

**ATTAINMENT'S**

# **Differentiated MATH Lessons Student Materials**



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**Original Stories by Debbie Fischer**

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# Overview

**Differentiated Math Lessons Student Materials** includes the following reproducible resources to use in conjunction with the **Teacher's Guide**. Photocopy or print them out for each student in your class.

## **Worksheets**

Engaging, easy-to-follow worksheets for each math topic reinforce the large group lessons, tiered assignments, large group lessons, and stories, giving your students multiple opportunities to practice learned skills.

## **Stories**

By demonstrating how math can be used in daily life, these captivating, illustrated stories prepare students for each chapter's lessons and math vocabulary.

## **Student Checklists**

Step-by-step project checklists help students keep track of their work and provide a structure to follow for more complex assignments.

## **Research It! Cards**

Research It! Cards give suggested activities for students who complete their work quickly, as a challenge activity for the more gifted mathematician, or for students to do while others are working on the tiered projects. They include research ideas, extensions, and skill reinforcements covering each chapter's math topic. They're designed as cards for you to print, cut out, and give to students; select activities according to student academic abilities.

## **Math Vocabulary Cards and Word Lists**

These cards and word lists include all the math vocabulary words covered in each chapter. Photocopy/print out Vocabulary Cards; cut out and fold, if desired. Blank word lists let you create personalized lists for each student. Encourage students to put vocabulary cards and lists in their student math notebooks for reference.

## **Other Resources**

Fact Cards have basic math information for students to put in their notebooks for reference. Other reproducible resources for your class include tally charts, board games, and measurement illustrations.



## Category icons

Access materials, lessons, or resources that you need by referring to the category picture icons in each unit.



**Student project checklists**



**Large Group Lesson worksheets**



**Tiered Lesson worksheets**



**Small Group Lesson worksheets**



**Research It! activities**



**Vocabulary words and lists**



# *Sea Shells by the Seashore*

Mr. Anderson was ready for the start of a new school year. His summer vacation was great, and he had many things to share with his new class at Oak Forest School. He hoped his new class of students had as much fun during the summer as he had.

Last winter, when there was ten inches of snow on the ground and the temperature was below zero, Mr. Anderson had read a book



about the ocean, beaches, and seashells. He decided he was going to go on a vacation to the Pacific Ocean when school was finished for the summer. He hoped he could see and do some of the things he had read about in the book.

So, four days after the school year ended, Mr. Anderson was on a plane headed for a resort on the Pacific Ocean. When he got there, he knew his vacation was going to be even better than he had imagined.

He was told the beach was on a secluded part of the ocean. If he got up early and walked the beach, he could find treasures from the ocean the high tide had left behind.

Mr. Anderson had loved getting up early each morning. He was often the only person on the beach. This made treasure hunting even more successful. Mr. Anderson took a small bag with him each morning and picked up some of the sea's treasures.





nd.

ere did he find the shells?  
ames of things he had  
st of? What did he have  
ore colored shells? Were  
per? Did he have smooth

A detailed black and white illustration of various fungi. At the top left is a funnel-shaped mushroom with a textured stem. Below it is a tall, slender, hollow-looking mushroom. To the right of the tall mushroom is a small, branching, bracket-like fungus. At the bottom center is a cluster of small, rounded mushrooms growing together. To the right of this cluster is a large, complex, and highly textured fungus, possibly a bracket fungus or a large mushroom with a very rough, scaly surface. A small, dark, round object is visible in the bottom right corner.

A collection of black and white illustrations of various fossil specimens, including starfish, sea urchins, and other marine organisms. The specimens are arranged in a scattered pattern. Some are clearly identifiable as starfish or sea urchins, while others are more abstract or fragmentary. The illustrations are detailed, showing the texture and structure of the fossils.

Anderson up to now?  
had a book about shells.

The next morning, the children found a pile of shells at their desks. What was Mr. Anderson up to now? They also saw that each group of students had a book about shells.

