**Volume and Mass Inquiry Activity Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_**

**Purpose – to learn how to determine volume and mass and to see how those two values can be compared**

**Note –** please take precise measurements and include units (mL, cm3 or g) in your answers

**Comparing Mass and Volume of Solids**

* Triple Beam Balance
* a metal rod (copper, aluminum or brass)
* graduated cylinder
* small beaker – filled with water

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| 1. **Copper** | 1. **Brass** | 1. **Aluminum** |
| Volume measured with water displacement:  Initial volume of water: \_\_\_\_\_\_  Volume after the object is added: \_\_\_\_\_\_\_  Volume of the object: \_\_\_\_\_\_\_ | Volume measured with water displacement:  Initial volume of water: \_\_\_\_\_\_  Volume after the object is added: \_\_\_\_\_\_\_  Volume of the object: \_\_\_\_\_\_\_ | Volume measured with water displacement:  Initial volume of water: \_\_\_\_\_\_  Volume after the object is added: \_\_\_\_\_\_\_  Volume of the object: \_\_\_\_\_\_\_ |
| Mass measured on the trip beam balance: | Mass measured on the trip beam balance: | Mass measured on the trip beam balance: |
| Compare and contrast the 3 metals rods in terms of mass and volume: | | |
| Density: | Density: | Density: |

**Comparing Mass and Volume of Liquids**

* Triple beam balance
* Graduated cylinder
* Small beaker
* 100mL of solution

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| 1. **Sugar solution** | 1. **Salt Solution** | 1. **Water solution** |
| Volume: | Volume: | Volume: |
| Mass of cylinder + liquid: \_\_\_\_\_  Mass of cylinder: \_\_\_\_\_\_  Mass of the liquid: \_\_\_\_\_\_ | Mass of cylinder + liquid: \_\_\_\_\_  Mass of cylinder: \_\_\_\_\_\_  Mass of the liquid: \_\_\_\_\_\_ | Mass of cylinder + liquid: \_\_\_\_\_  Mass of cylinder: \_\_\_\_\_\_  Mass of the liquid: \_\_\_\_\_\_ |
| Compare and contrast the 3 metals rods in terms of mass and volume: | | |
| Density: | Density: | Density: |

**Comparing 2 different ways of finding the volume of a solid:**

* Graduated cylinder
* Beaker of water
* Solid shape (either cube or rectangular prism)
* Ruler

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| 1. **Cube** | 1. **Rectangular Prism** |
| Volume measured with a ruler:  l x w x h = \_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_\_ = \_\_\_\_\_\_\_ | Volume measured with a ruler:  l x w x h = \_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_\_ = \_\_\_\_\_\_\_ |
| Volume measured with water displacement:  Initial volume of water: \_\_\_\_\_\_  Volume after the object is added: \_\_\_\_\_\_\_  Volume of the object: \_\_\_\_\_\_\_ | Volume measured with water displacement:  Initial volume of water: \_\_\_\_\_\_  Volume after the object is added: \_\_\_\_\_\_\_  Volume of the object: \_\_\_\_\_\_\_ |
| Compare and contrast the different volumes that you determined? Are they the same or different? Why or why not? | |

**Comparing 2 different ways of finding the volume of irregular shaped objects**

* **Graduated cylinder**
* **Small beaker**
* **Water**
* **Small rock**
* **Overflow can**
* **Graduated cylinder**
* **Large rock**
* **Water from the tap (set up by the sink)**

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| 1. **Small Rock** | 1. **Large rock** |
| Volume measured with water displacement:  Initial volume of water: \_\_\_\_\_\_  Volume after the object is added: \_\_\_\_\_\_\_  Volume of the object: \_\_\_\_\_\_\_ | Volume measured with the overflow can and graduated cylinder:  Measure it 3 times and take an average:  Trial #1: \_\_\_\_\_\_  Trial #2: \_\_\_\_\_\_  Trial #3: \_\_\_\_\_\_  Average: \_\_\_\_\_\_ |
| Compare and contrast the 2 different methods of measuring volume? Which is better and why? | |