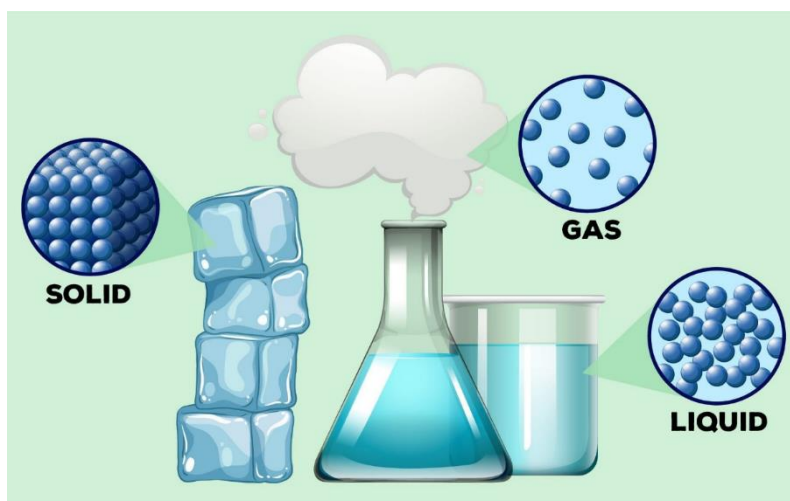




Kirkcaldy High School



BGE Science

Medical Science

Medical Chemistry

Name: _____

Class: _____

Teacher: _____

Expectations and Outcomes Learner Evaluation

Topic: Medical Chemistry

Experience and Outcomes	Date Completed (dd/mm/yy)	Evaluation How happy are you with it? (☺ ? ☹)
I can identify solids and liquids by their properties and give everyday examples of each.		
I can describe the particles in a solid, liquid and gas.		
I can describe the properties of solids, liquids and gases.		
I can describe the properties of a non-Newtonian fluid.		
I can explain changes of state.		
I can explain the water cycle using my knowledge of changes of states.		
I can explain the terms soluble and insoluble.		
I can separate dirt from water using filtration.		
I can separate salt from water using evaporation.		
I can separate coloured dyes using chromatography.		

States of Matter

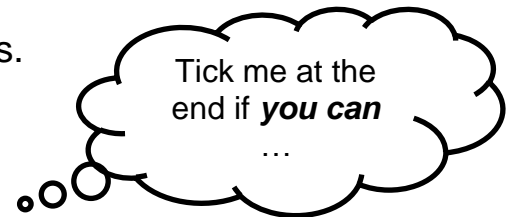
Starter

What's the difference between the objects below?



Learning Intentions

- To identify solids and liquids by their properties and give everyday examples of each.
- To describe the particles in a solid, liquid and gas.



Success Criteria

- I can identify solids and liquids by their properties and give everyday examples of each.
- I can describe the particles in a solid, liquid and gas.

States of Matter

_____ is anything which has a mass and occupies a space.

There are three main states of matter:

- _____
- _____
- _____

States of Matter

Activity: Classify items on the worksheet as solids, liquids and gases.

Solid	Liquid	Gas

Extension:

Think of some examples of your own and add them to your table.

Particles

All matter is made from tiny _____ called _____.

Particles are always _____.







Properties of solids, liquids and gases

Starter

1. Draw the particle arrangement of a solid, liquid and gas.



Solid



Liquid



Gas

2. Describe how the particles in a solid, liquid and gas move.

Learning Intentions

- To describe the properties of solids, liquids and gases.

Tick me at the end if ***you can***

...

Success Criteria

- I can describe the properties of solids, liquids and gases.

Properties of solids liquids and gases

Aim: To investigate the properties of solids, liquids and gases.

	Change Volume? (be compressed)	Change shape?	Flow?
Solid			
Liquid			
Gas			

Solid or Liquid?

Starter

Are these substances solid, liquid or gas? Explain your thinking.



Paint



Jelly



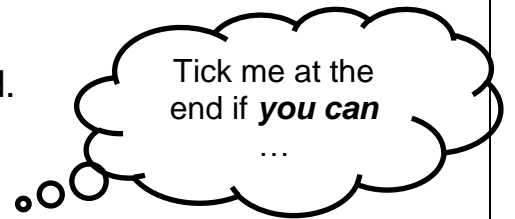
Custard

Learning Intentions

- To describe the properties of a non-Newtonian fluid.

