

## Chromatography and crime

### Introduction

Chromatography is a technique that is used a lot by forensic scientists. In this activity you will look at one case in which chromatography has been, or could be, used to help solve a crime.

In this activity you will be using your research skills to find out about:

- the use of chromatography in forensic science
- a particular case where chromatography can help solve a crime.

You will be using your literacy skills to prepare a report from an 'expert witness' about the use of chromatography in your chosen investigation.

### Brief

Sometimes, when a case is tried in court, an expert witness might be needed to explain complicated or technical evidence. You are going to take the role of an expert witness. You will write a report that will be presented at a courtroom trial to explain chromatography evidence in a case.

Your report should:

- give a brief overview of the case you have chosen
- explain how paper chromatography works in general
- explain how chromatography provides evidence in your chosen case
- explain any key terms so that a jury with no scientific knowledge can understand the evidence.

### Step 1

Look at the sources provided to get an idea of the types of cases in which evidence from chromatography might be presented in court. One example is a real case, while the others are made-up based on the type of cases that will have come to court. Choose one case that you would like to work on, and summarise what happened (the story). If it is a made-up case you will have to use your imagination to help create the story.

### Step 2

Use your existing knowledge and the sources to write down key points describing, in general terms, how paper chromatography works. Find some pictures that you can use to help the jury understand paper chromatography.

### Step 3 (extension)

Thin layer chromatography (TLC) is similar to paper chromatography and is also often used in forensic investigations. The court you are writing a report for often comes across cases involving the use of TLC and they have asked you to include a brief description of the differences between paper chromatography and TLC. Find out how TLC is different to paper chromatography, and what advantages it has.

**Step 4**

Research your chosen case in detail, and write down the key points explaining the use of chromatography to provide evidence.

**Step 5**

Now write your report and prepare for your day in court!

**Sources****Chromatography and crime – identifying ink**

A fun introduction to the use of chromatography for identifying ink:

<https://www.bbc.co.uk/bitesize/guides/ztkdd2p/revision/1>

**Ransom note chromatography**

A fun case about a ransom note:

[www.webinnate.co.uk/science/week4.htm](http://www.webinnate.co.uk/science/week4.htm)

**Bank robbery**

The use of chromatography to match dyes:

<https://www.reference.com/science/chromatography-used-solve-crime-fc53072f9871394f>

**Thin layer chromatography (TLC) (extension)**

What TLC is and where it is used in forensics:

[www.the-gist.org/2011/07/tlc-the-forensic-way/](http://www.the-gist.org/2011/07/tlc-the-forensic-way/)

Advantages of TLC:

<https://www.bbc.co.uk/bitesize/guides/ztkdd2p/revision/2>

### Writing frame

You are going to take the role of an expert witness. You will write a report that explains chromatography evidence in a case. It will be presented at a courtroom trial.

Summarise your research findings on the key areas below.

#### The case

Case title:

Case summary (What happened? What crime was committed?):

How paper chromatography works

How chromatography provides evidence  
in the case

Thin-layer chromatography (TLC) (extension)

#### Important points

- Remember you are the expert witness in court. Your report will be read out, and then you could be cross-examined on it. You must be able to explain everything you have written.
- Explain any key terms so that a jury with no scientific knowledge can understand the evidence.

## Your work

You have written a report that will be presented at a courtroom trial to explain chromatography evidence in a case. Remember that you might be cross-examined on your report so you must understand it all clearly.

Look at the questions below and think about whether you have met the brief.

- Have you selected one case?
- Does your report summarise the possible crime that has been committed?
- Does your report explain how paper chromatography works in general?
- Have you explained how chromatography provides evidence in your chosen case?
- Have you explained any key terms so that a jury with no scientific knowledge can understand the evidence?