**You will do this experiment with *2 different* containers.**

**100mL Graduated Cylinders**

-Start at 50 mL and add 3 glass beads each time.

**250mL Graduated Cylinders**

-Start at 150 mL and add 6 glass beads each time

**500mL Graduated Cylinders**

-Start at 250 mL and add 10 glass beads each time

**Small Jars (Baby food size)**

-Start at 3cm and add 5 cubes each time.

**Medium Jars (Snapple/Spaghetti Sauce size)**

-Start at 4cm and add 10 cubes each time.

**Large Jars**

-Start at 4 cm and add 30 cubes each time.



**Container 1**

1. With one of the containers above. Fill the container with the appropriate amount of water and place the ruler inside. Be sure to measure as accurately as you can to the hundredth of a centimeter.
(Go significant figures!)
2. Measure the height of the jar. If using a graduated cylinder, you may use the total mL of the cylinder. **Height:**
3. Drop the appropriate number of cubes or beads in for the 1st step. (This depends on the type of container you have.) Record the water level in the table below.
4. Keep adding cubes and recording the water level until you complete the table.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Number of Cubes/Beads** | **0** |  |  |  |  |  |  |
| **Water Level** |  |  |  |  |  |  |  |

1. Graph the points

Water Level

Number of Cubes

1. What shape does the data have? Linear? Exponential? Quadratic? How do you know?
2. For a moment, let’s pretend it’s linear.
Please, draw a line of best-fit on the graph.
3. What is the y-intercept of your line?

What does the y-intercept represent in this situation? (I expect an actual complete sentence here!)

1. What is the slope of your line?

What does the slope represent in this situation? (Again, please use complete sentences.)

1. Find an equation relating the water level and the number of cubes.
2. Using your equation, predict how many cubes it would take for the water to reach the top of the container.

**Container 2**

**100mL Graduated Cylinders**

-Start at 50 mL and add 3 glass beads each time.

**250mL Graduated Cylinders**

-Start at 150 mL and add 6 glass beads each time

**500mL Graduated Cylinders**

-Start at 250 mL and add 10 glass beads each time

**Small Jars (Baby food size)**

-Start at 3cm and add 5 cubes each time.

**Medium Jars (Snapple/Spaghetti Sauce size)**

-Start at 4cm and add 10 cubes each time.

**Large Jars**

-Start at 4 cm and add 30 cubes each time.

1. Choose a different container than you chose in #1. Fill the container with the appropriate amount of water and place the ruler inside. Be sure to measure as accurately as you can to the hundredth of a centimeter. (Go significant figures!)
2. Measure the height of the jar. If using a graduated cylinder, you may use the total mL of the cylinder. **Height:**
3. Drop the appropriate number of cubes or beads in for the 1st step. (This depends on the type of container you have.) Record the water level in the table below.
4. Keep adding cubes and recording the water level until you complete the table.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Number of Cubes/Beads** | **0** |  |  |  |  |  |  |
| **Water Level** |  |  |  |  |  |  |  |

1. Graph the points

Water Level

Number of Cubes

1. What shape does the data have? Linear? Exponential? Quadratic? How do you know?
2. For a moment, let’s pretend it’s linear.
Please, draw a line of best-fit on the graph.
3. What is the y-intercept of your line?

What does the y-intercept represent in this situation? (I expect an actual complete sentence here!)

1. What is the slope of your line?

What does the slope represent in this situation? (Again, please use complete sentences.)

1. Find an equation relating the water level and the number of cubes.
2. Using your equation, predict how many cubes it would take for the water to reach the top of the container.