

Goal: Identify an equation to determine the relationship between cotton lint weight and the number of cotton seeds to determine the value for farming profit.

- 1) Pull the cotton out of the bur. Weigh the lint on the balance in ounces.
Record the weight here: _____
- 2) Estimate the number of seeds in your lint. Pick the seeds out of the lint.
Record the number of seeds here: _____
- 3) Use the Goal above to write an if-then hypothesis.
If the _____, then the _____.
- 4) Identify your x and y variables (cotton lint or seeds):

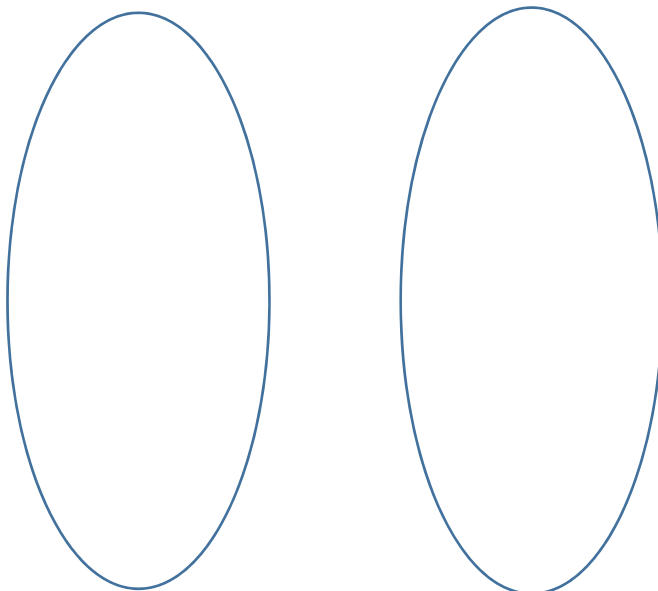
Independent variable: _____

Dependent variable: _____

- 5) Compile the data from your group. Use the table below to show the number of seeds and the weight of the cotton lint for each person.

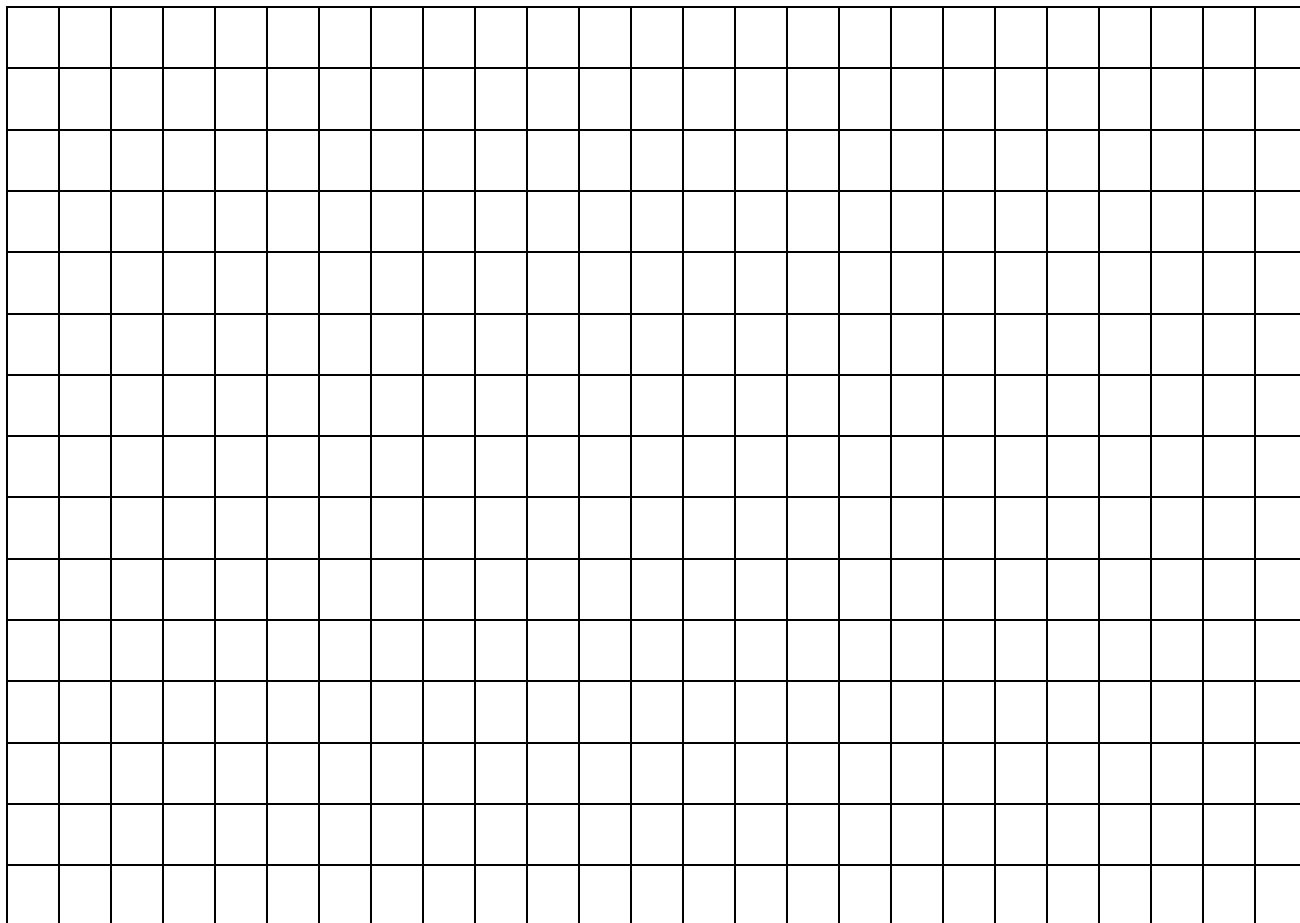
Group Member Name	Weight of Cotton Lint in Ounces	Number of Seeds in the lint

- 6) Create a mapping diagram of this relation:



7) Is this relation a function? _____ Why or why not?

8) Use the grid below to create a graph of your group's data.



9) Is there a correlation? _____ What type? _____

10) Find the line of best fit. Find the equation of your line in the form of $y = mx + b$.

11) Predict the weight of cotton lint that contains 125 seeds. Explain how you determined this.

12) Weigh your lint without the seeds and record in ounces: _____ oz.

What was the weight difference between with seeds and without seeds? _____

What does this represent?

13) How many ounces of cotton lint did your group collect? _____ Are you able to create the following or how many more ounces would you need to create the following?

- a. Jeans (1.5 lbs.) _____
- b. Bath Towel (0.6 lbs.) _____
- c. Cloth Diaper (0.15 lbs.) _____
- d. T-Shirt (0.5 lbs.) _____

How many of each could be created from a cotton bale that averages 500 lbs if $\frac{2}{3}$ of the bale is seeds?

14) What would you explain to a farmer about the weight of the cotton lint and what they should expect on the return of cotton seeds produced?

Provide a model for the farmer

15) If cotton is selling for \$0.79 per 16oz and a bale of cotton weighs around 500 lbs., how many bales of cotton would a farmer need to sell to gross \$500,000?

A farmer produces 24 tons of cotton. What would be the gross sale of the cotton?

16) If about $\frac{2}{3}$ of a cotton bale is seeds, how many seeds should a farmer expect from a bale of cotton?

How does this compare to your best fit equation of your line?

What would be the income of the seeds from a bale of cotton at \$0.18 per pound?