Year 9 RM and Catering Curriculum Overview 2023-24

Unit Title	**Pixel Project**	**Art Deco Mirror**	**Applying the Principles of Nutrition and Health**
Number of lessons	4 lessons	14 lessons	14 lessons
Curriculum content	Objectives: • Everyone will understand what a pixel is • Everyone will be able to re-create a series of pixel images given by the teacher • Most pupils will design their own pixel characters • Some pupils (gifted) will design very creative pixel characters. • A pixel is the smallest unit of a digital image or graphic that can be displayed and represented on a digital display device. • A pixel is the basic logical unit in digital graphics. Pixels are combined to form a complete image, video, text, or any visible thing on a computer display. • A pixel is also known as a picture element (pix = picture, el = element).	During this period of learning pupils' will be making and then designing a Mirror Frame and stand in the style of Art Deco or Art Nouveau. This project is to develop and enhance your research, design and making skills. Building on knowledge you have previously learned. Learners' be expected to work to the best of your ability throughout this project, with the main emphasis on producing a high standard of work and a very high quality final product. **Additional targets to choose from-** • use different research options e.g. not just the internet. • use instruments to help present your work neatly. • add more notes to design ideas saying why you have chosen features. **Knowledge based assessment and practical skills** **Solve technical problems:** You clearly modify and change your work as necessary as it develops**.** **Reflect on their own designing**: You evaluate both how you have used your	Understand and apply the principles of nutrition and health to cook a repertoire of predominantly savoury dishes to be able to feed themselves and others a healthy and varied diet. Competency in a range of cooking techniques adapting taste, texture and smell to personal preference. Sources, seasonality and provenance of a range of ingredients – rice and cereals, fruit and vegetables, dairy, meat, fish and shellfish, potatoes. Modification of recipes to adjust to different user groups – allergies and lifestyle choices. Functional characteristics of ingredients. Increased awareness of food and personal hygiene and the role of microorganisms. Presenting and garnishing food to a high standard.

		research in designing and how effective your product is. **Use understanding of others' designing:** **You recognise good work from others, and modify your ideas accordingly.** **Areas to be assessed:** • Use of templates • Measuring and marking out • Use of a Tools (Tenon saw, coping saw, try square…etc.) • Following a Production Plan.	
Links to prior learning	Maths- Grid paper ICT- Coding and pixels	• History- Boom and Bust • Maths- Symmetry	Pupils will built upon prior learning from both year 7 and 8. The knowledge of the Eatwell plate, energy balance, BMR, BMI, allergies and intolerances will allow students to adapt dishes and develop an inquisitive mind
Cultural capital opportunities	https://www.youtube.com/watch?v=VTtMruBheqY https://www.youtube.com/watch?v=82TL-Acm4ts https://www.youtube.com/watch?v=SwZ_YwvYHo4	Eileen Gray https://youtu.be/HugX1wMS18s Charles Rennie Macintosh https://youtu.be/PWQPyKQiVxY	https://www.foodafactoflife.org.uk/14-16-years/food-commodities/dairy/# https://www.foodafactoflife.org.uk/14-16-years/food-commodities/dairy/# find out about local flour mills and the sugar beet processing in Bury St Edmunds
Assessment focus	N/a	**Art Deco Mirror**	Pre-assessment: stir-fry Assessment: Pasta Fiorentina End of year test

Name: Date:

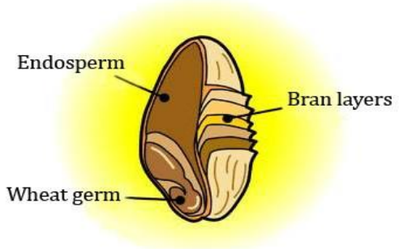
Food commodities: Cereals and rice

- Food is sourced, processed and sold in different ways.
- Food production and processing ensures that food is edible and safe.

What are cereals?

- Wheat, barley and oats are all types of cereals grown in the UK.
- Grains grow at the top of the plant, closely packed together called 'ears'.
- Each ear of wheat is made up of 45-50 grains, it is these starchy grains that we eat.

There are three parts to wheat grains:
1. bran layers – the course outer layer;
2. wheat germ – a new plant would grow from this part;
3. endosperm – the starchy store of food which the germ feeds on while it grows. The white flour we use to make many products comes from the endosperm.



Growing wheat, barley and oats

- Wheat is grown worldwide, different varieties are grown depending on the climate and geography of the country. In the UK 11-16 million tonnes are grown per year. It is planted in early autumn and harvested the following summer.
- About half the crop of wheat is made into food for human consumption, and some is used for animal feed (e.g. to feed chickens, cattle and pigs). About 3% of the crop is used as seed to plant for the following year.
- Other crops grown in the UK include barley with 6-8 million tonnes harvested and oats about 1 million tonnes.

Primary processing

Milling

- The grain from the cereals is used to make flour and milling is the process that turns wheat and oats into flour.
- The harvested grain is delivered to the mill where it is cleaned and conditioned.
- The grain is then passed through rollers and sieves to open and separate the different parts of the grain. Grains like oats are rolled and cut to produce flakes and oatmeal.

Malting

To make malt, cleaned barley, water, air and heat are needed. The main stages to malting barley are:
1. steeping – soaking the grains in water;
2. germination – allowing the grains to grow;
3. kilning – drying the grains.

