

## GCSE Food Preparation & Nutrition *Wheat- Bread*

Bread is staple food in the UK. There are many varieties of bread; wholemeal, granary, white, spelt, soda and rye. They can be shaped in a variety of ways. Bread dough can be enriched with ingredients such as dried fruit, sugar, milk, butter and eggs to produce baked items like buns and pastries. Bread is a relatively low cost food, extremely versatile and relatively easy to make yourself.

### Food Science

**Sifting the flour:** the sifting process introduces air which acts as a raising agent and helps the bread to rise in the oven.

**Adding warm liquid** Water hydrates the flour. At 37°C the liquid provides the optimum temperature for the yeast to ferment and produce the raising agent CO<sub>2</sub>. Moisture is needed for a soft dough. Sugars are produced by this fermentation which the yeast consumes. As it does so it creates alcohol and carbon dioxide gas as a waste products.

**Mixing and Kneading Dough** during the mixing and kneading, two of the proteins present in the flour (gliadin and glutenin) become hydrated and when the dough is kneaded an elastic protein complex called gluten is formed. This gluten gives bread its structure and prevents it collapsing.

Proving Dough during this step some of the starch present in flour is broken down and is fermented by the yeast . CO<sub>2</sub> gas is produced which causes the gluten network to expand and therefore makes the dough rise; the quality of the gluten is important if its too weak bubbles can burst causing lack of volume, if it's too strong the dough won't stretch enough.

**'Knocking back'** proved dough, the dough is 'knocked back' to remove the large CO<sub>2</sub> bubbles produced by the yeast. This ensures a more even texture and a better rise. Large bubbles of gas would make large holes in the finished bread.

Baking, the bread dough rises as the CO<sub>2</sub> produced by fermentation of yeast expands with heat. Yeast activity increases at first, but as the temperature of the dough rises it slows down until eventually the heat will kill the yeast. The water is absorbed by the starch granules in the flour, the starch grains swell and gelatinise this supports the firm structure of the loaf. A gluten network forms a sort of skeleton which traps the CO<sub>2</sub> gas. During baking the gluten strands are stretched as the CO<sub>2</sub> gas expands, this together with the coagulation of the gluten protein results in the finished bread structure.

### Functions of Bread ingredients



**Yeast: Raising agent:** Is a living micro organism. When it's the ideal conditions for growth, it respire and produces carbon dioxide. Ideal conditions for growth are: Warmth, moisture, food and time.



**Liquid: Moisture:** it helps to create the right conditions for the yeast to grow. It also hydrates the flour, helping with gluten formation.



**Salt: Structure:** helps with gluten formation  
**Taste:** a small amount improves the flavour of the bread.

**Too much:** will prevent the yeast from fermenting



**Flour: Bulk:** it gives bulk to the bread.

**Taste:** Different types of flour affect the flavour.

Absorbs moisture flour can absorb a lot of water to make a dough

**Strong flour** has a higher protein content so will produce a good quality loaf without it collapsing

**Nutrients** provides starchy carbohydrates, protein and is fortified with vitamins and minerals.

### Nutritional Value of Bread:

Bread is a good source of starchy carbohydrate, protein, B vitamins, calcium and iron. Bread which is made with wholemeal flour is also a good source of dietary fibre.

### Other ingredients in bread making

**Fat:** fat allows the other ingredients to slide over each other so the bread can rise.

**Shortening** – fat coats the particles of flour and stops it absorbing water, so only a small amount should be used.

**Taste:** Enhances the flavour.

**Shelf Life:** fat improves the texture of the bread, keeping it moist and preventing it from going stale quickly.

### Other ingredients in bread making

**Sugar:** Food for the yeast: sugar provides food energy for the yeast so that they can respire and grow.

**Browning:** sugar turns to caramel when it's cooked and makes the crust brown.

**Taste:** Sugar adds sweetness to the bread.

**Ascorbic Acid:** Added mainly in the commercial manufacture of bread, it speeds up time it takes to make the bread.

### Additional learning and challenge activities

- What does the term 'enriched dough' mean?
- List the key stages for traditional bread making Describe the difference between making bread using the bulk fermentation and the Chorleywood process.
- List the four ideal conditions needed for yeast to respire and produce carbon dioxide.
- Name the gas produced by the fermentation of yeast.
- Why is the formation of the protein gluten important in bread making?
- What does h term 'knocking back' mean and why is it necessary?



GCSE Food Preparation & Nutrition  
**Fruit and Vegetables**

Potatoes: A staple food in the UK. The part of the potato we eat is called the Tuber. They come in a variety of colours but we are most familiar with the red and white varieties. The most common potatoes we eat in the UK are Maris Piper, King Edwards and Desiree. Sweet potatoes are also popular and are a common alternative to traditional potatoes.

Different varieties of potatoes have different textures. Some can be floury, sticky and waxy or granular. This is due to the potato cell changing during cooking. All potatoes have the same structure. The outer layer is the skin, the flesh is the area under the skin. The pith is the watery core. They can be cooked in a variety of ways including, boiling, roasting, baking and frying. Good source of vitamin C, complex carbohydrates (starch) and a small amount of B vitamins. They also contain water.

**Storage of potatoes**

Stored in cool, dry and dark places  
Such as hessian bags, racks or paper bags  
Left in the light they will turn green - the green part is toxic  
Not in plastic bags as they will sweat and rot  
Storing in the fridge can affect the taste and cause discolouration

We are encouraged to eat a wide variety. Eaten as part of a main meal or a snack. Can be eaten raw. Cooking destroys some of the nutritional value. The eatwell guide suggests a third of our diet is made up of fruits and vegetables. They are a good source of carbohydrates, fibre vitamins and minerals and are low fat.

Vegetables are categorised according to the part of the plant they represent. They can be grown above or below the ground.

