Test: Mixtures

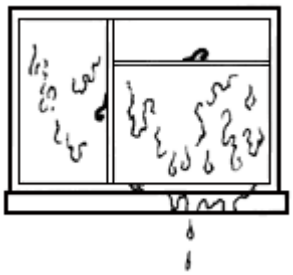
1. Look at these words:

Melting	evaporation
condensation	freezing

Which word best describes the change when:

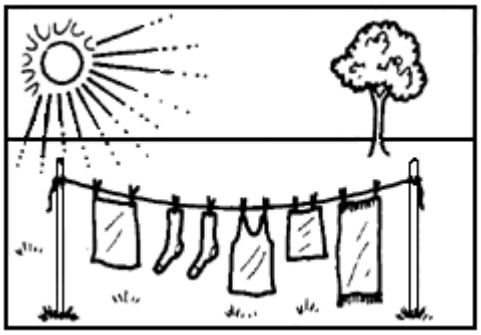
a ice turns to water?

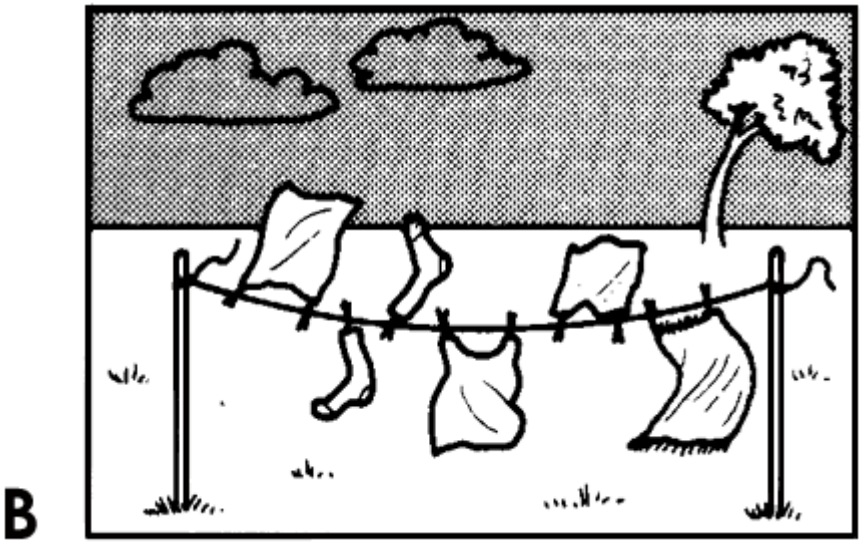
b water appears on a window?

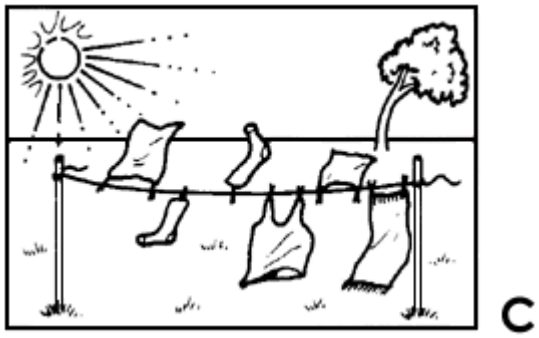


c soup dries up on the stove?

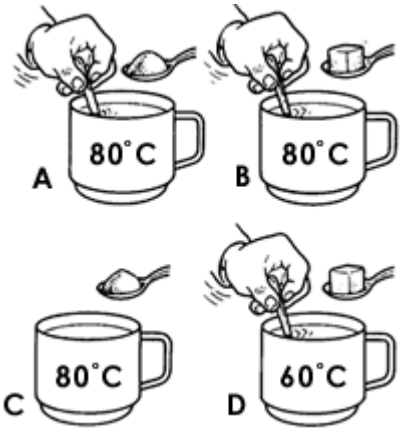
2. Which clothes will dry quickest? Why?







3. Which sugar will dissolve quickest? Why?



4. Write down each word with its correct meaning:

Word	Meaning
Saturated	forms when a substance dissolves in a liquid.
Soluble	a liquid which dissolves a substance.
Solution	no more substance will dissolve.
Dissolved	a substance which dissolves.
Solvent	a substance seems to have disappeared into a liquid.

