Intro to Statistics 8 Curriculum

Unit 1 Bar, Line and Circle Graphs

Estimated time frame for unit	Big Ideas	Essential Question	Concepts	Competencies	Lesson Plans and Suggested Resources	Vocabulary	Standards/Eligible Content
8 Days	Data can be modeled and used to make inferences.	In what ways are mathematical attributes of objects or processes measured, calculated and/or interpreted?	Categorical and Quantitative Data Bar graphs	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,)	Students will be able to collect data and utilize this data using bar graphs.	Bar graph	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Data can be modeled and used to make inferences.	In what ways are mathematical attributes of objects or processes measured, calculated and/or interpreted?	Categorical and Quantitative Data Samples and Surveys	Students should be able to make inferences and justify conclusions based on sample surveys, experiments, and observational studies.	Students will be able to understand how to get a good sample of data and use that in creating a survey.	Quantitative Qualitative Population Sample Bias	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation.
	Data can be modeled and used to make inferences.	In what ways are mathematical attributes of objects or processes measured, calculated	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots,	Students will be able to read and create a Line Graphs	Line Graph	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).

		and/or interpreted?		stem-and-leaf plots , scatter plots,)			
	Data can be modeled and used to make inferences.	In what ways are mathematical attributes of objects or processes measured, calculated and/or interpreted?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,)	Students will create a circle graph (pie chart) given a set of data.	Circle Graph	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Data can be modeled and used to make inferences.	In what ways are mathematical attributes of objects or processes measured, calculated and/or interpreted?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,)	Students will be able to extract information from a pie chart (circle graph).		A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Review Common Assessments Unit 1 Bar, Line and Circle Graphs 1 Day						
	Test Common Assessments Unit 1 Bar, Line and Circle Graphs 1 Day						

Unit 2 Frequency Tables, Line Plots and Histograms

Estimated time frame for unit	**Big Ideas**	**Essential Question**	**Concepts**	**Competencies**	**Lesson Plans and Suggested Resources**	**Vocabulary**	**Standards/Eligible Content**

3 Days	Data can be modeled and used to make inferences.	Does the type of data influence the choice of display?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,) Frequency Tables	Students will be able to read and create Frequency Tables.	Frequency Interval Frequency Table	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Data can be modeled and used to make inferences.	Does the type of data influence the choice of display?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,) Line Plots	Students will be able to read and create a line plot given a set of data.	Line Plot	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Data can be modeled and used to make inferences.	Does the type of data influence the choice of display?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,) Histogram	Students will be able to read and create a histogram given a set of data.	Histogram	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).

Unit 3 Central Tendency

Estimated time frame for unit	Big Ideas	Essential Question	Concepts	Competencies	Lesson Plans and Suggested Resources	Vocabulary	Standards/Eligible Content
5 Days	Data can be modeled and used to make inferences.	In what ways are the mathematical attributes of objects measured, calculated, and/or interpreted?	Categorical and Quantitative Data	Students should be able to calculate and/or make predictions based upon measures of central tendency. Students should be able to use measures of dispersion to describe a set of data. (range, quartiles, interquartile ranges.) Finding Mean, Median, Mode, Range	Students will be able to find & calculate mean, median, mode and range.	Data Mean Median Mode Range	A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Data can be modeled and used to make inferences.	In what ways are the mathematical attributes of objects measured, calculated, and/or interpreted	Categorical and Quantitative Data	Students should be able to calculate and/or make predictions based upon measures of central tendency. Outliers	Students will be able to analyze what an outlier does to a data set.	Measures of Central Tendency Outlier	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Data can be modeled and used to make inferences.	In what ways are the mathematical attributes of	Categorical and Quantitative Data	Students should be able to calculate and/or make predictions	Students will be able to differentiate when it's best		A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer

		objects measured, calculated, and/or interpreted		based upon measures of central tendency. Describing Data	to use each of the measures of central tendency.		questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).
	Review Common Assessments Unit 2 & 3 Frequency Tables, lines Plots, and Histogram & Central Tendency 1 Day						
	Test Common Assessments Unit 2&3 Frequency Tables, lines Plots, and Histogram & Central Tendency 1 Day						

Unit 4 Stem-and-Leaf Plots/ Box-and-Whisker Plots

Estimated time frame for unit	Big Ideas	Essential Question	Concepts	Competencies	Lesson Plans and Suggested Resources	Vocabulary	Standards/Eligible Content
7 days	Data can be modeled and used to make inferences	In what ways are mathematical attributes of objects or processes measured, calculated and/or interpreted?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,) Creating Stem-and-Leaf Plots	Students will be able to create stem-and-leaf plots and extract information from them.	Stem-and-Leaf plot Distribution	A1.2.3.2.1 Estimate or calculate to make predictions based on circle, line, bar graphs, measure of central tendency, or other representations. A1.2.3.2.2 Analyze data , make predictions, and/or answer questions based on display data (box-and-whisker plots, stem-and –leaf plots scatter plots, measures of central tendency, or other representations.
	Data can be modeled and used to make inferences	In what ways are mathematical attributes of objects or processes measured, calculated	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker	Students will be able to analyze stem-and-leaf plots and create back-to-back stem-and-leaf plots.		A1.2.3.2.1 Estimate or calculate to make predictions based on circle, line, bar graphs, measure of central tendency, or other representations. A1.2.3.2.2 Analyze data , make predictions, and/or answer questions based on display data (box-and-whisker plots, stem-and –leaf plots scatter plots, measures of central tendency, or other representations.