Group	Examples	Above or below
Roots	Beetroot, Carrots, swede	Below
Bulbs	Onions, leeks, spring onions	Below
Tubers	Potatoes, sweet potatoes, yams	Below
Stems	Asparagus, celery	Above
Leaves	Cabbage, brussel sprouts	Above
Flowers	Cauliflower, broccoli	Above
Fruits and seeds	Peas, courgettes, aubergine	Above
Fungi	mushrooms	Above

**Vegetable Structure**

The structure of vegetables is a collection of cells made of cellulose. The type of vegetable and its age can mean that the structure varies. Vegetable cells contain high amounts of water and this keeps the vegetable form (e.g. cucumber 70% water). If they start to lose water the cells lose their firmness and they become limp and flabby.

**Vegetable Storage**

Salad and some green vegetables can be stored in the fridge to keep them fresh. Most other vegetables should be stored in cool, dry, well ventilated areas. Most vegetables should be eaten as soon as they are purchased to avoid nutrient and flavour losses.

Ripened fruits are more attractive to eat. They will change in colour, texture and taste (sweeter) when they ripen.

**Fruit**

There is a vast array of fruits available to eat in the UK. These may be home grown or imported. Many fruits are seasonal (the times of the year when the food is at its peak, in terms of harvest, flavour or cost)

There are four main groups of fruit. Some fruits (bananas, pineapple, mango) do not fit into any of the categories and tend to be sold as exotic or tropical fruits.

Group	Examples	Storage
Citrus	Oranges, lemons, limes, grapefruits	Cool, dry place
Hard	Apples, pears	Room temperature, do not refrigerate
Soft or Berry	Strawberries, raspberries, blackberries	fridge
Stone	Plums, cherries, peaches	Fridge. Room temperature for faster ripening.



GCSE Food Preparation & Nutrition

**Milk, Cheese and Yoghurt**

**MILK**

Cow's milk is the dominant milk drank in the uk. Alternative include goats milk and soya milk.

Milk contains bacteria - it must be heated to destroy the bacteria - to make it safe to drink. This makes it last longer too. Milk can be pasteurised. HTST - High temperature short time. Heated to 72 degrees for 15 seconds. Then cooled rapidly and bottled. UHT - ultra heat treatment - heated for 1 second to 132 degrees. Makes milk sterile (no bacteria). Rapidly cooled and packaged. Lasts longer than pasteurised milk.

Type	Details
Whole	3.9 % full fat. Blue cap. Recommended for children
Semi-skimmed	1.7% fat. Half fat. Green cap
skimmed	0.1-0.3% fat. Red cap
Evaporated	Concentrated, sterilised and canned. Reduced liquid content - thicker
Condensed	As condensed but with sugar added - helps to preserve the milk
Dried milk powder	Water removed to dry. Water added then can be used and stored as fresh milk
Alternative	Dairy free - soya, almond, oat and rice

Complete food - provides many nutrients - the only food needed for babies (all mammals) for the first few weeks of life.

Protein - HBV  
 Fat - Saturated  
 Carbohydrate - simple - lactose - sugar in milk  
 Minerals - calcium, phosphorus, potassium and iron  
 Vitamins - A, D and B some C  
 Water - high volume content.

Storage  
 Perishable - refrigerated and away from strong smelling foods.

Cheese can be described as solid or semi-solid (soft cheese) milk. Can be referred to as fermented dairy food.

**CHEESE**

Type	Examples
Hard pressed	Cheddar, leicester
Soft (or ripened)	Camembert, brie, goats
unrippeded	Cottage cheese, cream cheese, mascarpone
Blue veined	Stilton, danish blue
processed	cheese slices and spreads

Protein - HBV  
 Fat - Saturated. High content depending on milk used  
 Minerals - calcium, phosphorus, sodium  
 Vitamins - A, D and B some C

**Uses:** flavour, colour, texture and increased nutritional value

**Storage**  
 Refrigerate between 0-5 degrees. Soft cheese use within a few days. Hard cheese last longer. Airtight box - prevents drying out

**YOGHURT**

Protein - HBV  
 Fat - Saturated.  
 High content depending on milk used  
 Minerals - calcium, phosphorus, sodium  
 Vitamins - A, D and B some C

The bacteria convert the lactose (milk sugar) to lactic acid, which thickens the milk and gives it the tangy taste characteristic of yogurt. The yogurt is then cooled and can be flavoured with fruit, sugar, other sweeteners or flavourings. Stabilizers, such as gelatin, may also be added

Yoghurt is made from different types of milk. Some yoghurts contain other ingredienmts to flavour them sich as sugar and fruit.  
 Set yogjhurt - firm texture - set in pot it is served in  
 Love yoghurt - fermented with live culture bacteria - still living  
 Jgreek (strained) yoghurt - cows or ewes milk- thick and high in fayt.

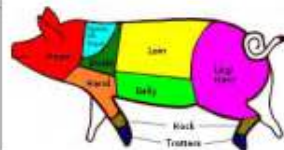
**Storage**  
 Refrigerate between 0-5 degrees. Eat within use by date.

## MEAT

There are 3 animals we generally eat in the uK - pigs, sheep and cows.

Meat is made up of protein, water and fat.  
Fat in meat is either visible (seen around the edge) or invisible (in the connective tissue)

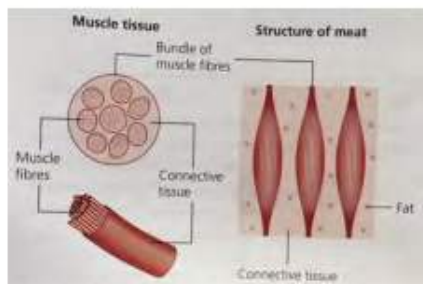
<b>Beef, veal</b>	<b>Steaks</b> - sirloin, fillet, rump <b>Joints</b> - topside, brisket, silverside <b>Cuts</b> - skirt, chuck, minced
<b>Lamb, mutton</b>	<b>Steaks</b> - shoulder, fillet, <b>Joints</b> - leg, saddle, neck <b>Cuts</b> - chump, loin., noisettes, minced
<b>Pork, bacon, gammon and ham</b>	<b>Steaks</b> - shoulder, loin <b>Joints</b> - spare rib, leg, shoulder, loin <b>Cuts</b> - belly, chops



Protein - HBV  
Fat - Saturated  
Minerals - iron  
Vitamins - (fat soluble) A, D and B  
Water - high volume content.

