[Objective]
The student will summarize, interpret, and graph numerical data sets.

[Prerequisite Skills]
dot plots, box plots, histograms, measures of center, measures of variability, KEMS Grade 6 Lessons (33–36)

[Materials]
Student pages S433 – S453
Calculators

[Essential Questions]
1. How would you describe a statistical question?
2. Explain the meaning of the distribution of a set of data.
3. Describe the relationship between the median and mean in a data set that is symmetrically distributed.

[Words for Word Wall]
statistical question, histogram, MAD (Mean absolute deviation), median, mean, clusters, statistics, data set, variability, variety, peak, box plot, dot plot, gaps, minimum value, maximum value, IQR (interquartile range), range, quartile, intervals, distribution

[Grouping]
Cooperative Pairs (CP), Whole Group (WG), Individual (I), Small Group (SG)
*For Cooperative Pairs (CP) activities, assign the roles of Partner A and Partner B to students. This allows each student to be responsible for designated tasks within the lesson.

[Levels of Teacher Support]
Modeling (M), Guided Practice (GP), Independent Practice (IP)

[Multiple Representations]
SOLVE, Graph, Verbal Description, Graphic Organizer, Pictorial Representation

[Warm-Up] (IP, CP, WG) S433 (Answers are on T843.)
• Have students turn to S433 in their books to begin the Warm-Up. Students will determine the measures of center and variation of the data set. Monitor students to see if any of them need help during the Warm-Up. Have students to complete the problems and then review the answers as a class. {Verbal Description}

[Homework]
Take time to go over the homework from the previous night.

[Lesson] [4-5 days (1 day = 80 minutes) - M, GP, IP, WG, CP]
LESSON 35: Summarizing Numerical Data

SOLVE Problem (IP, CP, WG)  S434 (Answers on T844.)

Have students turn to S434 in their books. The first problem is a SOLVE problem. Students are going to complete all steps of the SOLVE problem since this is prior knowledge determining measures of center and variability. Tell students that during the lesson they will learn how to summarize numerical data. {SOLVE, Verbal Description, Graph, Graphic Organizer}

Discovery Activity - Extend the SOLVE Problem – Statistical Questions and Data Displays  (M, GP, WG, CP) S434, S435, S436 (Answers on T844, T845, and T846.)

WG, M, CP, GP: Have students turn to page S435 in their books. Assign the roles of Partner A and Partner B. Students will be using the SOLVE problem from S434 to explore statistical questions. {SOLVE, Verbal Description, Graph, Graphic Organizer}

MODELING

Discovery Activity - Extend the SOLVE Problem – Statistical Questions and Data Displays

Step 1: Direct students’ attention to the top of S435.
- Have student pairs discuss Questions 1 – 3 at the top of S435 and then come back to the whole group discussion to share answers.
- Partner A, how many student heights were measured for the data set? (21) Record.
- Partner B, what was the unit of measure for the data collection? (feet) Record.
- Partner A, what are some of the possible reasons that Ms. Bryce may have decided to use this question for the data collection? (Answers will vary, but may include that it was convenient to collect data from the class, height is easy to measure, and students had practice in using a measuring instrument.) Record.

Step 2: Read the questions in Column 1 and discuss with your partner similarities between each of the questions.
- Partner A, identify 1 similarity of the questions in Column 1. (All the questions focus on the answer for one person.) Record.
- Partner B, identify another similarity of the questions in Column 1. (All the questions have a single answer.) Record.
- Are there any other similarities? (Answers may vary, but have students record any appropriate answers.)
**Step 3:** Read the questions in Column 2 and discuss with your partner similarities between each of the questions.

- Partner A, identify one similarity of the questions in Column 2. (The questions have many possible answers.) Record.
- Partner B, identify another similarity of the questions in Column 2. (The questions have numerical answers that can be used in a data display.) Record.
- Are there any other similarities? (Answers may vary, but have students record any appropriate answers.)

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>How tall am I?</td>
<td>How tall are the students in my room?</td>
</tr>
<tr>
<td>How long do I read every night?</td>
<td>How many students in my room read at least 15 minutes every night?</td>
</tr>
<tr>
<td>Do I like to run for exercise?</td>
<td>What is the distance each member of my class can run in 15 minutes?</td>
</tr>
<tr>
<td>How old am I?</td>
<td>How old are the students in my school?</td>
</tr>
</tbody>
</table>

**Step 4:** Have students turn to S4 in their books.

- Have student pairs look back at the SOLVE problem on S434.
- Partner A, where would you place the question, “What is the median of the students’ heights?” (Column 1.) Record.
- Partner B, explain why. (The answer is one value – the median.) Record.