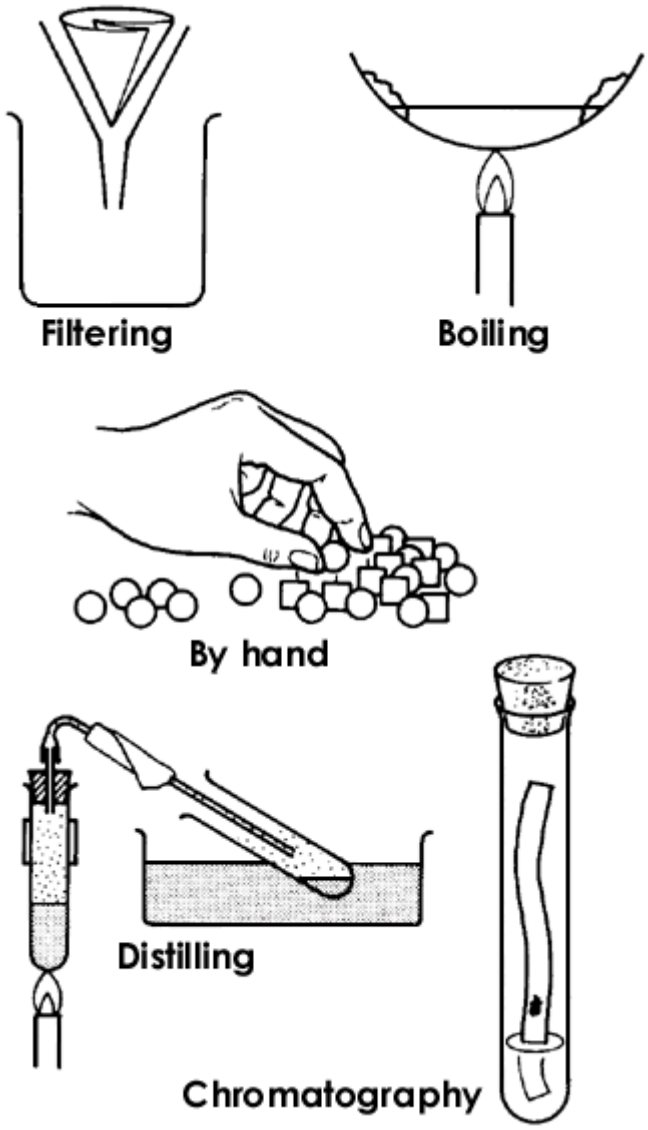
5. A woman spills ink on her dress. The dress is made of nylon. Look at this table.

Liquid	Nylon	Ink
A	soluble	soluble
B	insoluble	insoluble
C	insoluble	soluble
D	soluble	insoluble

a Which liquid should she use to remove the stain?

b Explain your answer.

6. Look at the following ways of separating mixtures.



a Which way would you use to turn salty water into pure water?

b Which way would you use to remove mud from lake water?

c Which ways use heat to help separate the mixture?

d Which ways depend upon evaporation of a liquid?

7. You are given a white powder. It dissolves in water. You are going to make a large crystal of the solid. Complete the following instruction sheet.