**Cooked for:** kill bacteria, flavour, to make tender, to make more appealing, to make nutrients more digestible

**Storage**  
Meat is a high risk food, it must be cooked and stored correctly to avoid food poisoning. Raw meat should be refrigerated, cooked meat covered and refrigerated



**Raw meat = muscle + connective tissue + fat.**

The muscles are bundles of fibre which are surround and held together with connective tissue. These muscle fibres can be different lengths depending on the part of the animal they are from. part of the animal that does a lot of work such as the leg have longer fibres and can be tougher. Cooking is used to make the meat tender. The fibres contain water and mineral salts.

**Digestible** - some foods are broken down more easily by the body (by the action of enzymes) than others. Meat needs to be cooked to make it more digestible. They are broken down into macronutrients and micronutrients and absorbed through the wall of the intestines.

## FISH

Fish is made up of protein, water, minerals and fat.

Type	Examples
White fish	Sole, halibut, trout, tuna
oily	Mackerel, salmon, trout
shellfish	Crabs, lobster, prawns

**Fish Flesh = muscle + connective tissue.**  
**Fish muscle has short fibres and the connective tissue is very thin, this means that fish can be cooked quickly and still be tender and moist.**  
**Cuts - whole, fillet, goujons, steaks**

High in Protein - HBV  
Low in Fat , good source of fatty acids  
Minerals - calcium if bones are eaten - sardines  
Vitamins - A, D  
Shellfish can be high in cholesterol

### Storage

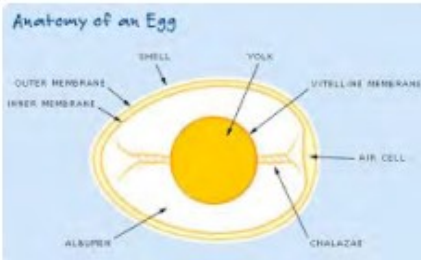
**Spoil quickly - eat same day or quickly afetr - can be unsafe to eat after longer**  
Refrigerate between 0-5 degrees.



## EGGS

Eggs are produced by hens, ducks, quails and geese. The most popular are hen (chicken) eggs.

Eggs can be brought in 4 different sizes; small, medium, large and extra large.



**Structure:**  
10% shell, 30% yolk, 60% white

**Storage**  
Away from strong smelling foods as they are porous (contains tiny holes) and will absorb strong odours. Consume by use-by date.

## Egg Nutrition



**Cooked by:**  
boiling,  
frying,  
poaching,  
scrambling

### Yolk

**Fat** 4.5 g  
**Sat. Fat** 1.6 g  
**Cholesterol** 184 mg  
Carbohydrates 0.5 g  
Protein 2.5 g

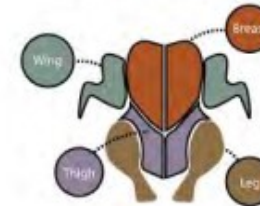
### White

Fat 0 g  
Sat. Fat 0 g  
Cholesterol 0 mg  
Carbohydrates 0 g  
**Protein** 4 g

**Protein** - HBV white and yolk  
**Fat** - Saturated in the yolk  
**Minerals** - iron  
**Vitamins** - (fat soluble) A, D and E in yolk. B in the egg white.  
**Water** - in white and yolk.

BEST ← → WORST

Label	Pasture Raised	Certified Organic	Free Range	Cage Free	Conventional
Living Space	Natural fields or pasture, most space for natural behaviors	Aviaries/barns without cages, space varies, buy local when possible	Aviaries/barns without cages but very crowded	Aviaries/barns without cages but very crowded	Grouped in small cages with little room to move
Outdoor Access	Live outside with access to barn	Required but not regulated	Limited and not regulated	None	None
Diet & Feed	Natural foraging, feed varies from farm to farm	Organic vegetarian, pesticide-free and non-GMO	Typical chicken feed	Typical chicken feed	Grain-based, fortified, basic needs met in cheapest way possible
Hormones & Antibiotics	Less common, less necessary	None	Common practice	Common practice	Common practice
Nutritional Value of Eggs	Most nutritious	More nutritious than conventional	Similar to conventional	Similar to conventional	Least nutritious



## POULTRY

Chicken is the most popular poultry used in the UK. There is also duck, turkey, goose, guinea fowl and pigeon.

Chicken	Most popular, large bird, sold whole or jointed into legs, wings, breast and legs.
Turkey	Similar to chicken but larger. Associated with Christmas
Duck and goose	Richer tasting birds, fatty in comparison

**Poultry = muscle + connective tissue.**

**Breast is softer than the legs that can be tough (hardest working part of the bird) older birds are tougher than younger birds which tend to be tender. Nutritional value varies according to the age of the bird, how it is reared and the parts eaten.**

High in Protein - HBV  
Lower in Fat than meat, saturated  
Minerals - calcium if bones are eaten - sardines  
Vitamins - good source of B, some A and D

### Storage

High risk food, it must be cooked and stored correctly to avoid food poisoning. Should be refrigerated, thawed and cooked thoroughly to kill bacteria.

## Soya and Tofu

Soya comes from the soya bean pod. Part of the legume family. Beans, peas and lentils are also part of this family.

Soya can be processed into many different forms - milk, sauce, paste, flour tempeh. It can be bought dried, canned or fresh in the form of desserts, yoghurts and margarines.

Contains Fibre, HBV protein and magnesium.

Tofu can be called bean curd. Made from fresh soya milk, that has been curdled and pressed into a block and then cooled.

It is made in the same way as traditional cheese.

