LETTER HOME

Data About Us

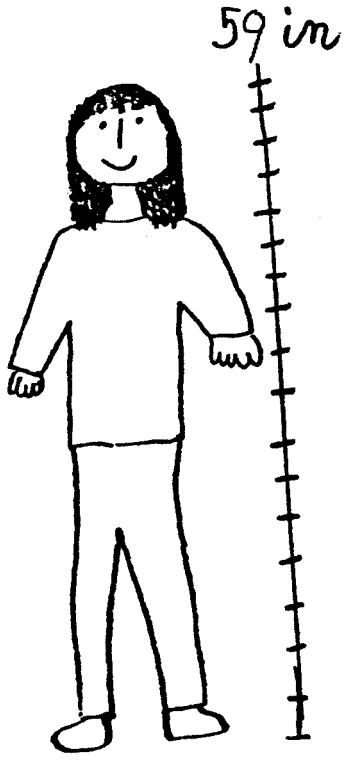
Dear Family Member:

Welcome to *Math Trailblazers®.* It is based on two foundational ideas: the scientific investigation of everyday situations is an ideal setting for learning mathematics, and all students deserve a rich and challenging curriculum.

Throughout the year, we will create a mathematics classroom where students work together on challenging tasks and discuss ideas with their peers, teacher, and family. At times, I will ask you to participate by sending small items to school, playing a math game, or helping with homework assignments.

We begin the year by using averages to describe our class. This first unit, *Data About Us,* addresses ways of collecting, organizing, describing, and making predictions about a data set. We will study the concept of an average. In your child's everyday world, the word "average" is commonly used. He or she has probably heard the phrases "batting average" or "the average amount of rainfall for the month." Your child will learn how to find a type of average called the median and use it to represent data collected about the students in the class.

Your child will also investigate the relationship between the arm span and height of students in class. Can we predict the height of a new student if we know his or her arm span? To investigate this question, your child will measure classmates' arm spans and heights. Your child will organize this data, make and interpret a graph, and make and check predictions.



Height is one of the variables students measure in this unit.

As we explore mathematics concepts in the classroom, you can help by providing additional mathematics opportunities at home. For example:

- **Averages.** Watch for the words "average" and "median." They may appear on food labels, in weather reports, or in newspapers and magazines. Discuss these averages with your child.
- **Graphs and Tables.** Invite your child to look for graphs and tables in printed materials such as newspapers, magazines, and books. Discuss the graphs with your child. You might ask questions like:
  - What information does the graph show?
  - Does anything surprise you about the graph?
  - What else would you like to know based on what you see?
  - What variables are being compared?
- **Kinds of Data.** Encourage your child to talk to you about the *Arm Span vs. Height* Lab. Ask what your child was investigating, how he or she went about it, and what your child found out.

Math Facts and Mental Math

Addition Facts. In this unit, students review the addition facts and are assessed for fluency. This review will help identify students' needs. Help your child by using the activities below.

Students should have developed strategies for solving the addition facts in the earlier years. The addition facts were reviewed and sorted into groups by strategy. See Figure 1.

Group	Addition Facts	Strategy Used
A	0 + 1, 1 + 1, 2 + 1, 3 + 1, 0 + 2, 2 + 2, 3 + 2, 4 + 2	Counting and Zero
B	3 + 0, 4 + 0, 4 + 1, 5 + 1, 6 + 1, 5 + 2, 6 + 2, 5 + 3, 7 + 1, 1 + 8	Counting and Zero
C	1 + 9, 2 + 7, 2 + 8, 2 + 9, 3 + 6, 3 + 7, 3 + 8, 4 + 6, 4 + 7, 5 + 5, 5 + 6	Making Tens
D	3 + 3, 3 + 4, 4 + 4, 4 + 5, 6 + 6, 6 + 7, 7 + 7, 7 + 8, 8 + 8, 10 + 9, 10 + 10	Using Doubles
E	5 + 7, 8 + 4, 8 + 5, 9 + 3, 9 + 4, 9 + 5, 10 + 1, 10 + 2, 10 + 3	Using Tens
F	8 + 6, 9 + 6, 9 + 7, 10 + 4, 10 + 5, 10 + 6, 10 + 7, 10 + 8, 9 + 8, 9 + 9	Using Tens

Figure 1: *Addition Facts Groups as reviewed in ealier grades*

If needed, you can help your child review these facts using the flash cards that are sent home or by making a set of flash cards from index cards or scrap paper. Study the facts in small groups each night. As your child goes through the flash cards, put the cards in three stacks: Facts I Know Quickly, Facts I Can Figure Out, and Facts I Need to Learn.

For Facts I Need to Learn, work on strategies for figuring them out.

For Facts I Can Figure Out, use the flash cards to practice the facts for fluency.

For Facts I Know Quickly, help your child use strategies to solve problems like these using mental math:

Adding 10s, 100s and 1000s: 9000 + 7000; 130 + 40 + 60; 10,000 + 4000; 565 + 20 + 30

Multidigit plus one-digit problems: 347 + 8 (practices 7 + 8); 565 + 8 (practices 5 + 8); 434 + 5 (practices 4 + 5)

Thank you for taking time to talk with your child about what he or she is doing in math. I look forward to working with you and your child during this school year. Please feel free to contact me with any questions, concerns, or comments.

Sincerely,

Name _____ Date _____

Unit 1: Home Practice

Part 1 Addition Practice

Solve the following addition problems. Try to solve the problems without paper and pencil. Be prepared to share your solution strategies.

A. 8 + 3 + 5 = _____

B. 9 + 7 + 5 = _____

C. 6 + 8 + 6 = _____

D. 4 + 8 + 9 = _____

E. 70 + 30 = _____

F. 60 + 20 + 30 = _____

G. 50 + 70 = _____

H. 30 + 50 + 70 = _____

I. 20 + 85 = _____

J. 10 + 80 + 15 = _____

Part 2 Naming Variables and Values

Look around your home and find four variables. Find two numerical variables and two categorical variables. Then, name some values for each of your variables. Be prepared to discuss and compare your findings. For example: Type of Drinks is a categorical variable. Some values for this variable are iced tea, milk, and fruit juice.

