# Year 8 Food Preparation and Nutrition Essential Knowledge Sheet

**4 C's** Food hygiene is necessary in order to make food which is safe to eat. This involves more than just being clean. A simple way to remember all the important areas where safety could be an issue are the **4Cs**:

- **Cooking**
- **Cleaning**
- **Chilling**
- **Cross Contamination**



| Key Word | Meaning |
|---|---|
| **Bacteria** | Micro-organisms which can grow and multiply on food. Some can cause food poisoning |
| **Chilling** | Reducing temperature 0-4C to slow down growth of bacteria |
| **Cooking** | Using different methods to kill bacteria e.g. boiling, grilling, baking |
| **Cross contamination** | Transfer of bacteria from one thing to another e.g. equipment |
| **Danger Zone** | Temperature between 5 - 63C when bacteria multiply quickly |
| **Food Poisoning** | Caused by eating food infected with bacteria. Symptoms include sickness, fever and diarrhoea |
| **Food Spoilage** | When bacteria causes food to decay. Food will start to smell, lose texture or flavour. |
| **Gluten** | Protein in wheat flour, which makes dough stretchy |
| **High Risk Food** | Foods which may cause food poisoning if bacteria can multiply quickly |

| Nutrient | Food Examples | Main Function in Body |
|---|---|---|
| **Macronutrients - We need these in large amounts.** | | |
| **Starchy Carbohydrates** | Cereals, bread, rice, potatoes, pasta etc. | Give us slow release energy. (wholegrain versions are higher in fibre). |
| **Protein** | Meat, fish, eggs, nuts, seeds, pulses, lentils. | Growth, repair and maintenance of muscles. |
| **Fat** | Butter, lard, margarine, sunflower oil, olive oil etc. | Insulates our vital organs (heart, lungs etc) and keeps us warm. |

**Raising Agents**

**Biological –** Yeast, used in bread making.


**Mechanical –** folding, beating, whisking, sieving, creaming, rubbing in.

**Chemical** - Bicarbonate of soda, baking powder, S.R.flour.


**Useful Websites:**
http://www.foodafactoflife.org.uk/site.aspx?siteId=19&t=3
https://www.bbc.com/food/techniques
https://www.ifst.org/lovefoodlovescience/resources

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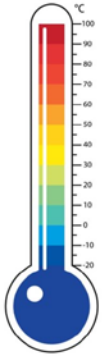
**Food poisoning**
Food poisoning can be caused by:
- bacteria, e.g. through cross-contamination from pests, unclean hands and dirty equipment, or bacteria already present in the food, such as salmonella;
- physical contaminants, e.g. hair, plasters, egg shells, packaging;
- chemicals, e.g. cleaning chemicals.

Bacterial contamination is the most common cause.
Microorganisms occur naturally in the environment, on cereals, vegetables, fruit, animals, people, water, soil and in the air. Most bacteria are harmless but a small number can cause illness. Harmful bacteria are called pathogenic bacteria.
The process of food becoming unfit to eat through oxidation, contamination or growth of micro-organisms is known as food spoilage.

**Bacterial growth and multiplication**
All bacteria, including those that are harmful, have four requirements to survive and grow:
- food;
- moisture;
- warmth;
- time.


**Temperatures to remember**
To reduce the risk of food poisoning, good temperature control is vital:
- 5-63°C – the danger zone where bacteria grow quickly.
- 37°C – body temperature, optimum temperature for bacterial growth.
- 8°C – maximum legal temperature for cold food, i.e. your fridge.
- 5°C (or below) – the ideal temperature your fridge should be.
- 75°C – if cooking food, the core temperature, middle or thickest part should reach at least this temperature.
- 75°C – if reheating food, it should reach at least this temperature. In Scotland food should reach at least 82°C. Remember to reheat food only once!




**Symptoms of food poisoning**
The symptoms of food poisoning include:
nausea;
vomiting;
stomach pains;
diarrhoea.

**People at risk**
Elderly people, babies and anyone who is ill or pregnant needs to be extra careful about the food they eat.

**Getting ready to cook**
Remove blazers and roll up long sleeves.
Tie up long hair and tuck in ties..
Thoroughly wash and dry hands.
Put on a clean apron.

**High risk food**
Bacteria easily multiply on foods known as 'high-risk food'. These are often high in protein or fat, such as cooked meat and fish, dairy foods and eggs. Cooked pasta and rice are also regarded as high risk foods if they are not cooled quickly after cooking and stored below 5°C.

**Moisture**
Bacteria need moisture to survive. Dried foods, such as powdered milk, cereals or dried egg do not support bacterial growth, if properly stored. However, if moisture is added, any bacteria still alive can quickly begin to multiply.