Types of flour

- White – usually contains 75% of the grain and most of the bran and wheatgerm are removed.
- Brown – usually contains about 85% of the original grain and some of the bran and wheatgerm are removed.
- Wholemeal – made from the whole wheat grain.
- Malted wheatgrain – brown or wholemeal flour with malted grains added after milling.
- Wheatgerm – white or brown flour with at least 10% made up of wheatgerm added during milling.
- Strong – contains a higher gluten content to make a range of different breads, pizzas and crumpets.
- Plain – contains a lower gluten content and used to make biscuits, pastry, sauces, pancakes, batters and Yorkshire puddings.
- Self-raising – baking powder is added as part of the milling process and mainly used to make cakes and scones.

Around the world other flours are used which are not made from wheat. Some of the less common types include flour made from coconut, potato, peas and chickpeas. Other grains such as rye, oats and spelt are also used.

Secondary processing

Flour into bread

The four basic ingredients to make bread are:

1. flour;
2. yeast (make the bread rise);
3. salt (adds taste and aids proving);
4. warm water.

Fat can sometimes be added to make the loaf lighter and extend the shelf life.

Malted ingredients

Malt is used in a wide variety of food and drinks to add flavour, colour, aroma, and texture. It can help extend the shelf life of foods (from cookies and cakes to drinks and baby foods).

What is rice?

Rice is a short living plant that requires a substantial amount of water when growing. When farming rice, the fields are flooded and drained before harvest. The rice, once harvested, is known as a paddy grain. The paddy grains are sent to a mill to be threshed and turned into grains of rice for cooking.

Rice varieties can be divided into 3 groups:

- long grain – all purpose and can be used as an accompaniment e.g. basmati;
- medium grain – used in risottos and puddings as it is creamy when cooked e.g. Arborio;
- short grain – used to make sushi and puddings as it tends to be stickier when cooked e.g. bomba.

Key terms

Fortify: Adding nutrients to food.
Gluten: Part of the grain that provides the elastic texture of dough.
Harvesting: Gathering crops when ready or ripe.
Malting: The process where barley grains are soaked and dried for malt.
Milling: The process to separate different parts of the grain.
Threshing: The method to remove the outer husk layer from rice grains.

Bread in the UK

All white bread commercially sold in the UK is made with white flour fortified with calcium, iron and B vitamins. It is a legal requirement to fortify flour in the UK.

Tasks

1. Create a display showing the stages for malting barley.
2. Research five different types of bread from around the world that are baked and eaten for different occasions.

This resource meets the ***Guidelines for producers and users of school education resources about food***.

Name: Date:

Food commodities: Dairy

- Food is sourced, processed and sold in different ways
- Food production and processing ensures that food is edible and safe

The dairy industry

In Britain, we drink about 6 billion litres of milk each year. Of all the milk produced on British dairy farms, just under half is for drinking and the rest is made into cheese, yogurt and other dairy products.

Dairy farming

- There are thousands of dairy farms in the UK. The farming techniques and the size of dairy farms differ around the UK. Although different feed, housing and milking parlours may be used, the health and welfare of the dairy cows remains the highest priority for farmers.
- Dairy farms are mainly based in the western half of Britain where the warm, wet climate is ideal for grass growth.
- In the UK most cows eat grass during the summer and silage (dried grass or maize) in the winter. This is usually supplemented with dry feeds such as cereals and protein feeds to ensure they have a nutritionally balanced diet.
- Dairy cows eat 25-50kg of food a day and drink around 60 litres of water.
- A dairy cow needs to give birth to a calf to produce milk. A cow is milked 2-3 times a day and can produce around 22 litres of milk a day.
- Holstein-Friesen cows, which are black and white, are the most common type of dairy cow in the UK.
- Cows wear ear tags so they can be identified. Traceability from the farm is important when producing food.
- After milking, the milk is chilled and stored, ready to be taken away to be processed by the dairy.

Processing milk

- After the milk is delivered to the dairy it is pasteurised. Pasteurisation is a process used to kill harmful microorganisms that may be present in the milk.
- Pasteurisation involves heating the milk to a temperature of no less than 71.7ºC for 25 seconds. This process extends the shelf life of milk.
- The milk is then cooled for packing, labelling, storage, transportation and then distributed to retailers.
- Sterilisation is a process that destroys all micro-organisms present in a food.
- Ultra-heat treatment (UHT) destroys all micro-organisms in the food without causing as much damage to the product as sterilisation.

Types and nutrition of milk

There are a number of different types of milk available for consumers to buy. The fat content of cow's milk will vary according to the type:

- Whole milk contains 3.5%
- Semi-skimmed milk 1.7%
- Skimmed milk is 0.1-0.3%

Dairy foods provide protein, calcium, B vitamins and iodine.
Dairy alternative milks include oat, soy, coconut, almond. Choose those that are fortified with calcium and ideally other vitamins and minerals.

For more information, go to: https://bit.ly/3qhSK57

Processing cheese

1. Pasteurisation - the first stage in the process of making cheese is the pasteurisation of the milk.
2. Curdling - a starter culture, similar to freeze dried natural yogurt, is then added to the pasteurised milk. This begins to acidify the milk and allows the bacteria to grow and begin fermentation. Rennet is added so the milk curdles and separates into curds and whey. This is then drained on cooling tables.
3. Cheddaring - as the liquid is drained off a solid mass is created, called curd mats, which are cut into sections and piled on top of each other and turned regularly. Salt is added to act as a preservative and to prevent the cheese from going rancid during the maturing process. It is then stored in a cool room to ripen.