1. Variable: _____ numerical or categorical (circle one)

Values of your variable:

2. Variable: _____ numerical or categorical (circle one)

Values of your variable:

3. Variable: _____ numerical or categorical (circle one)

Values of your variable:

4. Variable: _____ numerical or categorical (circle one)

Values of your variable:

Name _____ Date _____

Part 3 Finding the Median

Use a separate sheet of paper to write your answers and explanations.

1. Mr. Lewis's fourth-grade class did an experiment with colored candies. Five students took a handful of candy. They pulled 12, 6, 5, 3, and 7 pieces of candy. What is the median number of candies pulled? Show how you decided.

2. Lee Yah measured the hand lengths of the people in her family. Her grandmother's hand measured 15 cm in length. Her two sisters' hand lengths were 12 cm and 10 cm. Her mother's hand length was 14 cm. Her father's hand length was 18 cm. Lee Yah's hand measured 12 cm. What is the median hand length in Lee Yah's family? Show how you decided.

3. The fourth-grade soccer team at Bessie Coleman School practices after school. This week they practiced for 45 minutes on Monday, 30 minutes on Tuesday, an hour on Thursday, and 40 minutes on Friday. They skipped practice on Wednesday. What is the median number of minutes they practiced for the five days? Show how you decided.

4. Eight of Mrs. Dewey's students stayed after school to help her decorate her bulletin boards. She gave each student a box of raisins as a treat. Each student counted the number of raisins in his or her box. Here is their data: 23, 27, 22, 26, 21, 27, 25, and 23. Based on the students' data, what is the median number of raisins found in a box? Show how you decided.

Name _____ Date _____

Part 4 Measuring Inches

You will need an inch ruler to complete this assignment. Estimate the length in inches of four objects in your home. Then, measure each object to the nearest inch. Complete the data table below.

Object	Estimate (in inches)	Actual (in inches)

Part 5 Inches and Centimeters

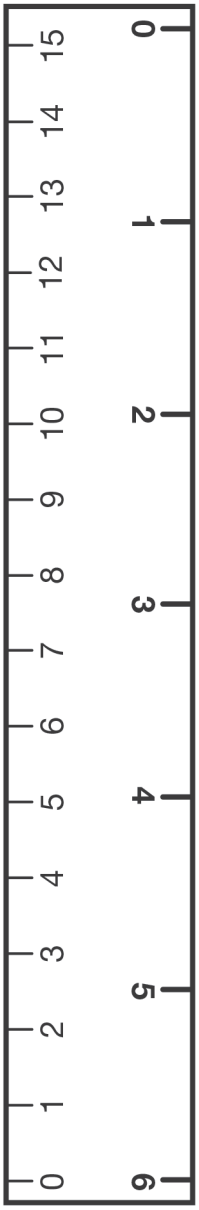
You will need a ruler that measures inches and centimeters for this part.

1. Which is longer, 1 centimeter or 1 inch? _____
Using a ruler, draw a line that is 1 centimeter long. Draw another line, 1 inch long. Label each line with its measurement.

2. Which is longer, 5 centimeters or 3 inches? _____
Using a ruler, draw a line that is 5 centimeters long. Draw another line, 3 inches long. Label each line with its measurement.

3. A. Which is longer, 40 centimeters or 13 inches? _____

B. How did you decide? Use a ruler as a guide.



Name _____ Date _____

Part 6 The Students in Room 204

Solve each of the following problems. Show how you solved each problem. If you need additional space, use a separate sheet of paper.

1. Ming said, "I collect baseball cards. If I collect 30 more, I'll have 250 cards." How many cards does Ming have now?

2. Keenya likes to listen to music while she practices her tumbling routines for gymnastics class. She listened to two complete CDs while practicing today. There are about 10 songs on each CD, and each song is between 2 and 3 minutes long. About how long did Keenya practice?

3. Irma likes to read. She has two weeks to read the books she borrowed from the library. One book has 158 pages. The other book has 76 pages.

   A. How many pages are in the two books?

   B. If she reads about ten pages a day, can she finish the two books in two weeks?

4. Maya's family went on a three-day bike trip last week. They biked 36 miles on Friday, 33 on Saturday, and 45 on Sunday. How many miles did they bike in all?

5. It is 4:30 now. Nila's dinner will be ready at 5:15. Nila wants to play her new computer basketball game for twenty minutes. However, she needs fifteen minutes to walk the dog and about seven minutes to set the table. Will Nila be ready for dinner on time? Explain your answer.

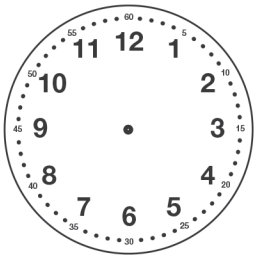
6. Write a word problem that describes something about yourself. Write the answer and show how you solved the problem.

Name _____ Date _____

Part 7 Time

Read the time on the clock, and then draw the same time on the other clock.

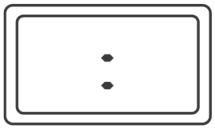
1.

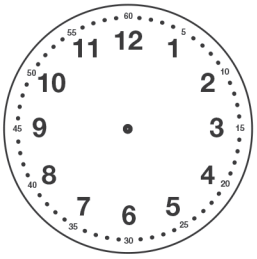


2.

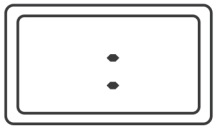
Write the times on the digital and analog clocks.

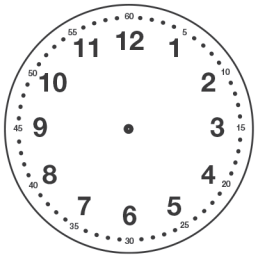
3. What time is it now?





4. What time is your bedtime?





Estimate the time.

