

Project: Dilation Dummy

Time to get creative with math... you will be making a “model” of an object, or an animal, or a person. You may enlarge or reduce your subject and the materials you use is up to you, as long as it’s three dimensional.

The following are steps in creating a successful project:

1. PROPOSAL -

This is a typed paper stating what your intentions/plans are for the project. It should include the object/person you will be dilating, the **scale factor** you will use, whether it will reduce or enlarge the original object/person. You should include the method you will use to get the original measurements; what tools, and what your **key measurements*** are to produce a accurate model. The proposal should also include a description/list of the **materials** you will use to create your model and how they will be used.

*Key Measurements: The measurement that are important to effectively create a model. For a 1 person project - minimum 8-10 measurements; for a 2 person project - minimum 10-20 measurements.

2. DATA SHEET -

The data sheet is a collection of original measurements from your original object. It should include all measurements that are key to the reconstruction of your model. Each measurement should be taken 2-3 different times to the nearest **eighth** of an inch, then the average measurement will be calculated and used.

3. CALCULATION SHEET -

The calculations sheet should include all measurements and their conversion to the measurement for the scale model. All work must be recorded in a neat and orderly manner, easily read by other (like parents at the curriculum celebration). Example included in this packet.

4. BLUE PRINTS -

For this project you should have two blue prints (drawings): one to record your original measurements, and one to record the measurements for your dilation. *Once you create your template, you may copy it before putting in measurement, so that you can use the same template.*

5. DILATION MODEL -

Your dilation model should be a proportional replication of the original. Be creative, do something different than the rest of the students. The end productive should be neat and complete, and accurate in measurements. A score will be assigned to both accuracy of measurements and esthetics.

6. REFLECTION -

Type a reflection of your experience with the project: What did you do well? What parts would you improve? What did you have difficulty with? What did you enjoy? Anything else that shows me what you have learned through this process. Must be double spaced, at least 1/2 to 1 page long.

TIMELINE -

WORK	1st DRAFT	2nd DRAFT	3rd DRAFT	DONE (✓)
Proposal	11/16/11	11/18/11	11/22/11	
Data Sheet	11/18/11	11/22/11`	11/23/11	
Calculation Sheet	11/22/11	11/29/11		
Blue Prints	11/22/11	11/29/11		
Dilation Dummy	gather material 11/16	build 11/19-11/23		
Reflection	after Thanksgiving break			

RUBRIC

	EARNED POINTS
Proposal - (Possible 10 points)	
Data Sheet - (Possible 10 points)	
Calculation Sheet - (Possible 10 points)	
Blue Prints - (Possible 10 points)	
Dilations Dummy - Measurements - (Possible 10 points)	
Dilations Dummy - Appearance - (Possible 10 points)	
Reflection - (Possible 10 points)	
FINAL SCORE/PERCENT (Possible 70 points)	

Calculations Sheet Sample

1. Measurement: height

(scale factor)

$$67 \text{ inches} \cdot \frac{36 \text{ inches}}{67 \text{ inches}} = 36 \text{ inches}$$

2. Measurement: shoulder to shoulder

(scale factor)

$$22 \frac{1}{4} \text{ in. or } \frac{89 \text{ in.}}{4 \text{ in.}} \cdot \frac{36 \text{ in.}}{67 \text{ in.}} = 11.96 \text{ in.} \approx 11 \frac{7}{8} \text{ inches}$$

THINGS TO KEEP IN MIND:

➤ accuracy should be to the nearest sixteenth of an inch, therefore all calculation should be to the sixteenth of an inch - you may use decimals if you would like.

➤ be sure to keep it **neat**

➤ include **all** measurements, especially **key measurements**

➤ can be written by hand, too hard on the computer. I'm more interested in your math skills than your ability to type fractions on the computer :)

➤ clearly label each conversion calculation AND include units of measure

FRACTIONS TO DECIMALS that might come in handy

$1/4 = 2/8 = 4/16 = 0.25$	$1/8 = 2/16 = 0.125$	$3/16 = 0.1875$
$1/2 = 2/4 = 4/8 = 8/16 = 0.5$	$3/8 = 6/16 = 0.375$	$5/16 = 0.3125$
$3/4 = 6/8 = 12/16 = 0.75$	$5/8 = 10/16 = 0.625$	$7/16 = 0.4375$
	$7/8 = 14/16 = 0.875$	$9/16 = 0.5625$
		$11/16 = 0.6875$
		$13/16 = 0.8125$
		$15/16 = 0.9375$