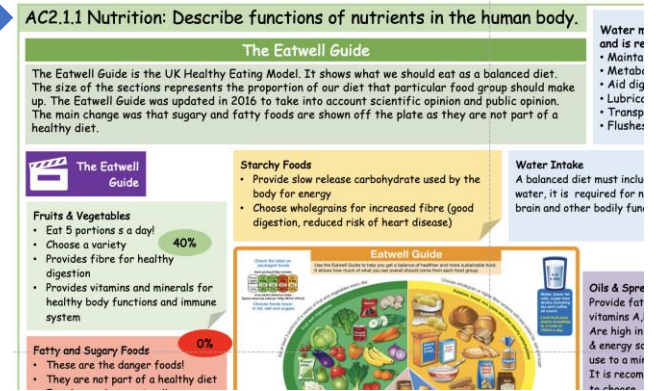


# UNIT 2: Controlled Assessment (10hrs)

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## The Eatwell Guide

The Eatwell Guide is the UK Healthy Eating Model. It shows what we should eat as a balanced diet. The size of the sections represents the proportion of our diet that particular food group should make up. The Eatwell Guide was updated in 2016 to take into account scientific opinion and public opinion. The main change was that sugary and fatty foods are shown off the plate as they are not part of a healthy diet.

Water makes up just over 2/3 of the human body and is required for:

- Maintain body temperature
- Metabolise fat
- Aid digestion
- Lubricate organs
- Transport nutrients
- Flushes out waste and toxins



### The Eatwell Guide

#### Fruits & Vegetables

- Eat 5 portions a day!
- Choose a variety
- Provides fibre for healthy digestion
- Provides vitamins and minerals for healthy body functions and immune system

40%

#### Starchy Foods

- Provide slow release carbohydrate used by the body for energy
- Choose wholegrains for increased fibre (good digestion, reduced risk of heart disease)

#### Water Intake

A balanced diet must include water, it is required for nearly all brain and other bodily functions.

### Water rich foods



96% water



90% water



94% water



92% water



95% water



95% water



89% water



89% water

#### Fatty and Sugary Foods

- These are the danger foods!
- They are not part of a healthy diet
- Eat them only occasionally
- Eating too much fatty and sugary processed food is linked to increased risk of weight gain/obesity, diabetes, tooth decay and cardiovascular disease

0%



1%

#### Oils & Spreads

Provide fat soluble vitamins A, D, E & K. Are high in calories & energy so keep use to a minimum. It is recommended to choose unsaturated oils like olive oil.

### 8 Tips for healthy eating

1. Eat more fibre
2. Eat more fruits and Vegetables
3. Eat more oily fish
4. Eat less salt
5. Eat less fat
6. Eat less sugar
7. Choose wholegrains
8. Drink 6-8 glasses of water per day

#### Beans, Pulses, Eggs, Meat, Fish

- Provide protein for growth, repair and maintenance of body cells
- Choose a combination of plant proteins
- Avoid eating too much processed meat like bacon and sausages as these are linked with increased risk of bowel and stomach cancer

12%

#### Dairy Foods

- Provide calcium for healthy bones, teeth and nails
- The body needs Vitamin D to absorb calcium effectively

8%

### Fibre in the diet

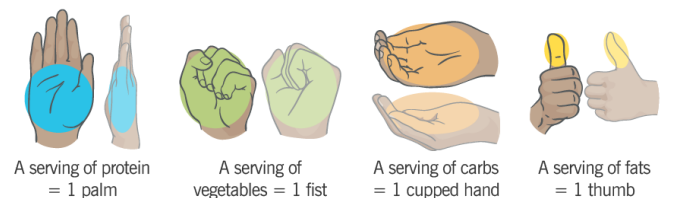
**Soluble fibre** dissolves in water and the insoluble kind doesn't. **Soluble fibre** helps reduce blood cholesterol and sugar.

**Insoluble fibre** helps absorb water and bulk up stools. It does not dissolve in water.



**PORTION SIZES:** Healthy diets not only have the correct balance, but have the right portion sizes. Here is a 'handy' guide ...

