Name _____ Date/Time _____

Introducing Pictographs
NCTM Standards 5, 6, 7, 8, 9, 10

Each student in Ms. Tanaka's class was asked, "What is your favorite fruit?" Use the pictograph to answer questions about this survey.

FAVORITE FRUIT

Apple Orange Banana Strawberry Pear Melon

1 What fruit did most students pick for their favorite?

_____

2 How many more students picked apple than picked orange for their favorite fruit?

_____

3 Which fruit was chosen as favorite by the fewest students? _____

4 How many students are in Ms. Tanaka's class? _____

5 What can you say for sure about the fruit preferences of Ms. Tanaka's class?

_____

_____
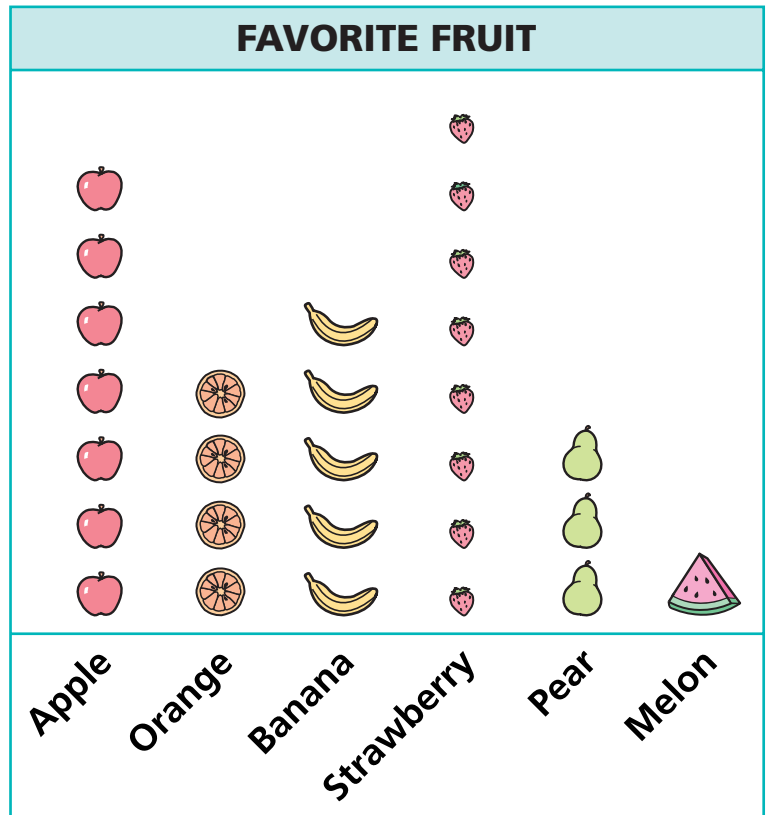
6 How many pieces of fruit does Ms. Tanaka's class eat each day?

A. 28 **B.** 15 **C.** 0 **D.** Do not know

7 Use the information below to complete the pictograph of favorite drinks.

15 people completed the survey.

Water was the least popular drink.

8 people liked milk best.

3 more people liked milk best than liked juice best.

2 people liked iced tea best.

| FAVORITE DRINK			
M			
Milk	Water	Juice	Iced Tea

8 Challenge From the pictograph, what can you say?

WHAT INSTRUMENT DO YOU PLAY?	
Piano	♪ ♪ ♪
Guitar	♪ ♪ ♪ ♪ ♪ ♪
Violin	♪ ♪ ♪ ♪
Trumpet	♪ ♪

_____

_____

_____

Name _____   Date/Time _____

Making Pictographs

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

The pictograph shows data from a survey taken at the library.

FAVORITE TYPE OF BOOK	
Nonfiction	📗📗📗📗📗📗
Science fiction	📗📗📗📗📗
Historical fiction	📗📗📗
Fantasy	📗📗📗📗📗📗📗📗📗

Key: Each 📗 = 10 people.

1 Of the people who answered the survey, how many chose fantasy as their favorite type of book?   _____

2 How many chose historical fiction as their favorite?   _____

3 How many more people chose fantasy as their favorite than chose science fiction?   _____

4 How might the librarian use the results of the survey when choosing new books to order?

_____

_____

5 Can you say anything about the number of books checked out of the library this year? Explain.

_____

_____

6 Use the information below to complete the pictograph.

200 people completed the survey.

SUVs are driven by the most people.

Station wagons are the least popular.

30 more people drive SUVs than drive pick-up trucks.

50 people drive pick-up trucks.

40 fewer people drive station wagons than drive pick-up trucks.

WHAT DO YOU DRIVE?	
Compact car	
SUV	
Pick-up truck	
Station wagon	

Key: Each C = 10 cars.

7 **Challenge** What are three questions you can answer from the pictograph?

_____

_____

_____

_____

Name _____   Date/Time _____

Introducing Bar Graphs
NCTM Standards 5, 6, 7, 8, 9, 10

40 third graders answered a survey about their favorite way to exercise. The bar graph shows the data.

