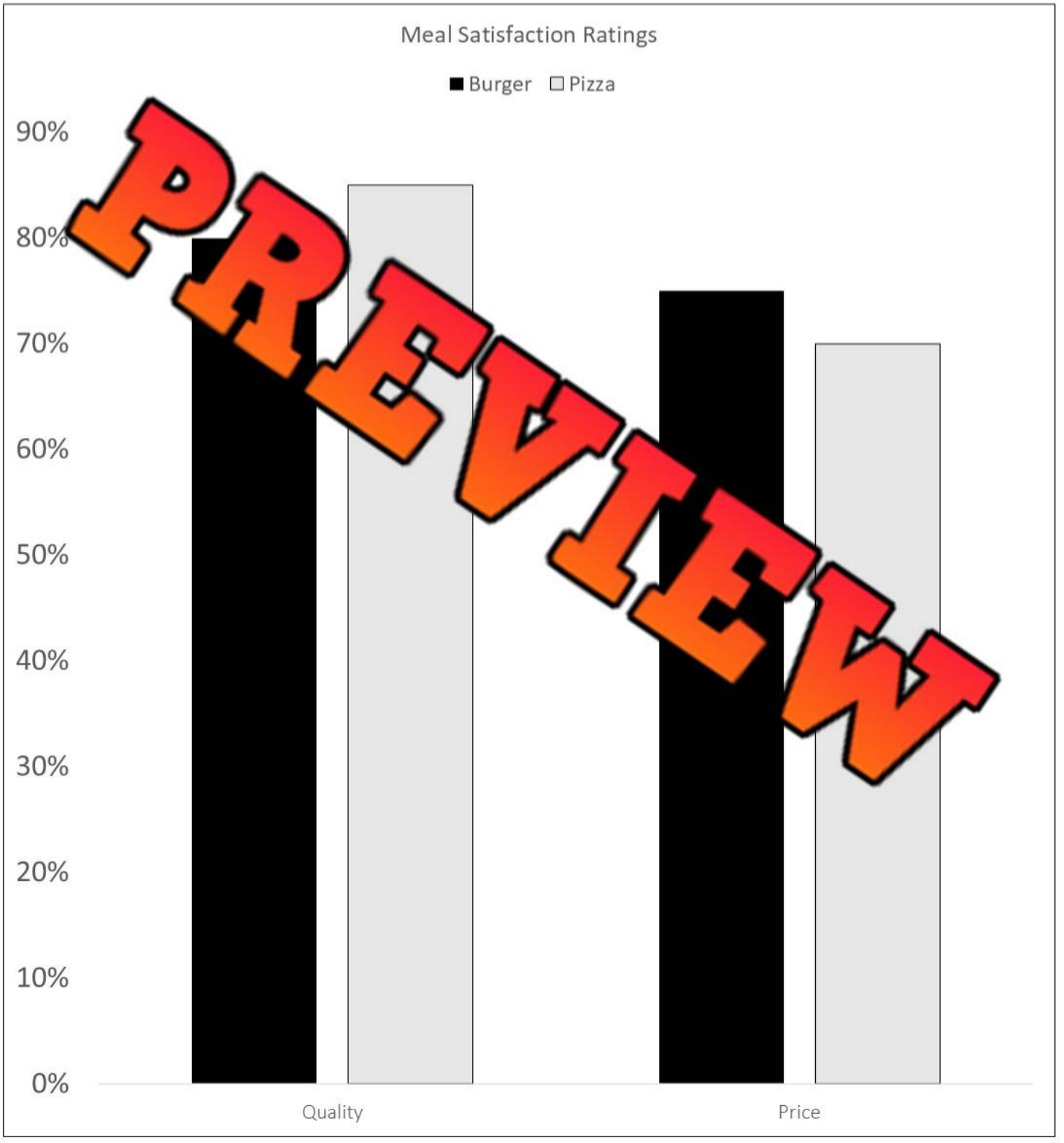
Name: _____ 86

Curriculum Connection
D1.6

Graph What do you notice about the graph?

A restaurant is comparing satisfaction ratings for two meals, Burger and Pizza, based on customer reviews.