Success Criteria

- I can describe the properties of a non-Newtonian fluid.



Making Slime - Cornflour and Water

Aim: To investigate the properties of a non-Newtonian fluid.

Method: _____

Results: _____

Conclusion: _____

Changing States

Starter

The three states of matter are solid, liquid and gas.

1. Name a solid _____
2. Name a liquid _____
3. Name a gas _____
4. Describe how solids, liquids and gases are different _____

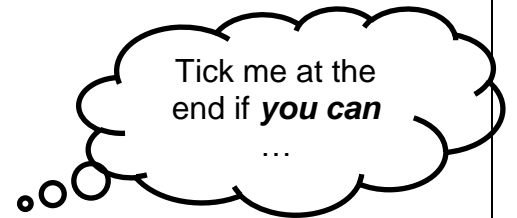
5. Name something that behaves like a solid and a liquid. _____

Learning Intentions

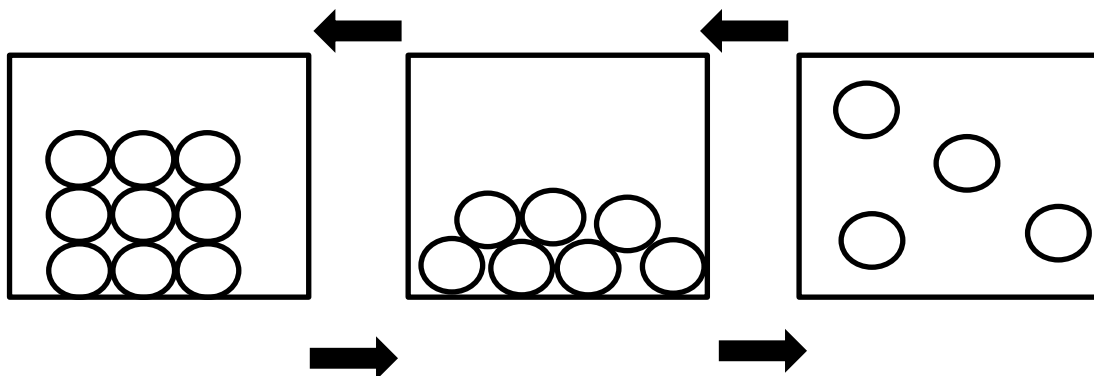
- To explain changes of state.

Success Criteria

- I can explain changes of state.



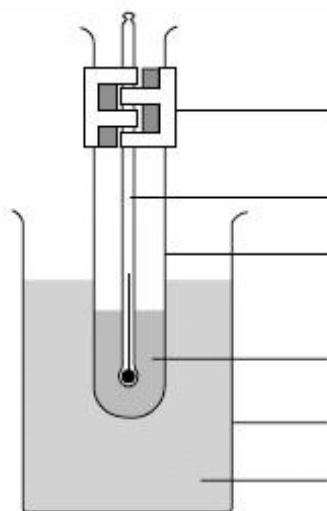
Changing States



Stearic Acid Experiment

Aim: _____

Method:



Results:

Time (minutes)	Temperature (°C)	State (Solid/ Liquid/ Solid and Liquid)

Conclusion: The stearic acid changed from a _____ to a _____ at _____.

The Water Cycle

Starter

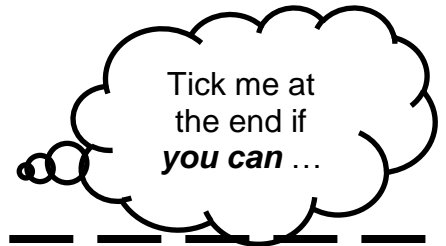
1. What temperature does ice melt? _____
2. What temperature does water boil? _____
3. What can you remember about the water cycle from primary school?