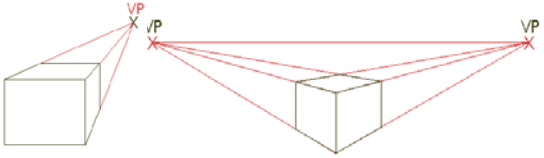
**Time**
When bacteria spend enough time on the right types of food, at warm temperatures, they can multiply to levels that cause illness.
Reheat food only once and eat leftovers within 48 hours.

**Fridge Storage**
**Cheese, dairy and egg-based products at top.**
**Cooked meats** above raw meats to prevent contamination from raw meat.
**Raw meats and fish on the b**ottom shelf below cooked meats and sealed in containers.
**Salad and vegetables s**tore in the drawer(s) at the bottom of the fridge.

Year 8 Graphic Products Mug Project Essential Knowledge Sheet.

| Key Term | Definition |
|---|---|
| Vanishing Point | Point(s) at which all lines in a perspective drawing appear to meet. |
| Horizon | The line on which the vanishing point(s) sit. |
| Logging | The harvesting of trees for paper production. |
| Deforestation | The removal of large areas of forest. |
| Pulp | Wood fibre reduced chemically or mechanically to pulp used in the manufacture of paper. |
| Raymond Loewy | 'The father of industrial design'- Loewy is famous for designing logos such for Shell and BP. He is also famous for 'streamlining' the design of vehicles. |
| Typeface | A set of fonts with shared characteristics. |
| Serif | A typeface with 'feet', or 'flicks' at the end of the letters stems. SERIF |
| Sans Serif | This typeface has no feet or flicks (just like the letters you are reading now!) SANS SERIF |
| Script | This typeface will have a handwritten look- think 'Coca Cola' . |
| Decorative | This typeface will be designed to have a theme incorporated into it. Decorative |
| Wordmark Logo | A logo consisting of only lettering. |
| Symbolic Logo | A logo consisting of only images. |
| Sublimation | The process of transferring a printed image onto an item. The process uses heat to evaporate ink which condenses when it hits the surface of the object to be printed onto. |
| Heat Transfer Paper | Special paper used in the sublimation process. Dye particles sit on the top surface of the paper, the water from the de is absorbed into the second layer of the paper. |
| Polymer Coating | A polymer coating (plastic) that absorbs the evaporated ink during the sublimation process. |

One Point Perspective




Two Point Perspective

Logos designed by Raymond Loewy


Die Cutter

Laser Cutter

Heat Press

# Mechanisms

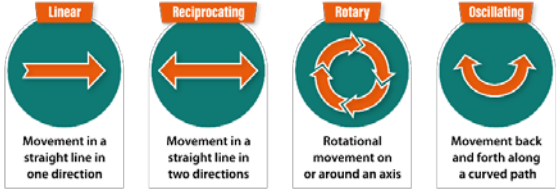
Mechanical devices change an input force and movement into a desired output force and movement. They can change the magnitude and direction of force.

| Input | Mechanism | Output |
|---|---|---|
| Force and movement are input into a mechanism | The mechanism converts or transmits the input force and movement into an output force and movement. | Force and movement are output to satisfy a need |

Mechanisms can be used to make a force bigger or smaller.

## Movement

Mechanical devices can be used to produce different types of movement.



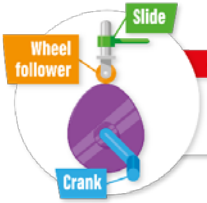

# Cams & Followers

Cam mechanisms are used to convert rotary motion into reciprocal motion. Mechanisms consist of a cam and a follower.

A **cam** is a specially shaped piece of material attached to a rotating shaft.

A rod known as a **follower** rests on the **cam** and rises and falls as the cam rotates, creating a reciprocating motion.

Depending on the shape of the cam, the follower will either rise, fall or dwell (remain stationary).


A cam mechanism will often also include:

- A **slide** to prevent the follower from slipping
- A **crank** (handle) to manually rotate the camshaft
- A **wheel follower** to reduce friction between the cam and follower

## Types of Cam

Cams come in a variety of shapes and sizes. Common examples include:

**Eccentric (Circular)**

The pivot (rotating shaft) is positioned off-centre, causing the follower to steadily rise and fall.

**Pear-Shaped**

The follower dwells (remains stationary for half a turn). It then rises as the point approaches for a quarter of a turn before falling for the last quarter rotation.

**Snail**

The follower gradually rises and then suddenly drops. It can only rotate in one direction.

**Heart-Shaped (Constant Velocity)**

The follower rises and falls with no dwell period. It is said to have constant velocity.