5. About how many hours until your bedtime?

6. About how many hours ago did you wake up?

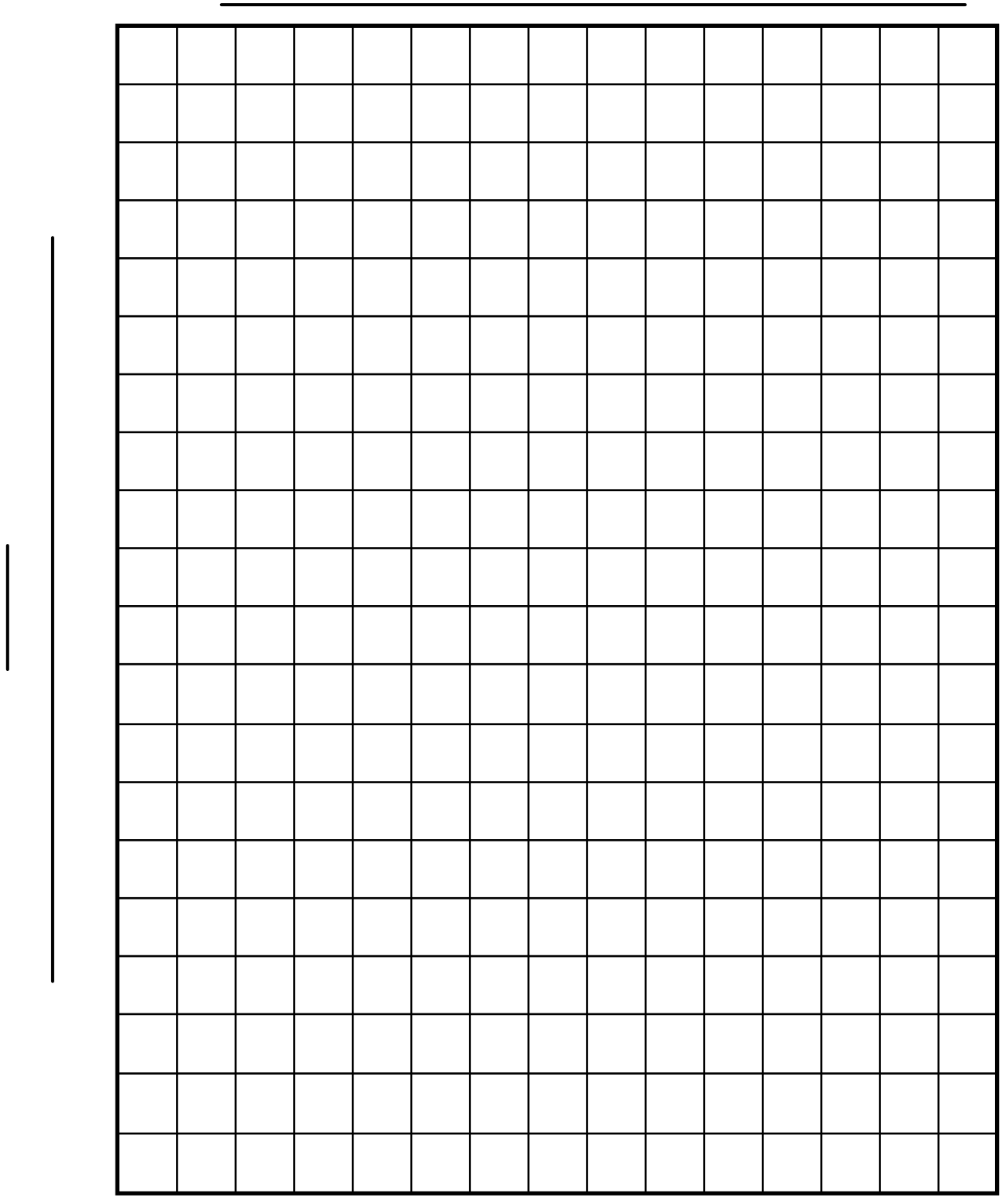
7. About how many hours until your next school day begins?

