Curriculum Sample: 8th Science
Max. 8 Pages

Grade Level	8	**Content Area**	Science
Course Title (grades 9-12 Only)			
Length of Unit	Five 55-minute periods	**Time of Year**	Third Quarter
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	Students should understand the meaning of variables, how to plot points on a graph given (x,y)		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	The school's program of instruction stresses alignment with research-supported instructional techniques, including Hunter's Essential Elements of Instruction.		
Standard Number and Description *List the Number* and full description for the required Standard.*	8.1.3.1 Grade: 8 Strand: 1 - Inquiry Process Concept: 3 – Analysis and Conclusions (Analyze and interpret data to explain correlations and results; formulate new questions) PO: #3 - Interpret data that show a variety of possible relationships between two variables, including: • positive relationship, • negative relationship, • no relationship.		
Summative Assessment *Describe a cumulative and comprehensive activity, clearly separate from instruction and guided or independent practice, which allows each student to individually demonstrate mastery of the required Standard. A copy of the summative assessment must be attached to the curriculum sample.*	Students will complete 5 open-response questions to assess their ability to interpret relationships between two variables. One of the questions will involve interpreting a graph. The assessment and answer key are below.		
Scoring Scale and Mastery Level *Explain how the assessment is scored, to include points per question, how*	The 5 open-response questions will be scored on an absolute scale with an answer key provided. Partial credit will be allowed for the definitions with multiple parts, the credit for each portion is indicated on the answer sheet. Otherwise, credit will only be awarded for answers that completely match the answer key, and no partial credit will		

points are awarded, total points possible, criteria necessary to demonstrate mastery, and grading scale. A copy of the answer key and scoring rubric (whichever applicable) must be attached to the curriculum sample.	be awarded. Students must get at least 4 of the 5 questions completely correct (80%) to master the standard.
Materials/Resources Needed	Worksheets with lists of dependent/independent variables Worksheets with scatter plots, with clearly labels axes Teacher access to computer to watch video on scatter plots, http://www.youtube.com/watch?v=AXWtiVaOmPg&feature=PlayList&p=8C5A025C3FF18E31&playnext=1&playnext_from=PL&index=5 EdHelper eBook on When to Use Different Types of Graphs http://worksheets3.edhelperclipart.com/pdf/pdfdl1335947598_pdfbookallkindspbkpl_1.pdf

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Standard (e.g., 6.EE.7). For HS Math, use Conceptual Category-Domain, Standard (e.g., A-REI.6). For Science, use Grade, Strand, Concept, PO (e.g., 4.1.3.1).*

