

Name _____

Problem Solving • Organize Data



COMMON CORE STANDARD—3.MD.B.3, 3.OA.D.8 Represent and interpret data. Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Use the Favorite School Subject tables for 1–3.

1. The students in two third-grade classes recorded their favorite school subject. The data are in the tally table. How many fewer students chose science than chose social studies as their favorite school subject?

Think: Use the data in the tally table to record the data in the frequency table. Then solve the problem.

social studies: 12 students

science: 5 students

$12 - 5 = \underline{7}$

So, 7 fewer students chose science.

2. What subject did the least number of students choose?

3. How many more students chose math than language arts as their favorite subject?

_____ more students

Favorite School Subject	
Subject	Tally
Math	
Science	
Language Arts	
Reading	
Social Studies	

Favorite School Subject	
Subject	Number
Math	
Science	5
Language Arts	
Reading	
Social Studies	12

4. **WRITE** *Math* Give one example of when you would make a frequency table to solve a problem.

Lesson Check (3.MD.B.3)

The tally table shows the cards in Kyle's sports card collection.

1. How many hockey and football cards does Kyle have combined?

Sport	Tally
Baseball	
Hockey	
Basketball	
Football	

Spiral Review (3.OA.D.8, 3.NBT.A.1, 3.NBT.A.2)

2. There are 472 people in the concert hall. What is 472 rounded to the nearest hundred?

3. Max and Anna played a video game as a team. Max scored 463 points and Anna scored 329 points. How many points did they score?

4. Judy has 573 baseball cards in her collection. Todd has 489 baseball cards in his collection. How many fewer cards does Todd have than Judy?

5. Ms. Westin drove 542 miles last week and 378 miles this week on business. How many miles did she drive on business during the two weeks?



**FOR MORE PRACTICE
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Name _____

Use Picture Graphs



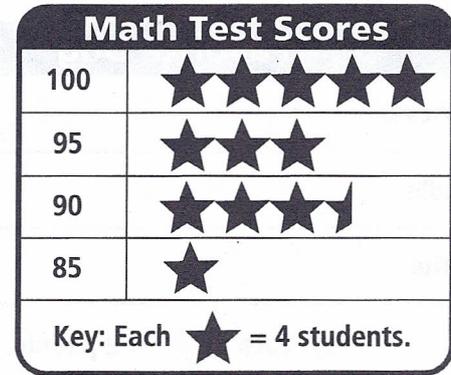
COMMON CORE STANDARD—3.MD.B.3
3.NBT.A.2 Represent and interpret data.
Use place value understanding and properties of operations to perform multi-digit arithmetic.

Use the Math Test Scores picture graph for 1–5.

Mrs. Perez made a picture graph of her students' scores on a math test.

- How many students scored 100? How can you find the answer?

To find the number of students who scored 100, count each star as 4 students. So, 20 students scored 100.



- What does ★ stand for?

- How many students in all scored 100 or 95?

Problem Solving



- Suppose the students who scored 85 and 90 on the math test take the test again and score 95. How many stars would you have to add to the picture graph next to 95?
- If 2 more students took the math test and both made a score of 80, what would the picture graph look like?
- WRITE** *Math* Explain what you can tell just by comparing the symbols in a picture graph.

Lesson Check (3.MD.B.3)

1. Karen asked her friends to name their favorite type of dog.

Favorite Dog	
Retriever	
Poodle	
Terrier	
Key: Each  = 2 people.	

How many people chose poodles?

2. Henry made a picture graph to show what topping people like on their pizza. This is his key.

Each  = 6 people.

What does   stand for?

Spiral Review (3.NBT.A.1)

3. Estimate the sum.

$$\begin{array}{r} 523 \\ + 295 \\ \hline \end{array}$$

4. Estimate the difference.

$$\begin{array}{r} 610 \\ - 187 \\ \hline \end{array}$$

5. What is 871 rounded to the nearest ten?
-

6. What is 473 rounded to the nearest hundred?
-



Name _____

Make Picture Graphs



COMMON CORE STANDARD—3.MD.B.3,
3.NBT.A.2 Represent and interpret data.