Regional cheese

In the UK, there are a variety of regional cheeses. Some that are unique to a region and have protected name status.

For example, West Country Farmhouse Cheddar will have met the conditions of being made with milk from herds reared and milked in Cornwall, Devon, Somerset or Dorset and following the traditional process of cheddaring. Cheddar is matured for at least 9 months.

Key terms

Milking: The primary process in making dairy products.
Milking parlour: A building where cows are milked on a dairy farm.
Traceability: A system to track food through the stages of production, processing and distribution.
Pasteurisation: The process of heating food to kill most food spoilage organisms and pathogenic organisms, e.g., milk.
Sterilisation: The severe heating of food to kill all micro-organisms, e.g., sterilised milk.
Ultra-heat treatment (UHT): The heating of food to kill or inactivate all micro-organisms without causing damage to the product, e.g., UHT milk.
Rennet: A mixture of enzymes in cheese production. Makes the milk 'curdle'.
Curds: A solid product formed during cheesemaking, through coagulation.
Whey: The liquid remaining after the curds have been separated from the milk.
Cheddaring: A secondary process in making cheese.

Other dairy foods

There are different types of dairy products, which are defined as foods made from the milk of animals. These include:

- butter;
- condensed milk;
- cream;
- ice cream;
- milk powder;
- yogurt.

Tasks

1. Create an infographic on dairy farming in the UK.
2. Research and explain the different stages involved with producing cheese.

This resource meets the ***Guidelines for producers and users of school education resources about food***.

Name: Date:

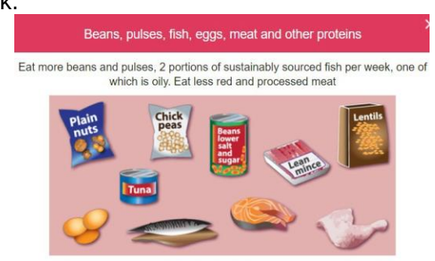
Food commodities: Fish and shellfish

Fish in the diet
Fish is a popular food in many cultures, although many people in the UK do not consume as much fish as is recommended.

Eating a wide variety of fish and buying fish from sustainable sources ensures there are enough fish to eat now and in the future.

Recommendations
Fish is part of the Beans, pulses, fish, eggs, meat, and other proteins food group in the Eatwell Guide.

Around one-sixth of the food that people consume should come from this group in the diet.
It is recommended to consume two portions (one portion is 140g) of sustainably sourced fish per week.



Nutrients provided by fish
Fish provides a range of nutrients, including:
- Omega-3 fats (in some fish);
- protein;
- vitamin D (in some fish);
- B vitamins;
- iodine.

Salmon is high in Omega-3 fats and vitamin D, as well as protein and B vitamins.

Cod is lower in Omega-3 and vitamin D than salmon, but still contains other nutrients, and is also higher in iodine.

Types of fish and shellfish
There are over 33,000 fish species in the world, but people often prefer to eat a few species that are easier to catch and eat.

The 'big five' are the most common seafood items that are eaten in the UK. They are:
- cod;
- haddock;
- tuna;
- salmon;
- prawns.

5

Oily fish
The UK Eatwell Guide states that one of the recommended two portions of fish a week should be oily.

Salmon and **trout** are classified as 'oily fish', which means they contain a type of healthy fat called Omega-3. **Mackerel, herring,** and **sardines** are types of small oily fish that are mostly sold in cans.

White fish
Cod and **haddock** are the most popular fish in the UK. They are flaky, white fish when cooked. Most of the cod and haddock eaten in the UK is breaded or battered.

Plaice, sole, halibut and **turbot** are all types of flatfish that are classed as white fish.

Shellfish
Shrimp and prawns are a wide group of small shellfish. The words 'shrimp' and 'prawn' are used to describe many different species.

Mussels and oysters are 'bivalve molluscs'. Bivalve means that they have two shells that close around the soft body inside. Cockles, whelks, and winkles are small shellfish that are common around the UK.

Task
Create a poster featuring facts and figures about the 'big five'. Include ideas about how they can be used in meals.

Catching fish
Fish can be found in freshwater (rivers and lakes) or saltwater (seas and oceans).
Fish can be caught in the wild or farmed.
Fish can be caught in many different ways, using rods, lines or nets.

Fishing at sea
Most fishers go out to sea in boats and use nets to catch a large number of fish at one time. When the boat is in the right position, the fishers drop their nets. Once dropped, the boat then tows the net around, scooping up fish. This is known as trawling.

Some fish are caught on lines, rather than nets. Some other fish, like mackerel, can also be caught on lines by a method called 'trolling'. Trolling is similar to trawling, but instead of dragging a net, the boat drags many lines with hooks to catch the fish.

Wild fishing

Advantages
- Wild fish have a more varied diet than farmed fish and therefore may taste different.

Disadvantages
- Can be less sustainable due to overfishing and may become more expensive.
- Nets can damage the seabed.

Farming fish

Advantages
- Prevents wild fish from being overfished.
- Can provide fish to communities where wild fish is scarce.
- Can allow for fish to be farmed that are hard to catch.

