

YEAR 2 UNIT 2: Materials Monster (Materials)

Enquiry Question: Why are materials suitable for different jobs?

Related units: Year 1 Unit 1: Celebrations -Do all materials make shadows?; Year 1 Unit 2: Polar adventures - Which gloves are waterproof? Year 3 Unit 5 – Opposites attract - What are the differences and similarities between magnets and forces

Unit overview

National Curriculum link Year 2: Uses of Everyday Materials. Children will identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. They will find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. They should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal – coins, cans, cars etc.) or different materials are used for the same thing (spoons – plastic, wood, metal but not from glass). They should think about the properties of materials that make them suitable or unsuitable for particular purposes and think about unusual and creative uses for everyday materials.

Assessment (Expectations)

1. Name 4 different types of material
2. Name the properties of these materials
3. Explain why one material is better for a job than another.
4. Name 4 ways in which materials can be changed

Scientific vocabulary

- Material
- Properties
- absorbent
- bend
- brittle
- bumpy
- concrete
- dull
- elastic
- fabric
- flexible
- glass
- made materials
- metal
- natural materials
- opaque
- plastic
- recycle
- rubber

Activities and working scientifically

Feeding time

Identifying and classifying

Sorting

Identifying and classifying

Research a Material

Using their observations and ideas to suggest answers to questions, gathering and recording data to help in answering questions

Under the microscope

Asking simple questions and recognising that they can be answered in different ways

Observing closely, using simple equipment, performing simple tests.

Materials in the Environment

Investigating what materials are used outside of the classroom and explaining why.

Cross-curricular links

Writing

- Plan and write up an investigation.

Maths

- Gathering and recording data.
- Compare size and volume.

Teacher knowledge

It is assumed that most children know, from their Foundation Stage experience, words such as wood, metal and glass, although they might not know how to write and spell them.

Set this topic in the context of the children meeting and befriending the Materials Monster. You could create a large display or a 3D monster both made from recycled materials, or have a special Materials Monster puppet and introduce the children to the character. The Materials Monster lives on different kinds of materials, eats them, uses them and likes to know everything about materials.

Tell children that they are going to design a new material for the Materials Monster. A material that does not already exist. What would be special about their material? What would it look like? What kind of properties would it have? What could it be used for? When they have thought about their material, they could design a poster that will tell the Materials Monster and children from their own class, as well as others in the school, all about their new invention.

Introduce children to a famous scientist like John Dunlop (tyres), Charles Macintosh (waterproof fabrics); John McAdam (tarmac); George de Mestral (Velcro)

Misconceptions

Difference between natural and made materials.

Plastic can only be hard or flexible.

Resources

BBC Bitesize – Materials <https://www.bbc.co.uk/bitesize/topics/zrsgsk7>

Virtual Experiments: <http://ve12.lgfl.org.uk>

How wool is made: <https://www.bbc.co.uk/teach/class-clips-video/primary-science-how-wool-is-made/zjyb92p>

How glass is made: <https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-how-flat-glass-for-windows-is-made/zm2tf4j>

How paper is made: <https://www.bbc.co.uk/teach/class-clips-video/primary-science-how-paper-is-made/zryb92p>

Making a woolly jumper www.youtube.com/watch?v=41jx0Ljy23A

Material lighter than air www.youtube.com/watch?v=ozfY7gZtRHs