Curriculum Sample Template

Max. 8 Pages

Grade Level	8	**Content Area**	Science
Course Title (grades 9-12 Only)			
Length of Unit	2 weeks (labs on and off for two weeks, lessons 4 days)	**Time of Year**	Block 2 of 10
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	Students will be able to organize data in charts and graph data.		
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.*	Students will be gathering data in a laboratory setting. They will be graphing and describing data indicating the relationship between variables. Students will be applying what they have learned in a hands on activity. This type of application of knowledge aligns to the Program of Instruction as part of the rigor /relevance framework.		
Standard Number and Description *List the Number* and full description for the required Standard.*	8.1.3.3 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 be given mock data. Students will have to organize the data in a chart, graph it, then determine if there is a positive, negative, or no relationship between the 2 variables		
Scoring Scale and Mastery Level *Explain how the assessment is scored, to include points per question, how 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.*	The assessment will have 4 questions. Each question will be worth 3 points for a total of 12 points. Students will receive 1 point for organizing the data in a chart, 1 point for graphing the data, and 1 point for interpreting the relationship between variables. The grading scale will be 0-8 = no grade (required retake), 9 = C, 10 = B, 11-12 = A. To demonstrate mastery students must score 9(75%) or better.		
Materials/Resources Needed	Stop watch, hot plate, onion bulbs, bleach, test tubes, thermometer, graph paper, document camera and projector		

* ***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	Students will be asked for bell work to organize data and create a graph. After students graph data students will be introduced to an experiment. This experiment will take place over a couple of weeks, and will be a part of other lessons as well. Students will be testing the effects of bleach on how well plants grow. Students will be given a procedure and in lab teams they will set up the experiment. Students will have different concentrations of bleach in test tubes. On the top of each test tube there will be an onion bulb. Students will be recording the growth of the bulbs each day over the next couple of weeks . When students are finished they will clean up their area and be given homework in which they have to organize and graph some data.	Students will organize and graph data students will set up a lab, and begin to record data
2	Students will be given graphs that they will be asked to describe. Students will share their descriptions in a group. The group will refine their descriptions and present them to the class using a document camera. The teacher will point out that in their descriptions of the graphs they were describing a relationship between the variables. Students will be told that there are three possibilities when comparing variables (positive, negative, or no correlation). Students will then look at their descriptions and see if they can come up with definitions for each of the relationships. Students will then share these definitions with the class. Students will have a think pair share and complete a vocabulary exercise as they finish in class for the day. Students will be given data to organize and graph, and they will determine the relationship between the variables	Students will describe graphs Students will work in groups to describe graphs. Students will present their descriptions Students will take notes on relationships between variables Students will define each of the types of relationships between variables and share with a partner Students will complete a vocabulary card Students will organize and graph data and indicate the relationship between the variables
3	Students will organize and graph data to review the previous day work. Then students will be given the procedure for a lab. Each group of students will be determining the temperature of water in a different kind of cup over a 15 minute period. The water will start at boiling, and groups will record the temperature in the cups as it drops over time. Groups will then organize and graph their data. Students will determine the relationship between temperature and time, and report their findings back to the group. The group will then decide which cup kept the water warm the longest. Students will write a summary of their data. Students	Students will organize and graph data to determine relationships between variables. Students will perform a lab, record and graph data, determine relationship, and report findings. Students will write a summary of their findings

	will also check on the growth of their onion bulbs.	
4	Students will keep practicing over the next 2 weeks while organizing and graphing data, then determining the relationship between variables. After students have gathered enough data on their onion bulb experiment, students will graph their results and determine the relationship between the concentration of bleach and plant growth. Students will write a summary of their findings. Students will then have a review and take the assessment the next day. It is not unusual to test from the inquiry strand at different times in the year. The skills from this strand are constantly used when performing labs. This assessment will focus not only on determining relationships, but also representing data graphically. Students will take the assessment on determining relationships between variables.	Students will record and graph data from their onion bulb laboratory Students will determine relationship and write a summary of their findings Students will take assessment

Paste Summative Assessment Here:

Determining relationships between variables

For each question organize and graph the data. In a statement describe the relationship between the variables

1. temperature of water 100° at 0 minutes, 88° at 10 min, 92° at 5 min, 82° at 15 min, 74° at 20 min
2. number of ducks feeding and rate of food distribution: 15 ducks 1 handful of bread every 3 seconds, 8 ducks 1 handful every 10 seconds, 5 ducks 1 handful every 20 seconds
3. concentration of fertilizer and growth of plants: control (no fertilizer) 6cm, low concentration 8 cm, high concentration 12cm, medium concentration 9cm
4. attendance at school by days of the week: 154 Monday, 160 Tuesday, 158 Wednesday, 161 Thursday, 156 Friday

Paste Answer Key/Scoring Rubric Here:

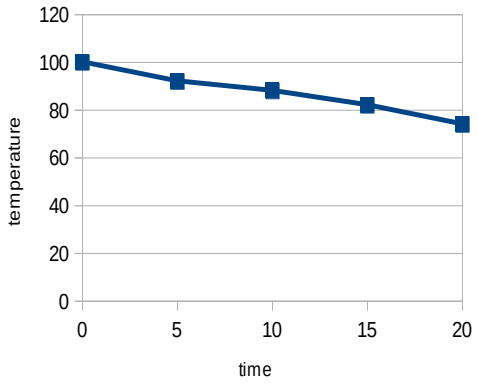
The assessment will have 4 questions. Each question will be worth 3 points for a total of 12 points. Students will receive 1 point for organizing the data in a chart, 1 point for graphing the data, and 1 point for interpreting the relationship between variables. The grading scale will be 0-8 = no grade (required retake), 9 = C, 10 = B, 11-12 = A. To demonstrate mastery students must score 9(75%) or better.

Determining relationships between variables answer key

I will show a sample of a student response for number 1. For 2-4 I will just indicate the relationship, but not show the organized data or graph.

1. There is a negative relationship between the variables. As time increases the temperature decreases

Temperature	Time
100	0
92	5
88	10
82	15
74	20



2. There is a positive relationship. As the rate of feeding increases the number of ducks increases
3. There is a positive relationship. As concentration of fertilizer increases growth of plants increase
4. There is no relationship. As time increases number of students remains mostly constant.