Name _____ Date _____

Three-Column Data Table

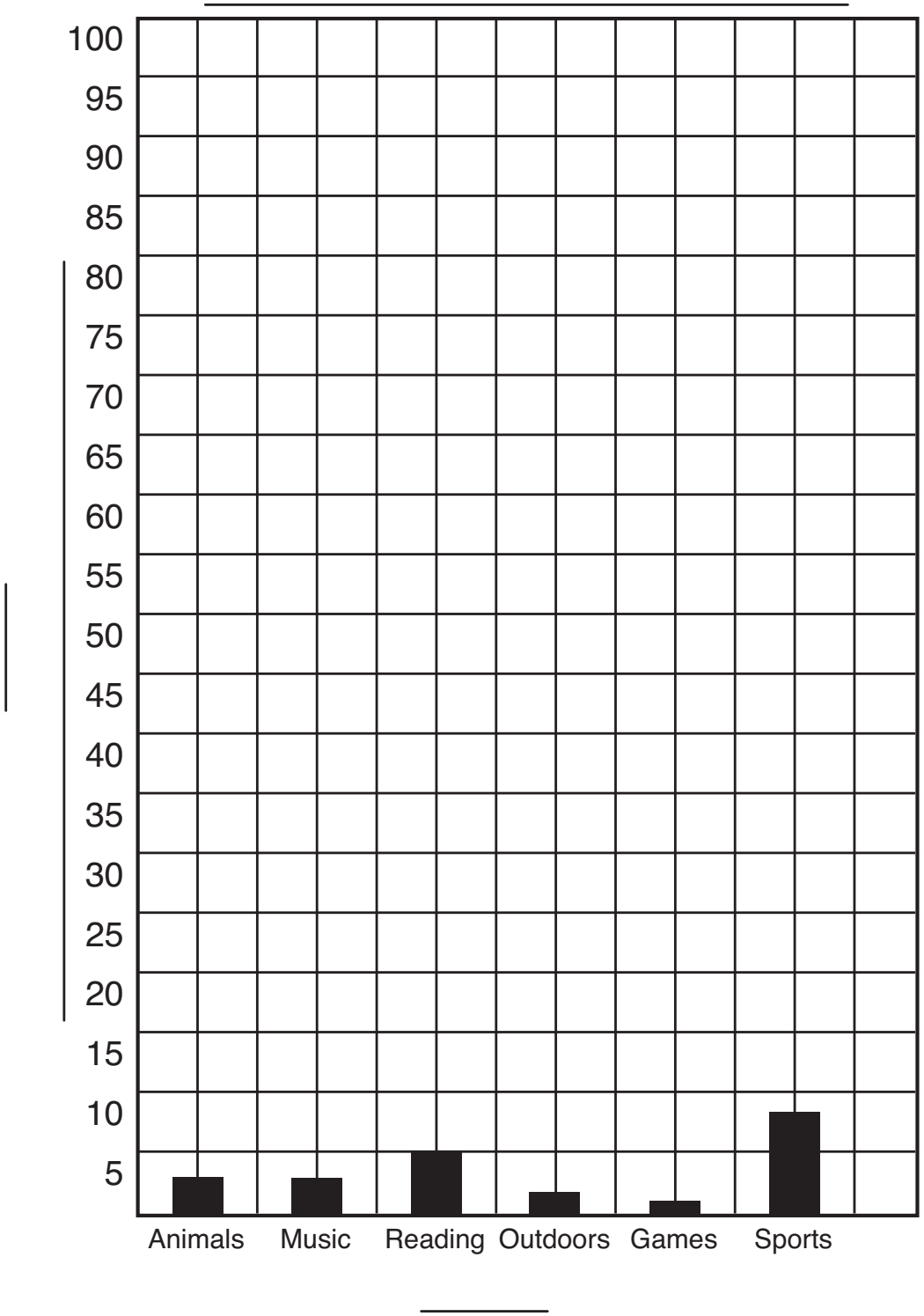
_____

Name _____ Date _____

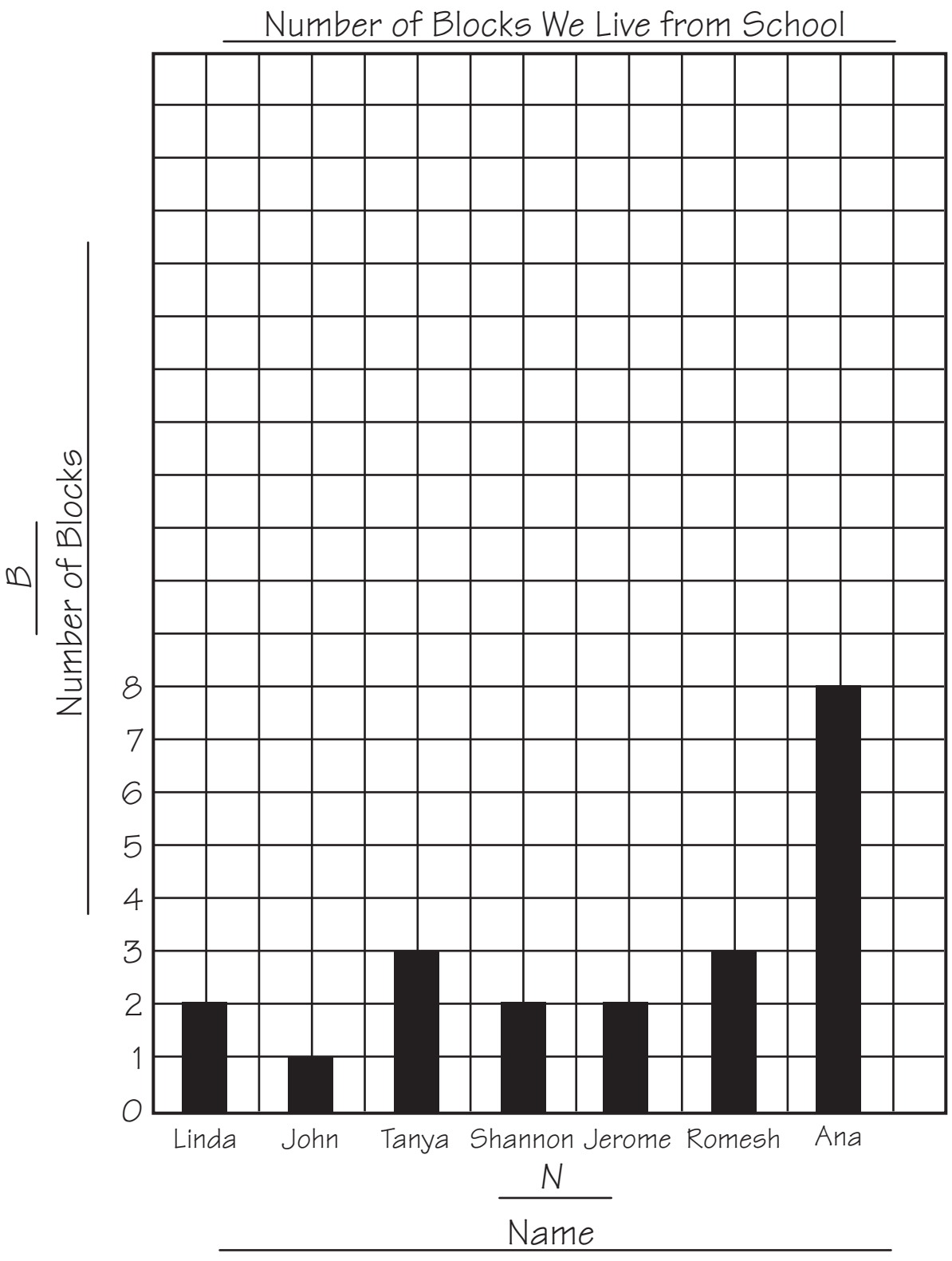


Name _____ Date _____

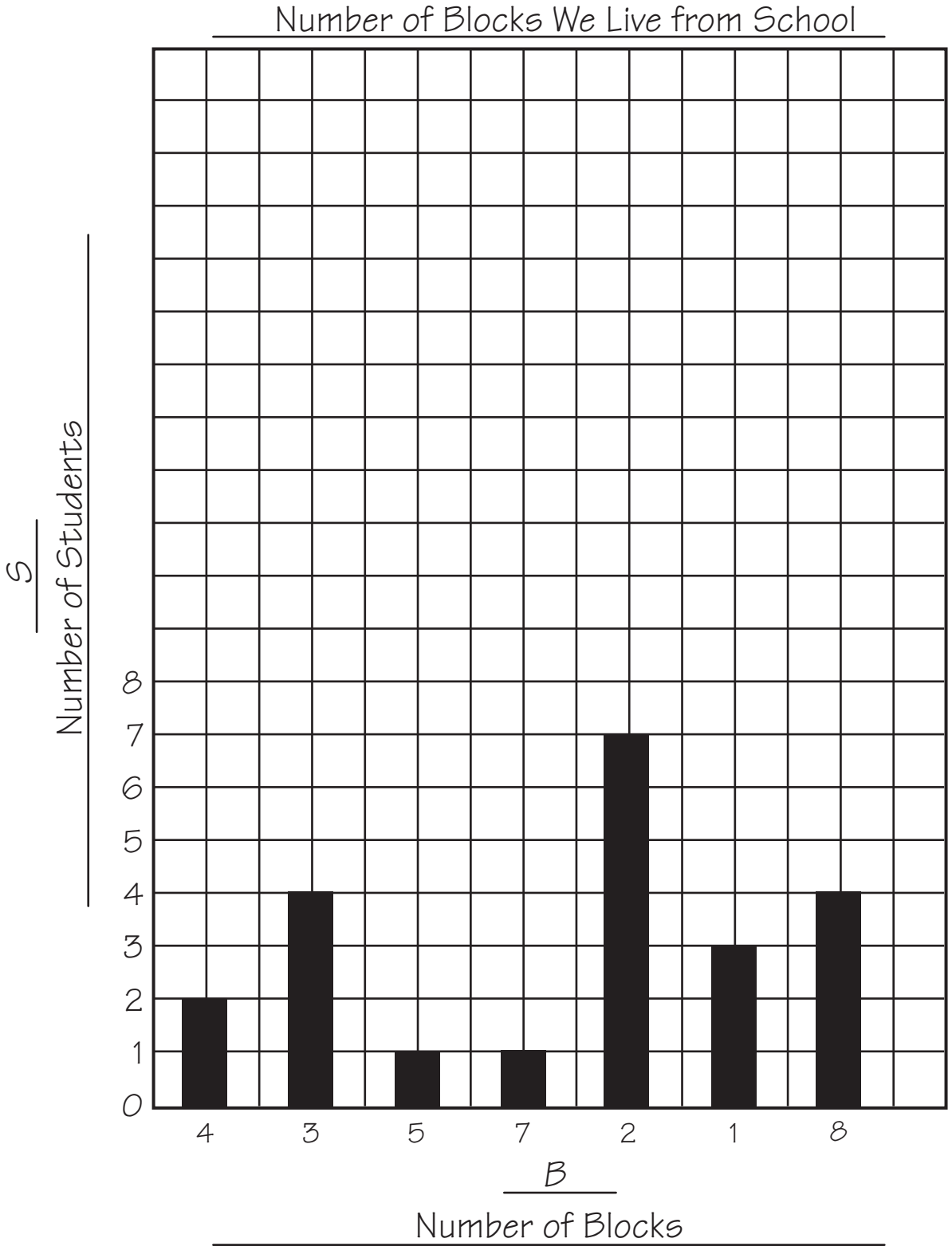
Help Improve This Graph



Bar Graph I: How Would You Improve It?



Bar Graph II: How Would You Improve It?



Name _____ Date _____

Getting to Know Room 204 a Little Better
Check-In: Q# 11–14 Feedback Box

	Expectation	Check In	Comments
Make a bar graph using numerical data. [Q# 11]	E4		
• Title the graph.			
• Label the axes with the variables.			
• Scale the vertical axis appropriately.			
• Draw the bars correctly.			
Read a table or bar graph to find information about a data set. [Q# 12]	E7		
Translate between a bar graph and a real-world situation. [Q# 13]	E8		
List appropriate values for a variable. [Q# 14]	E1		
Distinguish between categorical and numerical variables. [Q# 14]	E2		

Name _____ Date _____

An Average Activity
Check-In: Questions 9–12
Feedback Box

Expectation	Check In	Comments
Find the median of a data set:	E6		
• Of an odd number of data points. [Q# 9]			
• Of an even number of data points. [Q# 10]			
• In a 3-trial data table. [Q# 11A]			
• From a bar graph or line plot. [Q# 12]			
Make predictions about a data set. [Q# 10B and 11B]	E9		