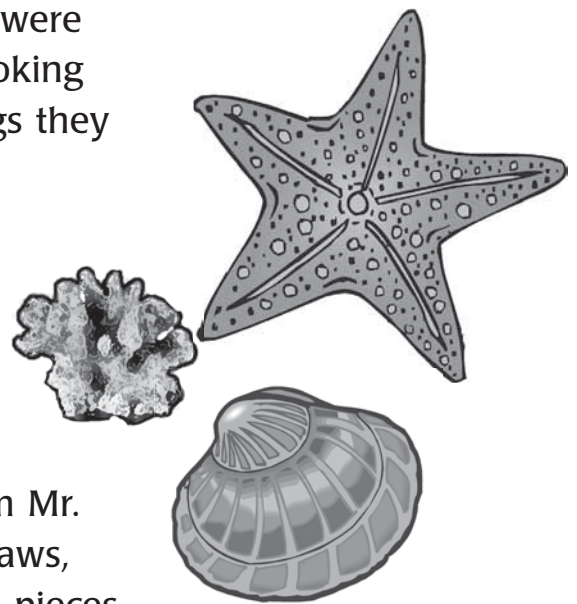




It had pictures of shells and gave their names. Mr. Anderson told the children to work together and sort the shells. He didn't say anything else!

One group started sorting shells by size. They had piles of small, medium, and large shells. Another group was sorting them by color. They had purple, white, tan, and pink shells. The third group sorted shells by how they looked. Some had spirals, some had smooth edges, and others were rough. Some shells were striped and some spotted. Everyone was looking at the shells closely. They were seeing things they hadn't noticed the day before.

Tanika picked up the book about shells and found a picture of one that Mr. Anderson had found. It was called a cat's paw. This got everyone excited to find the names of all of the shells. One by one, each group started finding shell names from Mr. Anderson's collection. He had found cat's paws, cowry and clamshells, starfish, sand dollars, pieces of coral, and one large conch shell.



When the children had finished identifying everything, they noticed Mr. Anderson had put a large chart on the wall. All of the questions they had asked the day before were written on it. Mr. Anderson told the class it was time to find answers to their questions.

Mr. Anderson showed the children a large piece of paper with lines dividing it into one-inch squares. He said it was a graph, and they would read it to find the answers. Mr. Anderson asked if anyone knew what a graph was. Dave raised his hand and said it was a picture with lots of lines. Kate said the lines had numbers on them. Mr. Anderson explained that a graph was a "math picture" that gave

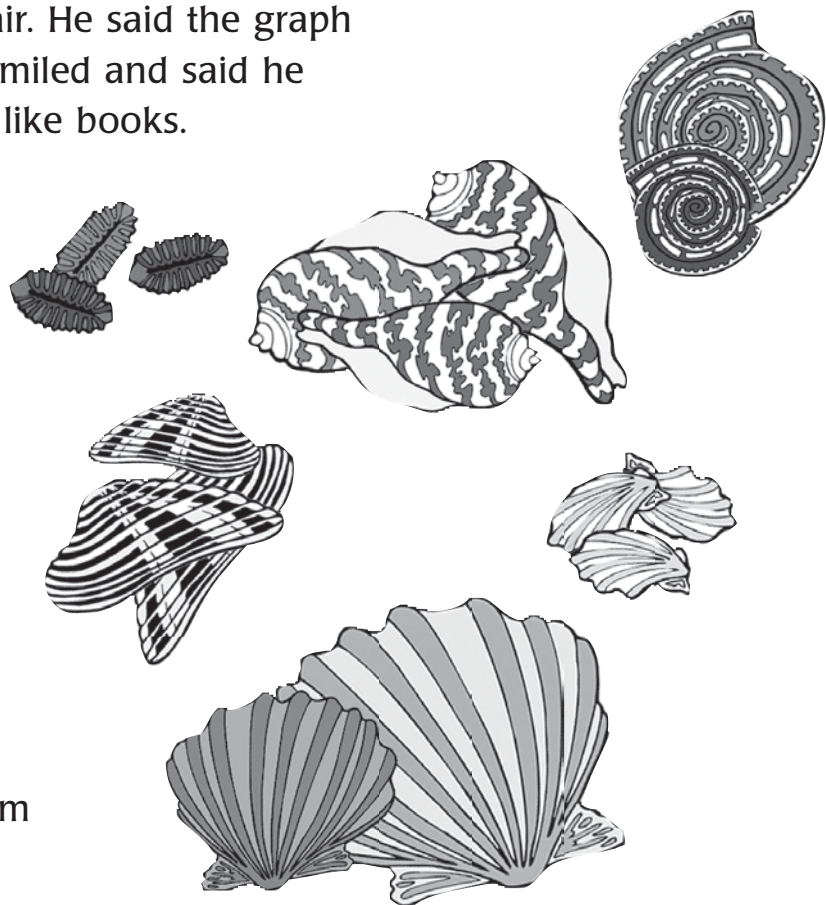
information about a topic. It was a way to measure how much they had of different shells. Mr. Anderson drew two lines on the paper. One line started at the top and went up and down. Mr. Anderson left two spaces open at the edge of the paper. He then moved up two spaces from the bottom of the paper and drew another line across the bottom. Dave showed Mr. Anderson where the numbers could go on a graph. He wrote the first number in the space on the side of the paper above the bottom line. He wrote one number in each space going up to the top of the paper.

