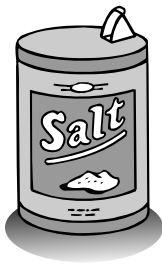


Investigating Mixtures

WHAT YOU NEED



salt



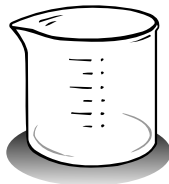
oil



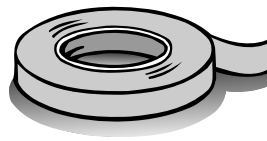
water



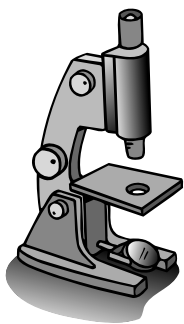
gelatin



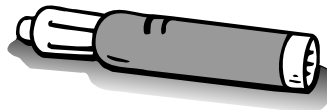
600-mL beaker



masking tape



microscope
(or good hand lens)



marker



three mayonnaise
jars



tablespoon

Find Out

Do this activity to see how different solutes in the same solvent can result in different mixtures.

Process Skills

Predicting
Observing
Communicating
Inferring
Interpreting Data
Controlling Variables
Experimenting

Time

- 30 minutes the first day
- 5 minutes twice a week for two weeks



WHAT TO DO

1. Using the masking tape and marker, label the jars “1,” “2,” and “3.”
2. **Predict** what will happen to the salt, gelatin, and oil mixed with water after two weeks.
3. Place some salt on a slide and view it under the microscope. **Observe** the structure of the salt and **draw** what you see.
4. Pour 200 mL of warm water into jar 1. Mix in five tablespoons of salt. Stir until the salt crystals are completely dissolved. **Observe** the mixture and **record** its appearance.

5. Place the jar in a warm place, next to either a heat register or a window.
6. Mix five tablespoons of the gelatin into 200 mL of warm water and stir until it dissolves. Pour the gelatin into jar 2.
7. **Observe** the mixture and **record** your observations. Place this jar in a refrigerator.
8. Pour 200 mL of warm water and 50 mL of oil in jar 3. Stir, and **record** your observations. Place this jar next to jar 1.
9. **Observe** the mixtures twice a week for two weeks. **Record** your observations.
10. After two weeks, scrape a small amount of the substance out of jar 1 and place it on a slide. **Observe** the structure of the substance. **Draw** what you see.



Prediction: _____

Draw what you see when looking at salt under the microscope.

Observations	Jar 1	Jar 2	Jar 3
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			

Draw what you see when looking at the substance under the microscope.

Conclusions

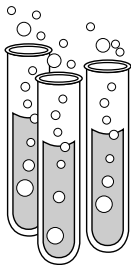
1. Compare your predictions with your observations.
2. What happened to the three mixtures during the two weeks?
How did they compare to one another?
3. How would you classify each of these mixtures?

New Questions

1. If a different kind of oil was used in jar 3, **infer** whether or not your results might have been different.
2. What physical properties did you observe in each mixture?



Name _____



ACTIVITY

Investigating Physical Properties

What physical properties of the material do you observe?

	Starting Material	Ending Material
Observations		
Does the material take the shape of the container?		
Mass of material and beaker		
Volume of material		

Calculate the density of the starting and ending material.

	Starting Material	Ending Material
Mass of material and beaker		
Mass of beaker		
Mass of material – mass of beaker		
Mass of material		
Volume of material		
Density of material (mass of material ÷ volume of material)		

Activity Journal

Lesson 1 • Physical and Chemical Properties

Name _____

Conclusions

① Was the starting material most like a liquid, a solid, or a gas? The ending material?

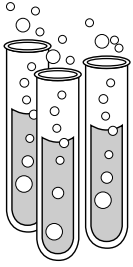
② Compare the physical properties of the ending material with the physical properties of the starting material.

Asking New Questions

① What other materials have you seen that have properties similar to the ending material?

② What properties would the ending material have to have for it to be classified as a solid or a gas?

Name _____



ACTIVITY

Investigating pH

Predict whether each test solution will be an acid or a base.

Record your predictions and observations.

Substance	Prediction	Color of Cabbage Juice	Relative pH

Name _____

Conclusions

① Which solutions did you **classify** as acids? Which did you classify as bases?

② What happened when you added distilled water to the cabbage juice? Why?

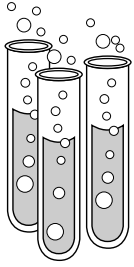
③ How did your predictions compare with your results?

Asking New Questions

① What remained the same in each test tube?

② What caused the results to be different in each test tube?

Name _____



ACTIVITY

Separating Mixtures

What changes do you **observe** on the filter paper? **Record** your observations in the chart.

Color of Ink Dot	What Happened

Name _____

Conclusions

- 1 What happened as the water moved up the paper through the ink dots?
- 2 Describe the differences you observed in the different colors of ink. Was the change physical or chemical?
- 3 Is ink a mixture? Why?

Asking New Questions

- 1 If a student from another class showed you filter paper results from several unknown materials, could you identify a sample of black ink?
- 2 Would all washable inks produce the same pattern? Why or why not? What kinds of further information would be helpful to support your conclusion or to answer new questions that you have?