Name _____ Date _____

An Average Activity
Check-In: Questions 9–12
Feedback Box

Expectation	Check In	Comments
Find the median of a data set:	E6		
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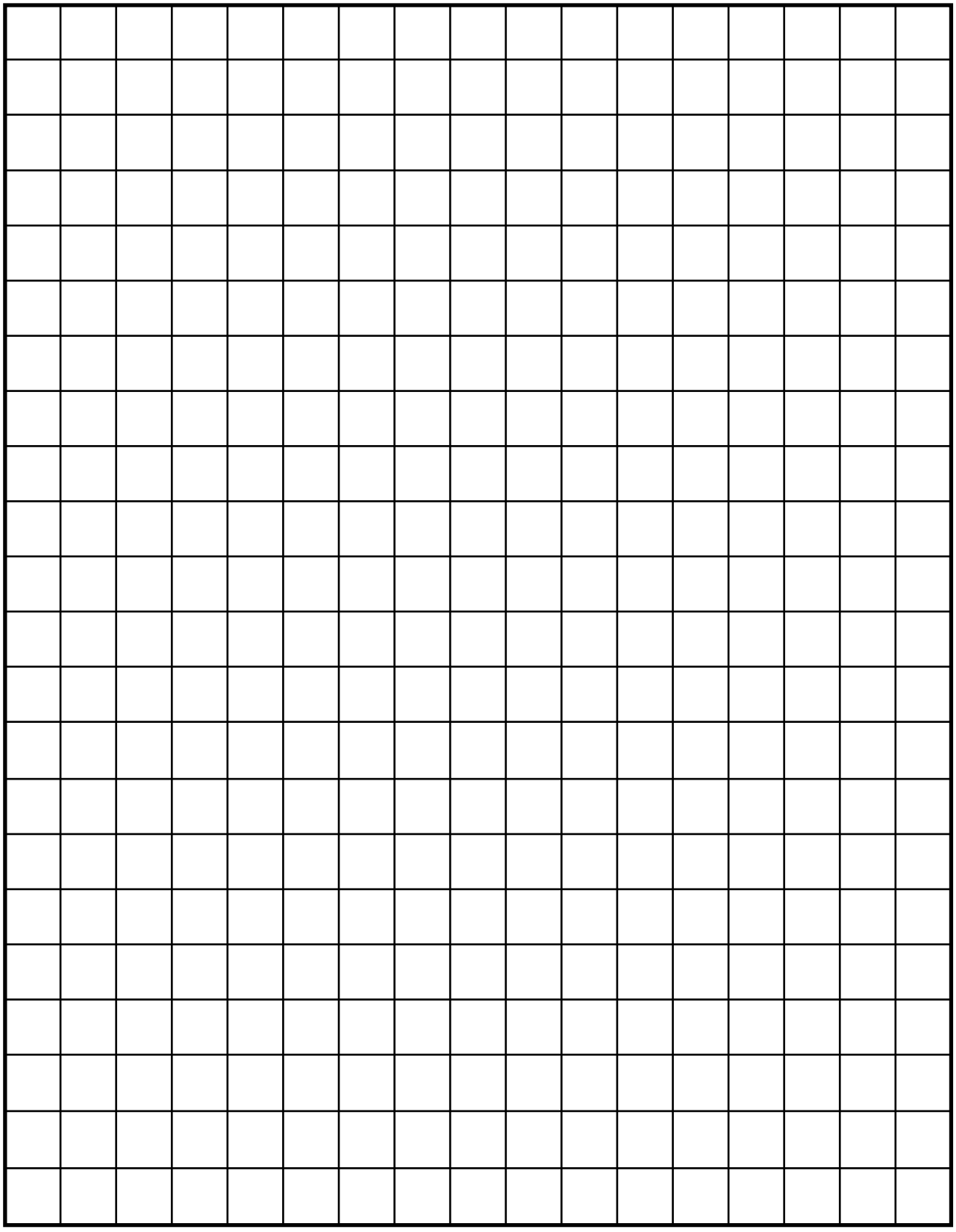
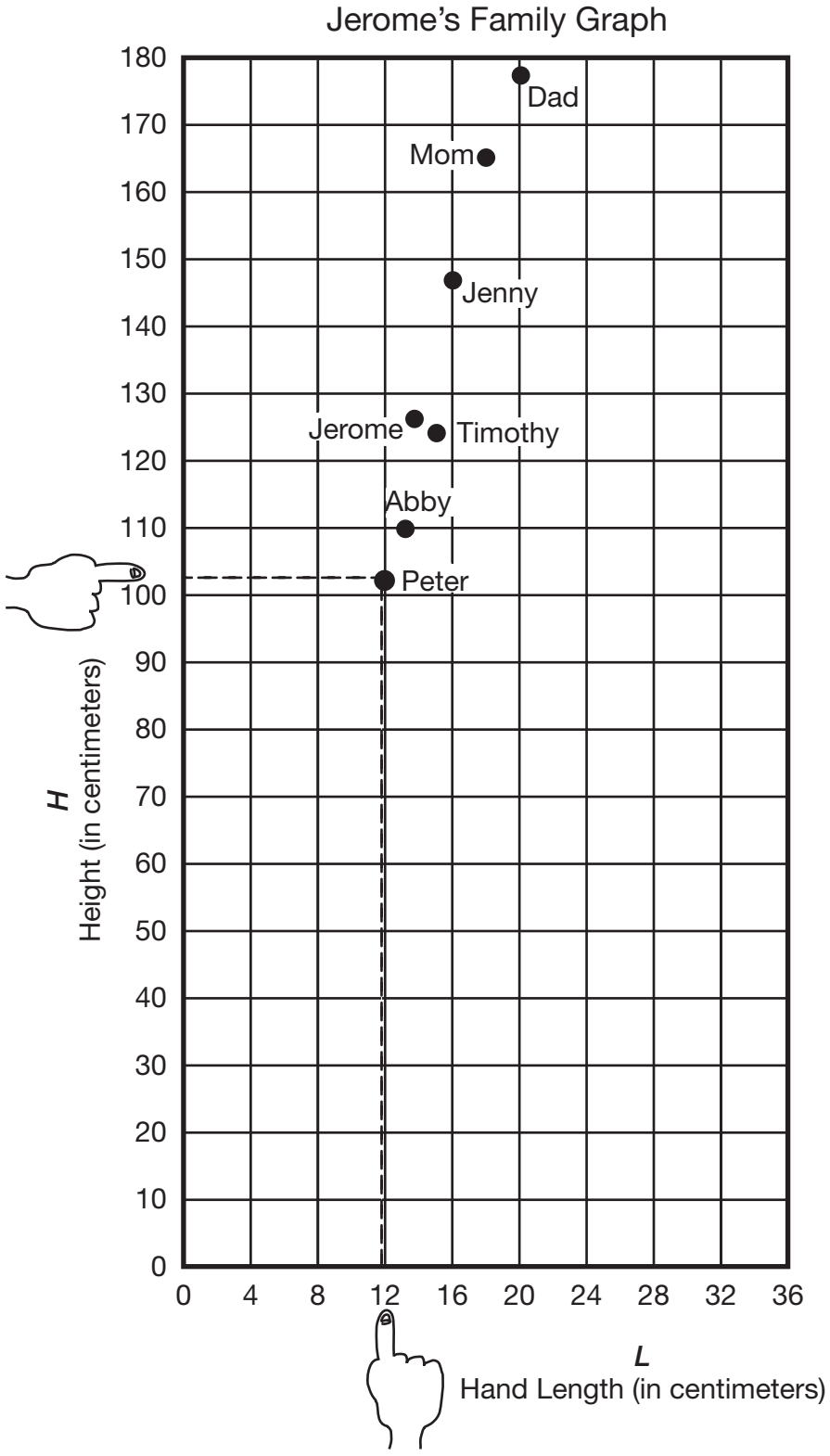
• Of an even number of data points. [Q# 10]			
• In a 3-trial data table. [Q# 11A]			
• From a bar graph or line plot. [Q# 12]			
Make predictions about a data set. [Q# 10B and 11B]	E9		