PREVIEW

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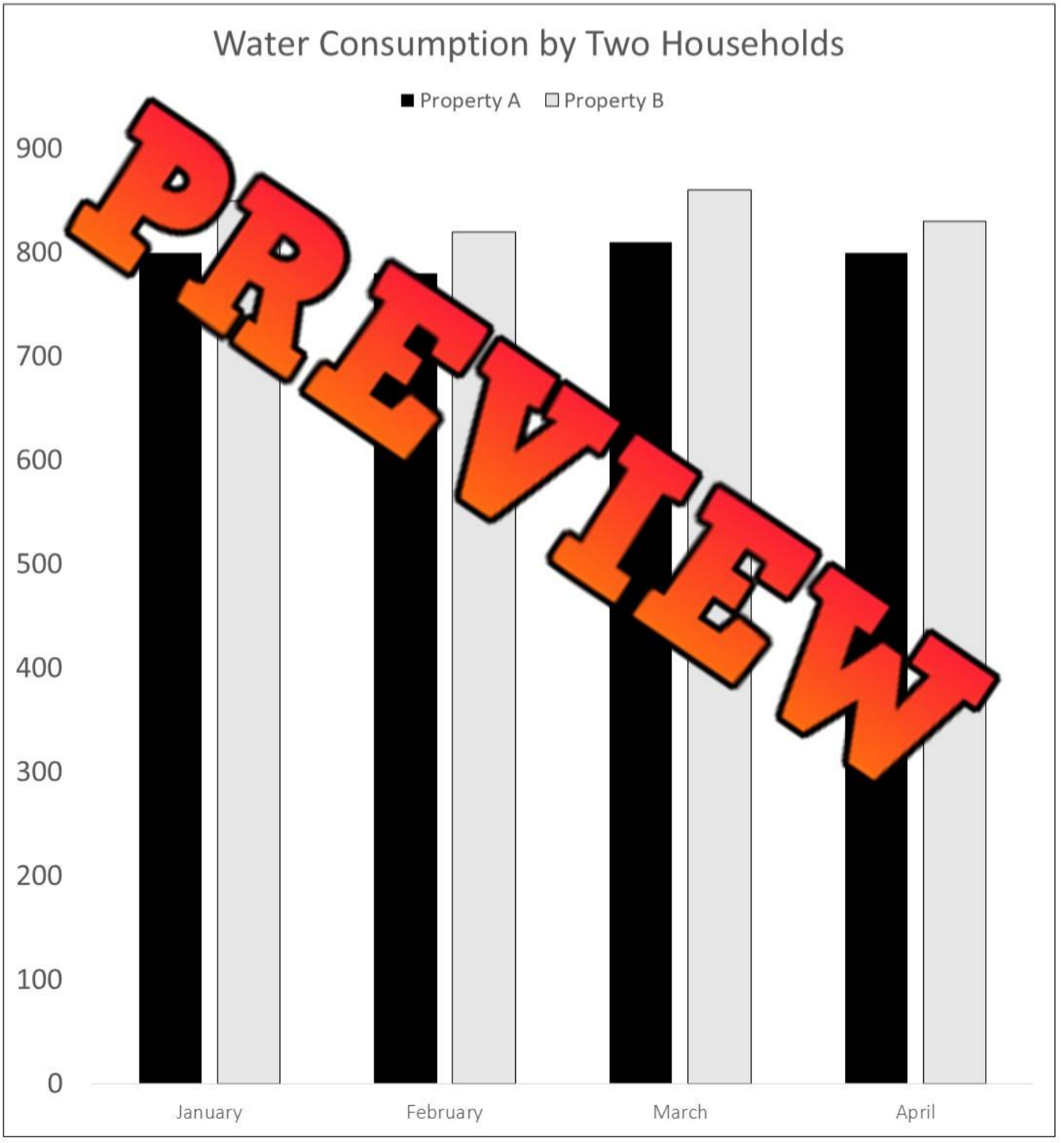
Name: _____ 87

Curriculum Connection
D1.6

Graph | What do you notice about the graph?

A landlord is reviewing the monthly water consumption (in gallons) of his two properties. Property A and Property B over four months (January to April).



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Name: _____ 88

Curriculum Connection
D1.3

Choosing an Appropriate Graph

Questions Read the data below and decide which type of graph you would use to represent the data

1) You surveyed your classmates asking which colour is their favourite. The results are listed below.

Blue	Red	Green	Pink	Purple
1	8	4	10	6

Which t… …ould you use to represent the data? Explain your choice.

2) You surveyed the tea… …l stu… …our school asking them which drink was their favourite. The res… …e li… …h

	Pop	Tea	Cof…	Juice	Water
Students	8	1		10	1
Teachers	4	8			5

Which type of graph would you use to represent t… …? Explai… …choice.

3) A music store randomly asked 1 of 5 customers what their favourite music genre is. The results are below.

Rock	Jazz	Rap/Hip Hop	Country	Pop
7	2	13	6	15

Which type of graph would you use to represent the data? Explain your choice.

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Name: _____ 89

Unit Quiz – Data Literacy

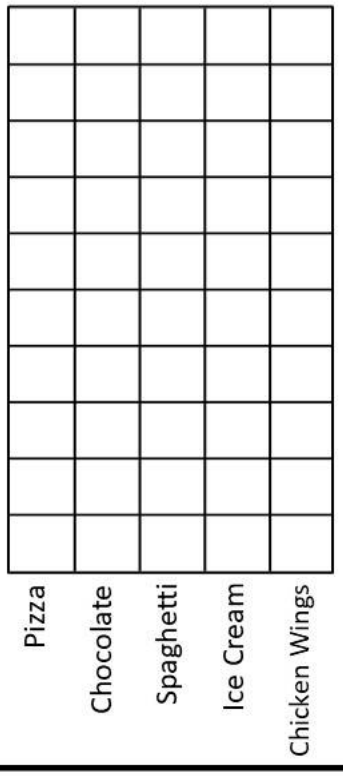
Part 1 Read the description of the data and circle if it is quantitative or qualitative

1) Number of cans collected for the food drive	Quantitative Qualitative
2) Heights of the animals in a zoo	Quantitative Qualitative
3) Favour[illegible] of the grade 4 students	Quantitative Qualitative

Part 2 [illegible] sampling technique is being used in the examples below

[illegible] of [illegible] chnique	Sampling Technique
1) Deciding randomly to [illegible] every 5th [illegible] in a lineup	
2) Having a computer call 10% [illegible]	
3) Splitting the elementary student popu[illegible] into pri[illegible] junior	

Part 3 Draw the bars for each of the bar gr[illegible] belo[illegible] [illegible]late the averages



Favourite Food	# Of [illegible]	[illegible] Frequency
Pizza	12	
Chocolate	6	
Spaghetti	8	
Ice Cream	16	
Chicken Wings	8	

Mode = _____

Median = _____

Mean = _____

If 10 more people chose ice cream, what would the new relative frequency for ice cream be?

