Identifying Powders

You will need:

A black piece of card to put your samples on to observe

2 small containers for each powder tested (so 10 if using all substances listed)

3 teaspoons of each of the following white powders: Flour, sugar, bicarbonate of soda, cornflour and salt.

Water

Vinegar

Dropper (or medicine syringe)

Recording sheet

Magnifying glass optional.

Method:

First you need to observe each substance making notes of what you can see in the table below. This may include grain size, apparent texture, how it move when stirred. You may also like to add any predictions about what you already know about the properties of some materials ie dissolvable, crystals, particle size, reactions with other substances.

Now for the fun bit!

To each substance in turn (you may want to prepare 3 separate teaspoons of each substance into your containers before you begin remember to label them) you are going to add a few drops of water and observe what happens. You may wish to stir the water into the substance to see what happens. Add the water slowly so you can see each stage. Record any observations on your sheet.

Next using your third sample of the powders, you are going to add a few drops of vinegar. Again you may wish to stir. Observe closely what happens and record on your sheet.

See if you can answer the following questions to help you identify the substances:

Which substances do you know that dissolve in water?

What substance causes a reaction (bubbles) with vinegar?

Which substance viscosity allows it to harden to a solid? See this clip to find out more if you are not sure <https://youtu.be/qdOjF2sYbBI>

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| --- | --- | --- | --- | --- |
| Mystery Powder | Observations | When water added | When vinegar added | What powder I think it is and why |
| A |  |  |  |  |
| B |  |  |  |  |
| C |  |  |  |  |
| D |  |  |  |  |
| E |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Mystery Powder  Answers | Observations | When water added | When vinegar added | What powder I think it is and why |
| A | Small crystals | dissolves | Dissolves but no reaction | Salt |
| B | Larger crystals | dissolves | Dissolves but no reaction | Sugar |
| C | Fine powder | Forms a smooth paste | No reaction forms smooth paste | Flour |
| D | Fine powder | Forms paste which solidifies when stirs due to viscosity | No reaction but stiff to stir due to viscosity | Cornflour |
| E | Fine powder with ‘squeaky feel’ when stirred. | Forms a watery paste | Produces bubbles of gas when mixed with vinegar | Bicarbonate of soda |