

Workplace & Apprenticeship 10

Chapter 3 & 4 Project

Assignment Outline

You will be choosing a three-dimensional object that is of interest to you to be calculating surface area and volume, in both the metric and imperial systems of measurement. You will then be creating a scale model of the object.

Part 1:

- Choose an object for your project. Marks will be assigned as to the complexity of your object. If some of the dimensions of your object require mathematical calculations due to the fact that some lengths cannot be measured on your own, you will get a higher mark on the complexity portion of the rubric.
- Some ideas to help get your brain thinking are:
 - Grain bin
 - Swimming pool
 - Ice rink
 - Flowerpot
- Create a rough sketch of what your object looks like. Include some rough estimates of dimensions (searching on the internet might help you get an idea for some numbers).

Part 2:

- Draw a view of each side of your object, including the ACTUAL dimensions. This will require you to go out with a tape measure and measure the dimensions of your object. You must submit a picture or video (set up your phone and do a time lapse video 😊) of yourself taking the actual dimensions.
- You must then convert all of your measurements from the system of measurement you used to the other system.
 - For example, if you measured in feet and inches, you need to switch to m and cm (or vice versa).
 - There is space for you to show your work on your work page.

Part 3

- Calculate the total surface area of your object. Begin by calculating the surface area of each side individually, and then add up your total surface area at the end.
- Your surface area needs to be calculated in both systems of measurement.

Part 4

- You will need to calculate the volume for your object. If your object is constructed of more than one shape (ie: a grain bin is a cylinder and a cone), you will need to calculate the volume of each separately, and then add them together.
- If you are calculating the volume of something like an ice hockey rink or a swimming pool, remember that you are not filling it up to the very top. Be sure to indicate how deep the water is going to be.
 - For a swimming pool, keep in mind that the shallow end will get progressively deeper as you move towards the deep end.

Part 5

- Create a 3-D model of your object. To receive full marks on this portion, your diagram must be created to scale. The scale you use will also need to be included.