FAVORITE WAY TO EXERCISE
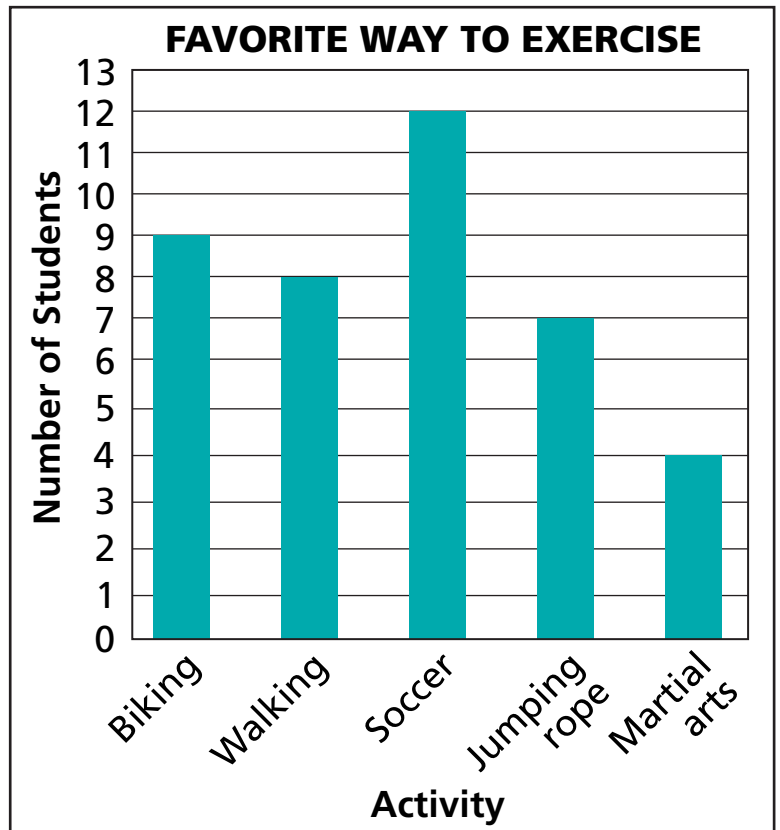
1 How many students chose walking?

_____

2 How many students chose jumping rope?

_____

3 How many more students chose soccer than chose biking?

_____

4 What can you say for sure about the exercise preferences of the students in the survey?

_____

_____

5 Can you say anything for sure about the number of students who exercise at least 30 minutes a day? Explain.

_____

_____

6 600 students were asked to choose one way they would like to help protect the environment. Use the information below to complete the bar graph.

280 students want to recycle.

Half as many students chose to save water as chose to recycle.

One tenth of the students want to raise money to protect the rain forest.

55 students want to plant trees.

PROTECTING THE ENVIRONMENT

Number of Students

300
250
200
150
100
50
0

Plant trees   Recycle   Save water   Pick up trash   Raise money

Way to Protect the Environment
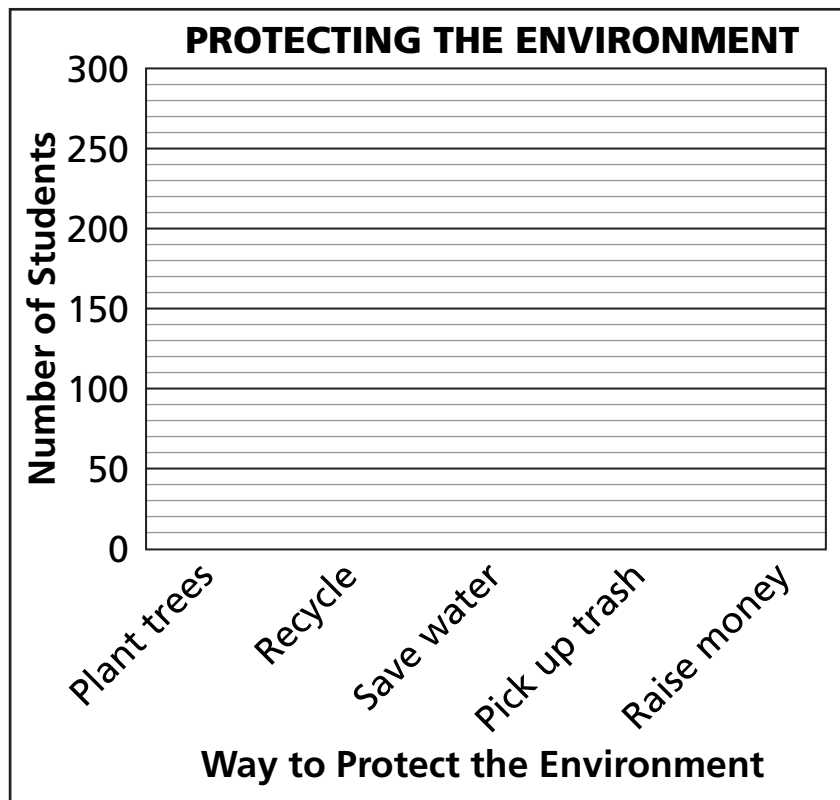
7 **Challenge** What are three questions you can answer from the bar graph?

