Student Guide

Questions 1–12 (SG pp. 14–18)

1.* **A.** Grace

B. Yes; typical implies average. Grace's height is in the middle with some taller and some shorter.

2. **A.** 54 inches

B. Yes, it is the middle value.

C. 54 inches; it is the number that appears most frequently.

3. 3 blocks

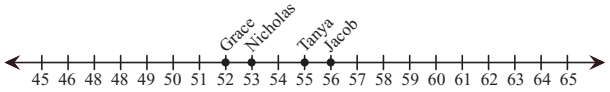
4. **A.** No.

B. There is an even number of people in Jacob's group.

C. Nicholas and Tanya

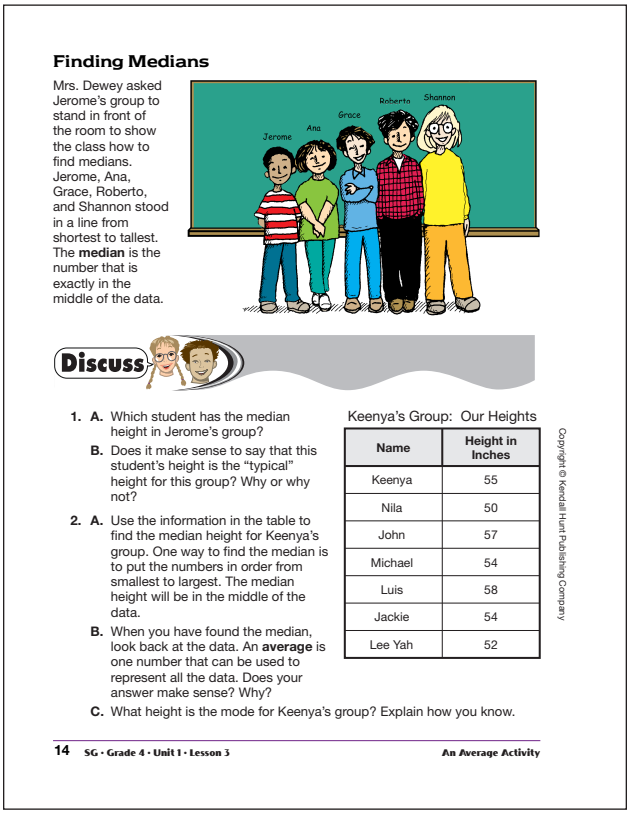
D. 53 and 55 inches

E. 54 inches is between the two middle values.



5.

Roberto is correct; there is an even number of people in the group, and Shannon and Roberto are the two middle ones. Shannon has 5 cousins and Roberto has 9 cousins. 7 is midway between 5 and 9, so 7 is the median number of cousins.



Finding Medians

Mrs. Dewey asked Jerome's group to stand in front of the room to show the class how to find medians. Jerome, Ana, Grace, Roberto, and Shannon stood in a line from shortest to tallest. The **median** is the number that is exactly in the middle of the data.

Discuss

1. **A.** Which student has the median height in Jerome's group?
   B. Does it make sense to say that this student's height is the "typical" height for this group? Why or why not?
2. **A.** Use the information in the table to find the median height for Keenya's group. One way to find the median is to put the numbers in order from smallest to largest. The median height will be in the middle of the data.
   B. When you have found the median, look back at the data. An **average** is one number that can be used to represent all the data. Does your answer make sense? Why?
   C. What height is the mode for Keenya's group? Explain how you know.

