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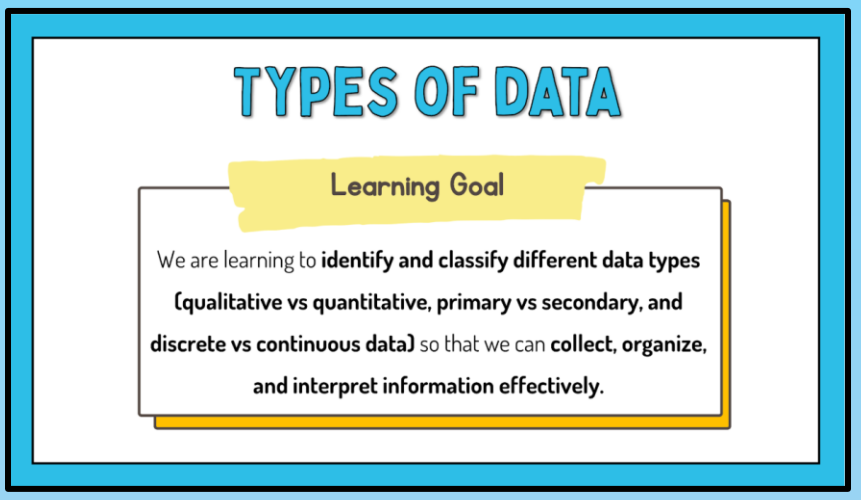
Google Slides Lessons Preview

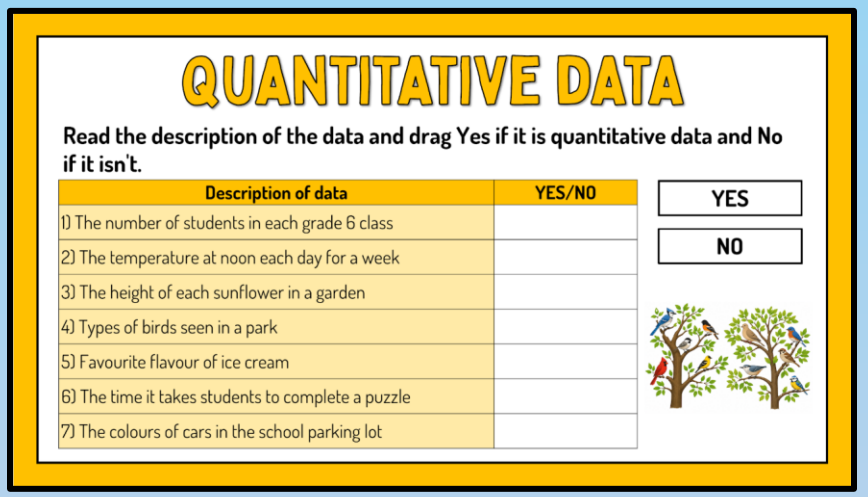
Manitoba Math Curriculum
Statistics– Grade 6

3-Part Lesson Format

Part 1 – Minds On!

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



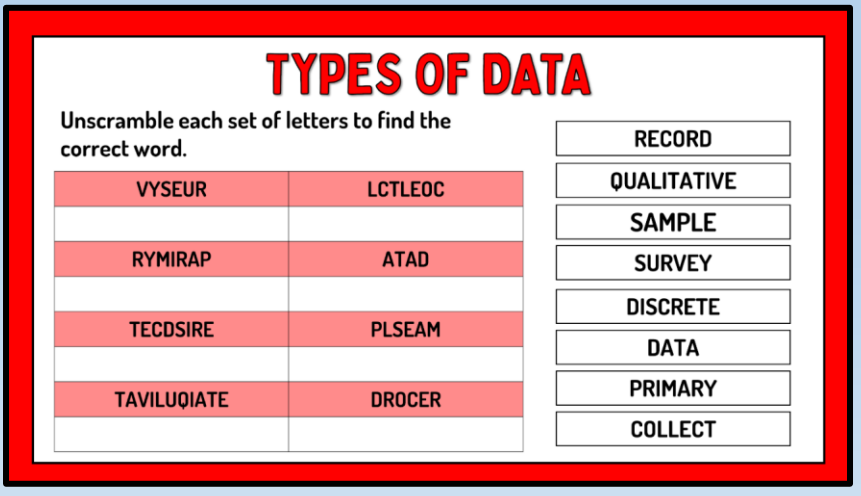


Part 2 – Action!

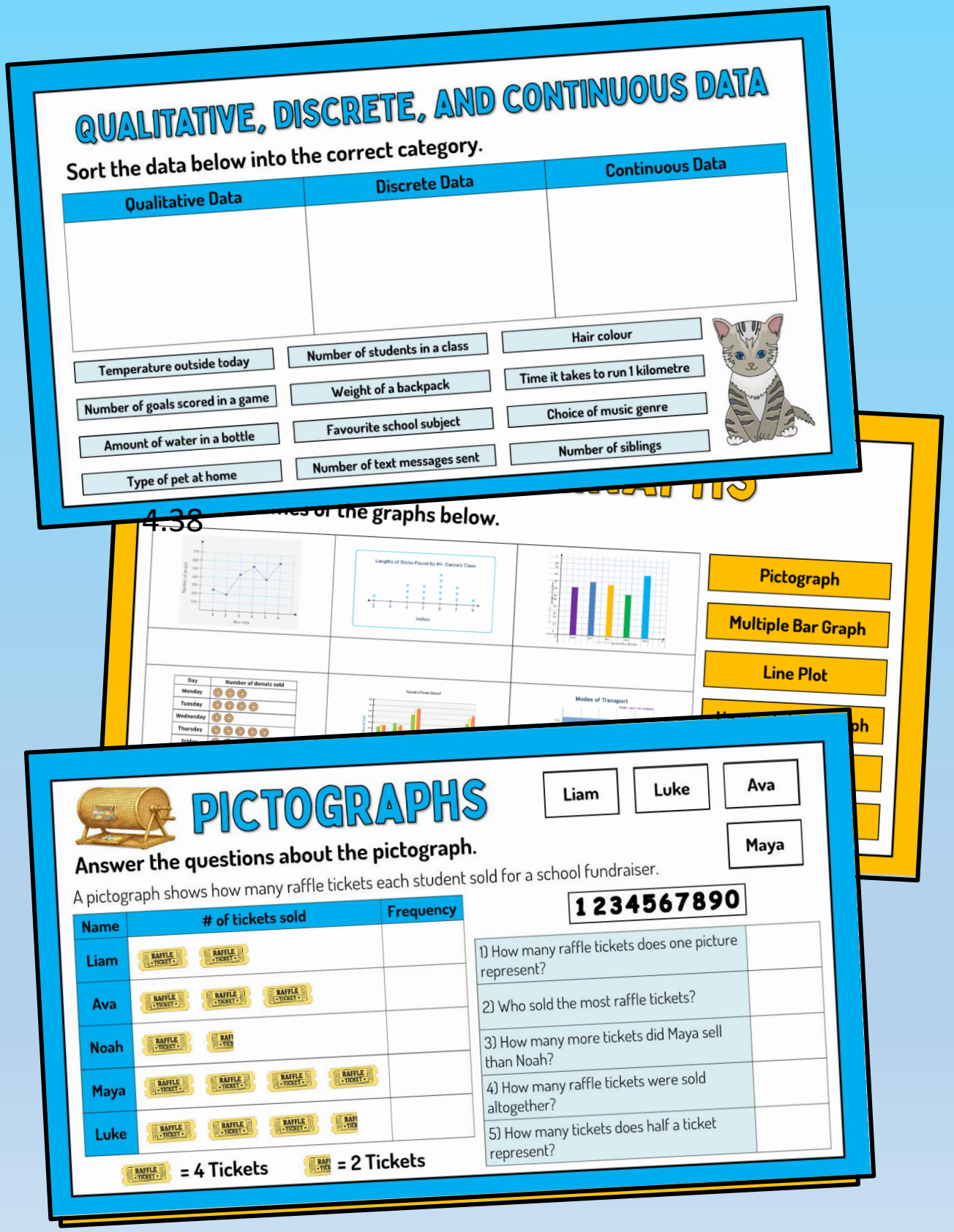
- Writing
- Matching
- Drag and Drop
- Drawing
- And More!

Part 3 – Consolidation!

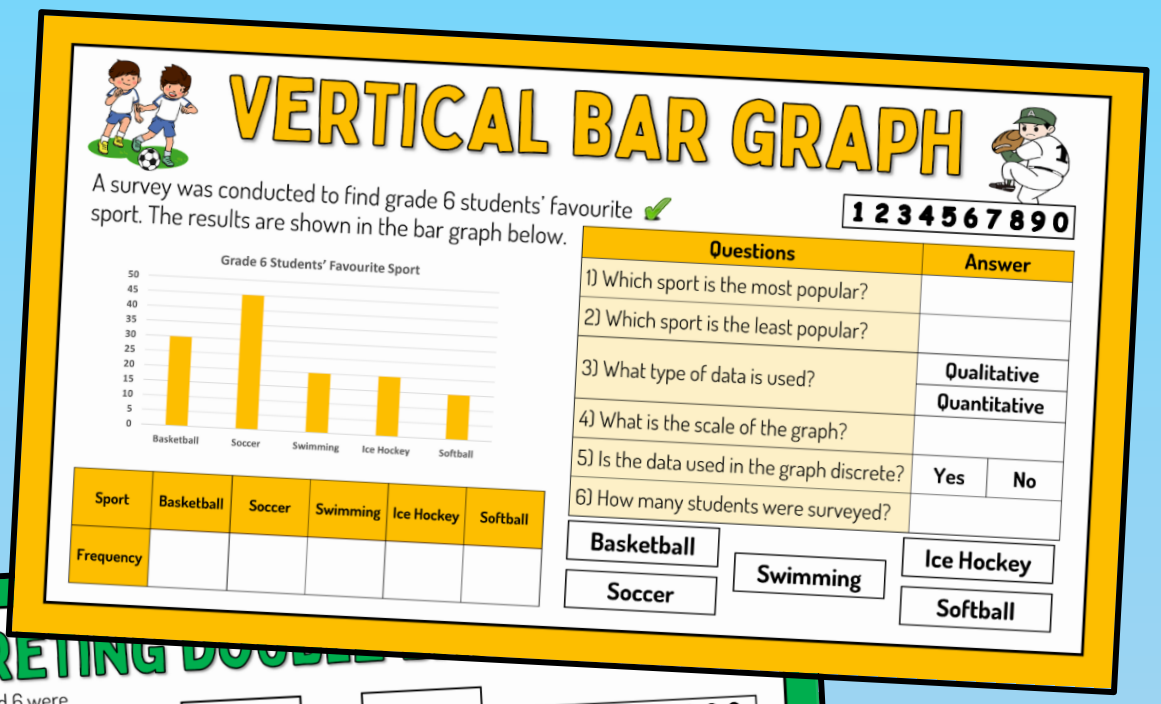
- Exit Cards
- Quizzes
- Reflection
- And More!

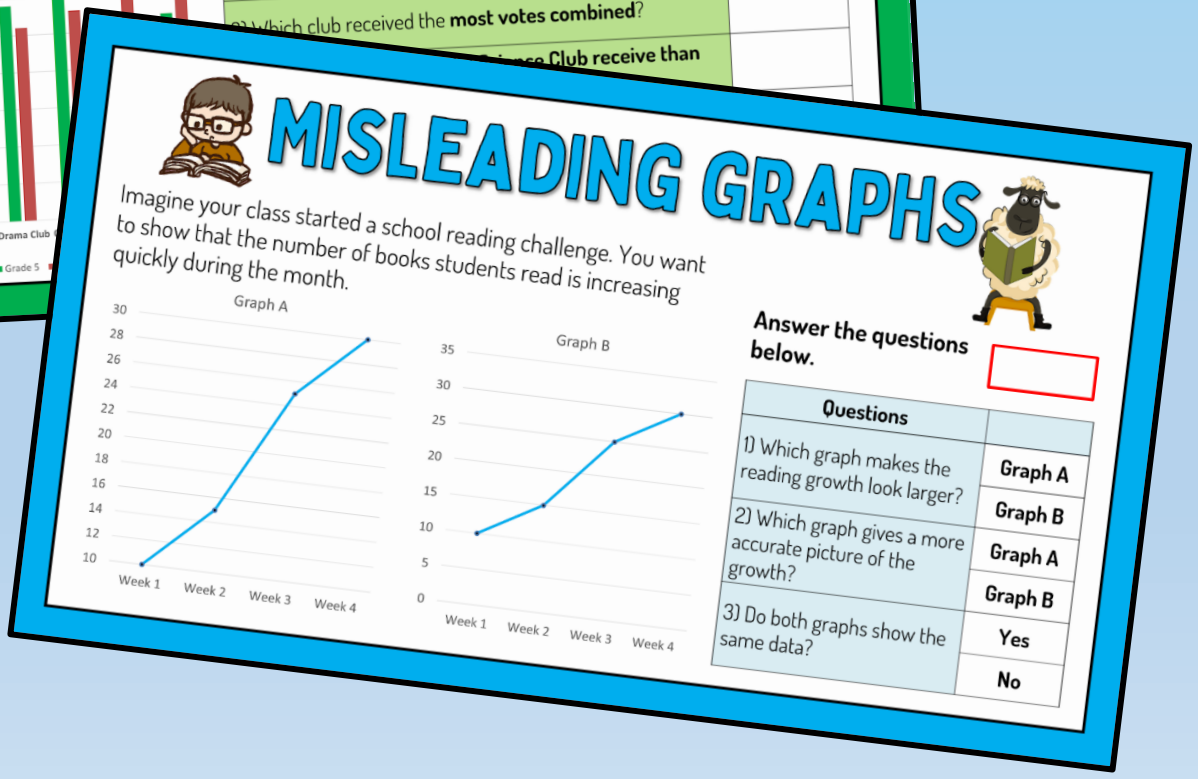


Manitoba Math Curriculum Statistics– Grade 6



Manitoba Math Curriculum Statistics– Grade 6





Grade 6
STATISTICS AND PROBABILITY (Data Analysis)

	Curriculum Expectations	Pages That Cover the Expectations
SP.1	Create, label and interpret line graphs to draw conclusions.	19 – 22, 37, 40 – 41, 44 – 46, 61 - 64
S	Select, justify and use appropriate methods of	
SP.3	solve problems.	36, 39, 43, 48, 50, 58, 60

Name: _____ 5

Curriculum Connection
SP.2

Qualitative Data

Qualitative data - data that uses words (categories) instead of numbers (quantitative). The data is commonly in the form of choices or favourites.

Examples
Favourites – food, drink, pet, sport, etc.
Choices – where you live, class you are in, colour hair you have, car you drive, etc.

Part 1 Read the description of the data and circle yes if it is qualitative data and no if it isn't

1) Differe[illegible]o travel to school	Yes No
2) Favo[illegible]e subj[illegible]ol	Yes No
3) How much sno[illegible]r city [illegible]ruary last year	Yes No
4) Best YouTuber	Yes No
5) How many seconds it takes you t[illegible]00 m[illegible]	Yes No
6) How tall a tree grows each month	Yes No
7) The type of plants growing in your yard	Yes

Part 2 Write your own qualitative data descriptions below

1)
2)
3)
4)
5)

Name: _____ 6

Curriculum Connection
SP.2

Quantitative Data

Quantitative data - data that uses numbers instead of words (qualitative). The data is made from counting or measuring.

