Subject: Science – Uses of Everyday Materials	Year group: 2 Summer 1
Key Concepts: Objects are made of some materials that can be changed in shape by bending, stretching, squashing, and twisting.	

National Curriculum Objectives	BIG Question:	Scientific skill:	Enhancements:
• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Is the best suited material always the best choice?	Asking simple questions and recognising they can be answered in different ways	Testing straws

Prior learning:	Future Learning
• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)	• 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) • 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)

WHAT PUPILS NEED TO KNOW OR DO TO BE SECURE

Show understanding of a concept using key vocabulary correctly

By the end of this unit, the children will know:	
All objects are made of one or more materials that are 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.	• Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use • Can label a picture or diagram of an object made from different materials • For a given object can identify what properties a suitable material needs to have • Whilst changing the shape of an object can describe the action used • Can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot • Can recognise that a material may come in different forms which have different properties

Vocabulary explicitly taught:

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

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Common Misconceptions

Some children may think:

- only fabrics are materials
- only building materials are materials
- only writing materials are materials
- the word rock describes an object rather than a material
- solid is another word for hard.

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Objective: Identify and name a variety of everyday materials (wood, plastic, metal, glass, paper, fabric). **Cold Task** Present a "mystery bag" with objects inside. Children guess what materials they are made from. TA Writes post-its with responses. **Session 1:** Provide a range of classroom objects (e.g. spoon, book, bottle,	Always refer to the scientific skill and key question This term is asking questions and understanding they can be answered in different ways. 'Is the best suited material always the best choice?'				
	Session 2: To describe the properties of materials Introduce key vocabulary using real objects. And comparing to the key vocabulary mats on tables. **Main Activity:** "Investigation stations" where children test materials: Stretch test (elastic band vs paper) Waterproof test (plastic vs paper) Texture test (fabric vs wood) Record findings using simple tables or drawings into science books.	**Session 3:** To identify and compare the suitability of materials for different uses. Ask: Why are windows made of glass? Why are raincoats waterproof? **Main Activity:** Provide a range of straws – (single use plastic /metal/reusable plastic/paper) Children choose suitable materials and explain why. Record sentences in their books about their choice.	**Session 4:** To understand that some materials can be changed by squashing, bending, twisting, and stretching. Demonstrate bending wire vs snapping a stick or another demonstration with objects you can find. **Main Activity:** Children experiment with materials: Playdough/clay/blutac (squash) Fabric (twist) Card (bend)	**Discuss:** **Session 5:** To understand that materials can be reused and recycled. **Starter:** Discuss what happens to rubbish. GD – Write responses in books. **Main Activity:** Sort items into recycling groups (paper, plastic, metal). **Optional**: Design a new object from recycled materials (e.g. model or craft).	**Hot task:** Answering the Key question (Pupil voices) **Science quiz.** All Science Teacher judgements be returned to Olivia this week please.

toy). Children sort items into material groups. Create a class chart: *Object* → *Material*. For the Working wall. Discuss: Can objects be made from more than one material? **Activity:** Can children correctly name materials? Can they match objects to materials?	**Example:** The elastic is stretchier than the paper. The plastic is more waterproof than the cardboard. **Plenary:** Match materials to properties as a class. **Assessment:** Use of correct vocabulary. Ability to describe materials accurately.	**I think the ____ straw is the most suitable because _____.** **Plenary:** Introduce a letter from a turtle urging children to think about the environment when they choose a straw, and that reusable straws may be better. Share and justify choices. Explain that the oceans are littered with rubbish, and that the easiest choice or best suited choice may not be the best choice due to environmental impacts. **Assessment:** Can children explain *why* a material is suitable? Can they ask questions to challenge eachother on the suitability of different materials? Do they link properties to use? Children to edit their sentences if needed. Example: **The _____ straw is more eco friendly.**	Record how materials change in science books. Use stem sentences in demonstrations: 'The **material** was easily **manipulated/changed** because it is **property**.' Or The **card** was easily **bent** because it is **flexible**. **Plenary:** Children ask questions of each other about their tests. Which materials changed shape easily? Which did not? Why is this? **Assessment:** Ability to describe changes Understanding that not all materials behave the same.	**Plenary:** Why is recycling important? **Assessment:** Correct sorting of materials Understanding of reuse/recycling benefits	