Learning Intentions

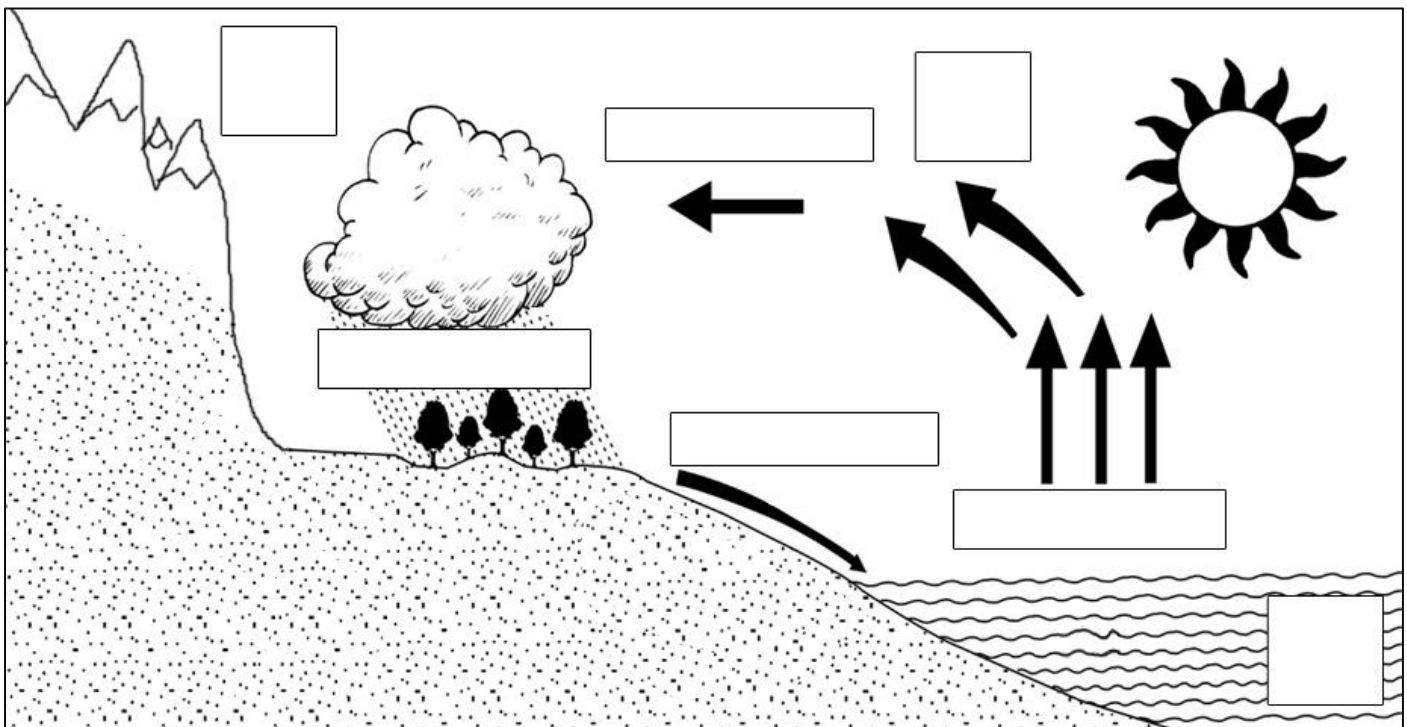
- To explain the water cycle using my knowledge of changes of states.

Success Criteria

- I can explain the water cycle using my knowledge of changes of states.



The Water Cycle



Solubility

Starter

1. What is meant by the term “soluble”? _____

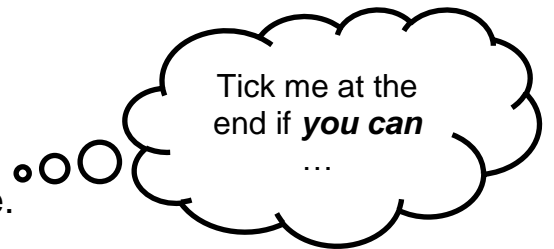
2. How do we know if a substance is soluble? _____