Examples
Counting: How many siblings you have, numbers of games you own, number of snacks
Measured: Weight of animals, time to read a book, height of students, or speed of vehicles

Part 1

Read the description of the data and circle yes if it is quantitative data and no if it isn't

1) Length [illegible]ngs are in an album	Yes No
2) Hei[illegible] towers [illegible] science experiment	Yes No
3) Favourite drin[illegible] stude[illegible]de 6	Yes No
4) The colours of the next t[illegible]hat d[illegible] school	Yes No
5) How many pets the students in grad[illegible]	Yes No
6) How long it takes students to answer a mat[illegible]ion	Yes No
7) Favourite music genre of adults ages 18-35	Yes [illegible]

Part 2

Write your own quantitative data descriptions bel[illegible]

1)
2)
3)
4)
5)

Name: _____ 7

Curriculum Connection
SP.2

Qualitative vs Quanitative 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 Read the description of the data and circle if it is quantitative or qualitative

1) Money raised by the bake sale last month	Quantitative Qualitative
2) Height of the students in grade 4	Quantitative Qualitative
3) Favourite foods of the grade 4 students	Quantitative Qualitative
4) Rainfall in April last year	Quantitative Qualitative
5) Favourite colours of the students in your class	Quantitative Qualitative
6) The weight of different hockey skates	Quantitative Qualitative
7) The height of the grade 4 students	Quantitative Qualitative
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

Name: _____ 9

Curriculum Connection
SP.2

Quantitative vs Qualitative Observations

Image #1

Image #2

Part 1 M observations about image #1 and put an x if it is quantitative or qualitative

Observa	Quantitative	Qualitative
1) The cle has	x	
2) The vehicle s		
3) The vehicle is w and		
4) The vehicle's age is 3 old		
5) The vehicle has silver rims		
6) The vehicle has 2 headlights		
7) The vehicle is a car		
8) The vehicle drives up to 180km/hour		
9) The vehicle's tires are large		
10) The vehicle weighs 1700 kilograms		

Part 2 Write quantitative and qualitative observations about image #

Observations	Quantitative	Qualitative
1)		
2)		
3)		
4)		
5)		

Name: _____ 10

Curriculum Connection
SP.2

Primary vs Secondary Data

Primary Data	**Secondary Data**
Data that you have collected yourself **Example** - asking your classmates their favourite food	Data that has been collected by someone else **Example** - finding data on the internet

Questions

Read the description of the data and circle if it is primary or secondary data

1) You rese[illegible] how many points Lebron scored in the NBA playoffs last year	Primary Secondary
2) You [illegible]e of the kids in your class	Primary Secondary
3) You measur[illegible] in y[illegible] each day for a week	Primary Secondary
4) You look up how much [illegible] each [illegible] December	Primary Secondary
5) You record how many minutes you st[illegible] day	Primary Secondary
6) You weigh different sized rocks in your yard	Primary Secondary
7) You measure the weight of your cat each year	Primary Se[illegible]ndary
8) You research how many Orcas are left off the coast of Vancouve[illegible]	[illegible]y [illegible]ondary

Part 2

Write your own primary and secondary data descriptions below

1) Primary	
2) Secondary	
3) Primary	
4) Secondary	

Name: _____ ||

Curriculum Connection
SP.2

Generating Questions - Primary Data

When we collect primary data, we often use survey questions to ask people to gather the data. We can also create research questions for experiments we plan to perform so that we can collect primary data.

Example of Primary Data Survey Questions
- What is your favourite hobby?
- What is your favourite food?

Example of Primary Data Research Questions
- How much snow will fall this month in my backyard?
- How many pushups can I do every day for 10 days?

Part 1 Write 5 survey questions you could ask to gather primary data

1)

2)

3)

4)

5)

Part 2 Write 5 research questions for experiments you could do to gather primary data

1)

2)

3)

4)

5)

Name: _____ 12

Curriculum Connection
SP.2

Generating Questions - Secondary Data

When we collect secondary data, we are finding data from another source. This means someone else has collected the data for others to use as secondary data.

Using secondary data allows us to answer questions we may have. With so much data available to us, we can write research questions about almost anything and find the data online.

Examples

1) Whi uTubers had the most views last year?
2) Whi players scored the most points last year?
3) W rage temperatures in Canada, the USA, Jamaica, and

Practice W questi you could look up to gather secondary data

1)

2)

3)

4)

5)

6)

7)

8)

9)

10)

Name: _____ 13

Curriculum Connection
SP.2

Research - Finding Secondary Data

Choose a research question that you are most interested in. Find data that answers your research question. Organize your data by using the table below.

Organizer Fill in the table below

1) What is your research question?

2) How [illegible] your data? You will need 4 or 5 categories so you can use your [illegible] to make [illegible] sons.
For example: Sy[illegible]y's [illegible]al totals for his first 5 seasons.

Categories					
Data					

3) What did you learn about your secondary [illegible]

4) Why is this data considered secondary data?

Name: _____ 14

Curriculum Connection
SP.2

Discrete or Continuous Data?

Discrete and continuous data are both forms of quantitative data. This means both are numerical, meaning the data is acquired through counting or measuring.

Discrete data is collected when the answers to a survey are only numbers. It is quantitative data that has no relationship between the numbers. For example, "how many pets you have" is discrete data because there is no relationship between 1 and 2 pets. You cannot have 1 and a half pets, only 1 or 2. Discrete data is counted.

With **Continuous data**, there is a relationship between the numbers. For example, "how much rainfall there was last week?" You can have 1 and a half millimetres of rain, which mean[illegible]ere is a relationship between 1 and 2. Continuous data is measured.

Questi[illegible] research question discrete or continuous?

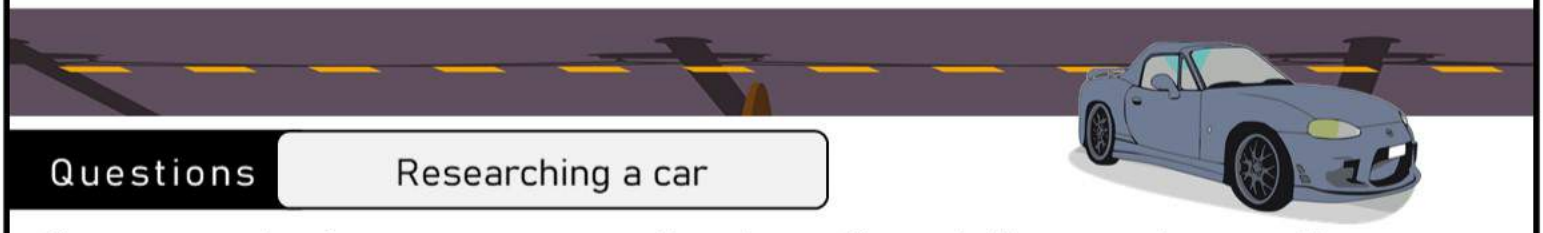
Tip: Ask [illegible]rself i[illegible]split the answer in half.

[illegible]earch[illegible]n	Discrete/Continuous
1. How many cm of sno[illegible] there[illegible]cember?	
2. How many siblings do you have?	
3. What was the average temperature in Jul[illegible]	
4. How many minutes did you read this week?	
5. How many video games do you own?	
6. How many kilometres did you run this week?	
7. How many sports do you play?	
8. What grade are you in?	
9. How many litres of milk do you drink a week?	
10. How many cars does your family have?	

Name: _____ 15

Curriculum Connection
SP.2

Discrete or Continuous Data?



Questions

Researching a car

You are purchasing a new car over the phone. You ask the car salesman the questions below. Is the data he gives you **discrete** or **continuous**?

Data Collected	Discrete/Continuous
1) How [illegible] the car have?	
2) How old is [illegible]	
3) How many litres [illegible]	
4) How many wheels does the [illegible]	
5) How fast does the car go?	
6) How many passengers can the car hold?	
7) How many speakers are in the car?	
8) How many kilometres has the car driven already?	
9) How much does the car cost?	
10) How long does it take to get up to 60km/hour?	
11) How long is the car?	
12) How many decibels do the speakers produce?	

Name: _____ 16

Curriculum Connection
SP.2

Data - Qualitative, Discrete, or Continuous?

Part 1 Researching a basketball team

You are the manager of a basketball team and are researching your next opponent. You decide to collect data based on the questions below. Is the data qualitative, discrete, or continuous?

Data Collected	Qualitative/Discrete/ Continuous
1) How m ers are on the team?	
2) Ho are th rs?	
3) How many am they score?	
4) What colour ar r je	
5) Which teams have the bef	
6) How many games have they playe	
7) How old are their players?	
8) How many wins do they have this year?	
9) How many seconds do they take before they sh	
10) Which type of defense do they play – zone or man?	
11) How many three pointers do they take a game?	
12) What is the name of their mascot?	

Part 2 Write one example of each type of data

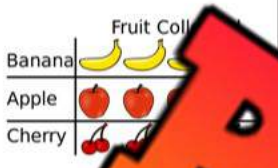
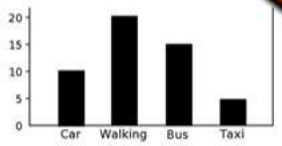
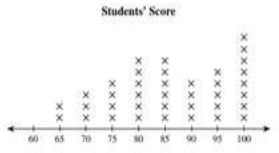
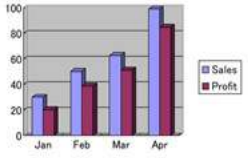
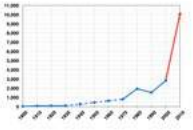
Type of Data	Example
Qualitative	
Discrete	
Continuous	

Name: _____ 17

Curriculum Connection
SP.2

Types of Graphs - Information

There are many different types of graphs. Each graph has features that make it better for certain data sets. Read about the different graphs below and when we use each one.

Types of Graph	Explanation	When We Use Them
Pictograph 	- A graph that uses images or symbols to represent data	- When we want to display simple data in picture form. - When we want to make our data more interesting
Bar Graph 	- [illegible] rectangular bars or columns	- When we want to compare categories between different groups - Used with discrete data
Line Plot 	- A graph that displays data as points or symbols (checkmarks, x's) above a number line - The dots are not connected	- Used to show the frequency of data [illegible] way to organize [illegible] small [illegible] ues
Multiple-Bar Graph 	- A graph that shows the relationship between different values of data - The bars are presented beside each other for clear comparisons	- To display the relationship between two sets of data. For example – gender differences or adults vs youth
Broken-Line Graph 	- A graph that displays data as points that are connected with a line	- Used to track changes over periods of time - Used with continuous data

Name: _____ 18

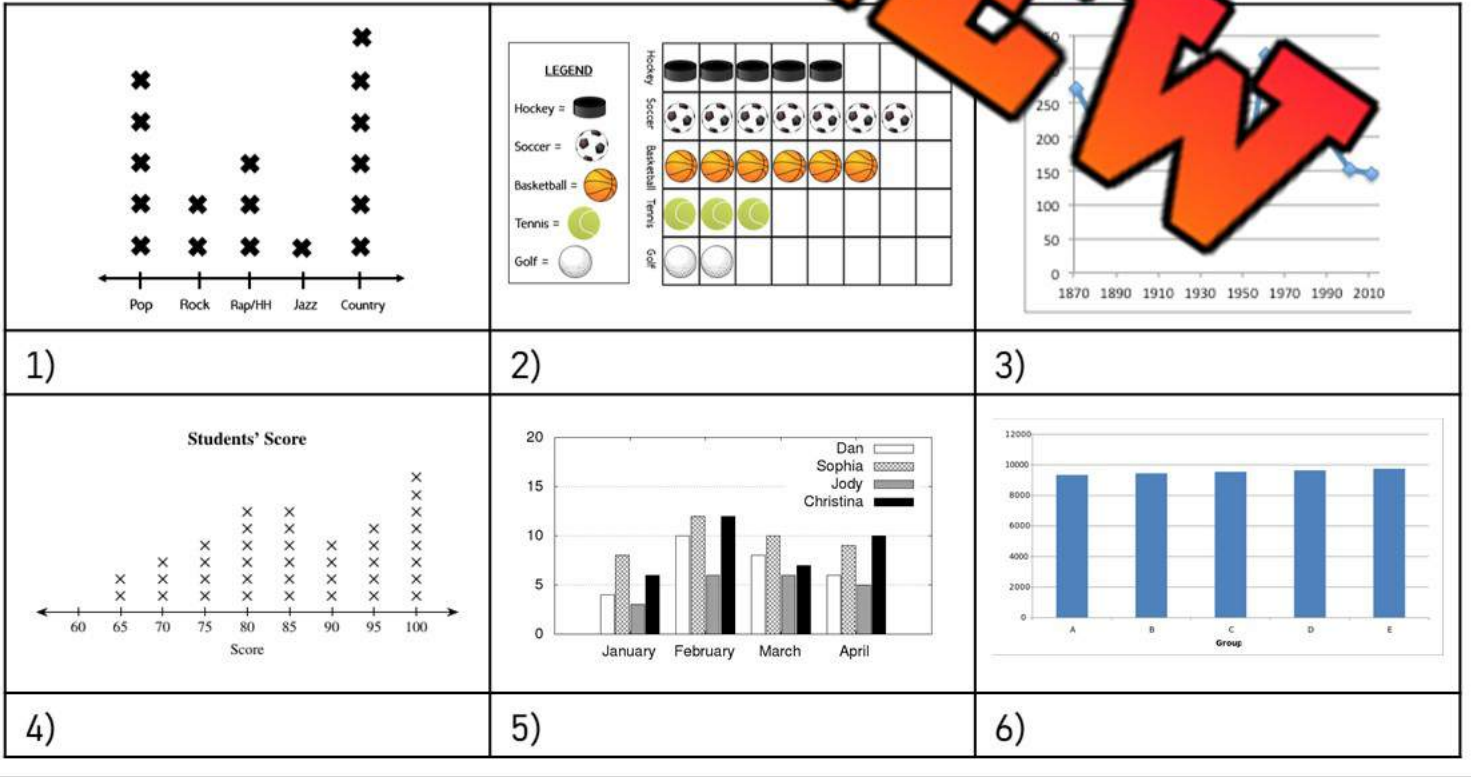
Curriculum Connection
SP.2

Types of Graphs - Questions

Part 1 Circle the graph you would use to represent the data

	Description	Graph A	Graph B
1)	You want a simple graph that shows a visual representation of the data	Broken-Line	Pictograph
2)	You want to show the relationship between two different values of data	Bar Graph	Multiple Bar Graph
3)	You want a graph that has smaller	Line Plot	Bar Graph
4)	You want a graph that displays your data visually	Multiple Bar Graph	Bar Graph
5)	You want to graph continuous data	Broken Line Graph	Line Plot
6)	You are displaying two sets of data and women	Bar Graph	Multiple Bar Graph

Part 2 Label the names of the graphs below



1) 2) 3)

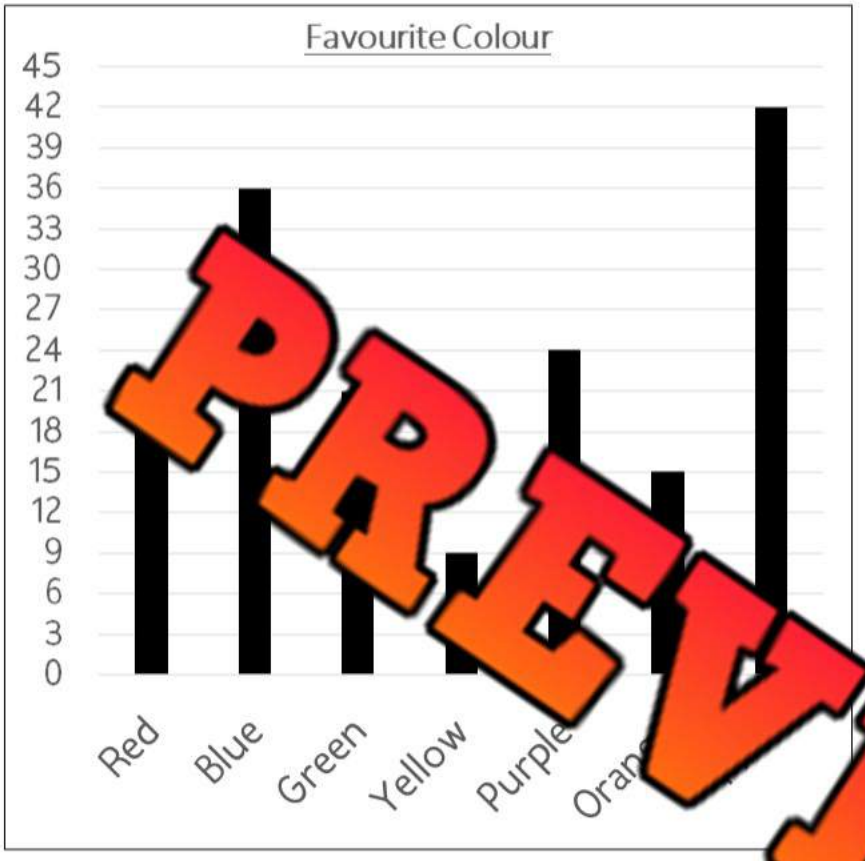
4) 5) 6)

Name: _____ 21

Curriculum Connection
SP.1

Vertical Bar Graph - Favourite Colour

The students in grade 6 were asked which colour was their favourite. The results of the survey have been displayed in the bar graph below.



