

Floating Ink Experiment

What makes this possible is the interesting chemistry of Expo® dry-erase markers!



KEY CONCEPTS

- ✓ Chemistry
- ✓ Polymer
- ✓ Material Science

MATERIALS NEEDED

- Shallow trays or plates with a smooth surface
- Expo® Dry Erase Markers
- Cup of water
- Paper Towels

1 CHOOSE ONE COLOR of your dry-erase markers and make a drawing on your first plate such as a stick figure, a heart or word.

Q'S *Does it look like the ink is sticking to the surface of your plate?*

2 LET IT DRY for a couple of seconds and then use a dry finger to wipe across your drawing.

Q'S *Does your finger wipe off the drawing, or can you still see it afterward?*

3 MAKE A NEW DRAWING then pour just enough water onto your plate to cover the drawing. Wait and observe. If nothing happens, shake the plate a little bit.

Q'S *What happens to the ink after a while? Does your drawing begin to float and come to life?*

THE SCIENCE OF DRY ERASE MARKERS

HOW DO EXPO® MARKERS WORK ON WHITE BOARDS?

Dry-erase markers contain special ingredients. They include solvents, which is usually some kind of alcohol. This is used to dissolve the color pigments that determine the marker's color. In addition, a resin or polymer is added, which is the key to making the ink erasable. In a dry-erase marker the resin is an oily silicone polymer, which acts as a "release agent." This makes the ink of the marker very slippery and prevents it from sticking to the white board's surface. This is why the ink can easily be wiped off from a very smooth nonporous surface such as a white board or glass.

TEACHER'S EXPLANATION

The ink in Expo® dry erase markers is **insoluble**. That means it **can't be dissolved in a liquid**, and more importantly, it means it's **less dense than water**. When you pour water onto a dry erase stick figure doodled on a smooth surface, a **strong buoyancy force overcomes the stickiness of the ink**, pulling the doodle off the surface and causing it to magically float on the water.