

SUSTAINABILITY

YEAR 6

Autumn 2



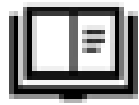
LESSON 1

What are everyday materials made from?



Do Now – Retrieval practice

1. What is a natural material?
2. What is a synthetic material?
3. Is wool natural or synthetic? Explain how you know.



Glass, ceramics and polymers are examples of everyday synthetic materials. Synthetic materials are materials that are 'man made'. Glass, ceramics and polymers are all solids so the particles are touching and arranged in a regular pattern. The particles in each material are slightly different giving the materials different properties. A property is a characteristic of a material, for example how hard or soft it is.



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Label the materials in the photos below:



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How are the particles in glass, ceramics and plastics arranged?



Match up the descriptive words with the correct definition

Transparent -

A material that you cannot see through

Opaque -

The temperature that a substance melts at

Brittle -

A material that does not let heat pass through it easily

Malleable -

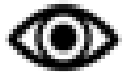
A material that will not stretch but will break under pressure

Melting point -


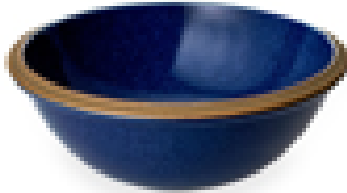

A material that you can see through

Poor conductor -

A material that will stretch instead of breaking when under pressure



Look at the properties of glass, ceramics and plastics in the table below:

| | Glass | Ceramics | Plastic |
|-------------|--|---|---|
| Picture |  |  |  |
| Description | Large structure made from silicon and oxygen particles | A large structure made from a metal oxide particles | A large structure made up of repeating units |
| Properties | Transparent, brittle, high melting point, poor conductor | Opaque, brittle, high melting point, poor conductor | Poor conductors, malleable, lower melting point |
| Uses | Windows, bottles, jars | Building materials, pots | Clothes, plastic bags |



1. Give one property of glass.

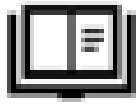
2. Why do you think the properties of glass make it good for making windows?

3. Give one property of ceramics

4. Why do you think the properties of ceramics make it good for making oven dishes?

5. Give one property of plastics.

6. Why do you think the properties of plastics make it good for making plastic bottles?



When they have reached the end of their useful life materials made of glass, ceramics and plastics usually end up in landfill sites. When you throw something away it is collected, along with all the other rubbish and taken to a landfill site. A landfill site is a very large hole in the ground in which we put all of our rubbish. Synthetic

materials such as glass, ceramics and plastics take a long time to break down, infact it takes 10-20 years for a plastic bag to decompose and 450 years for a plastic bottle to decompose! Not only do landfill sites not look very nice, they also produce harmful toxins and pollutants. Instead of throwing these materials away is better to use them again or recycle them to make new materials.



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1. What happens to materials when they are thrown away?

2. What are the problems associated with landfill sites?

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