Hello,
This activity is for you to try at home with your child and we hope it is both a fun and rewarding experience. Also included is an interview with one of our Peer Mentors undertaken by students at one of our partner schools.
Have fun!
- The In2science Team

Who are we?
The In2science Peer Mentoring in Schools program places volunteer university students as scientists and mathematicians in the classroom. Their role is to help inspire the next generation by being a role model to them of the importance of science, maths and learning.
Criminal Ink

**aim**
Catch a criminal by matching the ink from a ransom note to the writer’s pen

**what you need**
- An empty glass jar
- Some black texters
- Several pieces of paper towels (white)
- Scissors
- A pencil and some sticky tape/bulldog clip to hold it in place (if your hand gets tired)

**time involved?**
Less than 30 minutes

**instructions**
At the crime scene, police have only one clue from a thief who has stolen a priceless jewel. It is an ‘x’ written in black ink on a paper napkin. Can you find out what pen he used to write the note and catch the thief?

- Cut the paper towel into strips (1-2cm wide, the height of your glass jar)
- On each strip of paper towel draw a large dot using one of the pens about 2cm from the bottom
- The ‘criminal’ should use one of the pens to make an x on one of the strips, but don’t let anyone know which one!
- Put about 1cm of water in the bottom of the jar.
- Tape/clip the end of the strip to the middle of the pencil
- Lower the strip into the jar so the dot is just above the water level
- Wait and watch what happens to the coloured dot

**what’s happening?**
Black ink is a mixture of other different coloured inks. Some of them dissolve in water easily, some of them don’t. By putting the inky paper towel in water the inks that like being in water travel further up, separating from the ones that dissolve less easily. This process is called chromatography. This comes from the Greek words ‘chroma’ meaning colour and ‘graph’ meaning writing.

**further investigation**
You can try some other coloured pens. Most texters have inks made of several colours mixed together. If any of the inks don’t spread upwards it is because they don’t dissolve at all in water.

⚠️ You could try using methylated spirits instead of water, but only with the help of a parent.