Disadvantages
- Disease can be more common if many fish are kept close together.
- Farmed fish may harm wild fish if they escape.
- If waste from the fish farm is not disposed of correctly it can cause pollution.

To find out more, go to: https://bit.ly/3erbBIU

Preparing fish
Whole fish usually require preparation before they can be eaten.

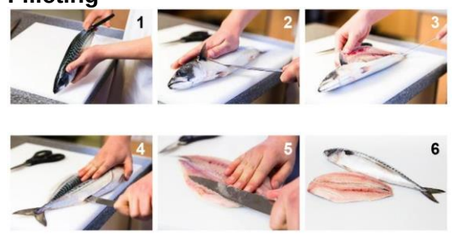
This could include: descaling, gutting, filleting and pin boning.

Cooking with fish
Fish can be cooked in a variety of ways, such as being grilled, baked, sautéed, fried, or barbequed.

Grilling and baking are usually healthier cooking methods, and they can also help to bring out the flavour of many fish.

Key terms
Oily fish: A fish that contain a type of healthy fat called Omega-3.
Omega-3: A type of polyunsaturated fatty acid found in fish.
Shellfish: An aquatic shelled mollusc or crustacean that is edible.
MSC: Marine Stewardship Council logo, a logo that means fish has been caught sustainably.

Filleting



Sustainability
Because of the popularity of some fish, the numbers of some species have decreased. The MSC logo means that this fish has been caught in a way that is more sustainable.

Logo© Marine Stewardship Council

This resource meets the ***Guidelines for producers and users of school education resources about food***.

Name: Date:

Food commodities: Fruit and vegetables

Fruit
One of the main purposes of fruit is to spread the seeds of the plant.

Fruit can be classified as:
- berries;
- citrus fruit;
- fleshy fruit;
- pomes;
- stone fruit.


Berries


Citrus fruit


Pomes


Stone fruit


Fleshy fruit

Berries – e.g. grapes, strawberries
A berry is a small, sweet fruit.
They are often coloured red, blue or black.

Berries contain small seeds, which are usually edible and do not have a large stone.

Raspberries
Botanically, raspberries are not a true berry (a fruit with many seeds scattered throughout the pulp) but an etaerio (or aggregate fruit) made up of drupelets (individual sections of fruit each with its own seed).

For more information, go to:
https://bit.ly/3fGKgT0

Citrus fruits – e.g. lemon, orange
Citrus fruits are usually quite large and round. They have a waxy outer layer that needs to be peeled off before they can be eaten.

Pomes – e.g. apples, pears
Apples and pears are a special type of fruit called a 'pome'.
These fruits have a core which is usually not eaten and contain several 'pips'.

Fleshy fruits – e.g. banana, melon
These fruits are usually fairly large and do not have a central stone.
Often, the seeds in the fruit are eaten along with the flesh as they are small and soft, but this is not true with melons.

Stone fruit – e.g. cherries, peaches
Stone fruits are those that have a large, hard 'stone' in the middle of them that is not eaten.

Tasks
1. Keep a diary of the different fruit and vegetables you eat – can you get 10 different types in one week?
2. Create a poster on the different types of fruit and vegetables. Include an example of each type and explain how they can be used in dishes.

Vegetables are the edible part of a plant. They are often grouped according to the part of the plant that is eaten:
- bulbs;
- flowers;
- fruit;
- leaves;
- roots;
- seeds;
- stem (stalk).


Garlic is a bulb

Bulbs – e.g. garlic, fennel, onions, shallots
Some plants have bulbs which stay underground to store food for the plant when it is not growing.
When the time is right, the bulb produces shoots which grow up through the soil.

Flowers – e.g. broccoli, cauliflower, capers
Flowers are part of the plant that allow it to reproduce. Some flowers are edible, but many others are not.

Fruit – e.g. cucumber, pepper, tomatoes
The fruit of a plant is created after its flowers have been pollinated. Many fruits are sweet, but some fruits are not and are usually used like a vegetable in food.

Roots – e.g. beetroot, carrot, parsnip
The roots of the plant take up water and nutrients from the soil for growth.
They also anchor the plant to the ground.

Tubers – e.g. casava, potatoes, yams
Tubers store nutrients for the plant and also propagate new plants by forming stems and leaves. Tubers are often high in carbohydrates.

Leaves – e.g. cabbage, kale, spinach
Plant leaves capture sunlight and use the energy from it to make food. This process is known as photosynthesis.


Legumes – e.g. garden peas, kidney beans
Legumes are grown for their edible seeds, known as beans and peas. They are the fruit (seed) of a plant. Legume seeds that are dried and used as food are called pulses (e.g. lentils).

Stem (stalk) – e.g. asparagus, celery
The stalk of the plant helps to keep it standing up, provide support and carry water and nutrients to different parts of the plant.

Mushrooms – e.g. button, chestnut
Mushrooms are different kinds of fungi, rather than plants. Many types of mushrooms are dangerous to eat.

Mushrooms available for consumers to buy are carefully selected to be safe.

Key terms
Fruit: The mature ripened ovaries of flowers.
Vegetables: The edible part of a plant.
Flowers: The part of the plant that allow it to reproduce.

Eat 5 A DAY!
Fruit and vegetables are an important part of **a healthy, balanced diet.**

Some types are good sources of **fibre,** as well as providing lots of essential **vitamins and minerals.**

Eating lots of fruit and vegetables can help you **maintain a healthy weight** (as they are naturally low in calories) and having your 5 A DAY could reduce your risk of some diseases.

