








Design & Technology

'Literacy Layer'

At KS3 pupils are given theory sheets that support the practical design & make tasks that they complete during the year. This extends the subject knowledge and understanding

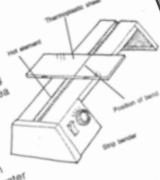
Softwood  Thin needle like leaves Softwoods come from coniferous trees. They keep their needle like leaves all year round, they are often called evergreens. They grow quicker than most hardwoods and wood is easier to cut and shape.	Hardwood  Oak leaf  Beech leaves Hardwoods come from deciduous trees. They have broad flat leaves that they lose in winter time. They grow slowly and they are generally harder and heavier than softwoods. Not all hardwoods are hard...balsa wood for example!
Manufactured boards Manufactured boards are made in factories from thin layers of wood (veneer) or, wood chips or wood dust. They are flat and stable, they come in large sheets of material. Examples are: Plywood Block board Chipboard MDF    	

Working with thermo-polymers

RE-FORMING THERMOPLASTICS:
To re-form thermoplastics we first need to heat them up. This can be done in several ways but the two we most often use at school are using a strip bender and a vacuum former. Both methods use sheet materials.

STRIP BENDING:
The strip bender is used for bending the sheet along a straight line. The sheet of plastic is placed over a thin slot which has a heating element behind it. In this way only the area to be bent is heated up. When the plastic is hot enough it becomes floppy and can be bent over the edge of a bench or a specially made former. The bend needs to be held in place until it cools down or alternatively it can be dipped into water to make it set instantly.

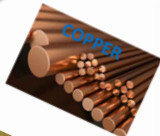

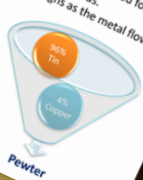
VACUUM FORMING:
The vacuum former is used for making complicated shapes. The plastic sheet is fastened above the mould which is being formed in an air tight frame. The mould itself is on a table which can be raised up to the plastic when it has been softened. To heat up the plastic a heater is pulled over it. When the plastic is hot enough the table is raised up and a powerful vacuum is switched on which sucks out all of the air and pulls the soft plastic down over the mould.
The mould itself has to be carefully designed with tapered sides so that it will come out after the plastic cools. (Rather like getting the jelly out of a jelly mould when it has set.)



Pewter Casting


1. Pewter is a **maluable, non-Ferrous Alloy**. It contains 85%-99% tin, as well as other metals such as copper and/or silver.
2. Pewter has a low **melting point** at 220° degrees centigrade.
3. Pewter is a less expensive metal to use when casting, in comparison to more expensive metals such as Gold and Silver.
4. Pewter was first used in the beginning of the **Bronze age**. The earliest piece of pewter found is from an Egyptian tomb from 1450 BC.
5. Pewter is soft metal which can be easily polished. Pewter is used in decorative objects such as jewellery, it is also used for tableware for example such as serving plates and tankards.
6. Pewter is used to cast intricate designs as the metal flows easily in and around a mould.

1370 °C Steel
1000 °C Gold
220 °C Pewter



HOW TO BUILD A ROBOT

MAKE ONE FOR ONLY £18!




START TODAY! BUILD A HEXBUG-TYPE BOT IN MINUTES
STEP-BY-STEP ROBOTS EXPLAINED IN OUR SIMPLE GUIDES
FUN FOR ALL! PERFECT FOR KIDS AND ADULTS ALIKE

Further reading could include books on designing, building or upcycling their own products.

THE Go Kart MANUAL

CONTENTS INCLUDE:

- the history of go-karts
- construction basics
- the classic kart
- ten custom designs
- safety and maintenance



BY IAN AND JULIAN BRIDGMAN

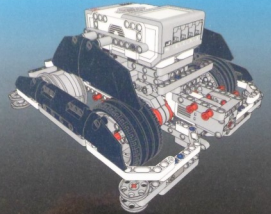
Winning Design!

