

## Weight by the Foot

### Tennessee Standards

**Spi 0706.1.3** Recognize whether information given in a table, graph, or formula suggests a directly proportional, linear, inversely proportional, or other nonlinear relationship.

**0706.3.11** Relate the features of a linear equation to a table and /or graph of the equation.

### Skills to be cover

Data Collection

Interpret Data

$Y=mx+b$

Graphing linear equations

Making predications

### Class Arrangement

Work as a whole class

### Materials Needed

1 Bathroom Scale

2 textbooks

1 2ft by 8ft plank

### Procedure

1. Mark the 2ft by 8ft plank into 1ft increments.
2. Place the plank on the bathroom scale as follows: the scale on one side, 2-stacked books on the other. The plank is laid so that one end is lying on the scale and the other end is on the books. Line up the ends of the plank with the sides of the scale and the sides of the books.
3. Weigh a volunteer person at each of the designated locations on the plank. Have children in the class weigh themselves so they will each have their own set of data to graph.

<b>Independent Variable, X Distance from Scale (Feet)</b>	<b>Dependent Variable, Y Weight (Pounds)</b>
<b>0</b>	
<b>1</b>	
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>5</b>	
<b>6</b>	

4. Graph the data. Use “Distance from the Scale” as the horizontal scale and “Weight (pounds) as the vertical scale. Plot ordered pairs (X, Y)

5. Read the results: Look at your graphed points, do they appear to lie along a straight line or curve? Draw the line that best fits your data. Use the graph to answer the following:

a.) Find the weight reading for the distances from the scale.

3.5 feet, \_\_\_\_\_ pounds

5.25 feet, \_\_\_\_\_ pounds

7 feet, \_\_\_\_\_ pounds

b.) How much does the weight reading decrease each time the person moves another foot away from the scale?

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How can you tell from this graph?

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c.) What is the person’s weight when standing directly on the scale?

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How can you tell from the graph?

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d.) Describe in words how to determine the weight reading if you know how many feet the person is from the scale.

e.) Use your description to predict the weight reading for a person when standing 4.75 feet from the scale.

f.) Describe by equation how to determine the weight reading (Y) if you know how many feet away (X) the person is from the scale:

Y= \_\_\_\_\_

g.) Use your equation to predict the weight reading for a person when standing 6.5 feet from the scale.