Learning Intentions

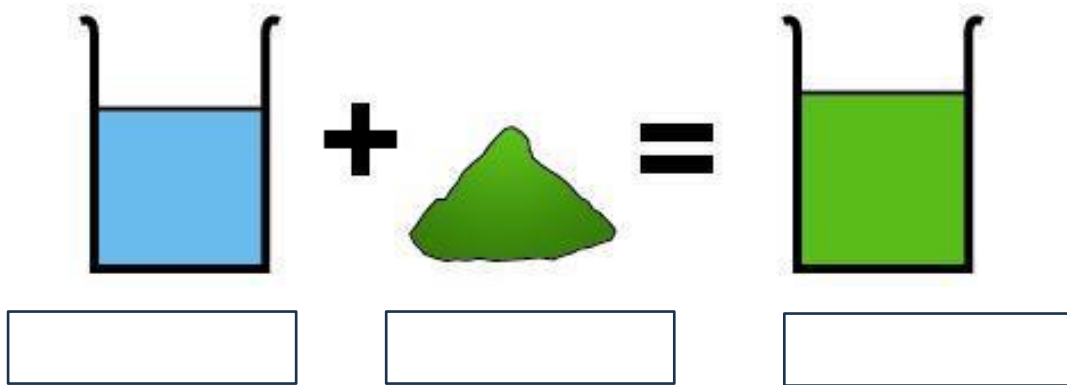
- To explain the terms soluble and insoluble.

Success Criteria

- I can explain the terms soluble and insoluble.



Solubility



Example: _____

Activity: Match the statements with the words below:

solute solution solvent soluble

The liquid in which a solute dissolve: _____

The substance that dissolves in a liquid to form a solution: _____

The product formed when a solute has dissolved in a solvent: _____

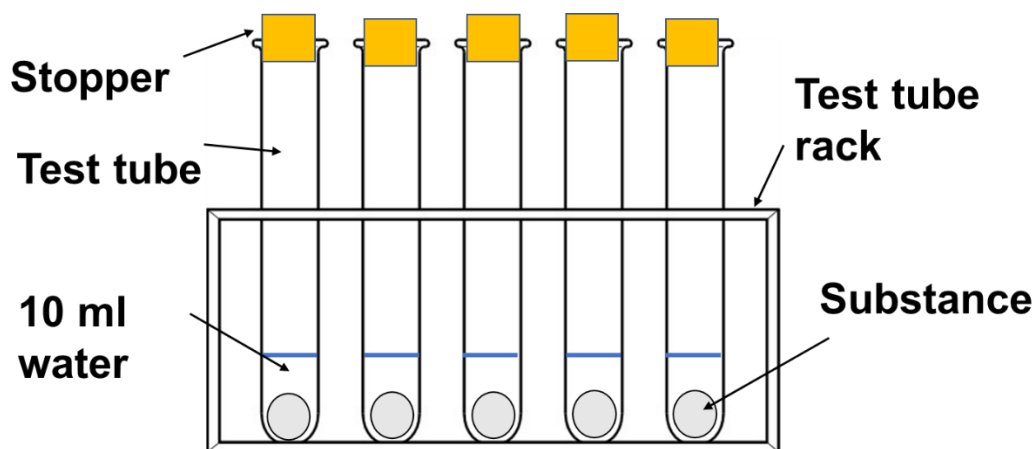
Describes a substance which can dissolve in a solvent: _____

Not all substances are soluble. A substance which cannot dissolve in a solvent is _____. Example: Sand is insoluble in water.

Solubility Experiment

Aim: _____

Method:



Results:

Substance	What did you see?	Soluble in Water?
sodium carbonate		
sodium chloride		
sucrose		
flour		
calcium carbonate		
copper chloride		

Conclusion: _____

Evaluation _____

Separation Techniques – Filtration

Starter

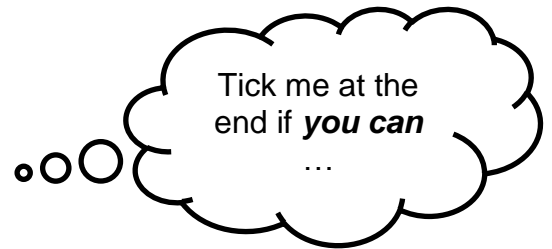
1. What do these words mean?
 - a. Soluble _____
 - b. Insoluble _____
2. Name a substance which is soluble. _____
3. Name a substance which is insoluble. _____

Learning Intentions

- To learn how to separate dirt from water.

