Vanishing Volume

Procedure

1. **Measure** To find the volume of a bottle, fill it with water. Then pour the water into a graduated cylinder. Record the volume on the line below.

2. **Compare** Fill the same bottle with marbles. Compare the way marbles fill the bottle to the way the water filled it. Write your comparison on the lines below.

3. **Infer** What other material is in the jar besides the marbles? (Hint: The same material is all around you.)

4. **Experiment** Design a procedure to find the total volume of the open space surrounding the marbles in the bottle. Choose from the following materials: graduated cylinder, balance, water, and plastic cups. With your teacher’s approval, carry out your experiment. Record your procedure and your results on the lines below.
Conclusion

Write the answers to the questions below.

1. **Use Numbers** What was the total volume of the marbles in the bottle? Use the results of your experiment to calculate the answer.

   ____________________________________________

   ____________________________________________

   ____________________________________________

2. **Hypothesize** What property allows gases and liquids to fill the spaces between solid objects?

   ____________________________________________

   ____________________________________________

   ____________________________________________

3. **Predict** How would this investigation be different if cubes were used to fill the bottle instead of marbles?

   ____________________________________________

   ____________________________________________

   ____________________________________________

**Investigate More!**

**Design an Experiment** How much open space is in a plastic bottle filled with beads? Or with coarse gravel, or sand? Adapt your procedure to find and compare the answers.