EDEN Academy Trust
Working together to make a difference

Science Curriculum – Cycle B

Upper Key Stage 2 – Autumn 2 and Spring 1

Theme – Properties and changes in materials (Chemistry)

Enquiry Question – How can materials be changed?

National Curriculum Coverage

Pupils should be taught to:
Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
Demonstrate that dissolving, mixing and changes of state are reversible changes
Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Key Scientist: Spencer Silver

Comparative Test

Which type of sugar dissolves the fastest?

Fair Test

Does the temperature of water affect how long it takes for a sugar cube to dissolve?

Observation over time

How does a container of saltwater change over time?

Pattern Seeking

Do all stretchy materials stretch the same way?

Research

Who was Spencer Silver and Ruth Benerito and what new materials did they create?

Objective	Challenge	Working Scientifically	Vocabulary
• To compare and group together everyday materials on the basis of their properties - hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. • To give reasons for the particular uses of everyday materials - Wood, metals and plastic - To set up comparative and fair tests to give these reasons	• To work out which materials are most effective for keeping us warm or for keeping something cold • To use their knowledge of materials to suggest ways to classify (solids, liquids, gases) • To explore the work of chemists who created new materials eg. Spencer Silver	See separate objectives sheet.	Materials, classify/group, properties, hardness, soluble, transparent, conductivity (thermal/electrical), dissolve, melt, freeze, solution, substance, irreversible, reversible, solid, liquid, gas, separation, filtering, sieving, evaporation, condensation, chemical

• To know and explain that some materials will dissolve in liquid to form a solution - To know that when a material dissolves it is soluble and creates a solution - To know that when a material doesn't dissolve it is insoluble • To know and describe how to recover a substance from a solution • To use knowledge of solids, liquids and gases to decide how mixtures might be separated - Filtering, sieving and evaporating • To demonstrate that dissolving, mixing and changes of state are reversible changes - To know the difference between reversible and irreversible and use these confidently • To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible - changes associated with burning and the action of vinegar on bicarbonate of soda. - To know that melting and dissolving are difference processes	(glue on sticky notes) or Ruth Benerito (wrinkle free cotton) **or own challenges*		change, reaction, change of state

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Prior to Teaching (Entry Point) What knowledge do we expect children to have remembered which we are going to build on in this unit?	Assessment Exit Point By the end of the unit, what knowledge must children know/remember to be ready for the next unit?
1. Can you name 3 different materials? 2. Can you name an object and the material it is made from? 3. Can you name a solid? 4. Can you name a liquid? 5. Can you name a gas? Vocabulary: solid, liquid, gas, material, melt	1. Can you group these items based on their properties? Metal, glass, wood, plastic, cotton and rubber. 2. What does it mean when a substance is soluble? 3. How could these mixture be separated? Rice and paper clips, salt and water, sand and raisins. 4. What does it mean if a change is reversible? 5. Give an example of an irreversible change? Vocabulary: reversible, irreversible, dissolvable, mixture, soluble, substance