Frequency Table	
Red	
Blue	
Green	
Yellow	
Purple	
Orange	

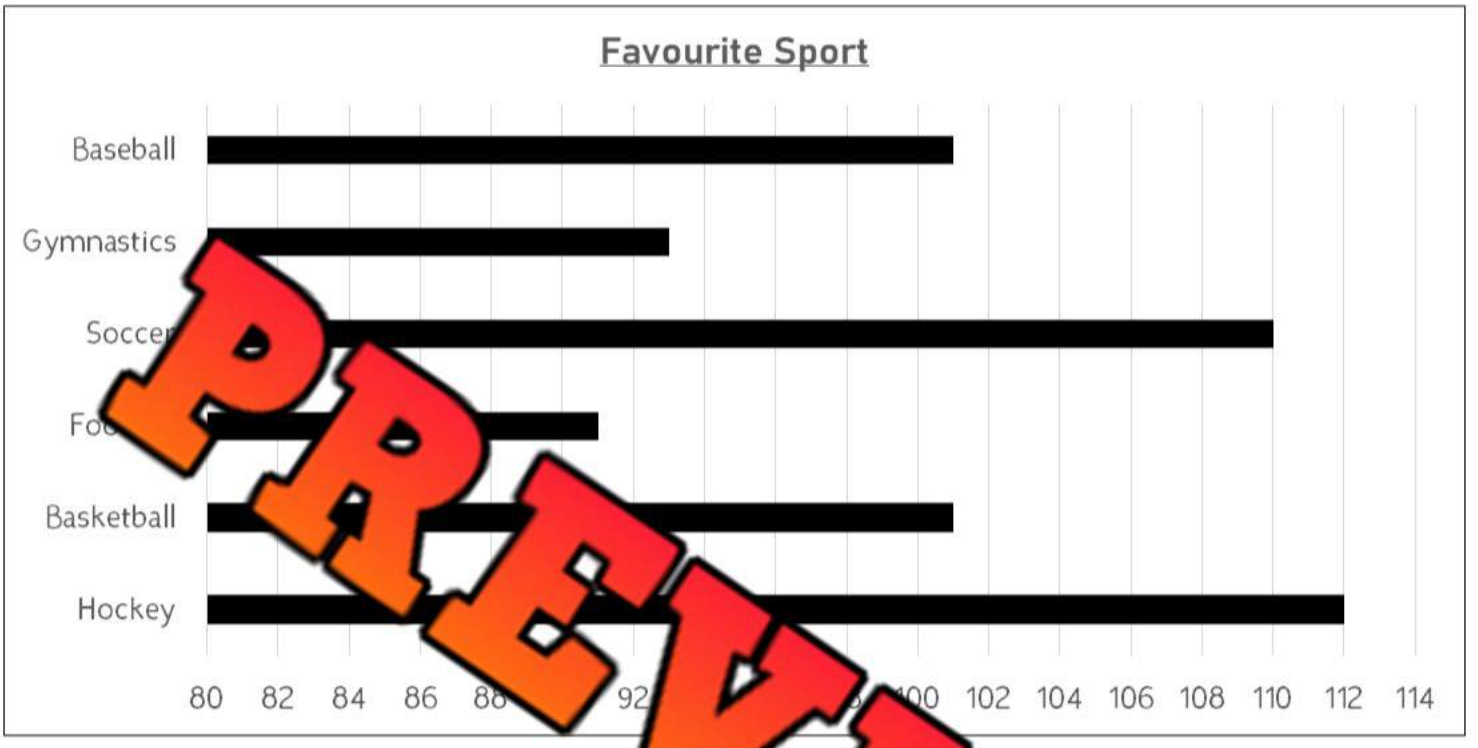
a) Which colour was most popular?	
b) Which two colours add up to pink?	
c) Is the data quantitative or qualitative?	
d) What is the scale of the graph?	
e) What could the title of the x-axis be → ?	
f) What could the title of the y-axis be ↑ ?	
g) Is this data discrete or continuous?	
h) How many people were surveyed?	

Name: _____ 22

Curriculum Connection
SP.1

Horizontal Bar Graph - Favourite Sport

The kids at camp were asked which sport they liked the best. They surveyed each kid and the results have been displayed below in a horizontal bar graph.



Questions

Fill in the tables below.

Frequency Table	
Baseball	
Gymnastics	
Soccer	
Football	
Basketball	
Hockey	

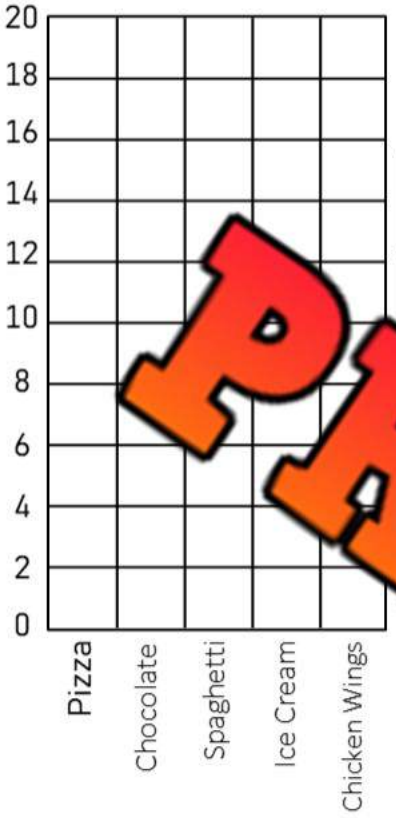
a) Which sport was the most popular?	
b) What number does the scale start at?	
c) How many people chose gymnastics as their favourite?	
d) How many kids liked basketball and soccer the best?	
e) How many kids liked hockey more than football?	
f) How many kids were surveyed?	

Name: _____ 23

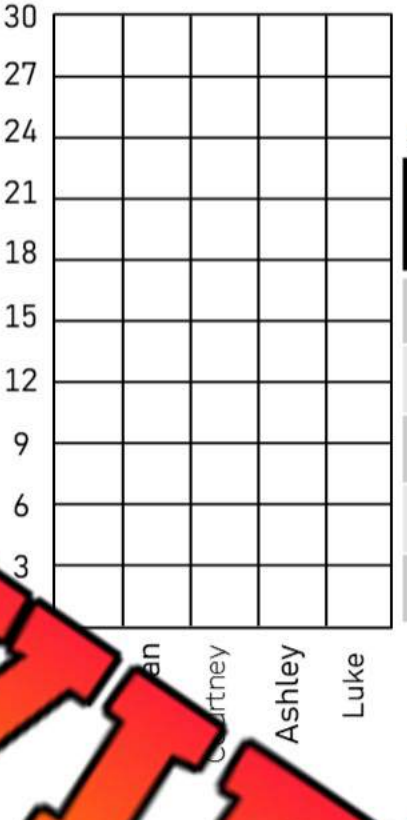
Curriculum Connection
SP.3

Drawing Bar Graphs

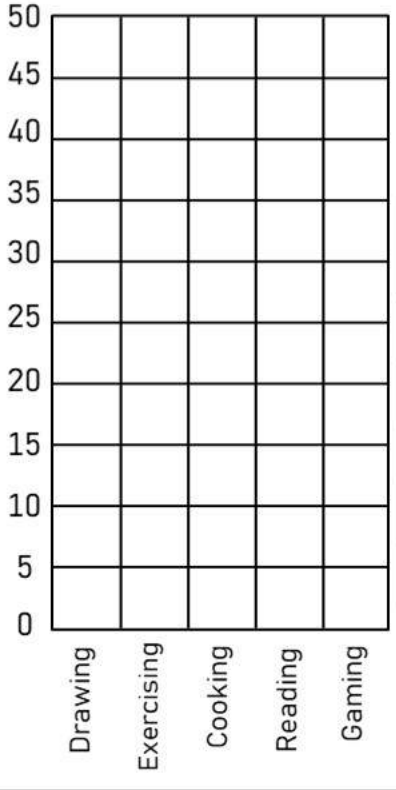
Questions Draw the bars for each of the bar graphs below



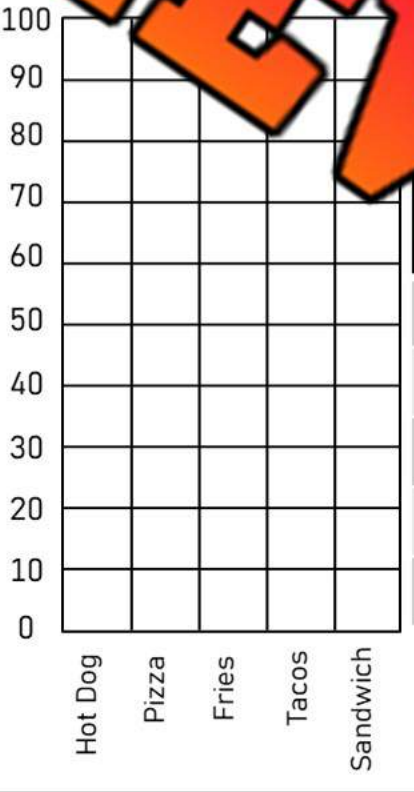
Favourite Food	# of votes
Pizza	16
Chocolate	14
Spaghetti	8
Ice Cream	12
Chicken Wings	



Player	# of points
Jake	21
Nathan	12
Courtney	18
Ashley	28
Luke	8



Favourite Hobby	# of votes
Drawing	30
Exercising	11
Cooking	29
Reading	13
Gaming	45



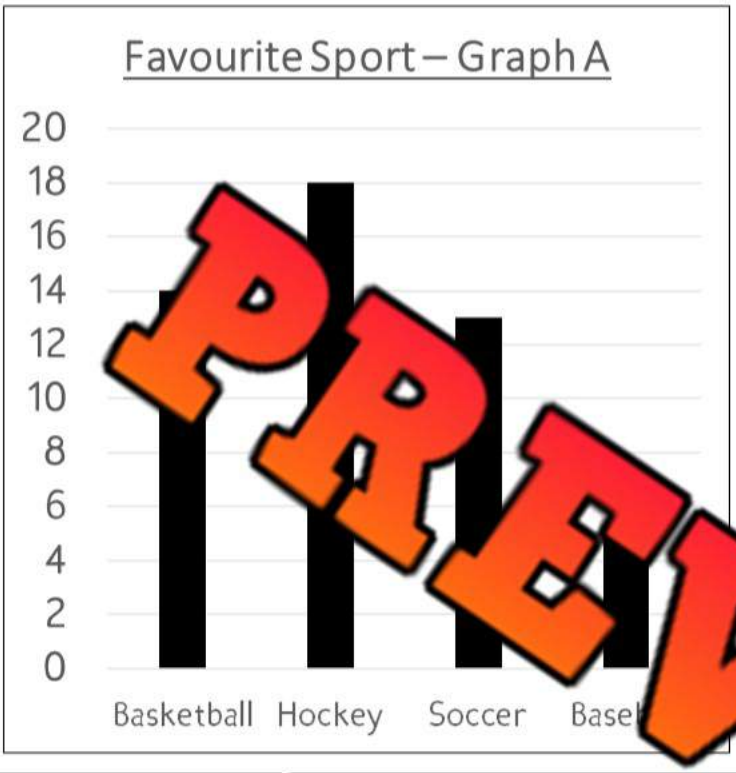
Favourite Food	# of votes
Hot Dog	40
Pizza	80
Fries	75
Tacos	35
Sandwich	25

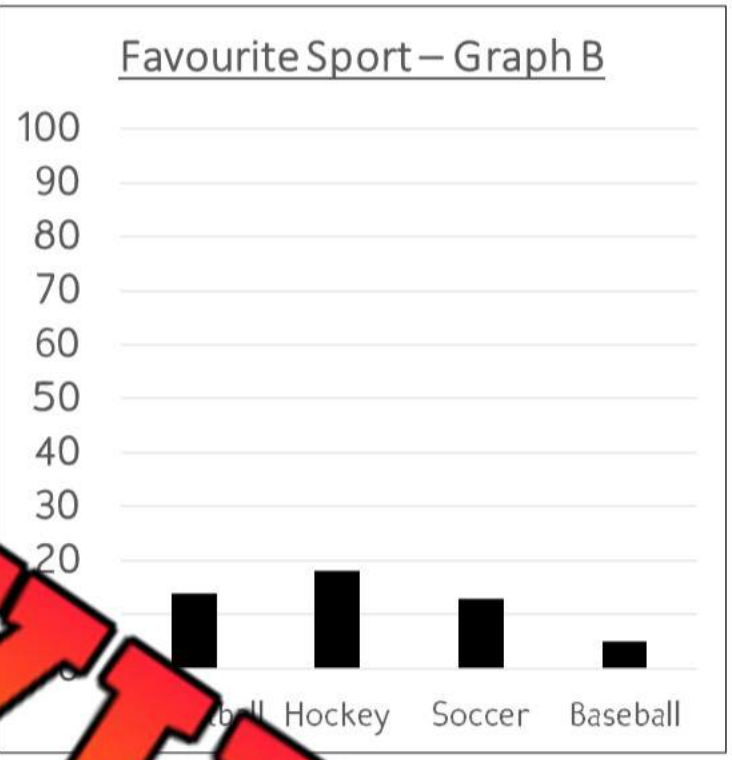
Name: _____ 25

Curriculum Connection
SP.3

Examining Scale - Favourite Sport

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





Questions What do you notice abou wo

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?

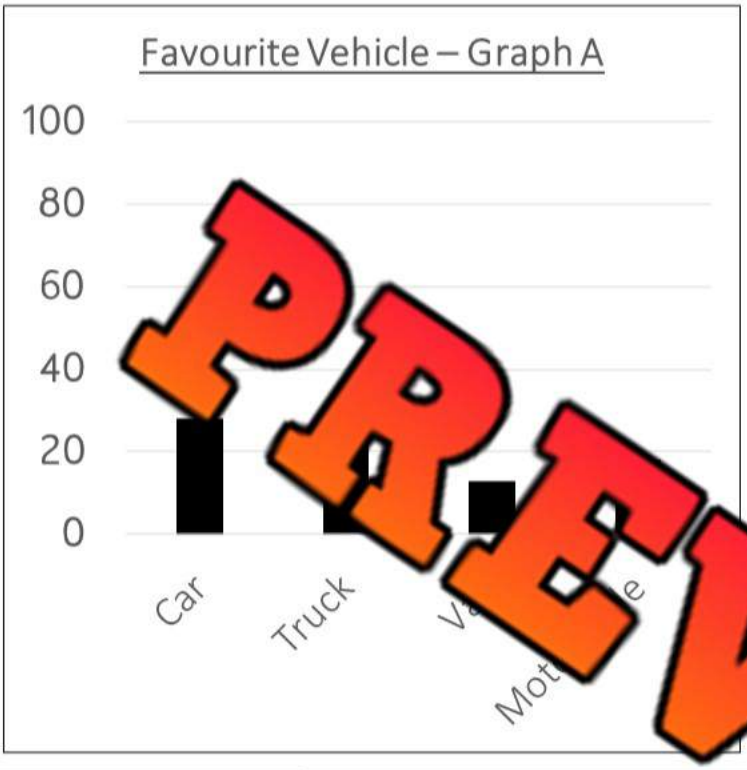
e) Why is it important to choose an appropriate scale?

