

Richmond Public Schools
Curriculum Framework
Grade 8

Strand: Probability and Statistics	
<p>8.13 The student will</p> <ul style="list-style-type: none"> a) represent data in scatterplots; b) make observations about data represented in scatterplots; and c) use a drawing to estimate the line of best fit for data represented in a scatterplot. 	
Suggested Pacing	
Fourth Nine Weeks – 5 Instructional Days (including common assessment)	
Related Standards	
<p>Spiral Down</p> <p>7.9 The student, given data in a practical situation, will</p> <ul style="list-style-type: none"> a) represent data in a histogram; b) make observations and inferences about data represented in a histogram; and c) compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs. <p>6.10 The student, given a practical situation, will</p> <ul style="list-style-type: none"> a) represent data in a circle graph; b) make observations and inferences about data represented in a circle graph; and c) compare circle graphs with the same data represented in bar graphs, pictographs, and line plots. 	<p>Spiral Up</p> <p>A.9 The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.</p>
Essential Questions	Common Misconceptions
<p>Why do we estimate a line of best fit for a scatterplot? <i>A line of best fit helps in making interpretations and predictions about the situation modeled in the data set.</i></p>	<ul style="list-style-type: none"> ● Students have difficulty determining the type of relationship that exists within a data set represented in a scatterplot. (VDOE – Spring 2014 Student Performance Analysis comment)

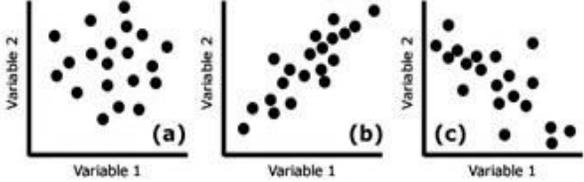
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Understanding the Standard	Essential Knowledge and Skills
<ul style="list-style-type: none">● A scatterplot illustrates the relationship between two sets of numerical data represented by two variables (bivariate data). A scatterplot consists of points on the coordinate plane. The coordinates of the point represent the measures of the two attributes of the point.● In a scatterplot, each point may represent an independent and dependent variable. The independent variable is graphed on the horizontal axis and the dependent is graphed on the vertical axis.● Scatterplots can be used to predict linear trends and estimate a line of best fit.● A line of best fit helps in making interpretations and predictions about the situation modeled in the data set. Lines and curves of best fit are explored more in Algebra I to make interpretations and predictions.● A scatterplot can suggest various kinds of linear relationships between variables. For example, weight and height, where weight would be on y-axis and height would be on the x-axis. Linear relationships may be positive (rising) or negative (falling). If the pattern of points slopes from lower left to upper right, it indicates a positive linear relationship between the variables being studied. If the pattern of points slopes from upper left to lower right, it indicates a negative linear relationship.<ul style="list-style-type: none">- For example: The following scatterplots illustrate how patterns in data values may indicate linear relationships.	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none">● Collect, organize, and represent a data set of no more than 20 items using scatterplots. (a)● Make observations about a set of data points in a scatterplot as having a positive linear relationship, a negative linear relationship, or no relationship. (b)● Estimate the line of best fit with a drawing for data represented in a scatterplot. (c)

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<p style="text-align: center;">No relationship Positive relationship Negative relationship</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • A linear relationship between variables does not necessarily imply causation. For example, as the temperature at the beach increases, the sales at an ice cream store increase. If data were collected for these two variables, a positive linear relationship would exist, however, there is no causal relationship between the variables (i.e., the temperature outside does not cause ice cream sales to increase, but there is a relationship between the two). • The relationship between variables is not always linear, and may be modeled by other types of functions that are studied in high school and college level mathematics. 	
Vocabulary	Instructional Activities Organized by Learning Objective
<p>Scatterplot Independent Variable Dependent Variable Coordinates Trend Correlation Positive Correlation Negative Correlation No Correlation</p>	<p>Virginia Department of Education <u>Scatterplots</u> – Lesson Plan</p> <p>Textbook <i>Virginia Pre-Algebra</i>, ©2012, Glencoe/McGraw-Hill</p> <ul style="list-style-type: none"> • Scatterplots, page(s) 39 – 46 <p>Notes</p> <ul style="list-style-type: none"> • Data Analysis with Grapshs

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<p>Constant Correlation Line of best fit</p>	<p>Resources</p> <ul style="list-style-type: none"> ● Print <i>Virginia Coach</i>, NEW SOL Edition, Grade 8, Mathematics Lesson 17 – page 126 (Scatterplots) ● Technology-based <ul style="list-style-type: none"> ○ <i>ExploreLearning.com (Gizmos)</i> – <u>Graphing Skills</u>(change graph type to “scatterplot”) and <u>Trends in Scatter Plots</u> – Interactive Instructional Resource ○ <i>Scholastic.com</i> – <u>Shake It Up With Scatterplots</u> – Lesson Plan <p>Station Activities</p> <ul style="list-style-type: none"> ● Match tables to scatterplots ● Match data sets to scatterplots ● Given a data set or scatterplot, have students draw the line of best fit.
<p>Assessment</p>	
<p>RPS PowerSchool Unit Test – RPS 8.13 Common Assessment Test ID#:</p> <p>Formative Assessments White Board Checks Kahoot.it Plickers Exit Tickets Graphic Organizers Venn Diagrams</p>	
<p>Cross-Curricular Connections</p>	<p>Differentiations</p>
<p>English Students can describe a situation for which creating a scatterplot would be useful.</p> <p>Science Students can perform an experiment and the data collected can be used to create a scatterplot.</p> <p>Shake It Up with Scatterplots</p>	<ul style="list-style-type: none"> ● Have students label the axis of a given graph, and create the intervals for the axis. ● Have students label a graph, then graph a given set of data. ● Have students highlight the independent and dependent variable from a given practical problem. Then students can highlight and label the axis IV and DV, and create a graph. ● A group of students can plot data with a positive, negative, and no slope. Students can discuss their findings. ● Have students do a math project. <ul style="list-style-type: none"> ○ Have students choose a topic, record and graph the data, present a summary.