

Differentiated MATH Lessons Student Materials



Judi Kinney
Debbie Fischer

Contents

Overview of Materials	5
Graphing	
Sea Shells by the Seashore story	7
Tally Chart	12
Research It! Cards	13
Graphing Bingo game	14
Research It! Cards	16
Graphing Vocabulary Lists	17
Graphing Vocabulary Cards	19
Linear Measurement	
Measuring Fall story	27
Nonstandard Measurement Tool Examples	35
Worksheet	36
Fact Cards	37
Worksheets	39
Checklists	45
Research It! Cards	47
Worksheets	48
Research It! Cards	55
Measurement Vocabulary Lists	56
Measurement Vocabulary Cards	58
Capacity/Volume	
Worksheet	69
Fact Cards	70
Worksheets	73
Checklists	75
Research It! Cards	77
Worksheets	78
Research It! Cards	80
Worksheet	81
Weight	
Worksheets	82
Fact Cards	84
Worksheet	85
Checklists	86
Worksheets	89
Research It! Cards	91
Telling Time	
Is It Time yet? story	92
Worksheets, Lesson Cards, Directions	100
Research It! Cards	109
Event and Clock Cards	110
Worksheets	115
Research It! Cards	117
Time Vocabulary Lists	118
Time Vocabulary Cards	120



Money

Plants Are Springing Up All Over story 127
Worksheets 135
Checklists 139
Worksheets 140
Expense and Earning Cards 143
Research It! Cards 149
Worksheets 150
Research It! Cards 156
Worksheet 158
Money Vocabulary Lists 159
Money Vocabulary Cards 161



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.



By the end of the week, he had a large collection to take back home! He carefully washed the sand off his collection and packed it in his suitcase.



On the first day of school, Mr. Anderson was eager to share his treasures with his students. The children were excited to see everything he had found.

They asked him many questions. Where did he find the shells? How many did he have? What were the names of things he had found? Which treasure did he have the most of? What did he have the least of? Did he have more white or more colored shells? Were there shell groups that had the same number? Did he have smooth shells or shells that were rough?

Wow! Mr. Anderson couldn't believe how his ocean collection had become a huge math problem. How could they find answers to all of the children's questions? That day after school, Mr. Anderson started looking at his collection again.

He started moving shells around on the table. He grouped the different types and put them in straight lines across the table. All of a sudden, Mr. Anderson looked down at the table. He couldn't believe what he saw! He knew how the class was going to get all of the answers for their questions. He put all of the shells back in the bag. He couldn't wait for the children to come back the next day.



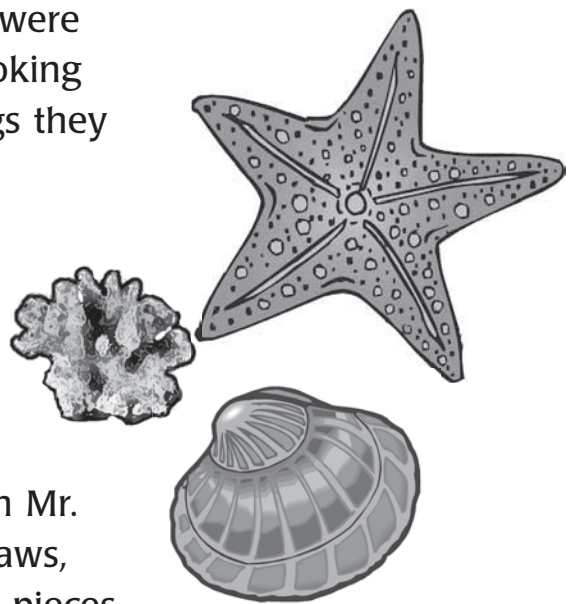
The next morning, the children found a pile of shells at their desks. What was Mr. Anderson up to now? They also saw that each group of students had a book about shells.



