

Keywords

Market Pull When a product is made due to consumer demand.

Technology Push When advances in technology drive the design of new products and the redesign of old ones.

Product Analysis Examining a current product to get ideas for a new product.

CAD Computer Aided Design. Using computers to design a product.

Fibres A thin, hair like structure from a natural or man made source that can be spun in to a yarn.

Non-woven A fabric made from layers of fibres, held together by bonding or felting.

CAM Computer Aided Manufacture. Making a product using a computer.

Design brief The instructions that a client gives to a designer about what they want a product to be like.

Market Research Asking the target market questions to find out their likes/dislikes to help the designer understand what they want from a product.

Equipment & Processes

Tailor's chalk is used to transfer markings on to your fabric that you can remove later.

Fabric shears are used to cut out fabric. They have long, very sharp blades that cut through fabric more easily and neatly.

Paper scissors are used to cut out patterns.

Pinking shears to cut fabric with a zig-zag edge—this helps prevent fabric from fraying.

Measuring tapes are used to accurately measure curved surfaces e.g. a person's waist.

Stencilling: Cut out design from card by hand or using a laser cutter. Position on fabric and apply colour using sponge/brush. The colour will appear in cut areas.



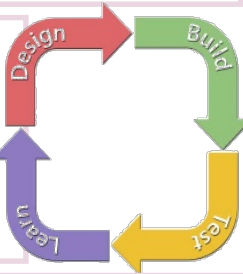
Key Concepts

Modelling:

Modelling is a good way to spot and solve problems with your designs. You can try out different aspects of your design to check it works before producing the final product.

Iterative design:

is when you continually test and improve a single prototype, until you have created a design that you're happy with.



Non Woven Fabrics:

Non-woven fabrics turn fibres into fabrics without first spinning them but, instead, by felting or bonding them.

Felted - the most common is made from wool fibres matted together using moisture, heat and pressure; it has little strength, drape or elasticity and is expensive but is warm and does not fray; used for hats, slippers and in handcrafts

Bonded - made from webs of synthetic fibres bonded together with heat or adhesives; they are cheap to produce, easy to sew, crease-resistant, do not fray and are stable to washing and dry-cleaning - but are not as strong as woven or knitted fabrics; mainly used for interlining.

Design and Technology – Food

Key Vocabulary

Nutrients	The components that make up food.
Balanced diet	A diet that contains all the nutrients in the correct amount.
Carbohydrate:	One of the five nutrients. A macronutrient.
Dietary fibre:	A complex sugar found in the cell walls of plants.
Digestive system:	Parts of the body where food is broken down to provide nutrients.
Wholegrain:	The whole grain is crushed and often made into flour, e.g. wheat flour.
Sensory descriptors:	Words to describe the appearance, taste, and texture of the food.
Aroma:	Smell
Yeast:	A single-celled plant fungus and a biological raising agent that needs food, warmth, time and liquid to grow and ferment.
Fermentation:	The process in which yeast produces the gas carbon dioxide.
Dough:	A mixture of dry ingredients and liquid that is mixed, kneaded and shaped and then baked.
Prove:	Leaving dough to rise
Knock back:	Knocking out the air and kneading the dough again.
Bacteria:	Microscopic living organisms, which are single-celled and can be found everywhere.
Temperature danger zone:	Bacteria grow most rapidly between 5C—63C
Salmonella:	A food poisoning bacteria
Binary fission:	How each bacterium reproduces by splitting in two.
Food poisoning :	An illness caused by eating contaminated food.
High Risk:	Ready-to-eat moist foods, usually high in protein, for example cooked rice.

Food Safety

Food can become contaminated with bacteria from:

- Raw foods
 - Work surfaces and equipment
 - Food handlers
 - Pests
 - Waste food and rubbish
- Food poisoning often causes symptoms such as: nausea, vomiting, diarrhoea and stomach pain.



Raising Agents: are added to mixtures to make them rise. Many baked items such as bread, pastries, cakes and biscuits depend on raising agents for their soft, light, springy texture. The three types of raising agents are **chemical, mechanical** and **biological**.