#### YOUR HAND IS YOUR PORTIONING TOOL



A serving of protein = 1 palm

A serving of vegetables = 1 fist






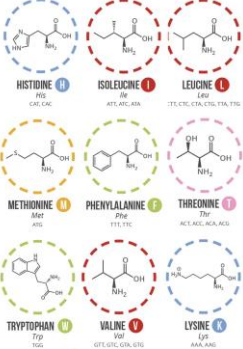




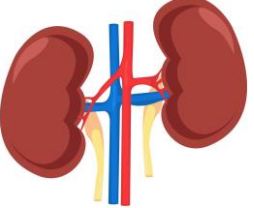


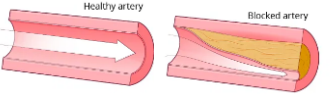




A serving of carbs = 1 cupped hand

A serving of fats = 1 thumb

Function of Nutrients in the

Body

MACRONUTRIENTS

Nutrient	Types	Function	Effects too little (deficiency)	Effect of too much (excess)
<p><b>Carbohydrates</b> 4kcal per gram</p>  	<p><b>Starches (complex):</b> found in cereal grains such as rice, wheat, oats, plus starchy tubers (potatoes and sweet potatoes) and vegetables (carrots, beets, corn). Digest slowly, long lasting energy. </p> <p><b>Sugars (simple):</b> lactose found in milk and dairy, fructose found in honey, fruits and some vegetables (peppers, tomatoes). Digest and enter the bloodstream quickly for a burst of energy. </p>	<p>Carbohydrate is the body's main source of <b>energy (fuel)</b>. Carbohydrate breaks down to <b>glucose</b>, which is the only form of energy the brain recognises. Basically, without carbohydrate, your brain wouldn't function!</p> <p>All carbohydrates, no matter what type, provide <b>4kcal of energy per gram</b>. The difference is complex carbs take longer to break down and therefore satisfy hunger for longer, whereas simple sugars leave you feeling empty and wanting more. Complex carbs provide dietary bulk and fibre which makes us feel fuller for longer.</p> <p><b>Dietary fibre:</b> complex carbohydrate found in the cell wall of fruits, vegetables and cereals. Aids with removal of waste from the body.</p>	<p><b>Deficiency of carbohydrates is extremely rare in the UK as we have good access to carbohydrate rich foods.</b></p> <p>Long term lack of carbohydrates in the diet can cause <b>ketosis</b> - a condition where the body switches to using protein as an energy source.</p> <p><b>Visible symptoms:</b> Lack of energy and weight loss.</p> <p><b>Non-visible symptoms:</b> Not enough fibre from wholegrains foods leads to constipation and other intestinal/bowel problems.</p>	<p>If not used for energy, excess carbohydrates are converted to glycogen and stored in the muscles and liver.</p> <p><b>Visible symptoms:</b> Weight gain and obesity.</p> <p><b>Non-visible:</b> Eating too much non-refined (white) carbohydrates leads to tooth decay, raised blood sugar levels and increased risk of developing type 2 diabetes. <a href="#">(See carbohydrates and glycemic index slides 7-8).</a></p>
<p><b>Proteins</b> 4kcal per gram</p>  	<p><b>High Biological Value (HBV) protein:</b> Meat, fish, poultry, dairy foods (milk), eggs, soya. Contain all the <b>essential amino acids</b> the body cannot make itself. </p> <p><b>Low Biological Value (LBV) protein:</b> Quorn, Tofu, peas, beans, lentils, nuts, seeds and cereals. </p> <p><b>Missing one or more of the essential amino acids.</b> Mainly come from plant sources.</p> <p>Two or more LBV proteins can be combined to make a complete protein. This is called <b>protein complementation</b>. Example: beans on toast.</p>	<p>Protein is digested by the body into its component parts - called <b>amino acids</b>. There are 8 which are essential for adults and 10 for children.</p> <p>Protein is essential for the <b>growth, maintenance and repair of body tissue</b>.</p> <p>Protein is part of every living cell and some tissues like skin, muscle, hair and the core of bones and teeth!