

## Science – Year 2

### Materials

*How do the properties of materials dictate their uses?*

NC objectives - areas of study	End point of area of study	Vocabulary		
identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses  find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Pupils build on their knowledge of materials from year one by naming objects and the materials they are made from. They are able to talk about the different properties of materials and what makes them suitable for different purposes.  They use scientific vocabulary to describe how some solid objects can be changed using push and pull forces.	Basic	Adventurous	Technical
		Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching		opaque, transparent and translucent, reflective, non-reflective, flexible, rigid

### Knowledge

Substantive Knowledge	Disciplinary Knowledge
<ul style="list-style-type: none"> <li>● Retrieval</li> <li>● In y1 children name objects and the materials they are made from. They begin to choose materials for a particular purpose and know how some materials can be recycled.</li> <li>● Lesson 1</li> <li>● LO To know materials objects are made from.</li> <li>● <b>Object, material, wood, plastic, glass, metal, water, rock</b></li> <li>● Know that objects are made from materials such as wood, plastic, glass, metal, water, rock</li> <li>● Retrieval of objects and naming the materials they are made from.</li> <li>● Lesson 2/3</li> <li>● LO To know the properties of materials.</li> </ul>	<p style="text-align: center;"><b>Children work as Chemists and inventors to explore the properties of different materials and how they are suitable for different purposes and the development of some famous materials used today.</b></p> <p><b>How does our learning today help us to make sense of the world around us and the way materials are chosen and used?</b></p> <p><b>Similarities and differences</b></p> <p>Children ask and answer questions about materials and their properties, suggesting simple ways to explore their suitability for different purposes. They talk about different materials and their range of different properties. They can group materials according to their properties and confidently discuss their grouping, comparing their suitability for different purposes.</p>

- Know that materials have properties such as being **hard, soft, strong, weak, absorbent, heavy, light, solid, runny, smooth and rough**; these descriptions denote the properties of a material
- Lesson 4
- LO To know the properties of different materials.
- **Waterproof, strong, hard, soft, flexible, rigid, heavy, light**
- Know that many types of plastic are waterproof, that steel (a type of metal) is strong, that rock is hard, that cotton wool is soft, that rubber is flexible, that rock is rigid, that polystyrene (a type of plastic) is light and that iron (a type of metal) is heavy,
- Lesson 5
- LO To know materials have a range of properties.
- **opaque, transparent and translucent,**
- Know that materials can have useful properties for a given job (including being waterproof, strong, hard, soft, flexible, rigid, light or heavy.)
- Pupils identify the many different properties of materials through observation and exploration.
- Lesson 6
- LO To know materials have useful properties
- **reflective, non-reflective**
- know that materials can have useful properties for a given job, retrieval of properties of materials and they then choose materials suitable for different purposes.
- Lesson 7
- LO To know materials have useful properties
- **flexible, rigid**
- Know that materials can have useful properties for a given job (including being waterproof, strong, hard, soft, flexible, rigid, light or heavy.)
- Pupils retrieve the properties of materials and choose them for a particular purpose.
- Lesson 8
- LO To know how materials can change shape.

## Evidence

Using first hand experiences, pupils have used their senses to experience materials, their properties and suitability for different purposes. Using evidence from simple tests, they use observations to suggest further ideas and answers to questions. They gather evidence and record it in tables, annotated photographs and notes using the correct scientific vocabulary.

Children use research and information about famous inventors to look at how materials are chosen for their particular purposes successfully through the work of John Boyd Dunlop.

- **Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching**
- Know that applying forces to objects can change their shape, by squeezing, stretching, bending and twisting
- Lesson 9
- LO To know John Boyd Dunlop was a famous inventor.
- **Inventor, development, idea**
- Know that John Boyd Dunlop was a famous inventor of rubber wheels still seen in use today on many bicycles.

### Concepts

Biology

Chemistry

Physics

### SKILLS

1. Compare

2. Explore

3. Identify

4. describe

5. classify

6. Question

7. observe

8. test

9. record

10. research

### ASSESSMENT

**KNOW MORE, REMEMBER MORE, DO MORE...**

In this unit of learning, progress has been made when a learner knows more. This 'distance travelled' from the starting point is evidenced through them remembering more and doing more: in books, low stakes quizzes, retrieval, use of mind maps, answering the big question and being able to feel more confident about this unit.