Baking powder: is a chemical raising agent used in cakes such as a Victoria Sandwich cake. Baking powder reacts with moisture and heat to produce the gas carbon dioxide. The carbon dioxide forms small bubbles in the mixture, which makes it rise. This results in a well risen, light cake.

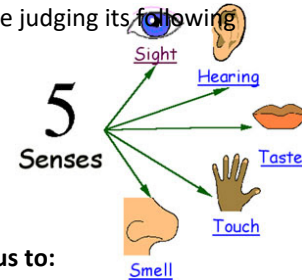
Key Temperatures

5C — 63C—Temperature danger zone
63C and above — Hot held food
75C—Cooked Food

Sensory Evaluation

When you eat food, you are judging its following characteristics:

- Appearance
- Taste
- Smell— aroma
- Texture—mouthfeel



Sensory evaluation helps us to:

- Make sure that a food product meets expectations. For example a strawberry yoghurt has the appearance, texture and aroma that is expected.
- Make sure that a food product compares with other similar products.
- Check on the quality and shelf-life of food products over time.

Why is fibre important?

Fibre is important as it keeps our digestive system healthy by helping the food waste travel through the body more easily. If you don't eat enough fibre, this can cause constipation, which can eventually lead to cancer of the bowel.

Yeast is a biological raising agent. It is a single-celled plant fungus. Yeast is used to raise bread and doughnuts. Yeast uses the flour, sugar and water or milk to ferment and produce carbon dioxide and alcohol. The carbon dioxide gas expands and collects as small bubbles throughout the dough. This will make the dough rise. When the dough is baked in the oven, the yeast is killed and the alcohol escapes and the dough sets.

-18C — Temperature of a freezer
5C — Temperature of a fridge

Design and Technology – Food

Eatwell Guide

The Eatwell Guide shows how eating different foods can make a healthy and balanced diet. It divides food into groups and shows how much of each food group is needed for a healthy diet.

A traffic light colour coded food label which helps you choose healthy food

Foods high in fat and/or sugar have been removed from the main segments as these should be eaten less often and in small amounts.



8 Tips for Healthy Eating

1. Base your meals on starchy foods
2. Eat lots of fruits and vegetables
3. Eat more fish—including a portion of oily fish each week
4. Cut down on saturated fat
5. Eat less salt
6. Get active
7. Drink plenty of water
8. Don't skip breakfast

Macro Nutrients

Protein	is needed for growth, repair, maintenance and energy. <i>examples</i>
Carbohydrate	provides the body with energy. <i>examples</i>
Fat	keeps the body warm, provides energy, protects vital organs and provides fat soluble vitamins <i>examples</i>

Micro Nutrients Vitamins & Minerals

Vitamin A	Keeps the eyes and skin healthy <i>Liver, milk, carrots, red peppers</i>
Vitamin B	Releases energy from food <i>Bread, fish, broccoli, liver, milk, peas, rice</i>
Vitamin C	Keeps connective tissue healthy. Helps the body to absorb iron <i>Oranges, blackcurrants, broccoli, red and green peppers</i>
Vitamin D	Helps the body to absorb calcium for strong bones and teeth <i>Butter, eggs, milk and oily fish</i>

Calcium	Builds strong bones and teeth <i>Yoghurt, cheese, milk, tofu</i>
Iron	Keeps red blood cells healthy <i>Green vegetables, beans, fish, egg yolk, red meat</i>
Sodium (Salt)	Keeps the correct water balance <i>Cheese, bacon, salted nuts, ready meals</i>

