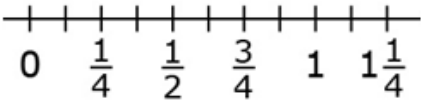
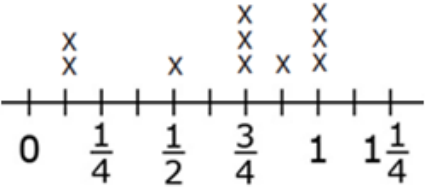


<p><b>Claim 1:</b> Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p>	
<p>Content Domain: <b>Measurement and Data</b></p>	
<p><b>Target H [s]:</b> Represent and interpret data. (DOK 2)</p> <p>Tasks for this target ask students to make and interpret line plots with fractional units and should be used to provide context for the assessment of 5.NF Target E and 5.NF Target F. Some tasks will involve contextual problems and will contribute evidence for Claim 2 or Claim 4.</p>	
Standards:  5.MD.B, 5.MD.B.2	<p><b>5.MD.B Represent and interpret data.</b></p> <p><b>5.MD.B.2</b> Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i></p>
<p>Related Below-Grade and Above-Grade Standards for Purposes of Planning for Vertical Scaling:  4.MD.B, 4.MD.B.4  6.SP.B, 6.SP.B.4</p>	<p><b>Related Grade 4 Standards</b></p> <p><b>4.MD.B Represent and interpret data.</b></p> <p><b>4.MD.B.4</b> Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Solve problems involving addition and subtraction of fractions by using information presented in line plots. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i></p> <p><b>Related Grade 6 Standards</b></p> <p><b>6.SP.B Summarize and describe distributions.</b></p> <p><b>6.SP.B.4</b> Display numerical data in plots on a number line, including dot plots, histograms, and box plots.</p>
DOK Level(s):	2
<p><b>Achievement LEVEL Descriptors:</b></p>	
<p><b>RANGE Achievement Level Descriptors (Range ALD)</b> Target H: Represent and interpret data.</p>	<p><b>Level 1</b> Students should be able to make a line plot and represent data sets in whole units.</p>
	<p><b>Level 2</b> Students should be able to make a line plot and display data sets in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>).</p>
	<p><b>Level 3</b> Students should be able to interpret a line plot to display data sets in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>) and solve problems using information from line plots that require addition, subtraction, and multiplication of fractions.</p>
	<p><b>Level 4</b> No Descriptor</p>
Evidence Required:	<ol style="list-style-type: none"> <li>The student completes or identifies a line plot with fractional units to display a data set.</li> <li>The student uses operations on fractions to solve problems involving information presented in line plots.</li> </ol>

Allowable Response Types:	Hot Spot; Multiple Choice, single correct response; Equation/Numeric
Allowable Stimulus Materials:	line plots, tables
Construct-Relevant Vocabulary:	line plot, table, measurement, data set, interval, unit fraction, mixed number
Allowable Tools:	None
Target-Specific Attributes:	Fractions used in line plots are limited to denominators of 2, 4, 8 and 12.
Non-Targeted Constructs:	None
Accessibility Guidance:	<p>Item writers should consider the following Language and Visual Element/Design guidelines<sup>1</sup> when developing items.</p> <p>Language Key Considerations:</p> <ul style="list-style-type: none"> <li>• Use simple, clear, and easy-to-understand language needed to assess the construct or aid in the understanding of the context</li> <li>• Avoid sentences with multiple clauses</li> <li>• Use vocabulary that is at or below grade level</li> <li>• Avoid ambiguous or obscure words, idioms, jargon, unusual names and references</li> </ul> <p>Visual Elements/Design Key Considerations:</p> <ul style="list-style-type: none"> <li>• Include visual elements only if the graphic is needed to assess the construct or it aids in the understanding of the context</li> <li>• Use the simplest graphic possible with the greatest degree of contrast, and include clear, concise labels where necessary</li> <li>• Avoid crowding of details and graphics</li> </ul> <p>Items are selected for a student’s test according to the blueprint, which selects items based on Claims and targets, not task models. As such, careful consideration is given to making sure fully accessible items are available to cover the content of every Claim and target, even if some item formats are not fully accessible using current technology.<sup>2</sup></p>
Development Notes:	<p>Creating a line plot from scratch (where the student must partition the number line, choose an appropriate scale, and label the scale accordingly) will be assessed in Claim 4.</p> <p>Using operations on fractions to interpret data involving line plots will be assessed in Claim 4.</p>