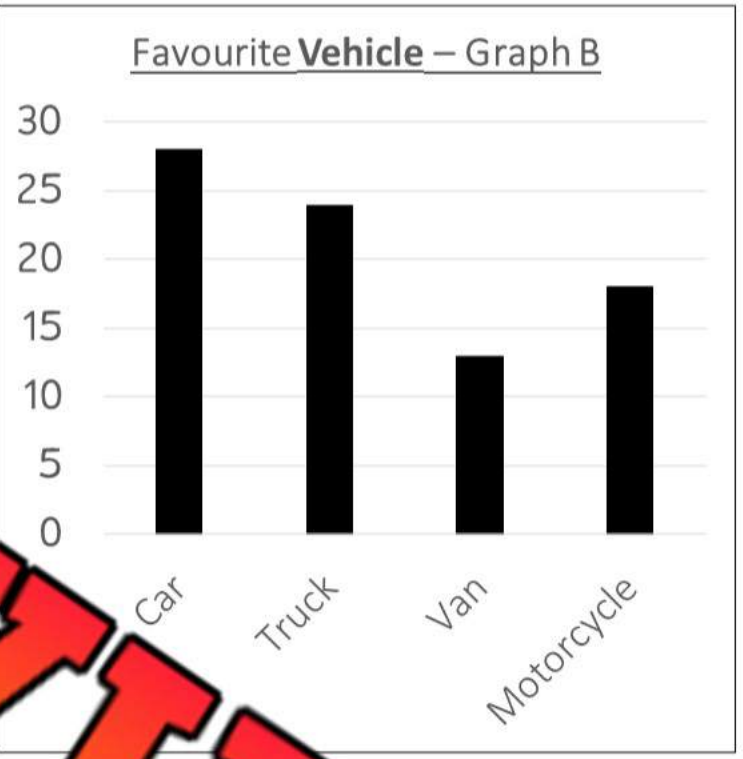
Name: _____ 26

Curriculum Connection
SP.3

Examining Scale - Favourite Vehicle

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





Questions

What do you notice abo e tw a

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 better? Why?

e) What other scales could you use for the data?

- Go up by _____
- Go up by _____

Name: _____ 27

Curriculum Connection
SP.3

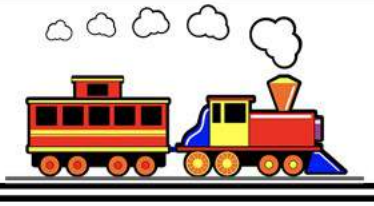
Creating Scale

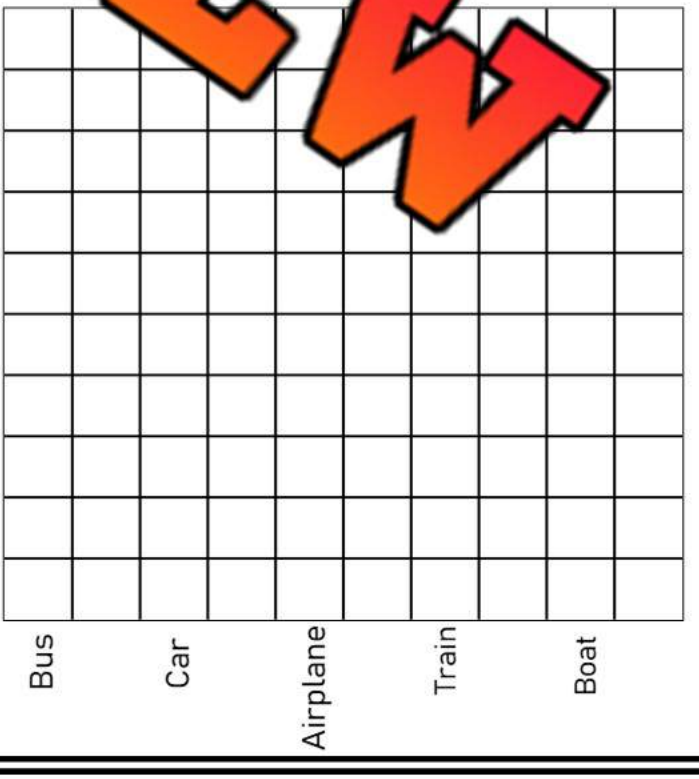
When you create a scale for your graph, you need to look at the data so you can decide what to go up by. The goal is to create a graph that will fill the graph area.

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.

Favourite Dessert	# of votes
Brownie	21
Ice Cream	27
Cookie	15
Donut	12
Pudding	9

Favourite Transportation Method	# of votes
Bus	11
Car	49
Airplane	91
Train	70
Boat	82



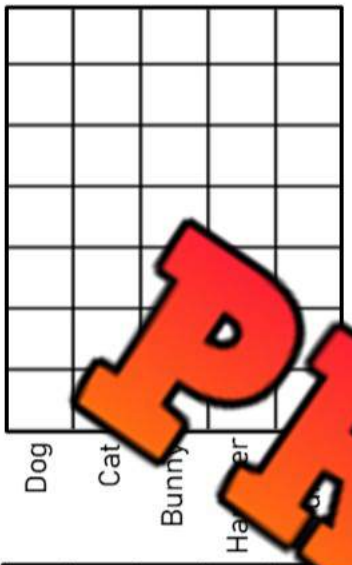


Name: _____ 28

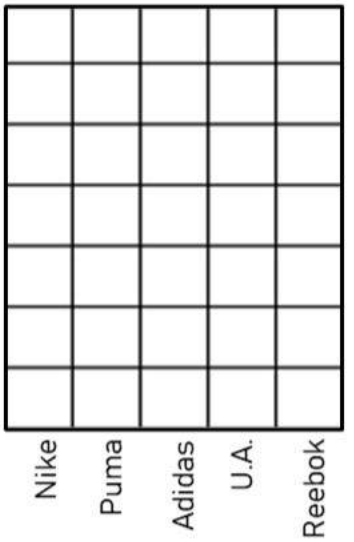
Curriculum Connection
SP.3

Creating Scale

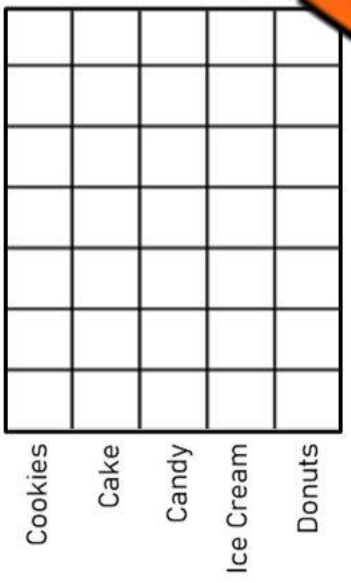
Questions 1. Read the numbers and decide which scale to use 2. draw your bar graphs



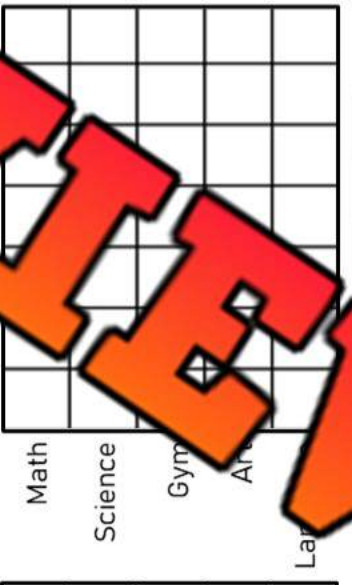
Pets	Votes
Dog	3
Cat	12
Bunny	18
Hamster	15
Turtle	9



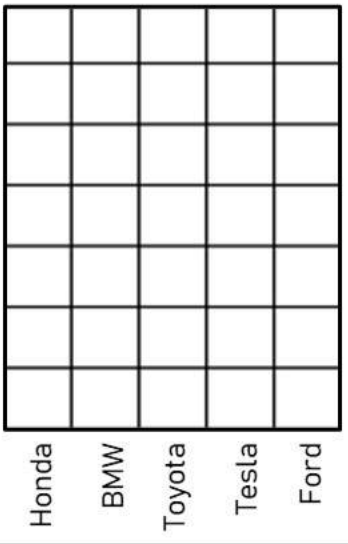
Brand	Votes
Nike	10
Puma	6
Adidas	3
Under Armour	8
Reebok	12



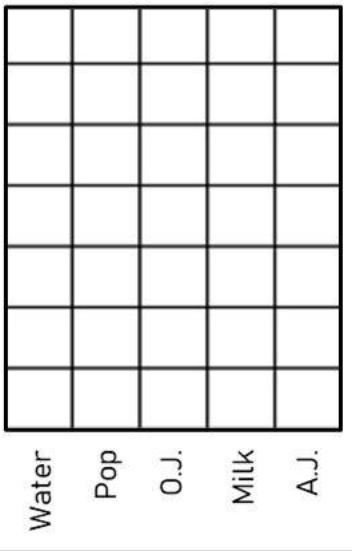
	Votes
Cookies	1
Cake	
Candy	35
Ice Cream	24
Donuts	12



Subject	Votes
Math	8
Science	22
Gym	65
Art	41
Language	30



Cars	Votes
Honda	200
BMW	450
Toyota	225
Tesla	675
Ford	350



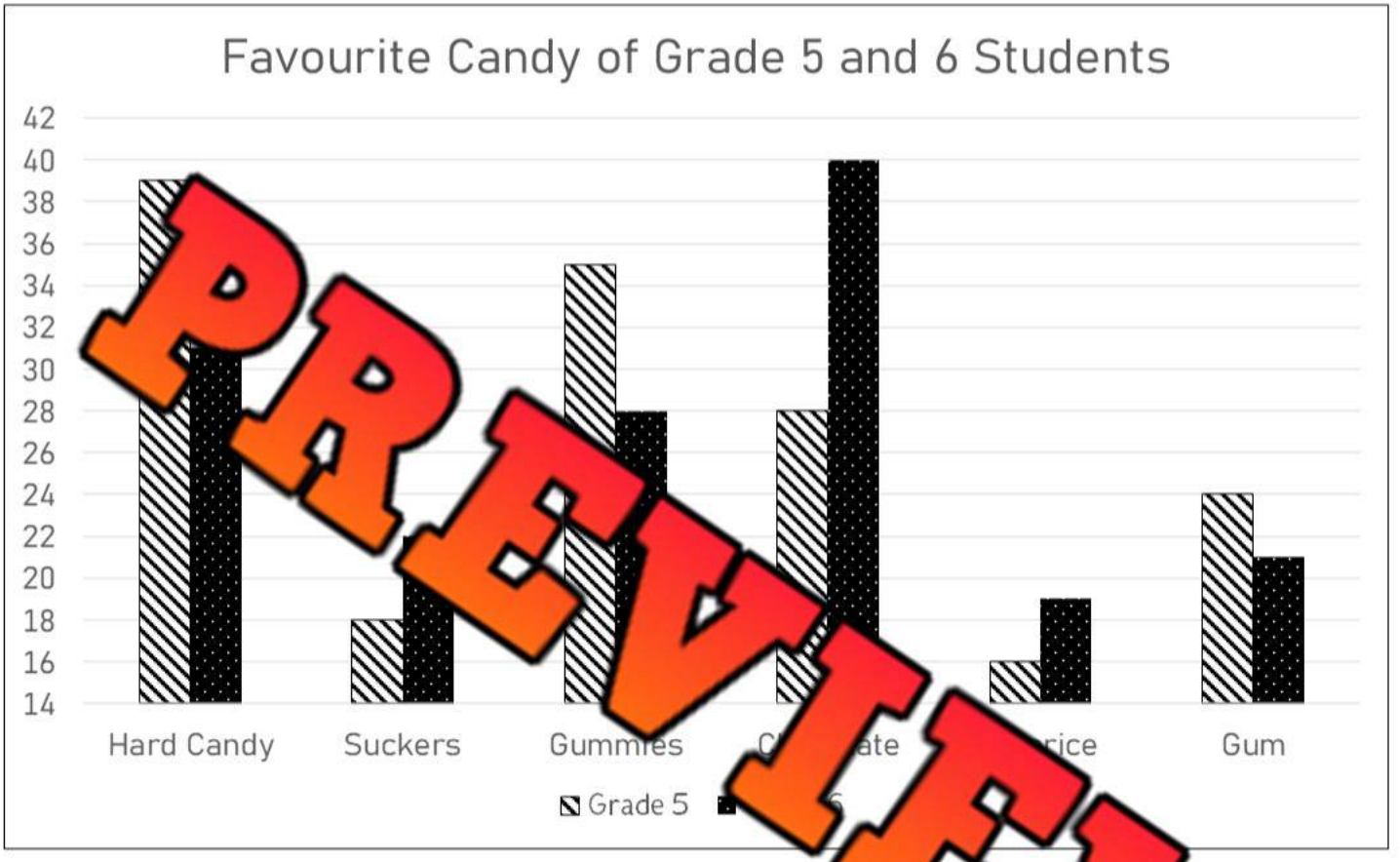
Drinks	Votes
Water	700
Pop	1300
Orange Juice	550
Milk	150
Apple Juice	825

Name: _____ 37

Curriculum Connection
SP.1

Interpreting a Double 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 double bar graph below.



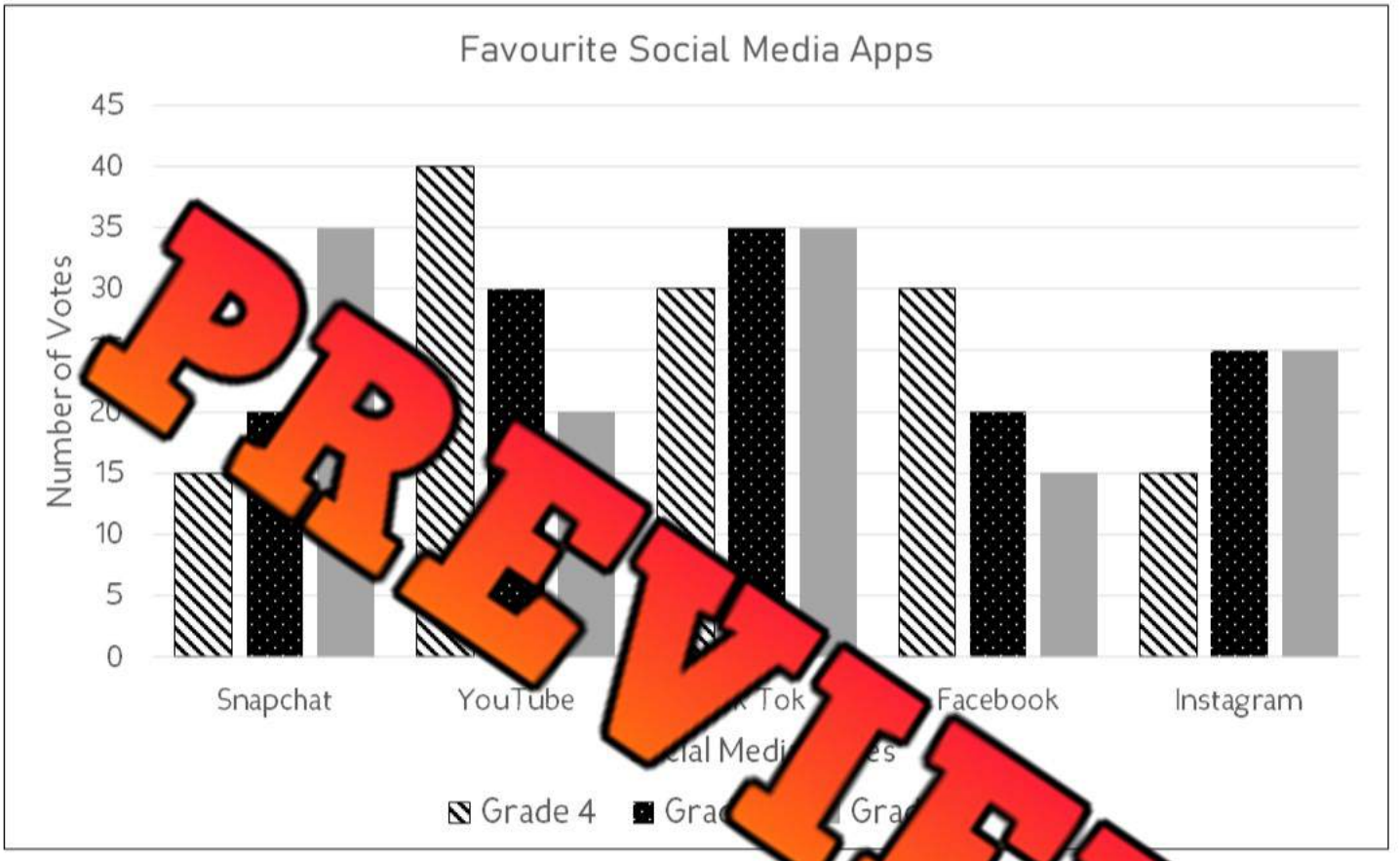
a) Which sport did the grade 5's like the most?	
b) Which sport did the grade 6's like the most?	
c) Which sport got the most votes combined?	
d) How many more votes did chocolate get in total over licorice?	
e) Did more grade 5s or grade 6s participate in the survey?	
f) How many students participated in the survey?	