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

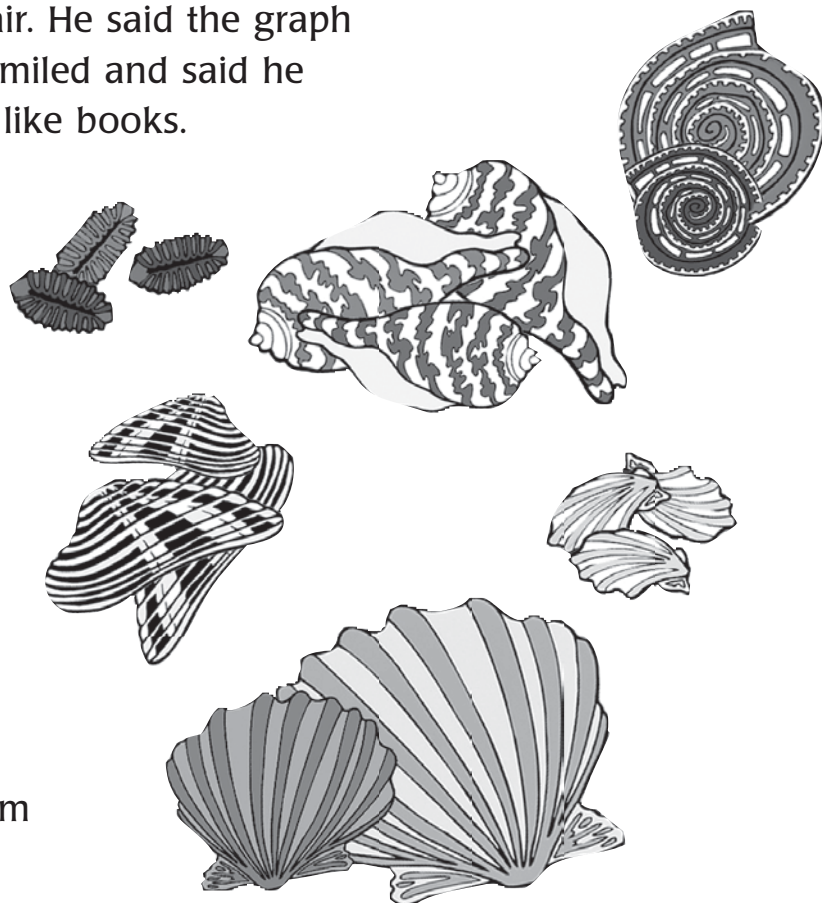
information about a topic. It was a way to measure how much they had of different shells. Mr. Anderson drew two lines on the paper. One line started at the top and went up and down. Mr. Anderson left two spaces open at the edge of the paper. He then moved up two spaces from the bottom of the paper and 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.

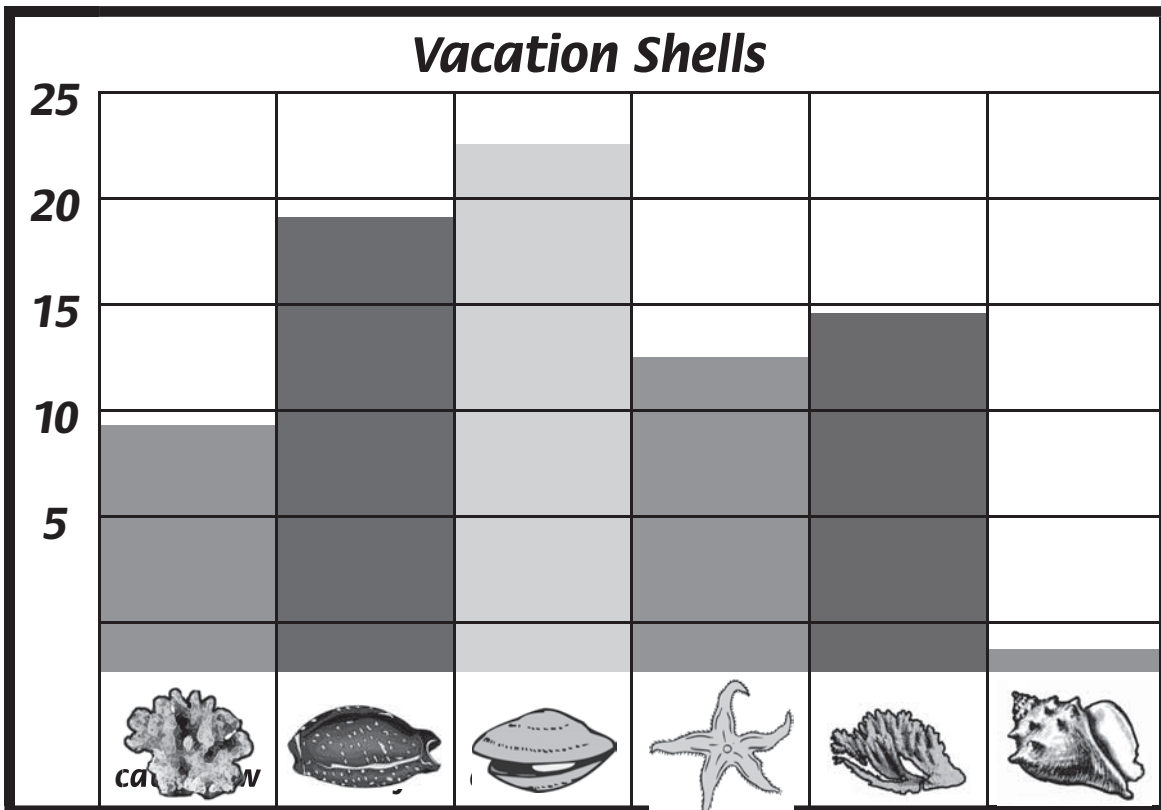
Fred had his hand in the air. He said the graph needed a name. Mr. Anderson smiled and said he was right. Graphs had titles just like books. Fred said the title should be "Vacation Shells."

