

Year 8 term 1a Design Technology knowledge organiser - Part 1

Core

How to safely use tools and equipment in the workshop.



We measure in millimetres.



Two categories of plastic: Thermoplastic and thermosetting plastic.

Thermoplastic melt when heated so can be recycled.



Thermosetting plastics cannot be melted so are not recyclable.



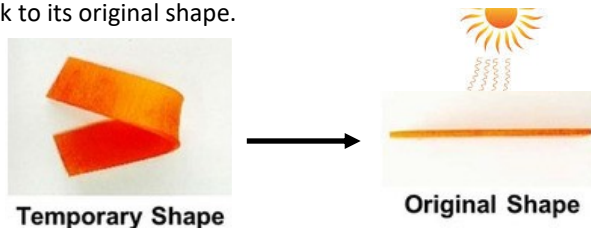
Most plastic are made from crude oil which is not sustainable as there is only a certain amount of crude oil under the ground.



Some are made from corn starch which are sustainable as more can plants can be grown to make them. Corn starch based plastics are biodegradable so rot down naturally in the environment.



Plastic memory is when thermoplastic is reheated and it goes back to its original shape.

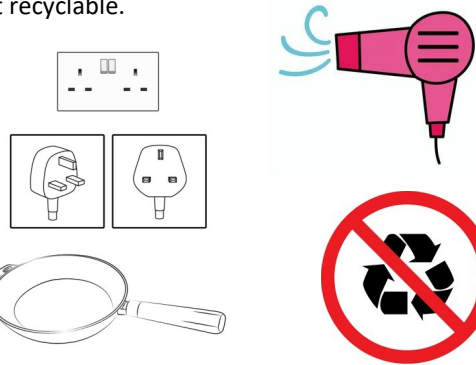


Good to know

Because thermoplastic can melt when heated it is only used to manufacture products that will not normally get hot enough to melt such as cups, bags and pens. They can be recycled.



Thermosetting plastics cannot melt so they are used for products that will get hot when being used. They are not recyclable.

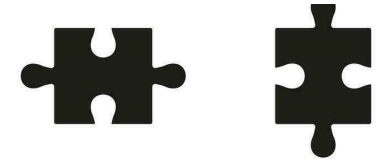


To remove the chemicals needed to make plastic from crude oil it has to be distilled. This is where the liquid is heated up and the different chemicals turn into a gas at different temperatures. It is then cooled and returned to a liquid as a simple chemical.



Applying knowledge

Be able to measure accurately when doing practical tasks so that the parts fit together and make a successful product.



Know the characteristics of plastic so the correct one can be used on a product.

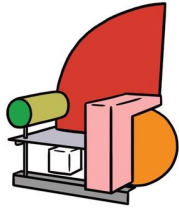
1	2	3
PET	HDPE	PC
Polyethylene terephthalate	High-density polyethylene	Polyvinyl chloride
waterproof, heat resistant, tough, insoluble	waterproof, semi-flexible, solid, heat resistant	transparent, translucent, tough and solid, long-term stability

Year 8 term 1a Design Technology knowledge organiser - Part 2

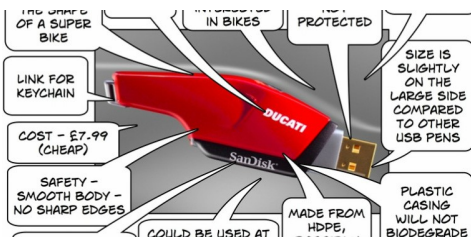
Core



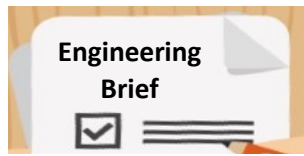
Memphis design style was popular in the 1980's. It is made up of bright colours and geometric shapes put together to create a product.



Product analysis: Looking at existing products to see what is good and bad about them. This can be used to help a designer come up with their own ideas.



This is a short statement telling the engineering what they will be designing and making.



ENGINEERING SPECIFICATION

This is a list of things a product should do that is given to the engineer.

Tools/machines that can be used to clean up the edges of acrylic plastics:



Wet and dry paper



File



Polish

Good to know

The **Memphis design** style came about as a reaction against dull boring furniture from the previous decade.



Memphis furniture was not that successful as it was expensive and not practical to use.



Product analysis: To do a full product analysis the following areas should be considered:



Aesthetics means **what does the product look like?**
What is the: Colour? Shape? Texture? Pattern? Appearance? Feel? Weight? Style?



Cost means **how much does the product cost to buy?**
How much does it: Cost to buy? Cost to make?
How much do the different materials cost? Is it good value?



Customer means **who will buy or use your product?**
Who will buy your product? Who will use your product?
What is their: Age? Gender?
What are their: Likes? Dislikes? Needs? Preferences?



Environment means **will the product affect the environment?**
Is the product: Recyclable? Reuseable? Repairable? Sustainable?
Environmentally friendly? Bad for the environment?
6R's of Design: Recycle / Reuse / Repair / Rethink / Reduce / Refuse



Size means **how big or small is the product?**
What is the size of the product in millimeters (mm)? Is this the same size as similar products? Is it comfortable to use? Does it fit?
Would it be improved if it was bigger or smaller?



Safety means **how safe is the product when it is used?**
Will it be safe for the customer to use? Could they hurt themselves?
What's the correct and safest way to use the product? What are the risks?



Function means **how does the product work?**
What is the product's job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?



Material means **what is the product made out of?**
What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

Applying knowledge

Be able to understand an engineering brief/specification to design and make a successful product.

Have an understanding of a particular design style so that ideas can be created in a particular style.

Conduct a product analysis so ideas from existing products can be applied to your own ideas.

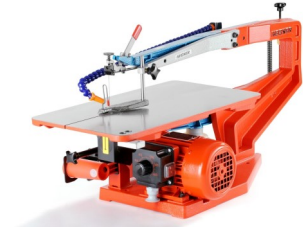
Year 8 term 1b Design Technology knowledge organiser - Part 2

Core

The tool used to cut plastic in straight lines or curves is called a coping saw.



The machine that does the same thing as a coping saw is called a vibra saw.



The machine that accurately drill holes into wood is called a pillar drill.



Tensol cement is used to attach two pieces of acrylic together. It works by capillary action where the cement is drawn under the plastic. It then chemically melts it together. It is applied by a brush as it evaporates very quickly.



Good to know

Once you have cut out your design out of a piece of wood it can be easily cleaned up using a linisher. This machine sands straight or outside curved lines into wood. A dust



Eye protection must be worn

extractor needs to be on at the same time to reduce dust in the air. Don't forget eye protection!



Tools/machines that can be used to clean up the edges of acrylic plastics:



Wet and dry paper



File



Polish

CAD/CAM can be used to manufacture stickers. CAD stands for computer aided design and CAM stands for computer aided manufacture. This can be used to make numbers for the clock.



Able to use the tools discussed to accurately make chosen developed design.