

Math Wizards



Grade 2 Data Management & Probability

Name: _____

Ontario Mathematics Curriculum Grades 1 to 8, 1997
Strand: Data Management and Probability
Grade: 2

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Developed by T. Tasker

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Overall Expectations:

- sort and classify objects and data using concrete materials
- collect and organize data
- create and interpret displays of data, and present and discuss the information
- demonstrate an understanding of probability and demonstrate the ability to apply probability in familiar day-to-day situations

This resource is based on Data Management & Probability Friday's. That is, every Friday a break from the current mathematical unit is taken and Data Management & Probability is studied. Therefore there are 34 activities, one for almost every Friday of the year. This method can also help make the five mathematic strands more manageable.

Data Management & Probability

Activity TWO



Today we will be completing a bar graph on the next page. Remember to:

- identify the four parts of the graph
- create an appropriate title for the graph; and
- make sure all the columns are properly labelled

When you have completed the graph, answer the following questions:

1) What does Merlin have most of? _____

2) What does Merlin need to buy? _____

3) How many pencils and erasers does Merlin have altogether?

Grade 2 DMactivity002 covers:

D1:pose questions about meanings derived from the data on graphs (eg. which was the rainiest month?)

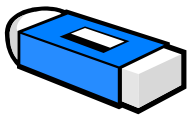
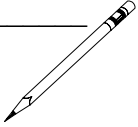


D7:identify the basic parts of a graph: labels, scales, title, data

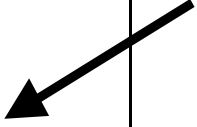
D9: construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Merlin is preparing to go back to school. He needs you to help him organize his school supplies. Would you show Merlin how to graph his school supplies so that he can easily see what he has of each kind?



7				
6				
5				
4				
3				
2				
1				
	eraser 		scissors 	



Data Management & Probability

Activity THREE



Today we will be completing a bar graph on the next page. Remember to:

- identify the four parts of the graph
- create an appropriate title for the graph; and
- make sure all the columns are properly labelled

When you have completed the graph, answer the following questions:

1) What does Merlin have most of? _____

2) What does Merlin have least of? _____

3) How many oak and maple leaves does Merlin have altogether

Grade 2 DMactivity003 covers:

D1: pose questions about meanings derived from the data on graphs (eg. which was the rainiest month?)





D7: identify the basic parts of a graph: labels, scales, title, data

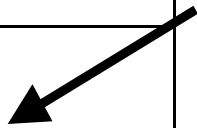
D9: construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Merlin is raking the leaves in his yard. He needs you to help him sort the leaves into different bins. Would you show Merlin how to graph his leaves so that he can easily see how many he has of each kind?



7				
6				
5				
4				
3				
2				
1				
	oak 	maple 	elm 	willow 



Data Management & Probability

Activity FOUR



Today we will be completing a bar graph on the next page. Remember to:

- identify the four parts of the graph
- create an appropriate title for the graph; and
- make sure all the columns are properly labelled

When you have completed the graph, answer the following questions:

1) What does Merlin have most of? _____

2) What does Merlin have least of? _____

3) How many sunflowers and roses does Merlin have altogether?

Grade 2 DMactivity004 covers:

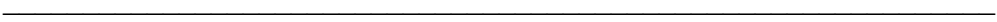
D1: pose questions about meanings derived from the data on graphs (eg. which was the rainiest month?)




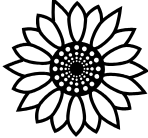
D7: identify the basic parts of a graph: labels, scale, title, data

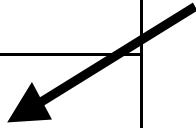
D9: construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence.

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Merlin has some beautiful flowers in his garden. He needs you to help him organize the flowers in his garden. Would you show Merlin how to graph the flowers he finds so that he can easily see how many he has of each?



7				
6				
5				
4				
3				
2				
1				
	rose 	tulip 	marigold 	sunflower 



Data Management & Probability

Activity FIVE



Today we will be completing a bar graph on the next page. Remember to:

- identify the four parts of the graph
- create an appropriate title for the graph; and
- make sure all the columns are properly labelled

When you have completed the graph, answer the following questions:

1) What does Merlin have most of? _____

2) What does Merlin have least of? _____

3) How many worms and ants does Merlin have altogether? _____

Grade 2 DMactivity005 covers:

D1:pose questions about meanings derived from the data on graphs (eg. which was the rainiest month?)

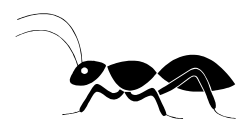


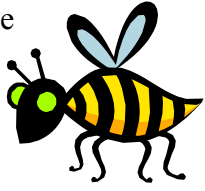
D7:identify the basic parts of a graph: labels, scale, title, data

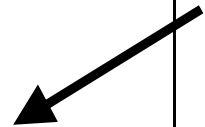
D9: construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence.

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Merlin has noticed some bugs in his garden. He needs you to help him sort through the different bugs in his garden. Would you show Merlin how to graph the bugs so that he can easily see how many he has of each kind?



