

Name:

Date:

STATES OF MATTER - solids

Activity 5

Let's grow crystals.

INVESTIGATING GROWING CRYSTALS

A.- OBJECTIVE:

- To grow crystals to observe if they repeat a pattern or they don't repeat a pattern.

B.- EQUIPMENT:

Tick them when you leave them on the table.

- A small glass jar



- A piece of cotton thread



- A tablespoon



- A small pan



- Sugar



- A permanent felt-tip pen



- A jar lid



- A ruler



- A tray



- Hot water (not boiling)



- A pencil



- A thermometer



- Scales



- Microscope



- Measuring jar



C.- SAFETY:

Be careful when you use hot water and the glass jars.

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D.- HYPOTHESIS:

Tick the hypothesis that you think is correct or write down another hypothesis.

- 1.- I think the structure in the crystals will be arranged repeating a pattern.
- 2.- I think the structure in the crystals will not be arranged repeating a pattern.
- 3.-

E.- INSTRUCTIONS AND DIAGRAM:

- 1.- Put water into a small pan and heat it (do not forget to write the amount of water that you use and the temperature in degrees that the water is).
- 2.- Put the pan into a tray of hot water to keep it hot.
- 3.- Add some tablespoons of sugar to the pan and stir it until it has dissolved (do not forget to write the amount of sugar that you use).
- 4.- Repeat until no more sugar is dissolved.
- 5.- Put a little saturated sugar solution on a jar lid and the rest of the sugar solution into a small glass jar, cover the jar with a piece of paper.
- 6.- Use a permanent felt-tip pen to mark the water level in the jar.
- 7.- Leave the water with sugar in a quiet place (don't move it!) for some days or weeks because if the water evaporates slowly, the crystals may grow bigger.
- 8.- After a few days, take the biggest crystal from the jar lid and tie the cotton thread around it and tie the other end of the thread to the pencil. The biggest crystal will be the seed for the next crystallization.
- 9.- Put the thread with the crystal in the jar where the remaining solution is. The crystal should hang about two-thirds into the jar.
- 10.- Once the experiment is finished, use the microscope to observe the crystals.

Diagram

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Why don't you follow from the 1st to the 4th step and put all the sugar solution into a small glass jar, then...

- ...tie a paper clip onto the end of the thread and tie the other end to the pencil. The paper clip should hang about two-thirds into the jar.
- ...use water at room temperature.
- ...add food colouring to the solution.
- ...stir the saturated sugar solution from time to time.
- ...use salt instead of the sugar.

F.- RECORDING THE DATA:

Amount of water: _____

Amount of sugar: _____

Initial temperature of the hot water: _____

Table 1:

Growing crystals: JAR LID							
Date							
Time							
Image							
Measurements							

Table 2:

Growing crystals: JAR							
Date							
Time							
Image							
Measurements							

Name:

Date:

G.- OBSERVATIONS:

H.- CONCLUSIONS:



Activity 5

- G.-
- The *first/second/third/fourth/...* day I saw
 - I needed (*number*) days to see the first crystals.
 - I saw the first crystals on the *jar lid/ jar*.
 - The “crystal seed” *helped/didn’t help* to grow the crystal.
 - The water has been evaporating very *slowly/fast*.
- H.-
- Sugar crystals *repeat/don’t repeat* a pattern, so sugar is *a crystalline solid/an amorphous solid*.