<sup>1</sup> For more information, refer to the General Accessibility Guidelines at: <http://www.smarterbalanced.org/wordpress/wp-content/uploads/2012/05/TaskItemSpecifications/Guidelines/AccessibilityandAccommodations/GeneralAccessibilityGuidelines.pdf>

<sup>2</sup> For more information about student accessibility resources and policies, refer to [http://www.smarterbalanced.org/wordpress/wp-content/uploads/2014/08/SmarterBalanced\\_Guidelines.pdf](http://www.smarterbalanced.org/wordpress/wp-content/uploads/2014/08/SmarterBalanced_Guidelines.pdf)

<p><b>Task Model 1a</b></p> <p><b>Response Type:</b> <b>Hot Spot</b></p> <p><b>DOK Level 2</b></p> <p><b>5.MD.B.2</b> Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i></p> <p><b>Evidence Required:</b> 1. The student completes or identifies a line plot with fractional units to display a data set.</p> <p><b>Tools:</b> None</p> <p><b>Accessibility Note:</b> Hot spot items are not currently able to be Brailled. Minimize the number of items developed to this TM.</p>	<p><b>Prompt Features:</b> The student is prompted to complete a line plot that displays a given data set.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>Data set includes up to 10 measurements in fractions of a unit (e.g., <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>, <math>\frac{1}{12}</math>).</li> <li>Item difficulty may be adjusted via these example methods: <ul style="list-style-type: none"> <li>How many measurements are presented</li> <li>Which/how many tick marks are labeled on the line plot</li> <li>The range of measurements used</li> <li>The use of like or unlike denominators</li> </ul> </li> </ul> <p><b>TM1a</b> <b>Stimulus:</b> The student is presented with a data set collected from a real-world context.</p> <p><b>Example Stem:</b> Ten students in a class recorded the distances they ran, in miles, yesterday.</p> <p><math>\frac{7}{8}</math>, <math>\frac{3}{4}</math>, 1, <math>\frac{3}{4}</math>, 1, 1, <math>\frac{1}{8}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>, <math>\frac{1}{8}</math></p> <p>Click above the tick marks to complete the line plot that displays the data.</p>  <p><b>Rubric:</b> (1 point) The student correctly completes a line plot that displays all 10 data points with no incorrect or missing points (e.g., shown below).</p>  <p><b>Response Type:</b> Hot Spot</p>
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**Task Model 1b**

**Response Type:**  
**Multiple Choice,**  
**single correct**  
**response**

**DOK Level 2**

**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. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

**Evidence Required:**

1. The student completes or identifies a line plot with fractional units to display a data set.

**Tools:** None

**Prompt Features:** The student is prompted to identify a line plot that correctly displays a given data set.

**Stimulus Guidelines:**

- Data set includes up to 10 measurements in fractions of a unit (e.g.,  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ,  $\frac{1}{12}$ ).
- Item difficulty may be adjusted via these example methods:
  - How many measurements are presented
  - Which/how many tick marks are labeled on the line plot
  - The range of measurements used
  - The use of like or unlike denominators