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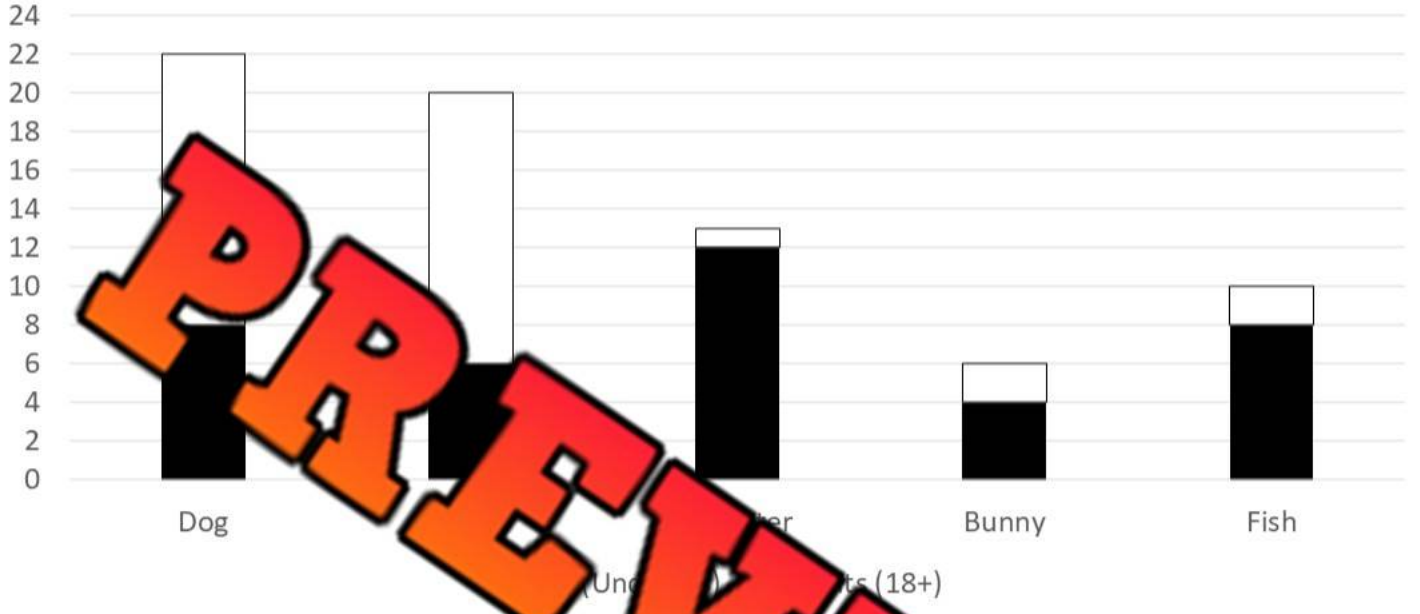
Part 4 Read the graph and answer the questions below

Customers at a pet store were surveyed to see which pet was their favourite.



PREVIEW

Answer the following questions about the gra ove

1. Fill in the frequency table

	Dog	Cat	Hamste	un	ish
Under 18					
Adults					
Totals					

2. How many customers were surveyed? _____

3. What is the scale of the graph? _____

4. Which pet do kids like the most? _____ Adults? _____

5. How much more popular are dogs than bunnies? _____

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Part 5 Graph the data below in a stacked bar graph

You surveyed the grade 4s and 5s by asking which sport they liked the best. The results are below.

Hockey		Basketball		Soccer		Baseball		Gymnastics	
Gr 4	Gr 5	Gr 4	Gr 5	Gr 4	Gr 5	Gr 4	Gr 5	Gr 4	Gr 5
8	12	6	10	6	3	7	5	8	5



PREVIEW

1) Which sport is the most popular? _____

2) Which sport is the least popular? _____

3) How many grade 4s were surveyed? _____ Grade 5s: _____

4) Is this a qualitative or quantitative study? _____

5) How would you sample the grade 4 and 5 students in your school for this survey?

_____

_____

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Grade 5
D2. Probability

	Curriculum Expectations	Pages That Cover the Expectations
D2.1	use fractions to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions	93 - 101
D2.2	determine and compare the theoretical and experimental probabilities of an event happening	102 - 105

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Name: _____ 93

Curriculum Connection
D2.1

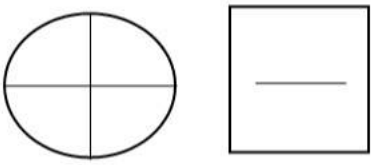
Describing the Likelihood – Equally Likely

Part 1 Shade in one quarter of the shapes. Write the fraction of shaded shapes to total shapes

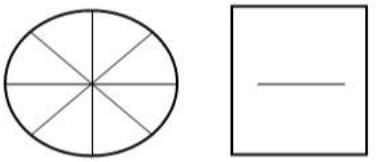
a) Favourable outcomes / Possible outcomes