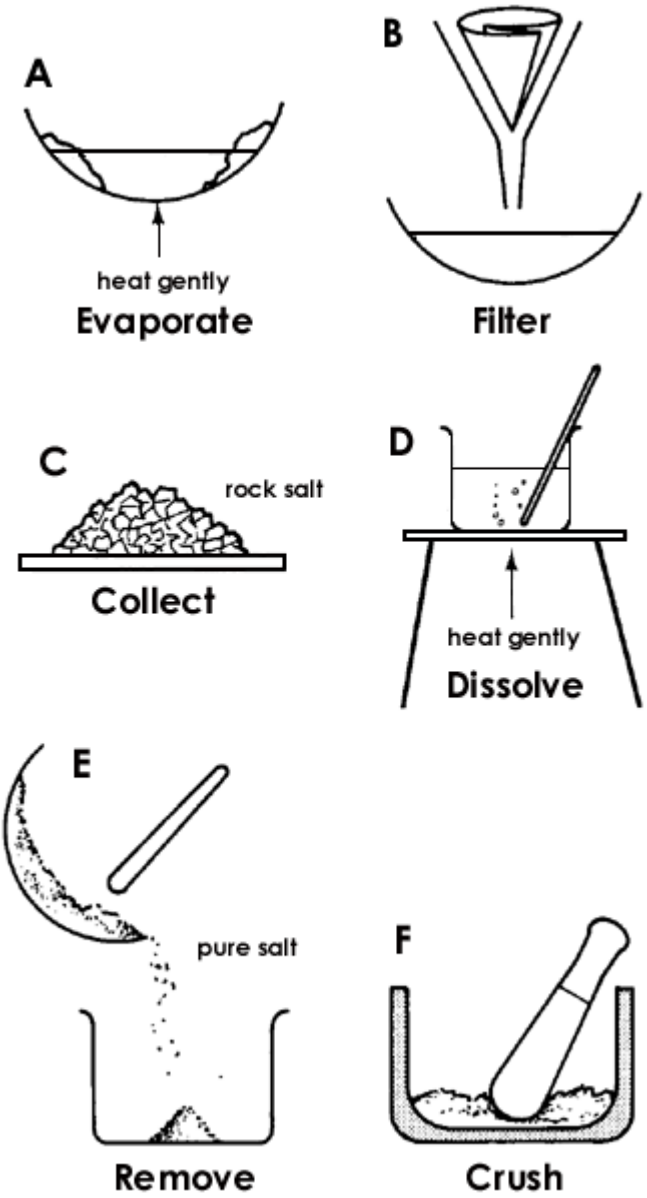
   Title of experiment: _____

   Equipment needed:

   White powder
   Water Stirring rod
   Bunsen burner
   Beaker
   Tripod stand
   Heatproof mat

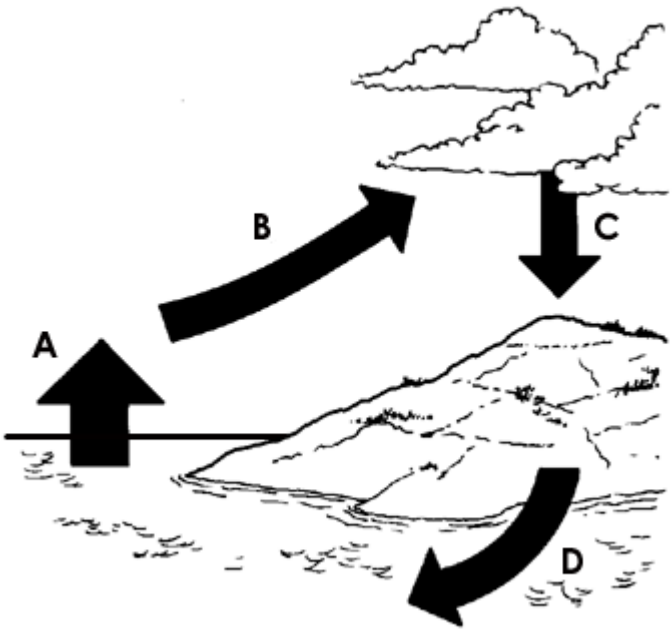
   Instructions to follow:

8. The following steps can be used to separate salt from rock salt, but they are all jumbled up. Write the steps in the correct order beginning with:
C Collect the rock salt.

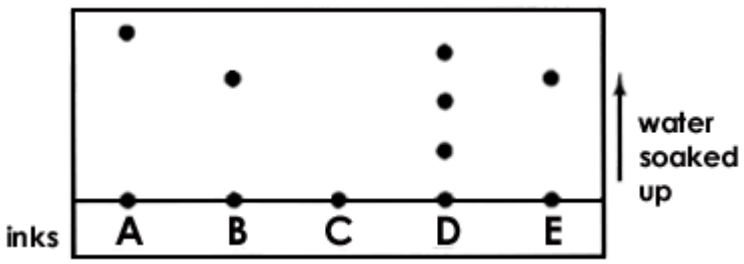


9. Chromatography can be used to show that black ink is a mixture of different colours. Describe how you would do this experiment. Begin your description with the sentence:
'Take the pen with the black ink and a piece of chromatography paper...'

10. This is a diagram of the water cycle. Explain what is happening to the water at **A**, **B**, **C** and **D**.



11. The diagram shows the results of a chromatography experiment. Fine inks were compared: A, B, C, D and E.

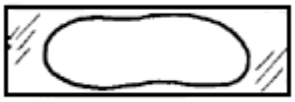


a Which ink is a mixture of different colours?

b Which two inks are the same?

c Which ink is not soluble in the solvent?

12. A student looks at a microscope slide through a microscope. There is a clear liquid in it. She sees this:



She looks at the slide two minutes later. She sees this:

Complete her report of the experiment.

Title: Making of _____sugar.
Equipment:
Solution of sugar
Microscope slide
Microscope
What I did:
I put two drops of sugar _____

on a slide. I saw _____

on the slide. I waited _____

and then looked at the slide again.

