

What are materials?



Metal, plastic, wood, glass... just some of the materials we use to make the things that surround us.

Materials are the matter or substance that objects are made from.

We use a wide range of different materials daily; these might include:

- metal
- plastic
- wood
- glass
- ceramics
- synthetic fibres
- composites (made from two or more materials combined together)

Different materials have different features, or properties, which make them suitable for different uses.

Each material can be used to make a range of different things; for example, wood can be used to make tables, chairs, spoons, pencils, shoes, doors, floors and many more things.

An object can be made out of different materials used together; for example, a chair can be made from metal and wood and plastic.

Watch the song below on materials.

<https://www.youtube.com/watch?v=7oViB7Hb79Q>

Task

We want you to go on a material hunt around your house. There is a sheet attached that you can use or simply write them in the book using the headings.

You could also...

- Find books about materials.
- Discuss what different items around the home are made from and why that might be?
- See how many objects you can find in a minute that are made from a particular material (for example metal or wood).

Here are some videos you may like to watch.

<https://www.bbc.co.uk/bitesize/topics/zrssgk7/articles/z9pgcdm>

<https://youtu.be/i6Vdz3wYREI?t=286>

<https://youtu.be/tGfLhPslEjQ>

Uses of Everyday Materials –Squash, bend, twist, stretch

Test 1

If you can it would be great if you could get a range of balls ready.

Would you choose a ball of plasticine to play tennis or table tennis? Why not? Do you think the squashy ball will bounce well? What sort of balls do you think will bounce best? Discuss these questions and write down their ideas and theories.

Why do you think balls bounce? Explain that balls bounce because they are elastic. When a ball hits a hard surface its shape changes – the part touching the ground flattens slightly. It gets back into its original shape quickly and bounces back up. Play this <https://www.youtube.com/watch?v=sVTJNv3-mWk> to show how the ball flattens and goes back into shape. Show your child the ball, which do they think will be the bounciest? Test it – where they right?

- Consider that the materials from which the balls are made may have an effect on their bounciness
- Consider: what does 'bounciest' mean? Is it the ball that bounces the highest or for the longest time?
- Discuss and design an investigation to test which ball is the bounciest

Test 2

Collect a selection of fabrics, including some made from stretchy materials.

How might your child sort them and why? What do they know about 'stretchiness' and stretchy fabrics. Ask: *What makes elasticity (stretchiness) a useful property for fabric?* Ask: *What happens when you pull a swimsuit etc and then let go (it goes back to its original shape; it sometimes goes a bit baggy).* Explain that there is a point where stretchy fabric can be overstretched and won't return to its original shape and size.

Which of the fabrics will be the 'stretchiest' and to put them in order on the table? Ask them to stretch the pieces of material in both directions (i.e. along, and at right angles to, the 'grain'), and also diagonally (i.e. on the bias), and make observation. Explore and observe the fabrics.

Test 3

Collect a selection of materials for each group, including lengths of wood, metal, plastic, card. Try and make these similar lengths. You could use plastic, metal and wooden rulers.

Look at images of bridges. Ask: Has anyone ever been on a bridge like these? The ones with the metal ropes are called suspension bridges and they are designed to move a bit. Do you know why? (So they don't break when the wind blows, or when traffic is heavy, etc.). Your challenge for today is to investigate the materials to see how bendy they are using weights, string and tape.

You could use this as a discussion point.

What material would be good for making a spoon?



I think wood is a good material for a spoon because wood is hard.

I think plastic wouldn't be a good material for making a spoon because plastic can be bendy.



I think cardboard would be a good material for making a spoon because it is quite strong but also flexible enough to cut out in the shape of a spoon.



I think metal is a good material for making a spoon because metal is hard and strong.



Please pick and choose the ones that interest you the most.

- 1) Why we should or shouldn't litter?

Watch the clip and have a discussion about litter and what we should do. Can the children create a litter poster, record their own advert or song? Get creative!

<https://www.bbc.co.uk/bitesize/clips/z8s87hv>

- 2) The Iron Man helps the world to become more peaceful. Think of ways that we can help to encourage people and countries to live more peacefully alongside each other?

- 3) Should we think of the environment when choosing materials? Why?