Chapter 5

Name _____

Probability and Data

Probability of Pulling Pairs

You need
- two pairs of cubes in different colors
- paper lunch bag

What is the chance you will pull out two cubes that are the same color?

STEP 1 Pulling Out Two

Pull out two cubes. Are both cubes the same color? Use a ✔ to record each turn.

Matching Pair	
Yes	No

Will you always pull out a matching pair? Explain. _____

_____

STEP 2 Pulling Out Three

Pull out three cubes. Are two of the cubes the same color? Record each turn.

Matching Pair	
Yes	No

Tell about your results. _____

Why do you think this happens? _____

_____

_____

STEP 3 Pulling Out Four

Pull out four cubes. Will you get a matching pair? Explain.

_____

_____

Investigation

School-Home Connection

Dear Family,

Today we started Chapter 5 of ***Think Math!*** In this chapter, I will explore probability, picture graphs, real-object graphs, bar graphs, pictographs, and even line graphs. There are NOTES on the Lesson Activity Book pages to explain what I am learning every day.

Here are some activities for us to do together at home. These activities will help me understand probability and data.

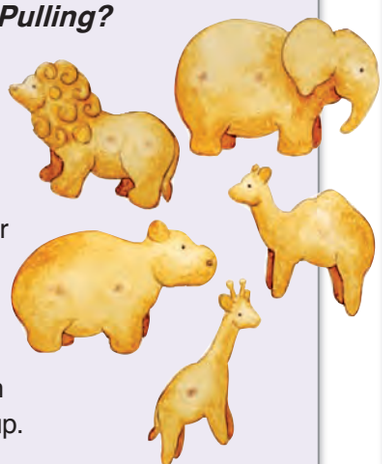
Love,

_____

Family Fun

What Are You Pulling?

Work with your child to play a probability game called *What Are You Pulling?*



- Put 30 of the same food item into a paper lunch bag. You might use candies, cereal pieces, or crackers in different colors or shapes. Do not let your child see what is inside the bag.
- Take turns with your child. Pull out one item at a time from the bag without looking inside. Then replace the item and mix them up. Record the results of each turn. After taking 10 turns, start asking this question: What do you think you will pull out now?
- With each turn, your child should get better at making predictions. Look back at what has already been pulled out before making a prediction.
- Continue for as long as you wish. Then, if you want, eat the items together!

Word Search

Work with your child to circle these words in the puzzle.

BAR GRAPH
IMPOSSIBLE
PICTOGRAPH
PICTURE GRAPH
LINE GRAPH
SYMBOL
DATA
KEY
LIKELY
POSSIBLE
PREDICT
TALLY

P	E	S	Y	L	L	D	Y	I	M	T
I	B	A	R	G	R	A	P	H	L	A
C	M	O	E	S	H	T	O	E	I	L
T	A	L	L	Y	H	A	S	R	K	I
U	L	A	K	E	Y	P	S	A	E	N
R	I	M	P	O	S	S	I	B	L	E
E	N	A	P	H	G	E	B	B	Y	G
G	O	S	Y	M	B	O	L	A	N	R
R	A	P	H	A	G	R	E	S	I	A
A	P	R	E	D	I	C	T	O	T	P
P	I	C	T	O	G	R	A	P	H	H
H	M	T	U	K	L	I	T	R	U	N