Bland tasting so needs to be favoured.

Contains HBV protein, iron, calcium and other minerals. Some B vitamins.

They are both bought in sealed containers and should be stored in the fridge.

## Beans

Beans are legumes, normally referred to as pulses. Pulses are edible seeds that grow in a pod.

Most popular bean is the baked bean - a haricot bean in tomato sauce. Beans are added to dishes for bulk, flavour or to nadd to the nutritional value.

High in protein and fibre , some carbohydrates, calcium and B vitamins.

bean	storage
fresh	fridge
frozen	freezer
dried	Airtight, cool dry place
canned	cool dry place

## Nuts

- Some nuts are edible kernels from which the fruit wall has been removed. Some are seeds and some are pulses.
- Nuts are used in savoury and sweet dishes
- Nuts can cause allergic reactions
- Nuts can be bought in many forms , shelled, ground, chopped, whole
- Nuts have high energy values due to the high fat content
- They provide LBV protein
- They contain B vitamins
- They provide fibre
- Need to be stored in airtight containers or will turn rancid due to the high levels of oil
- Kept away from moisture and strong odours
- Consume before use by date.



## Seeds

- Include poppy, pumpkin and sunflower
- Used as a healthy snack
- Used as topping on food
- Roasted or toasted to add texture and flavour
- Ground to add flavour
- Used to manufacture oil
- Provide protein
- Provide essential fatty acids
- Provide iron and zinc
- Vitamins B and E
- Need to be stored in air tight containers in a cool dry place.





GCSE Food Preparation & Nutrition  
**Butters, Oils, Sugars and Syrup**

**Butters**

**Butter** is the dairy product made from churning milk or cream. The churning process separates the butterfat (the solids) from the buttermilk (the liquid). The **butter** we most often buy is made from cow's milk, although other varieties — made from the milk of sheep, goat, yak, or buffalo — are also available. Butter comes in salted and unsalted varieties.

**Uses:**

Melting - pouring over vegetables  
Spreading - crackers and sandwiches to avoid moisture  
Creaming - making cakes  
Shallowing frying - eggs  
Shortening - rubbing in to make pastry

**Nutrients:**

High in fat  
Vitamins A and D  
Sodium - salt

**Storage:**

Kept in fridge  
Away from strong odours  
Fully covered or can go rancid if left open to the air.

**Oils**

Oils are liquid at room temperature. They are lighter than solid fat such as butter and easier to digest.

Vegetable oils are natural oils found in seeds, nuts and fruit. Examples include sunflower oil, sesame oil, rapeseed oil and olive oil. Oils are used for frying, basting, marinating and dressings. The main nutrient found in oils is fat, this is an unsaturated fat and considered healthier than saturated fats. Oils should be stored in cool, dry places.

**Margarine**

Margarine was introduced as an inexpensive alternative to butter. It was made from vegetable oils and is **fortified with vitamins A and D**. Margarine is sold in solid block or as a soft margarine in a tub.

**Uses:**

Block margarine is used for baking. Soft margarine is used for baking and frying and for spreading when making sandwiches. Some soft margarines have a very low fat content so no suitable for making cakes, pastries and biscuits. High in fat. Provide vitamins A and D, water and minerals such as sodium (salt).

**Sugars**

- Comes from sugar cane (a tall grass grown in hot climates) or sugar beet (a root crop similar to parsnip grown in climates with warm and cold seasons)
- Pure carbohydrate - give quick release energy. Provides empty calories as does not provide other nutrients
- Primary function in cooking is to provide sweetness. Can provide colour and crunch to some dishes

Type	Description	Uses
granulated	White, coarse, small crystals	Sweetening- drinks, cereals,
caster	White, made from ground granulated sugar, finer crystals	Cake making - victoria sandwich cake
icing	White, made from ground granulated sugar, fine powder	Decorating - cakes, making icing
demerara	Pale brown, made from raw sugar, larger coarse crystals than granulated sugar	Adding crunch - flapjacks
Soft brown	Small sugar crystals containing molasses, a dark syrup.	Flavour in cakes - christmas cake

**Syrups**

Golden syrup is the most familiar  
Bought in various forms - jar - can- squeezey bottle. Very sweet.  
Black treacle is also a syrup, much darker in colour and thicker with a stronger flavour  
Black treacle is used for making christmas cake, gingerbread and some curry sauces.  
Best stored in cool, dry places and used within three months of opening



**Golden syrup** or light treacle is a thick, amber-coloured form of inverted sugar syrup made in the process of refining sugar cane or sugar beet juice into sugar, or by treatment of a sugar solution with acid. It is essentially white sugar/sucrose in a different form. This has been inverted, meaning that the sucrose has been broken down into two simpler sugars, fructose and glucose. The fructose content gives a heightened perception of sweetness so that, 25% less golden syrup can be used than granulated white sugar.

A British tablespoon of golden syrup contains about 60 calories, whereas a British tablespoon of white sugar is about 50 calories. By volume, golden syrup has more calories: by weight sugar has more calories. Golden syrup and white sugar have a very similar glycaemic value, meaning that the body processes both at about the same rate.



## Macronutrients

Macronutrients are needed in large amounts to make the body function properly.

### Protein:

These are made up of **essential amino-acids** and **non-essential amino-acids**. (Our bodies can make non-essential amino acids, but we need to get essential amino acids from our food).

#### Source

- HBV – these have all the essential amino acids
- Meat, fish, dairy, eggs (animal sources)
  - Tofu
- LBV – these are missing at least one essential amino acid
- Seeds, nuts, beans, pulses, cereals, Quorn (plant sources)

#### Function

Growth  
Repair  
maintenance



#### Dietary Reference Values

Age	Amount
1-3	15g
4-6	20g
7-10	28g
11-14	42g
15-18	55g
19-50	55g
50+	53g

#### Not enough

Kwashiorkor  
Oedema  
Anaemia  
Slow growth in children

#### Too much

Excess protein can be converted to energy. If unused turns to fat.