_____

_____

_____

Name _____ Date/Time _____

Exploring Probability

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

Imagine you toss two number cubes, one blue and one green, and find the sum of the results.
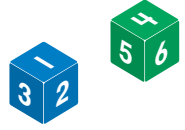
1 What sum is most likely?   Prediction: _____

2 What results are possible for . . .

the blue cube? _____   the green cube? _____

3 What sums are possible? _____

4 Complete the table at right to show the sum for each pair of results.

5 How many ways are there to get a total of . . .

3? _____

5? _____

7? _____

The Number on the Blue Cube

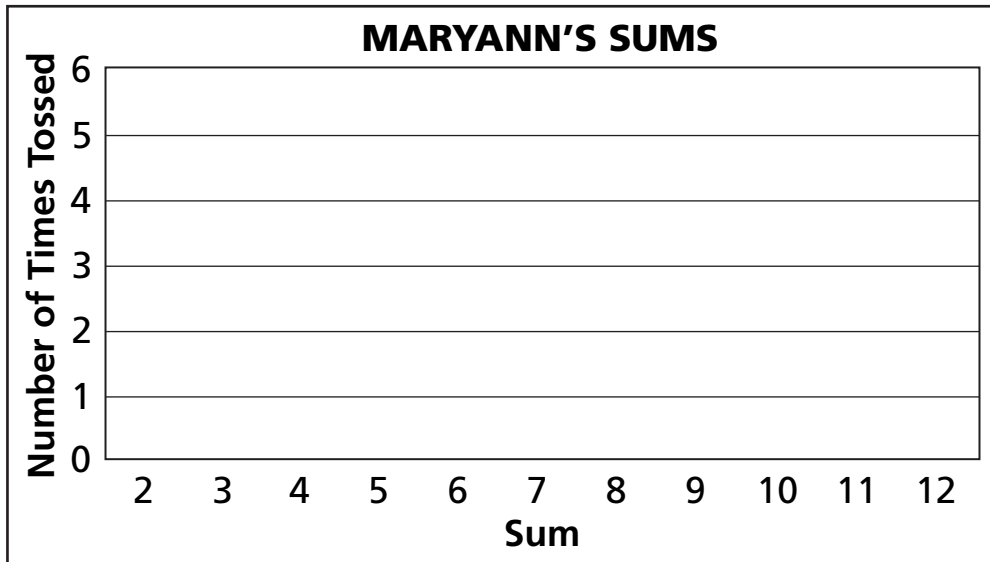|	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

The Number on the Green Cube

6 Which sum is most likely? Explain.

_____

_____

Maryann tossed two number cubes 20 times and wrote the sum each time. Here are her results:

5, 7, 7, 9, 6, 8, 8, 5, 7, 6, 8, 12, 7, 5, 9, 4, 11, 10, 10, 12

7 Complete the bar graph of Maryann's sums.

MARYANN'S SUMS

Number of Times Tossed	

6
5
4
3
2
1
0

Sum: 2 3 4 5 6 7 8 9 10 11 12

8 Which sum(s) occurred most often? _____

9 Which sum(s) occurred least often? _____

10 Using the table on the previous page, which sum would you expect to occur more often: 11 or 12? _____

Which of those two sums occurred more often for Maryann? _____

11 Challenge Imagine a bag containing 3 green marbles, 2 blue marbles, and 1 red marble. If you reach in without looking and take 2 marbles, what colors could they be? List all the possibilities.

_____

Name _____ Date/Time _____

Experimenting with Probability

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

Imagine that you toss two coins: a penny and a nickel. Each coin shows either heads or tails. You record the number of heads.

1 What number of heads
do you think is most likely?   Prediction: _____

2 Complete the table to show the number
of heads for each pair of possible results.

		nickel shows	
		H	**T**
penny shows	**H**		
	T		

3 How many ways are there to get . . .

0 heads? _____   1 head? _____   2 heads? _____

4 Toss a nickel and a penny 20 times
and record the number of heads
each time by making a tally mark
in the correct row of this table.

0 heads	
1 head	
2 heads	

5 Which number of heads occurred most often
for you?

_____

Imagine that you toss three coins: a penny, a nickel, and a dime. You record the number of heads each time.

6 Complete the table to show each possible result and the total number of heads.

Penny	Nickel	Dime	Number of Heads
H	H	H	3
H	H	T	2

7 Is 0 heads more likely than 1 head? Explain.

_____

_____

8 Is 1 head more likely than 2 heads? Explain.

_____

9 Challenge Is it more likely the penny will show heads than the nickel will show heads? Explain.

_____

Name _____ Date/Time _____

Making and Using a Price Chart
NCTM Standards 1, 2, 6, 7, 8, 9

Erasers and pencils are on SALE!

3¢ ~~4¢~~

4¢ ~~5¢~~

Limit: no more than 3 of each item to a customer.

1 What is the total cost of 1 pencil and 1 eraser during the sale? _____

2 Jimmy spent 13¢. What did he buy? _____

3 Could you spend exactly 19¢? _____

4 What purchase costs 15¢? _____

5 What could you buy with exactly 1 dime? _____

6 What would you buy if you wanted the most items possible? _____

7 How much would you spend if you buy as many items as possible? _____

8 Alice gave the cashier 1 dime and 1 nickel. She received 1¢ in change. How much did she spend? _____

What could she buy for that amount? _____

---

9 How much would it cost to buy 2 pencils and 3 erasers? _____

What coins could you use to pay that exact amount?

_____

---

10 Mary gave the cashier 1 quarter and got 1 dime and 4 pennies in change. How much did she spend? _____

What could she buy for that amount? _____

---

11 Ali gave the cashier 2 coins and did not get change back. Tell whether each purchase is possible, and if so, what 2 coins Ali used.