**Step 5:** Have student pairs discuss Question 6.

- Partner A, what do you think the original question was that Ms. Bryce used to collect the class data? (What are the heights of the students in my class?) Record.
- Partner B, which column would that question be in? (Column 2) Record. Explain why. (There are a variety of answers because students are all different heights.) Record.

**Step 6:** Have student pairs discuss the meaning of the word variety. (Possible answers include different types, different kinds, etc.)

- Have students discuss Question 7 and determine the possible words that will fill in the blank. Remind them about the word variety. When a question has a variety of possible numerical answers we say that the data from the question has (variability). Record.
Step 7: Direct students’ attention back to S435 and look at the questions in Column 2.

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How tall are the students in my room?</td>
</tr>
<tr>
<td>How many students in my room read at least 15 minutes every night?</td>
</tr>
<tr>
<td>What is the distance each member of my class can run in 15 minutes?</td>
</tr>
<tr>
<td>How old are the students in my school?</td>
</tr>
</tbody>
</table>

- If we collect data for any of those questions, we would have a variety of values (stats) to use to display, compare, and summarize the data.
- Partner A, what do we call that data we collect? (statistics) Record.
- Partner B, if we are collecting statistics when we are summarizing numerical data, what do we care any question that has variability in the data? (a statistical question). Record.

Step 8: Direct students' attention to Question 10. Have students write yes or no to each of the following questions to show which are statistical questions. Students should be prepared to explain and defend their answers.

Applying Data Distribution to SOLVE – Statistical Questions and Data Displays

WG, M, CP, GP: Have students turn to page S437 in their books. Assign the roles of Partner A and Partner B. Students will be applying use of statistical questions and data collection to the SOLVE problem from S434. {SOLVE, Verbal Description, Graph, Graphic Organizer}
Applying Data Distribution to SOLVE – Statistical Questions and Data Displays

**Step 1:** Direct students’ attention to the data set and graph on S437.

3, 4, 4, 4, 4 1/2, 4 1/2, 4 1/2, 4 1/2, 5, 5, 5, 5, 5, 5, 5 1/2, 5 1/2, 5 1/2, 5 1/2, 6

**Step 2:** Have students discuss Questions 1 – 4 below the graph and then come back to the whole class prepared to share answers.
- Partner A, what was the original question that Ms. Bryce used to collect the class data? (What are the heights of the students in my class?) Record.
- Partner B, what is the benefit of using the dot plot to display the data? (Each piece of data is plotted, easy to identify the median, low and high values, and mean.) Record.

**Step 3:** When we plot data on a graph we distribute each piece of data to the correct category. How the data is arranged is called the (distribution). Record.
- Partner A, in the SOLVE problem, what value did we use to describe the distribution of the data? (median) Record.

**Step 4:** Have students look at the chart for Question 5 and use the data list and the graph to complete the chart. (median Range, peak, and mean are all review terms from previous data lessons, but students may need a review of the meaning as they complete the chart. All answers should be recorded in the chart.)

**Step 5:** Partner A, what is the first data description? (median)
- Partner B, explain the description of median. (middle value) Record.
- Partner A, what is the median value of the data set? (5 feet) Record.
- Partner B, what does this mean for this data set? (50% of the students are 5 feet tall or taller, and 50% of the students are 5 feet tall or shorter.) Record.
Step 6: Partner A, what is the second description? (range of the values)
• Partner B, explain the description of range of the values. (least to greatest) Record.
• Partner A, what is the range of the values of the data set? (3 – 6 feet) Record.
• Partner B, what does this mean for this data set? (All students are from 3 feet to 6 feet tall.) Record.

Step 7: Partner A, what is the third data description? (peak)
• Partner B, explain the description of peak. (highest data point on the graph) Record.
• Partner A, what is the peak value of the data set? (5 feet) Record.
• Partner B, what does this mean for this data set? (When we look at the shape, 5 feet is the high point on the graph.) Record.

