**Viscosity and Density Overview**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1**. List the 5 points of the Particle Theory of Matter.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** Complete the following table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| State | Definite Shape? (Y or N) | Definite Volume? (Y or N) | Particle Arrangement | Particle Movement |
| Solid |  |  |  |  |
| Liquid |  |  |  |  |
| Gas |  |  |  |  |

**3.** Using the particle theory of matter, explain how temperature will affect a fluid’s density.

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**4**. Explain why liquids and gases are considered fluids but solids are not?

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**5.** True or False... The more viscous a fluid is, the faster its flow rate. Explain.  
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**6.** Complete the following statements concerning the factors that affect viscosity.

1. As you increase temperature of a liquid, its viscosity \_\_\_\_\_\_\_\_\_\_\_\_\_
2. As the concentration of the fluid increases, its viscosity \_\_\_\_\_\_\_\_\_\_\_\_\_
3. The smaller the particle size, the\_\_\_\_\_\_\_\_\_\_\_ viscous.
4. Strong attractive forces will \_\_\_\_\_\_\_\_\_\_\_\_\_viscosity.

**7**. Complete the following triangle for calculating density.

**8**. An iron bolt will float on liquid mercury but not oil. Explain why this happens.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**9.** How much space will 25g of seawater occupy? (ie: how many mL is it? Use the triangle in question 7 and the density of seawater is 1.03g/mL).

**10**.Calculate the mass of 68 cm3 of aluminum (density of aluminum is 2.7 g/cm3)

**11.** You have two unknown materials, A and B. ‘A’ has a mass of 23g and a volume of 150mL. ‘B’ has a mass of 10g and a volume of 200mL. Would either of these materials float on glycerol (density of 1.6 g/mL)? Explain.