#### Complementary actions

Combining 2 or more LBV proteins helps get a balance of essential amino acids. e.g. beans on toast.

### Fats, oils and lipids:

Too much fat is bad for you, but so is not enough.

#### Source

#### Saturated Fats

(From Animal sources. They are also called unhealthy fats. They are generally solid at room temperature)  
Sausages / Bacon / Lard / Dairy



#### Unsaturated Fats

(These are healthier. They are often liquid at room temperature.)  
Monounsaturated fats – olive oil / avocados  
Polyunsaturated fats – sunflower oil / seeds



**Omega-3.** These are Polyunsaturated and called "healthy" fats as your body needs them but can't make them. They are good for your heart.  
– Oily fish / Nuts / Seeds



#### Function

Energy  
Warmth  
Protection of organs  
Source of fat soluble vitamins  
Hormone production

#### Dietary Reference Values

DRI	Men	Women
Total fat	95g	70g
Sat fat	30g	20g

#### Too much

Obesity  
Heart disease  
Type 2 diabetes  
Stroke  
Cancer

#### Not enough

Vitamin deficiency (fat soluble)  
Unprotected organs

### Carbohydrates

There are 2 kinds, simple or complex.



#### Source

- Simple - these are sugars (monosaccharides, disaccharides)  
Cakes, jam, soft drinks
- Complex - these are starches (polysaccharides)  
Bread, potatoes

#### Function

##### Simple

Quick burst of energy

##### Complex

Longer lasting energy

#### Free sugars

These give you no nutritional benefit other than energy.



#### Not enough

Can make blood sugar level drop

- hunger,
- dizziness,
- Tiredness
- Lack of energy

Our body will use protein for energy (leads to loss of muscle)

#### Too much

- Excess is turned into fat
- Can cause obesity
- Too much sugar leads to dental problems
- Can lead to type 2 diabetes

#### Dietary advice

- Reduce the amount of sugar that we eat, no more than 5% of our diet.
- Complex Carbohydrates should make up half of the energy we eat.
- Wholegrain cereals are a good source of fibre



## Micronutrients

Micronutrients are needed in **small amounts** to make the body function properly.

### Vitamins

They all have different functions, but generally

- Help the body release energy
- Prevent some diseases
- Keep the body healthy
- Repair cells

#### Fat soluble vitamins: vitamin A, and vitamin D

- Don't need to be eaten every day as the body can store them in the liver and fatty tissues.
- Too many in our diet can cause us harm

#### Water soluble vitamins: vitamin C

- Not stored in the body so need to be eaten
- To maximise the intake and prevent loss, steam instead of boil the food, or use the water in gravy
- Excess vitamins are eliminated in the urine

	Source	Function	Deficiency
B1 Thiamin	Bread / Pasta / rice / peas / eggs / liver	Energy release	Tiredness
B2 Riboflavin	Milk / eggs / leafy greens	Energy release / repair	Tiredness / dry skin
B3 Niacin	Wheat / nuts / meat / fish	Energy release / skin	Tiredness
B9 Folic Acid	Liver / peas / leafy greens	Growth / healthy babies / red blood cells	Anaemia / tiredness
B12 Cobalamin	Milk / eggs / meat / fish	Red blood cells	Tiredness / nerve damage
C	Citrus / tomatoes / green veg	Immune system / absorbs iron	

### Minerals

Minerals help chemical reactions in our body.

	Source	Function	Deficiency
Calcium	Dairy, green leafy veg, bread	Strong bones	Weak bones, rickets and osteoporosis
Iron	Meat, green leafy veg	Red blood cells	Anaemia
Potassium	Fruit and veg	Heart health	Bad for your heart
Magnesium	Green leafy veg	Release energy and bone health	Nausea

### Water

Keeps us hydrated.

#### Source

Drinks, fruit and vegetables, soup.

#### Function

- Normal physical and cognitive functions,
- Normal regulation of the body's temperature.
- Gets rid of waste substances in the body.

#### Deficiency

- Even mild dehydration can lead to headaches, irritability and loss of concentration.
- Groups at risk include children, old people and active people.

### Trace Elements

Trace elements help chemical reactions in our body.

	Source	Function	Deficiency
Fluoride	Fish, toothpaste	Strengthens teeth	Weak teeth
Iodine	Seafood and dairy	Hormone development	Complications in unborn babies

### Fibre

Fibre is also known as "roughage" or "non-soluble polysaccharides (NSP)".

#### Insoluble fibre

##### Source

Wholegrain, whole wheat and wholemeal cereals

##### Function

- Insoluble fibre goes through the body and collects rubbish and waste before pushing it out as poo.
- This acts like a sponge by expanding to hold water and waste
- Helps keep poo soft
- Prevents constipation

#### Deficiency

Constipation, bowel cancer

#### Soluble Fibre

##### Source

Peas, beans, lentils, apples and citrus fruit

##### Function

- Lowers cholesterol, helping reduce the risk of heart disease.
- Helps to control the level of blood sugar by slowing down the release of food from the stomach (good for diabetics)

#### RDA

30g per day



# GCSE FOOD PREPARATION AND NUTRITION: The Eatwell guide and healthy eating guidelines

We use the eatwell guide to get a balance of healthier and more sustainable food. It shows how much we should eat from each group.



**4. Eat less saturated fat and sugar**

Too much fat is bad for you and causes dietary health problems (heart disease, obesity, stroke)

How?

- Cut visible fat from the meat
- Choose lean cuts of meat
- Offer low fat spreads

Too much sugar caused type 2 diabetes, heart disease, obesity and dental problems (heart)

How?

- Use sugar substitutes for puddings, cakes and biscuits
- Offer fresh fruit alternatives
- Use less processed foods – especially sauces

**5. Eat less salt**

Eat no more than 5g a day.

Too much salt causes high blood pressure, strokes and dehydration

It is highly addictive!

How?