7				
6				
5				
4				
3				
2				
1				
		lady bug 	earthworm 	bee 



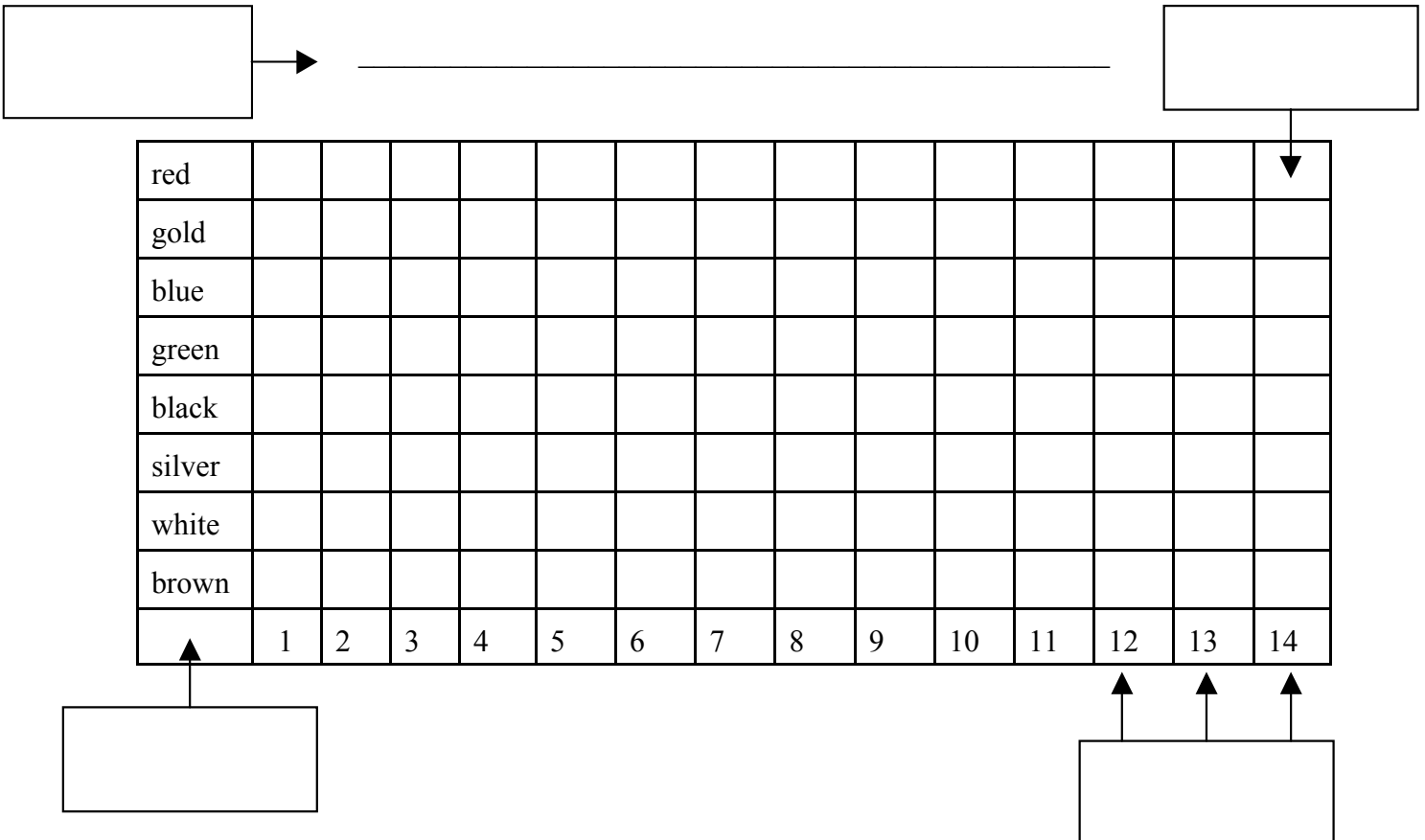


Data Management & Probability Activity SIX

There are lots of cars in the school parking lot. Merlin wants to know what colour of car is the most popular at your school. Take a trip to the parking lot, count and tally the colour of cars in the chart below.

Colour	Tally Marks	Total
Red		
Gold		
Blue		
Green		
Black		
Silver		
White		
Brown		

From your tally chart make a graph.



1) Which colour of car was the most popular?

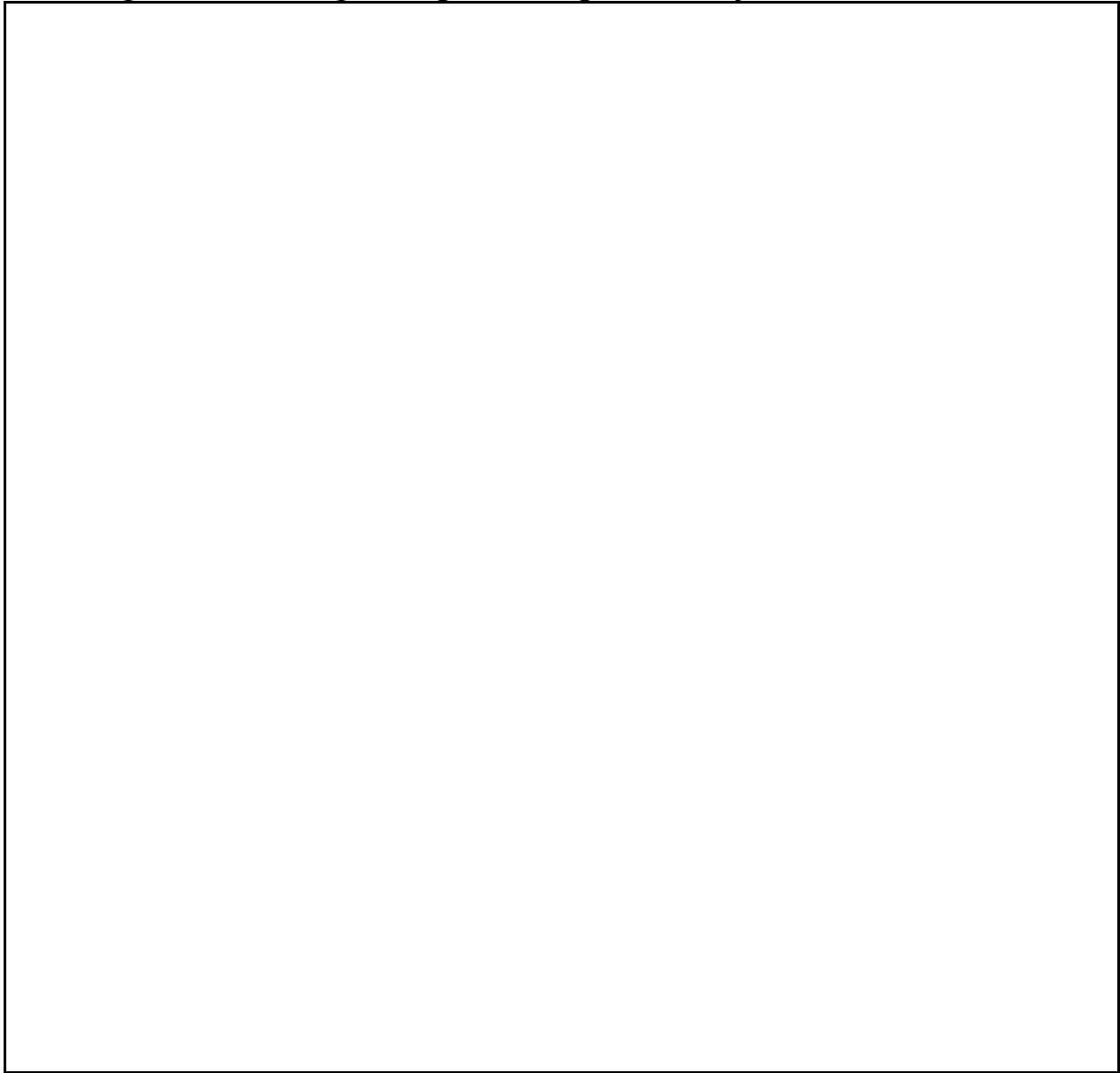
2) Which colour of car was the least popular?

3) How many blue and gold cars are there altogether?

4) How many green and brown cars are there altogether?

4) Merlin wants his car to be original and different. Which colour would you suggest to Merlin? _____
Why?

Draw a picture of the parking lot using the data you collected.



Describe your picture and how the data helped you draw it:

Grade 2 DMactivity006 covers:

D1:pose questions about meanings derived from the data on graphs (e.g., which was the rainiest month?)