Design and Technology – Workshop

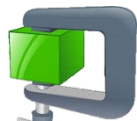
Key Vocabulary

Research:	How to gather information that helps form a design idea.
Designing:	The process of drawing and thinking about a problem and coming up with a solution.
Planning:	Organizing your time and materials so that you can complete task as efficiently as possible.
Making:	The process of cutting and manufacturing the project.
Evaluation:	Reflection of what has been done and recording how you could improve next time.
Pine:	A softwood used to manufacture indoor products and furniture.
Timber:	The word to describe wood in general terms.
MDF:	Medium density fiber board
Softwood:	A wood type such as pine
Hardwood:	A wood type such as ash
Plywood:	A man-made laminated wood with glued layers
Computer Aided Design (CAD):	Use of computers to design and manufacture a product.
Industrial Production:	Large scale manufacture of products
Template:	Instructional drawing measurements included
Coping Saw:	A type of saw to cut wood
Glass Paper:	Sand paper
Tenon Saw:	A type of saw for cutting tight corners
Chisel:	A sharp bladelike tool for carving wood.
Try Square:	A tool for marking at 90°
Marking Gauge:	A tool for marking out continuous lines in wood
Mallet:	A type of hammer
Pillar Drill:	Vertical drilling machine
Bench Hook:	A device to secure work to the bench and cut safely.
Materials:	The wood used to manufacture the product
Equipment:	The tools used in the project

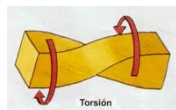
What is a force? A physical influence that tries to change the position of an object.



What is compression? When an object is being pushed or squashed.



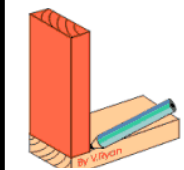
What is torsion? When an object is being twisted



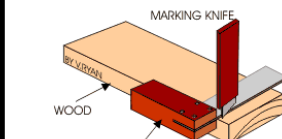
What is tension? When an object is being pulled



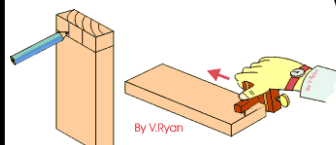
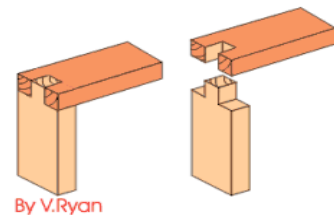
Tools, Equipment and Processes



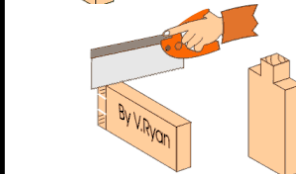
- Two sides to be jointed are arranged as shown in the diagram. A pencil is used to mark the thickness of the material.



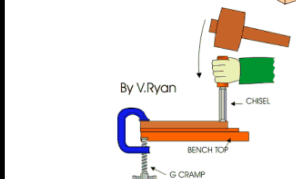
- Marking knife and a try square are used to mark all the way round the material. It is possible to use only a pencil but a marking knife is more precise and it has the advantage of cutting the wood fibres. This means when a saw is used to cut the joint the surface of the wood is less likely to split.



- Fingers of the first joint are marked out using a pencil and a try square/steel ruler. The traditional way of marking the fingers involves the use of a marking gauge. When using a marking gauge, marking the fingers is difficult especially if you have not used this type of tool before. The waste wood should be shaded with a pencil. This will help you avoid cutting away the wrong part of the joint.



- The wood is placed in a vice. It must be vertical so that the tenon saw is always cutting down in a straight line. Avoid putting the wood in the vice at an angle as it will be virtually impossible to use the saw accurately. When cutting it is important to cut on the waste wood side of the line. It should be possible to see the marking out lines after the saw has been used.



- If the joint is slightly inaccurate a firmer or bevel-edged chisel can be used to correct it. A G clamp is used to hold the wood firmly. Scrap wood is placed underneath to protect the surface of the bench from the chisel. The first side of the joint should now be complete.

Material Properties Keywords

STRENGTH:	The ability of a material to stand up to forces being applied without it bending, breaking, shattering or deforming in any way.
ELASTICITY:	The ability of a material to absorb force and flex in different directions, returning to its original position.
PLASTICITY:	The ability of a material to be changed in shape permanently. E.G. casting molten metal.
DUCTILITY:	The ability of a material to change shape (deform) usually by stretching along its length.
TENSILE STRENGTH:	The ability of a material to stretch without breaking or snapping.
MALLEABILITY:	The ability of a material to be reshaped in all directions without cracking.
TOUGHNESS:	A characteristic of a material that does not break or shatter when receiving a blow or under a sudden shock.
HARDNESS:	The ability of a material to resist scratching, wear and tear and indentation.
CONDUCTIVITY:	The ability of a material to conduct electricity.