

Scatter Plots & Prediction Equations

Name _____ Period _____ Date _____

Math Target: I can graph scatter plots, write lines of best fit and use them to make predictions in the real world.

1. **Carefully read the introduction section on 4.5 on page 247** (Scatter Plots and Prediction Equations).

Define:

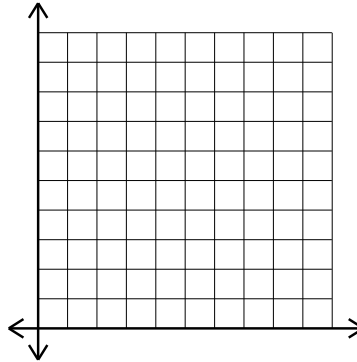
Scatter plot (dot plot), line of fit, prediction equation, correlation (positive, negative, none), slope-intercepts, point-slope form.

2. **Read and work through the Real World Example 2 (pg. 248):**

3. **Read and COMPLETE the Real World Example—Guided Practice (Music):**

- Using the data from pg. 249 Guided Practice, make a scatter plot and draw a line of fit

What is the correlation?



- Prediction Equation

- Find the slope: Use two points that appear on your line of fit to determine the slope, m , of your line of fit. ($y = mx + b$)
- Find the y-intercept: Use the slope and one of the points to find the value of the y-intercept, 'b' ($y = mx + b$)
- Write a slope-intercept form of the equation by substituting in your slope and the y-intercept into $y = mx + b$
- Write the prediction equation

Prediction Equation _____

- Predict the amount of sales in 2015. _____
show work here

- Accuracy: How accurate does your prediction appear to be

STUDENT PROJECT

Project worth 50pts in the Homework/Quiz Category

DUE DATE: Wednesday 12/18

****All Projects must be turned in before you leave for winter break!!****

ESSENTIAL QUESTION:

How can I use a scatter plot to represent data I have found in real world? How can I use that data to make predictions about what may happen in the future or what has happened in the past? Why is this useful?

Some examples to get you thinking

- *Population of Newberg for each of the last 25 years (population of Oregon, USA, etc...).*
- *Average cost of TV cable for the last 30 years.*
- *Number of college graduates at your favorite college over the last 20 years.*
- *Average cost of renting an apartment in Portland for the last 30 years.*
- *Average salary of a professional baseball player based on their years of experience.*

What you should do to successfully accomplish YOUR TASK

Your goal is to communicate a solid understanding of scatter plots & prediction equations through your work. Another person should be able to read & understand your work. Neatness & thoroughness count!

YOUR 'TO DO' LIST after you get your data.

(Complete everything on your own paper. You may get graph paper from your teacher.)

- Collect data** at least 20 points and display the list and what each data point represents. Sources must be cited. Must find data that is correlated in a positive or negative way. Determine independent and dependent variables.
- Neatly graph your data** on graph paper, or a digital representation, titled and clearly labeled.
- Draw a line of fit** on your graph that best represents the data.
- Create a prediction equation.** Neatly show step by step your process of developing a prediction equation. Explain all of your work and thinking. Use the example you created on the front to guide you.
- Create 3 questions** that can be answered using your graph and prediction equation that gives your audience some beneficial information.
- Answer your 3 questions.** Clearly show all work and thinking. Does the answer make sense for the problem?
- Write one solid paragraph** (minimum 5 sentences) summarizing your understanding of prediction equations and reflecting on your process by addressing the following:
 - “What is a prediction equation and how can it be of value when looking at real data?”***
 - “Do your predictions make sense to the data?”***
 - “Does it give you beneficial information?”***If you worked with a partner this would be a great time to compare your two equations.
 - “Where they similar or different?”***
 - “How do your predictions compare?”***
- Create a Presentation** to show your peers what you did and why you did it!