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OBJECTIVES

After completing *Algebra Warm-Ups: Data, Statistics & Probability*, students will be able to

- formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.
- know the characteristics of well-designed studies, including the role of randomization in surveys and experiments.
- understand histograms, parallel box plots, and scatterplots and use them to display data.
- select and use appropriate statistical methods to analyze data.

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- for univariate measurement data, be able to display the distribution, describe its shape, and select and calculate summary statistics.
- for bivariate measurement data, be able to display a scatterplot and describe its shape.
- develop and evaluate inferences and predictions that are based on data.
- understand how sample statistics reflect the values of population parameters and use sampling distributions as the basis for informal inference.
- understand and apply basic concepts of probability.
- understand the concepts of sample space and probability distribution and construct sample spaces and distributions in simple cases.

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- use simulations to construct empirical probability distributions.
- compute and interpret the expected value of random variables in simple cases.
- understand the concepts of conditional probability and independent events.
- understand how to compute the probability of a compound event.