</p> 	<p><b>Visible symptoms:</b></p> <ul style="list-style-type: none"> <li>Wasting of muscle &amp; muscle loss</li> <li>Oedema - build up of fluids in the body</li> <li>Slow growth in children</li> </ul> <p>Severe deficiency leads to kwashiorkor (bloating of the stomach).</p> <p><b>Non-visible symptoms:</b> Weaker immune system, as it needs protein to function properly. This can lead to prolonged recovery from illness or getting ill more frequently.</p> 	<p><b>Visible symptoms:</b> Excess stored as fat, which can lead to weight gain and obesity.</p> <p><b>Non-visible symptoms:</b> Increased protein consumption leads to hyperfiltration - a state in which the kidney faces increased pressure in order to filter and remove waste from the body. Over the long term, hyperfiltration may lead to <b>kidney damage</b>.</p> 
<p><b>Fats</b> 9kcal per gram</p>   	<p><b>Monounsaturated Fat:</b> Avocado, many nuts and seeds, olive oil, almond oil, sunflower oil. </p> <p><b>Polyunsaturated Fat:</b> Vegetable oil, corn oil, safflower oil, nuts, oily fish. </p> <p><b>Saturated Fat:</b> Mainly from animal sources. Meat, butter, cream, eggs. </p> <p><b>Omega 3, 6 and 9 Fatty Acids:</b> Oily fish, seeds and oils, flax seeds, pumpkin seeds, walnuts, soya beans, dark green vegetables, vegetable oils, margarines (polyunsaturated). </p>	<ul style="list-style-type: none"> <li>Protection of internal organs</li> <li>Thermoregulation (temperature control)</li> <li>Insulation of nerve cells (conduct electrical messages)</li> <li>Uptake of fat soluble vitamins (A, D, E &amp; K)</li> <li>Growth, development and repair of body tissues</li> <li>In women, storage and modification of reproductive hormones (oestrogen)</li> </ul> <ul style="list-style-type: none"> <li>Forms a vital part of cell membranes</li> <li>Supports mental health</li> <li>Improves heart health</li> <li>Supports health weight management</li> <li>Shown to reduce inflammation</li> <li>Supports infant brain development</li> <li>Promotes brain health</li> </ul>	<p><b>Visible symptoms:</b> Weight loss over time as the body uses stores of fat. Person feels cold as fat under skin acts as insulator.</p> <p><b>Non-visible symptoms:</b> Bruising of the bones as they are not protected. Lack of fat in the diet can lead to deficiencies of fat soluble vitamins A, D, E &amp; K. Fat deficiency can also lead to impaired in fertility in women due to anovulation.</p> <p>*Anovulation - happens when an egg (ovum) doesn't release from the ovary during the menstrual cycle. An egg is needed to have a pregnancy.</p>	<p><b>Common issue in the UK:</b> Over consuming foods high in fat can raise the blood cholesterol levels (fat in the blood). <b>Cholesterol</b> is a fatty substance that is needed for the body to function properly, however there are two types, <b>LDL (bad)</b> and <b>HDL (good)</b>. LDL cholesterol comes from saturated fats, such as meat and cheese.</p> <p>Eating too much saturated fat can lead to obesity and higher 'bad' cholesterol levels as well as an increased risk of developing type 2 diabetes and heart disease.</p> <p>Unsaturated plant sources of fats are much healthier for us.</p>

Key Words

Deficiency	A shortage of a substance (such as a vitamin or mineral) needed by the body.
Absorb	Nutrients are taken into the body and (absorbed) and transported by the bloodstream to other parts of the body for use or storage.

Fat Soluble Vitamins

A vitamin that can dissolve in fats and oils. Vitamins are nutrients that the body needs in small amounts to stay healthy and work the way it should. Fat-soluble vitamins are absorbed along with fats in the diet and are stored in the body's fatty tissue and in the liver.



