

## Trend Task: Powders

Approach:	One to one	Year:	8
Focus:	Properties of chemicals		
Resources:	Blue pen; teaspoon of powders A, B, C, D, E, F in sample cups labelled A, B, C, D, E, F; instruction card; jug of water; red pen; 2 pairs of tweezers; 2 hand lenses; ruler; 12 ice block sticks; 6 sample cups; 2 eye droppers; team answer sheet; 6 teaspoons; 12 sheets A5 black paper		

### Questions / instructions:

**Preparation:** Before team arrives, put a teaspoon of each powder in the appropriately labelled sample cups.



In most homes you will find a lot of different kinds of powders that are used for various purposes. We usually know what the powders are by the labels on their packets or containers. Imagine what it would be like if a whole lot of powders were in the same kind of containers, and they didn't have name labels. How could you tell them apart?

I have six containers with different powders that are found around most homes, but the labels don't say what they are. They only say A, B, C, D, E, F.

I want your team to examine the properties of each substance, and to try to decide what it might be. You have hand lenses, tweezers, and water. You can use any methods except one: you must not taste them.

I also want your team to design a chart. On your chart I want you to try to show at least three properties of each substance, and to write down what you think the substance is. You will need to think carefully about how to set out the chart.

Here are your instructions.

**Powders**  
**Team Instructions**

1. Do this activity as a team so that everyone is taking part.
2. Talk about what you will do to examine each powder.
3. **Design a chart** for showing the properties of each powder.
4. Try to find out at least 3 properties for each powder, and show them on your chart.
5. After you have examined each powder, write down what you think it is.

You have black paper for putting powders on so that you can examine them more easily. You also have spatulas, tweezers, hand lenses, eye droppers for putting water with the substances, and some empty beakers.

**DO NOT TASTE ANY POWDER**

Place instructions card in front of students, and read it to them.

Allow up to 15 minutes for team activity.

To finish off, I would like you to show me your chart, and tell me what you found.

Each person in the team is to have a turn at describing the results.

	% responses 2003 ('99)		% responses 2003 ('99)	
	year 8		year 8	
<b>TEAM WORK:</b>				
<b>Involvement –</b>				
all students substantially involved	90	(84)	<b>Substance C –</b> identified as flour	75 (93)
one student not substantially involved	9	(14)	2 or more relevant observations	55 (44)
			1 relevant observation	18 (31)
<b>Division of labour –</b>			<b>Substance D –</b>	
students worked together on all samples	39	(26)	identified as washing powder	95 (68)
informal division of samples within group	52	(70)	2 or more relevant observations	61 (44)
deliberate allocation to different students	9	(4)	1 relevant observation	12 (22)
<b>Reporting results –</b>			<b>Substance E –</b>	
all had a turn	94	(92)	identified as salt	46 (73)
one did not have turn	3	(8)	2 or more relevant observations	55 (40)
two or more did not have turn	3	(0)	1 relevant observation	14 (22)
<b>Style of investigating –</b>			<b>Substance F –</b>	
highly systematic	19	(7)	identified as baking soda	38 (50)
quite systematic	34	(33)	2 or more relevant observations	44 (44)
somewhat haphazard	39	(48)	1 relevant observation	24 (21)
very haphazard	8	(12)		
produced information in chart form	81	(57)	<b>Total score:</b>	
<b>Substance A –</b>			20–22	14 (4)
identified as <i>Ajax</i>	17	(7)	16–19	35 (22)
2 or more relevant observations	51	(37)	12–15	21 (20)
1 relevant observation	19	(31)	8–11	11 (30)
<b>Substance B –</b>			4–7	15 (22)
identified as citric drink	99	(54)	0–3	4 (2)
2 or more relevant observations	69	(42)		
1 relevant observation	13	(27)		

#### Commentary:

There are surprising fluctuations between 1999 and 2003, with some substances handled much better in 1999 and others in 2003. Overall, performance was markedly higher in 2003 than in 1999.