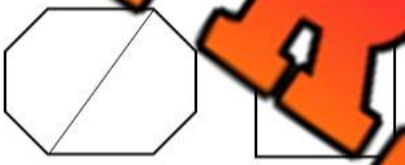
b)



c)



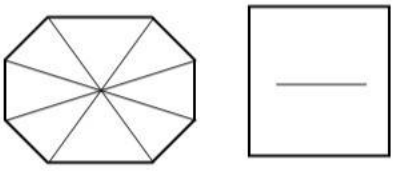
d)



e)



f)



PREVIEW

Part 2 What is half of the numbers bel… Writ… fraction

	Number	Half	…ction
1	20	10	
2	8		
3	12		
4	26		
5	40		
6	32		
7	70		

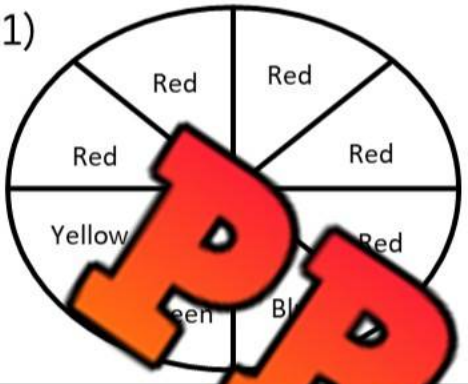
Name: _____ 94

Curriculum Connection
D2.1

Describing the Likelihood – Unlikely, Likely

Instruction Read the spinner and describe if the event is unlikely or likely. Then write the fraction

1)

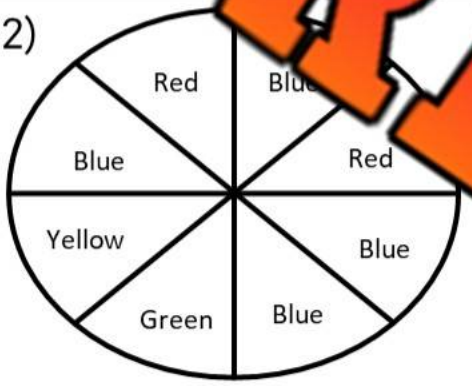


a) Spinning a red is _____

b) Spinning a blue is _____

c) Spinning a blue or red is _____

2)

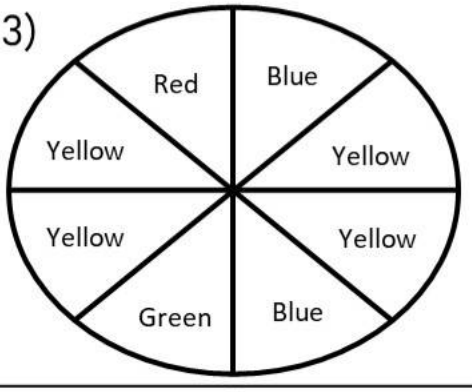


a) Spinning a red is _____

b) Spinning a blue is _____

c) Spinning a _____

3)

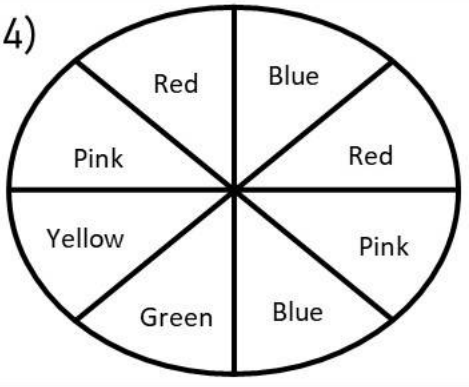


a) Spinning a red or blue is _____

b) Spinning a green is _____

c) Spinning a yellow or red is _____

4)



a) Spinning a red or green is _____

b) Spinning a blue, pink or red is _____

c) Spinning a green or pink is _____

PREVIEW

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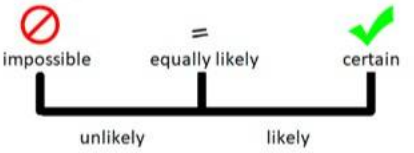
Name: _____ 95

Curriculum Connection
D2.1

Describing the Likelihood of Events

We can describe the likelihood of events by using the following terms:
impossible, unlikely, equally likely, likely, certain



Impossible = Cannot happen
Unlikely = Will probably not happen
Equally likely = There is an equal chance it could happen and that it won't happen
Likely = Wi robably happen
Certain = nitely happen

Instru Us ms to describe the likelihood of the events below

1) You will have am t	
2) You will drink water tod	
3) You will play on an electronic tod	
4) You will win the lottery today	
5) You will see an alien today	
6) You will ride in a vehicle today	
7) You will sleep tonight	
8) You will eat chips today	
9) You will go swimming today	
10) You will play a sport today	

PREVIEW

Name: _____ 96

Curriculum Connection
D2.1

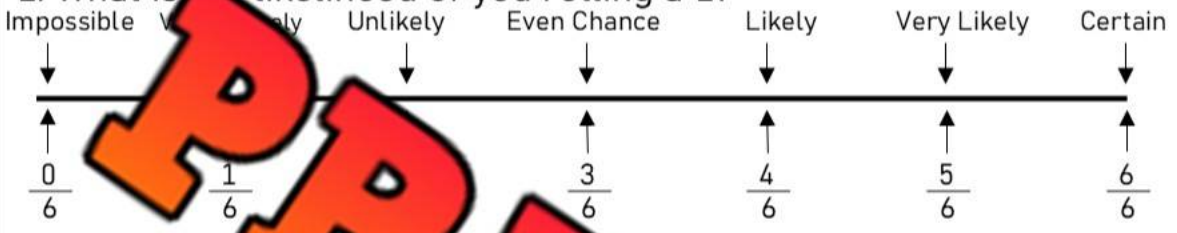
Theoretical Probability – Rolling a Dice

Rolling a Dice: A dice has 6 sides. Each side has a number of dots between 1 and 6. When you roll a dice, you have an unlikely chance of rolling a certain number.