Ben asked his classmates about their favorite kind of TV show. He recorded their responses in a frequency table. Use the data in the table to make a picture graph.

Favorite TV Show	
Type	Number
Cartoons	9
Sports	6
Movies	3

Follow the steps to make a picture graph.

Step 1 Write the title at the top of the graph

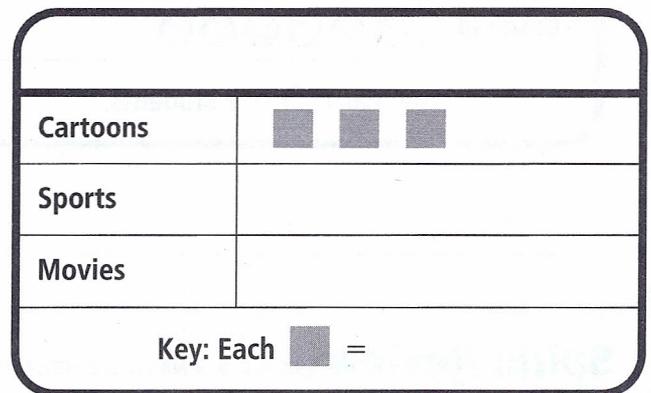
Step 2 Look at the numbers in the table. Tell how many students each picture represents for the key

Step 3 Draw the correct number of pictures for each type of show.

Use your picture graph for 1–4.

1. What title did you give the graph?

2. What key did you use?



Problem Solving



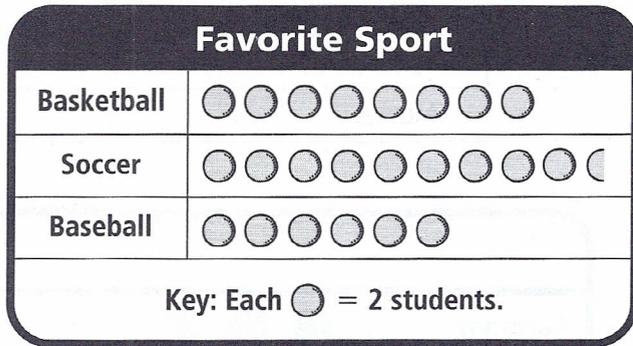
3. How many pictures would you draw if 12 students chose game shows as their favorite kind of TV show?

4. What key would you use if 10 students chose cartoons?

5. **WRITE** *Math* Describe why it might not be a good idea to use a key where each symbol stands for 1 in a picture graph.

Lesson Check (3.MD.B.3)

1. Sandy made a picture graph to show the sports her classmates like to play. How many fewer students chose baseball than chose soccer?



2. Tommy is making a picture graph to show his friends' favorite kind of music. He plans to use one musical note to represent 2 people. How many notes will he use to represent that 4 people chose country music?

Spiral Review (3.OA.D.9, 3.NBT.A.1, 3.NBT.A.2)

3. Find the sum.

$$\begin{array}{r} 490 \\ + 234 \\ \hline \end{array}$$

4. Sophie wrote odd numbers on her paper. What is a number Sophie did NOT write?

5. Miles ordered 126 books to give away at the store opening. What is 126 rounded to the nearest hundred?

6. Estimate the difference.

$$\begin{array}{r} 422 \\ - 284 \\ \hline \end{array}$$



Name _____

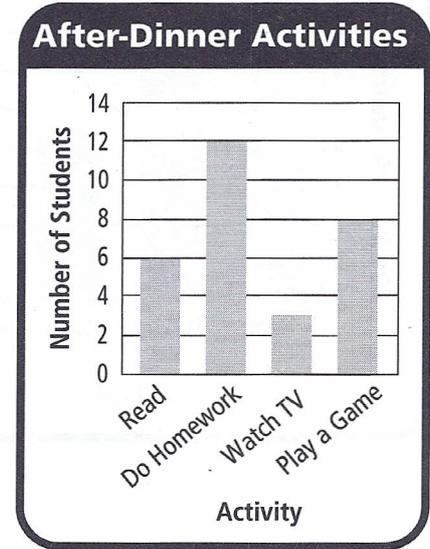
Use Bar Graphs



COMMON CORE STANDARD—3.MD.B.3,
3.NBT.A.2
Represent and interpret data.