Could Ali have bought 2 erasers? _____

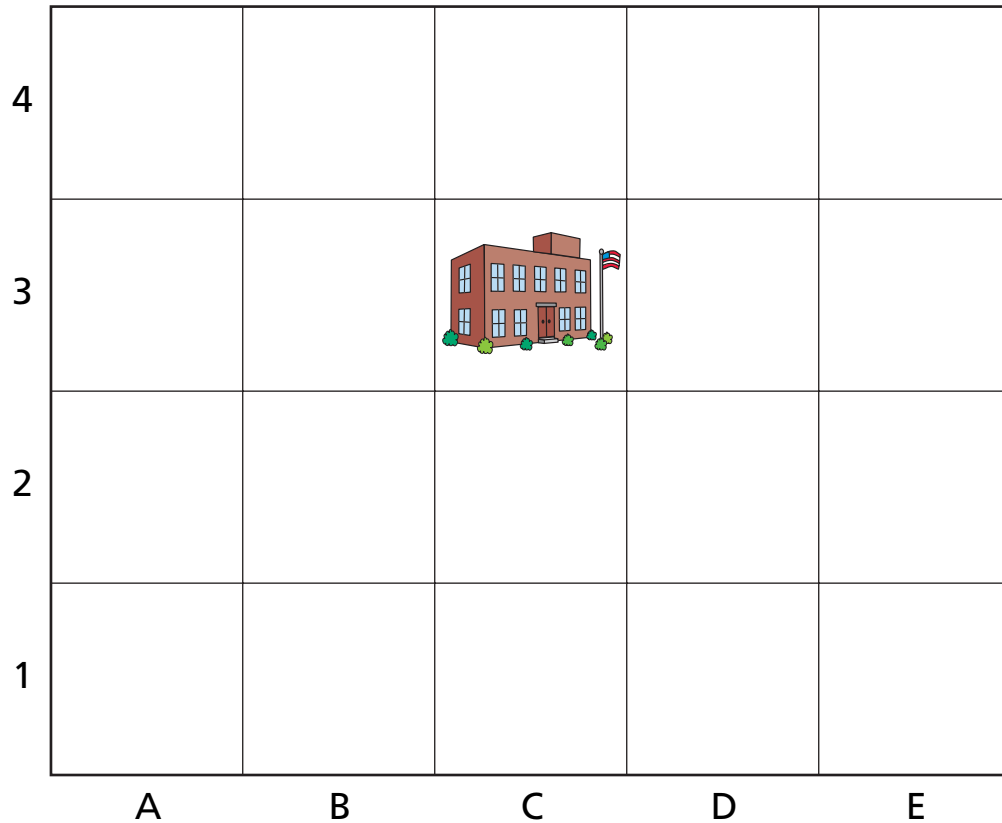Could Ali have bought 1 pencil and 2 erasers? _____

Could Ali have bought 2 pencils? _____

---

12 Challenge Erin has enough money to buy 3 pencils and 2 erasers, but not enough money to buy another eraser. How much money could she have?

_____

Chapter 8

Lesson 7

Finding Locations on a Map

NCTM Standards 3, 5, 6, 7, 8, 9, 10

Write each person's name in the correct box on the map.

1 Jack's house is in A3.

2 Stacy lives between Jack and the school.

3 Amanda lives in E4.

4 Luke's house is in E2.

5 On the map, Adrine's house is directly above Luke's house.

6 Kevin lives between Adrine and the school.

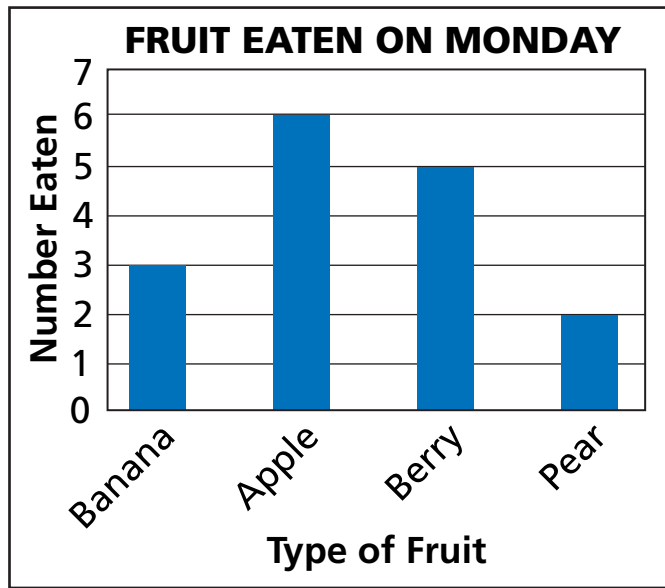**Write the location of each person's house.**

7 Jack _A3_

8 Stacy _____

9 Amanda _____

10 Luke _____

11 Adrine _____

12 Kevin _____

The graph shows the fruits Ms. Lopez's students ate on Monday.