Name: _____ 40

Curriculum Connection
SP.1

Multiple-Bar Graph - Favourite Social Media

The students in grade 4, 5, and 6 were asked which social media app was their favourite. The results have been sorted by grade in the multiple-bar graph below.



Part 1 Fill in the frequency table by reading the bar graph above

Grades	Snapchat	YouTube	Tik Tok	Facebook	Instagram
4					
5					
6					

Part 2 Answer the questions below

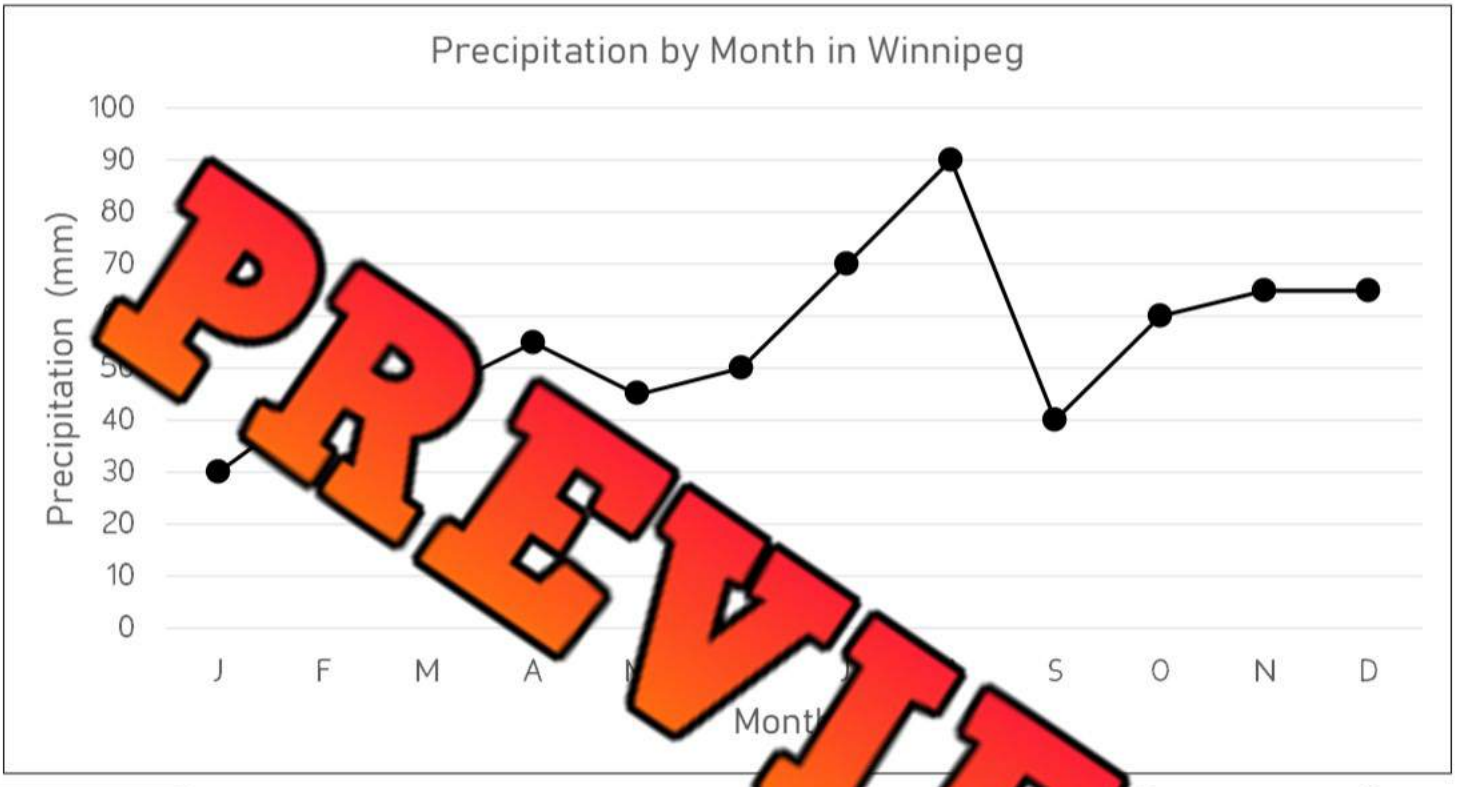
a) How many students in each grade were surveyed?	
b) Which social media was the most popular? How many votes did it get?	
c) How many more grade 4's liked YouTube than grade 6's?	

Name: _____ 44

Curriculum Connection
SP.1

Interpreting a Broken-Line Graph

Precipitation is the amount of water falling from the sky. It can be in the form of rain, snow, drizzle, sleet, or hail. The data for total precipitation in Winnipeg for 2021 has been represented in the broken-line graph below. Numbers have been rounded to the nearest 5.



Part 1

Fill in the frequency table by reading the broken-line graph

J	F	M	A	M	J	J	A				D

Part 2

Solve an argument

a) Nolan and Rachel are arguing over which time of year has more precipitation. Nolan says that more precipitation falls from January-June, but Rachel says more falls from July-December. Who is correct? Explain using data to support your answer.

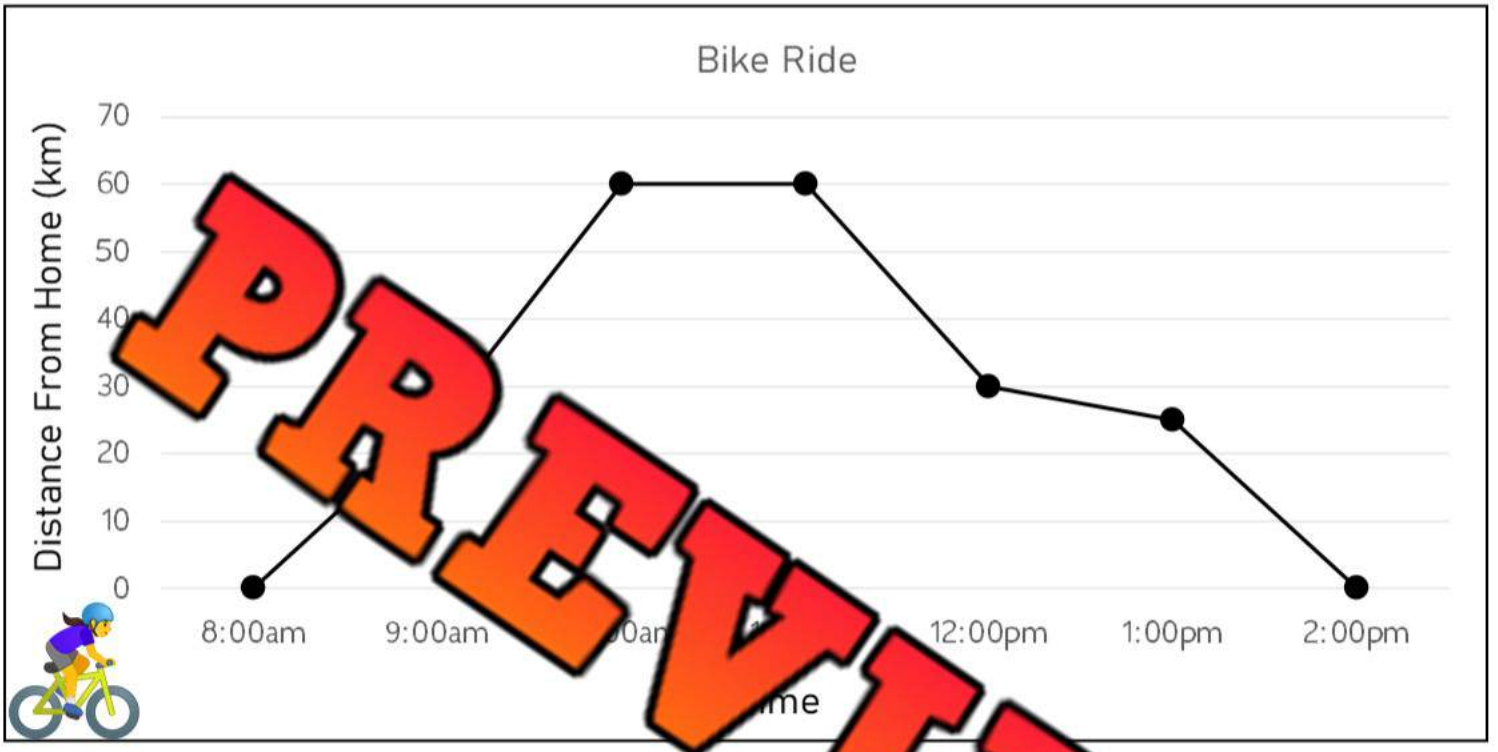
b) Rachel says the largest increase of precipitation happened from January to February, but Nolan thinks it was from September to October. Who is correct? Explain.

Name: _____ 45

Curriculum Connection
SP.1

Interpreting a Broken-Line Graph

Jessica went for a bike ride from 8:00am to 2:00pm. She stopped to enjoy some food at a park and then went home. Unfortunately, she had a flat tire on the way home, but she eventually made it.



Part 1 Fill in the frequency table by rea[illegible] br[illegible]graph above

Time							
Distance Travelled (km)							

Part 2 Answer the questions below

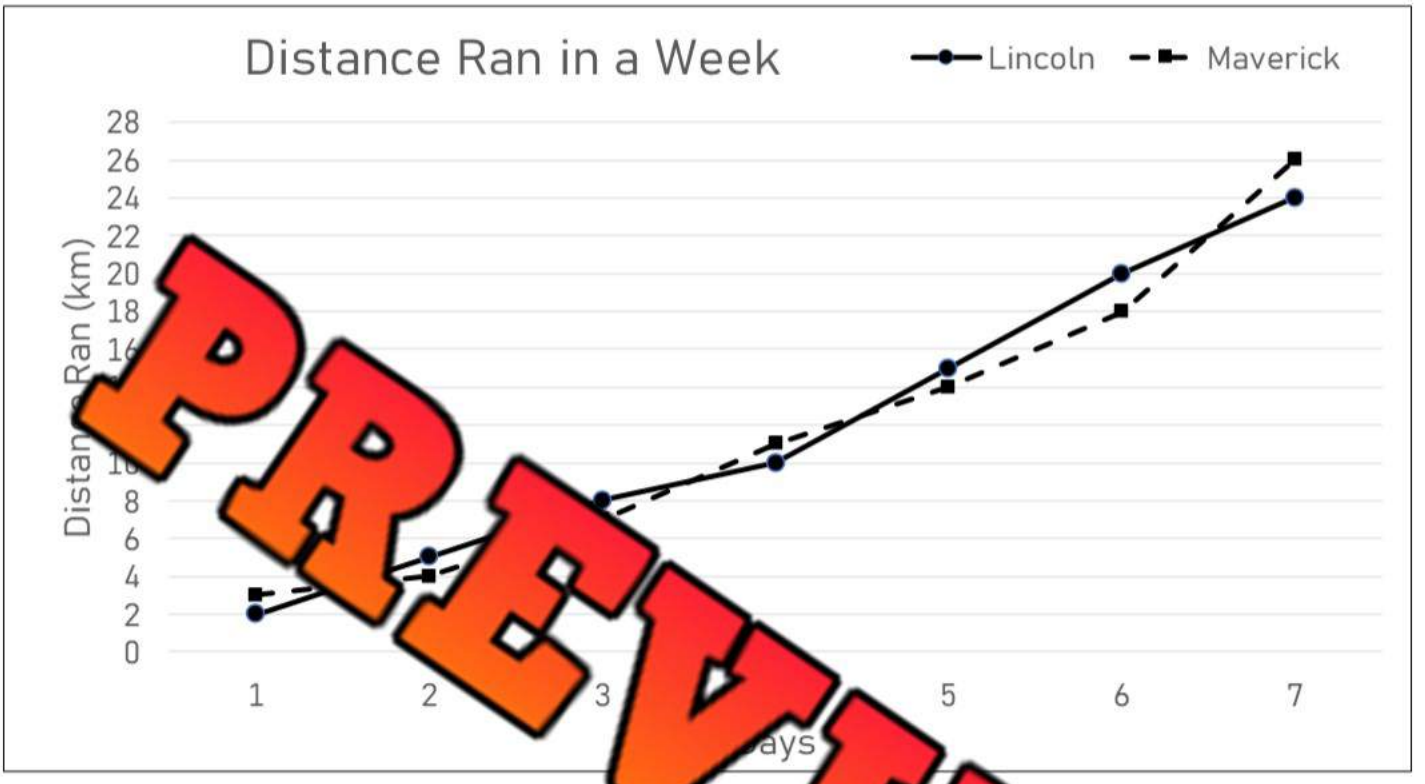
a) How many kilometres in total did Jessica travel?	
b) What time did Jessica stop at the park?	
c) When did Jessica have a flat tire?	
d) What hour did Jessica travel the most kilometres?	
e) How many hours was Jessica biking for?	

Name: _____ 46

Curriculum Connection
SP.1

Interpreting Double Broken-Line Graph

Lincoln and Maverick had a contest to see who could run the most kilometres in a week. Their results are displayed in the broken-line graph below.



Questions

Answer the quest[illegible]below

1) Who ran more km in the week?	
2) Is the data continuous or discrete?	
3) Which day did Maverick run the most? How far did he run?	
4) Who was winning the contest after the fifth day?	
5) How many total km did the two girls run together?	
6) Which day did Lincoln run the furthest? How far did he run?	
7) How many more km did Maverick run on day 7 than Lincoln?	

Name: _____ 49

Curriculum Connection
SP.2

Collecting Quantitative Continuous Data

Quantitative continuous data is data that is collected through measuring. We don't use categories, instead we use numbers. Quite often, continuous data is collected over time – examples: minutes, days, weeks, months, or years.

Example – how many steps taken in each day for a week

Data Collection

Collect data by measuring or researching your question of interest

Question of Interest	

Use the [illegible] below to organize your data.

Interpreting The Data

1) Was your data collected from a primary or secondary source?

2) What conclusions can you draw from your data? What did you learn?

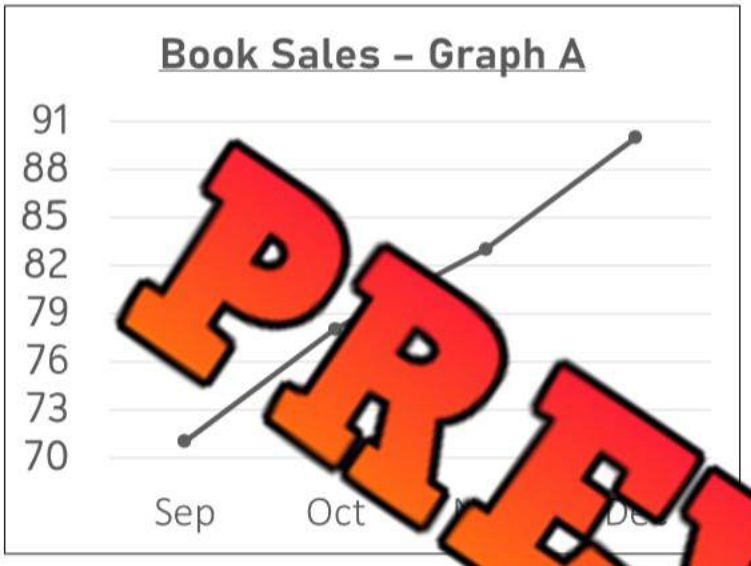
3) What surprised you about the data you collected? Include at least 1 surprise.

