Name: Date: Class Period:

How to Correctly Use a Graduated Cylinder

Correctly using a graduated cylinder
https://youtu.be/zTO2tHZoKDI

Student Notes:

Background information:

The graduated cylinder is a tool that is used to measure _____. This is the amount of _____ something takes up. Typically the graduated cylinder is used to measure the volume of a _____. However, using a special method it can also be used to measure the volume of a _____.

The word graduated comes from the latin word "gradus" which means _____. The lines or steps on the graduated cylinder indicate the _____ of liquid in the graduated cylinder.

Graduated cylinders come in all different sizes. Look at the number at the top of the graduated cylinder to see the _____ amount that it can hold. It is important to note that with different graduated cylinders the steps or increments can indicate different _____ of liquid. For instance on the 100 ml graduated cylinder one mark represents a change of _____ milliliter. However, on the 250 ml graduated cylinder one step represents _____ml. On the 10 ml graduated cylinder one step only represents _____ml

When working in a lab you will likely be using chemicals. It is very important to follow all safety considerations such as wearing chemical splash _____, gloves and a lab apron.

Getting Started:

To begin _____ the liquid into the graduated cylinder. Next you will need to get down at _____ level with the liquid in the graduated cylinder so that you can accurately read the level of the liquid. In the plastic graduated cylinder the top surface of the liquid is very flat. If you are using a glass graduated cylinder it may look very different. The curved or bowl typed shape at the surface of the liquid is called a _____. It is caused by the adhesion or _____ between the liquid and the glass. When taking a measurement from a graduated cylinder, always read from the _____ of the meniscus. In the example shown the correct reading would be _____ml.

Often the graduated cylinder is used to measure out a specific amount of a particular liquid. A helpful trick is to _____ just a little bit before the amount

you wish to measure out - don't try to get too close. Then use something that can precisely measure out the liquid - like an _____ dropper or a pipette to bring it up to the final level.

Lastly we will learn how to measure the volume of a solid with a graduated cylinder using a method called the water _____ method. This is especially useful for irregular _____ or solids that don't have a simple geometric shape. Begin by pouring enough liquid into the graduated cylinder to _____ up the object you wish to place in the graduated cylinder. Next tilt the graduated cylinder and slide the object in gently so that you do not _____ liquid out or break the graduated cylinder if it is glass. When you place an object into the graduated cylinder the volume of the liquid increases. To find the volume of the object take the total ending volume of the liquid and subtract out the _____ volume.

Solve for the example given in the video

Total ending volume: _____

Initial volume: _____

Volume of the rock: _____

The unit used for the volume of a solid is cubic _____ rather than milliliters.

Practice:

Solve: A graduated cylinder is filled with 10 milliliters of a liquid. An irregular object is placed in the water and it rises to 67 milliliters. What is the volume of the solid with correct units?

Describe the steps of the water displacement method for measuring an irregular solid.