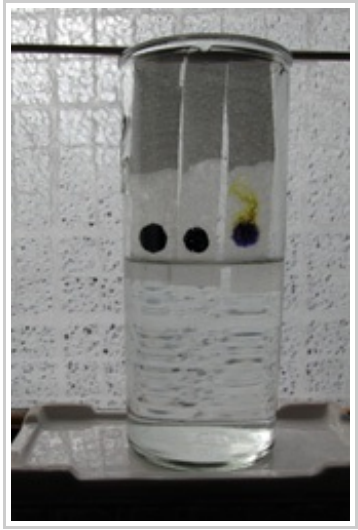
CSI Science: Ink Investigation



If you teen has or is currently taking a course in chemistry he or she may be familiar with a process called paper chromatography. In forensic science this technique can be used to identify different inks. Let's say someone committed a crime by changing the monetary amount on a check. Using chromatography, a forensic scientist could tell whether more than one ink pen was used to write on the check and whether the suspect's ink pen could have been used.

Most inks are not really made up of one colored component. There are actually several different pigments that can make up one ink. In chromatography, the ink is soaked in a solution so that the different pigments will "spread" apart allows the various colors to be seen. You and your teen can see how chromatography works by conducting the following activity either as a possible science fair project, or just for fun!

What You Need:

- Different brands of black marker, felt-tip pen, or ink pen
- Tall 8 oz drinking glass
- Paper towel
- Paper clip or toothpick
- Rubbing alcohol or nail polish remover (optional)

What You Do:

1. Fill a tall glass half-way with water. Cut 3-4 strips of a heavy paper towel and attach the ends to a stiff piece of wire by unbending a paper clip or a toothpick that can rest over the top of the glass.
2. Next, make a large dot of ink about 1/2 an inch from the bottom of each strip, using a different brand of black marker, felt-tip pen, or ink pen for each strip.
3. Set the strips in the glass so that the ends of the strips touch the water but the ink dots are above the water level.
4. As the water soaks up into the paper, the ink will begin to separate into different colors. Note that some inks are not water-soluble; if the ink does not bleed, try using either nail polish remover or rubbing alcohol instead of water.

Forensic science is a subject that fascinates most of us. The thing that makes forensic science so exciting to study is not only the process, but also the nature of the problems to be solved. For teens, that translates to a cool science experiment with an exciting twist - to catch a criminal!

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