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 _____

<i>Label</i>	<i>Tallies</i>	<i>Total</i>

Key: _____ = _____



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: _____

G	R	A	P	H
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 _____

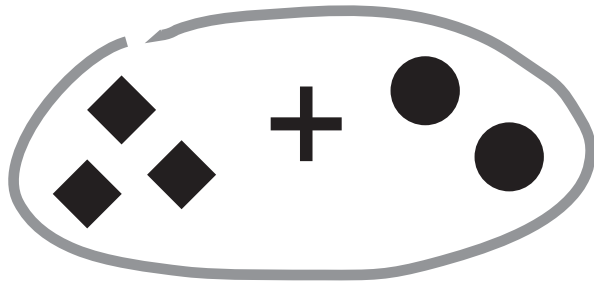
Graphing Vocabulary

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

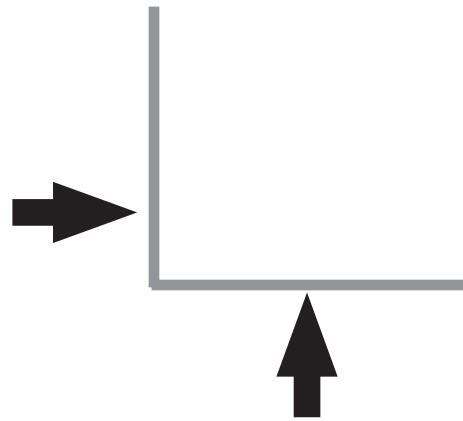
Name _____

Graphing Vocabulary

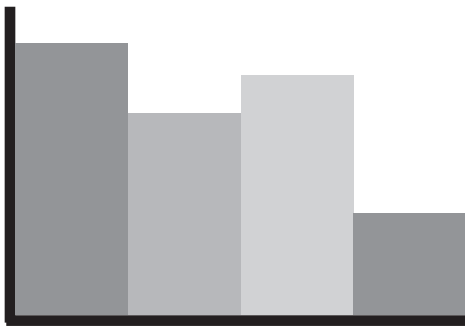
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____



