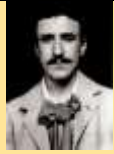




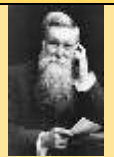
Key People/Scientists



Charles Mackintosh (1868-1928)
A Scotsman Charles Mackintosh created the first 'waterproof' fabric. It was made by squeezing liquid rubber in between two pieces of fabric, then pressing them together.



John Macadam (1827-1865)
A Scotsman John Loudon Macadam invented the first form of tarmac called Tarmacadam. The new form of tarmac on the roads we know today was made in 1901.



John Dunlop (1840 - 1921)
In 1887 John Boyd Dunlop developed the first practical inflatable tyre for his son's tricycle using his knowledge and experience with rubber.

Misconceptions

Misconception:
Material means a fabric.

Fact:
A material is anything that an object can be made from.

Key Questions

What is a material?	A material is anything that something can be made from.
What are the most common materials?	Wood, metal, plastic, glass, brick/rock, paper/cardboard and fabric.
How can you change the shape of some objects?	Squashing, stretching, bending or twisting.
What happens when you apply force onto a material?	In some materials the particles can move around so the materials can change shape. In other materials the particles are so close together that they cannot move at all.
What are properties of materials?	Physical features or behaviours of a material. E.g. One property of plastic is that it is waterproof.

Diagrams/Visual Aids

<p>Metal</p> <ul style="list-style-type: none"> Found in the ground, sometimes mixed in with rocks. Strong, hard, shiny, malleable (they can be hammered into a different shape without breaking and they can be stretched out into wires). Iron and steel are magnetic. Other metals are not magnetic. <p>Some metals are good electrical and thermal (heat) conductors.</p>	<p>Plastic</p> <ul style="list-style-type: none"> Made from oil. Strong, can be made into any shape. Not magnetic. Good electrical and thermal insulators. Can be coloured. <p>Can be transparent, translucent or opaque.</p>
<p>Fabric</p> <ul style="list-style-type: none"> Made of fibres woven together. Some fabrics are natural (the fibre comes from living things), e.g. wool, silk, cotton. Natural fabrics are quite expensive. Of natural fabrics, wool gives warmth and cotton is cool and absorbent (it soaks up liquids). Some fabrics are man-made, e.g. polyester, nylons. Man-made fabrics are usually easy to wash and dry and are hard-wearing. 	<p>Pottery</p> <ul style="list-style-type: none"> Made from clay which is first shaped and then heated. Strong, but glazed pottery can shatter. Usually opaque. <p>Can be made into objects that have different shapes.</p>
<p>Rock</p> <ul style="list-style-type: none"> The raw material of the Earth. They are underground, on beaches, in soil. Some rocks are hard, e.g. granite. Some rocks are soft, e.g. chalk. Some rocks are impermeable to water (they do not allow water to go through), e.g. slate. <p>Some rocks are permeable to water (they allow water to go through), e.g. sandstone.</p>	<p>Wood</p> <ul style="list-style-type: none"> Comes from trees. Strong, flexible and long lasting. An electrical and thermal insulator. <p>Used to make paper.</p>
	<p>Glass</p> <ul style="list-style-type: none"> Made from heating sand and chemicals together. Strong, but can shatter. Usually transparent. <p>Can be made into objects with different shapes.</p>

Key Vocabulary

elastic	The material can stretch.
flexible	The material can bend easily.
hard	The material does not dent or scratch easily.
opaque	The material does not let any light through.
rigid	The material will not bend or change shape easily.
strong	The material doesn't break easily.
suitability	Having the properties that are right for a specific purpose.
translucent	The material lets some light through.
transparent	The material is see-through.