Step 8: Partner A, what is the fourth data description? (mean)
• Partner B, explain the description of mean. (average) Record.
• Partner A, what is the mean value of the data set? (4.79 feet) Record.
• Partner B, what does this mean for this data set? (If all students were the same height, the height would be this value.) Record.

<table>
<thead>
<tr>
<th>Data Description</th>
<th>Description</th>
<th>Value</th>
<th>What does this mean?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>Middle value</td>
<td>5 feet</td>
<td>50% of the students are 5 feet tall or taller and 50% of the students are 5 feet tall or shorter.</td>
</tr>
<tr>
<td>Range of the values</td>
<td>Least to greatest</td>
<td>3 – 6 feet</td>
<td>All students are from 3 feet to 6 feet tall.</td>
</tr>
<tr>
<td>Peak</td>
<td>Highest data point on the graph</td>
<td>5 feet</td>
<td>When we look at the shape 5 feet is the high point on the graph.</td>
</tr>
<tr>
<td>Mean</td>
<td>Average</td>
<td>4.79 feet</td>
<td>If all students were the same height, the height would be this value.</td>
</tr>
</tbody>
</table>

IP, CP, WG: Have students work in student pairs to complete the questions and chart on page S438. Monitor closely to make sure students are using the appropriate vocabulary. Then come back together as a class and share their results. {Verbal Description, Graphic Organizer, Graph}
SOLVE Problem (M, GP, IP, CP, WG)  S439 (Answers on T849.)

Have students turn to S439 in their books. It is a SOLVE problem. Students are going to complete all steps of the SOLVE problem since this is all prior knowledge determining median with a data set. {SOLVE, Verbal Description, Graphic Organizer}

Discovery Activity - Extend the SOLVE Problem – Dot Plots and Data Distribution  (M, GP, WG, CP)  S440 (Answers on T850.)

WG, M, CP, GP: Have students turn to page S440 in their books. Assign the roles of Partner A and Partner B. Students will be using the SOLVE problem from S439 to explore statistical questions. {SOLVE, Verbal Description, Graph, Graphic Organizer}

MODELING

Discovery Activity - Extend the SOLVE Problem – Dot Plots and Data Distribution

Step 1: Guide students in the creation of the dot plot on the top of S440.

39, 39, 40, 42, 43, 44, 45, 45, 46, 48, 50, 52, 53, 53, 53, 54, 55, 56, 57, 58, 58

<table>
<thead>
<tr>
<th>39</th>
<th>40</th>
<th>41</th>
<th>42</th>
<th>43</th>
<th>44</th>
<th>45</th>
<th>46</th>
<th>47</th>
<th>48</th>
<th>49</th>
<th>50</th>
<th>51</th>
<th>52</th>
<th>53</th>
<th>54</th>
<th>55</th>
<th>56</th>
<th>57</th>
<th>58</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Dot Plot" /></td>
<td></td>
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</tr>
</tbody>
</table>

Height in inches

Step 2: Partner A, what is the first data description? (median)
- Partner B, explain the description of median. (middle value) Record.
- Partner A, what is the median value of the data set? (50 inches) Record.
- Partner B, what does this mean for this data set? (50% of the students are 50 inches tall or taller, and 50% of the students are 50 inches tall or shorter.) Record.
Step 3: Have student pairs complete the remainder of the chart.

<table>
<thead>
<tr>
<th>Data Description</th>
<th>Description</th>
<th>Value</th>
<th>What does this mean?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>Middle value</td>
<td>50 inches</td>
<td>50% of the students are 50 inches tall or taller. 50% of the students are 50 inches tall or shorter.</td>
</tr>
<tr>
<td>Range of the values</td>
<td>Least to greatest</td>
<td>39 – 58 inches</td>
<td>Student heights are from 39 – 58 inches.</td>
</tr>
<tr>
<td>Peak</td>
<td>Highest data point on the graph</td>
<td>53 inches</td>
<td>When we look at the shape there is a high point on the graph at 53 inches.</td>
</tr>
<tr>
<td>Mean</td>
<td>Average</td>
<td>49 inches</td>
<td>If all students were the same height, the height would be 49 inches.</td>
</tr>
</tbody>
</table>

Step 4: Have student pairs discuss Questions 3 and 4 and then share answers as a whole group.

