

Brontosaurus Learning

Making science fun!

An Experiment about

Chemistry

Chromatography



What you will need:

- Water based markers in several colors
- Art paper
- A shallow bowl or baking tray
- Water

What you will do:

1. Fold the art paper in half.
2. Draw some different colored dots on the bottom of one half of the paper, making sure they are at least 1/2 inch (2 cm) apart and 1/4 inch (1 cm) from the bottom of the paper.
3. Pour a little water into the tray or bowl—just enough to not quite reach the dots.
4. Stand up the paper in the water. **This works best when you stand it up like a birthday card.**
5. **Watch what happens, but you need to be patient!**

What is going on?

What you are observing is called chromatography. It is a technique used to separate different chemical substances out of a mixture. As the water travels through the paper it carries different components of the mixture with it and some will travel further than others, so each part of the mixture is separated out.

Challenges:

- Design an experiment to separate the base colors in food coloring. You can mix the colors yourself and see if a friend can identify which ones you used.
- Research how chromatography is used in modern scientific laboratories.



TEACHING NOTES:

Brontosaurus Learning Experiment:
Chemistry CH07

Topic: Separating Mixtures

Key Concepts:

- ♦ Chromatography

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Chemistry CH07 – one copy per student
- Art paper or paper towel, bowls or baking trays, water based markers (eg textas), water

Lesson Notes:

You can use either art paper or paper towel for this experiment: art paper gives a better result but is very slow. If you use paper towel you have to be very gentle drawing on the dots. If you use art paper you may like to set the experiment up earlier in the day and come back to it rather than sit and watch it.

Remind students to listen carefully to instructions, and to OBSERVE their experiment. Explain that students need to stand their paper up in the water, not let it fall down into the water. Demonstrate how to stand the paper up like a card so that the water can make it's own way up the paper.

As a class discuss the experiment prior to undertaking it, and students should complete the sections of their Investigation Report IR01 from "Title to "Hypothesis".

What should happen in this experiment, and why?

In this experiment the composite colours used to make up the marker will be separated out (eg green will split into yellow and blue) so secondary colours will be best, but don't restrict the students' choice—it will make for an interesting discussion when they see that some colours don't separate.

Follow up discussion questions:

- Why do some colours not split into different colours?
- Did anything surprise you about this experiment?

Investigation Record



Experiment Title:

Scientist (that's you!):

Materials: What will I need?

Investigation—what am I going to do in this experiment?

Diagrams are a great idea!

Hypothesis: What I think will happen:

Observation: What I SAW happen:

Diagrams are a great idea!

From my investigation I learnt:

Great work scientist!