Keenya's Group: Our Heights

Name	Height in Inches
Keenya	55
Nila	50
John	57
Michael	54
Luis	58
Jackie	54
Lee Yah	52

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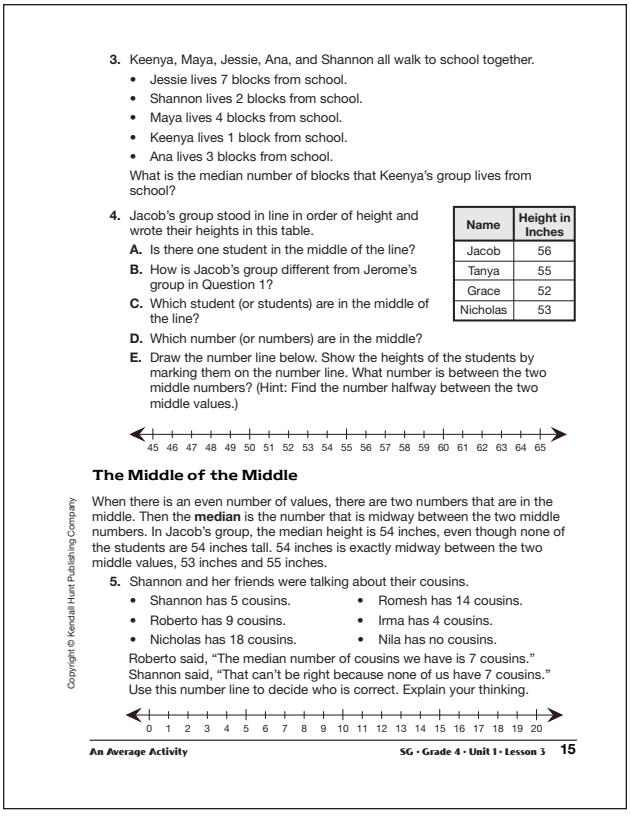

3. Keenya, Maya, Jessie, Ana, and Shannon all walk to school together.
   - Jessie lives 7 blocks from school.
   - Shannon lives 2 blocks from school.
   - Maya lives 4 blocks from school.
   - Keenya lives 1 block from school.
   - Ana lives 3 blocks from school.

   What is the median number of blocks that Keenya's group lives from school?
4. Jacob's group stood in line in order of height and wrote their heights in this table.
   A. Is there one student in the middle of the line?
   B. How is Jacob's group different from Jerome's group in Question 1?
   C. Which student (or students) are in the middle of the line?
   D. Which number (or numbers) are in the middle?
   E. Draw the number line below. Show the heights of the students by marking them on the number line. What number is between the two middle numbers? (Hint: Find the number halfway between the two middle values.)

Name	Height in Inches
Jacob	56
Tanya	55
Grace	52
Nicholas	53

45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65

The Middle of the Middle

When there is an even number of values, there are two numbers that are in the middle. Then the **median** is the number that is midway between the two middle numbers. In Jacob's group, the median height is 54 inches, even though none of the students are 54 inches tall. 54 inches is exactly midway between the two middle values, 53 inches and 55 inches.

5. Shannon and her friends were talking about their cousins.
   - Shannon has 5 cousins.
   - Roberto has 9 cousins.
   - Nicholas has 18 cousins.
   - Romesh has 14 cousins.
   - Irma has 4 cousins.
   - Nila has no cousins.

   Roberto said, "The median number of cousins we have is 7 cousins." Shannon said, "That can't be right because none of us have 7 cousins." Use this number line to decide who is correct. Explain your thinking.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

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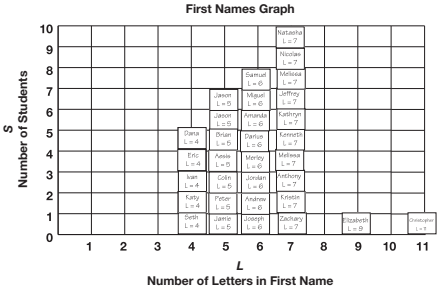
***Answers and/or discussion are included in the lesson.**

6. Use the information in the data table to the right to find the median number of blocks the students in Linda's group live from school.

Linda's Group: Number of Blocks We Live from School

Name	Number of Blocks from School
Linda	2
John	1
Tanya	3
Michael	8
Frank	5
Luis	2

7. A third-grade class collected data about the length of first names. After collecting information from their classmates, they made the graph below.