Questions Circle the fraction that represents the probability of the event

1. What is the likelihood of you rolling a 1?



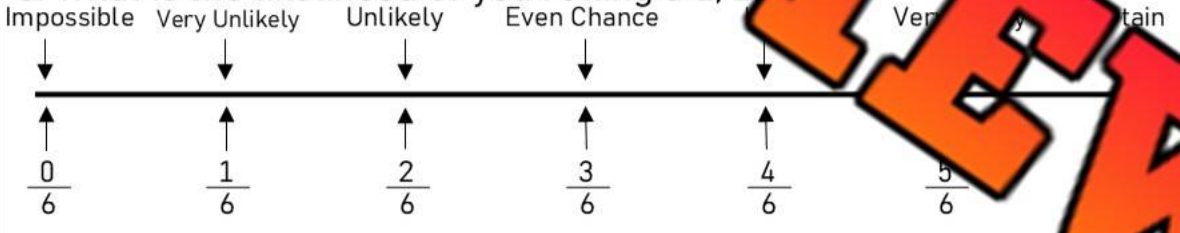
Fraction: _____

2. What is the likelihood of you rolling a 5?



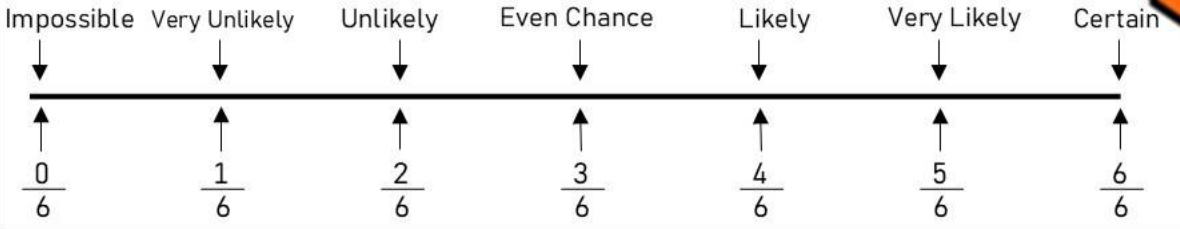
Fraction: _____

3. What is the likelihood of you rolling a 1, 2,



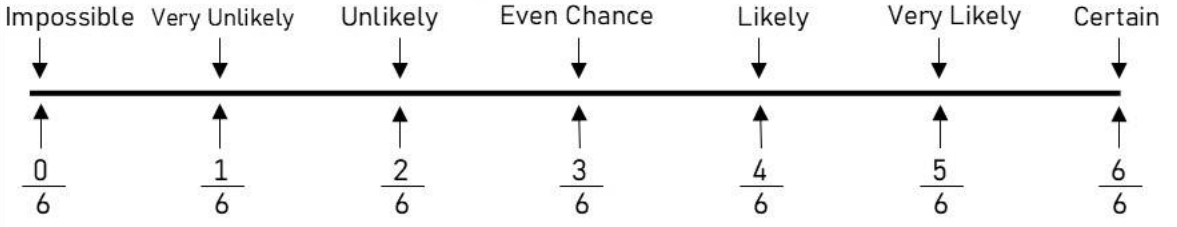
Fraction: _____

4. What is the likelihood of you rolling a 1, 2, 3, or 4?



Fraction: _____

5. What is the likelihood of you rolling an odd number?



Fraction: _____

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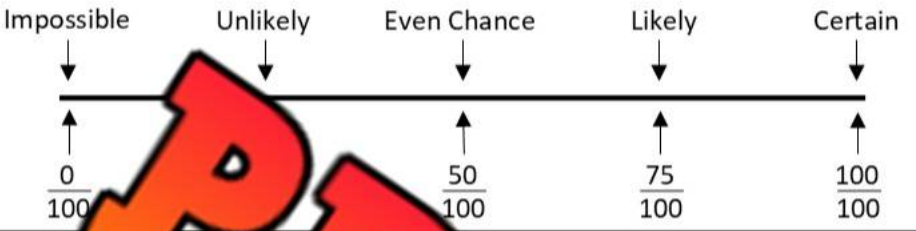
Name: _____ 98

Curriculum Connection
D2.1

Describing the Likelihood of Events – Probability Line

Questions Circle the probability of each event happening on the probability line and write the fraction

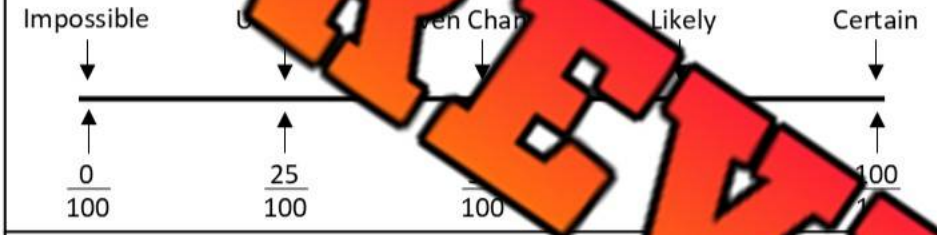
1) It has rained 33 out of the last 100 days. What is the probability it will rain tomorrow?