D6: collect first-hand data from their environment (e.g., the number of days of sun, rain, snow during the month of November)

D7: identify the basic parts of a graph: labels, scales, title, data.

D10:interpret displays of numerical information and express understanding in a variety of ways (eg. draw a picture and use informal language to discuss)

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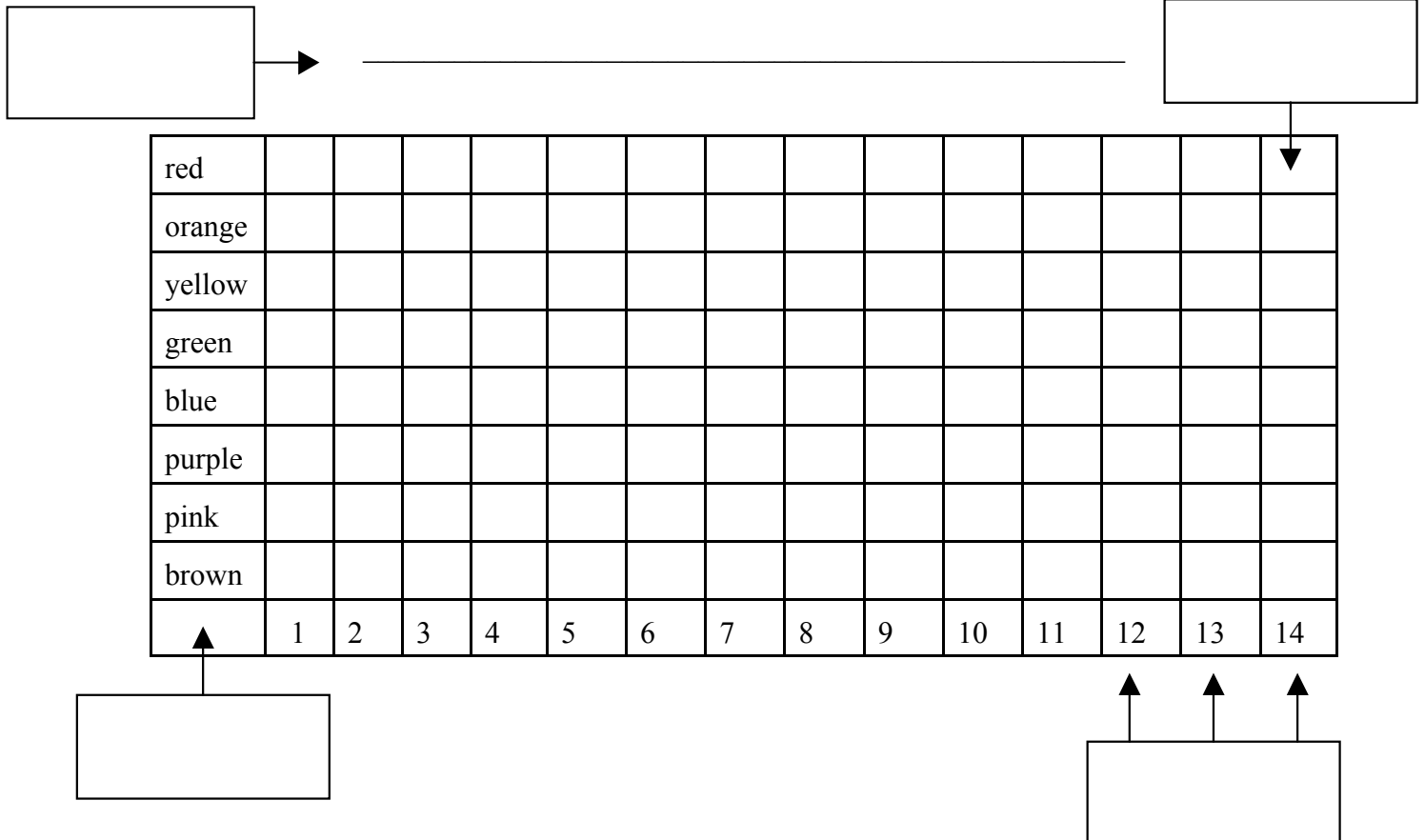


Data Management and Probability Activity SEVEN

Merlin has lots of smarties but he wants to know how many he has of each colour. Count and tally the smarties in the chart below.

Colour	Tally Marks	Total
Red		
Orange		
Yellow		
Green		
Blue		
Purple		
Pink		
Brown		

From your tally chart make a graph.



1) Which colour of smartie was found the most?

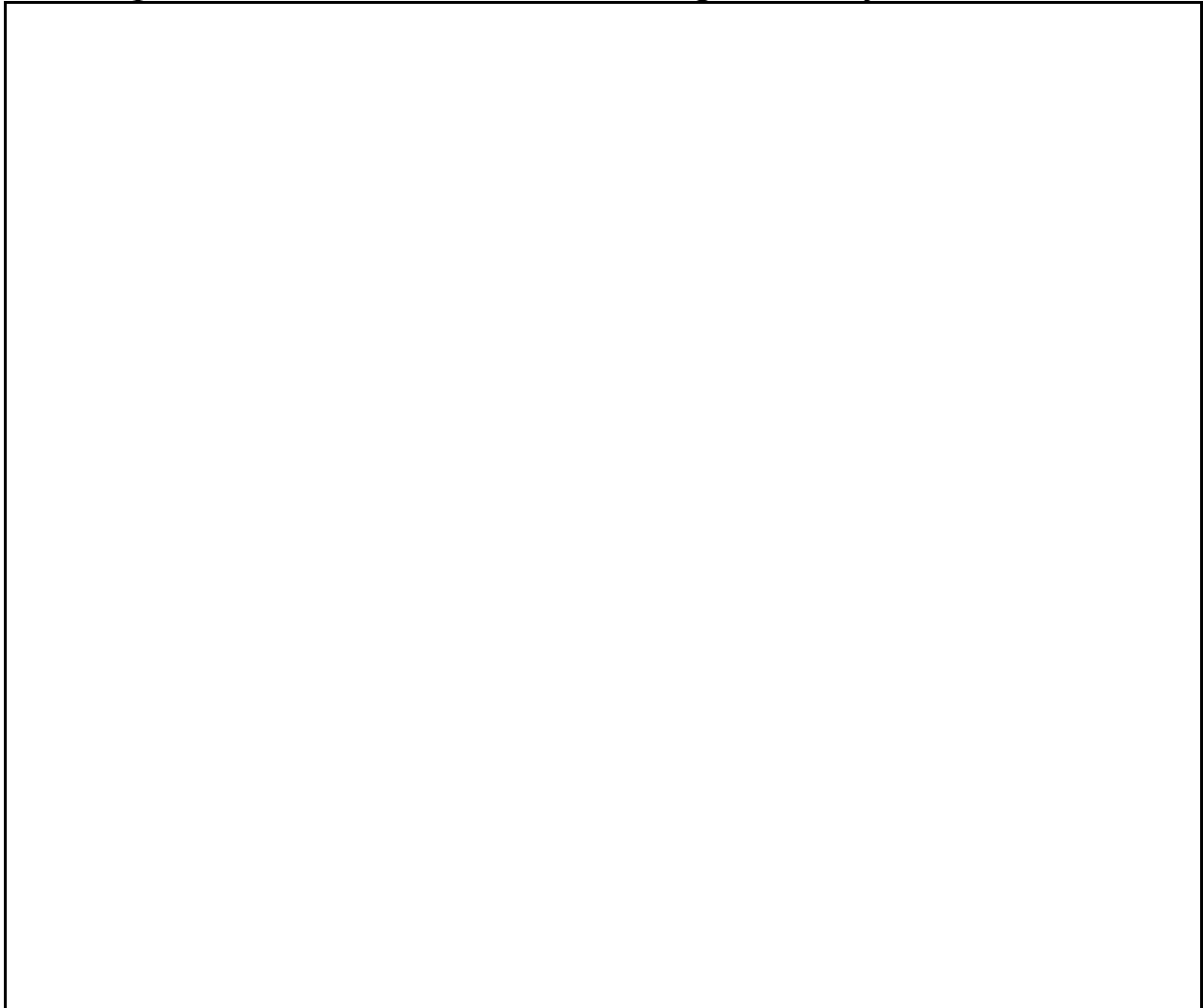
2) Which colour of smartie was found the least?