Angie raised her hand and said they needed to show what they were graphing. She said they should write names of things on the graph. She showed the class where to put the names, one in each square below the line going across the bottom of the paper.

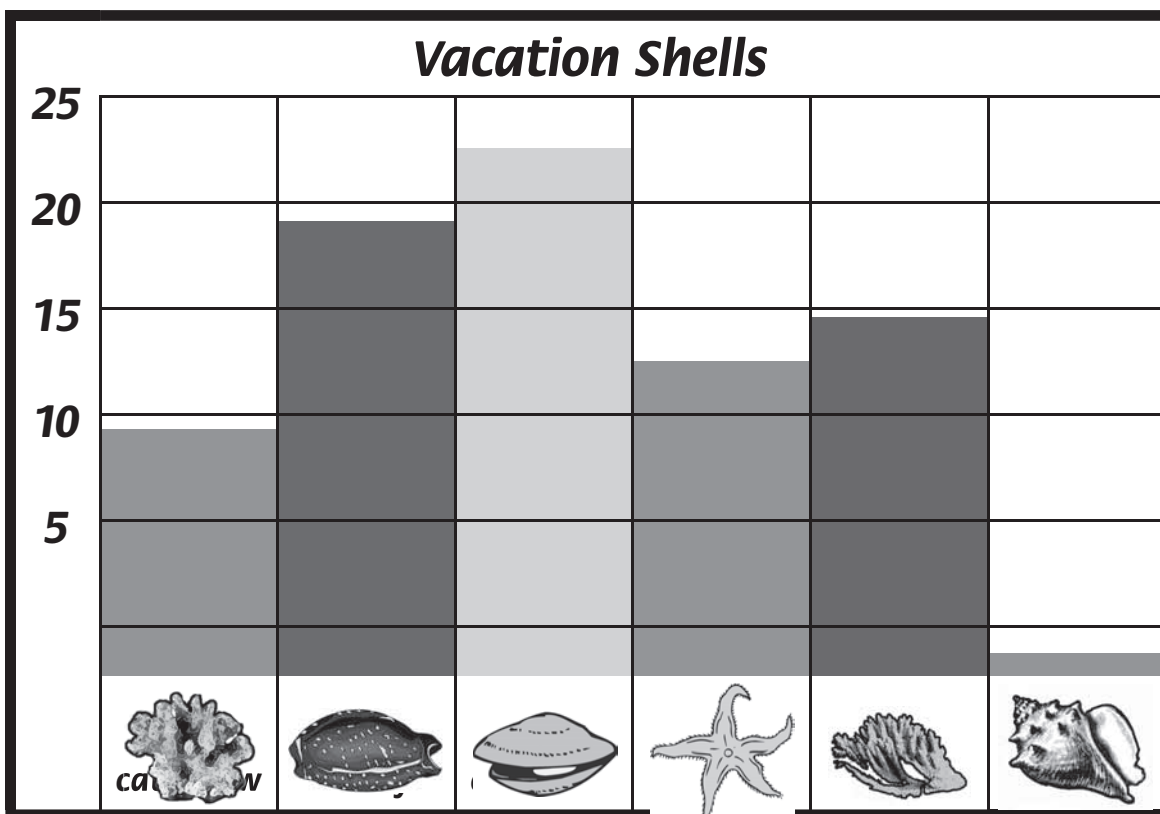
Fred had his hand in the air. He said the graph needed a name. Mr. Anderson smiled and said he was right. Graphs had titles just like books. Fred said the title should be "Vacation Shells."

The children worked in their groups and sorted their shells by the different types they found. Then, the groups colored in one square on the chart, by its name, for each shell they had. When they were finished, they sat down and looked at their graph. Now they were ready to read their graph and answer questions from the day before.

Angie was waving her hand in the air and didn't wait for Mr. Anderson to call on her.