What counts?
All fruit and vegetables count, including fresh, frozen, canned, dried and juiced varieties.


150ml 80g 30g

This resource meets the ***Guidelines for producers and users of school education resources about food***.

Name: Date:

Ingredients – functional characteristics

- Ingredients are selected for their nutritional, functional and sensory characteristics, as well as provenance and seasonality.

Selecting ingredients
Ingredients are chosen for a number of reasons, such as:

- to add flavour, colour or texture;
- to provide a particular function, e.g. to thicken;
- to provide nutrients or change the nutritional profile of a dish, e.g. to increase fibre;
- to extend the shelf life, e.g. vinegar for pickling or chemical preservatives;
- cost and availability, e.g. fruit in season;
- to satisfy a need to buy food with a certain provenance, e.g. Red Tractor.

Adding flavour, colour or texture

- Fresh and dried herbs and spices can be added to dishes to provide flavour and replace the salt in some dishes, e.g. garlic and ginger.
- Fruit, vegetables, herbs and spices can all be used in recipes to add colour.
- Nuts, seeds, grains, fruit and vegetables can be added to recipes to provide texture.
- The cooking method and cooking time can impact the texture, e.g. steaming or microwaving vegetables quickly can retain their colour, flavour and firm texture.
- Equipment used to process food can impact the texture, e.g. using a food processor to blend soup for a smoother texture.
- Natural, nature identical or artificial additives may be added to foods to perform specific functions.
- The main food additives are antioxidants, colours, flavour enhancers, sweeteners, emulsifiers and stabilizers, and preservatives.

Functional characteristics of ingredients
Ingredients provide a variety of functions in recipes, such as:

- browning, e.g. flour in a bread roll (dextrinisation);
- raising, e.g. yeast in bread (aeration);
- setting, e.g. scrambled eggs (coagulation);
- thickening, e.g. flour in a roux sauce (gelatinisation).

Food functions

	Example	What happens?
Aerate	Cake	Baking powder makes the cake light
	Meringue	Egg white is whisked to form a foam
	Scone	Self-raising flour helps the dough rise
	Bread	Yeast makes the dough rise
Bind	Fish cake	Egg holds other ingredients together
	Naan bread	Yogurt binds dry ingredients into a smooth dough
	Pancake	Milk and egg combine flour into batter
	Pastry	Water combines flour and fat into a dough
Bulk	Cottage pie	Texured vegetable protein may be mixed with minced meat and vegetables
	Fruit pie filling	Sugar is boiled with fruit to form a thick puree
	Nut roast	Breadcrumbs absorb liquid and increase in size
	Vegetable samosa	Potato is the main filling
Glaze	Hot cross bun	Sugar solution is brushed over bun after baking
	Gammon	Honey is poured over to glaze
	Pie	Milk is brushed over before baking
	Sausage roll	Egg is brushed over to give a shiny golden colour
Set	Blancmange	Cornflour is boiled with milk and flavourings and then cooked
	Cold souffle	Gelatine forms a gel
	Jam	Pectin mixed with sugar and acid forms a gel
	Quiche	Egg is mixed with other ingredients and then baked
Thicken	Egg custard	Egg thickens when gently heated
	Sauce flour	Flour thickens a liquid when boiled
	Soup	Potato thickens soups
	Syrup	Sugar is boiled with water or fruit juice

Raising agents
These can be:

- mechanical, e.g. beating, creaming, rolling and folding, sieving, whisking;
- chemical, e.g. baking powder, bicarbonate of soda, self-raising flour;
- biological, e.g. yeast.

Different foods may use one or more of these to achieve a desirable end result.

To find out more, go to: https://bit.ly/38pu3dt

Dextrinisation
When food containing starch is heated (without the presence of water) it can produce brown compounds due to dextrinisation. Dextrinisation occurs when the heat breaks the large starch polysaccharides into smaller molecules known as dextrins. Many of these dextrins can also produce a brown colour.

Maillard reaction
Foods which are baked, grilled or roasted undergo colour, odour and flavour changes.
This is primarily due to a group of reactions involving amino acids (from protein) and reducing sugars. This reaction is known as the Maillard reaction. This reaction can also take place in foods with high protein content, such as meat.

Tenderisation
Mechanical tenderisation – a meat cleaver or meat hammer may be used to beat the meat. Cutting into small cubes or mincing can also help.

Chemical tenderisation (marinating) – the addition of any liquid to flavour or soften meat before cooking.

Key terms
Aeration: Incorporating air into a mixture.
Caramelisation: The chemical change of heated sucrose (sugar) to caramel, which produces flavour and browning.
Coagulation: The irreversible denaturation of protein molecules to thicken and set.
Denaturation: A change in the structure of protein molecules, resulting in their unfolding.
Dextrinisation: The reaction of dry heat on the surface of food which changes starch to dextrin, e.g. toast.
Gelatinisation: The process of thickening which takes place when a mixture of starch and liquid is heated.
Shortening: The effect caused when fat is rubbed into flour. The fat coats the flour particles, waterproofing them to prevent gluten formation.

Task
Explain the function of each of the ingredients in bread, white sauce and Victoria sponge.

This resource meets the ***Guidelines for producers and users of school education resources about food***

Name: Date:

Food commodities: Potatoes

- Food is sourced, processed and sold in different ways.
- Food production and processing ensures that food is edible and safe.

