Common Core Lesson Planning Template

Grade Level Algebra I A	**Teacher/Room**: S. Pinson/Room 182		Week of: August 8-12, 2016	

Unit Vocabulary: see attached

Instructional Strategies Used: direct instruction, independent study, interactive instruction, partners

Day 1	Day 2	Day 3	Day 4	Day 5
Common Core Standard(s): **MGSE9-12.S.ID.1** Represent data with plots on the real number line (dot plots, histograms, and box plots). Choose appropriate graphs to be consistent with numerical data: dot plots, histograms, and box plots.	**Common Core Standard(s)**: **MGSE9-12.S.ID.2** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, mean absolute deviation, standard deviation) of two or more different data sets.	**Common Core Standard(s)**: **MGSE9-12.S.ID.3** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	**Common Core Standard(s)**: **MGSE9-12.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.	**Common Core Standard(s)**: **MGSE9-12.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.
EQ Question: How do I summarize and present data?	**EQ Question**: How can I compute MAD and IQR?	**EQ Question**: How can I use outliers to determine the shape of distribution?	**EQ Question**: How can you construct and interpret Two-Way frequency tables?	**EQ Question**: How do I interpret relative frequencies in the context of a two-way frequency table?
Mini Lesson: Create box plots to represent quiz data **Activating Strategies:** Mean, Median, Mode, Range, Quartiles **Lesson:** Dot & Box Plots, Histograms 1. Notes using graphic organizer (Representing Data Graphically) 2. Guided Practice Problems Using Graphical Displays for Data WS 3. Assignment: 4. Quiz: measures of center **Resource/Materials:** Powerpoint, Graphic Organizer, Guided Practice WS. Task, Quiz	**Mini Lesson:** Find mean, median, mode, range of 7 days weather **Activating Strategies:** Create a possible data set given mean, median, mode and number in data set **Lesson**: Measures of Spread (MAD and IQR) 1. Powerpoint with guided notes 2. Guided Practice 3. Assignment – Mean Absolute Deviation 4. Ticket out the door **Resource/Materials:** Powerpoint, Guided Practice WS. Task, Quiz	**Mini Lesson:** Mean, median, mode problems- (support) **Activating Strategies:** Using one of the mean, median, and mode problems, determine the effect of an outlier. **Lesson:** Skewness and Outliers 1. Task – Math Class (partners) 2. Powerpoint (Skewness and Outliers) with guided notes 3. Guided Practice 4. Assignment: Dot Plots and Distributions **Resource/Materials:** Powerpoint, Guided Practice WS. Task, Quiz	**Mini Lesson:** Two-Way-Tables Alternate Opener **Activating Strategies:** video: https://learnzillion.com/lesson_plans/5462 **Lesson:** Two-Way Frequency Tables 1. Powerpoint with guided notes 2. Reading Strategies 3. Guided Practice 4. Assignment **Resource/Materials:** Powerpoint, Graphic Organizer, Guided Practice WS. Task, Quiz	**Mini Lesson: 24** **Activating Strategies:** Review for Mastery – Two Way Frequency Tables **Lesson:** Two-Way Frequency Tables (continued from yesterday) 1. Guided Practice – relative frequency 2. Finish Assignments 3. Vocab Quiz **Resource/Materials:** Powerpoint, Graphic Organizer, Guided Practice WS. Task, Quiz
Differentiation: *Content/Process/Product:* graphic organizer, guided practice *Grouping Strategy:* partners *Assessment:* Friday quiz	**Differentiation:** *Content/Process/Product:* graphic organizer, guided practice *Grouping Strategy:* partners *Assessment:* Friday quiz	**Differentiation:** *Content/Process/Product:* guided practice *Grouping Strategy:* partners *Assessment:* Monday's quiz	**Differentiation:** *Content/Process/Product:* reading strategies, guided practice *Grouping Strategy:* *Assessment:*	**Differentiation:** *Content/Process/Product:* guided practice *Grouping Strategy:* partners *Assessment:* Thursday quiz
Assessment : *Formative:* quiz *Summative:*	**Assessment :** *Formative:* ticket-out-the-door *Summative:*	**Assessment :** *Formative:* informal observation *Summative:*	**Assessment :** *Formative:* informal observation *Summative:*	**Assessment :** *Formative:* quiz *Summative:*
Homework: WS: Dot Plots, Box Plots, Histograms Weekly Assignment #1 (Due	**Homework:** WS: Mean Absolute Deviation	**Homework:** WS: Dot Plots and Distributions	**Homework:** Review For Mastery, Reading Strategies, Practice A and B	**Homework:** none

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Friday)				

- **Association**. A connection between data values.

- **Bivariate data**. Pairs of linked numerical observations. Example: a list of heights and weights for each player on a football team.