She blurted out that the clam shells had the most. Before long, all of their questions had been answered. Conch shells had the least. There were more pieces of coral than starfish. Starfish and cowry shells were the same. There were fewer starfish than pieces of coral. Altogether, Mr. Anderson had collected 92 shells!



What a fun way to start a new school year. Everyone started talking about their vacations and collections they had at home. Dave said he had three shoeboxes filled with rocks. Juan had two jars of marbles, and Fred had a backpack filled with small model cars. They were all excited about going home and making graphs of their own collections.

Meanwhile, Mr. Anderson was already thinking about his next vacation—and his next collection!





# Tally Chart

**Title:** \_\_\_\_\_

**Name** \_\_\_\_\_ **Date** \_\_\_\_\_

<b>Label</b>	<b>Tallies</b>	<b>Total</b>
<b>Key:</b> _____ = _____		



# Research It! Cards

Photocopy or print out Research It! cards below; cut them out and put in an index box or post on a bulletin board. Assign to students based on skill level.

## Research It!



### Weather Graph 1

1. Tally the weather for \_\_\_\_\_ days.
  2. Select one of the graphs below.
- Circle one: a. pictograph    b. bar graph
3. Using your data, make a graph.
  4. Share your graph.
  5. Write \_\_\_\_\_ questions for students to solve.

## Research It!



### Venn Diagram 2

1. Think of a question to ask.  
Example: What kind of book do you like to read, fiction or nonfiction?
2. Use the tally chart.
3. Ask your class members to vote.
4. Record the results.
5. Make a Venn diagram to show the results.
6. Write a sentence about your graph.
7. Share your graph.

## Research It!



### A Glyph 3

1. A glyph is a picture that can stand for several things.
  2. Use the key below to create a glyph.
- eyes:**    = boy                      = girl
- mouth:**    = reads fiction    = reads non fiction
- ears:**        = plays sports        = plays an instrument
- = acts in plays    = plays computer games
- face:**        = is a sister
- = is a brother
- = is an only child
3. Solve the glyph: \_\_\_\_\_
  4. Create another.
  5. Ask someone to solve it.
- Teacher note: Create pictures for the glyph.


## Research It!



### A Tally Chart 4

(use with card 2)

- Name:** \_\_\_\_\_
- Question:** \_\_\_\_\_
- \_\_\_\_\_
- Category 1:** \_\_\_\_\_
- Tallies:** \_\_\_\_\_ **Total:** \_\_\_\_\_
- Category 2:** \_\_\_\_\_
- Tallies:** \_\_\_\_\_ **Total:** \_\_\_\_\_

<b>G</b>	<b>R</b>	<b>A</b>	<b>P</b>	<b>H</b>
sorting	pictograph	longer	information	less than
line graph	classifying	topic	tally chart	rows
bar graph	legend		shorter	greater than (>)
axis	horizontal	key	columns	vertical
counting on	less than (<)	equal to	least	label

### ***Graphing Bingo Game Directions***

1. Pass out a game board and bingo markers to cover the words on the board to each player.
2. Players place a marker on the star in the center of the board.
3. Using the teacher's vocabulary card set, place cards face down in a pile. Choose a student to read the words aloud.
4. Classmates find each word on their game boards and cover it with a marker.
5. Game stops when one student has a row of words covered.
6. Determine directions of the rows before the game starts.



G	R	A	P	H
		★		

**Note:** Use this blank graph to make additional Graphing Bingo Game boards using learned vocabulary words.



# Research It! Cards

Photocopy or print out Research It! cards below; cut them out and put on a ring, in an index box, or on a bulletin board. Assign to individuals or student pairs; have students share work.

## Research It!



### *Make a T Graph* 5

1. **Pick a topic:**  
Examples: sports animals music fashion lunch count
2. **Pose a question:**  
Examples: What is the win/lose record for our high school track team?  
Do you like rap or rock music?
3. **Place one choice on either side at the top of the T.**
4. **Keep track of the team's record or class vote.**
5. **Present your results.**

## Research It!



### *Find Graphs* 6

1. **Pick one place to search for graphs:**  
newspaper Internet magazine
2. **Search material for graphs.**
3. **Cut or print out different types of graphs.**
4. **Paste and label types of graphs on poster board.**
5. **Write a paragraph about the different ways to use graphs.**