What is a potato?
Potatoes are tubers, a fleshy swelling on roots that grow underground. There are over 4,000 edible varieties in many different colours, shapes and sizes.

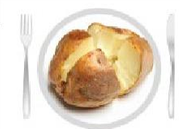
Specialist breeders develop new varieties.
They strive for:

- better resistance to pests and diseases;
- better storage;
- greater nutrition;
- increased yields;
- consistency for better processing;
- improved quality and appearance;
- reduced need for inputs such as water and fertiliser.

Potato growing in Britain
Britain is one of the largest producers of potatoes in the world:

- 5.4 million tonnes are grown per year;
- there are 2,500 specialist potato farmers;
- potatoes are grown on 110,000 hectares;
- 40% of potatoes grown in Scotland are potatoes for growing not eating;
- 80% of potatoes grown are eaten in Britain

Potato characteristics
Although every variety is different, potatoes can be divided into three groups or types.



Ideal for roasting, baking and chipping, e.g. Maris Piper.

Ideal for mashing, boiling and wedges, e.g. Desiree.

Ideal for boiling, steaming, roasting and salads, e.g. Charlotte.

Soil is tested for nutrients and moisture content to see if it is suitable for growing potatoes.

Potatoes will only be grown in the same field once every five years to replenish nutrients and improve the soil.

Farmers plough the ground to turn the soil.

Later, in the spring, fertiliser is added to the soil.

Finally, stones are removed using a destoner, as modern automatic harvesters cannot tell the difference between stones and potatoes.

Seed potatoes (tubers) are chitted before they are planted in rows 15-17 cm deep.

Planting usually takes place in spring. Different climates from north to south mean harvesting happens at different times, so GB potatoes are available all year round.

As the potatoes grow, they are ‘earthed up’ to protect them from the elements.

Plant protection products are used to care for the crops as they grow. These guard against insects and diseases.

After five months, the harvester lifts and separates the potatoes from the soil.

Test digs take place before harvest to make sure the potatoes are ready.

They are then lifted and graded.

Harvested potatoes are placed in bulk storage or weighed and bagged ready for distribution. They can also be stored in boxes in insulated potato stores.

Farmers check and grade the potatoes throughout the storage season.

To find out more, go to: https://bit.ly/39MyArZ

Key terms
Chitting: Seed potatoes (tubers) are left to sprout in a warm place to help them grow faster and produce a bigger crop.
Destoning: The process used to remove stones from the soil so potatoes have more room to grow.
Earthed up: Soil is pulled up around growing potatoes protecting them from frost and weeds.
Grading: The process following harvesting, anything that is not a potato is removed and potatoes are sorted into sizes ensuring quality standards are met.
Plant protection products: Used by farmers to protect crops from insects and diseases, e.g. pesticides.
Potato rotation: The system used by farmers to replenish nutrients and improve soil health in fields.
Seed potatoes: A potato that is grown to be planted to produce a future crop of potatoes.

Uses of potatoes
Not all potatoes go straight to the shops, some are used as future crops where part of the crop is set aside for next years' planting and is used as seed potatoes.

Some potatoes are manufactured into potato products:

- crisps – potatoes are delivered to factories and washed, peeled, sliced, fried, flavoured, packaged and sent to retailers;
- ready prepared potatoes – British manufacturers of frozen potato products are the largest purchasers of British potatoes, e.g. chips, potato waffles, mashed potato.

Task
Research the farm to fork journey of potatoes. Prepare a presentation to share with the class next lesson. Include your favourite recipe and explain which variety to use.

This resource meets the ***Guidelines for producers and users of school education resources about food***.

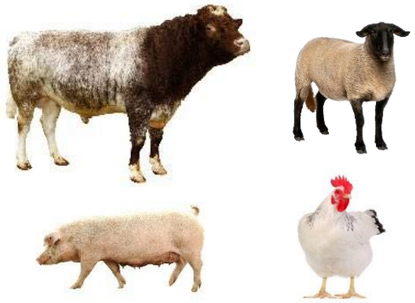
Name: Date:

Food commodities: Red meat and poultry

- Food is sourced, processed, and sold in different ways
- Food production and processing ensures that food is edible and safe

Livestock farming

- Cattle, pigs, sheep and chickens have been farmed for many years.
- In the UK, meat comes mainly from: cattle (beef), pigs (pork), sheep (lamb) and poultry (chicken).



- There are more than 10 million cattle, 5 million pigs, over 33 million sheep and 182 million livestock birds in the UK.
- Pigs are generally reared by specialist pig farmers, with 40% of pig production being outdoors.
- In the UK, cattle and sheep graze outdoors in the summer; however, many are housed in sheds during the winter to protect them from bad weather.
- Cattle, sheep and pigs wear an eartag so they can be identified. Traceability from the farm is important when producing food.
- The health and welfare of all animals is a top priority for livestock farmers, as well as sustainability.
- Farmers manage and maintain the countryside including hedgerows and field boundaries, which are habitat for wildlife.
- Grazing cattle and sheep play an important part in managing our natural grasslands.
- Chickens farmed for meat are called broiler chickens and in 2020 over 100 million broiler eggs were laid.

What is meat?