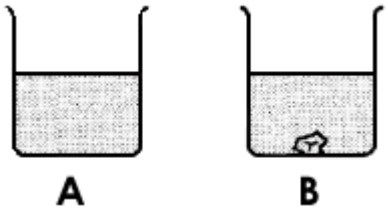
Result:
I observed _____

_____

which I have drawn below

Extension questions

13. You are given two different salt solutions.



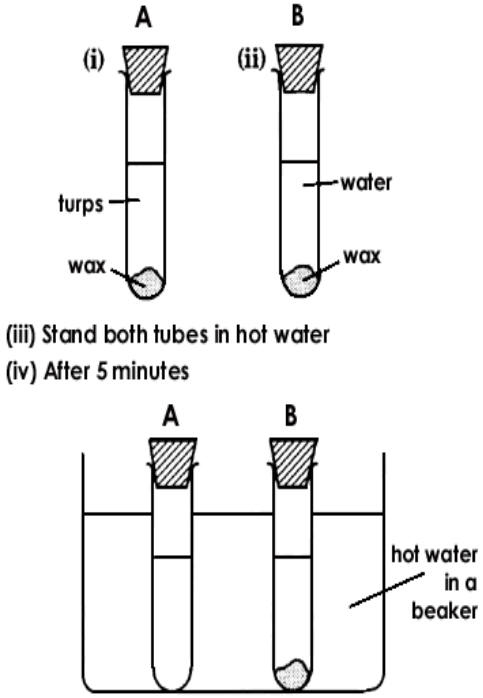
You put a crystal of salt into each solution.

After one day:

- the crystal in **A** has disappeared, and
- the crystal in **B** has become bigger.

Explain both results.

14. Look at the diagram.

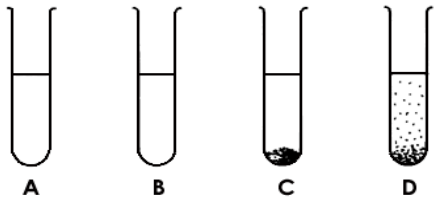


a From the diagram, write the instructions for the experiment.

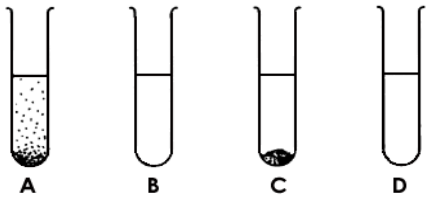
b From the diagram write down the result of the experiment.

c What does this experiment tell you about the solubility of wax?

15. Four substances called A, B, C and D were shaken with water. This is what happened.



The substances were then shaken with alcohol. This is what happened.



Complete this table.

Substance	**Is it soluble in water?**	**Is it soluble in alcohol?**
A		
B		
C		

Answers

1. **a** melting;
   b condensation;
   c evaporation

2. C, three factors: warm, windy, dry

3. A, two factors: powder, stirring

4. *saturated:* no more substances will dissolve
   soluble: a substance which dissolves
   solution: forms when a substance dissolves in a liquid
   dissolved: a substance seems to have disappeared into a liquid
   solvent: a liquid which dissolves a substance

5. **a** C
   b two key points: removes stain, does not damage dress

6. **a** distilling
   b filtering
   c boiling and distilling
   d boiling and distilling

7. **a** making a crystal
   b three key points: heat water, dissolve as much powder as possible, cool slowly

8. C, F, D, B, A, E

9. four key points:
   (i) put a dot of ink about 2 cm from one end of the chromatography paper
   (ii) put about 1 cm (less than 2 cm) liquid/solvent in a named container, e.g. beaker/test-tube
   (iii) place paper in container, dot at bottom
   (iv) allow solvent to rise past the dye

10. A evaporating; B rising into sky/forming clouds; C condensing/condensation; D flowing into sea

11. **a** D; **b** B and E; **c** C

12. crystals; solution; nothing; 2 minutes; the crystals of sugar appeared

13. solution A was not saturated, and so the crystal dissolved; solution B was saturated, and so the crystal grew larger

14. **a (i)** put some water in a test-tube containing wax, then put some turps in a test-tube containing wax
    (ii) place both test-tubes in hot water (for 5 mins)
    b wax dissolves in hot turps
    c wax is soluble in turps, not in water **or**
    wax is not soluble in all liquids **or**
    wax will dissolve in some liquids only

15.

substance	water soluble	alcohol soluble
A	yes	no
B	yes	yes
C	no	no
D	no	yes