- Partner A, identify any **gaps** in the data. (41, 47, 49, 51) Record.
- Partner B, identify any **clusters** of data. (42-46 and 52-58) Record
- Partner A, name one benefit of using a dot plot to display this data set. (shows each piece of data) Record.
- Partner B, name another benefit of using a dot plot to display this data set. (easy to identify clusters, gaps, peaks) Record.
- Are there any other benefits to using a dot plot to display data? (Record any appropriate responses that students may share.)

Discovery Activity - Box Plots and Data Distribution
(M, GP, WG, CP, IP) S441, S442, S443 (Answers on T851, T852, T853.)

WG, M, CP, GP: Have students turn to page S441 in their books. Students will be using the data set from S440 to explore statistical questions and data distribution with box plots. **SOLVE, Verbal Description, Graph, Graphic Organizer**
MODELING

Discovery Activity - Box Plots and Data Distribution

Step 1: Have students discuss Questions 1 – 3 and then share answers as a whole group.
- Partner A, is it always necessary to display each piece of data in a graph? (No.) Record.
- Partner B, explain why. (Sometimes you only need to identify one value like the median, mean, or percentages of the data set.) Record.
- Partner A, what data display can we use to show the distribution of data in quartiles? (box plot) Record.

Step 2: Let’s look at the data set from S8 and create a box plot.
39, 39, 40, 42, 43, 44, 45, 45, 46, 48, 50, 52, 53, 53, 53, 54, 55, 56, 57, 58
- Partner A, identify the first 3 values that we plot for a box plot. (minimum value, maximum value, and median) Record.

Step 3: Have student pairs complete the chart and go over answers as a whole group.

<table>
<thead>
<tr>
<th>Value</th>
<th>What Does It Mean</th>
<th>How Did you Find It?</th>
<th>What is the...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>Lowest Value</td>
<td>Placed the values in order from least to greatest and identified the lowest value.</td>
<td>Minimum value: 39 inches</td>
</tr>
<tr>
<td>Maximum</td>
<td>Greatest Value</td>
<td>Placed the values in order from least to greatest and identified the greatest value.</td>
<td>Maximum value: 58 inches</td>
</tr>
<tr>
<td>Median</td>
<td>Middle Value</td>
<td>Placed values in order from least to greatest. Started with the highest and lowest values and crossed them out until only one value remained in the middle.</td>
<td>Median: 50 inches</td>
</tr>
</tbody>
</table>

Step 4: Partner A, what percent of the data is greater than the median value of 50? (50%) Record.
- Partner B, explain what this means. (50% of the class is as tall or taller than the median value of 50 inches.) Record.
- Partner A, what percent of the data is less than the median value of 50? (50%) Record.
- Partner B, what does this mean? (50% of the class is as tall or shorter than the median value of 50 inches.) Record.
Step 5: Have students turn to page S442.
- Partner A, what are the next value we want to identify for the box plot? (the quartiles) Record.
- Partner B, how do we determine the **quartiles**? (Quartile 1 is the median of the lower half of the data. Quartile 3 is the median of the upper half of the data.) Record.

Step 6: Have student pairs discuss how to determine the median of the lower half of the data. (List the values of the lower half of the data set and find the middle value.) Record.
- Partner A, what is the median of the lower half of the data set? (43.5 inches) Record.
- Partner B, explain how you determined that using the two values in the middle. (We found the mean of the two by adding them and dividing by 2.)
  39, 39, 40, 42, 43, 44, 45, 45, 46, 48
- Partner A, what does this mean? (25% of the class is shorter than 43.5 inches.) Record. This value marks the data point of 25%, and we call this (Quartile 1 or Q1.) Record.

Step 7: Discuss with your partner how to determine the median of the upper half of the data. (List the values of the upper half of the data set and find the middle value.) Record.
- Partner A, what is the median of the upper half of the data set? (54.5 inches) Record.
- Partner B, explain how you determined that using the two values in the middle. (We found the mean of the two by adding them and dividing by 2.)
  52, 53, 53, 54, 55, 56, 57, 58, 58
- Partner A, what does this mean? (25% of the class is taller than 54.5 inches.) Record. This value marks the data point of 75%, and we call this (Quartile 3 or Q3.) Record.

