Walking the Plank

In this experiment, you are going to determine an appropriate model to represent the relationship between the weight of a student and the distance of that student from the scale. You will use your model to answer a few questions.

Learning Targets:
      I can: ☺ determine slope of a line from two points
                ☺ determine y-intercept of a line from a graph
                ☺ write the equation of a line in slope-intercept form
                ☺ identify and communicate the physical representations of the slope and y-int

Required Jobs: Record who did what.

Name:	Name:
• Gather materials (everyone helps carry) • Measures distance of person from scale and reports the information to record • In charge of setting up experiment	• Stand on scale and be weighed (at six different distance from scale) • Ensures that experiment is broken down and supplies are carried back to the room
Name:	Name:
• Reads scale and reports the information to record • Ensure that the experiment is set up correctly	• Records both distance from scale and weight • In charge of breaking down experiment and carry supplies back to the room

Equipment Needed:
      Bathroom scale
      Plank
      Yardstick or measuring tape
      Graph paper (1 page per student)

Procedure:

1) Put one end of plank on the scale (in the middle of the scale) and support the other end with a brick.

2) One student will stand on the plank while the other group members measure and record distance and weight.

3) Graph the data (note: distance from the scale is the *independent variable* and weight is the *dependent variable*).

4) Draw a line of best fit. Determine the y-int. Pick two points on the line of best fit (these DO NOT have to be actual data points) and determine the slope. Write the equation of the line of best fit in slope-intercept form.

5) Use your model to answer the remaining questions.

Data Collection:

Independent ____	Dependent ____	2nd Set of Data (Question 6)

Points to Be Graphed	
x	y

2nd Set of Data	
x	y

Write the equation of your **Line of Best Fit** *with decimals, not fractions*: _____

Use this equation to answer the questions. SHOW YOUR WORK!!

1. What weight will be recorded is the person is 5.25 feet away from the scale? _____

2. If the scale shows a weight of 75 pounds, how far away is the student from the scale end of the plank? _____

3. If the scale shows a weight of 52 pounds, how far away is the student from the scale end of the plank? _____

4. As the student moves farther and farther from the scale, what happens to the reading?

_____

_____

_____

5. Study the graph to the right.

   Determine the weight of the person walking the plank. _____

   Determine the length of the plank. _____

Pounds

150
125
100
75
50
25
0

1 2 3 4 5 6   *x*

Feet from Scale
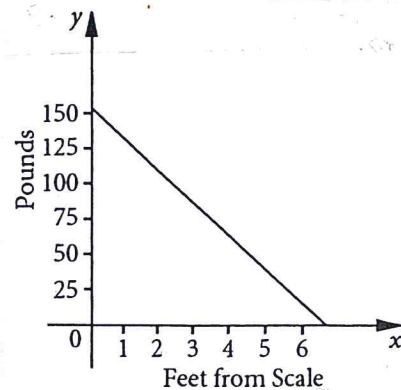
6. Exchange your data set with the group you shared the scale with. Plot the second set of data on your graph paper and draw a line of best fit. What do the lines have in common? _____

   Why?_____

   _____

   _____