You're a Scientist – Mixtures, Solutions and Suspensions

Grade 10 – Lesson 4

Objectives

- to create heterogeneous and homogeneous mixtures and solutions.
- identify the differences between heterogeneous and homogeneous mixtures and solutions.
- explore the concepts of concentration and dilution.

Materials

- Trays
- Bowls
- Cups
- Ingredients for trail mix such as small candies, raisins, pretzels, etc.
- Variety of small none edible objects such as buttons
- Powdered drink mix
- Water
- Spoons or stirring rods
- Rubber Gloves

Procedure

1. Create trail mix by adding a small amount of separate ingredients from individual containers into one large bowl.

2. Mix with gloved hands. Divide into small containers and eat noticing the variety and numbers of items in the mixture and how easily they are separated.

3. Use a variety of small objects such as buttons, bells, and pompoms. The different sizes and textures will support the idea of heterogeneous mixtures.

4. Follow the same procedure as described above, except after the items have been combined in one large bowl they can be

5. Make a powdered drink mix with water to illustrate how a homogeneous mixture is not easily separated.

6. While stirring with a spoon or stirring rod, note the gritty feeling of the crystals before they dissolve. An effective stirring technique to facilitate dissolution is stirring in a circle a few times then stirring in a zigzag line back and forth across the container.

7. Alternate these methods until the crystal seem to disappear. They have not vanished; they are in solution, hanging out between the molecules of water.

8. If allowed, taste the water before the crystals are added, then after they have dissolved, and note the differences.

9. The concepts of diluted and concentrated solutions can be experienced by adding more or less of the solute (the powdered drink mix).

10. Salt and water provide an easy way to show that some solutions can be separated by evaporation. Tactually observe the crystals dissolving. After the salt solution is left to evaporate, feel the crystals that have reformed in the container and note that the water has evaporated.