

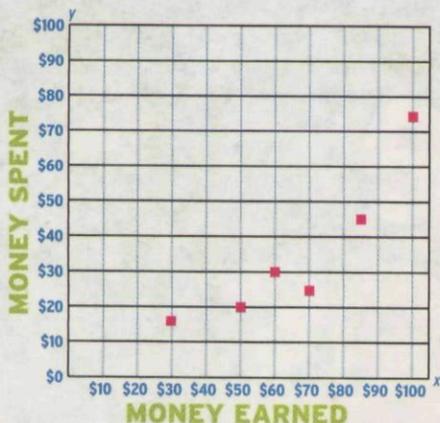
In-Box, Out-Box

Does the number of e-mails you send affect the number you receive? Find out with a scatterplot.

Every day when you get home, is your e-mail in-box jammed—and not just with spam? If you sent out more e-mails, would you get more? What if you sent fewer? You can examine these connections with a *scatterplot*.

A scatterplot is a graph that lets you represent two sets of data and compare them to see if there is a clear relationship. For example, a scatterplot might show the relationship between the amount of money Gary earned shoveling snow each week and the amount of money he spent at the mall each week.

In general, on the scatterplot below, as the numbers along the x (horizontal) axis increase, so do the numbers along the y (vertical) axis. So, the more Gary earned, the more he spent. If you were to draw a line through the center of the data, it would slant upward, showing a *positive relationship*. But what if Gary actually



spent *less* of his money in weeks when he made more money? The line would slant down, showing a *negative relationship*.

There's one more possibility: What if Gary's spending had nothing to do with how much money he made in a given week? The points might be "scattered" all over the graph. No clear line could be drawn through the data, so there would be *no relationship*.

Now, make a scatterplot with some of your classmates to see if the number of e-mails sent affects the number received. You have some data to gather—so scatter!

—by Carli Entin

HOW TO MAKE YOUR E-MAIL SCATTERPLOT

- ✓ Break into groups of about 6 to 7 students.
- ✓ For one week, each of you should keep track of the number of e-mails you each send and receive. Do *not* include spam in your count.
- ✓ On a separate sheet of paper, your group will draw a scatterplot. (Teachers: There is a reproducible blank scatterplot in this issue's Teacher's Edition.) Look at the sample one on this page for help.
- ✓ Label the horizontal x-axis "E-mails Sent." Who in your group sent the greatest number of e-mails? Write numbers along the x-axis from 0 to a multiple of 10 greater than that greatest number. (For example, say someone in your group sent 43 e-mails. Your axis could have the numbers 0, 10, 20, 30, 40, and 50 on it, evenly spaced.)
- ✓ Label the vertical y-axis "E-mails Received." Use the same method described above to write numbers on this axis.
- ✓ Plot your data. Make one point on the graph for each person in your group. For example, if you sent 21 e-mails in a week and received 17, you'd draw a dot above where 21 would be on the x-axis, as high as where 17 would be on the y-axis. (You'll probably have to *estimate*.)
- ✓ Once you've plotted a point for each person in the group, answer our questions.

1 Look at your group's scatterplot. Could a straight line be drawn in between most of the dots? If so, would the line slant up to the right, or down? (Try it!)

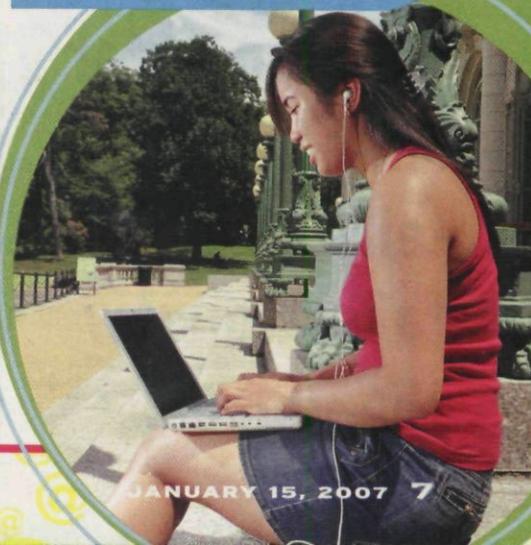
2 Based on your answer to #1, does your scatterplot suggest a positive, a negative, or no relationship?

3 Based on your answer to #2, write a sentence explaining the relationship between e-mails sent and e-mails received, as shown by your group's scatterplot.

4 Finally, compare your group's scatterplot with those made by other groups. Do they seem to show similar relationships?

THINK ABOUT IT

What are some other kinds of data you could compare on a scatterplot?



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