Chapter 1 Summary (page 21, #1-6)

1. **Explain how you would determine the volume of a powdered solid, a liquid, and a rock.**
   Possible answer: Determine the volume of a powdered solid or of a liquid by pouring the substance into a graduated cylinder or beaker and reading the markings on the side. Determine the volume of a rock by submerging the rock in a graduated cylinder partially filled with water and then reading how much the water level changes.

2. **Use your own words to define *matter*.**
   Possible answer: Matter is anything that has mass and takes up space.

3. **Will an object with a higher density displace more water than an object with a lower density? Explain why or why not.**
   Density is no help is determining which object will displace more water. A large object will displace more water than a small object no matter how dense the two objects are.

4. **How does the density of one penny compare with the density of two pennies?**
   Density of 1 penny = 2.6 g / 0.36 cm^3 = 7.2 g/cm^3
   Density of 2 pennies = 5.2 g / 0.72 cm^3 = 7.2 g/cm^3
   The density of one penny is the same as the density of two pennies.

5. **A small pebble breaks off a huge boulder. The pebble has the same density as the boulder. In your own words, explain how this can be true.**
   Possible answer: The density is the same because the pebble is made of the same material as the boulder. Although the pebble has a smaller mass, it also has a smaller volume, so the density can be the same.

6. **Archeologists discover a silver crown in an ancient tomb. When they place the crown in a tub of water, it displaces 238.1 cm^3 of water. The density of silver is 10.5 g/cm^3. If the crown is really silver, what will its mass be?**
   Density = mass / volume
   10.5 g/cm^3 = mass / 238.1 cm^3
   Multiplying both sides by 238.1 cm^3 results in a mass of 2500 g, so if the crown is really silver, the mass would have to be 2500 g.