**IP, CP, WG:** Have students work in student pairs to complete the box plot activity on S443. Then come back together as a class and share their results. {Verbal Description, Graphic Organizer, Graph}
Discovery Activity – Dot Plots to Histograms with Data Distribution
(M, GP, WG, CP) S444, S445, S446 (Answers on T854, T855, and T856.)

WG, M, CP, GP: Have students turn to page S444 in their books. Students will be using the data set from S440 to explore statistical questions and data distribution with box plots. {SOLVE, Verbal Description, Graph, Graphic Organizer}

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**MODELING**

Discovery Activity – Dot Plots to Histograms with Data Distribution

**Step 1:** What type of graph can we create that will display the data using intervals? (histogram) Record.

![Dot Plot of Heights of Students in Mr. Silvan's Class]

**Step 2:** Have students talk in partners and determine what intervals might be appropriate with the data set. (intervals of 4 or 5 because there are 20 total values in the scale and 20 is divisible by both 4 and 5 for equal groups) Record.

**Step 3:** Let’s use frequency values of 5 inches to create 4 intervals. Frequency Values from Least to Greatest

39, 39, 40, 42, 43, 44, 45, 45, 46, 48, 50, 52, 53, 53, 53, 54, 55, 56, 57, 58

<table>
<thead>
<tr>
<th>Number of Inches in Intervals of 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Inches</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>39 - 43</td>
</tr>
<tr>
<td>44 - 48</td>
</tr>
<tr>
<td>49 - 53</td>
</tr>
<tr>
<td>54 - 58</td>
</tr>
</tbody>
</table>
**Step 4:** Have students turn to page S445. At the top of the page create a histogram using the intervals from S444.

**Step 5:** Partner A, can you identify the median from this histogram? (No.) Record. Why or why not? (You are not able to identify individual values from the graph because all the data is grouped in intervals.) Record.
- Partner B, which intervals have the same number of students? (39 – 43, 44 – 48, and 49 – 53) Record.
- Partner A, what can we interpret from those intervals? (15 out of a total of 21 students, or 71% of the students, have a height that falls into the range of 39 – 53 inches.) Record.
- Partner B, what percent of the students have a height that is 48 inches or less? (Round to the nearest percentage.) (48%) Record.

**IP, CP, WG:** Have students work in student pairs to complete the histogram activity on S446. Then come back together as a class and share their results. {Verbal Description, Graphic Organizer, Graph}

**Discovery Activity – Comparing Two Histograms with Data Distribution**
(M, GP, IP, WG, CP) S447 (Answers on T857.)

**WG, M, CP, GP:** Have students turn to page S447 in their books. Assign the roles of Partner A and Partner B. Students will be comparing data distribution in two histograms. {SOLVE, Verbal Description, Graph, Graphic Organizer}
**MODELING**

**Discovery Activity – Comparing Two Histograms with Data Distribution**

**Step 1:** Have student pairs discuss Questions 1-4 and the share answers as a whole group.

**Step 2:** Partner A, can you identify the median from either Histogram 1 or Histogram 2? (No.) Record. Why or why not? (You are not able to identify individual values from the graph because all the data is grouped in intervals.) Record.
- Partner B, how many intervals have the same number of students in Histogram 1? (3) Record.
- Partner A, how many intervals have the same number of students in Histogram 2? (3) Record.
- Partner A, how did changing the size of the intervals change how the data is interpreted from the two histograms? (The appearance or look of the graph is different. The conclusions or interpretations about the data displayed is different.) Record.
- Work with your partner to identify two facts about the data, one using Histogram 1 and one using Histogram 2. (Answers will vary.)

**SOLVE Problem – Mean Absolute Deviation and Data Distribution**

(M, GP, WG, CP) S448, S449 (Answers on T858, T859.)

**M, GP, WG, CP:** Have students turn to S448 in their books. Students will work with MAD (mean absolute deviation) using SOLVE. Make sure students know their designation as Partner A or Partner B. {Verbal Description, SOLVE, Graphic Organizer}
MODELING

SOLVE Problem – Mean Absolute Deviation and Data Distribution

Step 1: Students will work in student pairs to read the SOLVE problem and complete the S and O steps.
- Partner A, this problem is asking me to find (the mean and MAD [Mean Absolute Deviation] of the scores) Record.
- Partner B, identify the necessary facts. (data set of student heights) Record.
- Give students a few minutes to complete S and O and then go over the answers as a whole group before moving on to the L step.

