

Vertical Progression:

2nd Grade	<p>2.MD.B Relate addition and subtraction to length.</p> <ul style="list-style-type: none"> ○ 2.MD.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram. <p>2.MD.D Represent and interpret data.</p> <ul style="list-style-type: none"> ○ 2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
3rd Grade	<p>3.MD.B Represent and interpret data.</p> <ul style="list-style-type: none"> ○ 3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units – whole numbers, halves, or quarters.
4th Grade	<p>4.MD.B Represent and interpret data.</p> <ul style="list-style-type: none"> ○ 4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
5th Grade	<p>5.MD.B Represent and interpret data.</p> <ul style="list-style-type: none"> ○ 5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots.

Students will demonstrate command of the ELG by:

- Creating line plots to display data sets of measurements in fractions of units.
- Collecting data by measuring objects to $\frac{1}{8}$ of an inch and display the data on a line plot.
- Solving a problem by using the data in a line plot.
- Using information on a line plot to answer addition and subtraction problems.

Vocabulary:

- | | | |
|--------------|-----------------------|---------|
| • centimeter | • length | • ounce |
| • distance | • liquid volume liter | • pint |
| • equivalent | • mass | • pound |
| • gallon | • meter | • quart |
| • gram | • metric | • yard |
| • kilogram | • milliliter | |
| • kilometer | • mile | |

Sample Instructional/Assessment Tasks:

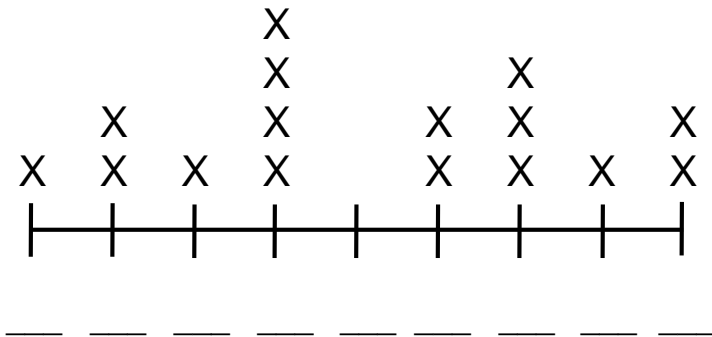
1) Standard: 4.MD.B.4

Source: <https://grade4commoncoremath.wikispaces.hcpss.org/Assessing+4.MD.4>

Item Prompt:

Jasmine volunteers at an animal shelter. One of her jobs is weighing the kittens and keeping track of their weights. When Jasmine visited the shelter today, she weighed the kittens and made the line plot below to show the weights of the sixteen kittens. When Jasmine got home, she realized she forgot to write the numbers on the scale below the line plot. She remembered, though, that the smallest kitten weighed 3 pounds and that four of the kittens weighed $3\frac{3}{4}$ pounds.

Kitten Weights



Fill in the blanks to complete the scale of the line plot. Explain how you figured out what numbers to place on the scale of the line plot.

Correct Answer:

3, $3\frac{1}{4}$, $3\frac{2}{4}$, $3\frac{3}{4}$, 4, $4\frac{1}{4}$, $4\frac{2}{4}$, $4\frac{3}{4}$, 5

If the smallest kitten was 3 pounds, then I know the line plot will start with 3. I also know that four of the kittens weighed $3\frac{3}{4}$, so I found the blank with four x's. I then knew that the scale was increasing by fourths.

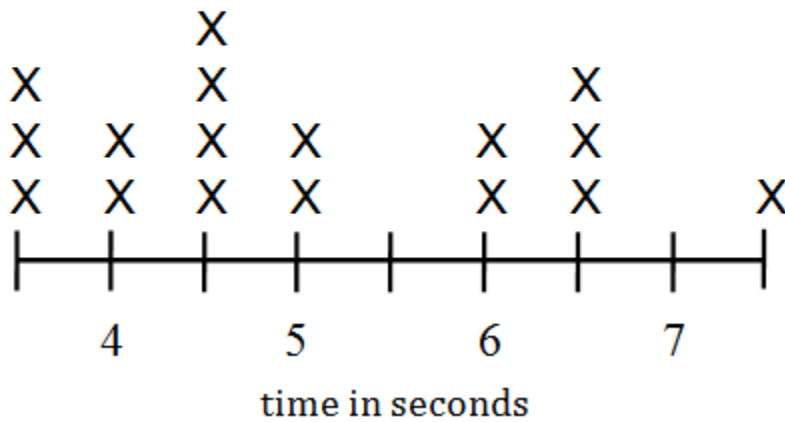
2) Standard: 4.MD.B.4

Source: <https://grade4commoncoremath.wikispaces.hcpss.org/Assessing+4.MD.4>

Item Prompt:

Last winter, Dylan and his boy scout troop participated in a special event called a “Polar Plunge” to raise money for charity. On a cold winter day, all the kids dressed in their bathing suits and jumped into the water of a local lake. The scouts earned money based on how long they could stay in the lake. The line plot shows the length of time the boys were able to remain in the water. Dylan was able to stay in the water $1\frac{1}{2}$ seconds longer than his friend Bryce.

Polar Plunge



- A. What are three possible times that Dylan and Bryce could have been in the lake?
- B. The troop leader said that he would donate an extra \$100 to the charity if all the boys’ times add to a total over 30 seconds. Did the boys earn the extra \$100? Tell if their times add to a total of more than 30 seconds, and then explain how you know.

Correct Answer:

A.

possibility #1

Dylan’s time	Bryce’s time
5 seconds	$3\frac{1}{2}$ seconds

possibility #2

Dylan’s time	Bryce’s time
6 seconds	$4\frac{1}{2}$ seconds

possibility #3

Dylan’s time	Bryce’s time
$6\frac{1}{2}$ seconds	5 seconds

B. Yes the boys earned the extra \$100. When you add up the total of all the X’s on the line plot, you get the sum of $85\frac{1}{2}$ seconds or 1 minute and $25\frac{1}{2}$ seconds. Their times in total was $55\frac{1}{2}$ seconds more than they needed to earn the \$100.