Use the After-Dinner Activities bar graph for 1–6.

The third-grade students at Case Elementary School were asked what they spent the most time doing last week after dinner. The results are shown in the bar graph at the right.



- How many students spent the most time watching TV after dinner?

_____ 3 students _____

- How many students in all answered the survey?

- How many students in all played a game or read?

- How many fewer students read than did homework?

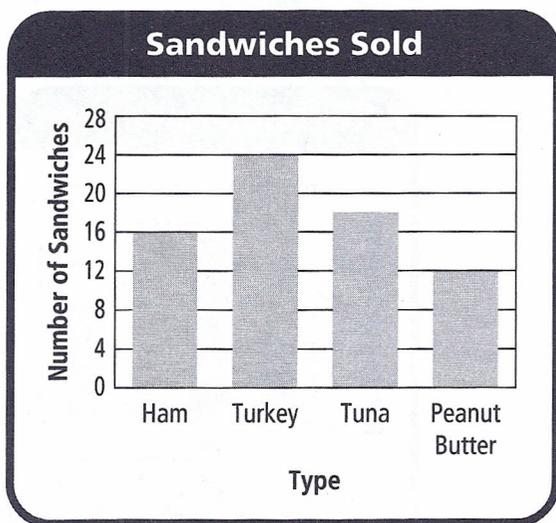
Problem Solving



- Suppose 3 students changed their answers to reading instead of doing homework. Where would the bar for reading end?

- WRITE** *Math* Use After-Dinner Activities bar graph to describe what the bar for Do Homework means.

Lesson Check (3.MD.B.3)



1. The bar graph shows the number of sandwiches sold at Lisa's sandwich cart yesterday. How many tuna sandwiches were sold?
-

Spiral Review (3.NBT.A.1)

2. What is 582 rounded to the nearest ten?
3. Savannah read 178 minutes last week. What is 178 rounded to the nearest hundred?

4. Estimate the difference.

$$\begin{array}{r} 371 \\ - 99 \\ \hline \end{array}$$

5. Estimate the difference.

$$\begin{array}{r} 625 \\ - 248 \\ \hline \end{array}$$



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Make Bar Graphs

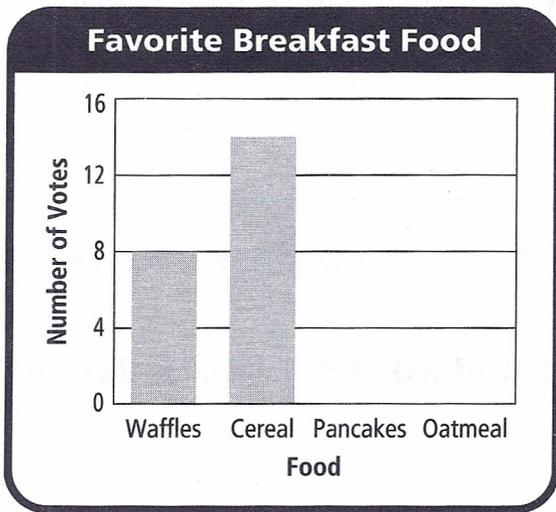


COMMON CORE STANDARD—3.MD.B.3, 3.NBT.A.2 Represent and interpret data.

Ben asked some friends to name their favorite breakfast food. He recorded their choices in the frequency table at the right.

Favorite Breakfast Food	
Food	Number of Votes
Waffles	8
Cereal	14
Pancakes	12
Oatmeal	4

- Complete the bar graph by using Ben's data.



Use your bar graph for 2-4.