FRUIT EATEN ON MONDAY

Number Eaten

7
6
5
4
3
2
1
0

Banana   Apple   Berry   Pear

Type of Fruit

13 How many apples did the class eat? _____

14 How many more berries than pears did the class eat? _____

15 Which fruit was eaten most? _____

16 Which fruit was eaten least? _____

17 How many pieces of fruit did the class eat in all? _____

18 Challenge Write two more questions that can be answered by looking at the graph.

_____

_____

_____

_____

Name _____ Date/Time _____

Naming Intersections on a Map

The map shows the stops on a postal worker's route.
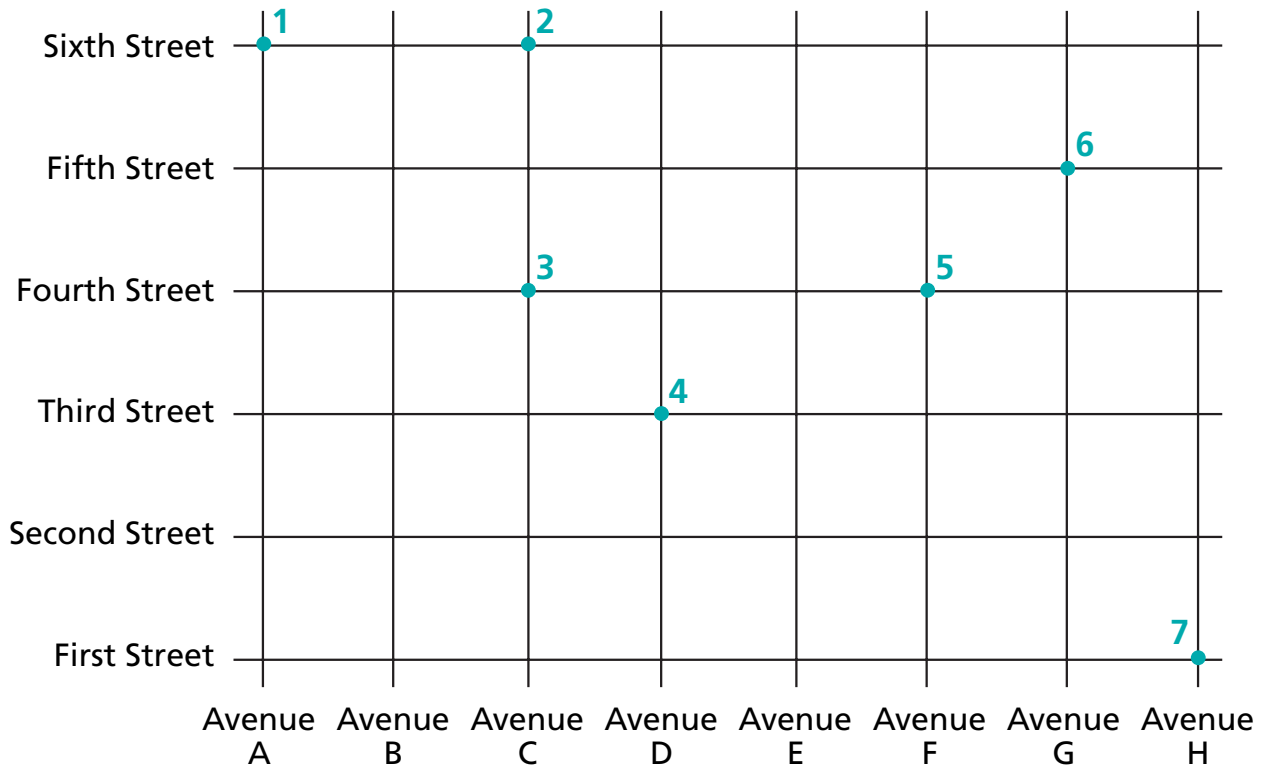
Describe the location of each stop.

