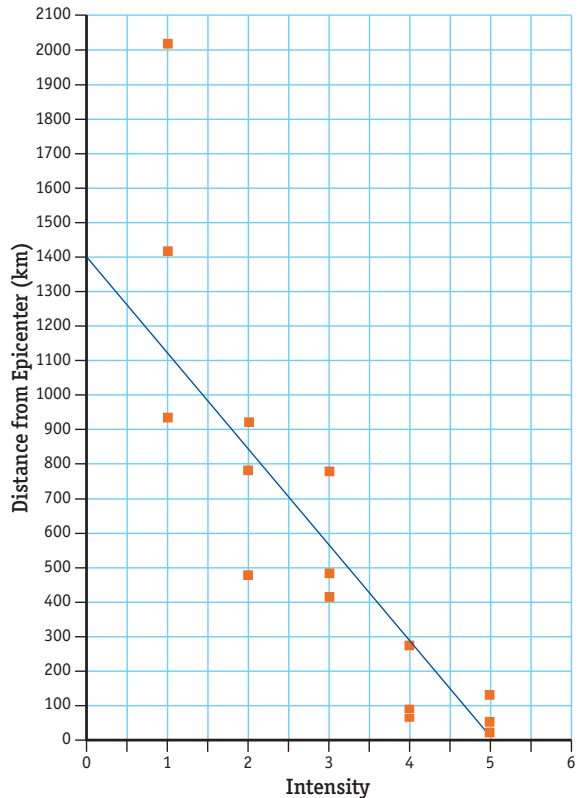


## Answer Key to Reproducible Activities:

### Activity 1, Shake It Up with Scatterplots

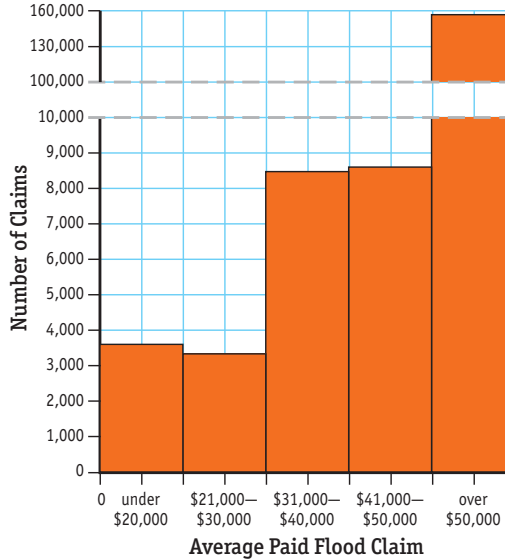
1 & 2. Answers will vary slightly. However, be sure the students draw a straight line that is as close as possible to the majority of the points.



3. Overall, there is a strong relationship between the distance from the epicenter and the intensity of the earthquake. In this particular case, the closer a town is to the epicenter, the stronger the intensity of the earthquake there. However, there are points that don't adhere to this relationship; some points are farther away from the regression line. Ask your students to identify them. 4. It would likely cost more because the high frequency of earthquakes makes it more likely that an insurance company would have to cover damages.

## Activity 2, Histograms Manage a Flood of Data

### 1. Costs and Claims of 2005 Storms



2. The "average paid claim." The mean, the average, is useful, because it is the most common measure for describing data. Looking at the histogram, students can see that the average amount of submitted claims range from \$31,000 to over \$50,000 in 2005. 3. \$36,766,800. Students should multiply the average paid claim by the number of claims. 4. No. Tropical Storm Tammy resulted in more claims than Hurricane Dennis. 5. Answers will vary slightly. To find the average paid claim, use a calculator that goes to 12 places. Multiply the number of claims by the average paid claim for each hurricane [ $3,332 \times \$26,687 = \$88,921,084$ ;  $158,786 \times \$94,750 = \$15,044,973,500$ ;  $8,602 \times \$46,089 = \$396,457,578$ ;  $8,474 \times \$36,126 = \$306,131,724$ ; total amount paid in dollars =  $\$15,836,483,886$ ]. Divide the total amount by total number of claims [ $\$15,836,483,886 \div 179,194 = \$88,376$  average paid claim]. Multiply the average paid claim by 200,000 claims [ $\$88,376 \times 200,000 = \$17,675,200,000$ ].

### Activity 3, Tune In to Insurance

1. Answers will vary. What to look for: Students should show all work and estimates. In addition to the costs of the CDs and DVDs themselves, a comprehensive list of goods to be replaced beyond inventory is important. Students should think about things like desks, chairs, computers, file cabinets, etc. 2. Basic and tornado coverage for 10 years is \$8,000. You would save \$4,000 over 10 years if you bought basic only. Answers will vary, but have students refer to their total estimate, which is the amount they would lose without coverage. For more than one tornado, students should multiply their estimate by 2, 3, etc. Encourage students to think about how they would pay for the damage. 3. Answers will vary.

### Activity 4, Branching Out with Tree Diagrams

1. After 8 hours, a hurricane can stay the same, increase intensity, or decrease intensity. 2.  $3/9$  (or  $1/3$ ) or 33%. 3.  $1/9$ , or 11%. 4.  $2/9$ , or 22%. 5. A Category 1 is more likely. The probability of a Category 1 is  $3/9$ , or 33%, while the probability of a Category 3 is  $1/9$ , or 11%. 6. No, mutually exclusive events cannot happen together.