## Research It!



### *Venn Diagram* 7

1. **Graph the different kinds of shoes your classmates are wearing.**
2. **Make a tally chart.**
3. **Collect data.**
4. **Construct and label the graph.**
5. **Make a key.**
6. **Present your information.**

## Research It!



### *Bar Graph* 8

1. **Get a book on dinosaurs.**
2. **Pick \_\_\_\_\_ dinosaurs to graph.**
3. **Arrange from largest to smallest.**
4. **Construct and label graph.**
5. **Make a key.**
6. **Present your information.**



## ***Student Vocabulary Lists***

Photocopy/print and cut out vocabulary lists for all students in class. Students paste the lists in their math notebooks to use during this unit. Refer to the list for writing sentences, spelling words, or homework assignments. Important words can be highlighted.

Name \_\_\_\_\_

### ***Graphing Vocabulary***

1. altogether
2. axis
3. bar graph
4. classifying
5. columns
6. compare
7. counting on
8. equal to (=)
9. graph
10. greater than (>)
11. greatest
12. grid
13. horizontal
14. information
15. key
16. label
17. least
18. legend
19. less
20. less than (<)
21. line graph
22. longer
23. pictograph
24. rows
25. shorter
26. sorting
27. tally chart
28. topic
29. Venn diagram
30. vertical

Name \_\_\_\_\_

### ***Graphing Vocabulary***

1. altogether
2. axis
3. bar graph
4. classifying
5. columns
6. compare
7. counting on
8. equal to (=)
9. graph
10. greater than (>)
11. greatest
12. grid
13. horizontal
14. information
15. key
16. label
17. least
18. legend
19. less
20. less than (<)
21. line graph
22. longer
23. pictograph
24. rows
25. shorter
26. sorting
27. tally chart
28. topic
29. Venn diagram
30. vertical



## ***Individualized Student Vocabulary Lists***

Photocopy/print out and cut out lists below. Write individualized vocabulary word lists for each student, or have students write their own. Students can highlight the most important words.