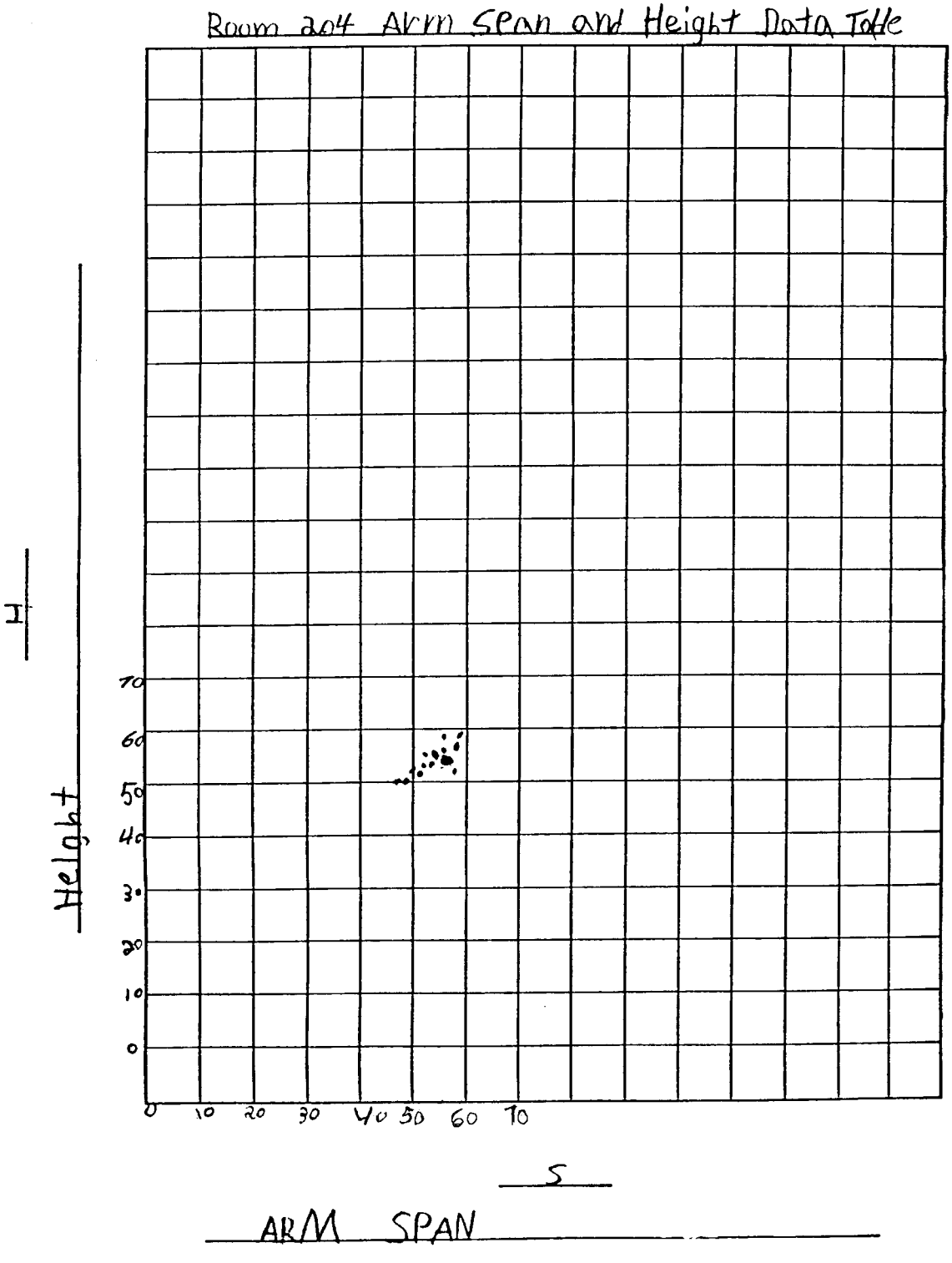
Jerome's Family: Hand Lengths and Heights



Name _____ Date _____

_____

Point Graph: What's Wrong Here?



Name _____ Date _____

Arm Span vs. Height Feedback Box	Expectation	Check In	Comments
Make a point graph.	E5		
• Title the graph.			
• Label the axes with the variables and units.			
• Scale the axes to spread out the data.			
• Plot the points correctly.			
Read a table or graph to find information about a data set. [Q# 3, 7 and 9]	E7		
Model real-world situations with bar and point graphs. [Q# 6]	E8		
Make predictions and generalizations about a data set using a median. [Q# 8]	E9		
Make predictions and generalizations about a data set using a data table and graph. [Q# 5]	E10		

