

Domain	Designing Studies	
Cluster	Design and implement a plan to collect and analyze data.	
Standard(s)	M.ASHS.11	Use data from a sample survey to estimate a population mean or proportion. Instructional Note: Develop the connection between sample size and margin of error.

Content Examples

- » Inferring Population Mean from a Sample Mean:
<https://youtu.be/k5EbijWu-Ss>
- » Quizlet Flashcards:
<https://quizlet.com/412712632/algebra-2-b-unit-4-inferences-and-conclusions-from-data-flash-cards/>

Relevant Content:

- » Using Sample Data to Estimate a Population Characteristic:
<https://www.engageny.org/resource/algebra-ii-module-4-topic-c-lesson-13>
- » Using Estimation in Statistics
<https://stattrek.com/estimation/estimation-in-statistics.aspx>
- » 5 key things to know about the margin of error in election polls
<https://www.pewresearch.org/fact-tank/2016/09/08/understanding-the-margin-of-error-in-election-polls/>

Vocabulary:

- » Bias: The design of a statistical study shows bias if it is very likely to systematically underestimate or very likely to systematically overestimate the value you want to know.
- » Biased Estimator: A statistic used to estimate a parameter is biased if the mean of its sampling distribution is not equal to the true value of the parameter being estimated.
- » Convenience Sample: A convenience sample is a sample selected by taking from the population individuals that are easy to reach.
- » Population: In a statistical study, the entire group of individuals we want information about.
- » Sample: A sample is a subset of individuals in the population from which we collect data.
- » Simple Random Sample: A simple random sample is chosen in such a way that every group of n individuals in the population has an equal chance to be selected as the sample.
- » Unbiased Estimator: A statistic used for estimating a parameter is unbiased if the mean of its sampling distribution is equal to the true value of the parameter being estimated.
- » Voluntary Response Sample: A voluntary response sample consists of people who choose to be in the sample by responding to a general invitation. Voluntary response samples are sometimes called self-selected samples.

Does Beyonce write her own lyrics?

<https://www.statsmedic.com/post/does-beyonce-write-her-own-lyrics>

Assessment Links or Tasks:

- » Sampling Distribution of a Proportion
<https://www.geogebra.org/m/srwskfjpv>