1 Stop 1 is at the intersection of Avenue __A__ and __Sixth__ Street.

2 Stop 2 is at the intersection of Avenue _____ and _____ Street.

3 Stop 3 is at the intersection of Avenue _____ and _____ Street.

4 Stop 4 is at the intersection of Avenue _____ and _____ Street.

5 Stop 5 is at the intersection of Avenue _____ and _____ Street.

6 Stop 6 is at the intersection of Avenue _____ and _____ Street.

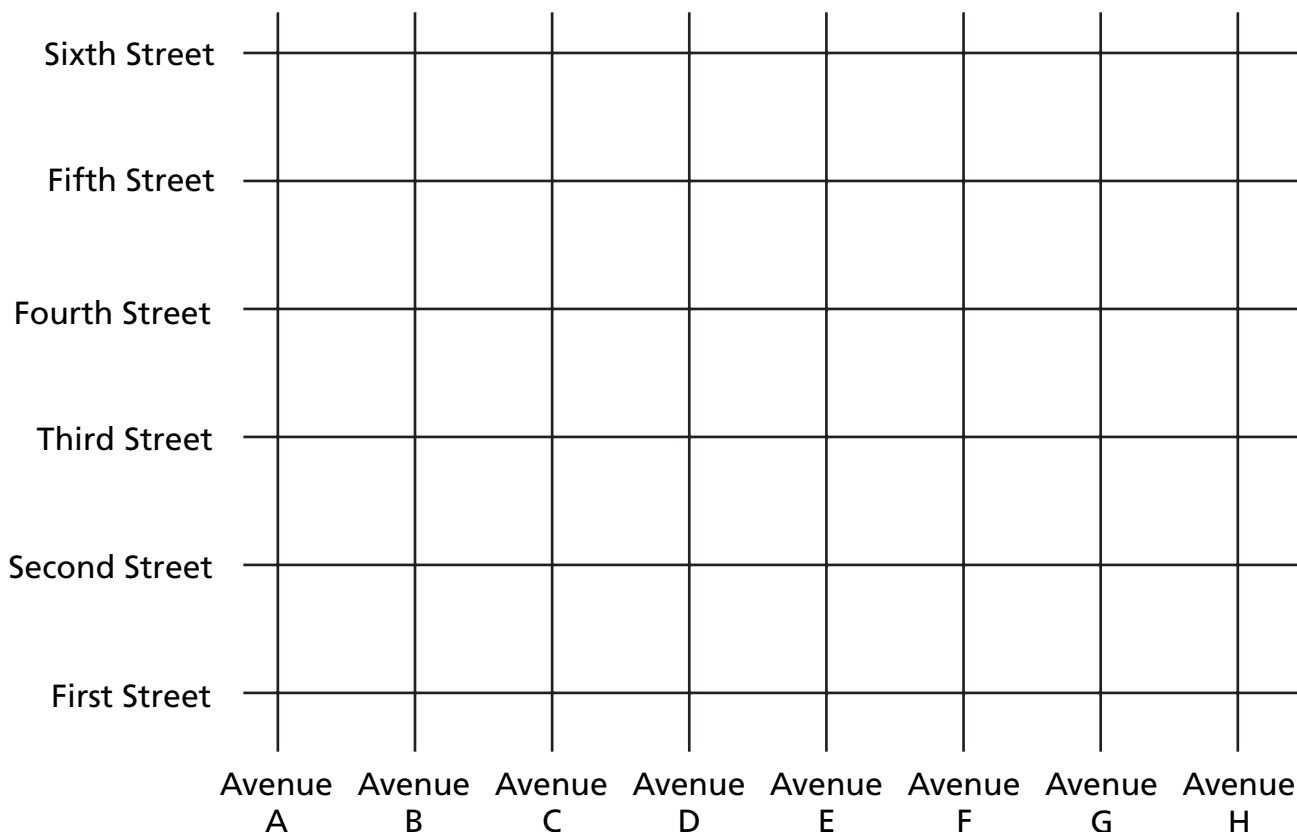**7** Stop 7 is at the intersection of Avenue _____ and _____ Street.

8 Draw a point for each stop on Sarah's paper delivery route. Label each point with the stop number.

Stop 1 is at the intersection of Avenue H and Fifth Street.

Stop 2 is at the intersection of Avenue F and Sixth Street.

Stop 3 is at the intersection of Avenue E and Fourth Street.

Stop 4 is at the intersection of Avenue A and Second Street.

	Avenue A	Avenue B	Avenue C	Avenue D	Avenue E	Avenue F	Avenue G	Avenue H
Sixth Street								
Fifth Street								
Fourth Street								
Third Street								
Second Street								
First Street								

9 Challenge Tim earns $1 every 2 weeks for taking out the trash. How much money can he earn in 8 weeks? Fill in the graph to find out.
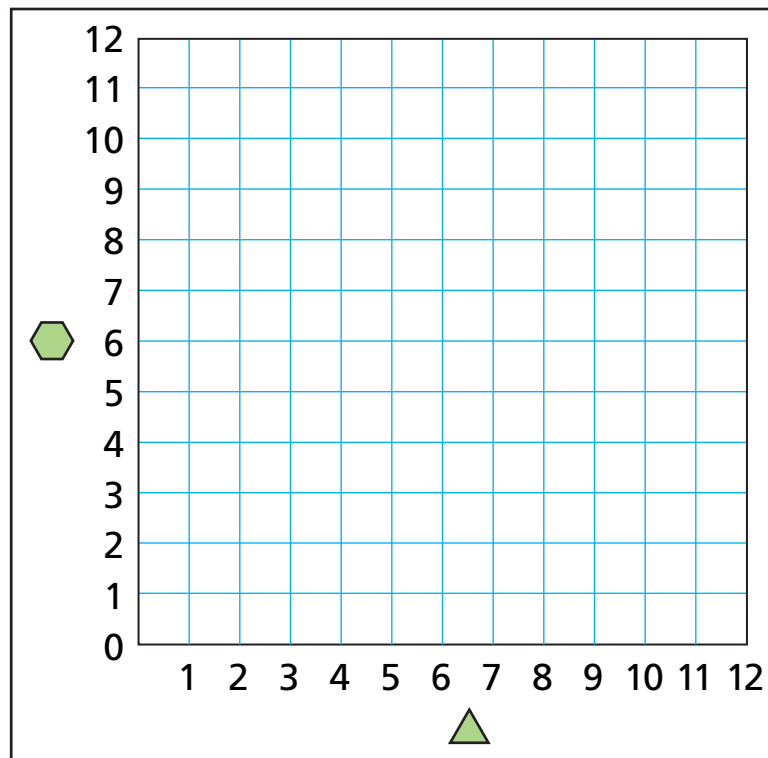
He can earn _____ in 8 weeks.