LEGO MINDSTORMS EV3 Design Patterns for Fun and Competition



Second Edition

by James Jeffrey Trobaugh

Apress



THE ULTIMATE BOOK OF DOING UP OLD JUNK



THE INVENTA BOOK OF STRUCTURES



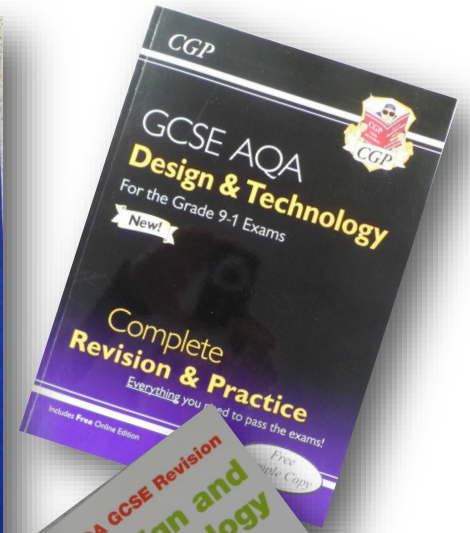
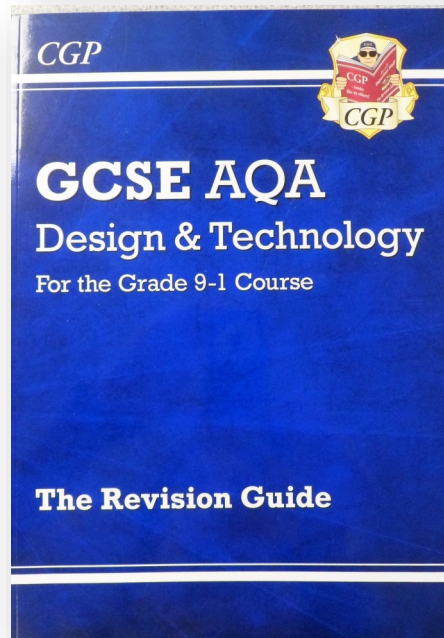
A VALANT TECHNOLOGY PUBLICATION

Design & Technology

'Literacy Layer'

At KS4 pupils are use the CPG blue theory book for homework, this targets topics related to in class practical design & make tasks, they complete four pages of reading per fortnight. This extends their subject knowledge and helps them be exam ready.

Further reading could include revision guides on sale in school shop or books on design or designers, higher level personal practical projects or future career pathway information.



- The Bauhaus was a German art and architecture school which existed from 1919 to 1933. It was founded by Walter Gropius, a German architect.
- The Bauhaus wanted to design and manufacture products, architecture and print that was functional, cheap and compatible with mass production techniques.
- They believed strongly in honesty of materials and that a product's function should be reflected in its aesthetic qualities.
- New materials and manufacturing processes provided a catalyst for much of their work.



Design Classics

Coca Cola Bottle

Dean's original concept drawing of the Coca-Cola bottle.

The prototype never made it to production since its middle diameter was larger than its base, making it unstable on conveyor belts.

The equally famous Coca-Cola bottle, called the "contour bottle" within the company, but known to some as the "ribbed skirt bottle", was created by bottle designer Earl R. Dean. In 1915, the Coca-Cola Company selected a competition among its bottle suppliers to create a new bottle for the beverage that would distinguish it from other beverage bottles. The bottle was not a perfect cone or cylinder as every other bottle of the time, and so it was called a "contour bottle". A person had to be able to grasp it with one hand.

Dean was inspired by a picture of the gas-station owner's son in the Enquirer magazine. He made a rough sketch of the good and he sketched the shape of the good into a bottle. The bottle design was published in November 1915.

Dean was inspired by a picture of the gas-station owner's son in the Enquirer magazine. He made a rough sketch of the good and he sketched the shape of the good into a bottle. The bottle design was published in November 1915.

Designed by Earl R Dean, 1915