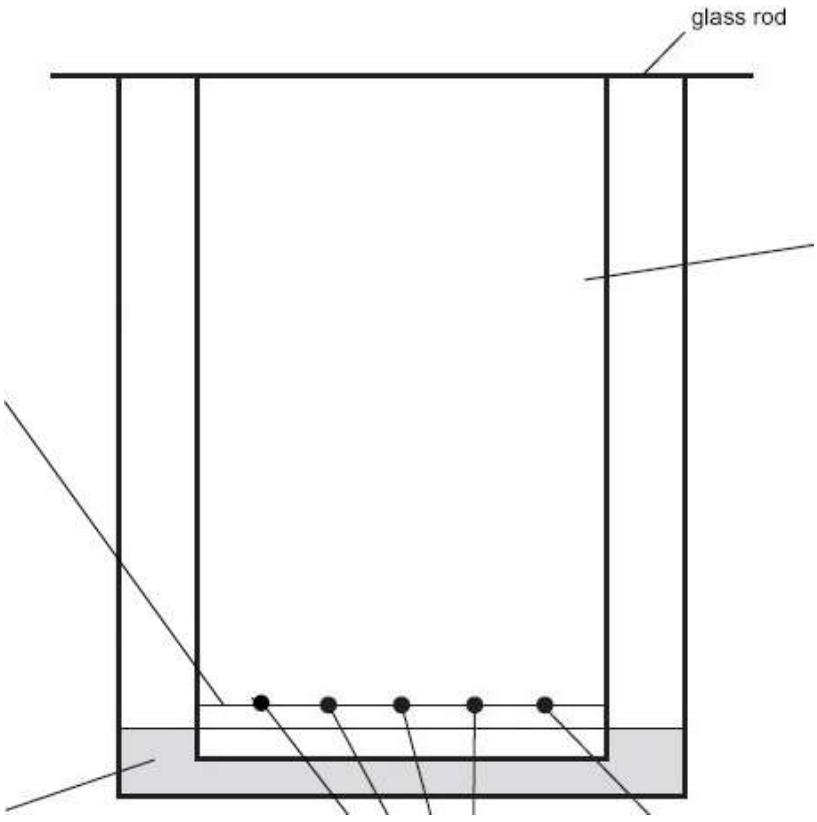
Science Skills Year 9 booklet: 2

Investigating Chromatography

Task 1 deadline (self-assessed):
Task 2 deadline (peer-assessed):
Task 3 deadline (teacher-assessed):

The tasks in this booklet relate to the investigation below. Read the following information before attempting any of the tasks.

The equipment to use:



Task 1

Everyone to do-Match the key terms to the definitions:

Mixture	The rate at which something moves.
Solvent	The liquid that is able to dissolve other substances.
Solute	Something that can be dissolved in water.
speed	The length of the space between two points.
Distance	A combination of different atoms, elements, compounds or/and molecules that can be separated easily.

Green: you will be tested on the spelling of the five key terms

Amber: you will be tested on the spelling and the definition of the key terms

Red: you will be tested on the spelling and definition of the key terms. You will also need to put each into a sentence

Killer: you will be asked for synonyms for the key terms (if there are any!)

Task 2

Green:

Identify the pieces of equipment you would need for the method. Include sizes. For each, write if there is a risk involved and how you would minimise the risk.

Aim for 5!

Peer assessment score:

Amber:

Write a detailed method for the investigation. *Ensure that you are specific with what equipment you will use, your independent variable, your dependent variable and your control variables.*

You need to use a minimum of 50 words and chunk your information into manageable steps!

Peer assessment:

STAR:

STAR:

WISH:

Red:

Write a case studies where chromatogrpahy could be used in forensic science.

Ensure that you are specific with what equipment you will use, your independent variable, your dependent variable and your control variables. ***Killer: describe what difficulties you could be faced with at crime scenes and how this could impact your chromatography.*** *You need to use a minimum of 50 words and chunk your information into manageable steps.*

Peer assessment:

STAR:

STAR:

WISH:

Task 3:

Green:

Design a table of results for 4 known food colourings, an unknown. The table must show the distance the solvent travelled, the distance the spot travelled and the Rf value (distance moved by substance/distance moved by solvent). Then draw a simple chromatogram labelled with the following: chromatography paper, solvent, ink dots, base line, solvent line.

Amber:

Complete the green task and input the following data. The solvent line is 9cm. food colouring A produced a spot at 7cm from baseline; food colouring B was 5cm from baseline; food colouring C was 6cm; D food colouring was 8cm from the baseline and the unknown was 5cm from baseline. Then workout the Rf values for each food colouring.

Red: Draw a chromatogram (fully labelled) that has 3 known samples, 2 unknown samples with the Rf values worked out for ALL samples. From the Rf values worked out, explain in 50+ words, which samples the unknown match and how you can tell.

Teacher assessment:

A2L = 1	Work is thorough, you have picked challenging tasks and have shown effort and understanding.
A2L = 2	Work has detail in most places, you have picked relevant tasks and have shown effort.
A2L = 3	Work lacks detail, there are some errors and shows some lack of preparation/understanding.
A2L = 4	Work is incomplete, there are errors throughout and a clear lack of preparation/understanding.

Teacher comment: