**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**
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| 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)**

|  |  |
| --- | --- |
| 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? |