3) How many yellow and blue smarties are there altogether?

4) How many green and brown smarties are there altogether?

4) If you were to eat the red ones last, how many smarties would there be left?

Draw a picture of the box of smarties using the data you collected.



Describe your picture and how the data helped you draw it:

Grade 2 DMactivity007 covers:

D1:pose questions about meanings derived from the data on graphs (e.g., which was the rainiest month?)

D6: collect first-hand data from their environment (e.g., the number of days of sun, rain, snow during the month of November)

D7: identify the basic parts of a graph: labels, scales, title, data

D10:interpret displays of numerical information and express understanding in a variety of ways (eg. draw a picture and use informal language to discuss)

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Ask Merlin three questions about the graph:

1) _____

2) _____

3) _____

Grade 2 DMactivity008 covers:

D1:pose questions about meanings derived from the data on graphs (eg. which was the rainiest month?)

D9:construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Ask Merlin three questions about the graph:

1) _____

2) _____

3) _____

Grade 2 DMactivity009 covers:

D1:pose questions about meanings derived from the data on graphs (eg. which was the rainiest month?)

D9:construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Data Management & Probability

Activity TEN



Today we will be conducting a class survey. As a class, let's follow the steps below to guide you in the construction of your survey.

Step ONE:

Our survey question is:

We want to know this because:

The choices in the survey include:

Step TWO:

Let's survey the class and record our data in the tally chart below. Make sure you put your choices on the top of each column.

Data Management & Probability

Activity ELEVEN



Today you will be conducting a survey of some of your friends. Follow the steps below to guide you in the construction of your survey.

Step ONE:

My survey question is:

I want to know this because:

The choices I provide include:

Step TWO:

Survey your friends and record your data in the tally chart below. Make sure you put your choices on the top of each column.



Data Management & Probability Activity TWELVE

Answer the following questions:

What is your favourite time?	
What is your favourite day?	
What is your favourite month?	
What is your favourite season?	

Today we are going to create a glyph. A glyph is a picture that is actually a graph. It originates from ancient hieroglyphics.

Today our glyph will be in the form of a watch. Each question you were asked above will be represented by a different part of the watch.

Your favourite time will be represented by the time shown on the face of the watch.

Your favourite day will be represented by the colour of your watch bands. For example, if your favourite day is Sunday, your watch band would be white.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
red	orange	yellow	green	blue	purple	white

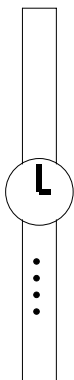
Your favourite month will be represented by the number of holes in your watch band. For example, if your favourite month is April, your watch band would have four holes.

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2	3	4	5	6	7	8	9	10	11	12

Your favourite season will be represented by the colour of your watch hands. For example, if your favourite season is winter, your watch hands would be black.

Fall	Winter	Spring	Summer
Red	Black	Blue	Green

Look at the watch below:

	<p>The person's favourite time is THREE O'CLOCK (time) The person's favourite day is SUNDAY (white watch band) The person's favourite month is APRIL (four holes) The person's favourite season is WINTER (black watch hands)</p>
--	--

Make your own watch with construction paper. When you're finished draw your watch in the space below.

Grade 2 DMactivity012 covers:

D8:organize data using graphic organizers (eg. diagrams, charts, graphs, webs) and various recording methods (eg. lacing stickers, drawing graphs)

D9:construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Data Management & Probability

Activity THIRTEEN

Using our glyphs from last week, let's graph the information about our favourite days, months and seasons.

Title: _____

10							
9							
8							
7							
6							
5							
4							
3							
2							
1							
	mon. red	tues. orange	wed. yellow	thurs. green	fri. blue	sat. purple	sun. white

What is the most favourite day? _____

What is the least favourite day? _____

What is the most favourite month? _____

What is the least favourite month? _____

What is the most favourite season? _____

What is the least favourite season? _____

Is it easier to read the glyphs or graphs? _____

Why?

Grade 2 DMactivity013 covers:

D6: collect first-hand data from their environment (eg. the number of days of sun, rain, snow during the month of November)

D9: construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Data Management & Probability Activity FOURTEEN

Answer the following questions:

How old are you?	
What is your favourite subject?	
How many brothers and sisters do you have?	
What colour eyes do you have?	
What colour hair do you have?	

Today we are going to create a glyph. A glyph is a picture that is actually a graph. It originates from ancient hieroglyphics.

Today our glyph will be in the form of a snowman. Each question you were asked above will be represented by a different part of the snowman.

Your age will be represented by how many balls are in the snowman. For example if you are 7 your snowman will have 3 balls.

Age 6	Age 7	Age 8
2 balls	3 balls	4 balls

Your favourite subject will be represented by the colour of the snowman's scarf. For example, if your favourite subject is music, your snowman's scarf will be black.

Phys. Ed.	Art	Language	Science	Math	Social Studies	Music
red	orange	yellow	green	blue	purple	black

The number of brothers and sisters you have will be represented by the number of buttons on your snowman. For example, if you have 3 brothers and sisters, your snowman will have three buttons.

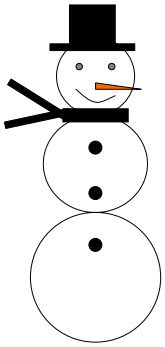
The colour of your eyes will be represented by the colour of your snowman's eyes. For example, if you have grey eyes, your snowman will have grey eyes.