- Lean meat is the muscle tissue of animals which is made up of bundles of muscle fibres held together by creamy white connective tissue.
- Connective tissue is made up of two proteins called collagen and elastin.
- Two different types of fat can be found in meat, visible and invisible.
- The colour of meat varies due to the red protein called myoglobin and some haemoglobin remaining in the muscles. Exposure to oxygen increases the red colour of meat.
- Lean meat comprises water, protein, fats, vitamins, and minerals.

Meat types and cuts

- Meat is available to buy in the form of cuts, joints or mince. It is also available ready prepared, e.g., sausages, ham, burgers.
- The variety of cuts of meat available to the consumer provide choice, are convenient to prepare, simple to store and easy to cook.
- Different cuts of meat have different characteristics, e.g., energy and nutrients, composition, weight, size and appearance.
- Because of where the cut of meat comes from on the animal, different cuts require different cooking methods, e.g., slow (casserole), quicker (stir-fry).
- To add choice and variety, pork is cured e.g., bacon, and offal is also available to be used in a range of popular dishes, e.g., liver.
- Types of poultry meat include chicken, turkey, duck, goose and game birds e.g., pheasants and partridges.

For more information, go to: https://bit.ly/3qIA8Bn

Preparing & cooking meat

- Food preservation is important to increase the shelf life of products including meat. Shelf life depends on water; acidity; hygienic handling; methods of preservation.
- Meat can be tenderised by physical action, enzymes or acids and marinades.
- Meat changes colour during food preparation when the pigment myoglobin changes.

There are three main methods of heat transfer normally used for cooking meat - convection; conduction; radiation.

- Convection is where currents of hot air or hot liquid transfer the heat energy to the food, e.g., roasting.
- Conduction is where heat is transferred through solid objects by the vibration of heated molecules, e.g., stir frying.
- Radiation is where heat is transferred from a heat source in the form of rays which travel quickly in straight lines, e.g., grilling.

Buying meat and food labels

Meat is available to purchase from butchers and supermarkets.

Red Tractor assurance standards encompass food safety, animal welfare, environmental protection, and traceability.
Protected Geographical Indication (PGI) products must be produced, processed, or prepared within the geographical area.

Key terms

Muscle fibres: Are made up of cells which contain proteins actin and myosin.
Offal: Collective name for the internal parts of the animal that we eat.
Joint: A large piece of meat that is cooked in one piece.
Tenderising: To apply a process or substance that breaks down the connective tissue found in meat.
Preservation: The process of extending the shelf-life of a food product by inhibiting the growth of micro-organisms.
Curing: A preservation process that removes moisture from meat.
Protein: A component of food that is made up of amino acids.
Iron: A mineral element that is essential in the diet to make red blood cells that carry oxygen to the tissues.
Traceability: A system to track food through the stages of production, processing and distribution.

Meat and poultry nutrition

Meat and poultry are good sources of protein as well as different vitamins and minerals. Poultry like chicken provides B vitamins, phosphorus and selenium and can be low in fat if you choose chicken breast without skin.

Red meats like beef, lamb and pork provide B vitamins, phosphorus, potassium and zinc. Meat is one of the main sources of vitamin B12 in the diet. Beef is a source of iron and pork a source of selenium. Red meat can be high in saturated fat, but you can reduce this by choosing lean cuts and cutting off any extra fat.

Tasks

1. Research the farm to fork journey of beef, lamb, pork or chicken in the UK. Draw a poster to show your findings.
2. Identify two recipes that contain two different cuts of meat and compare the different preparation and cooking methods.

This resource meets the ***Guidelines for producers and users of school education resources about food***.

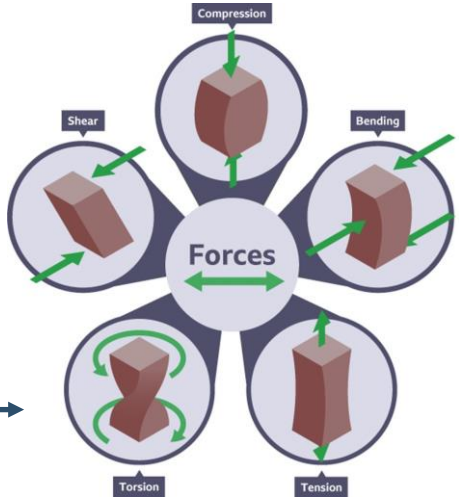
Money Box Project– Knowledge Organiser

Lord Norman Foster

Lord Norman Foster is the architect responsible for numerous world- famous buildings,

including many in London such as: Gherkin, Wembley stadium and Apple Park.