- Cook dishes using fresh ingredients
- Don't add salt at the table
- Don't add salt to the cooking water

**2. Eat lots of fruit and veg**

We should eat at least five a day.

How?

Choose from fresh, frozen, tinned, dried or juiced.

Add vegetables to meals

Add vegetables or fruit to cakes and desserts

**3. Eat more fish**

Fish is a good source of protein, contains vitamins, minerals and omega 3.

How?

Aim for at least two portions of fish a week

**1. Base your meals on starchy food**

Most of the food on your plate should consist of starchy foods

These supply important energy and give important minerals and dietary fibre.

Whole grain and whole wheat versions are best

How?

Have a side of starchy food like potato, rice, pasta or bread.

**6. Get active**

If you eat more energy than your body needs, it is turned into fat. If you don't eat enough energy your body cannot function properly.

Being overweight can lead to heart disease, high blood pressure or diabetes.

Being underweight also affects your health and leads to bulimia or anorexia.

How?

- Only eat as much food as you need
- Exercise for 30 minutes a few times a week.

**8. Eat breakfast**

Breakfast is the most important meal of the day as it gives energy for the day..

It should be made up of complex carbohydrates for a slow release of energy and stop us snacking.

**7. Drink plenty of water**

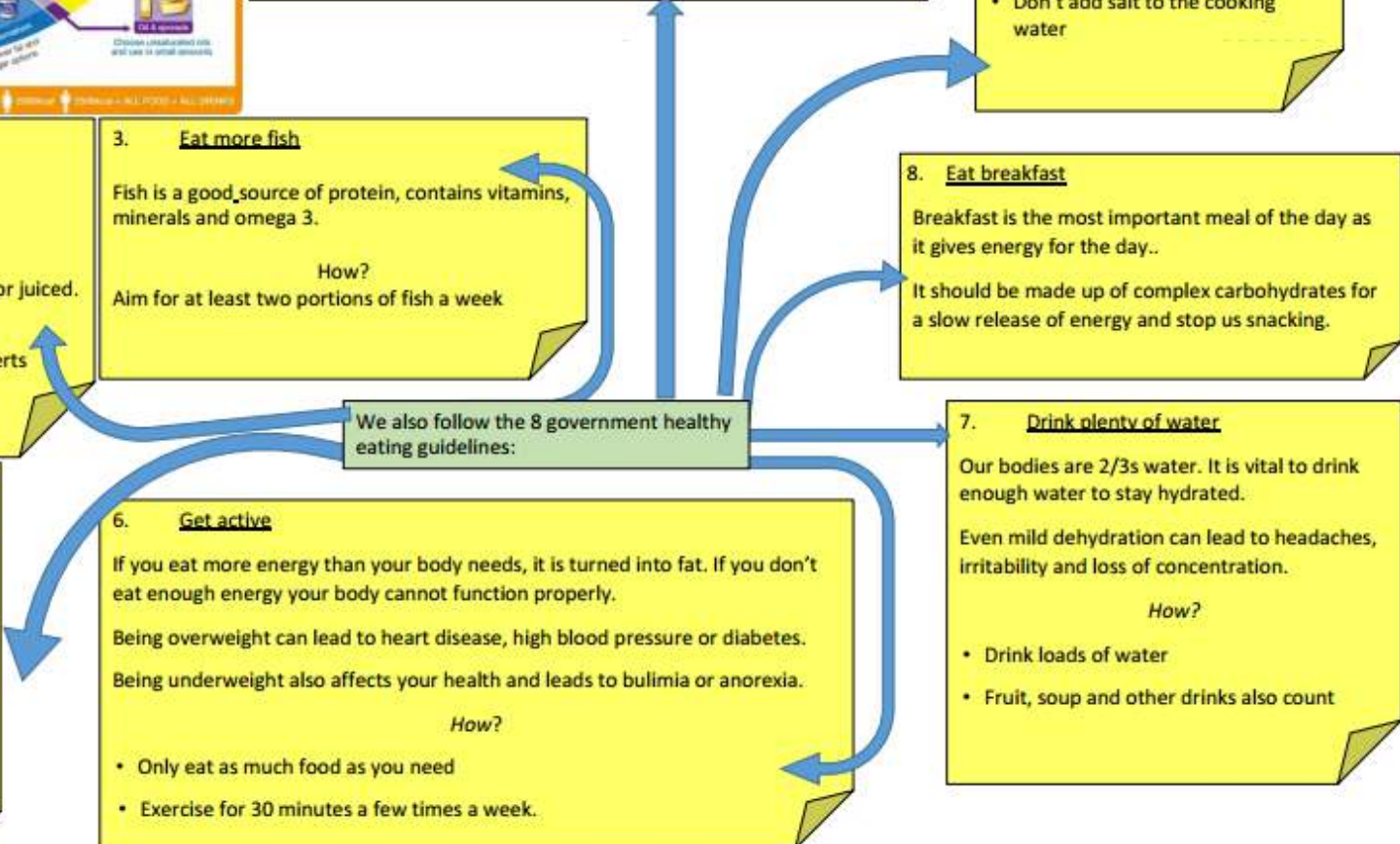
Our bodies are 2/3s water. It is vital to drink enough water to stay hydrated.

Even mild dehydration can lead to headaches, irritability and loss of concentration.

How?

- Drink loads of water
- Fruit, soup and other drinks also count

We also follow the 8 government healthy eating guidelines:





## Life Stages

### Toddlers

Eatwell guide doesn't apply  
High calcium  
Small meals  
Variety of different foods

### Young Children

- Protein for growth and development
- Given small, attractive portions of food
- Introduce to new foods gradually
- Avoid fatty and sugary food
- Calcium and Vit. D for bones and teeth

### Teenagers

- Should be given protein for growth and development
- Risk of obesity and poor skin - Eat 5-a-day to help
- Good supply of iron (esp. for girls during period)
- Avoid fatty or sugary food
- Try to develop good habits

### Early and middle Adulthood

Follow eatwell guide  
Men need more calories  
Women need more iron  
Calcium and vitamin for strong bones



### Elderly

- Should be given protein to repair worn out body cells
- Need a good supply of calcium and vitamin D for healthy bones
- Good supply of iron to keep the body healthy
- Need more fat in the winter to stay warm
- Fresh fruit and vegetables for vitamins and minerals
- May struggle to cut (arthritis) or chew food (false teeth) and digestive problems.