Name \_\_\_\_\_

### ***Graphing Vocabulary***

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

Name \_\_\_\_\_

### ***Graphing Vocabulary***

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

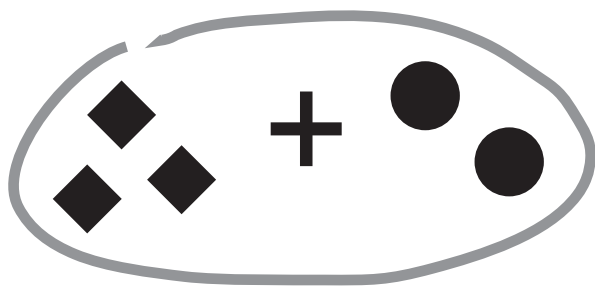
11. \_\_\_\_\_

12. \_\_\_\_\_

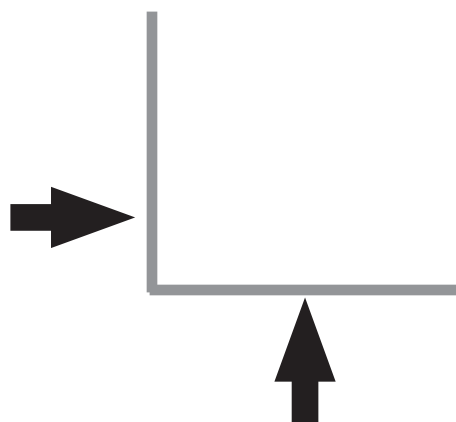
13. \_\_\_\_\_

14. \_\_\_\_\_

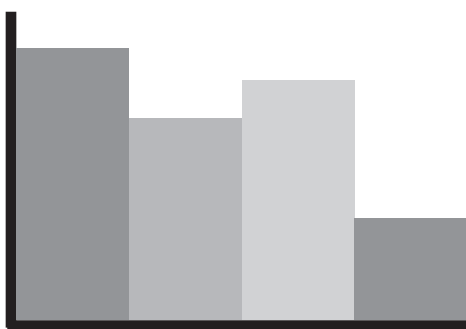
15. \_\_\_\_\_



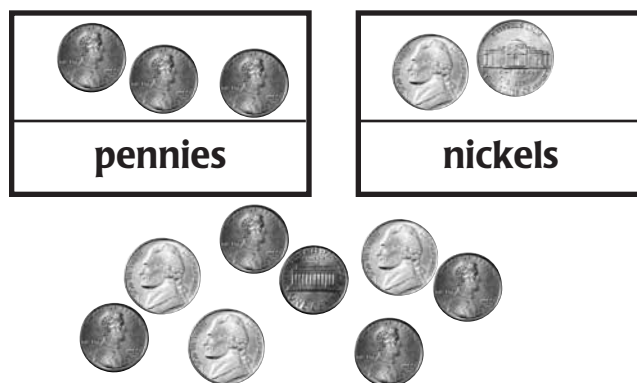
**altogether**



**axis**

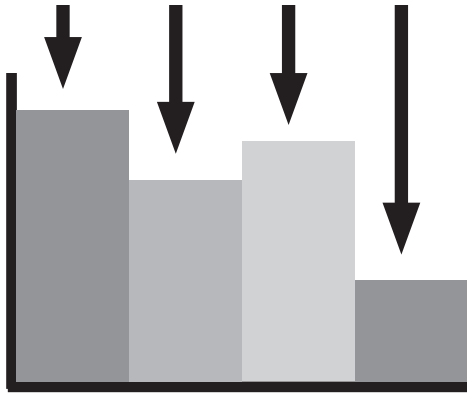


**bar graph**

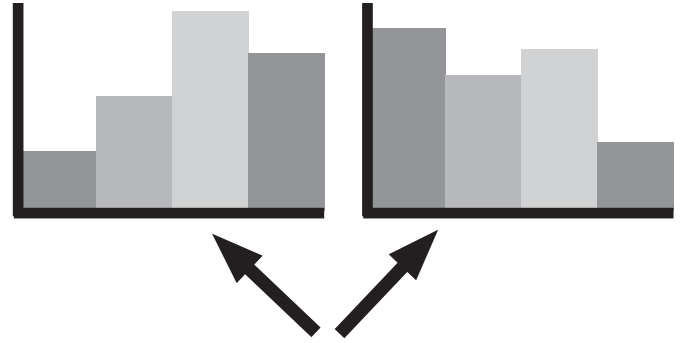


**classifying**





**columns**



**compare**

**... 8, 9, 10**

**counting on**

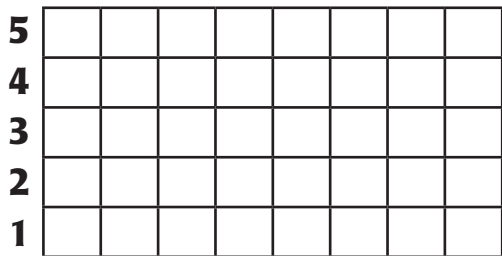


**3 = 3**

**equal to (=)**





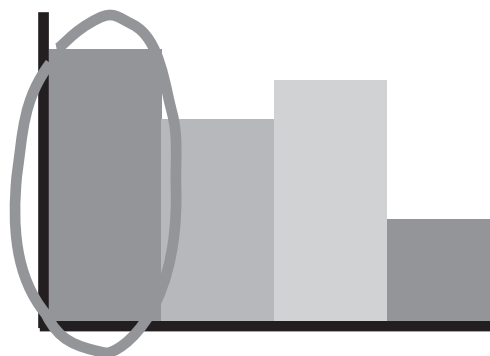