Fraction: _____



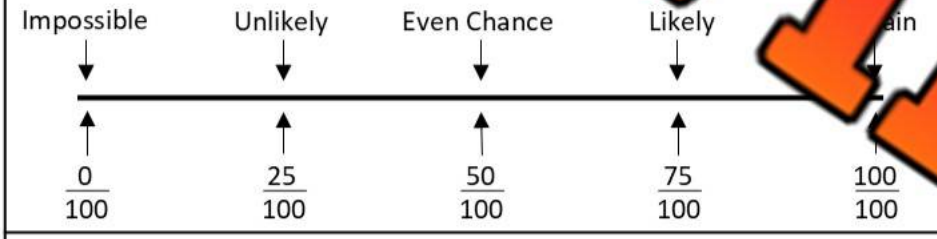
2) Steve [illegible] takes 8[illegible] [illegible]s out of 100. What is the probability he will make his next shot?



Fraction: _____



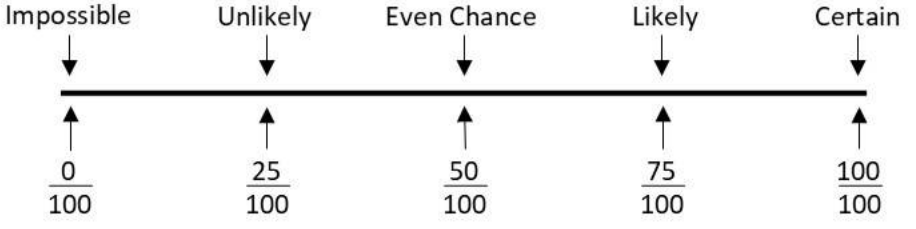
3) Heather hits 4 out of 10 balls in baseb[illegible]at is th[illegible]bility she will hit the next ball?



[illegible]ction: _____



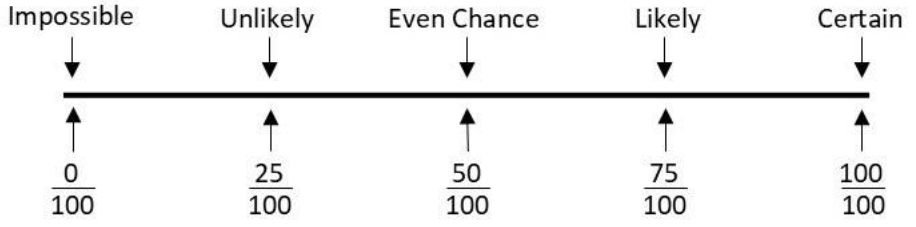
4) Ryan is flipping a coin. What is the probability she gets a tails on [illegible]



Fraction: _____



5) In a box of 5 chocolates, 3 are caramel. What is the probability you will get a caramel?



Fraction: _____



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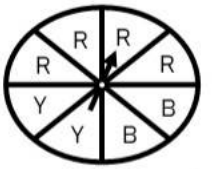
Name: _____ 99

Curriculum Connection
D2.1

Describing the Likelihood of Events

Spinner: The spinner has different coloured parts on it. When you spin the arrow, it will land on one of the colours. The likelihood of landing on a yellow part is unlikely.



Questions Write the fraction for each of the situations below. Then circle the probability

1. What is the likelihood of landing on a red part?

Impossible | Unlikely | Even Chance | Likely | Certain

$\frac{0}{8}$ $\frac{4}{8}$ $\frac{6}{8}$ $\frac{8}{8}$

Fraction: _____

2. What is the likelihood of landing on a blue part?

Impossible | Unlikely | Likely | Certain

$\frac{0}{8}$ $\frac{2}{8}$ $\frac{8}{8}$

Fraction: _____

3. What is the likelihood of landing on a red or yellow part?

Impossible | Unlikely | Even Chance | Certain

$\frac{0}{8}$ $\frac{2}{8}$ $\frac{4}{8}$ $\frac{6}{8}$

Fraction: _____

4. What is the likelihood of landing on a red, blue, green, or yellow part?

Impossible | Unlikely | Even Chance | Likely | Certain

$\frac{0}{8}$ $\frac{2}{8}$ $\frac{4}{8}$ $\frac{6}{8}$ $\frac{8}{8}$

Fraction: _____

5. What is the likelihood of landing on a purple part?

Impossible | Unlikely | Even Chance | Likely | Certain

$\frac{0}{8}$ $\frac{2}{8}$ $\frac{4}{8}$ $\frac{6}{8}$ $\frac{8}{8}$

Fraction: _____

PREVIEW

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Curriculum Connection
D2.1

Exit Cards

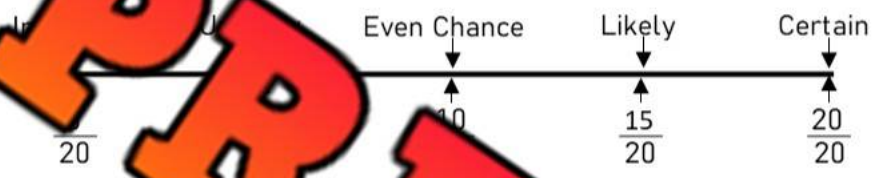
Cut Out Cut out the exit cards below and have students complete them at the end of class

Name: _____

A bookshelf contains 20 books: 8 are fiction, 7 are non-fiction, and 5 are graphic novels.