Success Criteria

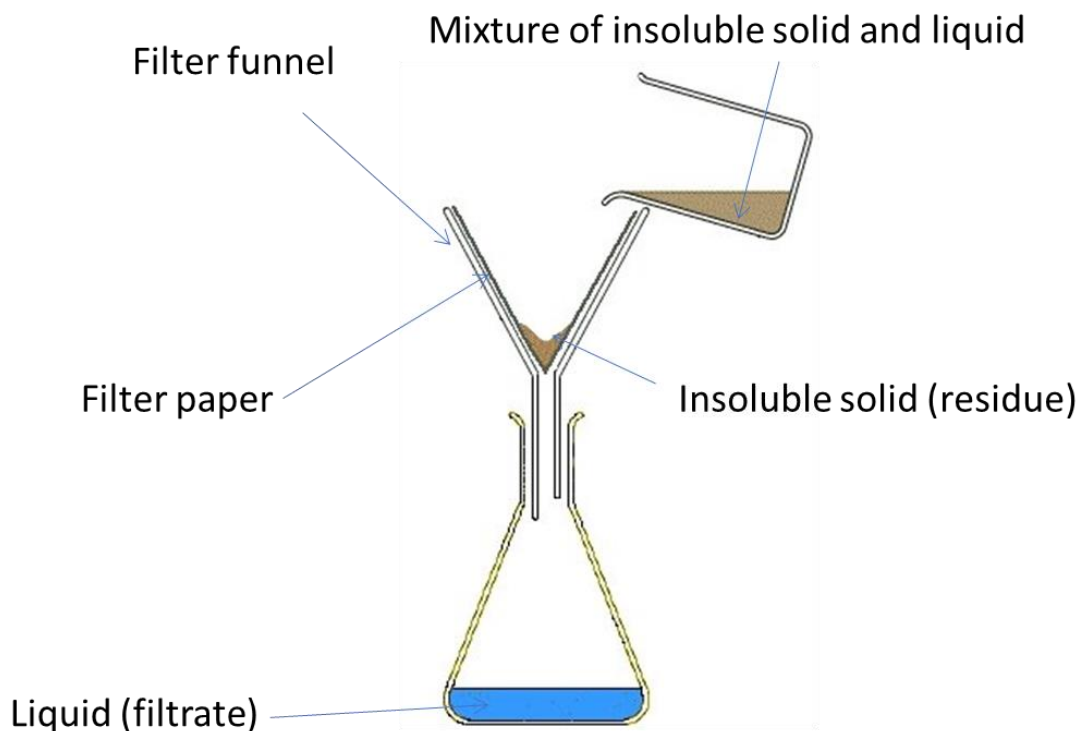
- I can separate dirt from water.



Separating Dirty Water

Aim: _____

Method:



Results: _____

Conclusion: _____

Filtration

We use _____ to separate an insoluble solid from a liquid.

_____ is collected in the filter paper and the _____ is collected in the flask.

Separation Techniques – Evaporation

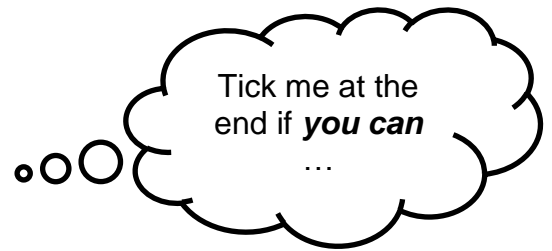
Starter

1. How would you separate **sand** from **sea water**? _____

2. How would you separate **salt** from **sea water**? _____

Learning Intentions

- To learn how to separate salt from water.



