

Core Content

Cluster Title: Summarize, represent, and interpret data on two categorical and quantitative variables.

Standard: S.ID.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

Concepts and Skills to Master

- Create a two-way frequency table showing the relationship between two categorical variables.
- Find and interpret joint, marginal and conditional relative frequencies.
- Analyze possible associations and trends in the data.

Supports for Teachers

Critical Background Knowledge

- Present data in a frequency table.

Academic Vocabulary

categorical data, two-way frequency table, relative frequency, joint frequency, marginal frequency, conditional relative frequencies, trends

Suggested Instructional Strategies

Use contextual situations to have students create a two-way frequency table showing the relationship between two categorical variables such as height and weight or blood pressure and incidence of heart disease. Use technology to create two-way tables. Compare various tables and discuss frequencies that are evident.

Resources

Sample Formative Assessment Tasks

Skill-based Task: What is the joint frequency of students who have chores and a curfew? Which marginal frequency is the largest?

	Curfew: Yes	Curfew: No	Total
Chores: Yes	13	5	18
Chores: No	12	3	15
Total	25	8	

Problem Task: Collect data that compares populations of countries with square miles. What trends emerge when we compare living in geographically large countries with those that are highly populated?

Core Content

Cluster Title: Summarize, represent, and interpret data on two categorical and quantitative variables.
Standard: S.ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. <ol style="list-style-type: none"> Fit a function to the data; use functions fitted to data to solve problems in the context of the data. <i>Use given functions or choose a function suggested by the context. Emphasize linear and exponential models.</i> Informally assess the fit of a function by plotting and analyzing residuals. Fit a linear function for scatter plots that suggest a linear association.
Concepts and Skills to Master
<ul style="list-style-type: none"> Create a scatter plot of bivariate data and estimate a linear or exponential function that fits the data and use this function to solve problems in the context of the data. Find residuals using technology and analyze their meaning. Fit a linear function (trend line) to a scatter plot with and without technology.

Supports for Teachers

Critical Background Knowledge	
<ul style="list-style-type: none"> Plot data on a coordinate grid and graph a linear function. Recognize characteristics of linear and exponential functions. Write an equation of a line given two points. 	
Academic Vocabulary	
function, linear model, exponential model, bivariate, residuals, scatter plot, correlation	
Suggested Instructional Strategies	Resources
Create a scatter plot for the data, find a trend line and evaluate the fit by analyzing residuals.	
Sample Formative Assessment Tasks	
Skill-based Task: The following data shows the age and average daily energy requirements for male children and teens (1, 1110), (2, 1300), (5, 1800), (11, 2500), (14, 2800), (17, 3000). Create a graph and find a linear function to fit the data. Using your function what is the daily energy requirement for a male 15 years old? Would your model apply to an adult male? Explain.	Problem Task: Collect data on forearm length and height in a class. Plot the data and estimate a linear function for the data. Compare and discuss different student representations of the data and equations they discover. Could the equation(s) be used to estimate the height for any person with a known forearm length? Why or why not?