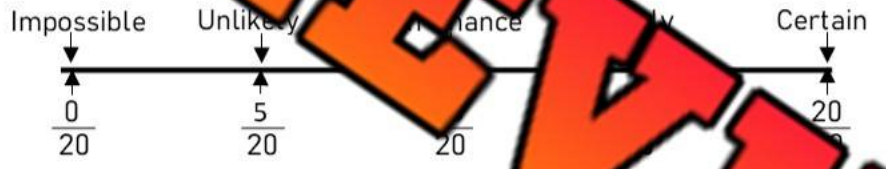
Circle the probability term and write the fraction.

1. What is the likelihood of picking a fiction book?



Fraction

2. What is the likelihood of picking a fiction or non-fiction book?



Fraction

PREVIEW

Name: _____

A bookshelf contains 20 books: 8 are fiction, 7 are non-fiction, and 5 are graphic novels.

Circle the probability term and fraction.

1. What is the likelihood of picking a fiction book?

Impossible Unlikely Even Chance Likely Certain

0/20 5/20 10/20 15/20 20/20

Fraction

2. What is the likelihood of picking a fiction or non-fiction book?

Impossible Unlikely Even Chance Likely Certain

0/20 5/20 10/20 15/20 20/20

Fraction

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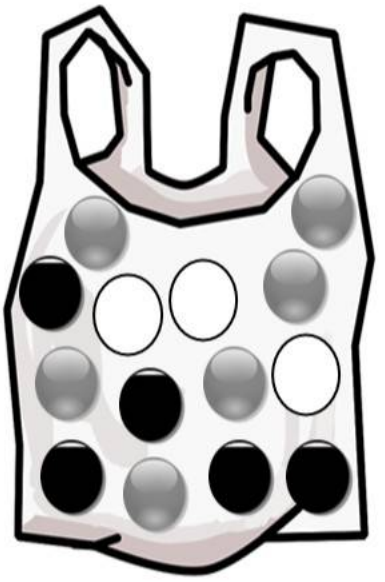
Name: _____ 101

Curriculum Connection
D2.1

Describing the Likelihood of Events

Marbles

There are 14 marbles in a bag. What is the likelihood of you pulling out a white, grey, or black marble?



Frequency Fill in the frequency table below

Colour	Frequency

PREVIEW

Questions Describe the probability (impossible, unlikely, equally likely, likely, certain) and write the fraction

Event	Fraction
1. What is the probability of pulling out a black marble?	
Probability:	
2. What is the probability of pulling out a grey marble?	
Probability:	
3. What is the probability of pulling out a white marble?	
Probability:	
4. What is the probability of pulling out a black, white, or grey marble?	
Probability:	
5. What is the probability of pulling out a black or white marble?	
Probability:	
6. What is the probability of pulling out a green marble?	
Probability:	

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Name: _____ 102

Curriculum Connection
D2.2

Theoretical vs Experimental Probability

Theoretical Probability
What should happen

Example – The theoretical probability of flipping a heads is 1 time out of 2 or ½.

Experiment Probability
What did happen after the event (experiment)

Example – You flipped a coin 10 times and got 7 heads. The experimental probability is 7/10.

Part 1 Write the theoretical probability of the events happening below

Question	Fraction
1) What is the theoretical probability of flipping a heads?	
2) What is the theoretical probability of flipping a tails?	
3) What is the theoretical probability of flipping a heads if you flipped the coin 20 times?	

Part 2 Experimental Probability – Flip a coin 20 times and record your results

1) How many heads and tails do you think you will flip

	Tails
	20

2) Perform the experiment by flipping a coin 20 times. Record how many heads and tails you get.

	Tallies	Frequency	Fraction	Decimal	Percent
Heads					
Tails					

3) Was the theoretical probability and experimental probability the same? Should it be the same? Explain.

_____

_____

PREVIEW

Name: _____ 103

Curriculum Connection
D2.2

Theoretical vs Experimental Probability

Examples of Theoretical and Experimental Probability
Theoretical: You should roll a 3 once every 6 rolls = 1/6
Experimental: You rolled a 3 twice when you rolled a dice 6 times = 3/6



Part 1 Circle if the example is theoretical or experimental

Example	Theoretical or Experimental
1) If yo… a coi… …you should flip tails 25 times	Theoretical Experimental
2) You flipped a co… time… …ads 70 times	Theoretical Experimental
3) When pulling a random … f a d… …ds, you have a ¼ chance of getting a h…	Theoretical Experimental
4) You pulled a spade 5 times out of 10… pulling randomly from a deck of cards	Theoretical Experimental
5) You made 8 out of 10 free throws in your bas… game	Theoretical …mental
6) You are a 75% free throw shooter so you should make … free throws out of 100	…oreti… …er…

PREVIEW

Part 2 Is the example theoretical or experimental probability? Wi… …he fraction

Example	Theoretical or Experimental	Fraction
1) You should get a hit in baseball 1 in every 4 at bats.		
2) The Weather Network says there is a 40% chance of it raining today.		
3) You won 15 out of 25 games of hockey last season.		

