

Quest: Children are going on an expedition and need to find the most suitable material for their outfit.



Year 5: Science Medium Term Plan: Autumn 1



Texts:

Kensuke's Kingdom - Michael Morpurgo
<https://www.stem.org.uk/resources/community/collection/341333/kensukes-kingdom-properties-materials>

Key Vocabulary:

hardness, solubility, transparency, magnetic behaviour, electrical and thermal conductivity, property, material, classify, criteria, function, suitability, ceramic,

Areas of learning (subject):

History - Creating a suitable exploration outfit

Resources:

Plugs, screwdrivers, cosmic ball, ski jacket, spoon, water, droppers, magnets, rubbers, wool hat, towel, torch, fabric samples, bin bags, sugar

Significant individuals

Ruth Benerito, who invented wrinkle-free cotton. By attaching organic chemicals to cotton fibres, Benerito and her team made cotton fabric not just wrinkle resistant but also stain and flame resistant.

Curriculum

What will we learn?

Children will be able 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

Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

Working Scientifically:

Gather and classify data in a variety of ways

Relate conclusions to patterns and observations

Use scientific evidence to report on findings

Creativity:

How will we show we understand in multiple ways? What elements of Working Scientifically will we cover?

Lesson 1

Describe a material by listing its properties. Record their material, describing its properties, using Chatterpix to share with Y3. List the different ways of classifying the materials they have identified. *WS: Gather and classify data in a variety of ways.*

Lesson 2

Complete a survey of different materials and their purposes. Take an electric plug apart and look at the different materials inside. Use a cosmic energy ball to demonstrate complete and broken circuits. *WS: Begin to relate conclusions to patterns, prior knowledge and observations. Recognise and control variables. Record findings using simple scientific language, drawings, labelled diagrams etc.*

Lesson 3

Investigate a ski/outdoor jacket and read about the development of different materials for extreme weather. Order a selection of materials according to how well they think they will insulate something. *WS: Make judgements about what has been seen and support with known facts. Use clear scientific evidence to answer questions or support findings.*

Lesson 4

Explore and compare materials, thinking about their suitability for certain purposes. Create a top tips for explorers poster linked to Kensuke's Kingdom. *WS: Begin to relate conclusions to patterns, prior knowledge and observations. Explain differences in testing and suggest modifications to improve accuracy.*

Lesson 5

Plan an investigation into appropriate materials to create an exploration outfit, giving reasons for their choices. *WS: Justify their theories with observations and conclusions*

Lesson 6

Carry out an investigation to identify the most appropriate material for an exploration outfit and record their results. *WS: Report on findings from enquiries, including oral and written explanations or presentations of results and conclusions.*

Connections

What are the connections to our curriculum past and present?

Connections to previous learning

Year 1

Describing the simple physical properties of a variety of everyday materials.

Year 2

Comparing the suitability of a variety of everyday materials for particular uses. Investigating how materials can be changed.

Year 3

Exploring the behaviour and everyday uses of different magnets.

Year 4

Constructing simple circuits considering electrical conductivity and insulation.

Connections to Future learning

Year 6

Constructing simple circuits including a variety of different components.

Community

What links can we develop 'Near and Far'? What opportunities will we create to use the outdoors?

Investigating materials in the school environment during lesson 2.

Links to introduction of synthetic fabrics such as nylon and polyester during the 1930's and 1940's in lesson 4.

Consider how clothing is designed to support explorers in their expeditions to hotter and colder climates.