

Name:

Date:

## CHANGING STATES

### Activity 2

Let's investigate solid and liquid water

## INVESTIGATING THE BEHAVIOUR OF SOLID AND LIQUID WATER

### A.- OBJECTIVE:

- To heat water to observe if the water molecules move more slowly or faster.

### B.- EQUIPMENT:

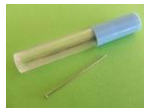
Tick them when you leave them on the table.

- Three glass jars



- Three paper cups

- A pin



- A kitchen cloth



- Ice cubes



- Cold water



- Hot water



### C.- SAFETY:

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

### D.- HYPOTHESIS:

After reading the instructions below, tick the hypothesis that you think is correct or write down another hypothesis.

- 1.- I think the cold and hot water will go through the hole at the same speed.
- 2.- I think the hot water will go through the hole slower than the cold water.
- 3.- I think the hot water will go through the hole faster than the cold water.
- 4.-

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**E.- INSTRUCTIONS AND DIAGRAM:**

**Step A)**

- 1.- Make a very small hole in the centre of the bottom of the three paper cups. Be careful! the holes have to be exactly the same size.
  - 2.- Draw a short line in the middle of each cup at, exactly the same distance from the bottom.
  - 3.- Write number "1" in one cup, "2" on another cup and "3" on the last cup.
  - 4.- Leave a paper cup on top of each jar.
  - 5.- Write "ice cubes" on the 1st jar, "cold water" on the 2nd jar and "hot water" on the 3rd jar.
  - 6.- Measure the temperature of the water before putting it in the cups and write it down.
  - 7.- Put ice cubes into cup 1, put really cold water into cup 2 and put really hot water into cup 3.
- Remember to fill them up to the short line and to pour the liquid at the same moment!

**Diagram and recording the data: step A)**

Temperatures:

**TO CHECK IF IT'S A FAIR EXPERIMENT...**

**Step B)**

- 1.- Pour the three cups and dry the paper cups.
- 2.- Leave paper cup 1 on the cold water jar.
- 3.- Leave paper cup 2 on the hot water jar.
- 4.- Leave paper cup 3 on the ice cube jar.
- 5.- Measure the temperature of the water before putting it in the cups and write it down.
- 6.- Put ice cubes into the cup on the ice cube jar, put really cold water into the cup on the cold water jar and put really hot water into the cup on the hot water jar. Remember to fill them up to the short line and to pour the liquid at the same moment!

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**Diagram and recording the data: step B)**

Temperatures:

**Step C)**

- 1.- Pour the three cups and dry the paper cups.
- 2.- Leave paper cup 1 on the hot water jar.
- 3.- Leave paper cup 2 on the ice cube jar.
- 4.- Leave paper cup 3 on the cold water jar.
- 5.- Measure the temperature of the water before putting it in the cups and write it down.
- 6.- Put ice cubes into the cup on the ice cube jar, put really cold water into the cup on the cold water jar and put really hot water into the cup on the hot water jar. Remember to fill them up to the short line and to pour the liquid at the same moment!

**Diagram and recording the data: step C)**

Temperatures:

**G.- OBSERVATIONS:**

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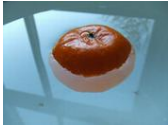
**H. CONCLUSIONS:**

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**Activity 2**

- G.-** - *Solid/Cold/Hot water molecules move/don't move.*
- *Solid/Cold/Hot water molecules move slower/faster than solid/cold/hot water molecules.*
- H.-** - *Molecules move faster when I/we increase/decrease the temperature.*