

Discuss



- Report to the class the average circumference of the heads of the students in your group. Give the mean.
- Compare the means for all the groups. What can you say about them?
- Estimate the average circumference for the whole class using the means for each group.
- A. How would you find the mean if there were five people in your group?
B. Three people?
- How could you use a calculator to find the mean? (Hint: What steps did you go through to find the mean using the strips?)

Explore

Using a Calculator to Find the Mean

Michael's group used a chart to think through their answer to Question 5.

Finding the Mean

Steps with adding machine tape	Steps on the calculator
1. We taped the strips together.	1. Add the lengths of the strips together. $56 + 52 + 50 + 54 = 212$ cm
2. We folded the long strip into 4 equal parts.	2. Divide the total length by the number of people in our group. $212 \div 4 = 53$ cm
3. The length of one-fourth of the long strip is 53 cm.	3. The mean is 53 cm. On average, the circumference of our heads is 53 cm.

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Questions 1–15 (SG pp. 179–183)

- * Answers will vary depending on class data.
- Answers will vary. The means from some groups might match. Others should be “close.” Students might mention the range of means recorded.
- * Answers will vary. See the lesson.
- A. Fold the long strip into 5 equal pieces.
B. Fold the long strip into 3 equal pieces.
- Add the measurements and divide by the number of people in the group (the number of values).

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These are the keystrokes that Michael's group used. Try them on your calculator.

What is showing on your display now? What does the number in the window tell you?
What is showing on your display now? What does the number in the window tell you?

56 + 52 + 50 + 54 = + 4 =

6. A.*

60 + 57 + 56 + 54 = ÷

4 =

B.* 57 cm

C.* 57 cm

Michael's group found the mean by adding the values for each head circumference and dividing by the number of students in the group. The mean for any data set is an average that is found by adding the values in the set of data and dividing by the number of values.

6. The data for Group 2 is shown below.

Group 2's Data

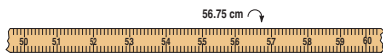
Name	Circumference of Head (in cm)
Jacob	60
Tanya	57
Maya	56
Jessie	54



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They used a calculator to find the mean for their data. The display on their calculator read 56.75.

- Write calculator keystrokes for finding the mean for Group 2.
- Is 56.75 cm closer to 56 cm or 57 cm?



- Give the mean to the nearest whole centimeter.

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

7. A.* Answers will vary.
 B.* The mean found using the calculator should be close to the mean found using the strips of paper.

8. A. Group 3: 57 cm; Group 4: 52 cm

B. Group 3:

$$\boxed{58} + \boxed{59} + \boxed{54} = \boxed{\div} \boxed{3} =$$

Group 4:

$$\boxed{53} + \boxed{53} + \boxed{51} = \boxed{\div} \boxed{3} =$$

C. Group 3: 58 cm; Group 4: 53 cm

9.



10. A. 6 students
 B. 1 student
11. $22\frac{1}{2}$ inches. Possible response: I saw that there were 8 data points so the median would be between the 4th and 5th data point. Since they are both $22\frac{1}{2}$, the median is $22\frac{1}{2}$.

12.* Since there are six data points with $\frac{1}{2}$ you can add all of the $\frac{1}{2}$ s.

$$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \frac{6}{2} = 3$$

You can then add all the whole numbers on the calculator.

$$\boxed{21} + \boxed{22} + \boxed{23} + \boxed{22} + \boxed{22}$$

$$\boxed{24} + \boxed{21} + \boxed{21} + \boxed{3} = \boxed{179}$$

You would divide 179 by 8 because there are 8 pieces of data. $\boxed{179} \div \boxed{8} = 22.375$. This is closer to 22, so the mean is 22 inches.

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7. A. Use your data table and your calculator to find the mean circumference for your group. Give your answer to the nearest centimeter. (Hint: Look at a meterstick to help you find the nearest centimeter, or think of dollars and cents.)
 B. Compare the number you found for the mean on your calculator to the number your group found by measuring the folded strip. Are the numbers close?
8. Groups 3 and 4 had only three students each.
 A. Find the mean for each data set. Give your answer to the nearest centimeter.
 B. Show the calculator keystrokes you used to find the mean.
 C. Find the median for each set of data.

Group 3's Data		Group 4's Data	
Name	Circumference of Head (in cm)	Name	Circumference of Head (in cm)
John	58	Keenya	53
Jerome	59	Grace	53
Lee Yah	54	Ana	51

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Line Plots to Find the Median

Use the *Using a Line Plot* page in the *Student Activity Book* to complete Questions 9–11.

Groups 5 and 6 measured their head circumferences using inches instead of centimeters. Mrs. Dewey asked them to record their measurements to the nearest $\frac{1}{2}$ inch. Their data tables are shown below. Mrs. Dewey asked them to show their data using a line plot.

Group 5's Data		Group 6's Data	
Name	Circumference of Head (in inches)	Name	Circumference of Head (in inches)
Irma	$21\frac{1}{2}$	Nila	$22\frac{1}{2}$
Nicholas	$22\frac{1}{2}$	Frank	24
Luis	23	Linda	$21\frac{1}{2}$
Romesh	$22\frac{1}{2}$	Jackie	$21\frac{1}{2}$

9. Irma's and Nicholas's data is shown on the line plot on the *Using a Line Plot* page in the *Student Activity Book*. Add the data for the other members in Group 5 and for all of the students in Group 6.
10. A. How many students have a head circumference that is less than 23 inches?
 B. What is the difference between the number of students with a head circumference of $21\frac{1}{2}$ inches and the number of students with a head circumference of 23 or 24 inches?
11. Use the line plot to find the median head circumference for these eight students. Be ready to explain how you found your answer.
12. What strategy could you use to find the mean head circumference for these two groups? Explain your answer.

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

✓ **Check-In: Questions 13-15**

13. Each day for a week, students in Room 204 recorded the temperature outside at noon in degrees Fahrenheit (F). The data is recorded in the table below.
- A. Find the mean temperature. Show your calculator keystrokes. Give your answer to the nearest whole degree.
 - B. Find the median temperature.



Temperature Data

Day	Temperature at Noon (in degrees F)
Monday	47
Tuesday	38
Wednesday	37
Thursday	43
Friday	46

14. In the first six soccer games of the season, Jackie's team scored 2, 3, 4, 0, 1, and 2 goals.
- A. Find the mean number of goals.
 - B. Find the median number of goals.
 - C. Look back. Do your answers make sense? Are the averages you found typical scores for Jackie's team?
15. Each week a fourth-grade class has a test on 20 spelling words. A student got 13 right the first week, 19 right the second week, 12 right the third week, 20 right the fourth week, and 11 right the fifth week.
- A. On average, how many words did the student get right?
 - B. Did you use the median or the mean? Why?

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Use the *Practice Finding Means* pages in the *Student Activity Book* for more practice finding the mean.

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13. A.* 42° ; $211 \div 5 = 42.2$ This is closer to 42° .

$$\boxed{47} \boxed{+} \boxed{38} \boxed{+} \boxed{37} \boxed{+} \boxed{43} \boxed{+} \boxed{46} \\ \boxed{=} \boxed{\div} \boxed{5} \boxed{=} \boxed{=}$$

B.* 43°

14. A.* 2 goals

B.* 2 goals

C.* Yes. Yes.

15. A.* Answers will vary; median of 13 correct or mean of 15 correct

B.* See the lesson.