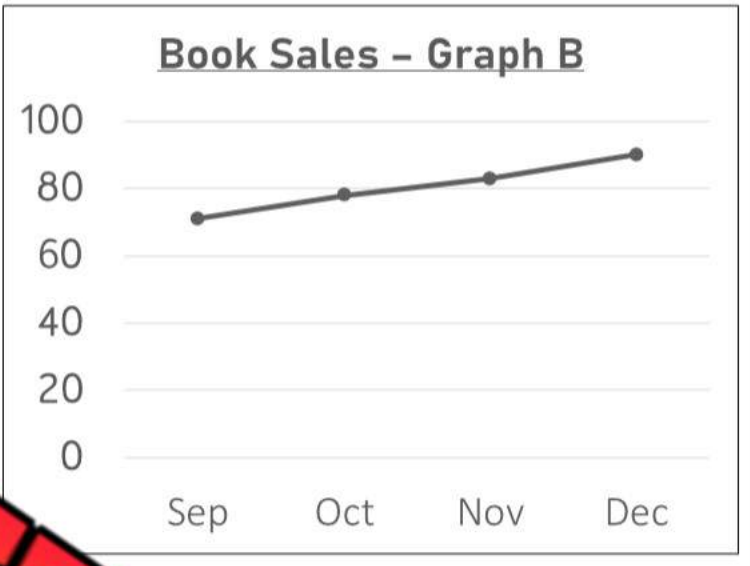
Name: _____ 61

Curriculum Connection
SP.1

Misleading Graphs

Imagine you are selling a book you wrote. You want to show your customers that your book is selling like crazy, and they should buy it now before it sells out. Which graph would you choose for an infographic?





Questions

What do you notic[illegible] two graphs?

a) Which graph would you use to show custom[illegible] that [illegible]les have been growing massively? Why?

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

c) How many sales were made from September to December?

d) Does graph A make it seem like more books were sold? Explain.

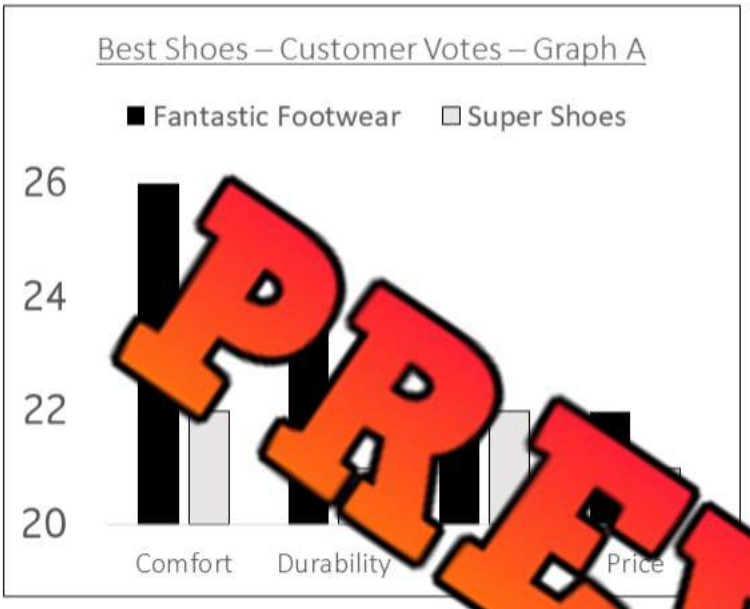
d) Why is it important to read a graph carefully?

Name: _____ 62

Curriculum Connection
SP.1

Misleading Graphs

Fantastic Footwear is running an ad campaign comparing their products versus their competitor, Super Shoes.



Questions

What do you notic[illegible] graphs?

a) Which graph would you use if you were Fant[illegible] Foo[illegible]? Why?

b) How many more votes in total did Fantastic Footwear get o[illegible] S[illegible]oes?

c) Are Fantastic Footwear shoes a lot better than Super Shoes? Explain.

d) Why would advertisers use charts like this to sell their products?

Name: _____ 65

Unit Quiz - Data Literacy

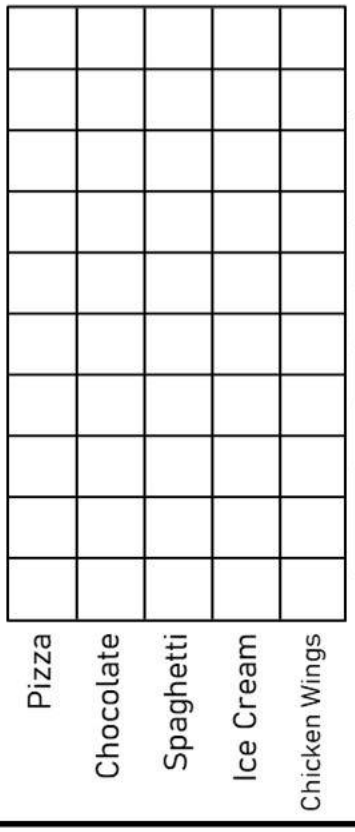
Part 1 Read the description of the data and circle if it is quantitative or qualitative

1) Favourite music genre	Quantitative	Qualitative
2) Heights of students in your class	Quantitative	Qualitative
3) Number of students in each classroom	Quantitative	Qualitative

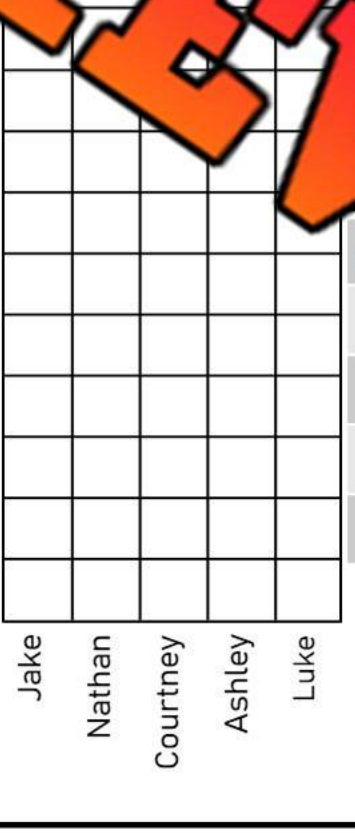
Part 2 Read the description of the data and circle if it is discrete or continuous

1) Temperature over a month long time period	Discrete	Continuous
2) How many siblings each student in class has	Discrete	Continuous
3) How tall a tree grows over a year period	Discrete	Continuous

Part 3 Draw the bars for each of the following graphs and calculate the averages



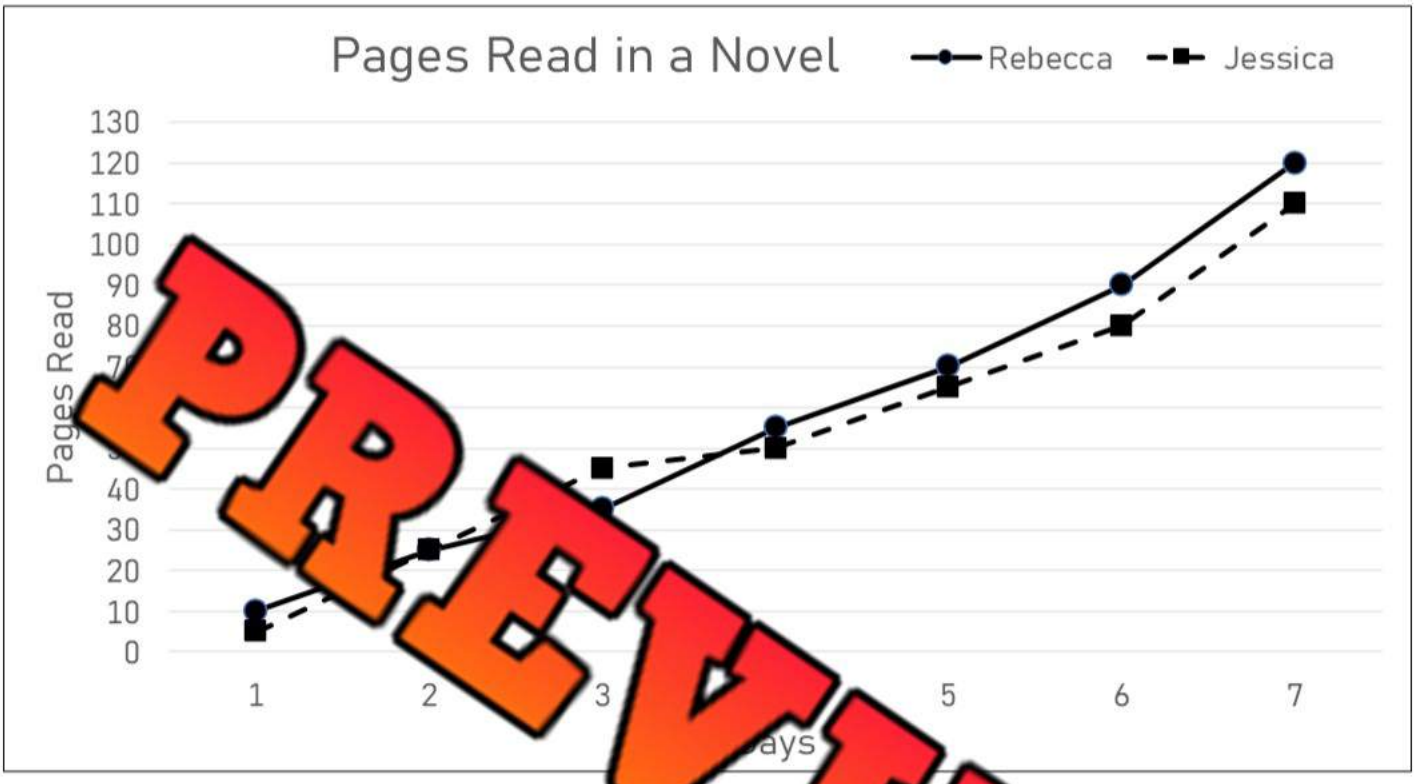
Favourite Food	# of votes
Pizza	27
Chocolate	15
Spaghetti	12
Ice Cream	15
Chicken Wings	21



	# of points
[illegible]	70
Nathan	60
Courtney	30
Ashley	70
Luke	90

Part 4 — Read the graph and answer the questions below

Rebecca and Jessica had a contest to see who could read more pages in their novels in 7 days.



Questions — Answer the questions below

1) Who read more pages in the 7 days?	
2) Is the data continuous or discrete?	
3) Which day did the two girls read the most pages?	
4) Which day were they tied?	
5) How many total pages did the two girls read together?	
6) Which day was Jessica ahead?	
7) How many pages did Rebecca read from day 6 to 7?	

Part 5 Graph the data below in a broken-line graph

The data for the amount of snowfall in Winnipeg is presented in the table below. Graph the data as a broken-line graph. Make sure to label your graph properly.

Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Snowfall (cm)	8	24	19	50	75	9	5

1) Which month had the most snowfall? _____

2) Which month had the least snowfall? _____

3) How much did it snow in total during these 7 months? _____

4) Is this data discrete or continuous? _____

5) What conclusions can you make from this data? List at least 2.

_____

_____

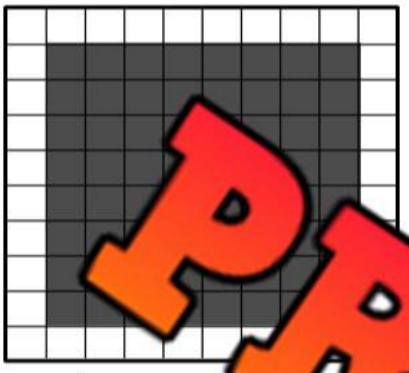
Name: _____ 69

Curriculum Connection
SP.4

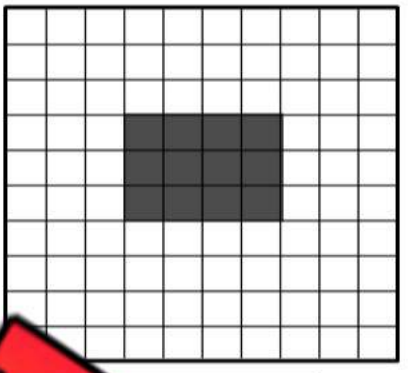
Finding Probability Using Fractions, Decimals, and Percents

Imagine throwing a dart blindly at wall with a target on it. The probability of hitting the target depends on the size of it compared to the wall. Complete the questions below using the shaded in area as the target and the wall as the entire grid.

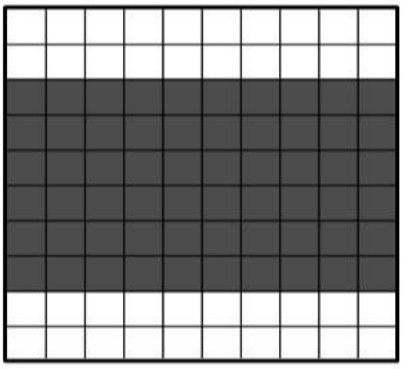
Questions Represent the probability of hitting the target using a fraction

1) 

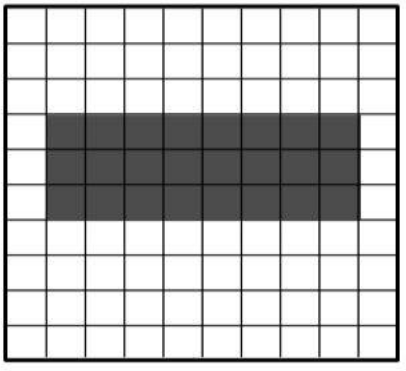
Fraction

2) 

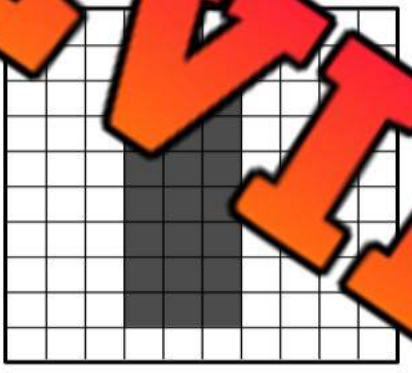
Fraction

3) 

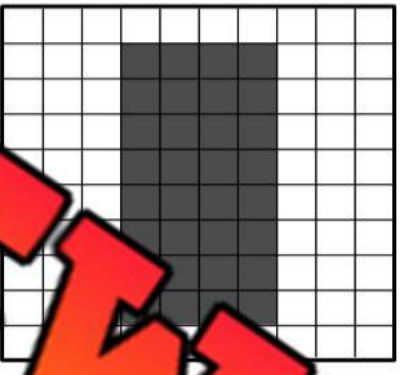
Fraction

4) 

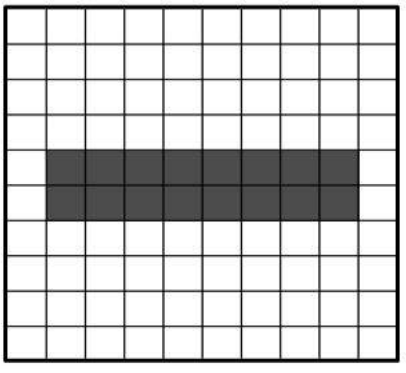
Fraction

5) 

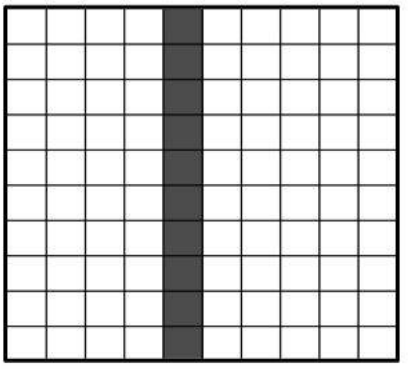
Fraction

6) 

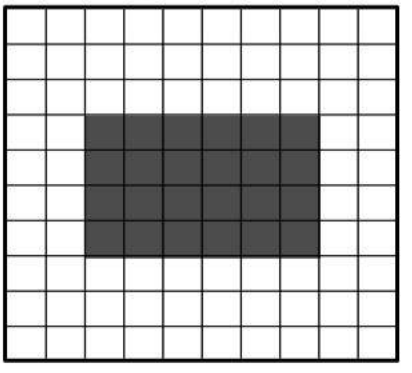
Fraction

7) 

Fraction

8) 

Fraction

9) 

Fraction

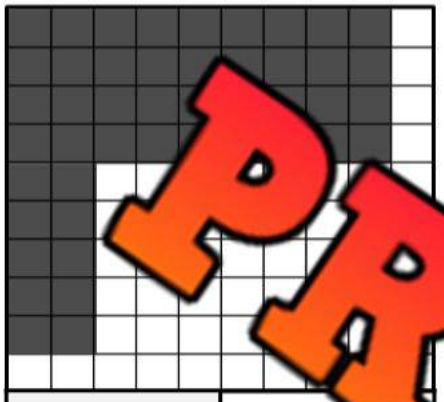
Name: _____ 70

Curriculum Connection
SP.4

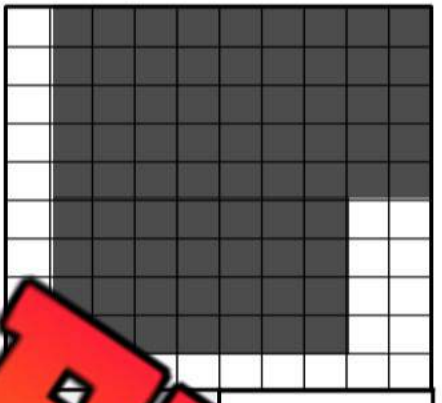
Representing Probability Using Fractions

Claire is throwing darts at differently shaped dart boards. What is the probability out of 100 that she hits the dart board?