MONEY TIM EARNS

Total Amount: $5, $4, $3, $2, $1, $0

Week: 0 1 2 3 4 5 6 7 8 9
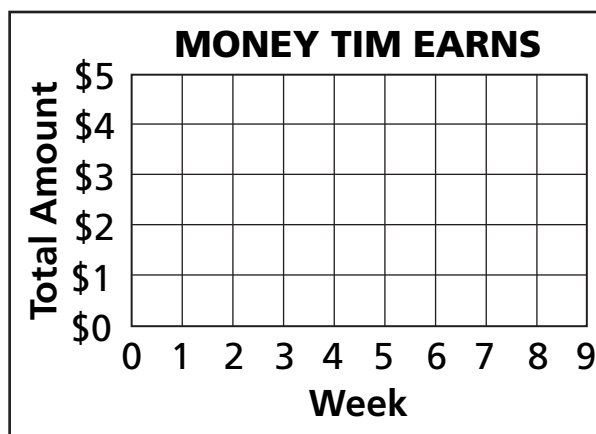
Graphing Solutions to Open Number Sentences

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

1 Complete the table and graph the points.

△　◯　3

△	7	10			4			5		9
◯	4	7	3	0		9	8		5	

2 If △ and ◯ must both be whole numbers, could △ be 2? Explain your answer.

_____

3 If △ and ◯ must both be whole numbers, could ◯ be 100? Explain your answer.

_____

4 Complete the table and graph the points.

⬛ 5 🟢

🟩	0	1	2					
🟢	5							

---
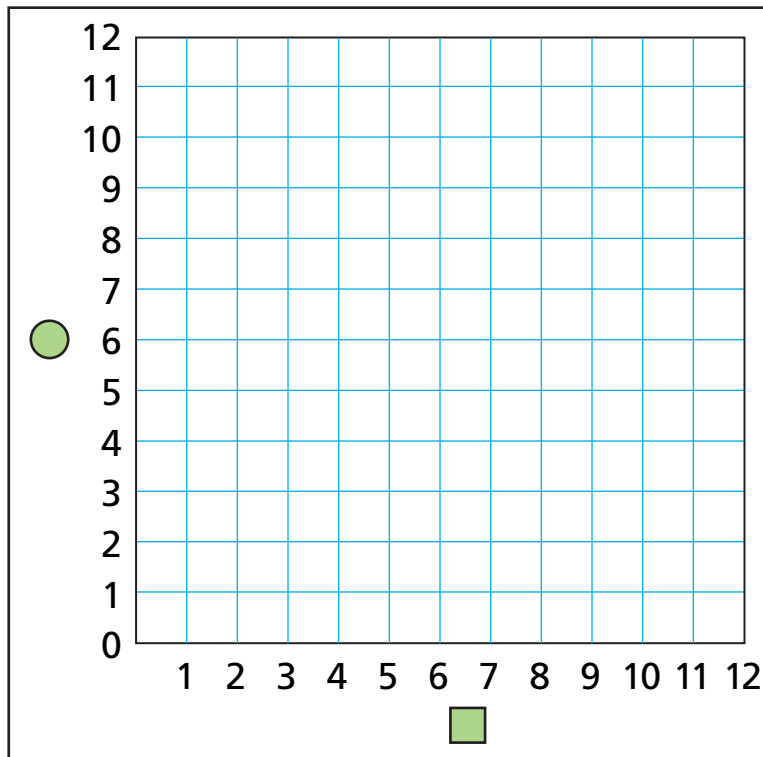
5 If 🟩 and 🟢 must both be whole numbers, could 🟩 be 100? Explain your answer.

_____

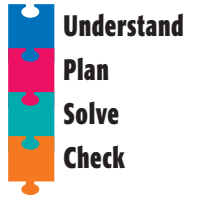**6** If 🟩 and 🟢 must both be whole numbers, could 🟢 be 2? Explain your answer.

_____

7 Challenge What do you notice about the points on the graph?

_____

Name _____   Date/Time _____

Problem Solving Strategy
Make a Table
NCTM Standards 1, 2, 6, 7, 8, 9, 10

Understand
Plan
Solve
Check

Pens and notepads are on sale!

Limit: no more than 3 of each item to a customer.

4¢

6¢

Solve each problem.

1 Han made a purchase at the school store. The amount she spent is a multiple of 7. What did Han buy?

2 The amount that Max spent was a two-digit number. When the two digits are added together they equal 4. What did Max buy?

3 Shana and Stu spent the same amount of money at the school store, but they bought different items. If Shana didn't buy any notepads, what did Stu buy?

Problem Solving Test Prep

Choose the correct answer.

1 Martina had 2 pizzas at her party. She cut each into the same number of slices. After 4 slices were eaten, $\frac{3}{4}$ of the slices were left. Into how many slices was each pizza cut?

A. 4   **C.** 12

B. 8   **D.** 16

2 James lives 6 blocks from school. He rides his bike to and from school on Monday, Wednesday, and Friday. How many blocks does he ride in one week?

A. 12   **C.** 36

B. 18   **D.** 48

✎ Show What You Know

Solve each problem. Explain your answer.

3 A snack machine takes only nickels, dimes, and quarters. You want to buy a snack for 35¢. How many ways can you pay for it? Explain how you know that you have found all possible ways.