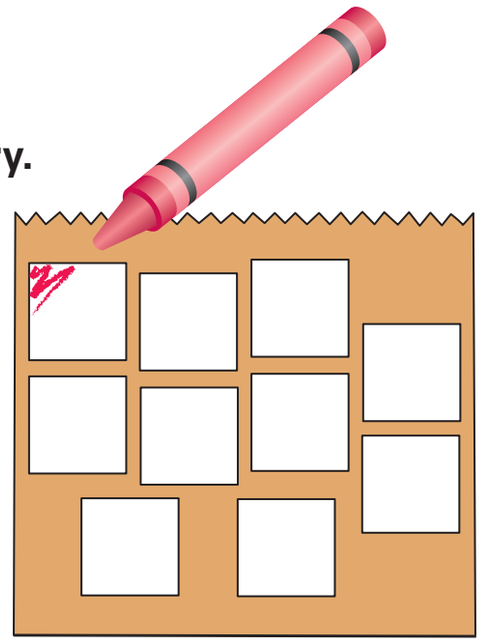
Chapter 5
Lesson 1

Name _____ Date _____

Exploring Probability

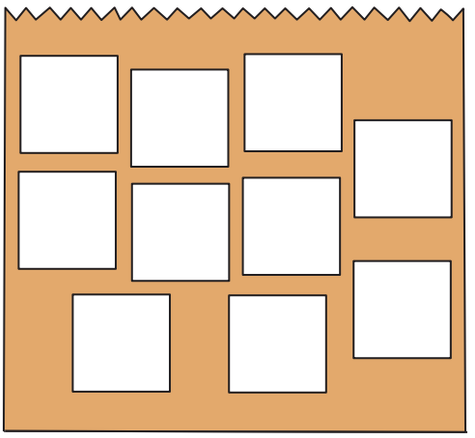
NCTM Standards 1, 2, 5, 6, 7, 8, 9, 10

There are 10 cubes in each bag. Some are red and some are blue. Write how many of each and color the cubes to match the story.



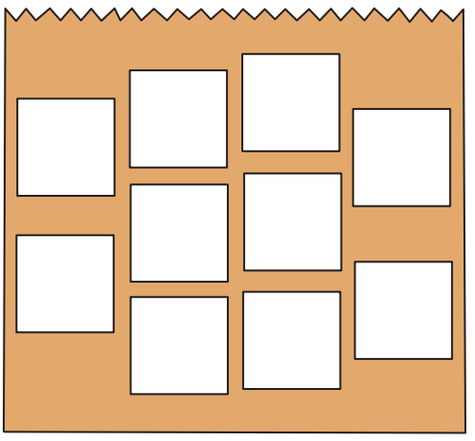
1. Joe is more likely to pull out a red cube than a blue cube from the bag.

   _____ red _____ blue



2. Shamari is equally likely to pull out a red cube or a blue cube.

   _____ red _____ blue



3. Make your own story.

   Matt is _____ likely

   to pull out a _____ cube

   than a _____ cube.

   _____ red _____ blue

NOTE: Your child is learning about the likelihood of events. Talk about events that are more likely and less likely to happen in your everyday lives.

Each bag has different cubes. Sue pulls out a cube and records the color. She does this 20 times. She puts the cube back each time. Which color do you think she is more likely to pull out next?

4. 

Red	Blue
𝍸 𝍸 𝍸 III	II

_____

5. 

Red	Blue
𝍸	𝍸 𝍸 𝍸

_____

6. 

Red	Blue
	𝍸 𝍸 𝍸 𝍸

_____

7. This bag has 5 red and 5 blue cubes. Complete the tally table to show possible results of pulling out a cube 20 times.

Red	Blue

Problem Solving

8. Sue pulled out a cube from a bag 20 times. She made this tally table. What are the chances that a green cube was in this bag? Explain.

Red	Blue
𝍸 I	𝍸 𝍸 IIII

_____

_____

_____

Chapter 5
Lesson 2

Name _____ Date _____

Using Real-Object Graphs and Picture Graphs

NCTM Standards 1, 2, 4, 5, 6, 7, 8, 9, 10

Each child in Room 2 has a penny. The children lined up to show the years their pennies were minted. They recorded the data like this.

Mint Years for Our Pennies

1978	1979	1986	1996	2000	2003	2004
P Kayla	P Clare	P Kurt	P Darren	P Pearl	P Jo	P Al
	P Fernando		P Christopher	P Swati	P Maricela	
					P Melanie	
					P David	

1. The oldest penny was minted in _____.

2. _____ has the newest penny.

3. There are _____ children in Room 2.

4. Melanie's penny was minted in _____.

5. Write your own sentence about the picture graph.

_____

NOTE: Your child is learning to make and use real-object graphs and picture graphs to show information.