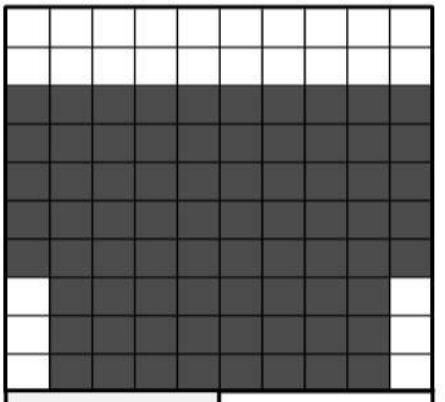
Questions Represent the probability of hitting the target using a fraction



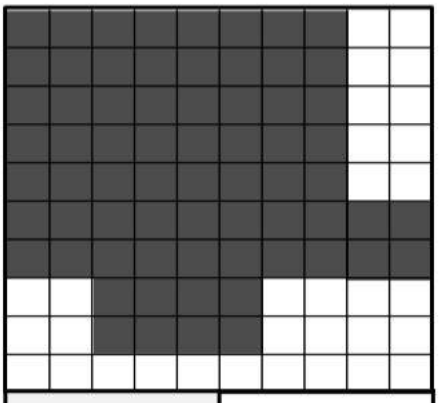
1) Fraction /100



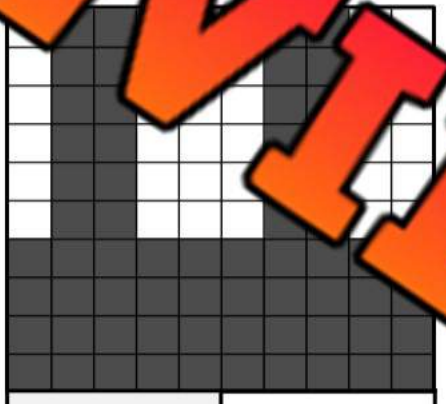
2) Fraction



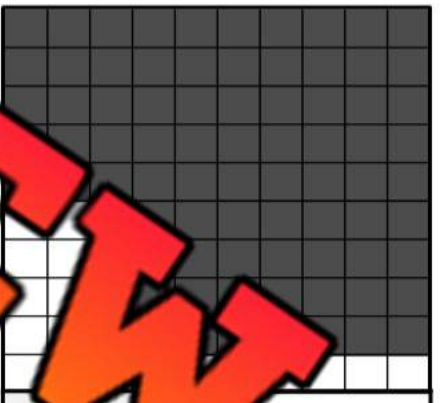
3) Fraction



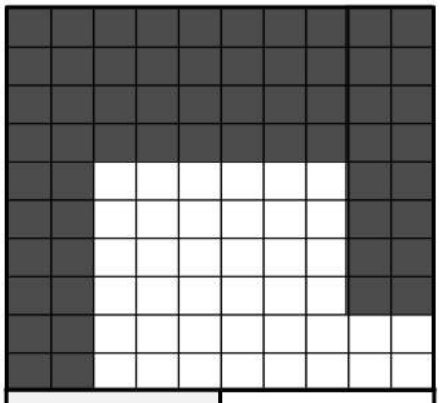
4) Fraction



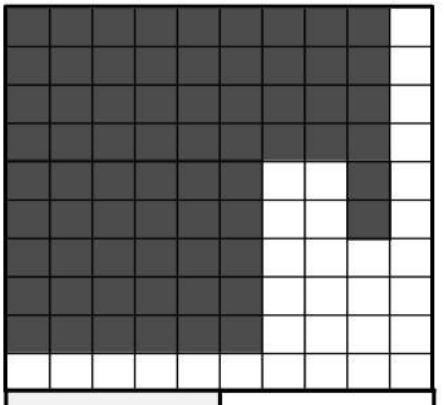
5) Fraction



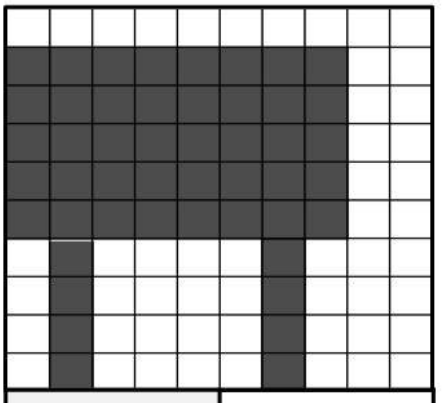
6) Fraction



7) Fraction



8) Fraction



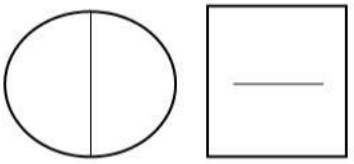
9) Fraction

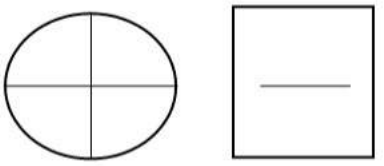
Name: _____ 72

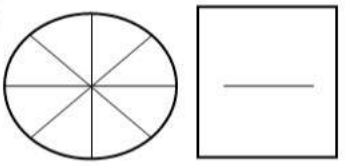
Curriculum Connection
SP.4

Probability - Finding Halves

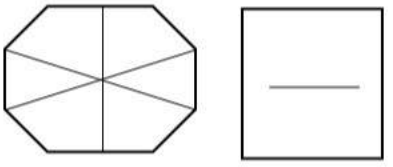
Part 1 Shade in half of the shapes. Write the fraction of shaded in shapes to total shapes

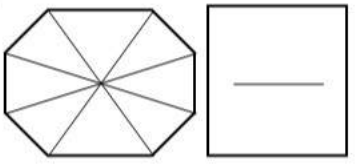
a) 

b) 

c) 

d) 

e) 

f) 

Part 2 a[illegible]half o[illegible]umbers below? Write the fraction

#	Number	Half	Fraction
1	20	10	$\frac{\quad}{20}$
2	18		
3	24		
4	42		
5	48		
6	64		
7	82		

#	Number	Half	Fraction
[illegible]	50		
[illegible]	6[illegible]		
10	88		
11	94		
12	76		
13	62		
14	98		

Name: _____ 73

Curriculum Connection
SP.4

Probability - Quarters

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

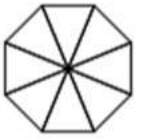
a)  ____

b)  ____

c)  ____

d)  ____

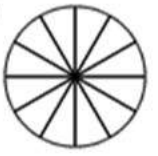
e)  ____

f)  ____

Part 2 ade in ters of the shapes. Write the fraction of shaded in shapes

a)  ____

 ____

c)  ____

Part 3 Fill in the tables b

	#	One Quarter	Fraction
1	20	5	$\frac{5}{20}$
2	40		
3	80		
4	16		
5	8		
6	12		
7	44		

	#	Quarters	Fraction
1			$\frac{45}{60}$
2	88		
3	52		
4	68		
5	100		
6	36		
7	76		

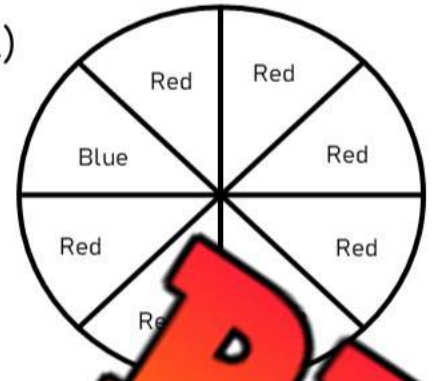
Name: _____ 74

Curriculum Connection
SP.4

Representing Probability Using Fractions - Spinner

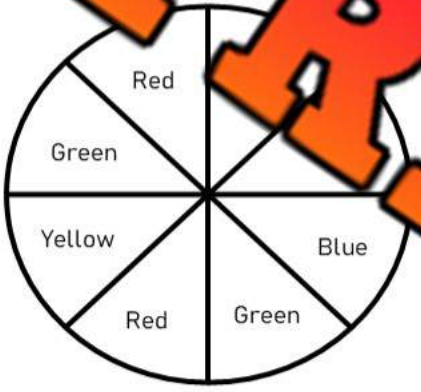
Questions Read the spinner and represent the probability using a fraction

1)



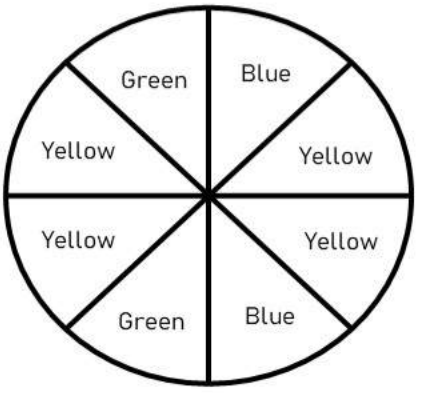
	Fraction
a) Spinning a red	_____
b) Spinning a blue	_____
c) Spinning a blue or red	_____

2)



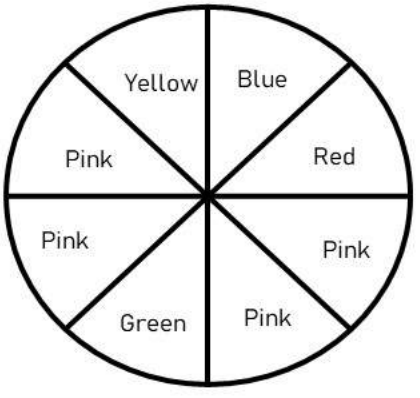
	Fraction
ing a blue	_____
Spin le	_____
c) Sp a yello ed	_____

3)



	Fraction
a) Spinning a green or	_____
b) Spinning a yellow	_____
c) Spinning a yellow, green or blue	_____

4)



	Fraction
a) Spinning a blue or green	_____
b) Spinning a blue or yellow	_____
c) Spinning a pink	_____

Name: _____ 76

Curriculum Connection
SP.4

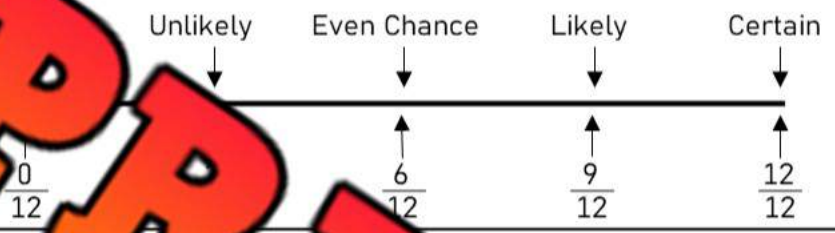
Describing the Likelihood of Events

Cookie Jar

There were 12 cookies in a cookie jar. 7 of the cookies were chocolate chip (cc), 2 were oatmeal raisin (or), and 3 were double chocolate (dc).

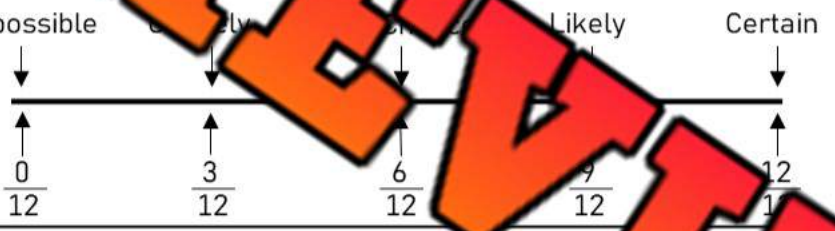
Questions Circle the probability term and write the fraction

1. What is the likelihood of you picking out a double chocolate cookie?



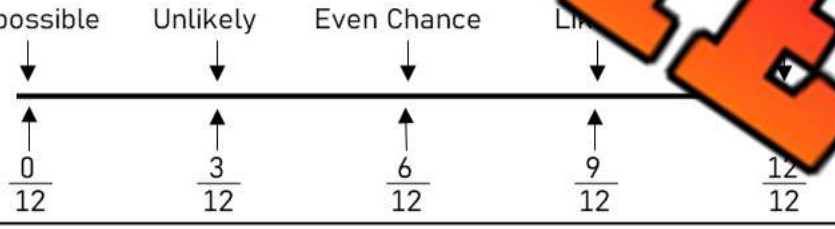
Fraction

2. What is the likelihood of you picking out a chocolate chip cookie?



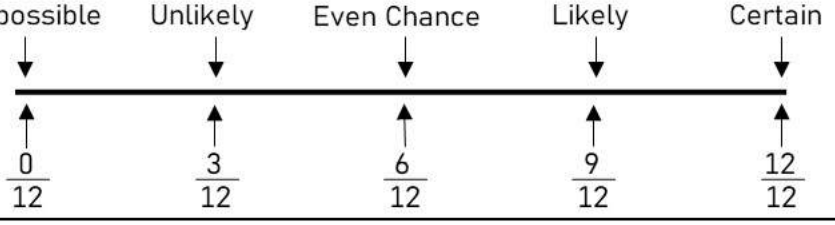
Fraction

3. What is the likelihood of you picking out an oatmeal raisin cookie?



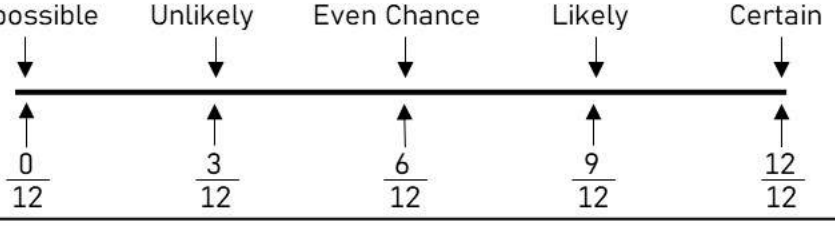
Fraction

4. What is the likelihood of you picking out a chocolate chip cookie or an oatmeal raisin cookie?



Fraction

5. What is the likelihood of you picking out an oatmeal raisin cookie or a double chocolate cookie?



Fraction

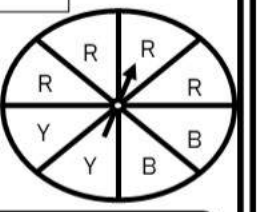
Name: _____ 77

Curriculum Connection
SP.4

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.



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?

Impos... | Unlikely | Even Chance | Likely | Certain

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

Fraction

2. What is th... ...od o... ...ing on a blue part?

Impossible | ... | Likely | Certain

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

Fraction

3. What is the likelihood of landing on a r... ...or ye... ...art?

Impossible | Unlikely | Even Chance | L... | C...

