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| **Grade Level** 9th Accelerated Coordinate Algebra 3rd and 4th  | **Teacher/Room**: Lisa W. Payne  Room #181 Week of: August 11-15 Week #1 |
| **Unit Vocabulary: Describing Data (see attached)** |
| **Instructional Strategies Used: Lecture, whole-group, individual, PowerPoint, Computer Lab, Video Clips, gadoe task,Cornell Note-taking system** |
| **Day 1 Monday** |
| **Common Core Standard(s)**: **Common Core GPS: MCC 9-12.S.ID.1** Represent data with plots on the real number line (dot plots, histograms, and box plots). |
| **EQ Question: can you** Organize data in tables and graphs or Choose a table or graph to represent data?  |
| **Lesson: first day information** **Mini Lesson Pre- test****Activating Strategies:** M & M activity (collecting data) **Resource/Materials: Syllabus, computer lab, m&ms handout** **Text: *Georgia Coordinate Algebra : Holt McDougal*** |
| **Differentiation:***Content/Process/Product:* **Content** *Grouping Strategy: individual and by rows* *Assessment:* **pre-test**Students will receive individual assistance as needed: |
| **Assessment :***Formative:* observation and graphs*Summative:* pre-test*Performance Based:* |
| **Homework: having parents sign syllabus and logging onto textbook** |

Resources and Reflective Notes:

#All lesson plans subject to change.

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| **Unit Vocabulary: see attached Unit 4 vocabulary**  |
| **Instructional Strategies Used: Lecture, whole-group, individual, PowerPoint, Computer Lab, Video Clips, gadoe task,Cornell Note-taking system** |
| **Day 2 Tuesday**  |
| **Common Core Standard(s)**: **Common Core GPS: MCC 9-12.S.ID.1** Represent data with plots on the real number line (dot plots, histograms, and box plots). |
| **EQ Question: can you** Organize data in tables and graphs or Choose a table or graph to represent data? |
| **Lesson: 14.1 Organizing and describing data****Mini Lesson : review percent, decimals, dot plots, histograms** **Activating Strategies:** Warm up- solving equations **Resource/Materials: Text: *Georgia Coordinate Algebra : Holt McDougal*** |
| **Differentiation:***Content/Process/Product:* **Content***Grouping Strategy: favoring color of m&m Grouping* *Assessment:* **Lab assignments are divided up by ability based on previous lab experience**Students will receive individual assistance as needed: |
| **Assessment :***Formative:* pie charts *Summative:* *Performance Based:***Students will complete pie chart**  |
| **Homework: Practice and apply** **Pg. 376, 17-29, 34-44** |

Resources and Reflective Notes:

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| **Day 3 Wednesday** |
| **Common Core Standard(s)**: **Common Core GPS:** **MCC 9-12.S.ID.1** Represent data with plots on the real number line (dot plots, histograms, and box plots). |
| **EQ Question: Describe how you create stem-and-leaf plots and how to create frequency tables and histograms.** |
| **Lesson:14.2 Frequency and Histograms****Mini Lesson: warm up: organizing data: pg 379, math humor, page 379** **Activating Strategies:** students will draw a histogram of their M&M data for their row. **Resource/Materials: Text: *Georgia Coordinate Algebra : Holt McDougal*** |
| **Differentiation: students can use the calculators, pen and pencil, or computers to draw their histograms***Content/Process/Product:* **Content***Grouping Strategy: by color of m&ms.* *Assessment:* **checking homework**Students will receive individual assistance as needed: |
| **Assessment :***Formative:* histograms*Summative:* *Performance Based:***Students will complete homework**  |
| **Homework: 14.2, pg: 382, # 7-11, 13,15-23** |

Resources and Reflective Notes:

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| **Day 4 Thursday** |
| **Common Core Standard(s)**: **MCC 9-12.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. **MCC.9-12.S.CP.4** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities. Also **MCC 9-12.S.CP.5** |
| **EQ Question:** Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. |
| **Lesson :14.3 Two-Way tables****Mini Lesson : Check homework****Activating Strategies:** Warm up ( how to find probability **Resource/Materials: Text: *Georgia Coordinate Algebra : Holt McDougal***“do you have at least one pet in your home?” Girl yes: Girl no: Boy yes: Boy no: How can this data be organized in a table? Relative frequencyMarginal relative frequencies Joint relative frequencyConditional relative frequency |
| **Differentiation: examples on board example 2** *Content/Process/Product:* **Content***Grouping Strategy: whole group* *Assessment* **: quiz 14.2** Students will receive individual assistance as needed: |
| **Assessment :***Formative:* *Summative:* *Performance Based:***Students will complete quiz 14.2** |
| **Homework: 14.3, pg: 389, # 8-10,12-23** |

Resources and Reflective Notes:

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| **Day 5 Friday**  |
| **Common Core Standard(s)**: **MCC 9-12.S.ID.2** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. **MCC 9-12.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). **MCC 9-12.S.ID.1** Represent data with plots on the real number line (dot plots, histograms, and box plots). |
| **EQ Question: how do you** describe the central tendency of a data set and Create box-and-whisker plots. |
| **Lesson: 14.4 Data Distributions****Mini Lesson: Shape, center, spread of M&M data from Monday.** **Activating Strategies:** Warm-up (comparing data) **Resource/Materials: Text: *Georgia Coordinate Algebra : Holt McDougal***Cornell note-taking system Data from Monday |
| **Differentiation: reaching all learners through modeling ( 4 students in front of class, 1 has 5 pencils, 1 has 2 pencils, 1 has 1 pencils, and one has no pencil.****Students put all together and take turns taking one pencil until none are left. They should have 2 each, this is mean)( how does this relate to the definition of mean?)***Content/Process/Product:* **Content***Grouping Strategy: Whole group* *Assessment* **: 16,18,20,22,24,30**Students will receive individual assistance as needed: |
| **Assessment :***Formative:* SQ3R*Summative:* *Performance Based:***Students will complete Lab Assessment Rubric Fried Rice**  |
| **Homework: 14.4, pg: 398, 14-34, even, 35-63 odd** |

Resources and Reflective Notes:

#All lesson plans subject to change.

* **Unit 4 Vocabulary**
* **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 • IQR

Q3 + 1.5 • 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.
* **Residuals** (error). Represents unexplained (or residual) variation after fitting a regression model. **residual** = observed value – predicted value e = y – ŷ. A **residual plot** is a graph that shows the residual values on the vertical axis and the independent (*x*) variable on the horizontal axis.
* **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 (either 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.