## Special Dietary Needs

Allergy: an adverse reaction by the body to certain substances

Intolerance: condition that makes people avoid certain food because of the effects on their body

Allergic reaction: the way someone responds to certain food.  
- For example: a rash/swelling/anaphylactic shock

Type 2 Diabetes	Starchy food/high in sugar
Low fat diet	Foods naturally high in fat Foods cooked in a lot of fat
Low salt diet	Processed food Smoked meat Chinese food with MSG
Nut allergy	Avoid nuts, blended cooking oil, margarine with nut oils and often seeds
Lactose intolerance	Avoid milk, cheese, yogurt, processed food
Gluten intolerance (coeliac)	Avoid Wheat, wholemeal, bran, pasta, rye, beer.
Iron deficiency anaemia	High iron food – red meat, dark green leafy vegetables
Calcium deficiency	High calcium food – dairy High Vit. D food – tuna, salmon
Dental Caries	Limit sugary food
Cardiovascular disease and obesity	Correct portion size Reduce Saturated fats Fruit and veg to replace fatty food

## Specific Lifestyle Choices

### Religious/cultural

#### Muslims

- do not eat pork
- Meat must be halal
- No alcohol or shellfish



#### Hindus

- Do not eat beef (a cow is considered sacred)
- Many are vegan, although some do eat meat

#### Jews

- No pork or shellfish
- No milk and meat together
- Meat must be kosher



### Vegetarians - Ethical or moral choices

- Dishes with vegetables generally healthy
- Need protein from other sources
- Risk of iron, B1, B9 and B12 deficiency
- Protein from Quorn/tofu

	Eat	Avoid
Pescatarian	Fish/animal products (eggs and dairy)	Meat
Lacto-ovo vegetarian	Animal products (eggs and dairy)	Meat, fish
Lacto-vegetarian	Dairy	Meat, eggs, fish
Vegan		Animal products



## Physical Activity

People may have high energy needs if they are physically active, such as sports people or people who are on their feet a lot.



## GCSE FOOD PREPARATION AND NUTRITION: Factors for food choice

There are a great deal of factors that influence someone's food choices.

### Factors affecting food choice

- Physical Activity Level (PAL)
- Healthy eating
- Cost of food
- Income
- Culinary Skills
- Lifestyle
- Seasonality
- Availability
- Special Occasions
- Enjoyment
- Allergies
- Intolerances
- Animal welfare
- Working conditions (fair trade)
- Environmental impact
- Eating naturally

### Different Religions Have Different Views on Food

#### Hinduism

Many Hindus are vegetarian. Some vegetables are avoided as they are seen as harmful, including garlic, onions and mushrooms. Some Hindus do eat meat but it must be slaughtered using a quick painless method called Jhatka. Cows are considered sacred and cannot be eaten.



#### Christianity

No strict dietary rules  
During lent some Christians give up certain foods or drinks  
Specific food traditionally eaten during celebrations. Hot cross buns on good Friday, pancakes for Shrove Tuesday.

#### Sikhism

Baptised Sikhs are prohibited from eating ritually slaughtered meat (kosher and halal), may be vegetarian. Sikhism teaches against overindulging and only to eat what is needed.



#### Islam

Meat eaten by Muslims must be halal - the animal is slaughtered in a specific way whilst being blessed. Muslims cannot eat pork or product made from pigs such as gelatine. They cannot drink alcohol. During Ramadan Muslims fast between sunrise and sunset.



#### Buddhism

Buddhists believe all living things are sacred and most are vegetarian or vegan.  
Most do not drink alcohol. Some choose to fast from noon until the following sunrise.



#### Judaism

Follow Jewish dietary laws (kashrut). Food must be kosher - fit for consumption.  
Kosher animals have split hooves and chew the cud - cows and deer. Can eat fish with fins and scales but no shellfish.  
Slaughter of animals must be quick and painless  
Cannot eat pig, rabbit, hare, camel and many other animals. Dairy and meat products cannot be cooked or mixed together



#### Rastafarianism

Eaten pork is forbidden.  
Many eat a clean and natural diet called I-tal, mainly made up of vegetables.  
They can eat fish under 30cm. Many do not drink alcohol. They drink things made from naturally grown produce such as herbal tea or fruit juice.





Food labels help people to make informed choices about what they eat. The information is controlled by different regulations.

### Compulsory Information

## Food Labelling Regulations

- Food Information for Consumer (FIC) updated in 2014 must be followed by all European Union countries (EU)
- From 2016 it was compulsory for nutritional information to be included on the label
- The food standards agency (FSA) is responsible in the UK for ensuring manufacturers follow the regulations
- In the UK food labels must not mislead, be easy to read and all allergies must be emphasised.

### Sucrose-Free Plain Milk Chocolate

**Nutrition Facts**  
Serving Size: 1 Chocolate Bar (50g)

Typical Nutritional Information	Per 100g	Per 50g Serving
Energy (kJ)	1691	846
Protein (g)	9	4.5
Glycaemic Carbohydrates (g)	7.5	3.75
of which total sugars* (g)	6.8	3.4
of which Polyols (g)	48	24
of which Starch (g)	1	0
Total Fat (g)	16.56	8.28
of which saturated fat (g)	11.5	5.8
of which trans fat (g)	0	0
of which monounsaturated fat (g)	4.4	2.2
of which polyunsaturated fat (g)	0.7	0.3
Cholesterol (mg)	12	6
Dietary Fibre# (g)	5	2.5
Total Sodium (mg)	66	33

# AOAC 991.43 | \*Sugar from Cow's Milk (Lactose)

Each nutrient must be given per 100g of the food

Energy is given in kilojoules, and the rest in grams

Any pre packaged food labels MUST have this \*highlighted information on.