A. What is the median first name length?
B. What is the mode first name length?

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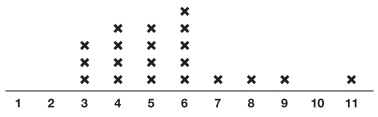
8. A group of students in Ms. Bookler's class also collected first name length data. They made a **line plot.**



A. What is the median first name length?
B. What is the mode first name length?
C. Compare the line plot to the bar graph in Question 7. How are they similar? How are they different?

✓ **Check-In: Questions 9-12**

9. The students in Room 204 collected data on the number of times their families had moved. The data for Ming's group is in the table below. Find the median number of times the students in his group have moved.

Ming's Group: Number of Times We Moved

Name	Number of Times Moved
Ming	2
Irma	1
Nicholas	5
Romesh	0
Linda	3

10. Jerome's baseball team has played eight games. Here are the number of runs they scored: 1, 3, 5, 3, 2, 7, 2, 4.
A. Find the median number of runs they scored.
B. Predict how many runs they will score in their next game. Why do you think so?

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6. $2\frac{1}{2}$ blocks from school

7. **A.** The median name length is 6 letters.
B. The mode name length is 7 letters.

8. **A.** The median name length is 5 letters.
B. The mode name length is 6 letters.
C. Both representations show a picture of the data. The horizontal axis shows the number of letters. The verticle axis shows how many people have that name length. The bar graph has the verticle axis labeled and titled. The line plot uses each "X" to show the frequency of the variable on the horizontal axis.

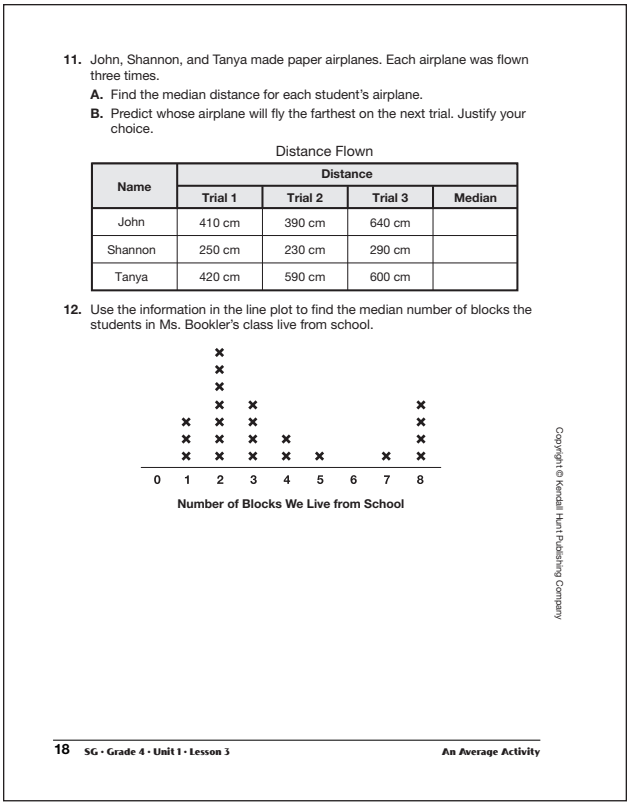
9. 2 times

10. **A.** 3 runs
B. 3 runs; the median is an average, so we can say that Jerome's team typically scores 3 runs, so 3 is a good prediction.

11. A. John: 410 cm, Shannon: 250 cm, Tanya: 590 cm

B. Answers will vary. Students should choose Tanya's airplane because her airplane's median distance is the farthest, showing that it flew farther more consistently. John's airplane flew the farthest on one trial, but not as far as Tanya's on the other try. Shannon's airplane didn't go as far as John's or Tanya's.