Hair Color of Children in Room 2					
Brown	 Swati	 Al	 David	 Fernando	
Blonde	 Kayla	 Christopher	 Clare		
Black	 Jo	 Kurt	 Darren	 Maricela	 Melanie
Red	 Pearl				

Write two questions that can be answered from the graph. Give the answer.

6. _____

_____

7. _____

_____

8. Write a question that cannot be answered from the graph.

_____

_____

Challenge

9. I am _____ years old. I was born in _____.

In 2020, I will be _____ years old.

Chapter 5
Lesson 3

Name _____ Date _____

Using Bar Graphs to Investigate Probability

NCTM Standards 1, 2, 4, 5, 6, 7, 8, 9, 10

You have two number cubes. One cube has numbers 1 to 6. The other has numbers 7 to 12.

1. What are all of the possible addition facts you could make by tossing the number cubes?

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

2. What are all of the possible sums?

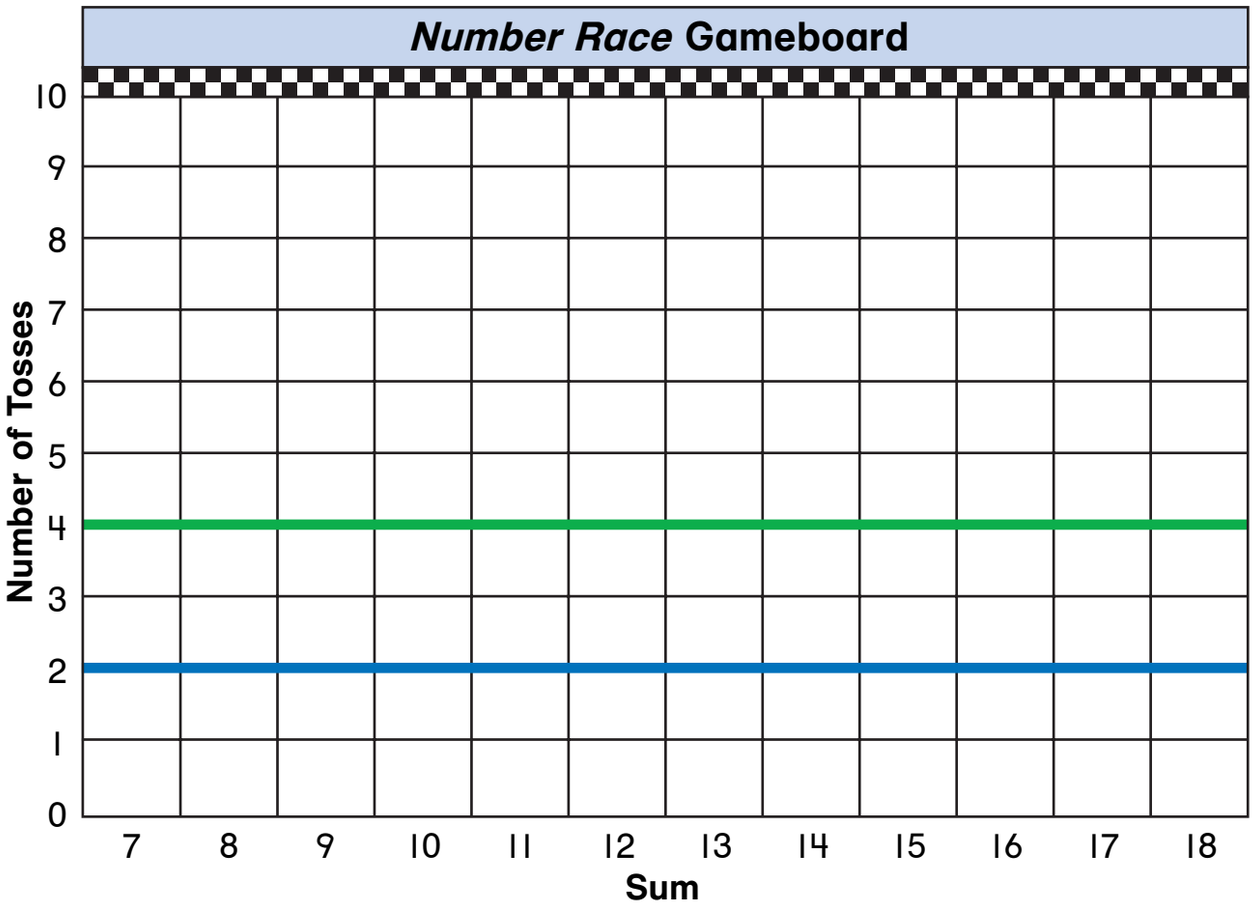