	Fat Soluble Vitamin	Needed For	Found In	Deficiency/Excess
MICRONUTRIENTS	<p><b>A</b></p> <p>Adults aged 19 to 64 need (per day): 700mcg men 600mcg women</p>	<ul style="list-style-type: none"> <li>helping your body's natural defence against illness and infection (the immune system) work properly</li> <li>helping vision in dim light</li> <li>keeping skin and the lining of some parts of the body, such as the nose, healthy</li> </ul>	<ul style="list-style-type: none"> <li>cheese</li> <li>eggs</li> <li>oily fish</li> <li>fortified low-fat spreads</li> <li>milk and yoghurt</li> <li>liver and liver products such as liver pâté</li> </ul> <p>Liver is a particularly rich source of vitamin A, so you may be at risk of having too much vitamin A if you have it more than once a week (pregnant women should avoid eating liver or liver products).</p>	<p><b>Deficiency</b> - Night blindness. Xerophthalmia the eyes may become very dry and crusted, which may damage the cornea and retina. Frequent skin irritations.</p> <p><b>Excess</b> Having more than an average of 1.5 mg (1,500 µg) a day of vitamin A over many years may affect your bones, making them more likely to fracture when you're older. This is particularly important for <b>older people, especially women</b>, who are already at increased risk of osteoporosis, a condition that weakens bones.</p>
	Beta-Carotene	You can also get vitamin A by including good sources of beta-carotene in your diet, as the body can convert this into retinol.	<ul style="list-style-type: none"> <li>yellow, red and green (leafy) vegetables, such as spinach, carrots, sweet potatoes and red peppers</li> <li>yellow fruit, such as mango, papaya and apricots</li> </ul>	
	<p><b>D</b></p> <p>Adults aged 19 to 64 need: 10mcg per day</p>	<ul style="list-style-type: none"> <li>keep bones, teeth and muscles healthy.</li> </ul>	<ul style="list-style-type: none"> <li>oily fish - such as salmon, sardines, herring and mackerel</li> <li>red meat</li> <li>liver</li> <li>egg yolks</li> <li>fortified foods - such as some fat spreads and breakfast cereals</li> </ul>	<p><b>Deficiency</b> - A lack of vitamin D can lead to bone deformities such as rickets in children, and bone pain caused by a condition called osteomalacia in adults.</p> <p><b>Excess</b> - Taking too vitamin D over a long period of time can cause too much calcium to build up in the body (hypercalcaemia). This can weaken the bones and damage the kidneys and the heart.</p>
	<p><b>E</b></p> <p>Adults aged 19 to 64 need: 4mg men 3mg women</p>	<ul style="list-style-type: none"> <li>helps maintain healthy skin and eyes and strengthen the body's natural defence against illness and infection (the immune system).</li> </ul>	<ul style="list-style-type: none"> <li>plant oils - such as rapeseed (vegetable oil), sunflower, soya, corn and olive oil</li> <li>nuts and seeds</li> <li>wheatgerm - found in cereals and cereal product</li> </ul>	<p><b>Deficiency</b> - Any vitamin E your body does not need immediately is stored for future use, so you do not need it in your diet every day.</p> <p><b>Excess</b> - N/A</p>
	<p><b>K</b></p> <p>Adults aged 19 to 64 need: 1 microgram per kg of body weight.</p>	<ul style="list-style-type: none"> <li>a group of vitamins that the body needs for blood clotting, helping wounds to heal.</li> </ul>	<ul style="list-style-type: none"> <li>green leafy vegetables - such as broccoli and spinach</li> <li>vegetable oils</li> <li>cereal grains</li> <li>small amounts can be found in meat and dairy foods.</li> </ul>	<p><b>Deficiency</b> - Taking 1mg or less of vitamin K supplements a day is unlikely to cause any harm.</p> <p><b>Excess</b> - Rare, however vitamin K can interact with several common medications, including blood-thinners, anticonvulsants, antibiotics, cholesterol-lowering drugs, and weight-loss drugs.</p>

**Water Soluble Vitamins**

A vitamin that can dissolve in water. Vitamins are nutrients that the body needs in small amounts to stay healthy and work the way it should. Water-soluble vitamins are carried to the body's tissues but **are not stored in the body**.

