Mixer

Purpose
To demonstrate how bottom sediment in lakes is mixed with water at upper levels.

Materials
Scissors
Tap water
Ice
Spoon
Blue food coloring
1 quart (liter) jar
2-liter clear plastic soda bottle
4 tablespoons (60 ml) flour

Friend

Procedure
• Cut the top from the soda bottle.
• Fill the plastic bottle 1/2 full with water.
• Pour in the flour. Do not stir.
• Allow the plastic bottle to stand overnight so the flour can settle to the bottom.
• Fill the jar with ice, then add water to fill the jar. Allow it to stand for 5 minutes.
• Use the spoon to remove any undissolved ice cubes.
• Add enough food coloring to the cold water to produce a dark blue liquid.
• Ask your friend to tilt the plastic bottle slightly while you pour the cold colored water against the inside of the bottle.

Results The colored water sinks to the bottom of the bottle, causing the flour to be pushed upward on the opposite side.

Why? Cold water contracts (gets closer together) which makes the cold water denser than the warmer water in the bottle. The denser cold water sinks to the bottom of the bottle and pushes the sediment of flour upward where it mixes with the warmer water above. This is similar to the sinking of cold surface water in lakes. This descending water pushes the much needed food settled on the bottom of the lake up to the organisms living in the upper layers of the water.