**grid**



**graph**

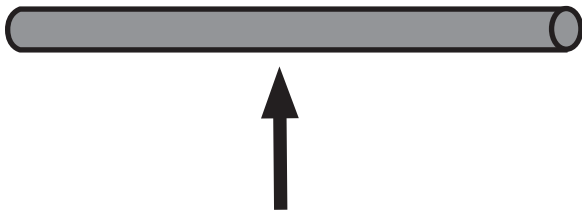
**10 > 3**



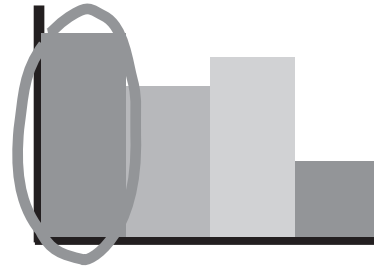
**greater than (>)**

**greatest**








**horizontal**

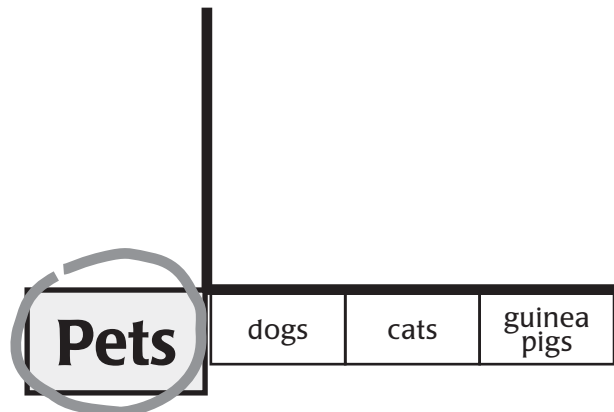


**Column one has more.**

**information**

<b>Key</b>	
Red	
Blue	
Green	

**key**



**Pets**

**label**





## Legend

Red	
Blue	
Green	

**least**

**legend**



4 < 6

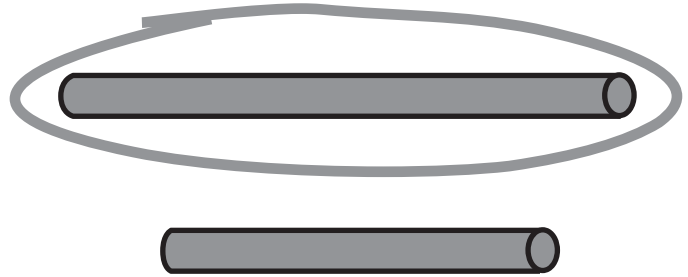
**less**

**less than (<)**

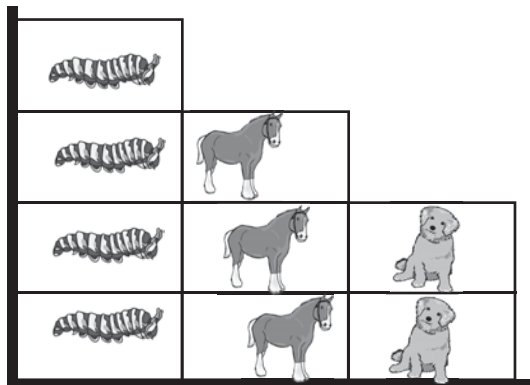




**line graph**



**longer**

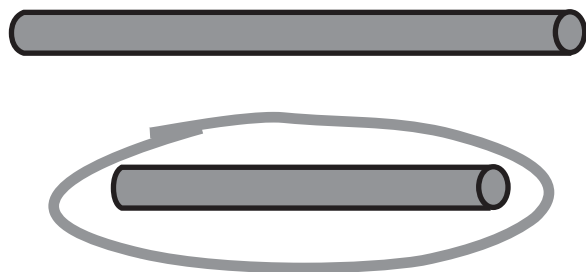


**pictograph**

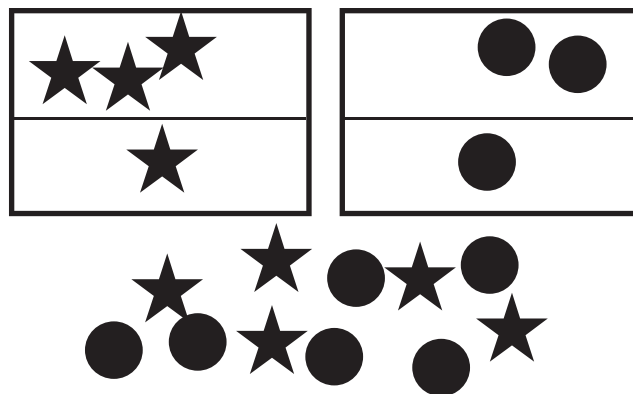


**rows**





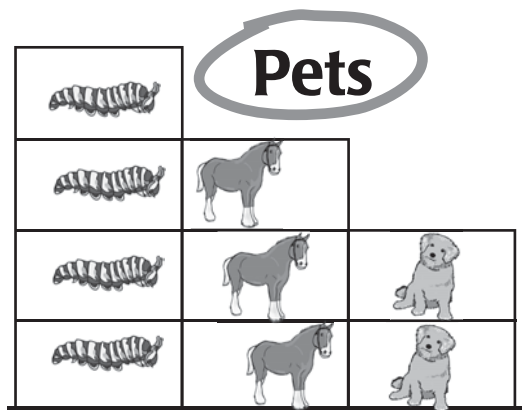
**shorter**



**sorting**

Tally Chart	
II	2
<del>IIII</del>	5
III	3

**tally chart**



**topic**