Success Criteria

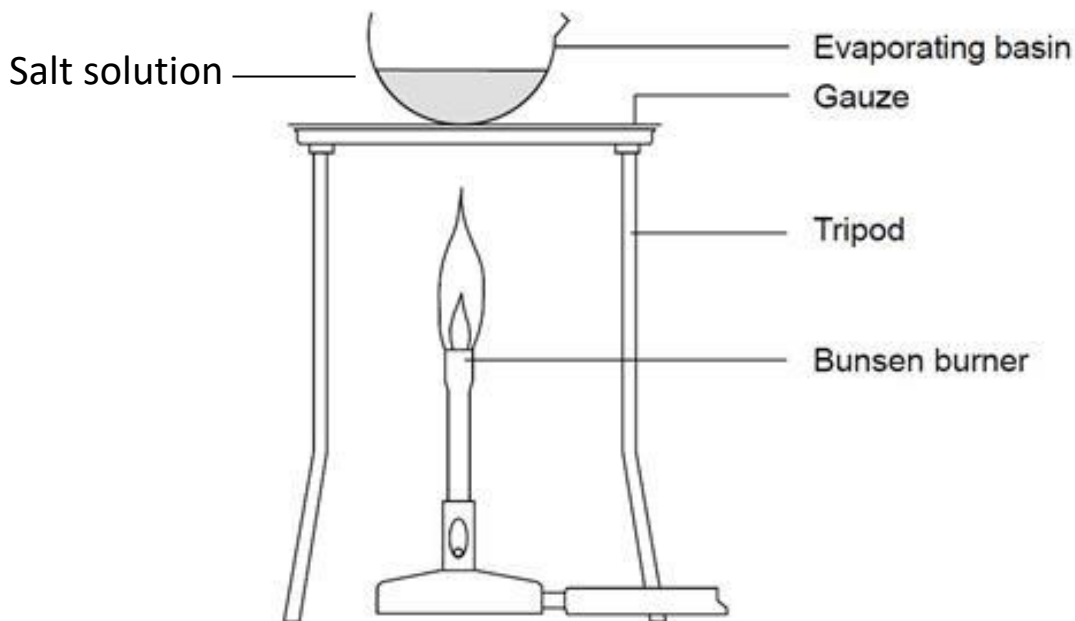
- I can separate salt from water.



Evaporation

Aim: _____

Method:



Results: _____

Conclusion: _____

Evaporation

We use _____ to separate soluble solids from solutions.

_____ evaporates and leaves behind the solid _____ in the evaporating dish.

Separation Techniques – Chromatography

Starter

1. Name the two separation techniques we have used _____

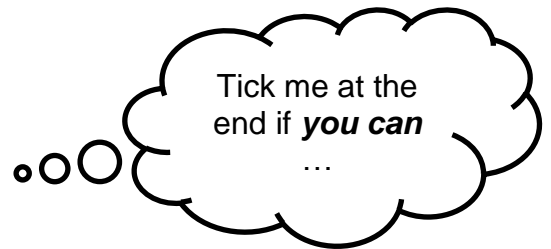
2. Choose one of these techniques and explain how it works _____

Learning Intentions

- To learn how to separate coloured dyes.

Success Criteria

- I can separate coloured dyes.



Chromatography

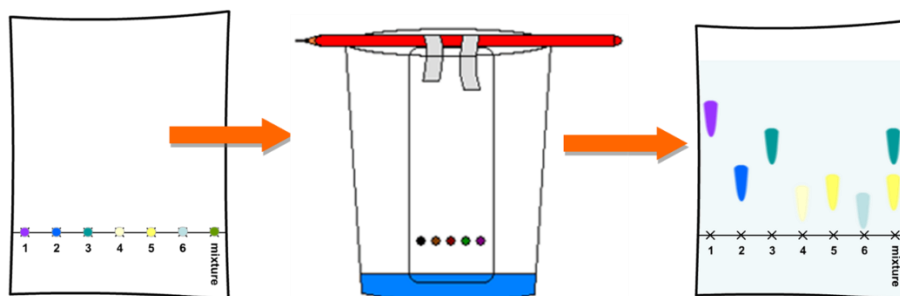
Chromatography means colour writing!

It is used to separate a mixture of coloured or non-coloured substances that are _____ in the same solvent.

Chromatography Experiment 1

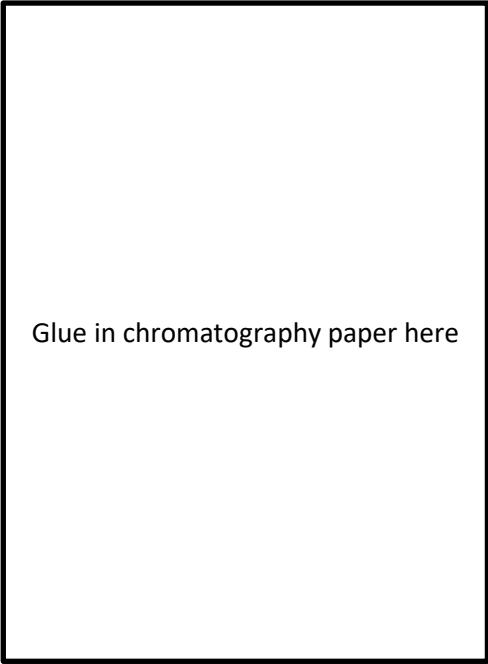
Aim: _____

Method:



