Discussion Guide for

MIXTURES: TOGETHER BUT SEPARATE

OBJECTIVES

After viewing this program, students will he able to:

- Distinguish mixtures from compounds.
- Give an example of one mixture found in the human body and one not found in the human body.
- Sketch a picture representing how a homogeneous mixture differs from a heterogeneous mixture.
- Give an example of a solution and identify the solute and solvent.
- Explain how electrolytes affect the conductivity of a solution.
- Make a supersaturated solution.
- Describe the formation of a polar molecule.
- Illustrate dissociation.

This program is part of the AIMS Interactive Science Essentials Series. This twenty-four part series covers four subject areas- Earth Science, Biology, Physics, and Chemistry. There are six programs in each subject area. The individual programs are divided into randomly accessible sections.

A glossary provides written definitions of terms used in the program, and in most cases will run a section of the video where the word is used in context. A script of the narration is accessible, as well as a bulletin board containing a general introduction to the subject. A quiz allows the student to test their knowledge and the results are recorded for you. In the teacher's section you can view each student's rest responses and edit or create your own quiz and test questions.

OVERVIEW

Mixtures: Together But Separate is part six of the Chemistry Essentials series which examines modern day chemistry. The program begins by explaining the difference between mixtures and compounds. It explores solutions and defines concepts such as solvent, solute, electrolyte, saturated solution, supersaturated solution, solubility and polarity. How solubility is affected by the polarity of the solvent and solute is also illustrated with the latest 3-D animation. Students are then introduced to other types of mixtures such as suspensions and colloids, and are shown how mixtures can be separated by filtering, distillation, and settling.

TEACHER'S PREPARATION

- Before the student uses the program set up the computer so that they can easily reach the mouse and the keyboard.
- Load the CD-ROM into the computer so that it is ready for the student to begin using.
- While students ate able to work at their own pace, some students may benefit from using the program more than once.

SUGGESTED DISCUSSION QUESTIONS

1. Distinguish mixtures from compounds.

2. Give an example of one mixture found in the human body and one not found in the human body.

3. Sketch a picture representing how a homogeneous mixture differs from a heterogeneous mixture.

4. Give an example of a solution and identify the solute and solvent.

5. Explain how electrolytes affect the conductivity of a solution.

6. List the steps you would take in making a supersaturated solution of sugar and water.

7. Describe the formation of a polar molecule.

8. Illustrate what happens to a salt crystal when the ions dissociate in water.

9. Explain how industry may be responsible for thermal pollution and analyze its effects on the environment.

10. Why do bubbles appear when the bottle of a carbonated drink is opened? Why do these bubbles remain longer in a cold drink than in a warm drink?

11. Design a comparison chart for the characteristics that distinguish suspensions from colloids.

12. Describe a demonstration you could do to show how emulsions are formed. List some of the practical uses of emulsions.

13. Make a mind map that specifies and describes three separation techniques used in separating mixtures.

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VOCABULARY

Centrifuge	Colloid
Compound	Electrolyte
Emulsion	filter
Heat	heterogeneous
Homogeneous	Mixture
Nonpolar	Polar
Pressure	Saturated
Solubility	Solute
Solution	Solvent
Supersaturated	suspension

ADDITIONAL BENEFITS

Students will be able to:

- Analyze the causes and effects of thermal pollution.
- Discuss how temperature, pressure and particle size affect solubility.
- Design a comparison chart for the characteristics that distinguish suspensions from colloids.
- Demonstrate how emulsions are formed and discuss their practical uses.

PROGRAMS DETAILS

LENGTH:
22 minutes

SUBJECT AREAS:
Chemistry

AUDIENCE LEVELS:
Junior/Senior High

ORDER NUMBER:
1-9092SG

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