Year Group: 2 Term: Spring

Uses of Everyday Materials

National Curriculum objectives

S1.1.x Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.

S1.2a Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.

Specific substantive knowledge—what we want learners to know in this year group?

- All objects are made of one or more materials that have been chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water.
- When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities.
- A material can be suitable for different purposes and an object can be made of different materials.
- Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc.
- This can be a property of the material or depend on how the material has been processed e.g. thickness.

What prior knowledge is this building upon? What should they focus on to build to age related? (Use with knowledge ladder)

- A material is what an object is made from.
- All objects are made of one or more materials.
- Some objects can be made from different materials e.g. plastic, metal or wooden spoons.
- Some objects have more than one material that makes them e.g. metal spoon with plastic handle
- Everyday materials include wood, plastic, glass, metal, water, rock, brick, paper and fabric.
- Objects can be grouped together by the material that they are made from
- Materials have different properties and can grouped together based on their properties

Key questions for AFL:

- *Can you describe why a certain object may be made from a certain material? What makes this a good choice of material for this object?*
- *Could this object be made of a different material? Explain another good choice of material?*
- *Would there be a bad choice of material for an object to be made from?*

Where is this learning progressing to? (Use with knowledge ladder)

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks)
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)
- Materials can be grouped according to their properties, such as whether they are whether they are solids, liquids or gases (Year 4—States of Matter)
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) (Year 4—States of Matter)
- 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. (Y5 - Properties and changes of materials)
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials)

Common misconceptions

Distinction between the properties of materials and the objects they are made into is vital—children are encouraged to focus on the material, not the object when describing properties. It is important that they explore off cuts or samples of different materials and not just in object form.

When exploring the properties of a material, it can be easy to make a judgement about the material but that it is the way it has been made that affects it e.g. plastic is bendy—this may be caused by making thinner plastics like a milk bottle or ruler, compared to making thicker plastic.

Working scientifically focuses

S1.1a Ask simple questions and recognise that they can be answered in different ways

S1.1b Observe closely, using simple equipment performing simple tests

S1.1c Identify and classify

S1.1d Use their observations and ideas to suggest answers to questions

S1.1e Gather and record data to help in answering questions

What types of enquiry will we be undertaking?

Identification and classification, comparative / fair testing

Process for enquiry or investigation

- Classify materials (rather than objects)
- Make suggestions about alternative materials for a purpose / object that are both suitable and unsuitable
- Test the properties of materials for particular uses including predicting suitability and comparing, recording data using tally charts / data tables
- Explore properties of materials to determine which is an actual property of the material and which might be related to how it is made e.g. is all plastic bendy? Is all metal strong?

How does it help learners develop their knowledge?

Children can clearly distinguish the difference between materials, their properties and their purposes and uses for making objects / products. They can identify why the property of a material would make it suitable for a purpose, and why a different material may be less suitable or unsuitable. They can use their knowledge of the properties of materials progressing through KS1 to predict how a material may behave when a change is factored in—describing what happens to the material if it is stretched / bent / squeezed / twisted etc. They can discuss whether the material may stay changed or go back to its original form. They can use this knowledge to further predict the best material to use for a certain purpose.

Key Vocabulary

Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching