**Surface Area and Solubility**

**Aim**

To examine whether surface area has any effect on the rate of dissolving.

**Hypothesis**

The *larger/smaller* the surface area the *faster/slower* the rate of dissolving

**Equipment**

* Sugar cube
* Icing sugar
* Two beakers
* Water
* Scales
* Spatula
* Watch glass

**Method**

1. Place an equal amount of water at the same temperature in each beaker.
2. Weigh the sugar cube on the scales.
3. Place a watch glass on the scales. Tare the scales.
4. Weigh out the same mass of icing sugar as there was in the sugar cube.
5. At the same time, place the sugar cube in one beaker and the icing sugar in the other beaker.
6. Swirl both beakers for ten seconds

**Results**

|  |  |
| --- | --- |
| **Surface Area** | **Observations** |
| Sugar Cube (small surface area) |  |
| Icing Sugar (large surface area) |  |

**Questions**

1. The icing sugar has a greater surface area. **Describe** what effect increasing the surface area of a solute has on the rate of dissolving.
2. **Describe** why the icing sugar is used up rather than just some of it.
3. **State** reasons for keeping the water level and temperature the same in the experiment.

**Testing solubility in water**

**Aim**

To test the solubility of various substances in water.

**Equipment**

* Other substances as provided by your teacher
* Test tubes
* Test tube rack
* Water
* Rubber stopper
* Pop stick
* Safety glasses
* Salt
* Sugar
* Ground up chalk
* Copper sulphate
* Flour
* Soil

**Method**

1. Draw the table ready to record your results.
2. Write your prediction for the solubility of each substance.
3. Use the end of a pop stick to place a pea sized amount of a substance in a test tube.
4. ½ fill the test tube with water
5. Place a rubber stopper at the top of the test tube and shake it in an attempt to dissolve the substance.
6. Return the shaken test tube to the test tube rack and observe it.
7. Repeat steps 3-6 for the other substances, recording your observations.

**Results**

|  |  |  |  |
| --- | --- | --- | --- |
| **Substance** | **Prediction**  **(soluble or insoluble)** | **Soluble**  **(yes or no)** | **Explanation for choice** |
|  |  |  |  |

**Questions**

1. Explain why it was important to use a very small amount of each substance.
2. Identify which substance appeared to be
   1. Most soluble
   2. Least soluble