_____

3. How many different ways can you make each sum by tossing the number cubes? Tally to record.

Sum	8	9	10	11	12	13	14	15	16	17	18
Tally	|	||									
Number of Ways	1	2									

NOTE: Your child is learning about bar graphs and is using this representation to record the results of an addition and probability game.

Play the game with a classmate. Toss two number cubes. Color a box in the graph for each sum. Which numbers win? Answer Questions 4 and 5 as you play. Answer Question 6 at the end.



4. Which number got to the blue line first? _____

5. Which number got to the green line first? _____

6. Which number finished the race first? _____

Challenge

7. How could you change the game so that one sum is certain to win every time?

_____

_____

_____

Name _____ Date _____

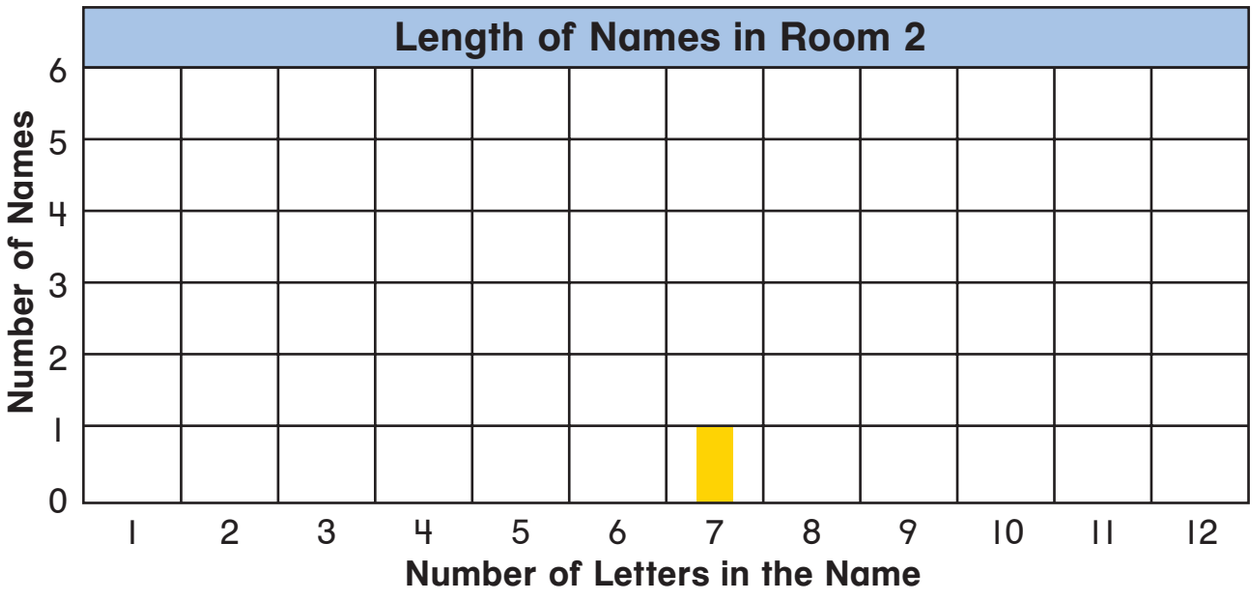
Making and Using Bar Graphs

NCTM Standards 1, 2, 4, 5, 6, 7, 8, 9, 10

This class list gives the names for all children in Room 2.