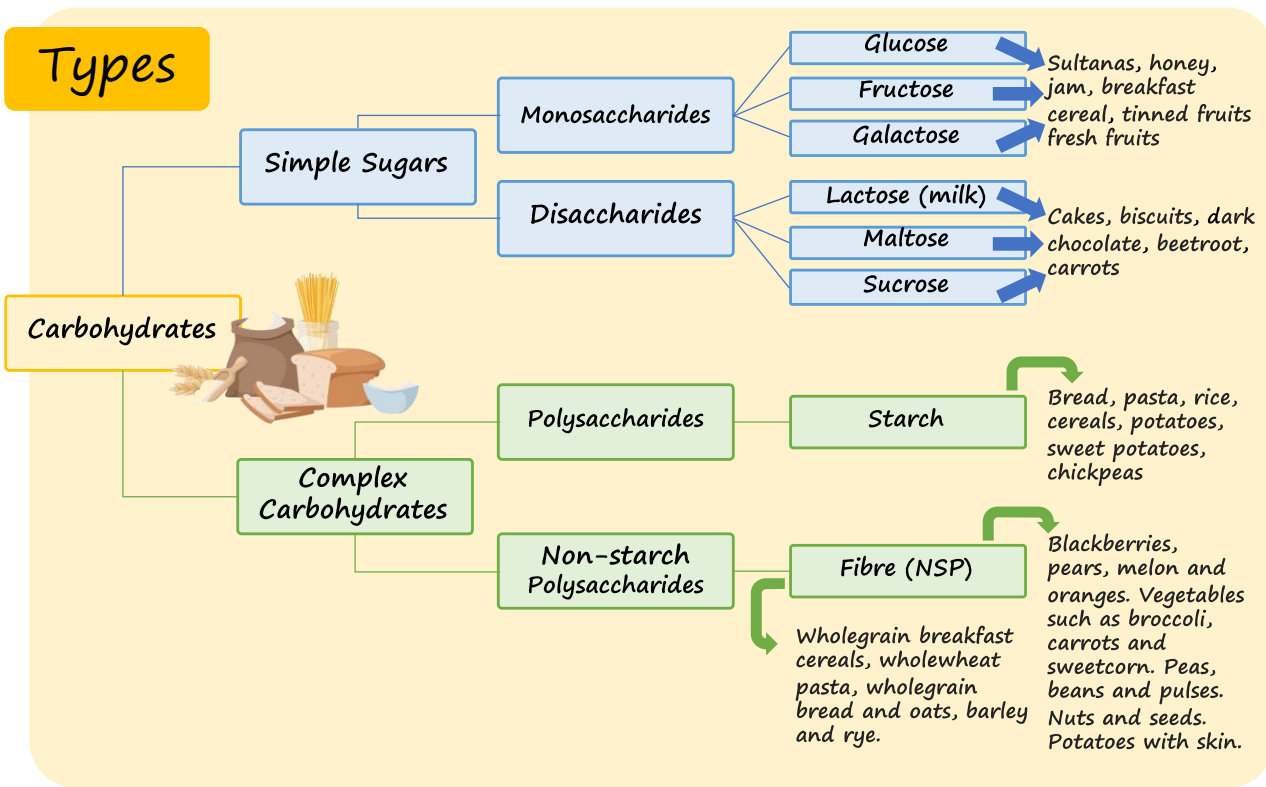
	Water Soluble Vitamin	Needed For	Found In	Deficiency/Excess
<b>MICRONUTRIENTS</b>	<p><b>C</b> <b>Antioxidant</b> Adults aged 19 to 64 need 40mg of vitamin C per day.</p>	<ul style="list-style-type: none"> <li>helping to protect cells and keeping them healthy</li> <li>maintaining healthy skin, blood vessels, bones and cartilage</li> <li>helping with wound healing</li> </ul>	<ul style="list-style-type: none"> <li>citrus fruit, such as oranges and orange juice</li> <li>peppers</li> <li>strawberries</li> <li>blackcurrants</li> <li>broccoli</li> <li>brussels sprouts</li> <li>potatoes</li> </ul>	<p><b>Deficiency</b> - Scurvy, very rare symptoms include bleeding gums, wounds not healing properly, tiredness. Lack of vitamin C effects absorption of iron.</p> <p><b>Excess</b> Taking large amounts (more than 1,000mg per day) of vitamin C can cause:</p> <ul style="list-style-type: none"> <li>stomach pain</li> <li>diarrhoea</li> <li>Flatulence</li> </ul> <p><b>Vitamin C is water soluble so excess can easily be excreted by the body.</b></p>
	<p><b>B1</b> <b>Thiamin</b> Adults aged 19 to 64 need: 1mg men 0.8mg women</p>	<ul style="list-style-type: none"> <li>helps the body break down and release energy from food</li> <li>keep the nervous system healthy</li> </ul>	<ul style="list-style-type: none"> <li>peas</li> <li>some fresh fruits (such as bananas and oranges)</li> <li>nuts</li> <li>wholegrain breads</li> <li>some fortified breakfast cereals</li> <li>liver</li> </ul>	<p><b>Deficiency</b> - Beri-beri (disorder of the nervous system). <b>Excess</b> - body excretes it.</p>
	<p><b>B2</b> <b>Riboflavin</b> Adults aged 19 to 64 need: 1.3mg men 1.1mg women</p>	<ul style="list-style-type: none"> <li>keep skin, eyes and the nervous system healthy</li> <li>release energy from food</li> </ul>	<ul style="list-style-type: none"> <li>milk</li> <li>eggs</li> <li>fortified breakfast cereals</li> <li>mushrooms</li> <li>plain yoghurt</li> </ul> <p>UV light can destroy riboflavin, so these foods should be kept out of direct sunlight.</p>	<p><b>Deficiency</b> - Dry cracked skin around the mouth and nose. <b>Excess</b> - body excretes it.</p>
