WHAT ARE SOME OTHER PROPERTIES OF SUSPENSIONS?

14c

reflect: to bounce back

Tyndall effect: the reflection of light by suspended particles

AIM 14 | What are some other properties of suspensions?

Did you ever add flour to water? What did it look like?

—Was it clear or was it cloudy?

—Did the particles look evenly mixed (homogeneous)? Or were there more near the bottom of the container?

Flour and water form a suspension. It is *cloudy* and *unevenly mixed*. These are important properties that help us to identify suspensions.

Suspensions have two other important properties.

(1) *The parts of a suspension are large.* You can see them easily. Even the "small" pieces of flour are large enough to be seen easily.

(2) *Suspended particles stop light.* Light that hits the particles is reflected. This is why suspensions are cloudy.

Let us now review what you have learned about the properties of suspensions:

- The particles in suspensions do not dissolve.
- The particles in suspensions settle out. They separate into layers by weight.
- Suspensions are cloudy and uneven.
- The solid particles of a suspension are large. You can see them.
- Suspended solids reflect light.

Figure A

This boy is holding a mixture of soil and water. He shook it only a few seconds ago.

1. Soil in water is a _____ (solution, suspension).

2. Suspensions _____ (do, do not) settle.

3. Suspensions are _____ (transparent, cloudy).

4. Suspended particles _____ (let, do not let) light pass.

5. We _____ (can, cannot) see suspended particles.

6. Suspensions _____ (are, are not) mixed evenly.

7. The suspended particles _____ (are, are not) the same size.

WHAT IS THE TYNDALL EFFECT?

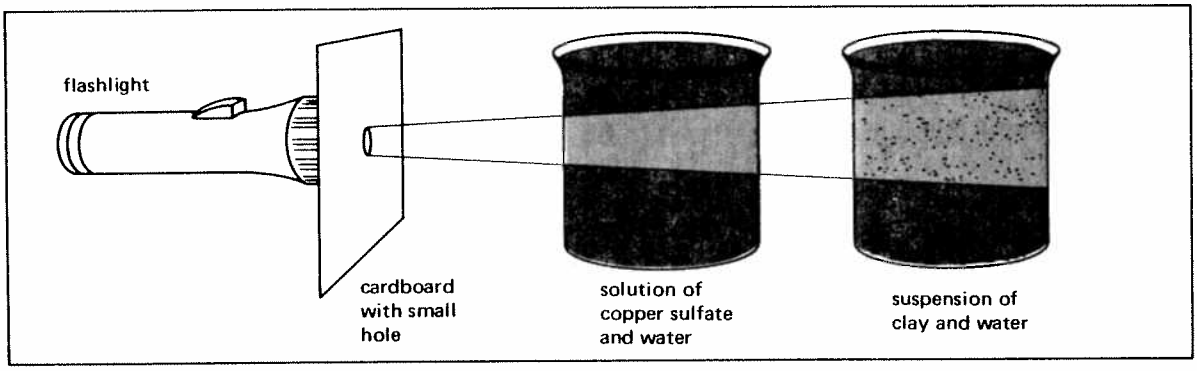

Figure B

TRY THIS!

What You Need

2 beakers
copper sulfate
water
powdered clay
flashlight
cardboard with a hole

What To Do

1. Fill a beaker with a solution of copper sulfate and water.
2. Fill another beaker with a suspension of clay and water. Mix it well.
3. Place the beakers on the table next to one another.
4. Let the clay water settle for about two minutes.
5. Shine a flashlight through both beakers as in Figure B.

What You Saw and Learned

1. You _____ (can, cannot) see particles in the liquid solution.
2. You _____ (can, cannot) see particles in the suspension.

> The reflection of light by suspended particles is called the *TYNDALL EFFECT.*

3. You can see suspended particles because they _____ (do, do not) stop light.
4. The Tyndall effect _____ (does, does not) help us identify a suspension.
5. The Tyndall effect also helps us identify the _____ (size, kind) of suspended particles.
6. Which kind of mixture shows the Tyndall effect? _____ (solution, suspension)
7. Which kind of mixture does not show the Tyndall effect? _____ (solution, suspension)

WHO WAS THE TYNDALL EFFECT NAMED FOR?

The Tyndall effect was named for John Tyndall. He was a 19th century British scientist.

He studied many things. One was how light passes through the air in different places.

