Lab Template

Text: Cord Unit number: 17 Title of unit: Graphing Data Developed by (Include contact information): Kurt Krauth, East Valley, High School - Spokane, krauthk@evsd.org Date: June 28, 2012

Attach the Following Documents:

- **1. Lab Instructions**
- 2. Student Handout(s)
- 3. Rubric and/or Assessment Tool

Short Description (Be sure to include where in your unit this lab takes place):

We are going to measure 3 different sets of stairs around East Valley High School. The first one is right outside of my room, 130. We will then measure the stairs going down to the gymnasium locker rooms. Finally, we will measure the big gym stairs going down from the landing to the floor. These are three different sets, with different landing areas which will create a different look at modified slope.

Stairway to ?????

LAB PLAN

TEACHER: (Teacher Prep/Lab Plan)

- ▲ Lab Objective Students will work on measuring lengths and heights. They will then graph them and then connect those points. Finally, they will draw a line of best fit to look at the slope from the top of the stairway to the floor. Students will work initially in groups to for cooperative learning.
- Statement of prerequisite skills needed (Vocabulary, Measurement Techniques, Formulas, etc.)Measuring skills – students must be able to measure using centimeters to the tenth of a centimeter, write equations in slope intercept form, and write equations in standard form.
- ▲ Vocabulary slope intercept form, direct variation, ordered pairs, line of best fit, slope, rise over run.
- State Standards addressed: (Highlight "Green" Standards, you may use your District's Power Standards if applicable)
 - ▲ **Math:** A.1.6.B Make valid inferences and draw conclusions based on data.
 - ▲ A.1.4.A (partial) Write and solve linear equations and inequalities in one variable.
 - ▲ Writing: 3.3 Knows and applies writing conventions appropriate for the grade level.

- ▲ Leadership:2.2.2 Applies skills and strategies to contribute responsibly in a group setting.
- ▲ SCAN Skills/Workplace Skills:
- ▲ **Teacher Preparation:** (What materials and set-up are required for this lesson?)
 - ▲ Materials: Tape measures, graph paper
 - ▲ Set-Up Required: Make sure to check with P.E. teachers for gym access.

▲ Lab Organizational Strategies:

- ▲ Grouping/Leadership/Presentation Opportunities: Work with table partners.
- ▲ Cooperative Learning: Monitor groups for collaboration.
- ▲ Expectations: Students know class expectations!!!!
- ▲ Time-line: Should be able to gather data in one class period. Second day we will graph, and work on applications.

A Post Lab Follow-Up/Conclusions (to be covered after student completes lab)

- Discuss real world application of learning from lab: Summary will be turned in by each student. They will be addressing their understanding of the information gathered, and respond to specific questions asking them to identify their observations.
- ▲ Career Applications: Discuss careers that utilize the skills learned. They may include all construction jobs, and should be able to be expanded on.
- ▲ Optional or Extension Activities: They will in their summary be asked to identify how they can utilize what they learned from the lab.

Directions:

- 1. Students will work with their unit table mates. These are already in groups of four. They need to decide who will be the recorder of information, who is in charge of holding the tape measure, and the two that will together read the tape.
- 2. We will begin on the Stairway next to room 130. We will only measure from the landing straight to the first floor. Measures should be taken at the top of the stairs, the distance down to the next stair, and across to the end of each stair. AND REPEAT!!!!!
- 3. Stairway from the commons to the locker rooms. They can use either side.
- 4. Finally on the west side of the gymnasium we will measure down from the second floor landing to the gym floor. They need to make extra sure on the length of each stair as each is not uniform.
- 5. When students return to the classroom they will take a large piece of graph paper and diagram each staircase on a separate piece of paper. For each graph they will also draw a best line of fit for the stairway.
- 6. They will finally write an equation, first in slope intercept form, but then in standard form.
- 7. They will be asked to write a summary and respond to the questions presented in class.

Scoring Rubric

Stairway to ?????????

Points

Collect data - record the ordered pairs for all three stairways chosen to collect data.	15
Graph each stairway 5 points for each graph	15
Line of fit for each graph	6
Title each graph	6
Label axis	6
Slope intercept form for each stairway	6
Standard form for each stairway	6
Summary	10
Total	70

Stairway location	Stair	Distance	Distance
	number	across	down

Тор		
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		
Stairway	location	

Stair	Distance	Distance
number	across	down
Тор		
1.		
2.		
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