**Video 11 Fitting Lines to Data**

1. How is the snowpack during wintertime in the Colorado Mountains measured?

 The snowpack during wintertime in the Colorado Mountains is measured by returning to the same site annually to measure the depth and quantity subsections. These 10 measurements are averaged to determine the total for the area.

2. What is a residual?

 The residual is the vertical distance of points in a data set from the regression line.

3. How does the least-squares method decide which line best fits the points in a scatterplot?

 Researchers square the residuals for each data point to make them all positive and add up the squared residuals. The goal is to come to the smallest sum to determine the best residual line.

4. How can a particular year's data on the snowpack be used to predict the amount of water running downstream in the spring?

Researchers can use the equation *Y = a + bx and entering the value for snowpack  to predict the amount of water runoff downstream.

*I don't know how to make a Y-hat

5. The video showed two examples of residual plots. What does a residual plot tell you if the dots in the plot appear to be randomly scattered? What if the dots appear to form a strong curved pattern instead?

If the dots are randomly scattered with no real pattern, the regression line can be used to describe the pattern in the data. If the dots appear in a curved pattern, the residual line can not be used to predict a pattern in the data.