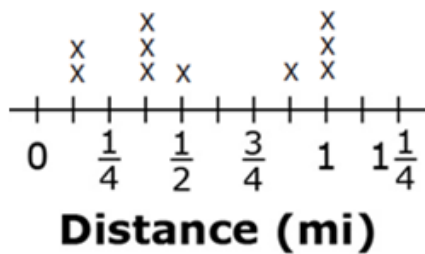
**TM1b**

**Stimulus:** The student is presented with a data set collected from a real-world context.

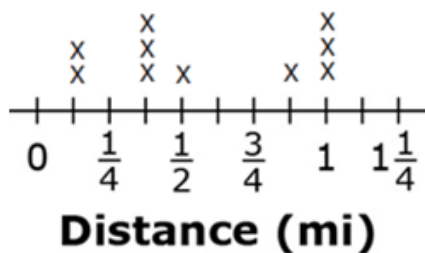
**Example Stem:** Ten students in a class recorded the distances they ran, in miles, yesterday.

$\frac{7}{8}$ ,  $\frac{3}{4}$ , 1,  $\frac{3}{4}$ , 1, 1,  $\frac{1}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{1}{8}$

Select the line plot that correctly displays this data.



A.



B.

**Task Model 1b**

**Response Type:**  
**Multiple Choice,**  
**single correct**  
**response**

**DOK Level 2**

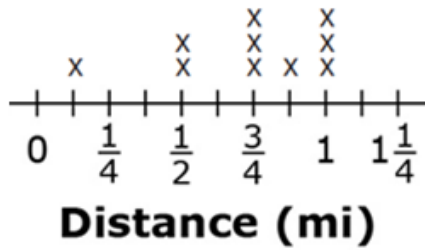
**5.MD.B.2**

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. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

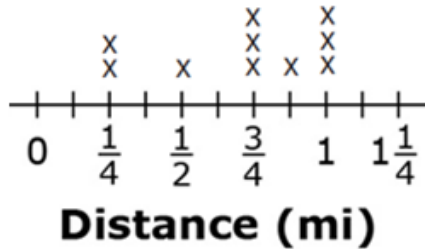
**Evidence Required:**

1. The student completes or identifies a line plot with fractional units to display a data set.

**Tools:** None



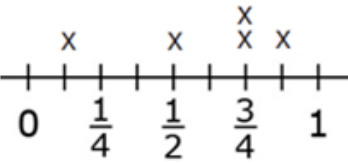
C.



D.

**Rubric:** (1 point) The student selects the line plot that correctly displays the data (e.g., D).

**Response Type:** Multiple Choice, single correct response

<p><b>Task Model 2</b></p> <p><b>Response Type:</b> <b>Equation/Numeric</b></p> <p><b>DOK Level 2</b></p> <p><b>5.MD.B.2</b> Make a line plot to display a data set of measurements in fractions of a unit (<math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>). Use operations on fractions for this grade to solve problems involving information presented in line plots. <i>For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</i></p> <p><b>Evidence Required:</b> 2. The student uses operations on fractions to solve problems involving information presented in line plots.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student is prompted to solve a problem involving information presented in a line plot.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>• Division problems can be a whole number divided by a unit fraction, a unit fraction divided by a whole number, or a whole number divided by number.</li> <li>• Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> <li>○ How many measurements are presented</li> <li>○ Which/how many tick marks are labeled on the line plot</li> <li>○ The range of measurements used</li> <li>○ The use of like or unlike denominators</li> </ul> </li> </ul> <p><b>TM2</b> <b>Stimulus:</b> The student is presented with a line plot with measurements in fractions of a unit (e.g., <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{8}</math>).</p> <p><b>Example Stem:</b> The line plot shows the distance, in miles, that five students ran in a race.</p> <div style="text-align: center;">  <p><b>Distance (mi)</b></p> </div> <p>Enter the total distance, in miles, these students ran in the race.</p> <p><b>Rubric:</b> (1 point) The student correctly uses the data from a line plot to find a sum (e.g., 3).</p> <p><b>Response Type:</b> Equation/Numeric</p>
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