Powders Year 4

Approach: Team *Level:* Year 4

Focus: Using physical and chemical evidence to identify different powders and account for the identifications made.

Resources: Teaspoon of four powders in sample cups labelled A,B,C, & D. Two hand lenses, 2 eye droppers, 16 spatulas, bottle of water, bottle of vinegar, 2 sample cups labelled "water", "vinegar", 16 sheets A^5 black paper, instruction card, recording sheet, teaspoon (for teacher).

Questions/instructions:

Before team arrives, put a teaspoon of each powder into labelled sample cups. Put about 20mls water and vinegar into labelled sample cups. Put an eyedropper in each beaker.

In most homes you will find different kinds of powders. Powders are used for many different 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 containers that looked the same, and they didn't have name labels. It could be hard to know which one was which.

I have 4 containers with different powders that are found around most homes. The labels don't say what they are. They only say A, B, C, D.

I want your team to find out as much as you can about each of the powders. You have black paper for putting the powders on so that you can study them more easily. You also have spatulas, hand lenses and two eyedroppers. Use one eyedropper for the water and one for the vinegar. You can use any methods except one: you must not taste the powders.

I am going to give you one powder at a time. I want you to find out as much as you can about each powder then I will write down what you found out.

Show students the results sheet.

A	**Powder A is** Reasons: What we discovered about the powders.
B	**Powder B is** Reasons: What we discovered about
C	**Powder C is** Reasons: What we discovered about
D	**Powder D is** Reasons: What we discovered about

TEAM INSTUCTIONS

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 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 cane examine them more easily. You also have spatulas, tweezers, and lenses, eye droppers for putting water with thesubstances, and some empty beakers.

DO NOT TASTE ANY POWDER

This instruction card reminds you what to do.

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

You can start by examining powder A. Here is the container with powder A in it. Try to find out as much as you can about the powder.

Give students powder A. Allow about 3 minutes.

Tell me what you think powder A is and why you think it is that.

Prompt students to give detailed descriptions of powders.

I want you to tell me everything that you have found out about powder A. I'll write your ideas down.

Repeat for powders B, C, D

		% responses y4
Powder A	identified baking soda	76
	key tests: bubbles with vinegar	89
	relevant observations: 2	33
	1	39
Powder B	identified lemon drink	27
	relevant observations: 2	54
	1	32
Powder C	identified flour	90
	key tests: sticky, gluey when wet	83
	relevant observations: 2	47
	1	48
Powder D	identified washing powder	86
	key tests: slippery, soapy when wet	36
	relevant observations: 2	50
	1	39

Commentary

Students greatly enjoyed this task and enjoyed good success at identifing the powders and explaining why.