Year 10 Food Preparation & Nutrition: Meat, poultry, fish & eggs — Knowledge Organiser

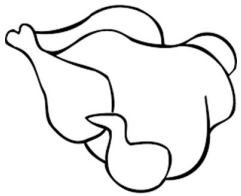
Meat and poultry

Animals used for meat in the UK are cattle (for beef or veal), sheep (for lamb or mutton) and pigs (for pork, ham or gammon).

Poultry is the name given to birds reared on farms for their meat e.g. chicken and turkey.

Game is meat sourced from wild animals e.g. rabbit.

Offal is the name given the edible internal organs of the animal or bird e.g. liver, kidney.

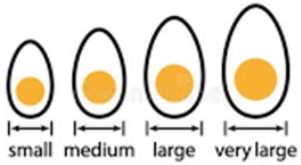


Eggs

Most of the eggs we eat come from chickens. Duck, goose and quail eggs are also widely available.

Eggs comes in a range of sizes, from small to very large, and are also farmed using different methods:

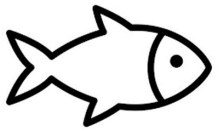
- Barn—hens move freely inside the barn.
- Battery or caged—hens are kept in cages indoors.
- Free range—hens are allowed time to roam in open air.
- Organic—live on organic land and are fed an organic diet.



Fish

Fish can be classified into:

- **White** e.g. cod, haddock. White fish has less than 5% fat and as a result is white in colour.
- **Oily** e.g. salmon, tuna. Oily fish has more than 5% fat and is therefore darker in colour.
- **Shell** e.g. prawns, mussels.



Main nutrients in meat, poultry, fish and eggs

Nutrient	Function
Protein	Growth, repair and maintenance of cells
Fat	Energy, warmth, protection of organs, a carrier for fat soluble vitamins (A, D, E and K)
Iron	Helps to make haemoglobin in the red blood cells which carry oxygen around the body
Vitamin A	Immune system; helps us to see in dim light
B Vitamins	Help to release energy; healthy nervous system
Vitamin D	Healthy bones and teeth; helps the body to absorb calcium

All of these foods contain low amounts of carbohydrate and no fibre.

Oily fish are a good source of omega-3 which promotes heart health.

Key vocabulary

Pathogenic bacteria	Bacteria that cause disease.
Omega-3	An essential fatty acid that the body cannot make. They are polyunsaturated fat.
Roux	A mixture of melted fat and flour, which is used to make a sauce.
Coagulation	The setting of protein from a liquid to a solid state when heat is applied.
Dry fry	A healthy cooking method that uses no additional oil.
Reduce	Simmering a liquid until it thickens.
Visible fat	Fats that can be seen e.g. oil or fat on meat.
Invisible fat	Foods containing fat which cannot be seen. E.g. in cakes, crisps, ready meals.
Marinating	Soaking meat in a marinade for several hours. This is a mixture of oil, vinegar, herbs and spices. It adds flavour and tenderises the meat.

Function of eggs

Aeration - protein stretches and traps air to make a foam e.g. when making meringue.

Coagulation - eggs become solid when heated e.g. fried egg or quiche.

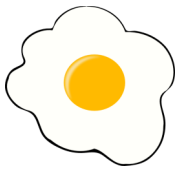
Glazing - beaten egg is brushed over the surface of food to give a shine and brown colour e.g. pastry or scones.

Enriching - adds nutrients e.g. brioche.

Garnishing - adds colour to a finished dish e.g. salad or a chicken biriyani.

Emulsification - egg yolk holds together oil and water e.g. when making mayonnaise.

Some recipes use the whole egg. Some recipes require the white to be separated from the yolk e.g. meringue



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Methods of heat transfer

There are 3 methods of heat transfer:

1) Conduction

This is when heat travels through solid materials such as metal and food. Heat is transferred from molecule to molecule by direct contact.

2) Convection

This is when heat travels through gas or liquid. The transfer of heat is by movement of heated particles into a cooler area.

3) Radiation

This is when heat waves directly strike and cook food. There is no physical contact between the heat source and the food. Grilling uses radiation.

Food poisoning

Food poisoning is caused by eating food contaminated with pathogenic bacteria. There are many different types of food poisoning bacterium for example:

- Salmonella found in poultry, eggs and meat
- E coli found in raw meat and muddy vegetables
- Campylobacter found in raw meat, poultry and raw milk

These bacteria make us ill, producing symptoms such as fever, headache, vomiting and diarrhoea. These symptoms are the body's way of trying to get rid of the pathogenic bacteria.

Food poisoning can be prevented by:

- Washing hands in hot, soapy water
- Using colour coded chopping boards
- Sanitising surfaces between use
- Keeping chilled foods in the fridge until they are needed
- Storing raw and cooked foods separately in the fridge—raw meat on the bottom shelf
- Storing foods in sealed containers
- Covering cuts with a clean blue plaster.

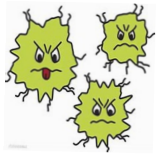
Methods of cooking

On an animal, the muscles that have worked hardest will result in meat that can be tough. Tougher cuts of meat and poultry need long cooking times on a low heat to make them tender. More tender cuts e.g. chicken breast can be cooked more quickly. Fish cooks quickly because of its short connective tissue. Fast methods like grilling are suitable.

Method	Description	Advantage	Disadvantage
Baking	uses the dry, hot air of the oven.	Can cook multiple items at once.	Needs specific cooking times.
Toasting	uses dry radiant heat.	Quick.	Only for limited foods.
Roasting	uses the dry, hot air of the oven. Food is basted with hot fat.	Provides good flavour.	Slow.
Grilling	dry radiant heat is applied to food with no direct contact	Healthy—fat drains out.	Needs careful supervision.
Stir frying	thin pieces of food are cooked quickly in a small amount of fat.	Quick.	Needs constant attention.
Shallow frying	small, tender pieces of food are cooked in a small amount of very hot oil.	Uses minimal fat.	Should not be left unattended.
Deep frying	foods are submerged into very hot oil.	Very quick method.	Very unhealthy.
Steaming	tender foods are cooked in the steam of boiling water.	Water soluble vitamins are not lost.	Can take longer to cook than boiling.
Simmering	food is submerged in liquid that is gently bubbling.	Ideal for tender cuts of meat.	Water soluble vitamins are lost.
Boiling	food is cooked in vigorously boiling water.	Quick.	Water soluble vitamins are lost.
Stewing	food is submerged in liquid and cooked slowly.	Good flavour.	Slow.
Poaching	small pieces of tender food are cooked in a small amount of simmering liquid.	Quick.	Water soluble vitamins are lost.

Bacterial growth

To reproduce bacteria need to be given ideal conditions which are:



- Warmth
- Food
- Moisture
- Time

If one or more of these conditions are removed bacteria cannot grow.

Bacteria reproduce by binary fission where one bacterium splits in to two bacteria every 10-20 minutes.

Cross-contamination

Bacteria are easily transferred from one food to another either by humans, animals, other food or equipment.

Food safety and hygiene procedures should be followed when preparing, cooking and serving food.

High Risk Foods

High risk foods are the ideal medium for the growth of bacteria and can therefore cause food poisoning. They are high in **protein** and **water**. Examples are fish, meat, poultry, seafood, cheese, milk, eggs, cooked rice and stock.

Why is meat cooked?

- To make it easier to digest
- To kill harmful bacteria, making it safe to eat which prevents food poisoning
- To improve the flavour
- To add colour/improve the appearance
- To improve the texture; to make it more tender
- To help the meat keep for longer