

Willerby Carr Lane Primary School - Science

Topic: Materials

Year: 2

Strand: Chemistry

What should I already know?

- What materials some objects are made from
- How to give simple descriptions of materials
- Which materials are made/ natural

What will I know by the end of the unit?

What are the properties of different materials?	<ul style="list-style-type: none"> • Wood - strong, opaque, stiff, hard • Plastic bag - bendy, smooth, translucent, stretchy • Glass - transparent, hard, smooth, waterproof • Brick - rough, strong, opaque, dull • Paper - translucent, flexible, not waterproof • Cardboard - rough, dull, opaque, not waterproof • Tinfoil - shiny, bendy, waterproof, opaque
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How can the shape of solids be changed?	The shapes of solid objects can be changed by squashing, bending, twisting and stretching.
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Who was John Boyd Dunlop?	<ul style="list-style-type: none"> • John Boyd Dunlop was a Scottish inventor, born 1840. • John invented a new design for pneumatic tyres to go on his son's tricycle wheels. • Lots of people started making tyres just in time for the development of motor vehicles. • The features of pneumatic tyres are a tube filled with air on the inside. Covering this tube is a layer of fabric. Over this layer of fabric is a layer of rubber. This is the part where tread patterns are added. • How the tyres look depends on what they are needed for. • Tractor tyres have enormous tread, so they can move easier on slippery mud. • Formula One racing have specially designed tyres for different temperatures and conditions. Pneumatic tyres can be broken by a puncture. A puncture is a hole in the tyre letting the air from the inside
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out. These tyres do not work properly with punctures.

What would not be a good choice of material?	<ul style="list-style-type: none"> • A chocolate teapot? • Newspaper wellies? • Jelly chair?
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Vocabulary

absorbent	material that soaks up liquid easily
bend	a curve or angle put into an object by shaping or applying force to it
brick	rectangular blocks of baked clay used for building walls, which are usually red or brown
brittle	hard but likely to break easily.
change	made or becoming different.
concrete	a building material made from a mixture of broken stone or gravel, sand, cement and water. concrete can be spread or poured and looks like stone when it is dry
dull	lacking in brightness, vividness or sheen
elastic	able to stretch and then return back to their original shape
fabrics	cloth produced by weaving or knitting textile fibres
flexible	materials that can bend easily
foil	sheets of metal as thin as paper
glass	a hard, brittle substance (usually transparent or translucent) made by fusing sand with soda lime and cooling rapidly.
hard	solid, firm and rigid; not easily broken, bent or pierced.
made materials	materials that come from natural materials but have been changed
material	a substance used to make things
metal	a shiny material which transfers (conducts) heat well and is usually a solid (at room temperature).
natural	materials that come from animals, plants or rocks
opaque	not able to see through (not transparent).

paper	material manufactured in thin sheets from the pulp of wood or other fibrous substances
plastic	a material which is light in weight and does not break easily
pneumatic	containing or operated by air or gas under pressure
property	a characteristic of something
recycle	to make use of an object or material multiple times.
rigid	materials that are stiff and hard to bend
rock	the hard substance which the earth is made of
rough	uneven and not smooth

rough	an uneven or irregular surface; not smooth or level.
shiny	things are bright and reflect light
smooth	no roughness, lumps, or holes
soft	not rough or hard
stiff	firm or does not bend easily
stretchy	slightly elastic
texture	the feel, appearance or consistency of a surface or a substance
transparent	a material allowing light to pass through so that objects behind can be seen clearly.
waterproof	does not let water pass through it
wood	the material which forms the trunks and branches of trees

Investigate!

- Look at which materials are used in the school building, why have they been chosen?
- Explore how materials can be changed – can they be squashed, twisted, bent, stretched
- Sort materials into groups according to how they can be changed
- Which materials can be recycled and how are they changed in doing so?
- Create foil figures by twisting, shaping, bending etc
- Change the shape of clay / dough
- Sort materials by their properties
- Test to see if a material is waterproof

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.

Squash



Bend



Twist



Stretch

