Name: ______________________________

Scattered Data
Bivariate Data with Scatter Plots

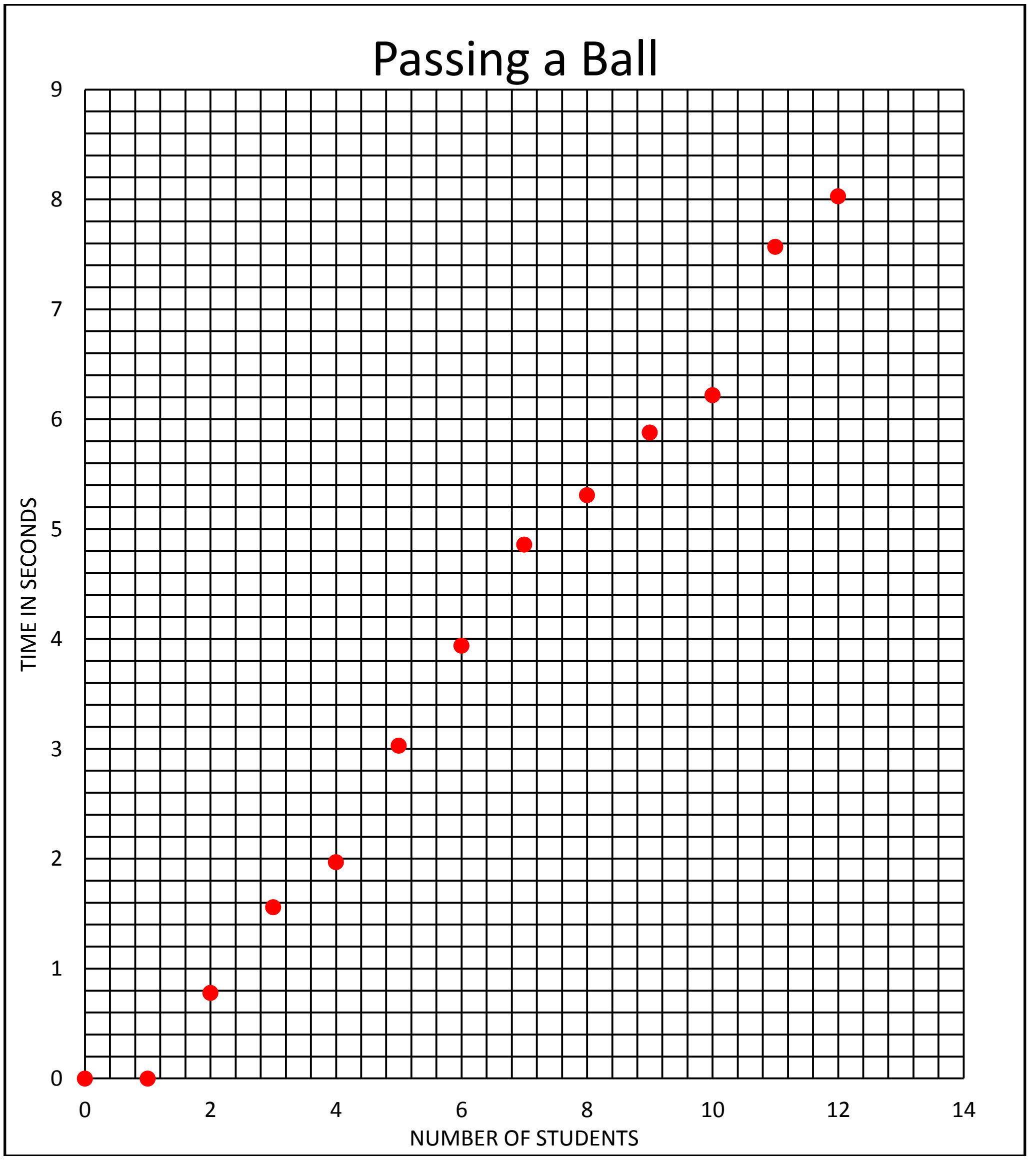
Introduction

How long does it take to pass a ball around in a circle while adding one more person to the circle each time around? Make a class prediction for how the data will appear.

Part 1

Number of students	Time (in seconds)
0	0
1	0
2	.78
3	1.56
4	1.97
5	3.03
6	3.94
7	4.86
8	5.31
9	5.88
10	6.22
11	7.57
12	8.03

Part 2
Create a scatter plot.



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Part 3 **Questions**

Discuss at your table. Be prepared to talk about your answers to the class.

1) Is the data univariate data or bivariate data? Why?

The data has two variables, time and number of students,which is called bivariate data.

2) Why is a scatter plot appropriate for this data? Explain.

A scatter plot has points that show the relationship between two sets of data. In this data each dot shows the amount of time it takes for a certain number of students to pass a ball around in a circle.

3) Should the points be connected? Why or why not?

The points should not be connected because there was not a time for when the number of students can be at a partial student. For example, there cannot be a time for when there was 5.5 students passing a ball around a circle.

4) Describe any patterns; increasing, decreasing, linear, etc. What is the number of students doing to the time?

The scatter plot shows to be increasing, and linear. The number of students added to the circle adds time it takes to pass the ball around.

5) Find the first differences.

0, .78, .78, .41, 1.06, .91, .92, .45, .57, .34, 1.35, and .46.

6) Is the graph a function, if so what type of function?

Linear function.

7) Construct an equation that would be best represented for the graph.

Using points (5, 3.03) and (6, 3.94)

m= $\frac{(y_2-y_1)}{(x_2-x_1)}$

m= $\frac{(3.94-3.03)}{(6-5)}$

m= $\frac{.91}{1}$

m= .91

y=mx+b

y=.91x+b

3.94=.91(6) +b

3.94=5.46+b

-1.52=b

Running a Linear Regression using a calculator.

y=.71x-.48