Results: _____

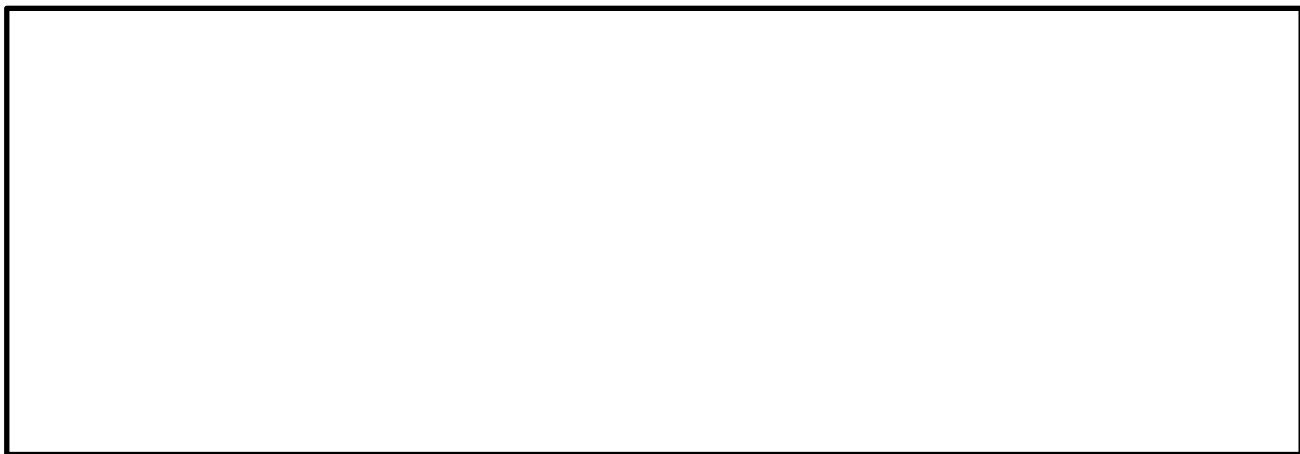
Conclusion: _____



Chromatography Experiment 2

Aim: To identify the mixture of dyes which make up different M&Ms and smarties.