Blue eyes	Green eyes	Brown eyes	Grey eyes
blue	green	brown	grey

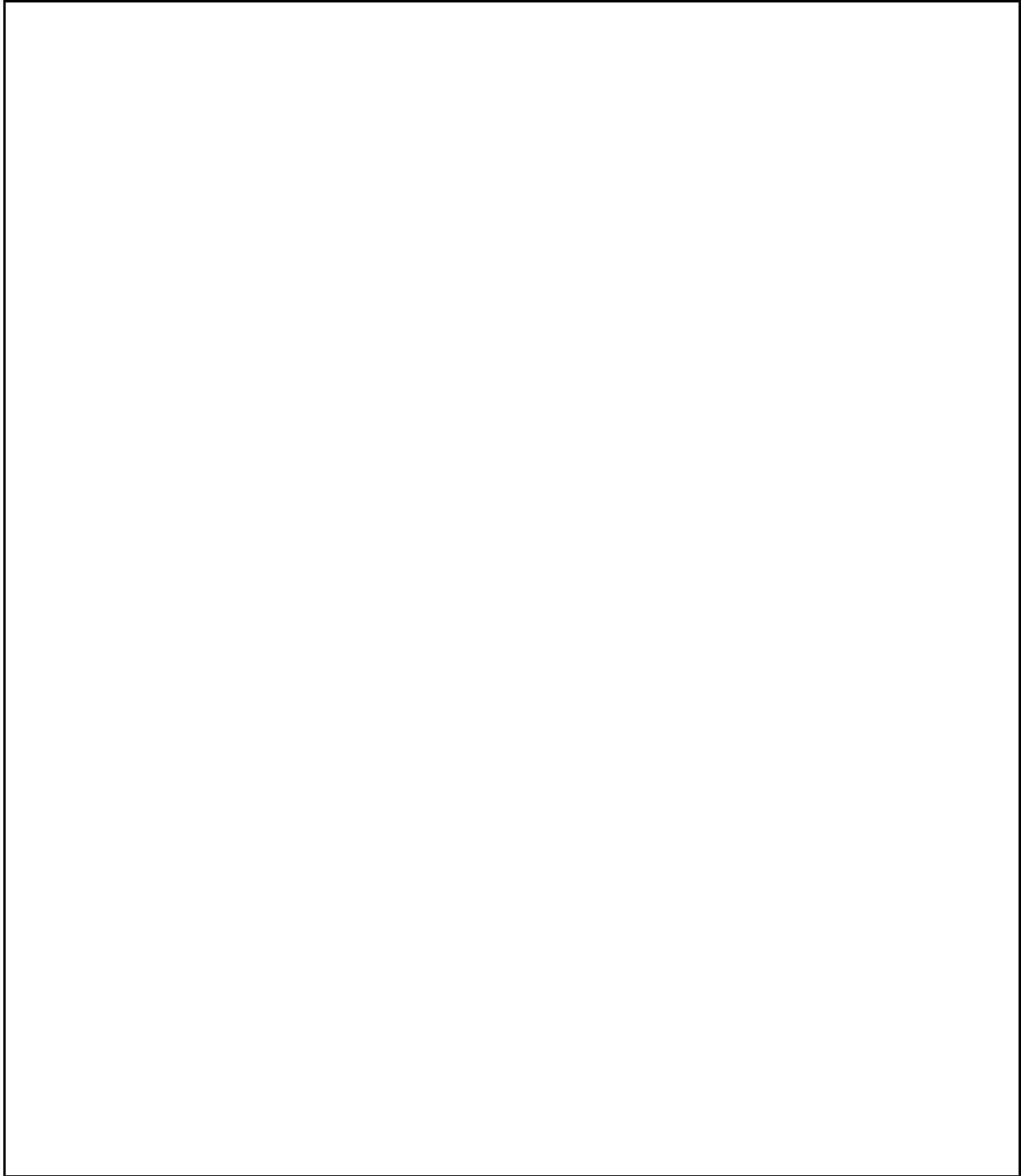
The colour of your hair will be represented by the colour of your snowman's hat. For example, if you have black hair, your snowman will have a black hat.

Blond hair	Red hair	Black hair	Brown hair
yellow hat	red hat	black hat	brown hat

Look at the snowman below:

	<p>The person is SEVEN years old (3 balls)</p> <p>The person's favourite subject is MUSIC (black scarf)</p> <p>The person has THREE brothers and sisters (three buttons)</p> <p>The person has GREY eyes (grey eyes)</p> <p>The person has BLACK hair (black hat)</p>
---	---

Make your own snowman with construction paper. When you're finished, draw your snowman in the space below.



Grade 2 DMactivity014 covers:

D8:organize data using graphic organizers (eg. diagrams, charts, graphs, webs) and various recording methods (eg. lacing stickers, drawing graphs)

D9:construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Data Management & Probability Activity FIFTEEN

Using our glyphs from last week, let's graph the information about our selves.

Title: _____

	1	2	3	4	5	6	7	8	9
age 6									
age 7									
age 8									

Title: _____

9							
8							
7							
6							
5							
4							
3							
2							
1							
(Scarf)	Phys.Ed (red)	Art (orange)	Language (yellow)	Science (green)	Math (blue)	Social Studies (purple)	Music (black)

Title: _____

	1	2	3	4	5	6	7	8	9
blond hair									
red hair									
black hair									
brown hair									

Write down three things you've learned about the students in our class from these graphs:

1) _____

2) _____

3) _____

Grade 2 DMactivity015 covers:

D6: collect first-hand data from their environment (eg. the number of days of sun, rain, snow during the month of November)

D9: construct and label simple concrete graphs, bar graphs, and pictographs using one-to-one correspondence

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Data Management & Probability

Activity SIXTEEN



Merlin has left you a cup of buttons. He would like your help sorting them. Sort your magical buttons and then draw and write about what you did.

Draw your sort:

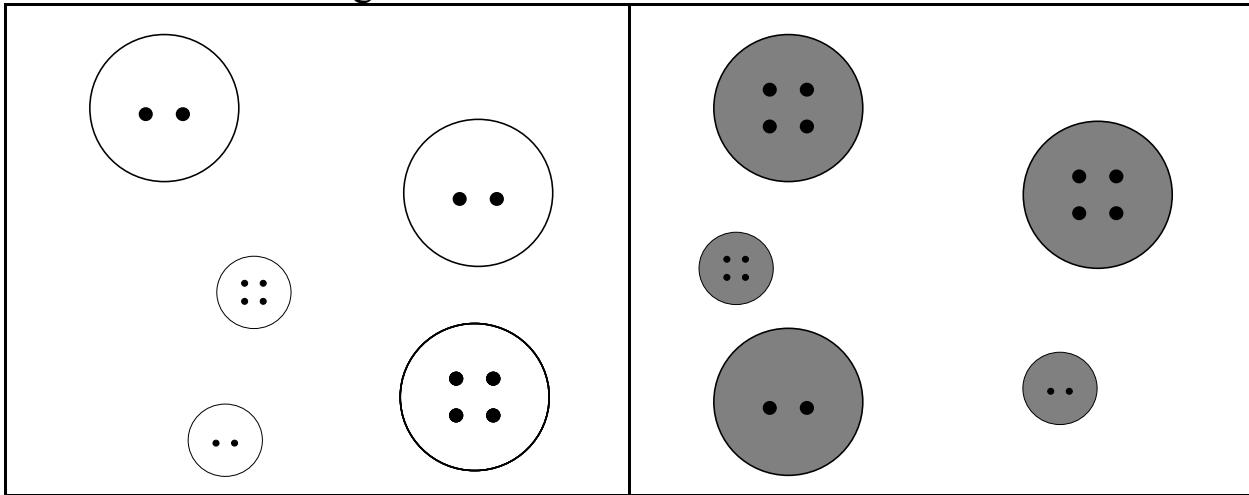
Describe your sort in words:

Data Management & Probability

Activity SEVENTEEN



Look at the following sort:



What rule did Merlin use to sort the buttons?