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

Fraction

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

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

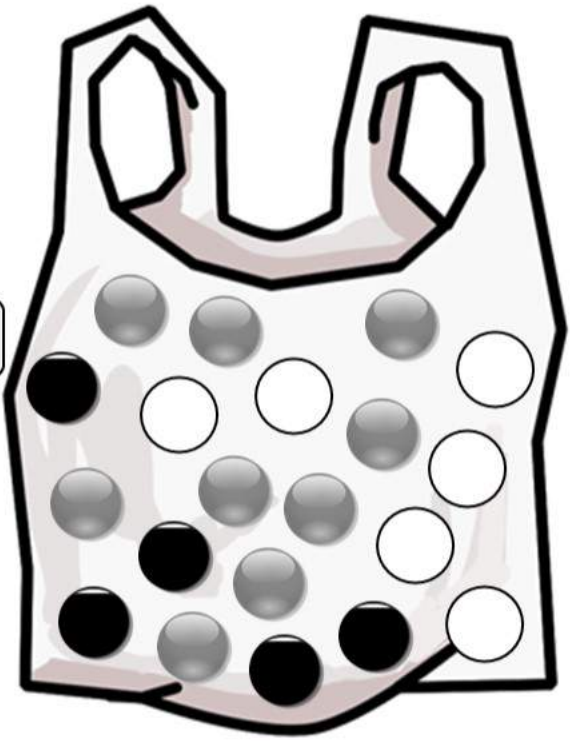
Name: _____ 78

Curriculum Connection
SP.4

Describing the Likelihood of Events

Marbles

There are 20 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

Marble	Frequency
Black	
Grey	
White	

Questions Represent the probability of pulling out a marble as a fraction

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

Name: _____ 79

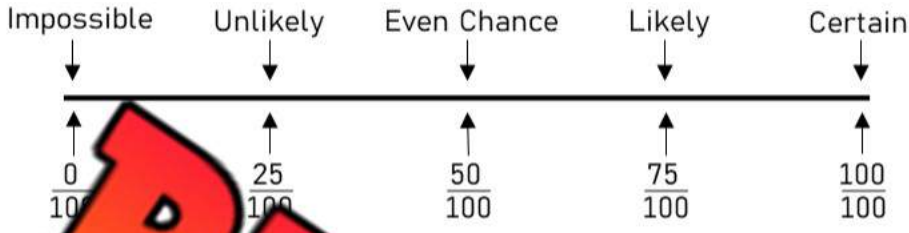
Curriculum Connection
SP.4

Describing the Likelihood of Events - Probability Line

Questions

Circle the probability term and write the fraction

1) It has rained 13 out of the last 50 days. What is the probability it will rain tomorrow?

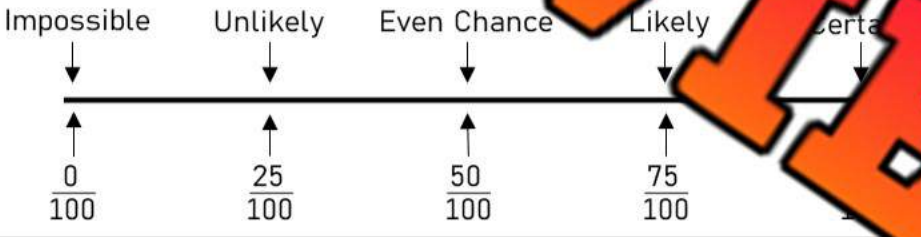


Fraction

2) Ste… fr…s out of 25. What is the probability he will make his next shot?

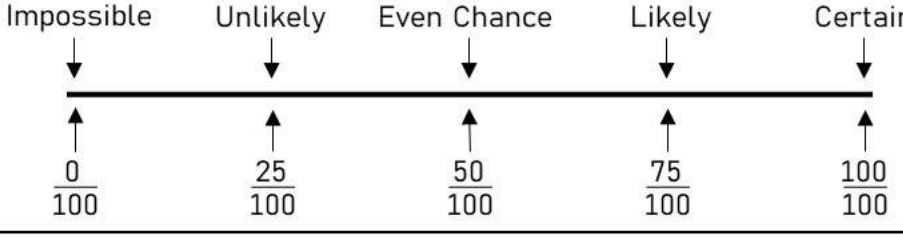
Fraction

3) Heather hits 4 out of 10 balls in …seb… …s t… …bability she will hit the next ball?



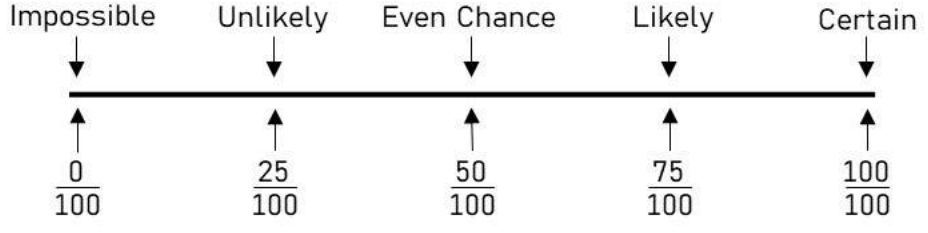
Fraction

4) Sam scores 42 out of 100 three-point shots. What is the chance h… …shot?



…tion

5) In a box of 12 chocolates, 3 are caramel. What is the probability you will get a caramel?



Fraction

Name: _____ 80

Curriculum Connection
SP.4

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 probably is 7/10.

Part 1

Write the theoretical probability of the events happening below

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

Part 2

Experimental Probability - Flip a [illegible] time[illegible] cord your results

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

H[illegible]	Tails
	20

2) Perform the experiment by flipping a coin 20 times. Record how many hea[illegible] tails you get

	Tallies	Total
Heads		
Tails		

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

Name: _____ 81

Curriculum Connection
SP.4

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 six times = 2/6

Part 1 — Circle if the example is theoretical or experimental

Example	Theoretical or Experimental
1) If your b… …verage is 0.300, you should get a hit 3 out of 10 time…	Theoretical Experimental
2) You fl…d a co… …and got heads 4 times	Theoretical Experimental
3) You made 4 out o… …ree… …s… …a basketball game	Theoretical Experimental
4) You won a 50/50 draw after b… …g 1 t… …sold.	Theoretical Experimental
5) There is a 40% chance that it will rain today	Theoretical …rimental
6) You have a ¼ chance of pulling out a spade from a deck of cards	…oretical …

Part 2 — Is the example theoretical or experimental probability? Wr… …e fraction

Example	Theoretical or Experimental	Fraction
1) You should get a hit in baseball twice in every 5 at bats.		
2) The Weather Network says there is a 75% chance of it snowing today.		
3) You pulled a diamond card 7 out of 20 times from a deck of cards		

Name: _____ 82

Curriculum Connection
SP.4

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 rea the drawer 50 times without looking, what is the theoretical probability that you w ch of the colours below.

of Soc	White	Yellow	Black	Green	Red
Fraction					

Part 2 Complete the e rim xperimental probability

2) Close your eyes and point to a random pot in th bel ith 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	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.

_____

_____

Name: _____ 83

Curriculum Connection
SP.4

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

Write the theoretical probability of the events happening below

	Theoretical Probability	Fraction
1)	g a 1 on d dice	
2)	Rolling a sided	
3)	Rolling a 2 or a 5 ed	
4)	Rolling a 6 on a 6-sided	

Part 2

Follow the instructions below t mple 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						

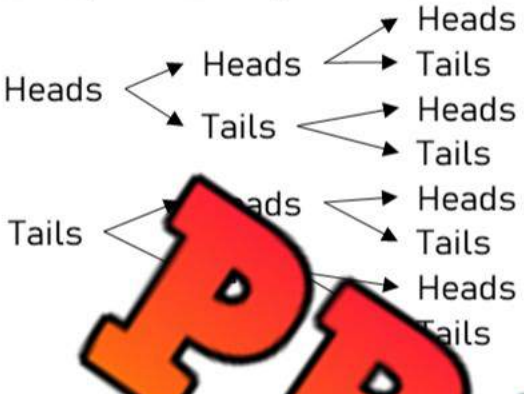
3) Did the experimental probability get closer to the theoretical probability when you rolled the dice more times? Explain why this happens.

Name: _____ 84

Curriculum Connection
SP.4

Theoretical Probability of Two Events - Tree Diagrams

A tree diagram is used to show the probability of an outcome happening when we have more than one event



Combinations
HHH
HHT
HTH
HTT
THH
THT
TTH
TTT

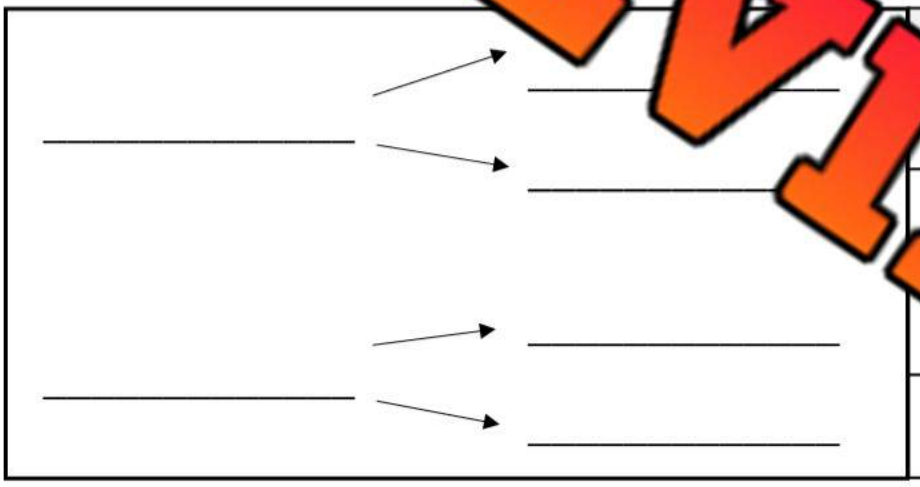
If you flip a coin three times, you could have 8 different combinations of outcomes.

HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

This means you have a 1/8 probability of flipping three heads or tails in a row.

Questions Di[illegible] diagra[illegible]w how many different combinations you could have

An ice cream shop sel[illegible] am and two different cones. Show the combinations of ice cream [illegible] have[illegible] diagram below.



Combinations

Menu
- Waffle cone (W)
- Sugar cone (S)
- Chocolate (C)
- Vanilla (V)

1) How many combinations of ice cream could you have? _____

Combinations	Fraction
a) Waffle cone with chocolate:	
b) Waffle cone with vanilla:	
c) Sugar cone with chocolate:	
d) Sugar cone with vanilla:	

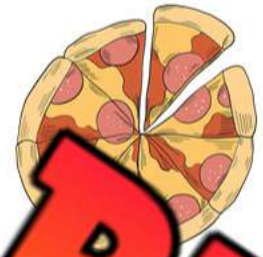
Name: _____ 85

Curriculum Connection
SP.4

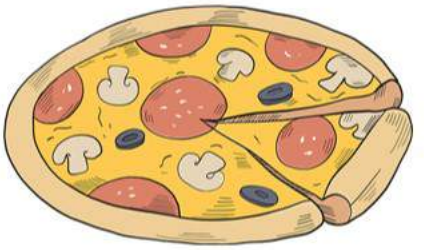
Theoretical Probability of Two Events - Tree Diagrams

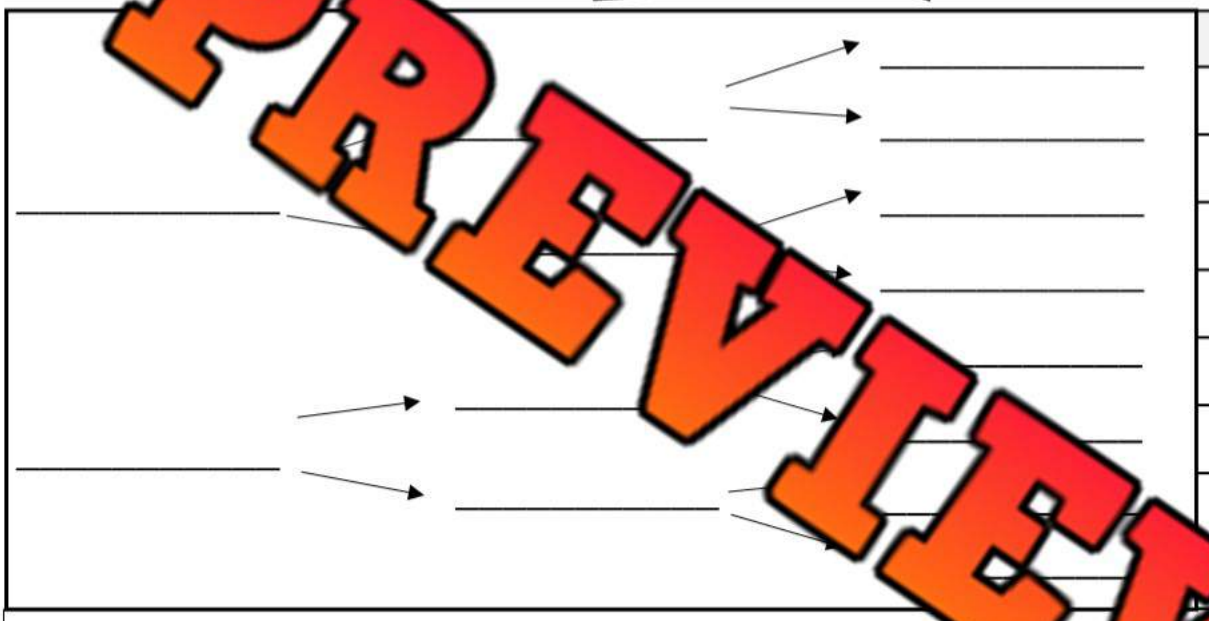
Questions Draw a tree diagram to show how many different combinations you could have

A pizza shop sells thin and thick crust pizza. They have 2 types of cheese and 2 types of toppings. Check out their menu and draw a tree diagram to show all the combinations of pizza.



Menu
- Thin crust (THIN)
- Thick crust (THICK)
- Mozza cheese (MC)
- Cheddar cheese (CC)
- Pepperoni (P)
- Mushrooms (M)





Combinations

1) How many combinations of pizza could you have? _____

What is the probability of a customer ordering a...	Fraction
2) Thin crust with mozza cheese and pepperoni	
3) Thin crust with cheddar cheese and mushrooms	
4) Thick or thin crust with mozza and pepperoni	
5) Thick crust with mozza or cheddar cheese and mushrooms	
6) Thin crust with cheddar or mozza cheese and mushrooms or pepperoni.	
7) Thin or thick crust with cheddar or mozza cheese and pepperoni	

Name: _____ 86

Curriculum Connection
SP.4

Drawing Tree Diagrams

Questions Draw a tree diagram to help you find the probability of different combinations

A restaurant sells hot dogs, sausages, and cheeseburgers. They also have toppings and sauces. What is the probability a customer will order a specific combination of food, topping, and sauce?

Food	Topping	Sauce
Hot Dog (H)	Onion (O)	Ketchup (K)
Sausage (S)	Pickles (P)	Mustard (M)
Cheeseburger (C)		

1) How many combinations of food could you have? _____

What is the probability of a customer ordering a...	Fraction
2) Hot dog with onion and ketchup	
3) Cheeseburger with pickles and mustard	
4) Hot dog or sausage with onion and ketchup	
5) Hot dog or sausage with onion or pickles and mustard	
6) Cheeseburger with onion or pickles and ketchup or mustard	

Name: _____ 87

Curriculum Connection
SP.4

Drawing Tree Diagrams

Questions Draw a tree diagram to help you find the probability of different combinations

You are having a surprise dessert at a party you are having. Your parents said it is either cookies or brownies. They also told you the options for the treats and icing. What is the probability of them choosing a specific combination of baked good, treat, and icing.

Baked Goods	Treats	Icing
Cookies (C)	Chocolate Chips (CC)	Vanilla (V)
Brownies (B)	Smarties (S)	Chocolate (CH)
	Raisins (R)	Caramel (CA)

1) How many combinations of food could you have? _____

What is the probability of your parents choosing...	Fraction
2) Cookies with chocolate chips and vanilla icing	
3) Brownies with raisons and caramel icing	
4) Cookies or brownies with smarties and vanilla icing	
5) Cookies or brownies with raisons or smarties and vanilla or chocolate icing	
6) Cookies with chocolate chips, smarties or raisons and vanilla or caramel icing	

Name: _____ 90

Curriculum Connection
SP.4

Experimental Probability of Two Events

Activity Complete the experiment below to find the experimental probability

Question: What is the experimental probability of getting two heads in a row when flipping a coin?

Directions
1) Flip a coin twice
2) Repea times
3) Recor esults in the frequency table

Results	Frequency
HH	
HT	
TT	
TH	

1) Fill in the ta to fi perimental probability as a fraction.

ults	Fraction
HT	
TT	
TH	

2) Fill in the table below with the theoretical probabili fra

Results	Fraction
HH	
HT	
TT	
TH	

3) If you performed this experiment 100 times instead of 30, would you be closer to the theoretical probability? Explain.

_____

_____