

Name: Beth Hall
Grade Level(s)/Subject Taught: Algebra A (part of Math A)
Objectives: Students will be able to collect, organize and create scatter plots of two-variable data and determine the type of correlation the data suggests (positive, negative, none)
Text Alignment Prentice Hall New York Math A Chapter 2: Functions and Their Graphs 2.1 Analyzing Data Using Scatter Plots
Class Structure: 40 minute periods
Number of days: 3 ½

1. Mathematical Concept (Key Idea) that modeling will be used to teach:

Modeling/Multiple Representation

Represent problem situations symbolically by using algebraic expressions, sequences, tree diagrams, geometric figures, and graphs.

Uncertainty

Judge the reasonableness of results obtained from applications in algebra, geometry, probability, and statistics

and/or

1.b Science Concept (Key Idea) that modeling will be used to teach

Plotted data is important in interpreting experimental data, and helps refine experiment hypothesis

Materials:

- Meter sticks
- Rulers
- Chart Paper
- Markers
- Data tables (e.g. state area vs. state population)
- Computers with access to Shodor Project Interactivate
- TI Graphing Calculators

Description/Vision on way(s) you might teach the planned lesson.

Prompts:

1. How will you assess the prior knowledge of the student?
2. How will you begin the lesson?
3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions, and Student Actions)
4. How will you assess the learning for the lesson? Rubric

Include Teacher Role (1/2 page) and Student Role (1/2 page)

Using Shodor: Project Interactivate – Simple Plot Activity (software/modeling package(s))  
<http://www.shodor.org/interactivate/activities/index.html>

I plan on having my students....

Day 1: Students will learn about scatter plots and why they are useful. They will learn about different kinds of correlation (positive, negative, and none). They will review how to plot ordered data points (x,y) using the coordinate grid.

As students come into class, they will record two pieces of data (Shoe size and birth month) on posted chart paper. After data has been recorded, a discussion will take place on predictions about whether there is any correlation between birth month and shoe size.

Does the month you were born in determine your shoe size?  
Can your shoe size predict the month you born in?

The data will be entered into lists on the TI graphing calculator and a scatter plot created. Students will then see what kind of correlation, if any exists. The teacher will have several other lists of data showing positive and negative correlation. The students will brainstorm possible variables that could create the scatter plots.

The mechanics of plotting and scatter plots will be modeled.

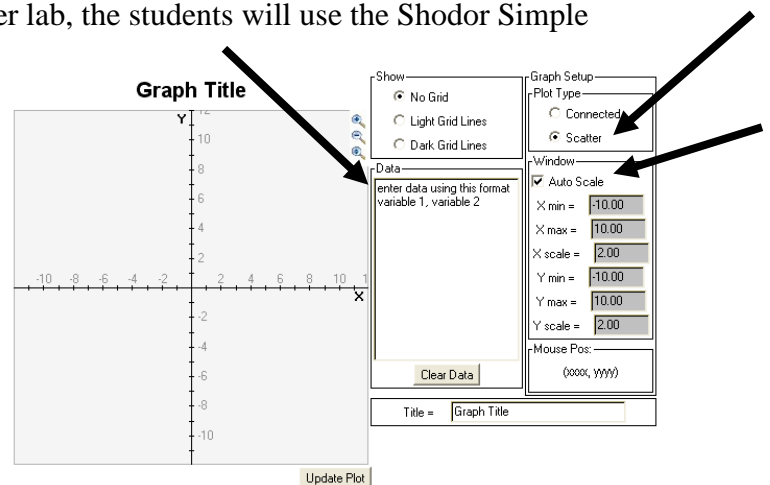
Day 2 : Working in groups of 2-4, the students will collect a lot of data. There will be approximately 6 different stations around the room. These stations will be used to measure and record data (e.g. height in cm vs. arm width in cm, number of words read vs. time, etc...). Data will be recorded on chart paper creating a cumulative list of data for all the groups. Students will spend approximately 5 minutes at each station. They will be responsible to visit each station during the class period.

At another station, students will choose a list of already created data that interests them (e.g. state size vs. state population, basketball free throw percentages vs. height, vs. years in the NBA, vs. games played, etc...).

Day 3: The students will take their chosen list, and one of the 6 station collected data sets and go to the computer lab. In the computer lab, the students will use the Shodor Simple Plot site to create scatter plots using the Simple Plot Applet. Students will enter two variable data into the data field with Window= Auto Scale and plot type = scatter selected.

