

NC Science – 'Everyday Materials'

Pupils should be taught to:

- 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

TAFS:

1. I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
2. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

I can plan an investigation. TAF I

Gather hard materials: wood, brick, plastics, plaster, clay, metals. Can chn name them. Briefly identify **common** properties. Explore how to **pose questions**. Start with Do you think bricks are absorbent? (revisit vocab drawing on last week) Explain your answers. What other questions might you ask? Are all hard things waterproof? Do things have to be soft to be absorbent? Give a hypothesis. **'hard materials can't absorb water'**. Thumbs up/down.

Plan an investigation: Give chn time to devise an investigation to test the hypothesis using a variety of materials. Can they adapt last week's dangly paper test?

Predict and outcome. Chn to make a prediction and carry out the test.

Produce results – let chn find their own way to record observations as a group on paper. Could someone understand from your recording what you did and what you found out? Could they redo it using your sheet?

Provide a conclusion from results verbally to the class to share their investigation and their findings.

I can compare the absorbency of different materials. TAF I

Chn to explore a range of materials in trays on their tables to label. Do all materials have the same properties? Chn to discuss properties of materials. Gather WW of scientific vocabulary. Provide scenario: Your cat at home is always knocking over glasses of water. I want to mop up the water quickly. **Pose a question:** Which paper towel is the most absorbent? Show the class different types of paper towels (diff brands, school pt, paper, tissue – discuss their price, quality and thickness) **Predict an outcome** which paper towel giving a reason. Plan an investigation: Give chn time to discuss how they could find out which paper towel is best at absorbing water and share idea and how to measure results. (Pipette water onto table., place towel on for set time, how much water left? Compare how much water travels up paper strips that hang over edge of a cup and just touch water. Which reaches a line drawn on strip? Stretch papers over beakers and then count the number of drops placed on the paper until I can see it leaking through and into the beaker.) **Produce results** – discuss the best way to record results – table? Drawing? **Provide a conclusion** from results.

I can investigate what makes a material waterproof TAF I

<https://www.youtube.com/watch?v=EFdhyqkxzgc>

Watch video for chn to understand what the word 'waterproof' material means. It does not absorb water. Gather from chn words/phrases/questions that they link with the word 'waterproof' (coat, roof). Do they know what makes a material waterproof? Gather thoughts. Introduce materials for their investigation – How do we waterproof materials? Give fabrics, pipettes/syringes, water, wax crayons, cup to place material on, rubber band. How can you use these materials to test the material to find out if it is waterproof? **Pose questions.** How can you change an absorbent material into a waterproof material? What will you be observing/measuring? How will you know if it is waterproof or absorbent. What change do you expect to see? 1. Choose a fabric. 2. Drop water onto it using a pipette. 3. Watch the droplets. Do they get absorbed into the fabric or do the droplets sit on top? 3. Rub wax (a wax crayon) onto dry fabric. 4. Drop water onto the waxy side. 5. Watch the droplets carefully. What do they do? Is it different to the fabric with no wax? Why is wax making it waterproof? (wax is a layer protecting the fabric from absorbing the water, wax doesn't have holes large enough for water droplets to go through).

Produce results In their groups can chn draw and label a diagram that explains what is happening to the fabric when the wax crayon is applied. (two images of two materials labelled)

Provide a conclusion Can chn write a letter in response to someone asking how they can make a waterproof brown paper book cover waterproof?

I can investigate the best materials to make a waterproof coat TAF I

Why do we wear waterproof clothing? What waterproof clothing can you name?

Pose questions: We need to make a new rain coat for school dinner ladies. What is the most waterproof material for a coat? **Plan an investigation:** show chn equipment – pom pom (dinner lady cardi) materials, cup of water.

How can we use these? **Pick a variable** – explore together that this means in context.

Predict an outcome: Using knowledge so far, which do they predict will be most waterproof. Why? **Produce results:** What will we measure? How can we record our observations?

Provide a conclusion. Chn explain their recommendation in writing based on their findings. What is the most suitable material to keep the dinner lady dry. Extend learning – what if it was winter and she wanted to be warm as well as dry?

I can identify and compare the suitability of different materials. TAF I

Take chn outside – what everyday materials can they spot being used in different ways? Record on simple table (wood=fence) or take photos. Return to class. Ask chn to share their observations. What different uses did they find? Is there any way we can group some similar uses (properties of materials)? Encourage chn to think of materials which may be used for similar purposes e.g. building materials. Are chn able to group similar uses of materials together?

Revisit any unusual uses of materials and why they are chosen.

Chn to have some every day objects in trays, some made of different materials but the same (plastic/metal spoon). Chn to name objects and the materials they are made of (on post its). Discuss in groups why they think that they objects are made from that material. What are the properties and why does that make them suitable for that object?

Give chn scenarios to apply their knowledge of properties of materials to the creation of every day objects e.g. spoon for a toddler, hutch for a rabbit.

Challenge chn to think of same material – how many different uses can it have? (metal = cars, tin can, spoons, ring, key, money etc)

What does recycling mean? Introduce man made and natural materials. What happens if we keep using natural materials? What can we do to help save natural resources? How can we do this? Do you? Does school? What happens to materials when they are recycled?

What materials can be recycled? How does objects get collected? Discuss how this is done locally. (have to be sorted then council/collection points to take to) Why bother? (Recycling helps us to use less raw materials, reduces landfill and also reduces the amount of damaging greenhouse gases release.)

Sorting activity – classify objects by their materials using picture cards. Watch videos that show what happens to materials when they are recycled.

Can chn explain/create a persuasive poster about the benefits of recycling?

Explain...how to recycle, what can be recycled and why it important to recycle.

'recycle now' website for info/videos

I can understand how and why materials are recycled. TAF I

NC Working Scientifically (KSI)

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

Statutory requirements:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions