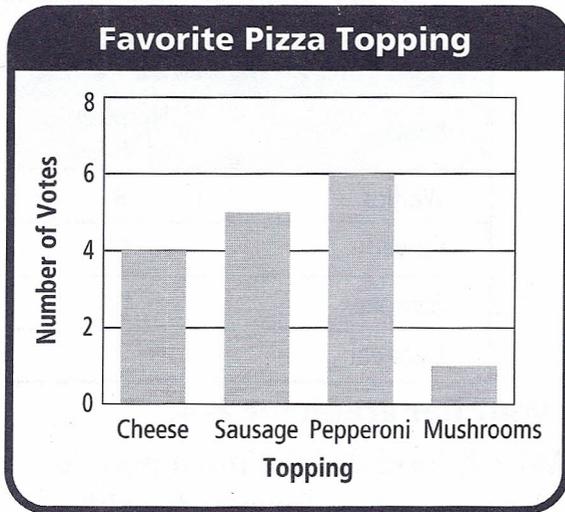
- Which food did the most people choose as their favorite breakfast food?

- How many people chose waffles as their favorite breakfast food?

- Suppose 6 people chose oatmeal as their favorite breakfast food. How would you change the bar graph?

- WRITE** *Math* Have students use the data on page 116 and explain how to draw a bar for a player named Eric who scored 20 points.

Lesson Check (3.MD.B.3)



1. Gary asked his friends to name their favorite pizza topping. He recorded the results in a bar graph. How many people chose pepperoni?
-

2. Suppose 3 more friends chose mushrooms. Where would the bar for mushrooms end?
-

Spiral Review (3.OA.D.9, 3.NBT.A.1)

3. Estimate the sum.

$$\begin{array}{r} 458 \\ + 214 \\ \hline \end{array}$$

4. Matt added $14 + 0$. What is this sum?
-

5. There are 682 runners registered for an upcoming race. What is 682 rounded to the nearest hundred?
-

6. There are 187 new students this year at Maple Elementary. What is 187 rounded to the nearest ten?
-



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Solve Problems Using Data



COMMON CORE STANDARD—3.MD.B.3, 3.OA.D.8 Represent and interpret data. Solve problems involving the four operations, and identify and explain patterns in arithmetic.

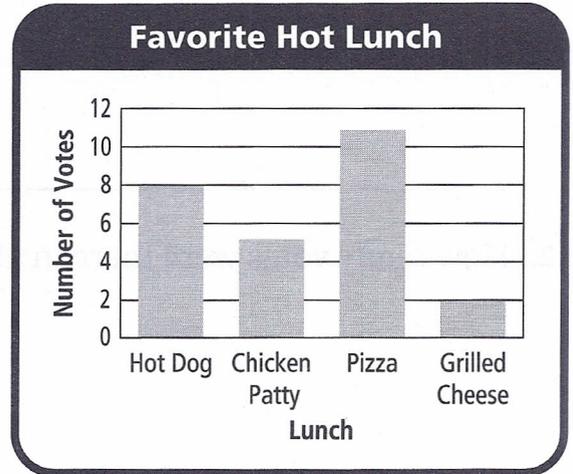
Use the Favorite Hot Lunch bar graph for 1–2.

- How many more students chose pizza than chose grilled cheese?

Think: Subtract the number of students who chose grilled cheese, 2, from the number of students who chose pizza, 11.

$11 - 2 = 9$ _____ more students

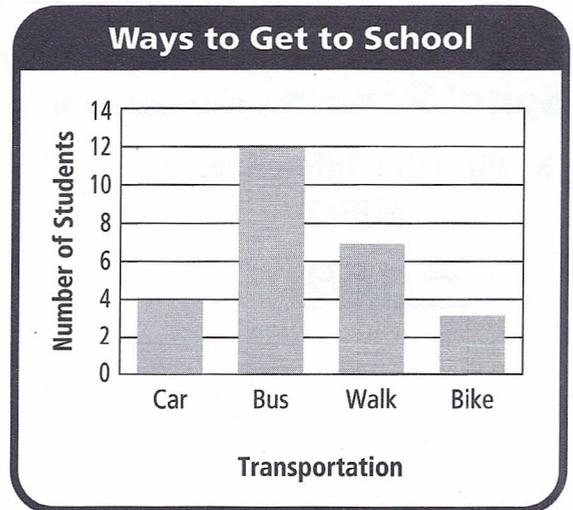
- How many students did not choose chicken patty? _____ students



Use the Ways to Get to School bar graph for 3–5.

