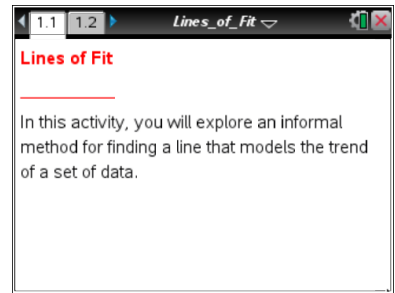









Open the TI-Nspire™ document *Lines_of_Fit.tns*.

In this activity, you will model relationships between math and verbal SAT scores by fitting a straight line to data. You will informally assess the fit of the model by judging the closeness of the data points to the line and then use your model to make predictions.



Move to page 1.2.

1. The scatter plot on page 1.2 displays the mean math SAT scores versus the mean verbal SAT scores received by U.S. high school students in 2004. Describe an association between the verbal and math SAT scores.
2. Move your cursor near the “end” of the line. When you see , press **ctrl**  to grab and drag the line.
 - a. What changes, and what remains the same?
 - b. Press  or **esc** to release the line. Move to the other “end” of the line. Grab and drag the line. What changes, and what remains the same?
 - c. Press  or **esc** to release the line. Move your cursor to what appears to be the middle of the line. When you see , grab and drag the line. What changes, and what remains the same?



Tech Tip: To rotate the line, drag near the “end” of the line. To translate the line, drag near the “middle” of the line.



3. Move the line until you find a line of fit that models the trend of the data.
 - a. What is the equation of your line?
 - b. Compare your equation to your partner's equation. How are they alike or different?
 - c. What criteria did you use to adjust the position of the line of fit in order to find the model for the given data set?
4. The equation of your movable line is stored as the variable **m1**. You can use this equation to predict the math SAT score for a given verbal SAT score not included in the data set. You can also use the equation to predict the verbal score based on the math score.
 - a. What is the predicted math score if the verbal score is 600?
 - b. What is the predicted verbal score if the math score is 550?
 - c. How close is your prediction to the predictions of other students? Why do you think your predictions are different?
5. Would you want to use the line of fit or its equation to predict a math score for a verbal score of 900? Explain your reasoning.