Step 2: Partner A, discuss possible ways to describe how to line up a plan to include everything you will need to do.
- Partner B, what would be the first step for our plan? (mean: find the sum of the values and then divide by the number of values to determine the mean) Record.
- Partner A, what would the second step of our plan be? (MAD: Put the heights in order from least to greatest. Find the MAD by determining the absolute deviation of each data value. Then add the absolute deviation and divid by the number of values to determine the MAD.) Record.
- Partner B, what would our operation or operations be? (mean: addition, division, MAD: addition, division) Record.

Step 3: Partner A, determine an estimate for Step V. (mean: about 50 inches; MAD: about 5 inches) Record.
Carry out your plan.
Mean: 39 + 39 + 40 + 42 + 43 + 44 + 45 + 45 + 46 + 48 + 50 + 52 + 53 + 53 + 53 + 54 + 55 + 56 + 57 + 58 + 58 = 1,030
1,030 \div 21 = 49.05 \text{ or } 49 (Students are rounding the mean to the nearest whole number and the MAD to the nearest hundreth.)
Then complete the Chart on S449 to determine the MAD.

Step 4: Have students complete the E step and then review the answers as a whole group.

Summarizing Numerical Data and Data Distribution
(M, GP, WG, CP) S450, S451 (Answers on T860, T861.)

M, GP, WG, CP: Have students turn to S450 in their books. Students will work to summarize numerical data and data distribution using the data set from S449. Make sure students know their designation as Partner A or Partner B. {Algebraic Formula, Verbal Description, SOLVE, Graphic Organizer}
Step 1: Direct students’ attention to the data summary in the chart on S450.
   - Partner A, what is the difference between the mean and the median? (1 inch) Record.

Step 2: Direct students’ attention to the original dot plot that displayed the data set about the heights of Mr. Silvan’s students.
   - Partner B, what conclusion can you make about the shape of the data set and the relationship between the median and the mean? (Answers may vary, but students should be able to analyze the dot plot and explain the shape of the data as being evenly or symmetrically distributed which gives a median and a mean which are very close.) Record.
   - Because the (median) and (mean) are so close, either data value could be used to describe the data set. Record.

Step 3: Have students work in pairs on S451 to add the data values of 20, 22, and 24 to the original data set.
   - Partner A, what is the new median? (47 inches) Record.
   - Partner B, what is the difference from the original median? (3 inches) Record.
   - Partner A, what is the new mean? (45.67 inches) Record.
   - Partner B, what is the difference from the original mean? (3.33 inches) Record.
LESSON 35: Summarizing Numerical Data

**Step 4:** Have students work in pairs to add the data values of 81, 83, and 85 to the original data set.
- Partner A, what is the new median? (52.5 inches) Record.
- Partner B, what is the difference from the original median? (2.5 inches) Record.
- Partner A, what is the new mean? (53.29 inches) Record.
- Partner B, what is the difference from the original mean? (4.29 inches) Record.

**Step 5:** Have partners discuss Questions 5 and 6 and be prepared to share their responses with the whole class.
- Partner A, which value would change the most significantly if we added several much taller or much shorter heights to the data set? (mean) Record.
- Partner B, based on the observations from the chart and questions on S445, which data addition would change the look of the graph the most? (81, 83, and 85) Record.

**If time permits...**

If time permits... (IP, CP) S452 (Answers on T862.)

If time permits... Have students complete the dot plots and questions on S452.

**[CLOSURE]**

To wrap up the lesson, go back to the essential questions and discuss them with students.
- How would you describe a statistical question? *(A statistical question collects data that looks at differences in a population. Example: What is the average number of minutes a group of 50 students spends on homework each night during the week?)*
- Explain the meaning of the distribution of a set of data. *(The distribution is how the values of the data sets are arranged. The distribution can be described using mean, median, and spread.)*
- Describe the relationship between the median and mean in a data set that is symmetrically distributed. *(In a data set that is symmetrically distributed, the median and mean will be very close.)*

**[HOMEWORK]** Assign S453 for homework. (Answers on T863.)

**[QUIZ ANSWERS]** T850-T851

The quiz can be used at any time as extra homework or to assess how students progress on summarizing, interpreting, and graphing numerical data sets.