

Scatterplots

Reporting Category Probability and Statistics

Topic Constructing and analyzing scatterplots

Primary SOL 8.13b The student will construct and analyze scatterplots.

Materials

- Hula hoops
- Timer
- Hula Hoop Recording Sheet (attached)
- Sample Scatterplots (attached)

Vocabulary

x-axis, y-axis, title, labels (earlier grades)

trend, line of best fit, scatterplot, correlation (8.13b)

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Explain that students will play a game to gather data for creating a scatterplot. Review how scatterplots are created and the types of data for which they are used.
2. Divide the class into groups of six or seven, and hang a hula hoop on the arm of one student in each group. Explain the game as follows. Members of each group will stand in a circle facing each other and join hands. They will move the hoop around the circle while continuing to hold hands and without touching the hoop with their hands. Each student must climb through the hoop when it comes to him/her and move it on without using his/her hands. Each group will count the number of times a person gets entirely through the hoop during the round. The object of the game is to have as many students pass through the hoop as possible during the time allotted for each round.
3. Tell students the length of the first round, and give the signal to start.
4. Give the signal to stop after the predetermined length of time. Distribute copies of the attached Hula Hoop Recording Sheet, and have each group record the number of times a person made it through the hoop.
5. Repeat the process several times, using different lengths of time, with students continuing to record the number of passes through the hoop.
6. Now, have students use the data they collected to create scatterplots. Guide them in labeling the axes and plotting the points. Discuss as a class what their scatterplots represent, and have students describe the correlation. Also, challenge students to make predictions about the number of students who would make it through the hoop for other, different periods of time.
7. As a final activity, display some sample scatterplots (the attached and/or others), and ask students to describe the relationship shown in each and predict what the graph could be representing.

Assessment

- **Questions**
 - What is a situation that would represent data with a positive relationship? A situation that would represent data with a negative relationship? A situation that would represent data no relationship?
- **Journal/Writing Prompts**
 - Describe a situation for which creating a scatterplot would be useful.

Extensions and Connections (for all students)

- Have students collect their own data and create their own graph. Then, have them develop questions to be answered about the graph.
- Provide students with data, and have them identify, without graphing, whether the relation has a positive correlation, negative correlation, or no correlation.
- Have students use interactive software to create their own graph.

Strategies for Differentiation

- Review how to label a graph and create the intervals on an axis before having students create a scatterplot for the collected data.
- Review how to plot points in the coordinate plane.
- Have students fill in the points on a scatterplot and provide the x- and y-axis and labels for them before having them create a scatterplot for the collected data.

Sample Scatterplots