✔ Melanie	Christopher	Kayla	Clare
Jo	Kurt	Swati	Maricela
Fernando	Darren	Pearl	Al
David			

1. Use the class list. Make a bar graph showing the lengths of the names.



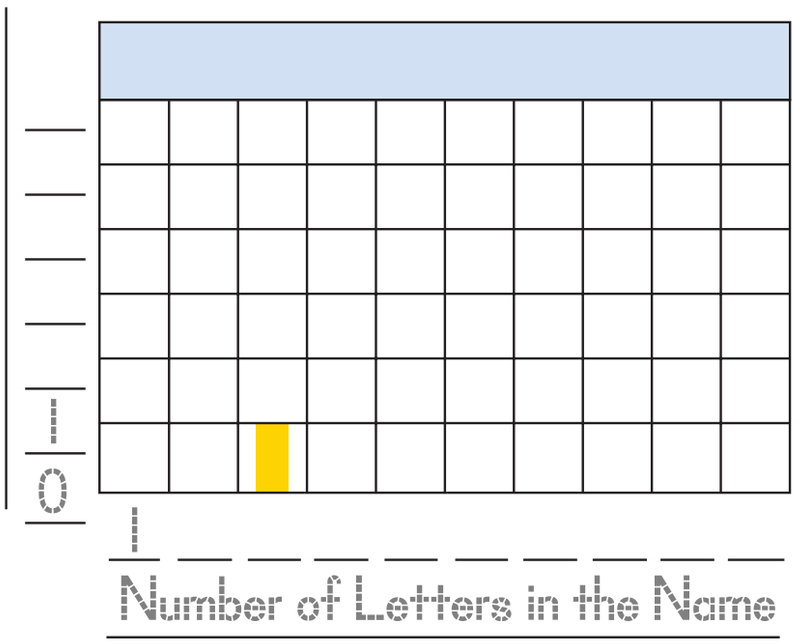
2. How many letters are in the longest name? _____ letters

3. How many names have 5 letters? _____ names

NOTE: Your child is learning how to create a bar graph. Your child is also learning to identify whether a question can be answered by a table or a graph.

4. Use the table to make a bar graph. Remember to label the graph.

Length of Names in Room 3	
Number of Letters	**Name**
3	Ned
4	Anna John Ling
5	Kayla Nikil
7	Chelsea Tabitha
8	Benjamin
9	Elizabeth



Answer each question. Circle whether you use the table or graph to find the answer.

5. How many letters are in the names for the most children? _____ letters table (graph)

6. What is the shortest name? _____ table graph

7. How many more names have 4 letters than 9 letters? _____ names table graph

Challenge

8. What can you learn from the table that is not in the graph?

_____

_____

Chapter 5
Lesson 5

Name _____ Date _____

Making and Using Pictographs

NCTM Standards 1, 2, 5, 6, 7, 8, 9, 10

Tom asked the children in each grade at school whether they have a dog. Then he made this pictograph.

Children at Bayles School with Dogs					
			☺		
			☺		
		☺	☺		☺
☺		☺	☺		☺
☺		☺	☺		☺
☺	☺	☺	☺	☺	☺
1st	2nd	3rd	4th	5th	6th
			Grade		

Key: Each ☺ stands for 5 children.

1. How many first graders have dogs? _____ children

How does the graph show that? _____

_____

2. How many more fourth graders than third graders have dogs? _____ children

How did you figure that out? _____

_____

NOTE: Your child is learning how to create a pictograph where a symbol stands for more than one piece of data.

3. Use the tally table to make a pictograph. Remember to choose a symbol and make a key.

Children at Bayles with Cats	
Grade	**Tally**
1	𝍸 𝍸 ||||
2	𝍸 𝍸 𝍸 |
3	𝍸 |||
4	||
5	𝍸 𝍸 𝍸 |||
6	𝍸 |

Children at Bayles School with Cats

Grade									
1st									
2nd									
3rd									
4th									
5th									
6th									

Key: Each _____ stands for _____ children.

4. Write your own sentence about the pictograph.

_____

_____

Write two questions that can be answered from the graph.

