Doing Forensics with Paper Chromatography

Purpose: To determine whether purple, black, brown, and orange are pure colors or a mixture of other colors. Tell the kids that they have to wear old clothes that their parents won't mind getting dirty.

Safety Issue:

* Safety Glasses Required
* Apron, Old Clothes, or Lab Coats suggested

Materials:

* Non- Permanent Markers: Black, Brown, Purple, and Orange
* 2 Large Coffee Filters
* Scissors
* 4 Pencils
* Centimeter Ruler
* Tape
* 4 Medium Plastic Cups
* 4 Plastic Plates
* 4 Small Plastic Baggies
* Measuring Cup
* Large Bottle of Tap Water

Procedures:

1. Line up 4 jars, label each one with the name of color of the marker you are testing, black, brown, orange and purple.

2. Prepare your chromatography strips. Use the coffee filter s and cut out at least 8 strips in case you make a mistake. Measure the length of the jars so that the strips can be rolled and taped around a pencil. The pencil will sit across the top of the jar and the strip should reach just about the bottom of the jar. Make the strips 1 inch wide and as long as you determined from your length measurement.

3. With your pencil draw a line on each of the strip that is 2 cm from the bottom.

4. Using each one of your magic markers, just above the pencil line made a dot. 5. You will have 4 strips each having one dot of a different color.

6. Using the measuring cup or graduated cylinder pour a small amount of water in each jar, the same amount in each jar.

7. Tape each paper strip to a pencil and place each pencil across each jar. Check to see that the strip just touches the surface of the water. Keep it away from the sides of the jar.

8. Keep the strips in the jars for five minutes.

9. Remove each strip and place them on plastic plate to dry.

10. Observe what happened to each strip recording your information in your chart.

11. When the strips are dry place them individually in the plastic baggies to use in your final report and or display.

12.Prepare your report and include all of the following: a clear statement of the problems, your hypothesis, List the materials used. Include the safety precautions taken. Describe the procedures used. Include all the data that were gathered. Include your chart. Formulate your conclusions. For dramatic value, you may include photos of the materials used or of you in the process of conducting this investigation. Include a bibliography of sources you used. You may wish to assess what you did and describe what you would do differently if you were to do this project again.

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| Color of Markers | Colors Before Chromatography | Colors After Chromatography |
| Black |  |  |
| Brown  |  |  |
| Purple |  |  |
| Orange |  |  |