

Adding Matter

Teacher's Guide

The Initial View (Introducing the Activity)

Students should record their predictions about what they think is going to happen. (Keeps everybody honest!) You can use smaller amounts of materials or do the activity as a class demonstration if you want to save some costs. Do not mix cleaning materials from around the home or school in this activity, they can produce some very dangerous gases!

Take a Deeper View! (More Science)

A **Solution** is a **Mixture** formed when a **Solvent** separates or **Dissolves** a **Solute** into small enough particles for surrounding. Solutions are unique mixtures because when you let them sit, they don't settle out. (Stir together a bunch of sand and water together, this kind of mixture, a **Suspension**, settles out.) In this activity water breaks the salt **Crystals** (a tiny but neat and orderly form of a **Solid**) into the sodium and chlorine **Ions** which the salt actually is. The sodium ions are **Positive** and the chloride ions are **Negative**. Water is a **Polar** solvent, meaning the water **Molecule** has both a positive and negative end. The negative end of water molecules surround the positive charged sodium, like shoppers at a clearance table. The negative chloride ions do the same to the positive ends of other water molecules! This surrounding, or **Solvation**, is what goes on when water and other polar solvents dissolve stuff.

More and Bigger Views! (Additional Classroom Ideas)

1. Try mixing together other safe cooking items and see what happens and what kind of *Adding Matter* solutions you find! NO cleaning products like bleaches or cleansers!!
2. Find some common solutes around the home. Make a list.
3. What are some solvents around the home? Make a list.
4. Go on a solution hunt around the home or school, make a list of what you find. Make a list of solutions, there are many!
5. Do a solvent or solute "hunt" around the school.
6. Find some pictures of what crystals look like on the atomic level. Have the kids make drawings of these for a bulletin board or posters.
7. Why are powdered drink mixes so much less expensive than drinks ready to drink? Calculate cost per ounce of each, dry or ready to drink.
8. What kind of solutions does your body have? There are several, think **Respiratory** and **Digestive System** to get you started!
9. Why are **Pollutants** which dissolve easily so bad for us?
10. When a doctor uses an IV (intravenous) method to get stuff in our bodies, why does it work so well? (Hint-think solutions!)
11. Try the activity with liquids which dissolve in each other. Don't use those which are flammable! Be sure they are not cleaning materials or other dangerous substances.
12. Watch smoke from a chimney "dissolve" into the air.
13. Discuss why the doctor weighs a patient before any other procedure? (Hint-think medicine and solutions.)

Answers

1. (the cooking oil and water won't dissolve into each other)