Students will complete the worksheet illustrating their scatter plots.

Day 4: Students will complete a short assessment on whether they can identify and create the 3 types or correlation scatter plots.



Name \_\_\_\_\_ Per \_\_\_\_ Date \_\_\_\_\_

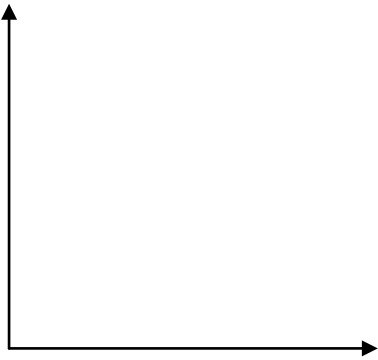
### Scatter Plots: Shodor Simple Plots

In Simple Plot plot each set of data as (Variable 1 vs. Variable 2) and (Variable 2 vs. Variable 1). Sketch your plots on the grids below. Be sure to include axes labels, graph title, variable scale, scatter plots, and correlation trend line if it exists. Name the type of correlation

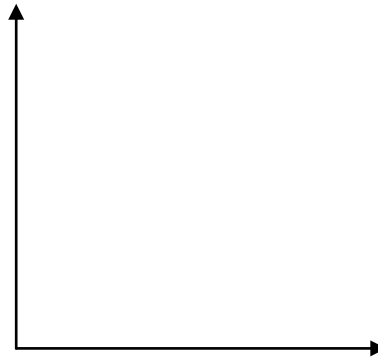
1) Data set 1

Variable 1 \_\_\_\_\_ Variable 2 \_\_\_\_\_

Variable 1 vs. variable 2



Variable 2 vs. Variable 1



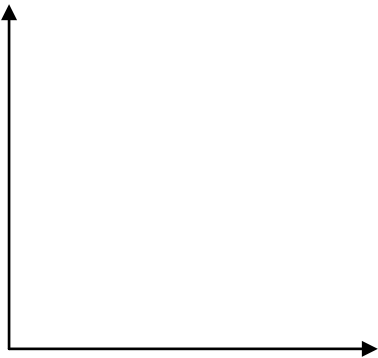
Correlation Type \_\_\_\_\_

Correlation Type \_\_\_\_\_

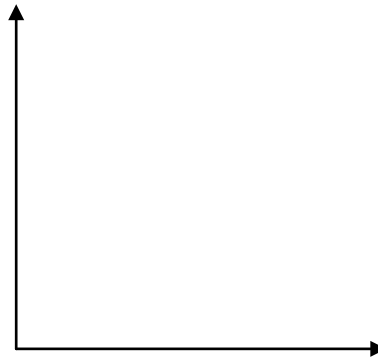
2) Data set 2

Variable 1 \_\_\_\_\_ Variable 2 \_\_\_\_\_

Variable 1 vs. variable 2



Variable 2 vs. Variable 1



Correlation Type \_\_\_\_\_

Correlation Type \_\_\_\_\_

Lesson Rubric

	3	2	1	0
Plot ordered pairs in (x,y) format	Student is able to correctly plot and points in (x,y) format	Student is able to correctly plot points in (x,y) format	Student is able to correctly plot 1 variable correctly	Student is not able to plot 1 variable correctly
Data collection	Student collected and recorded data at all 6 stations	Student collected and recorded data at 5 of 6 stations	Student collected and recorded data at 4 of 6 stations	Student collected and recorded data at 3 of 6 stations
Computer Lab Data Sketches	Student labels both axes using the correct variables	Student labels only one axis correctly.	Student labels the axes, but incorrectly	Student does not include axes labels
	All 4 sketches complete	3 Sketches complete		0-2 sketches com
Correlation Identification from plotted data	Student is able to correctly identify positive, negative and no correlation	Student is able to correctly identify 2 of 3 correlations correctly	Student is able to correctly identify 1 of 3 correlations correctly	Student is not able to correctly identify correlations
Correlation Sketch and Identification from verbal descriptions	Student is able to correctly identify positive, negative and no correlation	Student is able to correctly identify 2 of 3 correlations correctly	Student is able to correctly identify 1 of 3 correlations correctly	Student is not able to correctly identify correlations

Total Score \_\_\_\_\_