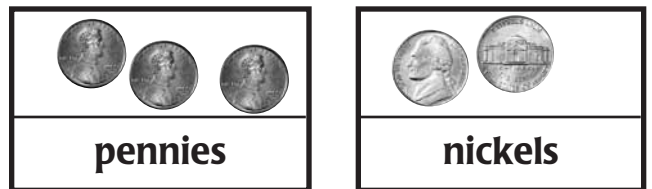
altogether



axis

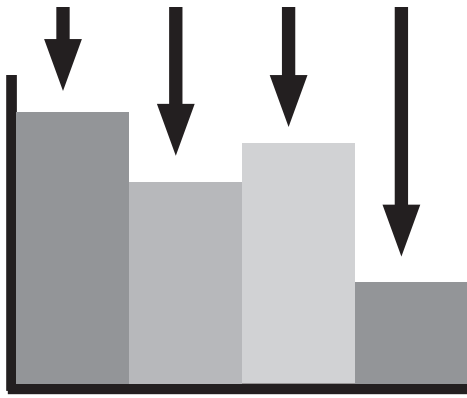


bar graph

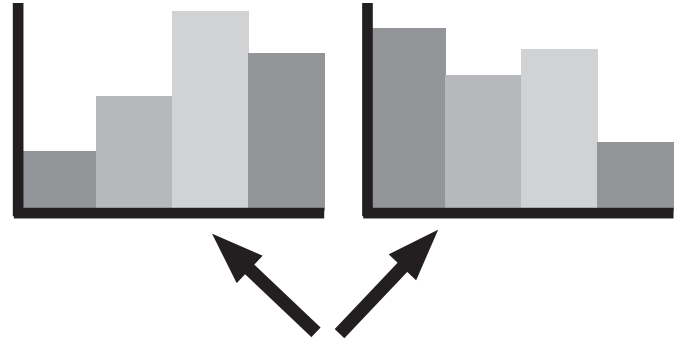


classifying





columns



compare

... 8, 9, 10

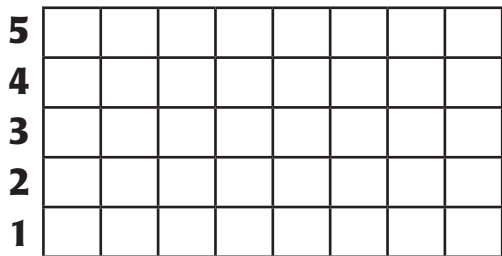
counting on



$$3 = 3$$

equal to (=)

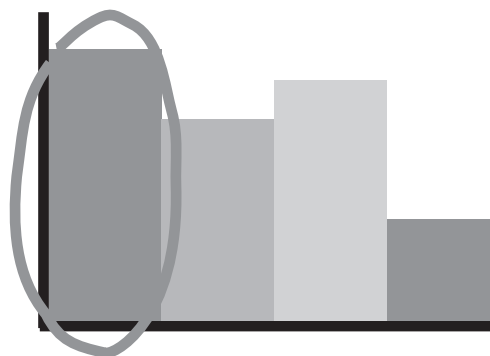




grid

graph

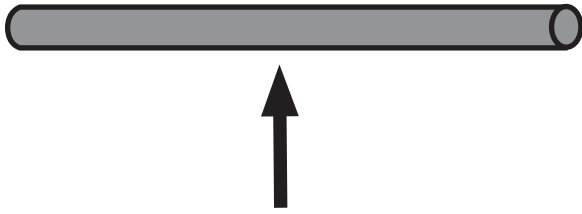
10 > 3



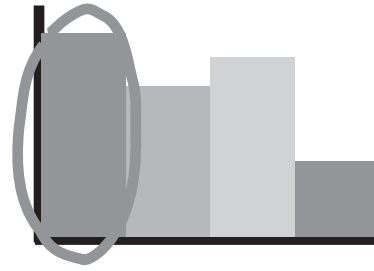
greater than (>)

greatest








horizontal

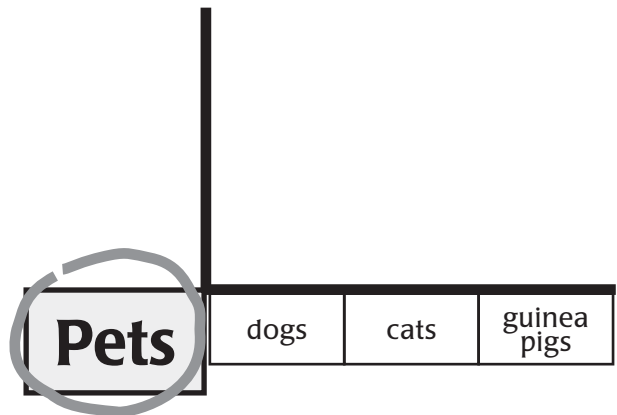


Column one has more.