Name the different attributes the buttons have:

Sort the buttons in a different way:

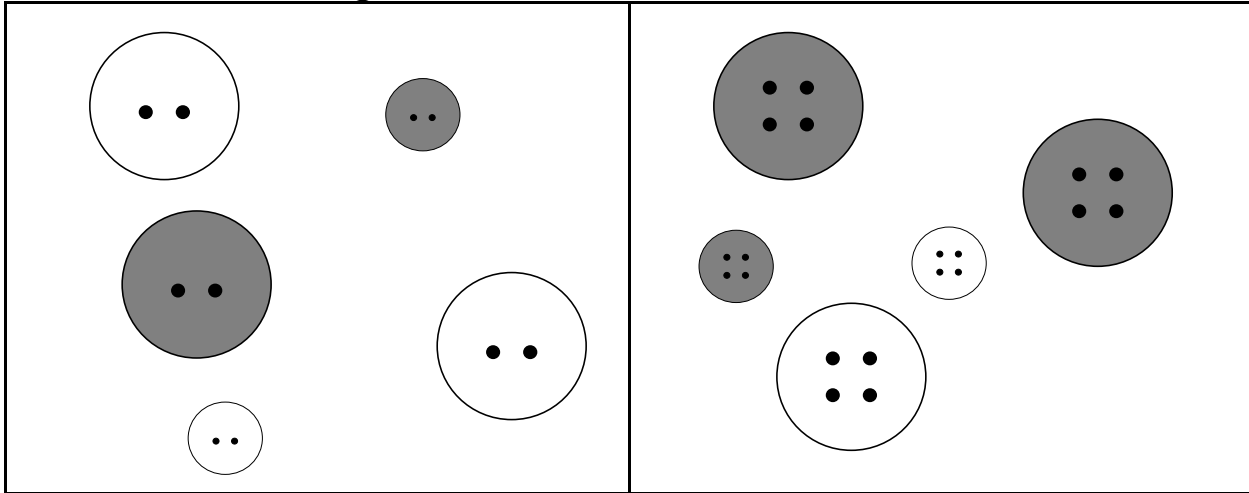
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Data Management & Probability

Activity EIGHTEEN



Look at the following sort:



What rule did Merlin use to sort the buttons?

Name the different attributes the buttons have:

Sort the buttons in a different way:

--	--



Data Management & Probability Activity NINETEEN

1) Read the chart and decorate the oak leaves.

	Acorn	No acorn
Brown leaf	Nutty Windy Rustle	Fall Crunchy
Green leaf	Breezy Flutter	Summer



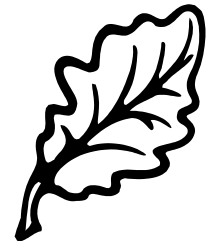
Summer



Fall



Flutter



Rustle



Windy



Nutty



Breezy



Crunchy

2) Name the different attributes _____

3) What is the most common combination of attributes? _____

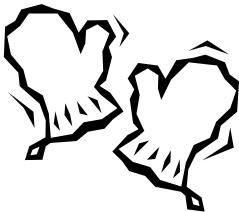
4) What does the chart tell you? _____



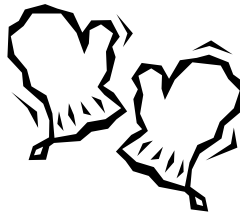
Data Management and Probability Activity TWENTY

1) Read the chart and decorate the mittens.

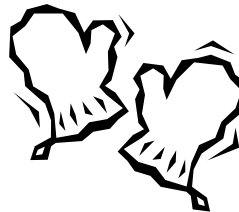
	Zigzag	Snowflake
Blue	Michael Megan	Sarah Victoria
Red	Laura	Mark Ethan



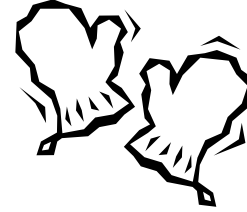
Laura



Ethan



Michael



Victoria



Megan



Sarah



Mark

2) Name the different attributes _____

3) What is the least common combination of attributes? _____

4) What does the chart tell you? _____



Data Management & Probability

Activity TWENTY-ONE

1) Read the chart and decorate the snowmen.

	Scarf	Green ribbon
Hat	Brrr! Icicle	Snowy Frigid
No hat	Chilly	Jack Frost Frosty



Chilly



Frosty



Brrr!



Snowy



Frigid



Jack Frost



Icicle

2) Name the different attributes _____

3) What is the least common combination of attributes? _____

4) What does the chart tell you? _____



Data Management & Probability

Activity TWENTY-TWO

1) Read the chart and decorate the socks

	Black cuff	White cuff
Green sock	Cordelia Megan	Eric Jennifer
Blue sock	Valerie Sarah	Jonathon



