[ACTIVITY DETAIL]

30 MINUTE ACTIVITY

WHAT'S IN MY BREAKFAST CEREAL?

Children examine the ingredients found in a bowl of breakfast cereal, such as muesli or granola, as their understanding of mixtures is nurtured through class discussion. They are challenged to separate and sort these ingredients, explaining criteria used for grouping and classifying. Children can take and annotate photographs of the separated ingredients; using cereal box information for identification purposes.

TYPE OF ENQUIRY

Identifying, classifying and grouping

OBJECTIVES

- To explore and describe a mixture made from solid ingredients
- To group, sort and classify solid ingredients in a mixture
- To understand that mixing is a reversible change

To be able to:

- Explain mixing as a reversible change

SCIENCE VOCABULARY

Mixture	Reversible	Change
Identify	Classify	Sort
Solid	Ingredients	Separate
Group		

RESOURCES

Per group of 2-4 children:

- Small bowl of breakfast cereal with visible varied ingredients (eg: good quality muesli, granola or brands such as Fruit and Fibre)
- Hand lens (optional), list of ingredients from cereal packaging.
- Kitchen Chaos cartoon strip (optional)

Note: Supermarket brands are cheap, but contain fewer ingredients.

PRIOR KNOWLEDGE/EXPERIENCE

Children will have compared and grouped materials, focusing on similarities and differences.

ACTIVITY NOTES

At any time during the nine activities in this resource, the Kitchen Chaos cartoon can be shared on-screen with the class.

Ask children if they can explain to a partner exactly what a 'concoction' is (referring to the title of this resource). Responses might range from something a witch or wizard would brew in a cauldron to simply a mixture of different things.

Play a game of Taboo; one person explaining the secret word 'mixture' to a partner without saying either 'mix' 'mixed' or 'mixing' and children will find that it is trickier than they might think! By definition, a mixture is made where two or more substances are physically but not chemically combined and can be separated again by physical methods such as sieving, filtering, evaporating etc. For the purpose of these activities, we shall simply look upon mixtures as being formed when two or more substances are combined.

Explain that we are going to learn about different concoctions or mixtures that can be found in the kitchen, beginning by examining a simple mixture that children may have had for their breakfast that morning. Refer to Safety guidance and check for individuals with allergies before giving each group of 2-4 children a small bowl of cereal such as muesli or granola to examine and ask "Is your breakfast cereal just one thing or a mixture of things?" Challenge pupils to separate and sort the different ingredients, thus showing that it is made up of a mixture of lots of different things. You can refer to Questions for thinking to aid and extend class discussion.

Encourage children to explain how and why they have grouped ingredients in their chosen ways and whether they can identify any of the ingredients such as rolled oats, grains, fresh or dried fruits, seeds and nuts (using a hand lens and the list of ingredients as a secondary source of information). Children could record their classification of breakfast cereal by annotating and labelling photographs of the separated ingredients, as printed on a cereal box.

EXTENSION OR HOME-BASED ACTIVITIES

Pupils might like to create their own muesli or granola mixtures from a range of solid ingredients such as oats, grains, fresh or dried fruits, seeds and nuts. They could design cereal boxes or recipe sheets to accompany their 'concoctions'.

QUESTIONS FOR THINKING

- What mixtures have you used, or been in contact with, today?
- What mixtures can you find in your kitchen?
- Is your breakfast cereal just one thing or a mixture of different things? How do you know this?
- Is it easy or difficult to separate and sort the different ingredients in your breakfast cereal? Why?
- Can you put all the ingredients back together again?
- What type of scientist do you think would experiment with and explore mixtures?

SAFETY GUIDANCE

- Please use the following health and safety information to produce your own risk assessment for this activity:
- Prior to this activity, check for individuals who may be allergic to any of the ingredients used in cereals, in particular those with nut allergies.
- Good food hygiene is fundamental in the safe preparation of food whether it be at home or in the classroom. It is essential that teachers are aware of the potential risks associated with the preparation of food in school.

INDUSTRY LINKS AND AMBASSADORS

Links can be made with the food industry via local companies and company websites. The **STEM Directories** is a great place to start looking.

The process of combining ingredients is far more technical than you would first think. Specialist equipment is developed by engineers who need to find solutions to problems such as the ingredients sticking together, contamination of natural ingredients with small stones or grit and incomplete mixing to avoid powdery residue left at the bottom of the cereal box. X-ray machines can be used to detect foreign bodies in mixtures too! Machine operation is often a skilled job, which requires specialist training.

If working with an Ambassador from the cereal manufacturing industry, do ask them to bring relevant images, video clips or artefacts related to the processes involved as well as any products at different stages of manufacturing to show to children.

CROSS CURRICULAR LINKS

English: opportunities to use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas. Also links to writing whereby pupils identify audience and purpose, as well as selecting the appropriate form.

Mathematics: links to sorting, classifying and grouping.

Design and Technology: the extension activity provides links to the planning and preparation of a variety of dishes