- **Box Plot**. A method of visually displaying a distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data.

- **Box-and-Whisker Plot**. A diagram that shows the five-number summary of a distribution. (Five-number summary includes the minimum, lower quartile (25th percentile), median (50th percentile), upper quartile (75th percentile), and the maximum. In a modified box plot, the presence of outliers can also be illustrated.

- **Categorical Variables**. Categorical variables take on values that are names or labels. The color of a ball (e.g., red, green, blue), gender (male or female), year in school (freshmen, sophomore, junior, senior). These are data that cannot be averaged or represented by a scatter plot as they have no numerical meaning.

- **Center**. Measures of center refer to the summary measures used to describe the most "typical" value in a set of data. The two most common measures of center are median and the mean.

- **Conditional Frequencies**. The relative frequencies in the body of a two-way frequency table.

- **Correlation Coefficient**. A measure of the strength of the linear relationship between two variables that is defined in terms of the (sample) covariance of the variables divided by their (sample) standard deviations.

- **Dot plot**. A method of visually displaying a distribution of data values where each data value is shown as a dot or mark above a number line.

- **First Quartile (Q1).** The "middle value" in the lower half of the rank-ordered data

- **Five-Number Summary**. Minimum, lower quartile, median, upper quartile, maximum.

- **Histogram**. Graphical display that subdivides the data into class intervals and uses a rectangle to show the frequency of observations in those intervals—for example you might do intervals of 0-3, 4-7, 8-11, and 12-15

- **Interquartile Range**. A measure of variation in a set of numerical data. The interquartile range is the distance between the first and third quartiles of the data set. Example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the interquartile range is 15 − 6 = 9. • Joint Frequencies. Entries in the body of a two-way frequency table.

- **Line of Best Fit (trend or regression line)**. A straight line that best represents the data on a scatter plot. This line may pass through some of the points, none of the points, or all of the points. Remind students that an exponential model will produce a curved fit.

- **Marginal Frequencies**. Entries in the "Total" row and "Total" column of a two-way frequency table.

• **Mean Absolute Deviation**. A measure of variation in a set of numerical data, computed by adding the distances between each data value and the mean, then dividing by the number of data values. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the mean absolute deviation is 20.

• **Outlier**. Sometimes, distributions are characterized by extreme values that differ greatly from the other observations. These extreme values are called outliers. As a rule, an extreme value is considered to be an outlier if it is at least 1.5 interquartile ranges below the lower quartile (Q1), or at least 1.5 interquartile ranges above the upper quartile (Q3). **OUTLIER if the values lie outside these specific ranges:**

$$Q1 - 1.5 \bullet IQR$$
$$Q3 + 1.5 \bullet IQR$$

• **Quantitative Variables**. Numerical variables that represent a measurable quantity. For example, when we speak of the population of a city, we are talking about the number of people in the city – a measurable attribute of the city. Therefore, population would be a quantitative variable. Other examples: scores on a set of tests, height and weight, temperature at the top of each hour.

• **Scatter plot.** A graph in the coordinate plane representing a set of bivariate data. For example, the heights and weights of a group of people could be displayed on a scatter plot. If you are looking for values that fall within the range of values plotted on the scatter plot you are interpolating. If you are looking for values that fall beyond the range of those values plotted on the scatter plot, you are extrapolating.

• **Second Quartile (Q2).** The median value in the data set.

• **Shape**. The shape of a distribution is described by symmetry, number of peaks, direction of skew, or uniformity.

• **Symmetry**. A symmetric distribution can be divided at the center so that each half is a mirror image of the other.

   • **Number of Peaks**- Distributions can have few or many peaks. Distributions with one clear peak are called unimodal and distributions with two clear peaks are called bimodal. Unimodal distributions are sometimes called bell-shaped.

   • **Direction of Skew**- Some distributions have many more observations on one side of graph than the other. Distributions with a tail on the right toward the higher values are said to be skewed right; and distributions with a tail on the left toward the lower values are said to be skewed left.

   • **Uniformity**- When observations in a set of data are equally spread across the range of the distribution, the distribution is called uniform distribution. A uniform distribution has no clear peaks.

   • **Spread** -The spread of a distribution refers to the variability of the data. If the data cluster around a single central value, the spread is smaller. The further the observations fall from the center, the greater the spread or variability of the set. (range, interquartile range, Mean Absolute Deviation, and Standard Deviation measure the spread of data)

• **Third quartile**. For a data set with median *M*, the third quartile is the median of the data values greater than *M*. Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the third quartile is 15.

• **Trend**. A change (positive, negative or constant) in data values over time.

• **Two-Frequency Table**. A useful tool for examining relationships between categorical variables. The entries in the cells of a two-way table can be frequency counts or relative frequencies.