Cordelia



Eric



Jennifer



Valerie



Megan



Sarah



Jonathon

2) Name the different attributes _____

3) What is the least common combination of attributes? _____

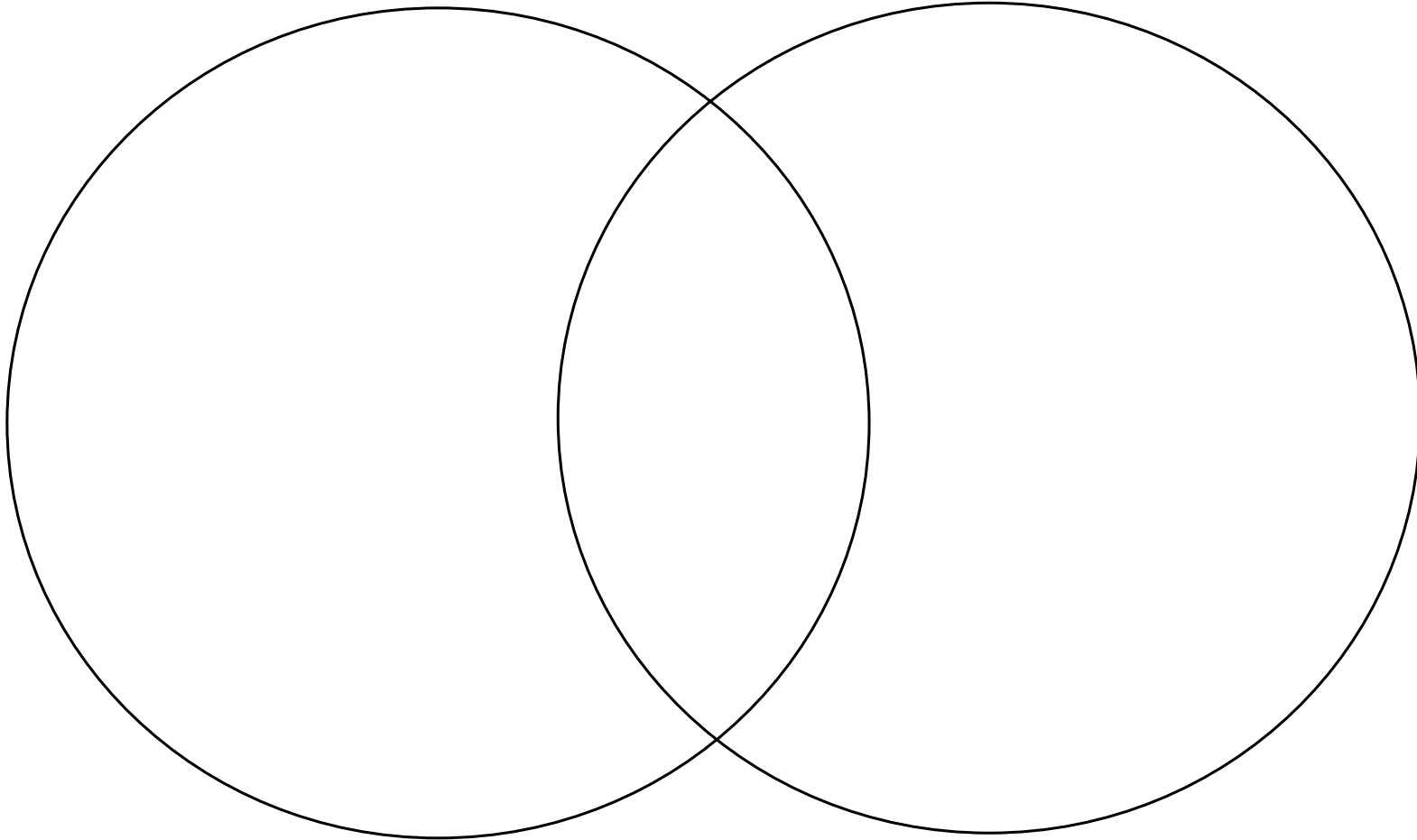
4) What does the chart tell you? _____

Data Management & Probability

Activity TWENTY-THREE



Help Merlin sort his buttons into a DOUBLE Venn diagram.



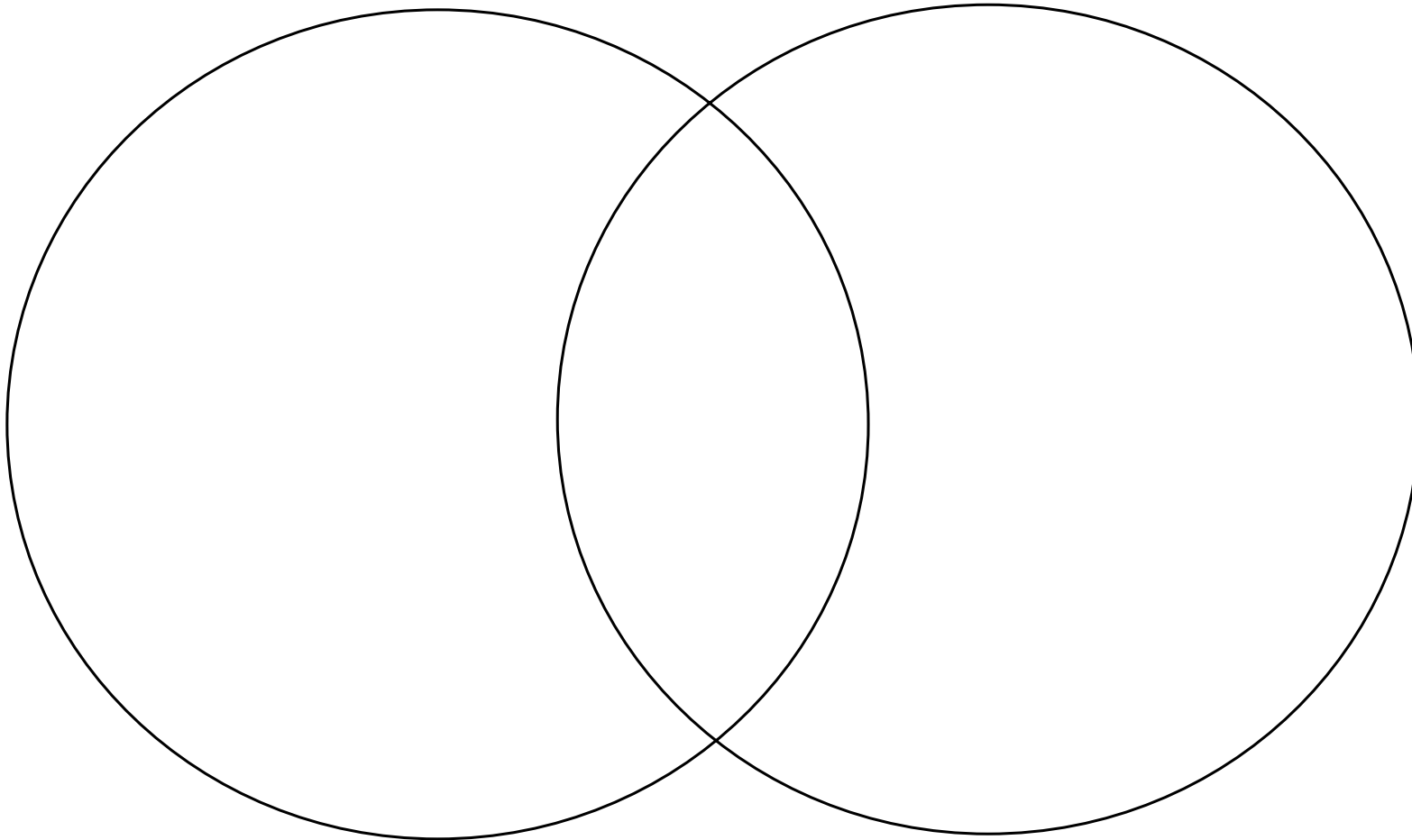
Grade 2 DMactivity023 covers:
D2:sort and classify concrete objects, pictures, and symbols according to two specific attributes (eg. shape and texture)
D4:recognize that an object can have more than one attribute
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Activity TWENTY-FOUR



Help Merlin sort his shapes into a DOUBLE Venn diagram.