5. _____

6. _____

Problem Solving

7. Three children in Kindergarten have cats. How could you show this in the graph if each symbol stands for 2 children?

_____

_____

Chapter 5
Lesson 6

Name _____ Date _____

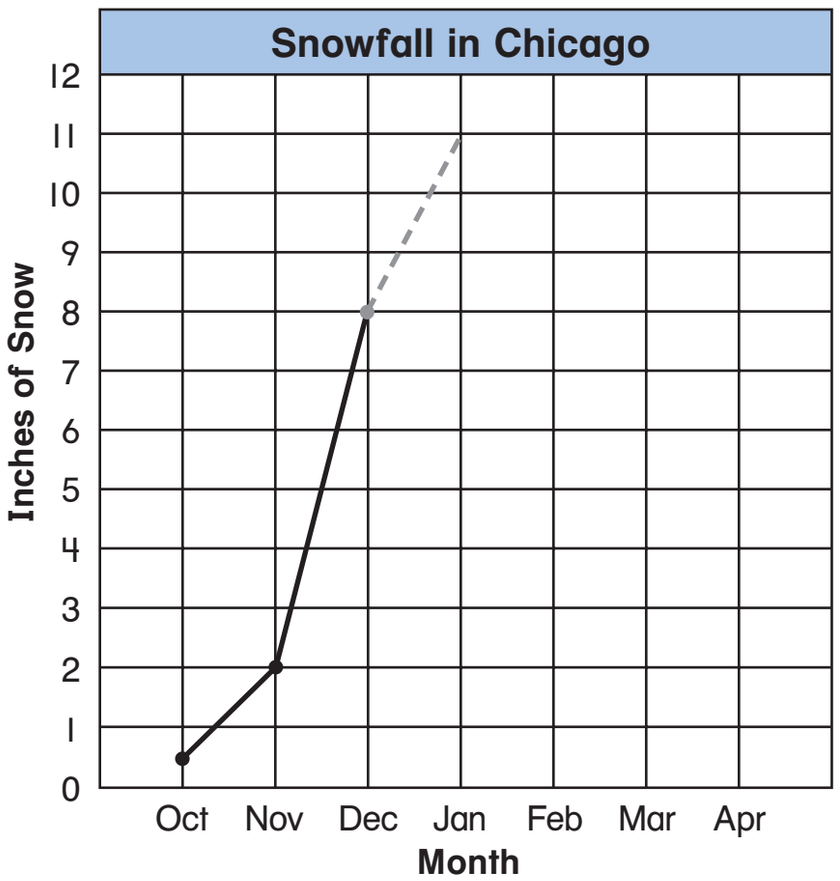
Graphing Change Over Time

NCTM Standards 1, 2, 4, 5, 6, 7, 8, 9, 10

This table shows typical snowfall for Chicago, Illinois. The amount of snow for March has been left out.

Snowfall in Chicago							
Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Inches of Snow	$\frac{1}{2}$	2	8	11	8	?	2

1. Make a line graph of the data in the table.



2. Use the graph to estimate how much snow fell in March. Explain your answer.

_____

_____

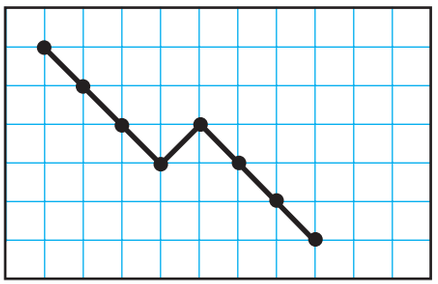
NOTE: Your child is learning how to create and interpret line graphs to show change over time.

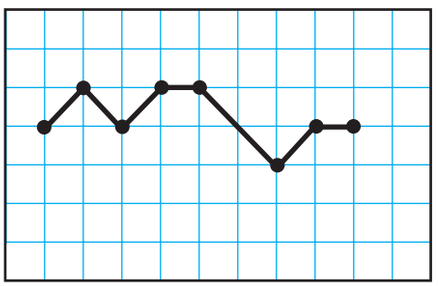
Draw a line from each story to the graph that matches it best.