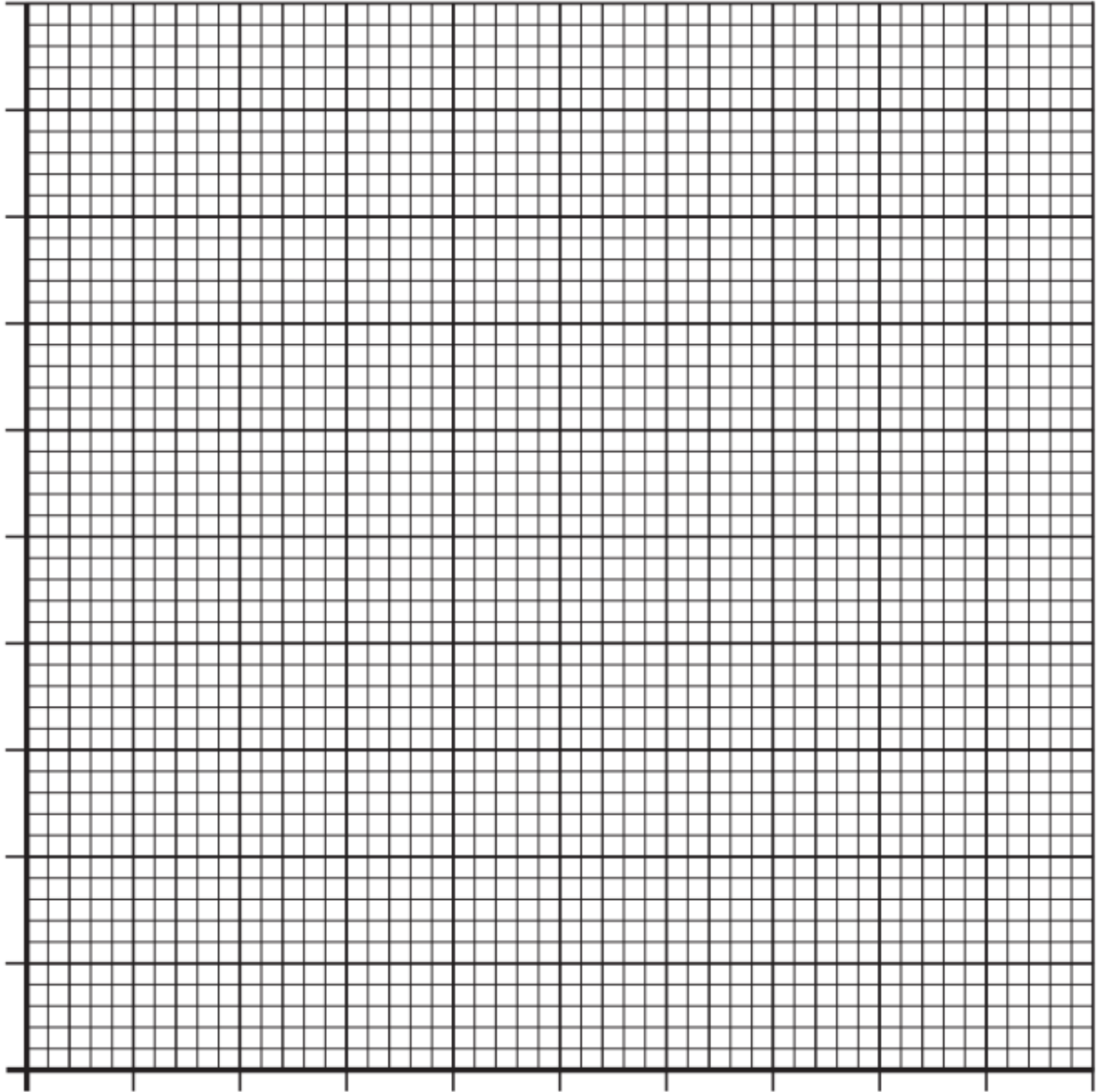
Method:



Results: _____

Conclusion: _____

Additional graph paper for numeracy tasks:



Extension Tasks

Word Search

Medical Chemistry

L	F	I	O	S	P	N	N	Z	Z	U	U	O	E
L	P	R	T	E	E	A	A	L	I	Q	U	I	D
P	R	E	C	I	P	I	T	A	T	I	O	N	M
T	N	T	S	N	S	N	T	N	I	I	I	E	C
O	O	U	O	S	N	O	A	R	D	I	L	O	S
A	I	L	L	A	A	T	L	S	E	T	E	I	O
G	T	O	U	G	T	W	N	U	I	P	U	T	T
O	A	S	B	N	O	E	I	N	T	I	O	N	A
M	R	S	L	I	M	N	G	I	T	I	A	R	P
A	T	G	E	Z	S	N	V	N	S	P	O	N	P
T	L	T	V	E	S	O	L	V	E	N	T	N	G
T	I	L	A	E	I	N	R	U	N	O	F	F	I
E	F	P	A	R	T	I	C	L	E	S	R	I	N
R	T	T	O	F	E	B	O	I	L	I	N	G	L

ATOMS
BOILING
GAS
FREEZING
NONNEWTONIAN
MELTING
SOLID
SOLUTE
PROPERTIES
SOLUBLE
PRECIPITATION
PARTICLES
FILTRATION
RUNOFF
MATTER
SOLUTION
LIQUID
SOLVENT

Play this puzzle online at : <https://thewordsearch.com/puzzle/5921021/>

Extra Questions:

1. What are the three common states of matter? _____

2. In which state of matter do particles have the most energy and move freely?

3. Which state of matter has a definite shape and volume?

4. What happens to the particles in a solid when it is heated?

5. Why does a gas take the shape and volume of its container?

6. What is the process called when a liquid turn into a gas?

7. When water freezes, what state of matter does it change into?

8. How is condensation different from evaporation?

9. What role does the Sun play in the water cycle?

10. What is filtration used for? Give an example.

Draw a comic strip on one of the topics. Ask your teacher for ideas.

Colouring Sheet