Grade 2 DMactivity024 covers:
D2:sort and classify concrete objects, pictures, and symbols according to two specific attributes (eg. shape and texture)
D4:recognize that an object can have more than one attribute
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Data Management & Probability Activity TWENTY-FIVE



Coins have two sides. One side is called “heads” because it has a picture of Queen Elizabeth’s head and the other side is called “tails.” Different types of coins have a different tail picture. All Canadian nickels have beavers.

Which side is luckier? Circle one.

Heads	Tails
-------	-------

Toss the coin TEN times. Record your results in the tally chart below.

	Tally Marks	Total
Heads		
Tails		

Which side came up the most? _____

Did you predict correctly? _____

Data Management & Probability

Activity TWENTY-SIX



Coins have two sides. One side is called “heads” because it has a picture of Queen Elizabeth’s head and the other side is called “tails”. Different types of coins have a different tail picture. All Canadian quarters have caribou.

Which side is luckier? Circle one.

Heads	Tails
-------	-------

Toss the coin TEN times. Record your results in the tally chart below.

	Tally Marks	Total
Heads		
Tails		

Which side came up the most? _____

Did you predict correctly? _____

Were your results with the quarter similar to your results with the nickel last week?

Data Management & Probability

Activity TWENTY-SEVEN



Today, Merlin has left you a magic die. He would like you to conduct some probability experiments with the die. Record your results in the tally charts provided and be sure to answer all the questions.

Roll the die TEN times. Record it in the chart below.

Die	Tally Marks	Total
1		
2		
3		
4		
5		
6		

1) Which number was rolled the most? _____

2) Which number was rolled the least? _____

3) How many 2's and 5's altogether? _____

4) Do you think there is an equal chance of rolling any number on the die? _____

5) Explain:

Data Management & Probability

Activity TWENTY-EIGHT



Today, Merlin has left you a magic die. He would like you to conduct some probability experiments with the die. Record your results in the tally charts provided and be sure to answer all the questions.

Roll the die FORTY times. Record it in the chart below.

Die	Tally Marks	Total
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

1) Which number was rolled the most? _____

2) Which number was rolled the least? _____

3) How is the 12 sided die different from the 6 sided die?

Grade 2 DMactivity028 covers:

D11: explore through simple games and experiments the likelihood that an event may occur

D12: investigate simple probability situations (e.g., flipping a coin, tossing dice)



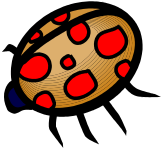
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Activity TWENTY-NINE



Merlin has given you a special die on the condition that you make a BAR GRAPH showing what you rolled. Roll the die TWENTY times.

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

Look at the die carefully and fill in the following chart.

Picture			
Number of sides			

What side is most likely to come up? _____

Why?

What side is least likely to come up? _____

Why?

Grade 2 DMactivity029 covers:

D11: explore through simple games and experiments the likelihood that an event may occur

D12: investigate simple probability situations (eg. flipping a coin, tossing dice)

D13: use mathematical language (eg. likely, unlikely, probably) in informal discussion to describe probability




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Activity THIRTY



Merlin has given you a special die on the condition that you make a BAR GRAPH showing what you rolled. Roll the die TWENTY times.

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

Look at the die carefully and fill in the following chart.

Picture			
Number of sides			

What side is most likely to come up? _____

Why?

What side is least likely to come up? _____

Why?

Grade 2 DMactivity030 covers:

D11: explore through simple games and experiments the likelihood that an event may occur

D12: investigate simple probability situations (eg. flipping a coin, tossing dice)

D13: use mathematical language (eg. likely, unlikely, probably) in informal discussion to describe probability



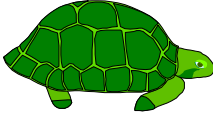
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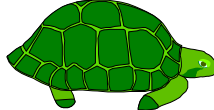
Activity THIRTY-ONE



Merlin has given you a special die on the condition that you make a BAR GRAPH showing what you rolled. Roll the die TWENTY times.

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

Look at the die carefully and fill in the following chart.

Picture			
Number of sides			

What side is most likely to come up? _____

Why?

What side is least likely to come up? _____

Why?

What is special about this die?

Grade 2 DMactivity031 covers:

D11: explore through simple games and experiments the likelihood that an event may occur

D12: investigate simple probability situations (eg. flipping a coin, tossing dice)

D13: use mathematical language (eg. likely, unlikely, probably) in informal discussion to describe probability

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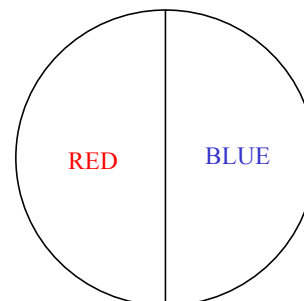


Data Management & Probability Activity THIRTY-TWO

Merlin wants us to do a probability experiment with a spinner. He has left us a spinner with a top that looks like the picture on the right.
Spin the spinner 30 times and record your results in the tally chart below.

My Prediction

I think the spinner will land more often on the colour:



Colour	Tally
RED	
BLUE	

Complete the following questions:

- 1) What colour did the spinner land on the most? _____
- 2) Did you predict correctly? _____
- 3) Is there an equal chance of landing on the red side or the blue side? _____
- 4) Why might the spinner land on one side more than the other?

Grade 2 DMactivity032 covers:

D11: explore through simple games and experiments the likelihood that an event may occur

D12: investigate simple probability situations (eg. flipping a coin, tossing a dice)

D13: use mathematical language (eg. likely, unlikely, probably) in informal discussion to describe probability

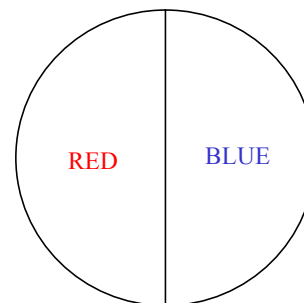
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Data Management & Probability

Activity THIRTY-THREE

Merlin wants us to do a probability experiment with a spinner. He has left us a spinner with a top that looks like the picture on the right. Spin the spinner 30 times and record your results in the tally chart below.



My Prediction

I think the spinner will land more often on the colour:

Colour	Tally
RED	
BLUE	

Complete the following questions:

- 1) What colour did the spinner land on the most? _____
- 2) Did you predict correctly? _____
- 3) Draw an unfair spinner below and describe why it is unfair

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Grade 2 DMactivity033 covers:

D11: explore through simple games and experiments the likelihood that an event may occur

D12: investigate simple probability situations (eg. flipping a coin, tossing a dice)

D13: use mathematical language (eg. likely, unlikely, probably) in informal discussion to describe probability

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