12. The median number of blocks is 3.



11. John, Shannon, and Tanya made paper airplanes. Each airplane was flown three times.
A. Find the median distance for each student's airplane.
B. Predict whose airplane will fly the farthest on the next trial. Justify your choice.

Distance Flown

Name	Distance			
	Trial 1	Trial 2	Trial 3	Median
John	410 cm	390 cm	640 cm	
Shannon	250 cm	230 cm	290 cm	
Tanya	420 cm	590 cm	600 cm	

12. Use the information in the line plot to find the median number of blocks the students in Ms. Bookler's class live from school.

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Student Guide

Homework (SG p. 19)

Questions 1–3

1. 2 pets

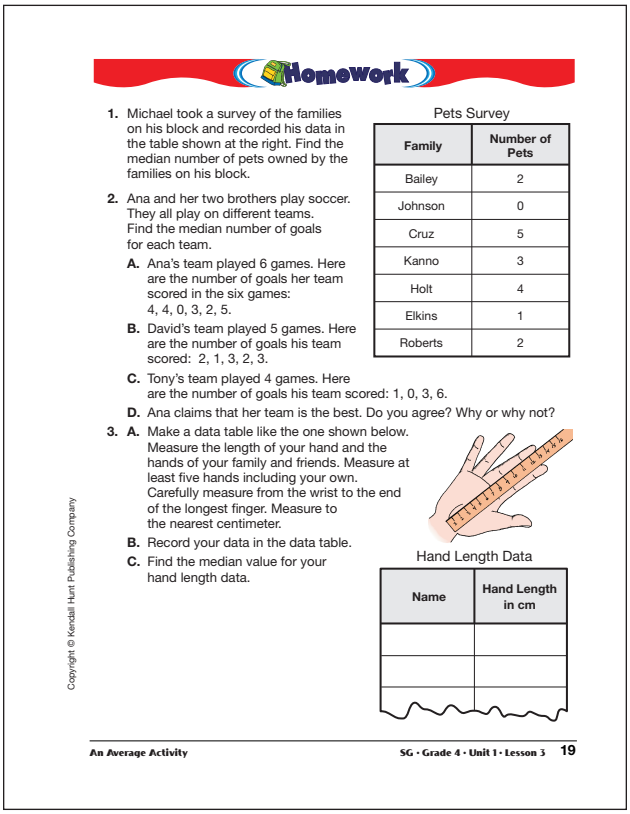
2. A. $3\frac{1}{2}$ goals

B. 2 goals

C. 2 goals

D. Answers will vary. Students may feel that Ana's team is the best because her median number of goals ($3\frac{1}{2}$ goals) is the highest; or students may feel that Tony's team is the best because his team has the highest number of goals in all of the games (6 goals).

3. Answers will vary. See the *Arm Span vs. Height* Lab Pages in Lesson 5 in the *Student Guide* for a sample data table.



Homework

1. Michael took a survey of the families on his block and recorded his data in the table shown at the right. Find the median number of pets owned by the families on his block.

Pets Survey

Family	Number of Pets
Bailey	2
Johnson	0
Cruz	5
Kanno	3
Holt	4
Elkins	1
Roberts	2

2. Ana and her two brothers play soccer. They all play on different teams. Find the median number of goals for each team.
A. Ana's team played 6 games. Here are the number of goals her team scored in the six games: 4, 4, 0, 3, 2, 5.
B. David's team played 5 games. Here are the number of goals his team scored: 2, 1, 3, 2, 3.
C. Tony's team played 4 games. Here are the number of goals his team scored: 1, 0, 3, 6.
D. Ana claims that her team is the best. Do you agree? Why or why not?

3. A. Make a data table like the one shown below. Measure the length of your hand and the hands of your family and friends. Measure at least five hands including your own. Carefully measure from the wrist to the end of the longest finger. Measure to the nearest centimeter.
B. Record your data in the data table.
C. Find the median value for your hand length data.

Hand Length Data

Name	Hand Length in cm

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