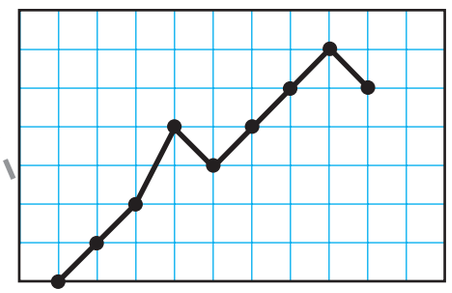
3. Lakisha saved money in her piggy bank. She sometimes spent some of it.

4. The teacher in Room 2 recorded how many children came to school each day.

5. Al completed the same addition table several times. He recorded how long it took each time.



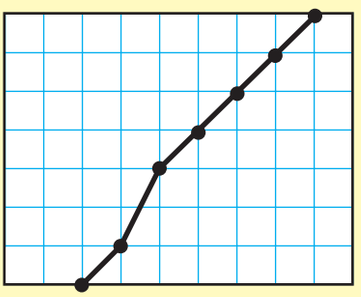




6. How are a line graph and a bar graph different?

Problem Solving

7. Write a story about this line graph. Think about what makes sense for a line that keeps going up.



Chapter 5
Lesson 7

Name _____ Date _____

Problem Solving Strategy

Make a Table

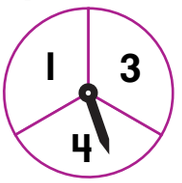
NCTM Standards 1, 2, 4, 5, 6, 7, 8, 9, 10

Understand
Plan
Solve
Check

1. Nev spins both spinners shown.
What sum is she most likely to get?

_____

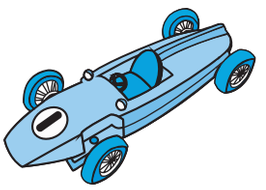
Spinner A



Spinner B

Spinner A	1	1	1	3	3	3	4	4	4
Spinner B	4	5	7	4	5	7			
Sum	5								

2. How many tires will Seth need for 7 model cars?



Cars	1	2	3				
Tires							

_____ tires

3. Cindy has 3 coins in her pocket.
She only has coins worth 5¢ or less.
How much money might she have?

Pennies	Nickels	Total Money
0	3	

NOTE: Your child is exploring different ways to solve problems. Sometimes making a table is an efficient way to solve a problem.

Problem Solving Test Prep

1. Kip has 12 blocks and 2 plates. He puts half of the blocks on each plate. How many blocks are on each plate?

Ⓐ 24 blocks

Ⓑ 12 blocks

Ⓒ 6 blocks

Ⓓ 3 blocks

2. Sara had 25¢ in her bank. She put some more coins into the bank. Then she had 38¢. How much money did she put in the bank?

Ⓐ 63¢

Ⓑ 13¢

Ⓒ 5¢

Ⓓ 3¢

Show What You Know

3. Ivana has 32 marbles in a solid color and 15 that are striped. How many marbles does she have in all?

_____ marbles

Explain how you found the answer.

4. Carlos drove 183 miles on Saturday. He drove farther on Sunday. The number of miles has the same digits in a different order. How far did Carlos drive on Sunday?

_____ miles

Explain how you found the answer.

