Hands-on activity: Using vases to represent functions.

Goal: The student will gain a deeper understanding of graphing by using different shapes of vases. By using different vases, students can determine how much water is in a vase given a specific height.

Objectives:

1. Students will graph a relationship between the amount of water in a vase, and the height of the vase.
2. Students will use measuring tools to measure the height of a vase, and the amount of water in a vase using a measuring cup.
3. Students will distinguish which variable goes on which axes.
4. Students will create a table of values indicating the amount of water and the height of the vase.

Materials needed:

Students will need a:

* Ruler (Regular 1 ft. ruler with centimeter markings would be best for this activity)
* A vase (Each group will have a different vase)
* A water bottle
* A measuring cup
* A marker (To label specific labels on the vase)
* Paper to record and graph data

Steps:

1. On your vase, measure and mark the vase in 1 in. increments. Leave some room on your vase so that the water does not overflow from your vase.
2. Label your variables on the table. Then begin measuring the water. Using the water in the water bottle, begin to measure the amount of water in these increments using the measuring cup. Record these on your table!
3. Create the graph. Make sure you label your axes correctly, and that you have an appropriate scale. Have a title for your graph as well!

Questions to consider:

1. Based on your graph, find the slope of the line.
2. What is the height of your vase?
3. What are your variables in respect to the x and y axis?
4. If your vase was in the same shape, but at a longer height, would you be able to predict how much water will be in a given height?
5. What if you had less water? If you only had say half of the amount you were given, what would be the maximum height you can get to in your vase?

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