

GRADE 8 UNIT 5 – GEOMETRY

<p>Established Goals: Standards</p> <p>8.SP.1 Construct and interpret scatter plot for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.</p> <p>8.SP.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.</p> <p>8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate data interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</p> <p>8.SP.4 Understand the patterns of association can also be seen in bivariate categorical data by displaying the frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who</p>	Transfer	
	<p><i>Students will be able to:</i></p> <ul style="list-style-type: none"> Using a linear equation to model real life problems then solve it by interpreting the meaning of the slope and the intercept. Construct and interpret scatter plots for bivariate measurement data and identify and interpret data patterns (clustering, outliers, positive or negative association, possible lines of best fit, and nonlinear association). Construct frequency/relative frequency tables to analyze and describe possible associations between two variables. Know and apply the appropriate formula for the volume of a cone, a cylinder, or a sphere to solve real-world and mathematical problems. 	
	Meaning	
	ENDURING UNDERSTANDING	ESSENTIAL QUESTIONS
<ul style="list-style-type: none"> Slope is a rate of change for a set of data or a linear graph. Linear functions are defined by constant slope. Collecting and examining data can sometimes help one discover patterns in the way in which two quantities vary. Written descriptions, tables, graphs, and equations are useful in representing and investigating relationships between varying quantities. Different representations (written descriptions, tables, graphs, and equations) of the relationships between varying quantities may have different strengths and weaknesses. Solving problems involving linear relationships requires gathering data. A scatter plot's best fit line is used to 	<ul style="list-style-type: none"> For a given set of data or a graph, how can units of measurement help us explain the meaning of slope? What are the different ways to graph linear equations? How do coordinate graphs demonstrate solutions and non-solutions of equations with two variables? What does the graphical data tell me? What is the relationship between the x- and y- axis in any given situation? How does a change in one variable affect the other variable in a given situation? Which tells me more about the relationship I am investigating – a table, a graph, or an equation? Why? What strategies can I use to help me understand and represent real situations involving linear relationships? How will applying appropriate measurement techniques, tools, and formulas help solve geometric problems efficiently? How does fluency with formulas improve accuracy and speed in solving problems? How can solving problems involving volume of cylinders, cones, and spheres help us in a real-world situation? 	

<p>have a curfew also tend to have chores?</p> <p>8.G.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.</p>	<p>make predictions for data not on the line or table.</p> <ul style="list-style-type: none"> • Memorizing formulas aids in efficient problem solving. • There are many practical applications involving volume of cylinders, cones, and spheres. 	
	Acquisition	
	KNOWLEDGE	SKILLS
	<i>Students will know how to...</i>	<i>Students will be skilled at...</i>
	<ul style="list-style-type: none"> • Find slope on a linear graph • Find volume (cones, cylinder, and spheres) • Determine if a scatter plot has a positive, negative, or no correlation. • Display data in a frequency table or a scatter plot. • Interpret data in a frequency table or scatter plot. 	<ul style="list-style-type: none"> • Determining slope from a linear graph. • Finding volume using cones, cylinder, and spheres. • Determining if a scatter plot has a positive, negative or no correlation. • Displaying data in a frequency table or a scatter plot. • Interpreting data in a frequency table or scatter plot.

Vocabulary	Instruction and Pacing	
Frequency table Scatter plot Correlation/ Trend (Positive, negative, none) Line of best fit Volume Radius Diameter Height Length Width	Pretest	1 day
	Slope	3 days
	Frequency Tables	1 week
	Scatter Plots	1 week
	Volume	2 weeks
	Post Test	1 day

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Resources

- *Course 3* Chapter 8 : Lessons 6,7,8 ; Chapter 9: Lesson 2,7
- Supplemental Materials
- Manipulatives:
 - Graph Paper
 - Tables
- Study Island
- <http://phschool.com>
- <https://www.pearsonsuccessnet.com>
- Buckle Down
- Games/Centers

Differentiation and Accommodations

Provide graphic organizers
 Provide additional examples and opportunities for additional problems for repetition
 Provide tutoring opportunities
 Provide retesting opportunities after remediation (up to teacher and district discretion)
 Teach for mastery not test
 Teaching concepts in different modalities
 Adjust pace and homework assignments

ELL Modifications

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21st Century Skills	Critical Thinking, Creative Thinking, Collaborating, Communicating, and Technology Literacy
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Instructional Strategies	Fairfield Township School recognizes the importance of the varying methodologies that may be successfully employed by teachers within the classroom and, as a result, identifies a wide variety of possible instructional strategies that may be used effectively to support student achievement. These may include, but not be limited to, strategies that fall into categories identified by the Framework for Teaching by Charlotte Danielson: <ul style="list-style-type: none"> • Communicating with students
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	<ul style="list-style-type: none"> • Using questioning and discussion techniques • Engaging students in learning • Using assessment in instruction • Demonstrating Flexibility and Responsiveness 	
Interdisciplinary Connections		
	Common Misconceptions	Proper Conceptions
	Students confuse the x-axis and the y-axis.	The x-axis is horizontal and the y-axis is vertical.
	Students confuse positive, negative, and no correlations	Positive correlations rise from the left to the right. Negative correlations decline from the left to the right. No correlations are scattered.
	Students confuse diameter and radius	Diameter is the whole length of a circle and radius is half the diameter.

Performance Task
<p>The class will participate in a survey during which each student will tell their height and shoe size.</p> <ul style="list-style-type: none"> • Students will record this data in a table. • Students will use this data to construct a scatter plot. • Students will title their scatter plot and label the axes. • Students will explain what type of correlation is shown in their scatter plot. <p style="text-align: center;">Rubric</p> <p>When used as a quiz grade (based on 100%), each bullet would be worth 25 points for a correct answer.</p>

ASSESSMENTS
<p>Suggested Formative Assessment</p> <p>Problem of the Day</p> <p>Lesson Quizzes</p> <p>Exit Ticket</p> <p>Anecdotal Records (Topic Observation Checklist)</p>

Suggested Summative Assessment

Grade level developed Unit/Envisions Topic Tests

Ed-Connect Express Tests /State Unit Benchmark Assessment/Performance Task