		and/or interpreted?		plots, stem-and-leaf plots , scatter plots,) Analyzing Stem-and-Leaf Plots			
	Data can be modeled and used to make inferences	In what ways are mathematical attributes of objects or processes measured, calculated and/or interpreted?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,) Students should be able to use measures of dispersion to describe a set of data. (range, quartiles, interquartile ranges.) Creating Box-&-Whisker Plots	Students will be able to create and read box-and-whisker plots	Box-and-whisker plot Lower extreme Lower quartile Median Upper quartile Upper extreme	A1.2.3.2.1 Estimate or calculate to make predictions based on circle, line, bar graphs, measure of central tendency, or other representations. A1.2.3.2.2 Analyze data , make predictions, and/or answer questions based on display data (box-and-whisker plots, stem-and –leaf plots scatter plots, measures of central tendency, or other representations.
	Data can be modeled and used to make inferences	In what ways are mathematical attributes of objects or processes measured, calculated and/or interpreted?	Categorical and Quantitative Data	Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,) Students should	Students will analyze box-and-whisker plots for their critical values, and decipher what they mean.	Critical Values	A1.2.3.2.1 Estimate or calculate to make predictions based on circle, line, bar graphs, measure of central tendency, or other representations. A1.2.3.2.2 Analyze data , make predictions, and/or answer questions based on display data (box-and-whisker plots, stem-and –leaf plots scatter plots, measures of central tendency, or other representations.

				be able to use measures of dispersion to describe a set of data. (range, quartiles, interquartile ranges.) Critical Values			
	Data can be modeled and used to make inferences			Students should be able to analyze and/or use them to make predictions (circle graph, line graph, Bar graph, box-and-whisker plots, stem-and-leaf plots , scatter plots,) Students should be able to use measures of dispersion to describe a set of data. (range, quartiles, interquartile ranges.) Analyzing Box-&-Whisker Plots	Students will be able to interpret information from box-and-whisker plots (and explain the distribution of them).		A1.2.3.2.1 Estimate or calculate to make predictions based on circle, line, bar graphs, measure of central tendency, or other representations. A1.2.3.2.2 Analyze data , make predictions, and/or answer questions based on display data (box-and-whisker plots, stem-and –leaf plots scatter plots, measures of central tendency, or other representations.
	Review Common Assessments Unit 4 Stem-and-Leaf Plots/ box-and-Whisker Plots 1 Day						
	Test Common Assessments Unit 4 Stem-and-Leaf Plots/ box-and-Whisker Plots 1 Day						

Unit 5 Probability

Estimated time frame for unit	Big Ideas	Essential Question	Concepts	Competencies	Lesson Plans and Suggested Resources	Vocabulary	Standards/Eligible Content
12 Days	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model. Simple Probability	Students will be able to calculate simple probabilities.	Probability	A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model. Students should be able to apply probability to practical situations, including compound events. Real World Probability	Students will be able to apply simple probabilities to real life situations.		A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.
	Data can be	How can	Probability	Students should	Students will		A1.2.3.3.1. Find probabilities for compound events (e.g., find

	modeled and used to make inferences	Probability and data analysis be used to make predictions?		be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model. Theoretical & Experimental Probability	be able to compare and distinguish between theoretical and experimental probability.		probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model. Students should be able to apply probability to practical situations, including compound events. Rolling Number Cubes	Students will take part in a real-life activity that compares theoretical and experimental probability.		A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model.	Students will be able to expand their knowledge of probability by creating tree diagrams of the data.	Tree Diagram	A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.

				Students should be able to recognize random processes underlying statistical experiments. Tree Diagrams			
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model. Students should be able to recognize random processes underlying statistical experiments. Counting Principle	Students will discover how to find total outcomes using a shortcut.	Counting Principle	A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to recognize random processes underlying statistical experiments. Total Outcomes	Students will be able to use the counting principle to solve more difficult probability outcomes.		A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.
	Data can be modeled and used to make	How can Probability and data analysis be	Probability	Students should be able to apply the rules of probability to	Students will distinguish between permutations	Combination	A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.

	inferences	used to make predictions?		compute probabilities of compound events in a uniform probability model. Combinations & Permutations	and combinations.		
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model. Students should be able to recognize random processes underlying statistical experiments. Using Combinations & Permutations	Students will calculate total outcomes of permutations and combinations.		A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Probability	Students should be able to apply the rules of probability to compute probabilities of compound events in a uniform probability model. Students should	Students will calculate total outcomes of permutations and combinations.		A1.2.3.3.1. Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent.

				be able to recognize random processes underlying statistical experiments. Calculating Total Outcomes (Permutations & Combinations)			
	Review Common Assessments Unit 5 Probability 1 Day						
	Test Common Assessments Unit 5 Probability 1 Day						
Cumulative Review							
Estimated time frame for unit	**Big Ideas**	**Essential Question**	**Concepts**	**Competencies**	**Lesson Plans and Suggested Resources**	**Vocabulary**	**Standards/Eligible Content**
7 days	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Categorical and Quantitative Data Probability	M&M Culminating Project	Students will apply all topics that they've learned to real-life scenario with the M&M Project		A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data. A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations). A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability
	Data can be modeled and	How can Probability and	Categorical and	Review Jeopardy	Students will summarize		A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data.

	used to make inferences	data analysis be used to make predictions?	Quantitative Data Probability		what they learned from the nine-week course by participating in an educational review game.		A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations). A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability
	Data can be modeled and used to make inferences	How can Probability and data analysis be used to make predictions?	Categorical and Quantitative Data Probability	Two Team Challenge	Students will summarize what they learned from the nine-week course by participating in an educational review game.		A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data. A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation. A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations). A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability
	Built-In Day to compensate for Two-Hour Delays, Unfinished Assignments, Events, etc.						
	Two days are reserved for Mrs. Barnes to come in and do a guidance lesson. *Note: These days are sprinkled in throughout the nine-week period. Not the end of the session.						