HPISD CURRICULUM
(MATH, GRADE 8)

EST. NUMBER OF DAYS: 8

UNIT NAME	**UNIT 7: DATA AND STATISTICS**	
Unit Overview	Students use representations of association, center, and variation to make inferences from data.	
Generalizations/Enduring Understandings	Data from tables and graphs and their related statistics are used to solve problems and answer questions. The validity of predictions and conclusions based on statistical data depends on the appropriate use of sampling methods, graphs, and numerical information. Understand that data from two variables is called bivariate data.	
Concepts	Data Representation: Data can be represented visually using tables, charts, and graphs. The type of data determines the best choice of visual representation. Data Collection: Some questions can be answered by collecting and analyzing data, and the question to be answered determines the data that needs to be collected and how best to collect it. Data Distribution: There are special numerical measures that describe the center and spread of numerical data sets.	
Guiding/Essential Questions	How can data be used to make predictions and answer questions? How is the best graphical representation for a data set determined? When is a sampling of a population be considered biased? How can you use the measures of central tendencies, range, and mean absolute deviation to analyze a data set? How does an outlier affect the measures of central tendency and mean absolute deviation?	
	Performance Levels	***Learning Progression* (*** Decision Point)**
Learning Targets	LEVEL 4: ***LEVEL 3:***	Students will select and use appropriate representations

	LEVEL 2:	and accompanying descriptive statistics to present, summarize, and compare data sets.
	LEVEL 4: ***LEVEL 3:*** LEVEL 2:	Students will use their knowledge of data representation and analysis to evaluate presentations and information and the validity of conclusions drawn from that information.
Formative Assessments	*Title*	
Summative Assessments	*Title*	
	TEKS	

TEKS	**TEKS: Readiness Standards**	**TEKS: Supporting Standards**
	8.5(D) Use a trend line that approximates the linear relationship between bivariate sets of data to make predictions	**8.5(C)** Contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation **8.11(A)** Construct a scatterplot and describe the observed data to address questions of association such as linear, non--linear, and no association between bivariate data **8.11(B)** Determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points

		8.11(C) Simulate generating random samples of the same size from a population with known characteristics to develop the notion of a random sample being representative of the population from which it was selected
	TEKS Process Standards	
	8.1(A) apply mathematics to problems arising in everyday life, society, and the workplace **8.1(B)** use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution **8.1(C)** select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems **8.1(D)** communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate **8.1(E)** create and use representations to organize, record, and communicate mathematical ideas **8.1(F)** analyze mathematical relationships to connect and communicate mathematical ideas **8.1(G)** display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication	
Processes and Skills	Collect data and organize data into different graphical representations: -Line Graph -Bar Graph -Circle Graph -Line Plot	Measures of central tendency summarize numerical data sets in different ways: • The *median* describes the center of the quantity of a set of data.

	-Stem and Leaf Plot -Histogram -Scatterplot -Exponential Determine appropriate graph(s) for representing a given set of data. Read and interpret graphs (line graph, bar graph, circle graph, line plot, stem and leaf plot, histogram, exponential, scatterplot) Use the measures of central tendencies, range, and mean absolute deviation to analyze a set of data. Use the measures of central tendencies and range to find a missing piece of data. Use sampling of populations to determine reasonable conclusions to be drawn about large populations from a relatively small amount of data. Determine if a sample is considered biased and why. Draw conclusions and make predictions by analyzing data.	• The *mean* describes the center of the value of a set of data. • The *mode* describes the most common value of a set of data • Different types of data are best represented using different graphs. Understand that *mean absolute deviation* describes how spread out the data in a set is.
Topics	Analyzing data Collecting data Mean absolute deviation Measures of central tendency Misuse of graphs and statistics Organizing data Representing data Sampling	
Language of Instruction	Associations Bar graph	

	Biased sample Bivariate data Circle graph Exponential graph Frequency table Histogram Key Line graph Line plot Mean Mean absolute deviation Median Mode Outlier Pie chart Range Scatterplot Stem and leaf plot Trend line Validity
State Assessment Connections	
National Assessment Connections	
Resources	