Figure C

	Solutions	Suspensions
1. Do the parts dissolve? (yes, no)		
2. Do the particles settle? (yes, no)		
3. Is the mixture clear or cloudy?		
4. Do the particles reflect light? (yes, no)		
5. Can you see the particles? (yes, no)		
6. Is the mixture homogeneous? (yes, no)		

TRUE OR FALSE Write T on the line next to the number if the sentence is true. Write F if the sentence is false.

1. _____ Suspensions are mixtures.

2. _____ The particles in suspensions settle out.

3. _____ Suspensions are transparent.

4. _____ Suspensions are cloudy.

5. _____ Homogeneous means evenly mixed.

6. _____ Suspensions are evenly mixed.

7. _____ Suspension particles are the size of molecules.

8. _____ The particles in suspensions stop light.

9. _____ All suspended pieces are the same size.

10. _____ Liquid solutions show the Tyndall effect.

REACHING OUT

Why do "quiet" lakes have clear water?

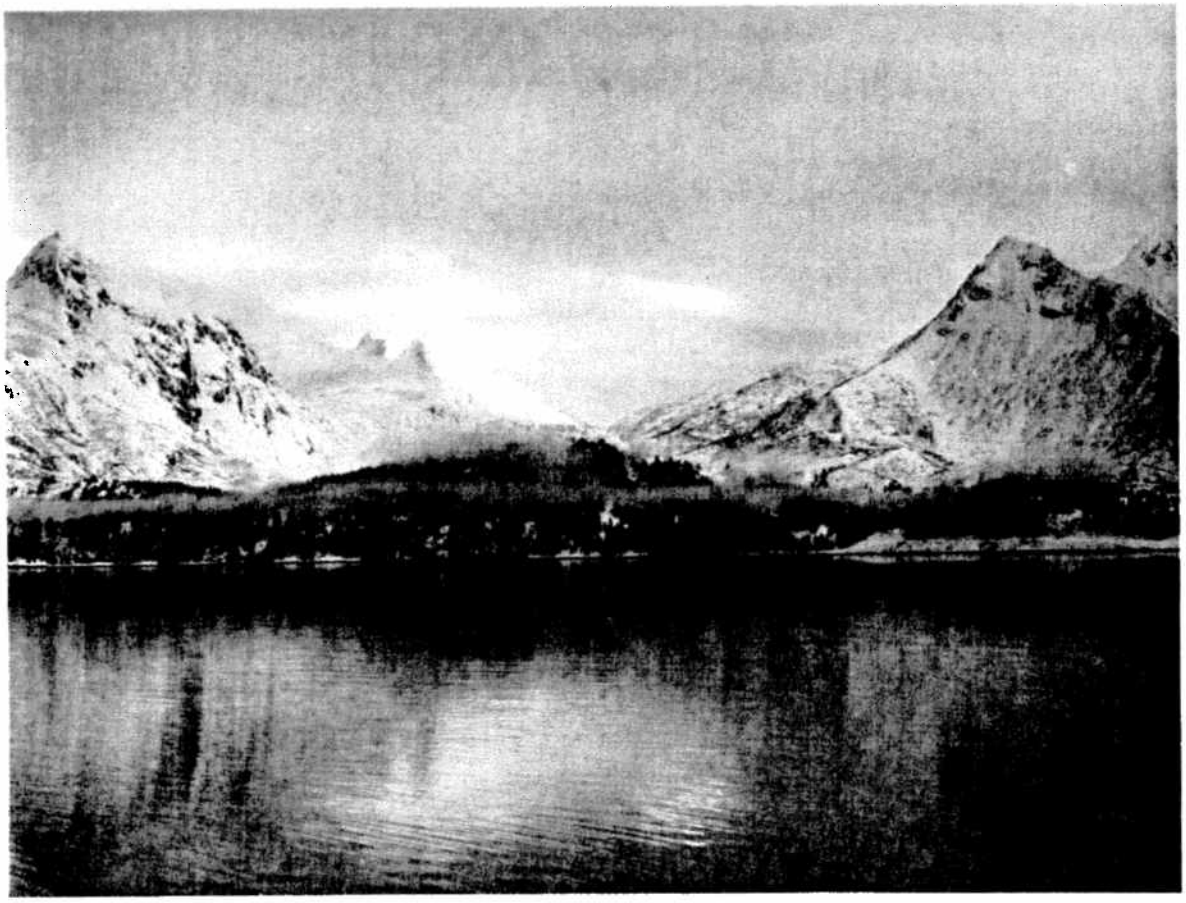

Figure D