

Yr 7 homeworks

1. Everyday we come into contact with many different materials, but what are materials? There are many different materials such as wood, metal, plastic stone, glass, plants, ceramics, Think about getting up in the morning to leaving your house and try to list at least 20 things you come into contact with and the material it is made from.

E.g. 1 pyjamas:cotton 2 carpet;wool. etc Draw one item, making it as realistic as possible

2. Below is a list of a number of items that can be found in the home. Make a sketch of each item and name the materials from which it is made.

Coffee table, golf club, garden spade, washing up bowl, a spanner, a drawing pin, a milk carton, a hacksaw, a necklace, a hairdryer.

3.

Hardness- Cutting tools have to be harder than the materials they cut, i.e. scissors

Strength - strong materials can be pushed or pulled without breaking

Stiff - Stiff materials do not bend easily and will break if forced

Toughness- Toughness tough materials can withstand a knock or impact,

Brittle - Brittle materials will shatter or split easily if knocked

Ductile - Ductile materials can be pushed or pulled into shape easily

Electrical resistance – electricity must not pass through it, heat con

4. Name 2 examples of materials that can be described as:

Hard....

Strong....

Stiff...

Tough...

Brittle ...

Ductile...

Electrical conductor...

Transparent....

Reflective....

5. Look closely at a pencil sharpener, sketch all the components (parts) individually, then identify the name of the materials they are made of, try not to use the words metal or plastic.

6. You should think of ten articles or systems that have changed over the last 50 or so years. Explain the difference and how the materials have changed

Article	Then	Now
Home heating	Open fire, coal, coke	Gas fire or central heating
Kettles	Copper kettles heated over a fire	Plastic electric kettles
Telephone		

7. If you were asked to design a new pencil case write down 3 things to consider before you begin your sketches. E.g. for a new wheel chair you would have to consider the size of the person, how much they are prepared to pay etc.

8. Find and sketch the logos for the following companies, Nike. Kellogg's, British telecom, BBC, channel 4, ford,

9. Sketch the following items used to join objects together.

I would use a nut and bolt to

I would use pva glue to

I would use a screw to

10. You can hear screams miles away when some people find a spider in the bath. Some people find it impossible to touch them, but few want to harm them. Sketch some designs for a device to safely remove a spider from the bath. It must be operated

Property selector				
Properties	Products			
	Tea tray	Shoes	Scissors	hammer
Hardness	3			
Strength	3			
Stiffness	3			
Toughness	4			
Brittleness	0			
Ductile	1			
Electrical conductivity	0			
Heat conductivity	0			
Heat resistance	5			
Texture	4			
Optical appearance	0			
Weight	5			
Looks	5			
Colour and finish	4			
Making	3			
absorbency	0			

with one hand at arms length so the user has little chance of coming into contact with the spider. It should not be possible for the spider to escape until it is placed outside.

Car body	Concrete
Shop sign	Teak
Door knocker	Stainless steel
Garden seat	Perspex (acrylic)
Water pipe	Brass
Garden path	Copper
Knife and fork	Mild steel

Sketch a dentist name plate. Name a suitable material then colour it to look like the material

Find a torch, mp3 player, mobile phone, or something similar, make a sketch of it and make notes on the good and bad points of the design. Are the controls easy or difficult to use, is it easy to change the batteries, what about the materials are they strong or light enough? Etc

Make sketches of at east two different types of clothes pegs, ask your mum which she thinks is best and why, do a test to find out which is the easiest to use. Which one grips the best? Do some hold large items better than others, design a package for ten pegs.

A caravan manufacture asks you to design a device that fits on a wall that hold a tube of toothpaste, four toothbrushes and a bar of soap separately from each other, because it is a touring caravan the items must stay in place when the caravan is moving.

School pencils sometimes get into pencil cases by mistake and it is difficult to identify them from one you buy in shops. To have the school name printed on would cost too much. Sketch 2 or 3 simple methods of changing the school pencils so that they can easily be identified

Make a detailed drawing of your front door, show all the fittings such as the letter box, lock, handle hinges etc. try to label the different materials for each item or part, try to explain why the material was chosen for the part. E.g. glass was chosen because it is fairly scratch resistant, lets in light and is fairly strong.