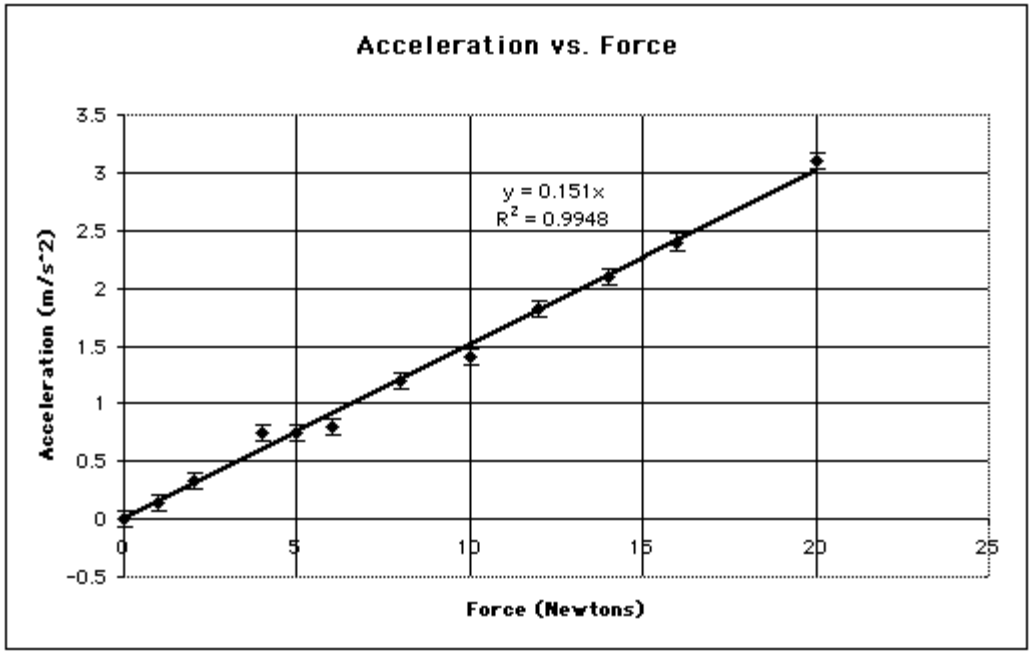
Lesson (add as needed	**Instruction**	**Student Activities**
1	SWBAT distinguish between dependent and independent variables Key Points: Correlation is not the same as causation If not sure which variable is dependent, ask if it is possible for the experimenter to control the variable Methods: Observe video, teacher-led discussion, guided practice	Do-now: Students look at a variety of scatter plots, noting whether the x-axis or y-axis is a variable that they can control Guided-Practice: Students are given lists of variable pairs, and based on the variable names, indicate which variable is dependent and which variable is independent
2	SWBAT use scatter-plots to determine nature and strength of relationship between two variables Key Points: The closer together the points are, the more accurate a prediction the correlation coefficient is Methods: Observation of video, guided questioning	Do-now: Students watch video on scatter plots Guided Practice: Using the same scatter-plots as on Day 1, students look at how fuzzy or sharp and narrow the plots are, and compare this to r
3	SWBAT explain the relationship between the sign of a slope or correlation coefficient and the likelihood of a change in x resulting in a change in y Key Points: An upward slope indicates a positive relationship A downward slope indicates a negative relationship A flat slope indicates no relationship Methods: Teacher-led discussion, guided practice	Do-now: For a given coefficient, student choose a variety of x values, calculate the y values, and then plot the points. They then compare the slope of the scatter plot with the coefficient. Guided-Practice: Students arrange in order, according to slope, a series of graphs with the value of r covered. They then match the graphs with the r-value. Homework: Students are to count how long and how many strokes it takes them to brush their teeth
4	SWBAT distinguish what different types of graphs are used for Key Points: Each type of graph has a different purpose	Do-Now: As students enter, they put on the board the data they collected overnight

	Box-and-whisker graphs show the distribution of groups Stem-and-leaf plots show the shape of the distribution Histograms show data that occurs of time, or instances Methods: Teacher-led discussion, Guided-Practice	Guided-Practice: Students enter their data into an Excel spreadsheet, and create a variety of graphs (box-and-whisker, histogram, stem-and-leaf, scatter plot) Students discuss whether the way the information is present in each graph makes sense and is meaningful
5	Methods: Guided Practice Teacher provides summative assessment	Guided Practice: Students read and work problems in EdHelper book

Paste Summative Assessment Here:

1) What is a correlation coefficient?
2) What is the meaning of a negative correlation coefficient?
3) What is the difference between an independent and a dependent variable?

Use this graph to answer questions 4 and 5.



4) Which variable in the graph above is dependent, and which variable is independent?
5) What is the purpose of a box-and-whisker plot?

Paste Answer Key/Scoring Rubric Here:

1) A correlation coefficient, or r (1/3), is a number between -1 and 1 (3) that represents the linear dependence between two variables (3) (if a occurs, how likely is b to occur).

2) A negative correlation coefficient means that if the independent variable increases, the dependent variable decreases.

3)The independent variable in an experiment is the variable that YOU change in order to affect the dependent variable (1/2). The dependent variable is what is being measured, or what is being affected. (1/2)

4) Force is the independent variable, and acceleration is the dependent variable (or may say x-axis is independent and y-axis is dependent).

5) Box-and-whisker plots show the distribution of the answers.