

Core Content

Cluster Title: Interpret linear models.
Standard: S.ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
Concepts and Skills to Master
<ul style="list-style-type: none"> • Explain what the slope means in the context of the situation. • Explain what the intercept means in context of the data.

Supports for Teachers

Critical Background Knowledge	
<ul style="list-style-type: none"> • Graph data in a scatter plot and determine a trend line. • Determine the slope of a line from any representation. • Identify the y-intercept from any representation. 	
Academic Vocabulary	
slope (rate of change), intercept linear model	
Suggested Instructional Strategies	Resources
Find and graph data sets from the internet and discuss the meaning of their slopes and intercepts in context.	http://lib.stat.cmu.edu/DASL/ (data sets) http://www.freestatistics.info (data sets)
Sample Formative Assessment Tasks	
Skill-based Task: Collect power bills and graph the cost of electricity compared to the number of kilowatt hours used. Find a function that models the data and tell what the intercept and slope mean in the context of the problem.	Problem Task: Create a poster of bivariate data with a linear relationship. Describe for the class the meaning of the data, including the meaning of the slope and intercept in the context of the data.

Core Content

Cluster Title: Interpret linear models.
Standard: S.ID.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.
Concepts and Skills to Master
<ul style="list-style-type: none"> • Compute the correlation coefficient of a set of linearly related data using technology. • Determine whether the correlation coefficient shows a weak positive, strong positive, weak negative, strong negative, or no correlation.

Supports for Teachers

Critical Background Knowledge	
<ul style="list-style-type: none"> • Be able to use graphing technology. 	
Academic Vocabulary	
correlation coefficient, linear fit, positive correlation, negative correlation, no correlation	
Suggested Instructional Strategies	Resources
Have students enter data into graphing technology, calculate the regression equation, and interpret what the correlation coefficient is telling about the data.	http://www.freestatistics.info (data sets) http://lib.stat.cmu.edu/DASL (data sets)
Sample Formative Assessment Tasks	
Skill-based Task: The correlation coefficient of a given data set is 0.97. List three specific things this tells you about the data.	Problem Task: Hypothesize the correlation between two sets of seemingly related data. Gather data to support or refute your hypothesis.

Core Content

Cluster Title: Interpret linear models.
Standard: S.ID.9 Distinguish between correlation and causation.
Concepts and Skills to Master
<ul style="list-style-type: none"> Understand the difference between correlation and causation. Understand and explain that a strong correlation does not mean causation.

Supports for Teachers

Critical Background Knowledge	
<ul style="list-style-type: none"> Understand the meaning of correlation 	
Academic Vocabulary	
correlation, causation	
Suggested Instructional Strategies	Resources
Discuss data that has correlation but no causation (height vs. foot length). Discuss data that has correlation and causation (number of M&Ms in a cup vs. the weight of the cup).	
Sample Formative Assessment Tasks	
Skill-based Task: Give an example of a data set that has strong correlation but no causation and describe why this is so. Give an example of a data set that has both strong correlation and causation and write a description of why this is so.	Problem Task: Find media artifacts that make claims of causation and evaluate them.