Lab Framework

Text: Cord

Unit number and title: Unit 9 Ratios and Proportions

Short Description: Cross-Curricular Extension with Art. Students will explore how artists can draw a body in proportion.

Developed by: Dusti Crenshaw

Contact Information: dusticrenshaw@hotmail.com

Date: June 24, 2010

Lab Title

Drawing a Proportional You

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**
  Accurate measurement
  Convert data to ratios
  Learn basic drawing skills

- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)
  Unit 3 -Measuring in English and Metric Units

- **Vocabulary**
  Ratio
  Proportion
- **Materials List**
  Measuring Tape
  White Sheet of Paper
  Pencil
  Basic Shapes of the Body Handout
- **State Standards addressed**
  Math: 3.3.1, A1.1.B
  Reading: 1.2.2 Apply strategies to comprehend words and ideas.
  Writing: (Writing)
- **Leadership Skills**
  The student will demonstrate their ability to work together to acquire measurements of their body parts to be used to draw a body proportional to their own.

- **SCAN Skills/Workplace Skills**
  Writing
  A. Communicates thoughts, ideas, information, and messages in writing
  B. Records information completely and accurately
  Math
  A. Performs basic computations to convert measuring units and create ratios

- **Set-up information**
  1. Measurement stations with tape measures
  2. Copies of Lab Sheet

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required) Class Period**

Discussion of metric vs English measurement units and how to accurately take measurements would be useful before beginning the lab.
Review of ratio, how many ways could our ratios be written for this to be useful, how should our ratios be presented?

(20 -30min) Students will need help from a partner to make accurate measurements but each student should be responsible for their own Lab Sheet. These groups should be two or three students with one being measured, the others measuring and recording data.

Set up a few height measurement stations on the wall. Tape measures should be made available to measure body parts.

(30 min) Complete calculations and draw basic body shapes in proportion to their actual body

- **Teacher Assessment of student learning** (scoring guide, rubric)
  The Lab Sheet will be graded according to accurate data collection and the drawing will be graded for accuracy of correct proportions.

- **Summary of learning** (to be finished after student completes lab)
  -discuss real world application of learning from lab
  -opportunity for students to share/present learning

- **Optional activities**
  http://www.nsa.gov/academia/_files/collected_learning/high_school/geometry/geometric_giants.pdf
  use the average size of a human head to draw a body in proportion
- **Career Applications**
  Artists
  Clothing Designer
  Architect (Blue Print of House to Scale)

LAB TITLE:_____
STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
  Is it possible to draw a proportional you?

- **Grouping instructions and roles**
  Groups of two or three will work together to collect measurement data
  Individuals will be responsible for completing data sheet and drawing

- **Procedures** – steps to follow/instructions
  Students will rotate through measurement stations to get measurements of all listed body parts. They will then compute the ratios for their measurement to complete a proportional drawing that will fit on a 8 ½ by 11 sheet of paper.

- **Outcome instructions**
  Completed Lab Sheet
  Proportional Drawing of You

- **Assessment instructions** (peer-teacher)
  Classroom participation, working well with others, sharing of resources, will be assessed. Completion of lab sheet and drawing.

Lab Data Collection

Student: _____ **Date:** _____

Unit: _____

Lab Title:

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

	Actual Width (cm)	Scaled Width (cm)	Actual Height (cm)	Scaled Width (cm)
Height				
Head				
Neck				
Torso				
Hip				
Leg				
Arm				
Foot				

Calculations: Complete the given calculations to solve for an answer(s)

See above table

Summary Statement:

When in real life would you need to scale down to create a proportional drawing?

Other Assessment(s)