FORCES →



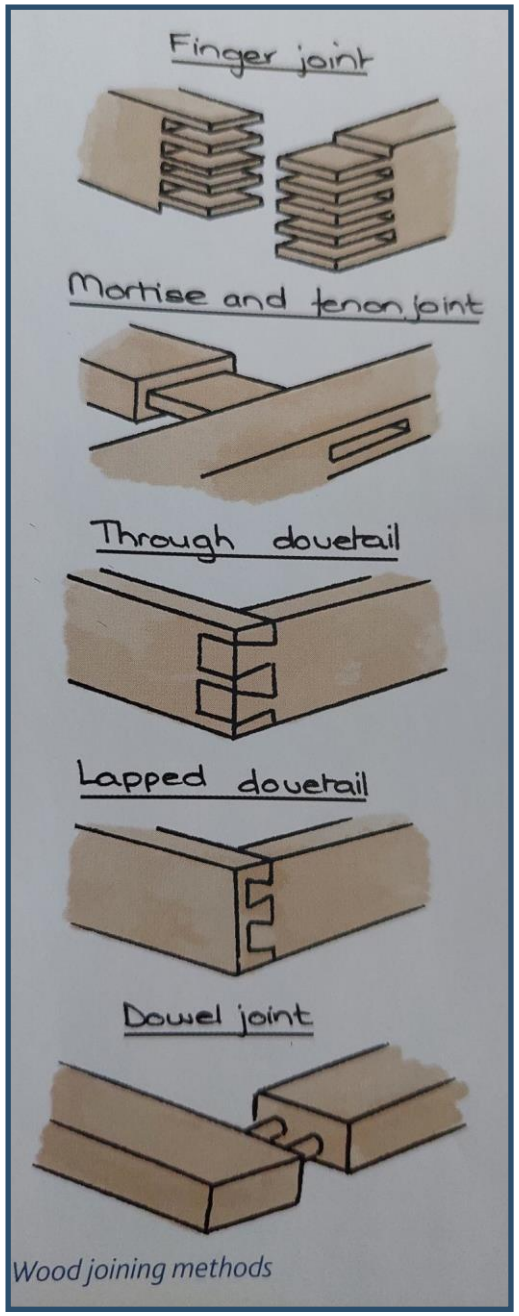
What is a designer?

A person who plans the look or workings of something prior to it being made, by preparing drawings or plans

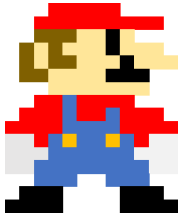
Mary Quant

Shortly after the launch of her first boutique, named BAZAAR in kings road, London. Mary Quant became famous for bringing the mini-shirt to popularity.

Money Box Project– Knowledge Organiser



Name	Picture	Use
Coping Saw		The thin blades allow you to make curved cuts. The blade is held in tension by the spring steel frame with teeth pointing backwards towards the handle.
Tenon Saw		A hand saw with a stiff back used to cut straight lines in wood.
Pillar Drill		A machine used to make holes in materials.
Bench hook		Used to hold the wood when cutting on the face.
Mallet		A hammer with a large wooden head.
Try Square		The try-square is pushed against the straight edge of a piece of wood and a pencil is then used to mark a straight line across the material. The line is continued all the way round the wood (all four sides are marked). This type of marking materials helps if a joint is to be cut or the end of the material is simply to be sawn away
Rule		Steel rules come in rigid and flexible versions. While their primary purpose is **accurate measurement**, they can also be used as guides for laying out lines, and if rigid enough, for cutting. The thinner, more flexible rules can also be used to measure rounded or cambered work.



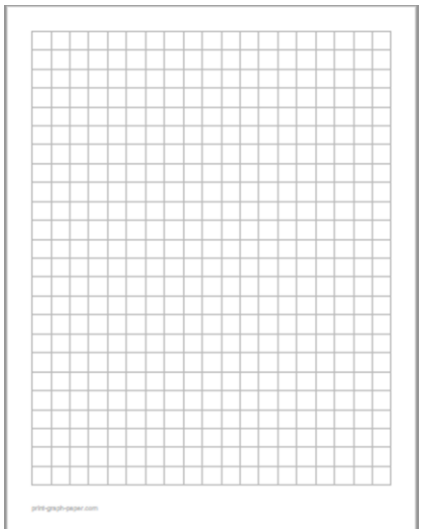
Pixel Knowledge Organiser

What are Pixels?

- A pixel is the smallest unit of a digital image or graphic that can be displayed and represented on a digital display device.
- A pixel is the basic logical unit in digital graphics. Pixels are combined to form a complete image, video, text, or any visible thing on a computer display.
- A pixel is also known as a picture element (pix = picture, el = element).

What profession would used grid paper:

- Engineer
- Architect
- Interior Designer
- Graphic Designer
- Scientist
- Mathematician
- Retro Computer games designer.



Graph/ Grid Paper

- This can be known as 'grid paper' especially for Year 10 & 11 GCSE DT in Year 10 & 11.
- Appearance: white paper with a printed grid this can be a square, Isometric lines or other patterns
- Characteristics: Usually printed onto 80gsm paper. Lines often in a light blue ink. Lines can be printed darker for use under plain paper as a drawing guide.
- Used for graphical, scientific and mathematical work particularly in conjunction with a lightbox as a drawing guide.

Equipment

What is a Ruler?

A ruler can be defined as a tool or device used to measure length and draw straight lines.

A ruler is used to measure the length in both metric and customary units. The rulers are marked with standard distance in centimetres in the top and inches in the bottom and the intervals in the ruler are called hash marks.

Where is the ruler used?

Ruler is used in math and geometry, engineering, carpentry, technical drawing and many more places.

What is the use of pencil in drawing?

Pencils are the most versatile of drawing media because of the variety of marks that can be made. Marks can be subtle and delicate or bold and vigorous. A few bold strokes can capture movement whilst tonal shading can define form. A great characteristic of pencil is that line and tone can be combined in one drawing.

What are coloured pencils used for?

You can use coloured pencil to tint a drawing with light strokes that let the colour of the paper show through, or you can use coloured pencil to create a solid deposit of many layers of colour. Because coloured pencil is primarily a dry medium, there's no drying time to worry