

Standard 8.SP.1 (M)

Introduction to Scatter Plots

You already know several different ways to display data graphically. In previous grades, you learned about dot plots, histograms, box plots, and line graphs. Now, you will learn about another type of graph called a scatter plot.

A **scatter plot** is a graph that represents bivariate data on a coordinate plane. **Bivariate data** has two pieces of paired information. *Bi-* means two, and *variate* means variable. One variable is the *x*-variable; the other is the *y*-variable. Scatter plots allow you to see relationships that may exist between the two related data sets that might not easily be seen in a table.

The table below shows the weights of ten different college football running backs and the total number of rushing yards each had last season. The data is bivariate because two different sets of related data have been measured.

Running Back Results

Weight (in pounds)	165	222	184	215	190	159	241	209	217	184
Rushing Yards	812	600	909	955	1,318	998	1,054	788	1,195	720

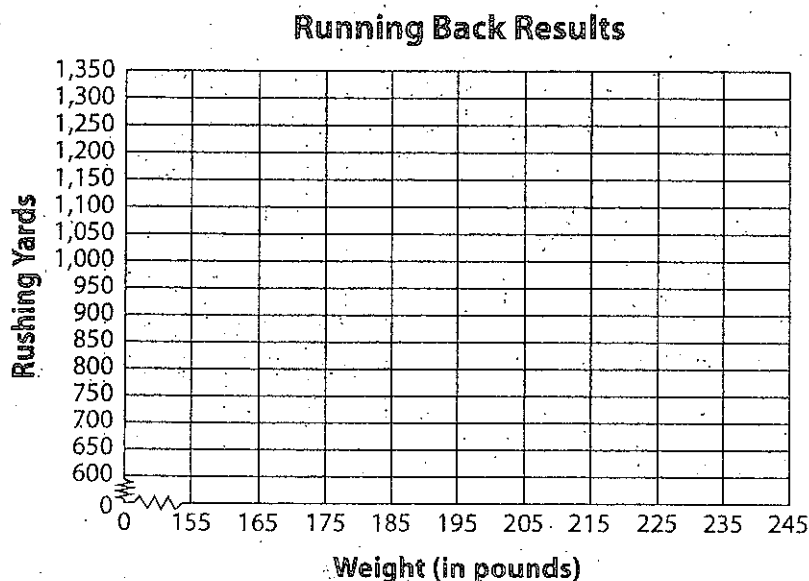
Let the players' weights be the *x*-variable and the number of rushing yards be the *y*-variable. The first ordered pair (*x*, *y*) for the scatter plot is (165, 812). The second ordered pair for the scatter plot is (222, 600).

On Your Own

- List the remaining eight ordered pairs from the table above.

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2. To make a scatter plot from the data, plot all 10 ordered pairs on the coordinate plane below.



Look at the scatter plot again. The vertical and horizontal axes in the bottom left corner of the scatter plot are jagged lines. What does this mean? It means that some of the numbers on the axes have been left out to save space. The weights on the horizontal axis jump from 0 to 155. The yards on the vertical axis jump from 0 to 600. A scatter plot can have a “broken scale” on the vertical axis, the horizontal axis, or both. A broken scale is shown with a symbol like this: . Not every scatter plot will have a broken scale.

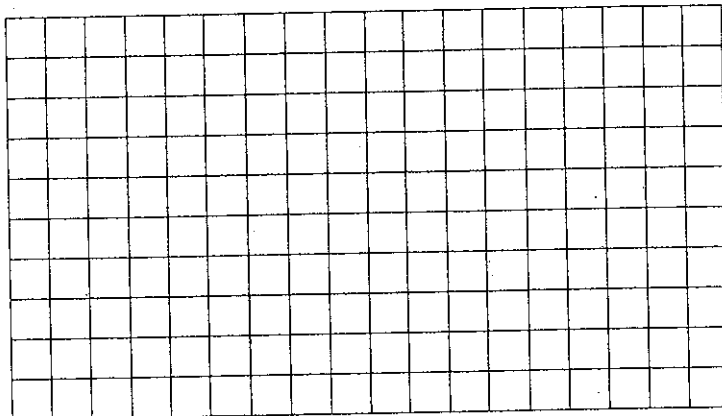
Let’s look at another example. The table below shows the ages and heights of children at a family reunion.

Children at a Family Reunion

Age	6	12	16	10	3	10	8	14	2	15	8	1	4	13	11
Height (in inches)	45	59	64	55	38	56	50	63	34	67	48	30	41	60	58

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Try It-1: Use the information in the table on page 59 to create a scatter plot on the grid below. Your scatter plot should include a title, numbers, dots, labels, and other important information.



Talk About It-1

- Did you represent age or height on the x -axis? Why?
- Did you represent age or height on the y -axis? Why?
- Does it matter which axes you use to represent age and height?

Try It-2: Use the scatter plot you created to answer the following questions.

1. How many inches tall is the youngest child at the family reunion? _____
2. How many inches tall is the oldest child at the family reunion? _____
3. How many children at the family reunion are 60 inches tall or taller? _____
4. How many children attended the family reunion? _____

Talk About It-2: How are scatter plots similar to and different from the types of graphs you already know?

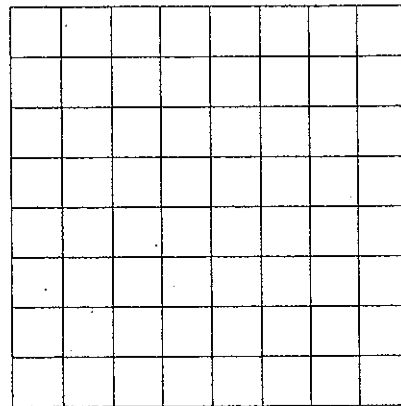
Scatter Plot Practice

Directions: Use each table below to create a scatter plot to represent the information.

- The table below shows the number of hours eight different students studied for a math test and the score that each student received on the math test.

Math Test Results

Hours Spent Studying	Score
5.5	95
4	80
2	75
6	90
5	100
3.5	70
3	80
4	85



- The table below shows the reading speed (in words per minute) of ten different students and the score that each student received on a reading test.

Reading Test Results

Reading Speed (in words per minute)	Score
65	96
50	88
30	60
95	97
80	95
40	87
45	84
25	72
40	78
30	65

