Fabric Chromatography: Instructions and Tips

Description: Have you ever wanted to make your own tie-dye designs at home? Now you can! In this activity, you will learn how to make permanent marker designs bleed into beautiful designs on fabric, and about the chemistry behind it.

Materials:

- rubbing alcohol
- white fabric (Note: You don't have to buy fabric for this project, you can also use an old shirt/rag, a paper towel, or a coffee filter.
- permanent markers
- jar or cup
- rubber band
- pipet or teaspoon

Instructions (see visual instructions below):

Step 1: Secure fabric to opening of jar/cup with rubber band

- Cover the opening of the jar/cup with the fabric
- Wrap the rubber band around the outside of the jar/cup to hold the fabric in place

Step 2: Draw design on fabric with permanent markers

- Draw whatever you want! Designs (like shapes and patterns) work better than messages or pictures (like animals), since the image will bleed during the project

Step 3: Fill spoon with rubbing alcohol

- Carefully pour some rubbing alcohol into the spoon (or pump it into the pipet)

Step 4: Carefully drip rubbing alcohol onto design

- Pour a few drops at a time, count to ten, then add more
- Continue adding drops until you are happy with how it looks (or the ink stops moving)

Step 5: Once dry, remove fabric

- Once the fabric is dry, carefully remove the rubber band, then the fabric. You're done!

What's Going On: Let's start with solubility. When something is soluble, that means that it can dissolve and become part of something else. Sugar is soluble in water, which is why you can stir sugar into your tea and it seems to just disappear! It's actually just becoming dissolved by the hot water! An easy way to tell if things can dissolve each other is whether they are polar. Polarity measures how badly something wants electrons, which are the little pieces of electricity that are inside EVERYTHING! Water is an example of something polar. If something is polar, it can dissolve other polar things, but it cannot dissolve something nonpolar. And if something is nonpolar, it can dissolve other nonpolar things, but it cannot dissolve something polar. Now, as you've probably learned, permanent markers don't wash off very easily, that's why they're called *permanent* markers, and that's why your parents always want you to be careful with them! This is because the ink is nonpolar, so it can't be dissolved by water. But is the ink soluble in anything else? It turns out it is soluble in rubbing alcohol, which is also nonpolar.

Activity Presenter ~ Alden Sova: Hello everyone! My name is Alden Sova and I am the creator of the fabric chromatography video you may have watched. I am a third-year at OSU studying industrial engineering. I like working with children and plan to get a teaching degree once I graduate.

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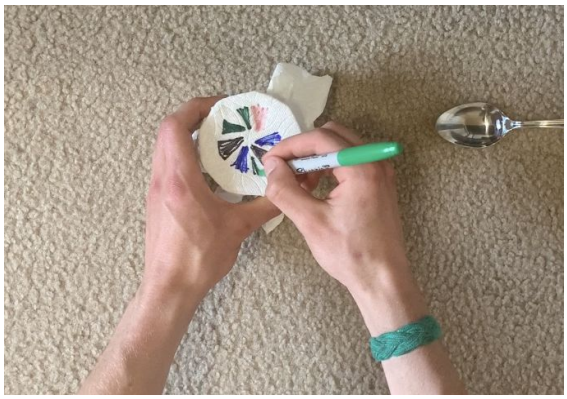

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