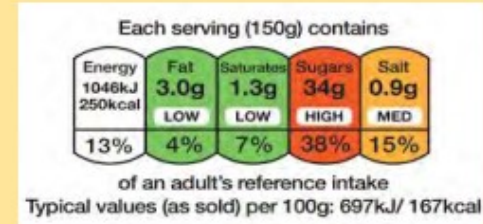


Any genetically modified ingredient need to also be shown.

### Non - Compulsory Information



- Manufacturers will often add information or claims about their products to make them more attractive to the consumer
- Traffic light labelling allows people to see how healthy the product is at a glance. These are useful but not required by law.



- Products can state whether they are suitable for certain groups, such as religious groups or dietary choice e.g. vegan
- Country of origin 
- Serving suggestions. 



You need to be able to use sensory descriptors to correctly describe the sensory qualities (how food looks, tastes, feels and smells) for a range of foods and combinations.

## Knife Skills



### Meat, fish and alternatives

- fillet a chicken breast, portion a chicken
- remove fat and rind,
- fillet fish,
- slice raw and cooked meat and fish or alternatives (such as tofu and halloumi) evenly and accurately

### fruits and vegetables

- bridge hold,
- claw grip,
- peel,
- slice,
- dice
- cut into even size pieces (i.e. batons, julienne)

## Prepare fruits and Vegetables



- mash, shred, scissor snip, scoop, crush, grate, peel,
- segment, de-skin, de-seed,
- blanch, shape, pipe, blend,
- juice and prepare garnishes
- demonstrate the technical skills of controlling enzymic browning and spoilage and preventing food poisoning (wash and dry where appropriate)

## Tenderise and Marinate



Demonstrate how acids denature protein and marinades add flavour and moisture when preparing vegetables, meat, fish, and alternatives

## Prepare combine and shape



- Roll, wrap,
- skewer, mix,
- coat,
- layer meat, fish and alternatives,
- shape and bind wet mixtures (such as falafels, fish cakes or meatballs)
- demonstrate the technical skill of preventing cross contamination and handle high risk foods correctly

## Select and adjust a cooking Process



Select and adjust the cooking process and length of time to suit the ingredient, for example to match the cut of meat, fish and alternatives



You need to be able to use sensory descriptors to correctly describe the sensory qualities (how food looks, tastes, feels and smells) for a range of foods and combinations.

## Making Sauces

- Make a blended white sauce (starch gelatinisation) a roux and all in one blended sauce, infused sauce, veloute, bechamel, to demonstrate understanding of how liquid/starch ratios affect the viscosity and how conduction and convection work to cook the sauce and the need for agitation
- Make a reduction sauce such as pasta sauce, curry sauce, gravy, meat sauce (including meat alternatives such as myco-protein and textured vegetable protein) to demonstrate how evaporation concentrates flavour and changes the viscosity of the sauce
- make an emulsion sauce such as a salad dressing, mayonnaise, hollandaise to demonstrate the technical skill of how to make a stabilised emulsion

## Water based methods using the hob

Demonstrate the following techniques:

- steaming
- boiling and simmering
- blanching
- poaching

## Weigh and Measure

Demonstrate accurate measurement of liquids and solids

## Dry heat and fat based methods using the hob

Demonstrate the following techniques:

- dry frying
- pan (shallow frying)
- stir frying

## Preparation of ingredients and equipment

Demonstrate the following techniques:

- grease/oil, line, flour, evenly and with attention to finished product



You need to be able to use sensory descriptors to correctly describe the sensory qualities (how food looks, tastes, feels and smells) for a range of foods and combinations.

### Using Raising agents

Demonstrate the following techniques:

- Use egg (Colloid foam) as a raising agent—create gas in air foam—whisking egg whites, whisked sponge
- Use Chemical Agents—self raising flour, baking powder, bicarbonate of soda
- Use Steam in a mixture (Choux Pastry, Batter)

### Set a mixture - removal of heat (gelation)

Demonstrate the following techniques:

- use starch to set a mixture on chilling for layered desserts such as custard or cheesecake

### Set a mixture - heating (coagulation)

Demonstrate the following techniques:

- use protein to set a mixture on heating such as denatured
- protein in eggs for quiche, choux pastry

### Using the oven

Demonstrate the following techniques:

- baking
- roasting
- casseroles and/or tagines
- braising

### Use of Equipment

Demonstrate the following techniques:

- use a blender, food processor, mixer, and microwave

### Using the grill

Be able to demonstrate the following  
Demonstrate the following techniques with a range of foods, such as vegetables, meat, fish or alternatives such as halloumi, seeds and nuts:

- char
- grill or toast



You need to be able to use sensory descriptors to correctly describe the sensory qualities (how food looks, tastes, feels and smells) for a range of foods and combinations.

### Shaping and finishing dough



Demonstrate the following techniques:

- roll out pastry, use a pasta machine, line a flan ring, create layers (palmiers), proving/resting
- glazing and finishing such as pipe choux pastry, bread
- rolls, pasta, flat breads, pinwheels, pizza, calzone

### Test for Readiness



Demonstrate the following techniques:

- use a temperature probe, knife/skewer, finger or 'poke' test, 'bite', visual colour check or sound to establish whether an ingredient or recipe is ready

### Judge and manipulate sensory Properties



Demonstrate the following techniques:

- how to taste and season during the cooking process
- Change the taste and aroma through the use of infusions, herbs and spices, paste, jus, reduction
- how to change texture and flavour, use browning
- (dextrinisation) and glazing, add crust, crisp and crumbs
- presentation and food styling – use garnishes and
- decorative techniques to improve the aesthetic qualities,
- demonstrate portioning and presenting