- How many more students walk than ride in a car to get to school?

_____ more students



Problem Solving



- Is the number of students who get to school by car and bus greater than or less than the number of students who get to school by walking and biking? **Explain.**

- What if 5 more students respond that they get to school by biking? Would more students walk or ride a bike to school? **Explain.**

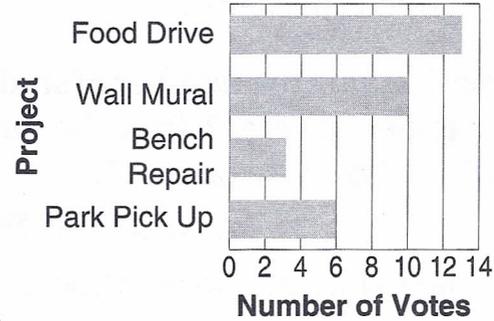
- WRITE** *Math* Write a word problem that can be solved by using the November Weather bar graph on page 122.

Lesson Check (3.MD.B.3)

1. How many fewer votes were for bench repair than for food drive?

2. How many votes were there in all?

Community Project



Spiral Review (3.NBT.A.1, 3.NBT.A.2)

3. Find the difference.

$$\begin{array}{r} 650 \\ - 189 \\ \hline \end{array}$$

4. Greyson has 75 basketball cards. What is 75 rounded to the nearest ten?

5. Sue spent \$18 on a shirt, \$39 on a jacket, and \$12 on a hat. How much did she spend?

6. There are 219 adults and 174 children at a ballet. How many people are at the ballet?



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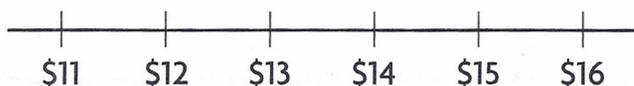
Name _____

Use and Make Line Plots



COMMON CORE STANDARD—3.MD.B.4, 3.NBT.A.2 Represent and interpret data. Use place value understanding and properties of operations to perform multi-digit arithmetic.

Use the data in the table to make a line plot.



How Many Shirts Were Sold at Each Price?

How Many Shirts Were Sold at Each Price?	
Price	Number Sold
\$11	1
\$12	4
\$13	6
\$14	4
\$15	0
\$16	2

1. How many shirts sold for \$12?

4 shirts

2. How many shirts were sold for \$13 or more?

Problem Solving



Use the line plot above for 3–4.

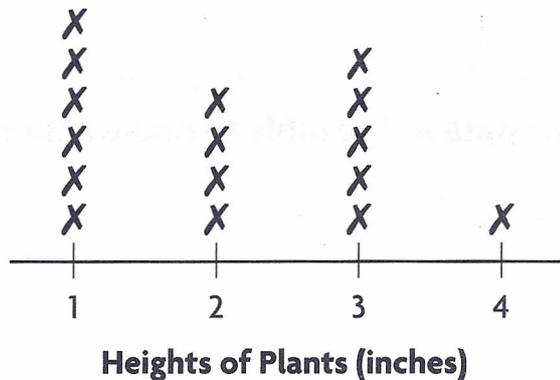
3. Were more shirts sold for less than \$13 or more than \$13? **Explain.**

4. Is there any price for which there are no data? **Explain.**

5. **WRITE** *Math* Have students write and solve another problem using the data in the Daily High Temperatures line plot on page 128.

Lesson Check (3.MD.B.4)

1. Pedro made a line plot to show the heights of the plants in his garden. How many plants are less than 3 inches tall?



Spiral Review (3.NBT.A.1, 3.NBT.A.2)

2. Find the sum.

$$\begin{array}{r} 642 \\ + 259 \\ \hline \end{array}$$

3. Find the difference.

$$\begin{array}{r} 460 \\ - 309 \\ \hline \end{array}$$

4. There were 262 hamburgers cooked for the school fair. What is 262 rounded to the nearest hundred?

5. Makenzie has 517 stickers in her collection. What is 517 rounded to the nearest ten?