Name _____ Date _____

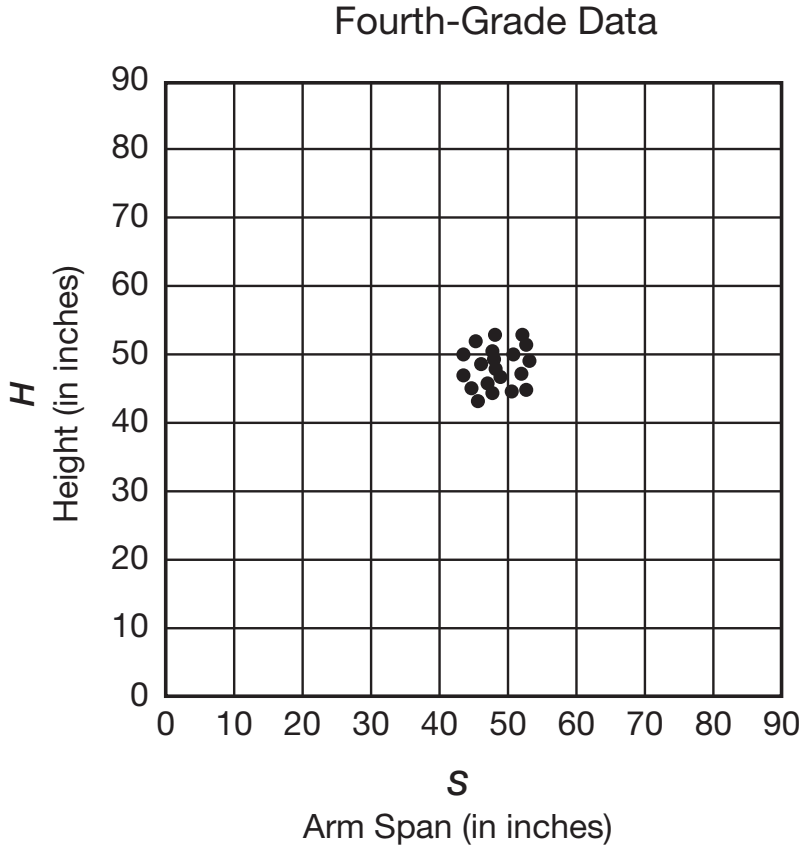
Arm Span vs. Height Feedback Box	Expectation	Check In	Comments
Make a point graph.	E5		
• Title the graph.			
• Label the axes with the variables and units.			
• Scale the axes to spread out the data.			
• Plot the points correctly.			
Read a table or graph to find information about a data set. [Q# 3, 7 and 9]	E7		
Model real-world situations with bar and point graphs. [Q# 6]	E8		
Make predictions and generalizations about a data set using a median. [Q# 8]	E9		
Make predictions and generalizations about a data set using a data table and graph. [Q# 5]	E10		

Name _____ Date _____

More Arm Span vs. Height Data

1. The data below is taken from another fourth-grade classroom. Estimate the average height and arm span for a fourth-grader from this class.

Average Height _____ Average Arm Span _____



2. Maria is in sixth grade. Her arm span measures 62 inches. Her height measures 63 inches. Add her point to the graph. How does her arm span and height compare to the other points on the graph?

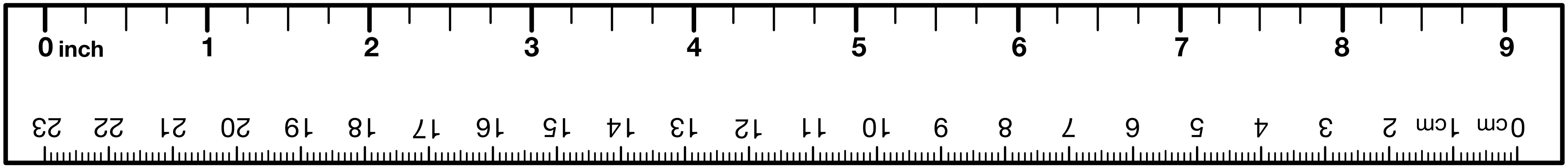
Name _____ Date _____

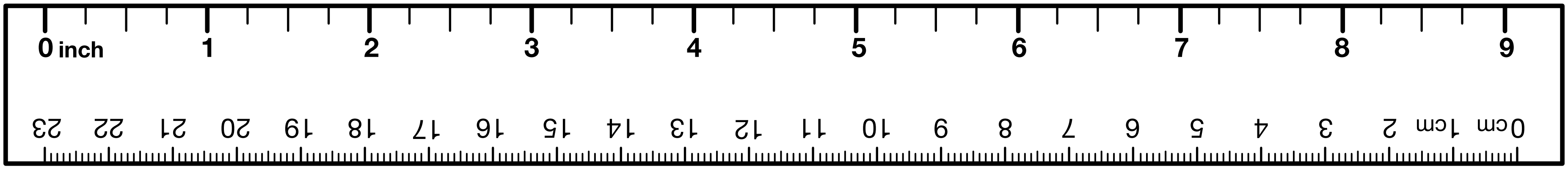
3. Jack joins this fourth-grade classroom. His height is 45 inches. What would you predict about his arm span? Explain how you made your prediction.

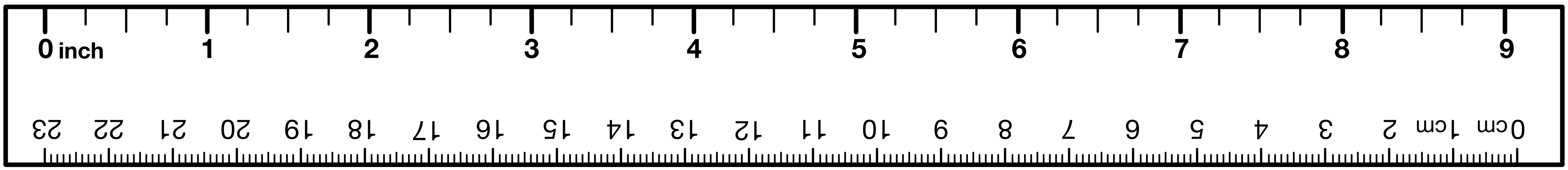
More Arm Span vs. Height Data Feedback Box

Expectation	Check In	Comments
Estimate the median of a data set. [Q# 1]	E6		
Read a table or graph to find information about a data set. [Q# 1–3]	E7		
Model real-world situations with bar and point graphs. [Q# 1–2]	E8		
Make predictions and generalizations about a data set using a median. [Q# 2]	E9		
Make predictions and generalizations about a data set using a data table and graph. [Q# 3]	E10		

Centimeter and Inch Ruler







Name _____ Date _____

Workshop: Graphs and Averages
Check-In: Q# 4–5 Feedback Box

	Expectation	Check In	Comments
Find the median in data set. [Q# 4]	**E6**		
Make predictions and generalizations about a data set using a median. [Q# 4]	**E9**		
Read a table or graph to find information about a data set. [Q# 5]	**E7**		

	Yes . . .	Yes, but . . .	No, but . . .	No . . .
MPE5. Show my work. I show or tell how I arrived at my answer so someone else can understand my thinking. [Q# 4]				