information

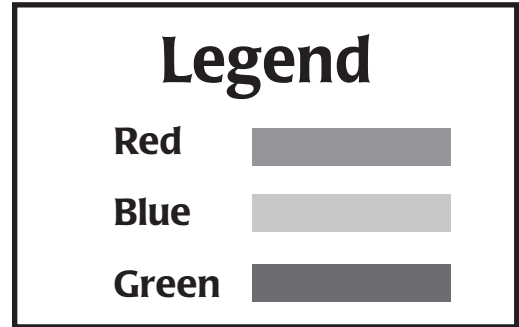
Key	
Red	
Blue	
Green	

key



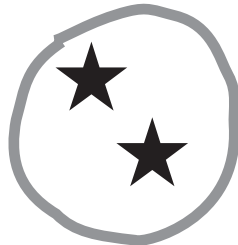
label





least

legend

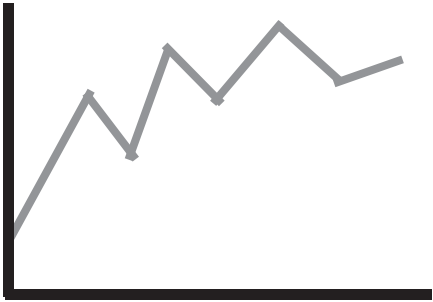


4 < 6

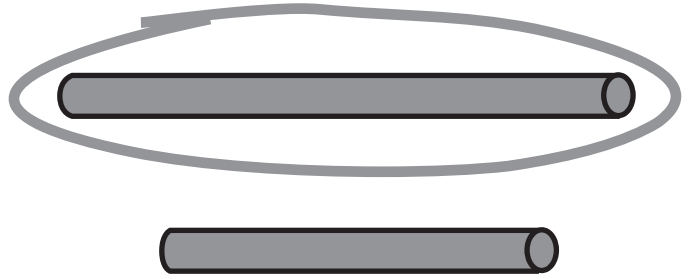
less

less than (<)

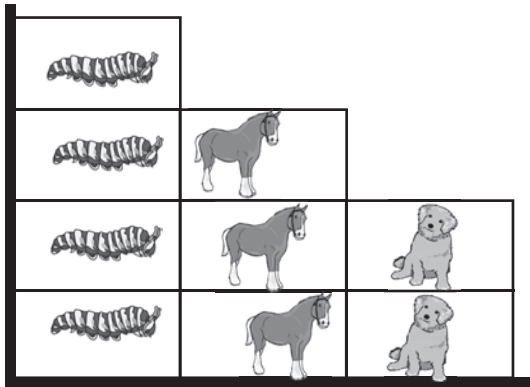




line graph



longer

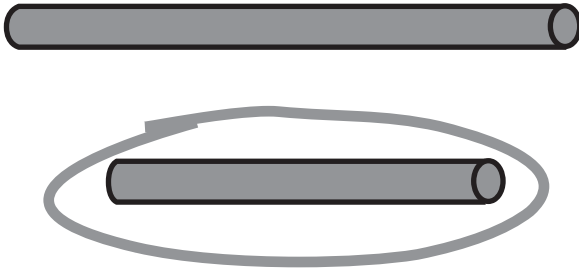


pictograph

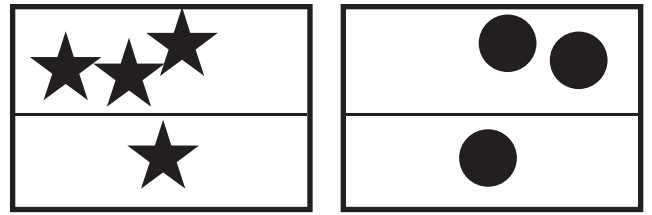


rows





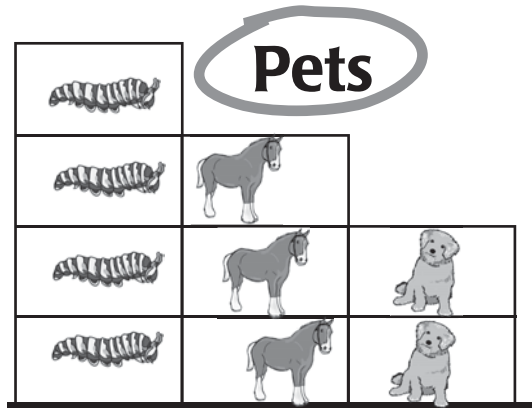
shorter



sorting

Tally Chart	
II	2
IIII	5
III	3

tally chart



topic