Name _____ Date _____

Chapter 5

Review/Assessment

NCTM Standards 1, 2, 4, 5, 6, 7, 8, 9, 10

1. Which color is more likely to be pulled out next from the bag? Use the tally table to help. Lesson 1

Red	Blue
𝍸 𝍸 𝍸 𝍸	

_____

Use the picture graph to complete each sentence. Lesson 2

2. There are _____ children at the playground.

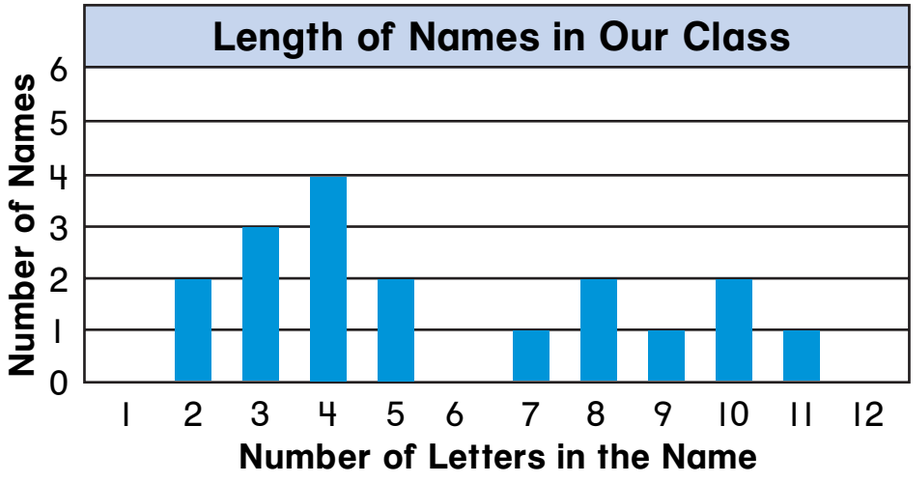
3. _____ is on the climber.

4. There are _____ more children on the slide than on the climber.

Children at the Playground

swings	Ted	Kim	David	Deena
slide	Noah	Lily	Zoe	
climber	Ben			

Use the bar graph to answer each question. Lessons 3, 4



5. How many letters are in the longest name? _____ letters

6. How many names are 4 letters long? _____ names

7. Use the tally table to make a pictograph. Choose a symbol and make a key. Lesson 5

Crayons in the Box	
Color	**Tally**
blue	𝍸 𝍸 ||
green	𝍸 𝍸 𝍸 |
red	𝍸 𝍸 ||
yellow	𝍸 |||

Crayons in the Box								
blue								
green								
red								
yellow								

Key: Each _____ stands for _____ crayons.

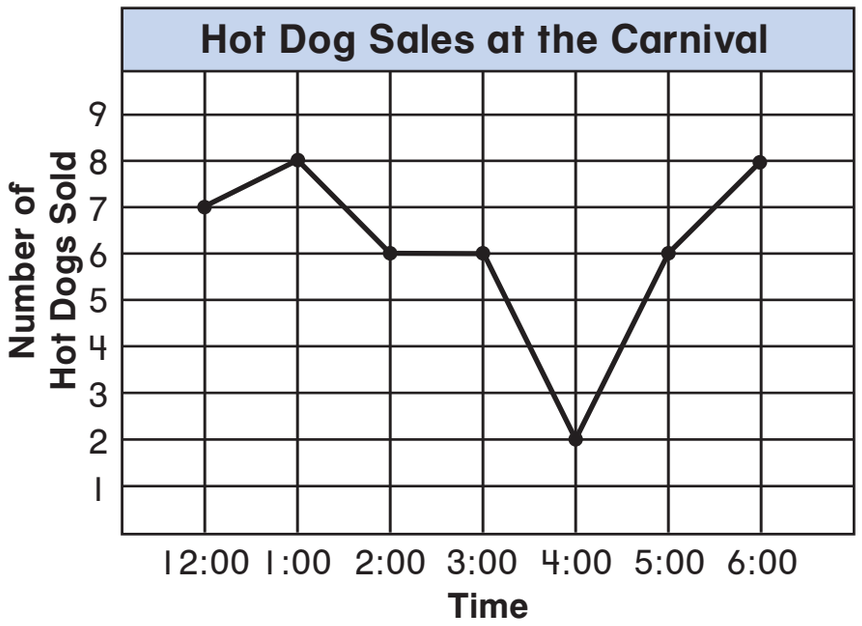
Answer each question about the line graph. Lesson 6

8. How many hot dogs were sold at 3:00?

_____ hot dogs

9. Did hot dog sales go up or down from 4:00 to 6:00?

_____



Problem Solving Lesson 7

10. Sal spins both spinners shown. How many different sums can he spin?

_____ sums

Spinner A	1	1	3	3
Spinner B	1	2	1	
Sum				