

Just In Time Quick Check
Standard of Learning (SOL) 5.16c

Strand: Probability and Statistics

Standard of Learning (SOL) 5.16c

The student, given a practical problem, will compare data represented in a line plot with the same data represented in a stem-and-leaf plot.

Grade Level Skills:

- Compare data represented in a line plot with the same data represented in a stem-and-leaf plot.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

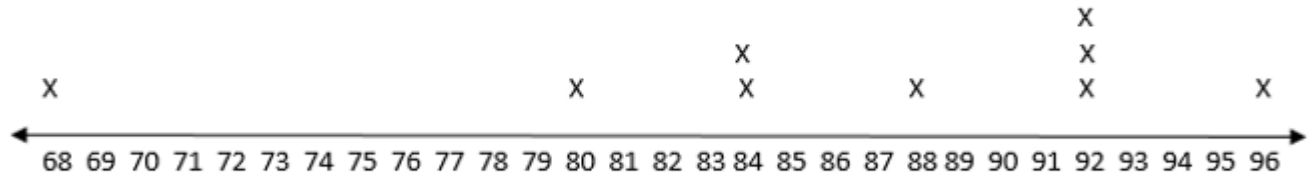
- VDOE Mathematics Instructional Plans (MIPS)
 - [Statistics: Learning about Our Class from Mystery Data](#) (Word) / [PDF version](#)
- VDOE Algebra Readiness Remediation Plans
 - [Data Organizers](#) (Word) / [PDF version](#)
 - [Graph Match](#) (Word) / [PDF version](#)
 - [Interpreting Graphs](#) (Word) / [PDF version](#)
 - [Mystery Data](#) (Word) / [PDF version](#)
- VDOE Word Wall Cards: Grade 5 ([Word](#)) | ([PDF](#))
 - Line Plot, Stem-and-Leaf Plot

Supporting and Prerequisite SOL: [5.16a](#), [5.16b](#), [4.14c](#)

SOL 5.16c - Just in Time Quick Check

Donna received one math grade per week in the first quarter of school. Her grades are displayed in the line plot shown.

Donna's First Quarter Math Grades



Each X represents one math grade.

Donna thought she recorded the same data in the stem-and-leaf plot.

Donna's First Quarter Math Grades

Stem	Leaf
6	8
7	
8	0 4 8
9	2 2 2 6

KEY	
6	1 means 61

- 1) Which data point did Donna forget to record in the stem-and-leaf plot?
- 2) In which representation can you quickly identify the mode? Explain your thinking.
- 3) In which representation can you quickly identify the range? Explain your thinking.

This stem-and-leaf plot shown displays the total number of books read by each student.

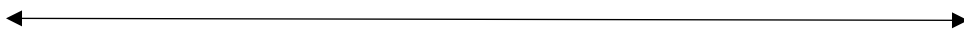
Books Read Per Student

Stem	Leaf
0	8 9 9
1	0 2 2 2 2 4 6 8 9
2	0 0 2

KEY

1 | 2 means 12 books

- 4) Create a line plot to represent the same data that is displayed in the stem-and-leaf plot.

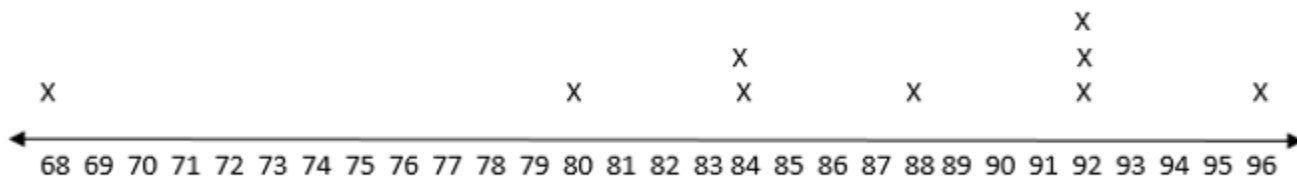


SOL 5.16c - Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

Donna received one Math grade per week in the first quarter of school. Her grades are displayed on the line plot below.

Donna's First Quarter Math Grades



Each X represents one math grade.

Donna thought she recorded the same data in the stem-and-leaf plot.

Donna's First Quarter Math Grades

Stem	Leaf
6	8
7	
8	0 4 8
9	2 2 2 6

KEY
6 1 means 61

- 1) Which data point did Donna forget to record in the stem-and-leaf plot?

A common misconception some students may make is to state that a grade in the 70's was not included in the stem-and-leaf plot. This may indicate that the student believes there is a missing grade based on the empty leaf section for the stem of seven. It might be helpful to provide students with a strategy for matching the data points one by one to compare them between the two representations. A student might find it beneficial to make a list of the numbers from the stem-and-leaf plot (68, 80, 84...) as they compare them to the X's on the line plot.

- 2) In which representation can you quickly identify the mode? Explain your thinking.

A common error some students may make is to state the stem-and-leaf plot identifies the mode more quickly but for an incorrect reason. This might possibly indicate that a student is justifying their response based upon the section that contains the most leaves. You may wish to ask "Which representation would be easier to determine the mode if additional data points were added to the set?" The line plot would be easily visible for a student to determine the mode based upon the height of the stacked X's in the line plot. A student can see the values in a line plot and determine the mode, since it visually stands out. The Essential Knowledge and Skills does not require that a student identify the mode at this time; instead, students should see how a line plot representation is used for this purpose. (Please refer to the last bullet in Understanding the Standard.)

- 3) In which representation can you quickly identify the range? Explain your thinking.

A common error some students may make is to state the range of the data set. This may indicate that the student does not understand they are comparing the two representations (line plot and stem-and-leaf plot). A teacher may wish to show students several different representations of data and ask them to justify that one of the representations appears to make it easier to determine the range of a data set. Students may justify either representation in problem #3 depending on their explanation. It would be helpful for students to recognize that they can quickly identify the greatest and least values, since the data is organized. Again, students do not need to calculate the range; they should recognize how different representations of data aid in quickly determining the range. (Please refer to the last bullet in Understanding the Standard.)

This stem-and-leaf plot below displays the total number of books read by each student.

Books Read Per Student

Stem	Leaf
0	8 9 9
1	0 2 2 2 2 4 6 8 9
2	0 0 2
KEY	
1 2	means 12 books

- 4) Create a line plot to represent the same data that is displayed in the stem-and-leaf plot.

Some students may label increments zero through nine on their line plot and just plot the leaves as if all stems were zero. This is a common misconception; some students do not understand the meaning of the stems. It may be beneficial to demonstrate composing and decomposing numbers into tens and ones and relate it to the parts of the stem-and-leaf plot. Teachers may also wish to use Base 10 blocks and provide concrete examples of what represents a “stem” and what represents a “leaf.”

Some students may also struggle with determining which number to start their number line. A strategy for teachers to use is to ensure that students see a variety of sections of number lines (i.e. partial rulers) so they understand that you can look at any part of a number line, and not always begin with zero.