## Standard Components - Screws

Woodscrews are used to temporarily join two pieces of wood together.
They are available in different lengths and diameters and are usually made from brass or steel.
They also have different shaped heads for different applications.

# Natural Timbers

Wood is an organic material that is the main substance in the trunk and branches of a tree. Wood prepared for use in building and carpentry is known as *timber*.


Most hardwoods come from broad-leaved, deciduous trees (trees that shed their leaves annually). They are generally slow growing and are therefore usually more scarce and expensive than softwoods.

| Beech | Oak | Mahogany | Balsa |
|---|---|---|---|
| • hard, tough, strong & finishes well<br>• warps easily<br>• close, straight grain<br>• expensive<br>• pinkish-brown | • very strong, heavy, durable & hard<br>• grain varies but is generally open<br>• over 400 species<br>• light brown | • hard, strong, easy to work & resistant to rot<br>• fine, straight grain<br>• some species are protected<br>• reddish-brown | • very light & soft, but has great strength-to-weight ratio<br>• straight grain with distinct velvety feel<br>• pale cream to white |
| Uses: flooring, furniture, tool handles | Uses: flooring, furniture, barrels | Uses: flooring, fine furniture, instruments | Uses: surfboards, construction & aircraft models |

Other hardwoods include ash, birch, maple and willow.


Softwoods come from coniferous trees that have long needle-like leaves and are generally found in cold climates. They are quick growing and can therefore be replaced quicker than hardwoods.

| Cedar | Scots Pine | Larch | Spruce |
|---|---|---|---|
| • contains a chemical that makes it durable & resistant to weather<br>• short, notable grain<br>• light cream to reddish-brown | • easy to work with, reasonably strong & lightweight<br>• straight grain with lots of knots<br>• pale to reddish-brown | • tough & strong, but easy to work<br>• resistant to rot, but prone to splitting<br>• yellow to reddish-brown | • good strength-to-weight ratio<br>• can contain small knots<br>• creamy white to pinkish-brown |
| Uses: outdoor furniture, cupboards, fencing | Uses: furniture, construction, door frames | Uses: decking, cladding, fencing | Uses: construction, stringed musical instruments |

Other softwoods include Douglas fir, yew and western hemlock.

Remember: Not all hardwoods are hard, and not all softwoods are soft.

# Timbers: Stock Forms, Types & Sizes

Timber is available in a range of stock forms and sizes to suit different purposes.

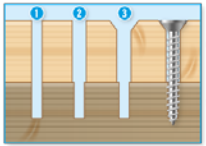
## Planks, Boards & Strips

Timber planks, boards and strips are available in a range of stock sizes, with set lengths, widths and thicknesses. Measurements are usually listed as length × width × thickness (mm).


Timber is available rough-cut and planed. Planed timber is smoother than rough-cut timber, but it is also more expensive.

Planing removes around 2–3 mm of material from each side of the timber, so planed timber is slightly smaller than rough-cut timber.


When joining two pieces of wood together using wood screws…

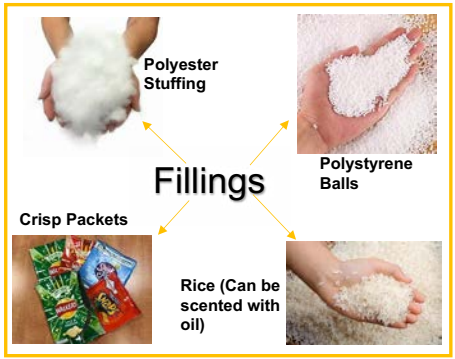


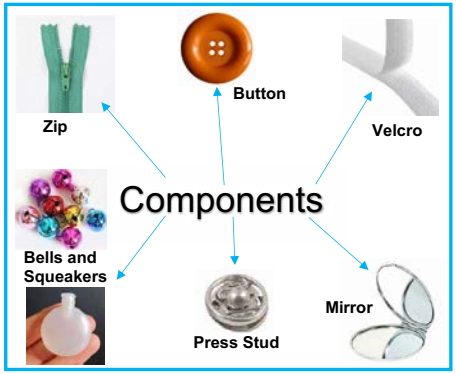

1. Drill a pilot hole through both pieces of wood. This hole should be slightly narrower than the thread of the screw.
2. Drill a clearance hole through the top piece of wood. This hole should be slightly larger than the shank or thread of the screw.
3. If using a countersunk screw, a countersunk hole should be drilled to the depth of the screw.