_____

_____

_____

_____

4 The table shows the prices of different numbers of postcards.

1	2	3	6	7
14¢	28¢	42¢	84¢	98¢

Brad needs 5 postcards. How much will they cost? Explain two different ways to find the answer.

_____

_____

_____

_____

_____

_____

Chapter 8 Review/Assessment
NCTM Standards 5, 6, 7, 8, 9, 10

Students were asked to choose their favorite subject. Lessons 1 and 2

FAVORITE SUBJECT	
Social Studies	△ △ △ △ △ △ △
Math	△ △ △ △ △ △ △ △ △ △
Science	△ △ △ △ △ △ △
Language Arts	△ △ △ △ △ △

Key: Each △ = 10 students.

1 How many students chose Social Studies as their favorite subject? _____

2 How many more students chose Math than chose Science? _____
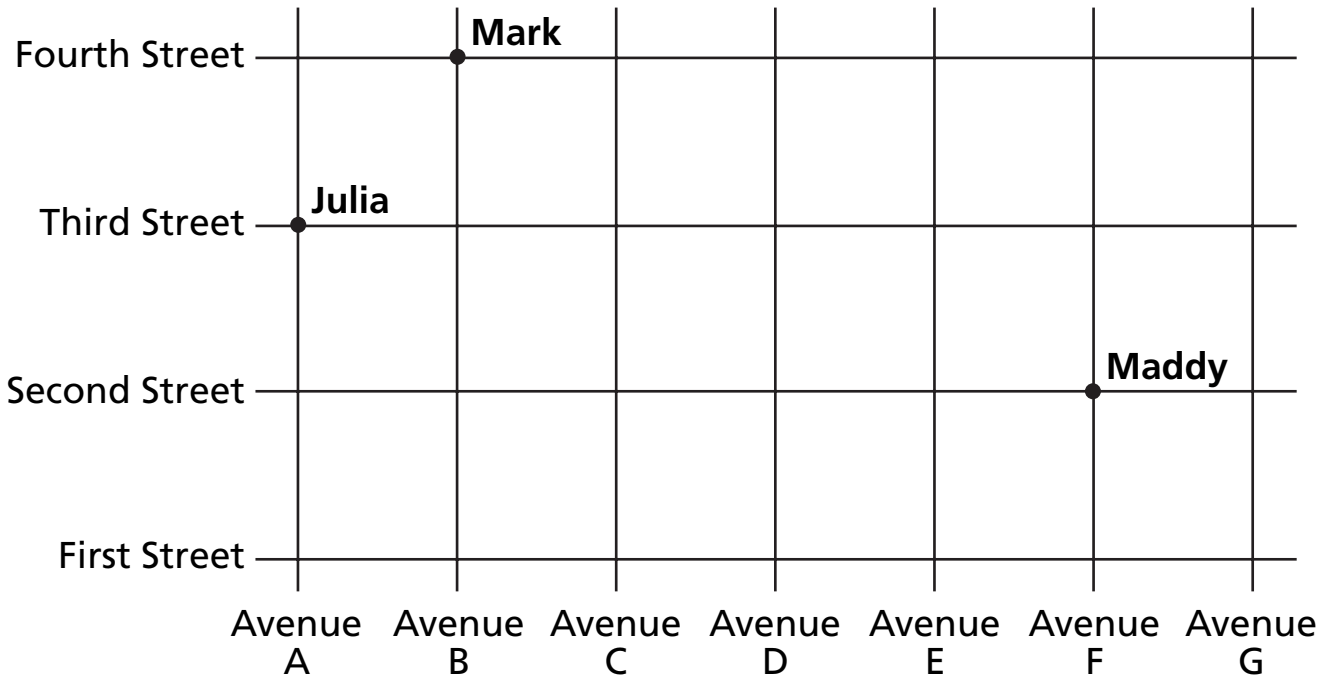
3 How many students answered the survey? _____

A pair of gloves costs $2.00, and a hat costs $5.00. There is a limit of 3 of each item to a customer. Complete the table and solve the problems. Lessons 6 and 10

	Hats			
Pairs of Gloves	**0**	**1**	**2**	**3**
0				
1				
2				
3				

4 What items would you buy if you spent the greatest amount possible?

_____

5 What can you purchase for $17?

_____

Describe the location of each person. Lesson 8

	Avenue A	Avenue B	Avenue C	Avenue D	Avenue E	Avenue F	Avenue G

Fourth Street — **Mark**

Third Street — **Julia**

Second Street — **Maddy**

First Street

Avenue A   Avenue B   Avenue C   Avenue D   Avenue E   Avenue F   Avenue G

6 Julia is at the intersection of Avenue __A__ and __Third__ Street.

7 Mark is at the intersection of Avenue _____ and _____ Street.

8 Maddy is at the intersection of Avenue _____ and _____ Street.

Lola tosses a number cube numbered 1 through 6. Lessons 4 and 5

9 Is it *possible* or *impossible* for Lola to toss an odd number?

_____

10 Is Lola more likely to toss a number less than 2 or a number greater than 3?

_____

Lola made a bar graph of her results.
Lesson 3

11 Which toss occurred most often?

_____

12 How many times did Lola toss a number greater than 3?

_____

LOLA'S RESULTS

Number of Times

10
8
6
4
2
0

1 2 3 4 5 6

Toss