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Curriculum Connection
D2.2

Theoretical vs Experimental Probability – Sock Drawer

Part 1 Write the theoretical probability of the events happening below

Your sock drawer is a mess! You have 50 socks in there in 5 different colours – white, blue, black, green, and red. Here is the breakdown of the socks in your drawer.

Colour of Sock	White	Yellow	Black	Green	Red
Number of Socks	18	8	14	4	6

1) If you [illegible] drawer 50 times without looking, what is the theoretical probability of pulling out each of the colours below.

Colour of Sock	White	Yellow	Black	Green	Red
Fraction					

PREVIEW

Part 2 Complete the experiment and record the experimental probability

2) Close your eyes and point to a random spot in the box below with your eraser. Repeat this for 50 trials and tally your results below.

W R B Y W B W W B W
B W W R B W B Y B Y G
Y B B G W Y R W B W W B W
B Y G W G W Y R R R W Y

Colour of Sock	White	Yellow	Black	Green	Red
Tally					

a) How did the experimental probability compare with the theoretical probability? Explain.

_____

_____

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Name: _____ 105

Curriculum Connection
D2.2

Theoretical vs Experimental Probability – # of Events

The theoretical and experimental probability of an event happening is not guaranteed to be the same. Performing more trials in an experiment will cause the experimental probability to be closer to the theoretical probability.

Example – if you flip a coin 2 times, it is easy to picture getting heads twice in a row. That would mean the experimental probability of getting a heads was 100% or 2/2. However, if you flipped the coin 100 times, it is almost impossible to get 100 heads in a row.

Part 1 ite the theoretical probability of the events happening below

cal Probability	Fraction
1) Rolling a 1 o ce	
2) Rolling a 3 on d dic	
3) Rolling a 2 or a 5 o e	
4) Rolling a 6 on a 6-sided	

Part 2 Follow the instructi low t te the experiments

1) Roll the dice 6 times. Tally your results

1	2	3	4	5	6

2) Roll the dice 60 times. Record how many of each number you get.

	1	2	3	4	5	6
Tallies						
Total						

3) Did the experimental probability get closer to the theoretical probability when you rolled the dice more times? Explain why this should happen.

_____

_____

PREVIEW

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Name: _____ 106

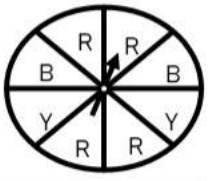
Unit Quiz - Probability

Part 1 Circle if the example is theoretical or experimental

Example	Theoretical or Experimental
1) You should get a heads 5 out of 10 times when flipping a coin	Theoretical Experimental
2) You sh… a spade ¼ times when you pull a random card ou… …ds	Theoretical Experimental
3) You hi… home… …bat…	Theoretical Experimental
4) You rolled a 5 six… …s out…	Theoretical Experimental

PREVIEW

Part 2 Read the spinner and … …cle t… …f each scenario. Then write the fraction.



1) What is the likelihood of landing on a red…

Impossible — Unlikely — Even Chance — Likely — …rtai…

$\frac{0}{8}$ $\frac{2}{8}$ $\frac{4}{8}$ $\frac{6}{8}$ $\frac{8}{8}$

…raction

2) What is the likelihood of landing on a blue part?

Impossible — Unlikely — Even Chance — Likely — Certain

$\frac{0}{8}$ $\frac{2}{8}$ $\frac{4}{8}$ $\frac{6}{8}$ $\frac{8}{8}$

Fraction
_____

3) What is the likelihood of landing on a red or yellow part?

Impossible — Unlikely — Even Chance — Likely — Certain

$\frac{0}{8}$ $\frac{2}{8}$ $\frac{4}{8}$ $\frac{6}{8}$ $\frac{8}{8}$

Fraction
_____

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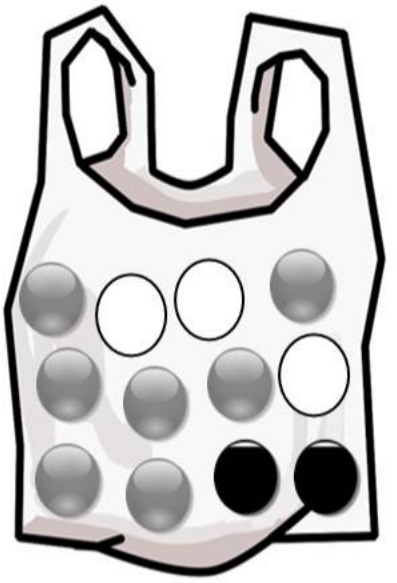
Marbles

There are 12 marbles in a bag. What is the likelihood of you pulling out a white, grey, or black marble?



Part 3 Fill in the frequency table below

Marble Colour	Frequency
White	

Part 4 1) Descri… probabi… …ible, unlikely, equally likely, likely or certain
2) Then write … frac…

Even…	Fraction
1. What is the probability of pulling … black … …te?	
Probability:	
2. What is the probability of pulling out a grey mar…	
Probability:	
3. What is the probability of pulling out a white marble?	
Probability:	
4. What is the probability of pulling out a black, white, or grey marble?	
Probability:	
5. What is the probability of pulling out a black or white marble?	
Probability:	
6. What is the probability of pulling out a green marble?	
Probability:	

PREVIEW

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