Self-drilling screws that negate the need for pilot and clearance holes are also available. They have a sharp end (like a drill bit) and a tapered thread to create a hole.

| Fabric | Advantages | Disadvantages |
|---|---|---|
| Plain Weave Cotton  | Breathable, Lightweight, Biodegradable, Easy to care for, Absorbent (good for dying) | Takes a long time to dry |
| Cotton Velvet  | Insulating, Soft, Luxurious sheen. | Difficult to care for, Not very durable. |
| Polyester (Synthetic)  | Strong, Durable, Drapes Well, Hydrophobic (does not absorb water) so quick drying, Easy to care for, Pleats/shapes can be set with heat-good for adding structure, Diagonal pattern on surface of fabric can be used to create patterns, Cheap to purchase as manmade. | Polyester can melt or misshape with high temperatures. Take care with aftercare. |
| Cotton Terry Towelling  | Very absorbent due to the loops (takes a long time to dry), Interesting surface texture, Soft | Loops can snag. Takes a long time to dry. |
| Satin (Synthetic)  | Lustrous shine, Drapes well, Strong, Durable, Pleats/shapes can be set with heat-good for adding structure, Hydrophobic (does not absorb water) so quick drying, | Can snag easier than other weaves so not suitable for everyday wear. |
| Knitted Wool  | Insulating, Soft, Absorbent Natural elasticity, Lots of texture. | Takes a long time to dry, Heavy when wet, Expensive. |
| Lace  | Breathable, Absorbent, Lightweight, Easy to clean, Biodegradable, Lots of variations of intricate designs (good to add pattern and texture), Areas of pattern alongside sheer areas. | Delicate to work with. Can snag or pull easily. |
| Cotton Jersey knit  | Breathable, Stretchy Soft, Lightweight, Absorbent, Biodegradable, Crease Resistant | It doesn't retain its shape well when over stretched. Unravels if cut or snagged as made from one continuous yarn. |
| Cotton Denim  | Breathable, Biodegradable, Easy to care for, Absorbent (good for dying), durable, diagonal twill surface adds pattern and texture. | Expensive, no stretch, heavy when wet, slow drying. |
| Cotton Corduroy  | Insulating, Soft, Biodegradable, Absorbent (good for dying), different cord thicknesses are available. | Medium durability, the pile cord can wear down with abrasion, takes a long time to dry. |

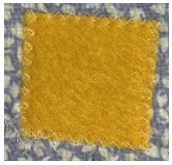
## Y8 Design Technology:Textiles Essential Knowledge Organiser



| Decorative Technique | Description |
|---|---|
|   **Machine Applique** | Applique is completed on a sewing machine using a C2 zig zag stitch. Applique adds texture and interest to products, and completing it by machine is quicker and the applique will be more durable. You can complete both 2D applique (lies flat to the product) and 3D applique (applique which protrudes from the surface such as ears, legs, a tail etc.) on a sewing machine. |
|   **Hand Applique** | When applique is completed by hand sewing. Hand applique can only be used to produce 2D applique. Stitches should overlap the raw edge for durability, to reduce fraying and for an aesthetically pleasing finish.<br>Stitches can be a contrasting colour to add decoration. Applique adds texture and interest to a product. |
|   **CAD/CAM Embroidery** | CAD/CAM (Computer Aided Design/Computer Aided Manufacture) Embroidery is an automated process to produce quick, durable and professional embroidery stitches. In manufacture of toys it is used for motifs, decorative stitches and elements such as facial features to add durability but also to reduce the risk of choking on potential choking hazards. In school we can use CAD/CAM embroidery machines t produce letters and numbers. |
|   **Hand Embroidery** | Hand embroidery is a method of producing intricate stitches which add texture and decoration. Stitches can lie flat or be 3D dependent on the stitch selected. You will need an embroidery hoop, embroidery needle and embroidery threads to complete it to a high standard. A variety of patterns and texture can be added to your work using hand embroidery, it also works well combined with decorative embellishment. The key for a high quality finish is even length stitches and good stitch tension! |
|   **Decorative Embellisnment** | Decorative embellishment is where you sew sequins and beads onto a fabric to add decoration, pattern and texture. We do this technique by hand sewing each one individually to build up to a desired pattern. Decorative embellishment can be time consuming and quite fiddley so you need to concentrate but its worth the effort when you see the finished result! |

## Y8 Design Technology:Textiles Essential Knowledge Organiser

### Machine Applique

- ✓ Stitch=C2
- ✓ Should overlap raw edge
- ✓ Reverse when you start and end for durability

Sewing Machine Skills

### Seams

- ✓ Stitch=A2 (straight) C2 (Zig Zag)
- ✓ Straight stitch 1cm from the raw edge
- ✓ Zig zag stitch along the raw edge to prevent fraying
- ✓ Reverse when you start and end for durability