

# NWEA Assessment Item Illustrating 8.SP.A.3

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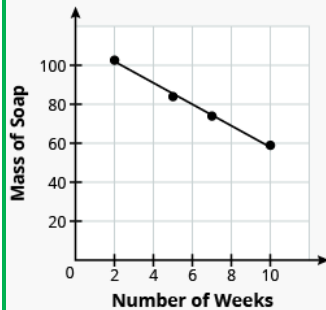
**Domain:** Statistics and Probability

**8.SP.A:** Investigate patterns of association in bivariate data.

**Calculator Availability:** No

Use the information to complete the task.

The mass of a bar of soap was measured over several weeks of use. The measurements are shown in the scatter plot.



The function  $M = 112.9 - 5.5w$  can be used to model the relationship between the mass of the soap,  $M$ , in grams and the number of weeks,  $w$ .

Enter a number in the box to make an accurate statement about the model.

According to the model, the mass of the soap decreased by  grams every week.

**Alignment: 8.SP.A.3:** Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

This item assesses students' ability to recognize the slope of a linear model and to interpret it within a real-world context. This is different than simply identifying the slope because students must understand the mathematical meaning of the phrase "decreases by" and know not to record the answer as a negative value.

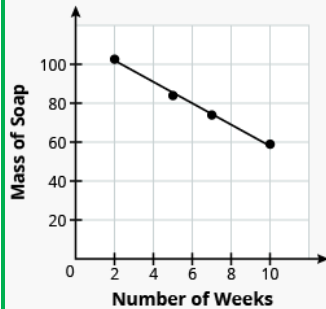
**Coherence:** Students began work with the horizontal number line in grade 2<sup>2.MD.B.6</sup> and extended that understanding to a horizontal and vertical number line by graphing points in the first quadrant in grade 5.<sup>5.G.A.1</sup> In grade 6, students plotted points in all four quadrants and found the distance between two points on a vertical number line, including points with negative coordinates.<sup>6.NS.C.8</sup> In grade 8, students work with paired measurement variables as they create scatter plots and assess the overall positive or negative trends in the data—identifying any gaps, clusters, or outliers, making determinations about the strength of the association between two variables, and deciding whether the data is in a linear or nonlinear pattern. If the data is deemed linear, and the equation of the linear model is provided, students may use it to solve real-world problems, including those that involve the interpretation and meaning of slope and intercept within the context. This work is foundational for more advanced high school work, in which students will interpret, display, and solve problems with categorical and quantitative data.<sup>HSS-ID.A/B/C</sup>

**Rigor:** This item attends to conceptual understanding and application. Students must understand the concept and meaning of slope in a linear equation within a real-world context in which the mathematics is directly indicated.

**Answer Key:**

Use the information to complete the task.

The mass of a bar of soap was measured over several weeks of use. The measurements are shown in the scatter plot.



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**Learn More**

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