CHEMISTRY

Floating Stick Figure

BIG IDEA

We can use the chemistry of polymers to make our drawings come alive!

MATERIALS

- Plate
- Dry Erase Marker
- Cup of Water
- Paper Towel

INSTRUCTIONS

1. Find a plate for your drawing. We found that white plates work best so you can see your drawing better. Make sure it's dry!
2. Draw any design you want directly on the dry plate with the dry erase marker. We found it's best if you exaggerate any features like arms or legs.
3. Make sure your drawing is dry. Try lightly blowing on it to speed up the process!
4. Slowly pour water onto the plate around your design. Try pouring it around from all angles. You won't need much water!
5. If your design isn't lifting off the plate just right, try tapping the edge very lightly to give it a boost. And remember to clean up any spills!

THE SCIENCE

Dry erase markers are made of 3 key parts: pigment, polymer and solvent. The **pigment** gives the marker its color. The **polymer** is a sticky substance that holds the pigment to the surface. The **solvent** dissolves the pigment and keeps it in liquid form.

When you draw on something with a dry erase marker, the ink doesn't need to be in liquid form anymore. The solvent has done its job and evaporates away, leaving only pigment and polymer.

The polymer, still holding the ink to the surface, has 3 traits that make this experiment work:

- It's hydrophobic, which means it repels water. Since it repels water, it won't dissolve.
- The sticky polymer isn't *super* sticky – it's only weakly attached. This means it comes off the surface easily.
- The ink is less dense than water. This helps the ink float on top of the water.

continued on the back