	<p><b>B3</b> <b>Niacin</b> Adults aged 19 to 64 need: 16.5mg men 13.2mg women</p>	<ul style="list-style-type: none"> <li>release energy from food</li> <li>keep the nervous system and skin healthy</li> </ul>	<ul style="list-style-type: none"> <li>meat</li> <li>fish</li> <li>wheat flour</li> <li>eggs</li> </ul> <p>Niacin cannot be stored in the body, so you need it in your diet every day.</p>	<p><b>Deficiency</b> - disease pellagra. Symptoms can include dermatitis, dementia and diarrhea. <b>Excess</b> - body excretes it.</p>
	<p><b>B9</b> <b>Folate</b> Adults aged 19 to 64 need: 200mcg In pregnancy: 400mcg</p>	<ul style="list-style-type: none"> <li>form healthy red blood cells</li> <li>reduce the risk of birth defects called neural tube defects, such as spina bifida, in unborn babies</li> </ul>	<ul style="list-style-type: none"> <li>broccoli</li> <li>Brussels sprouts</li> <li>leafy green vegetables, such as cabbage, kale, spring greens and spinach</li> <li>peas</li> <li>chickpeas and kidney beans</li> <li>liver (but avoid this during pregnancy)</li> <li>breakfast cereals fortified with folic acid</li> </ul>	<p><b>Deficiency</b> - can lead to folate deficiency anaemia. Symptoms can include insomnia, depression and forgetfulness. <b>Excess</b> - Taking doses of folic acid higher than 1mg can mask the symptoms of vitamin B12 deficiency, which can eventually damage the nervous system if it's not spotted and treated. This is particularly a concern for <b>older people</b> because it becomes more difficult to absorb vitamin B12 as you get older.</p>
	<p><b>B12</b> <b>Cobalamin</b> Adults aged 19 to 64 need: 1.5mcg</p>	<ul style="list-style-type: none"> <li>make red blood cells and keeping the nervous system healthy</li> <li>release energy from food</li> <li>use folate</li> </ul>	<ul style="list-style-type: none"> <li>meat</li> <li>fish</li> <li>milk</li> <li>cheese</li> <li>eggs</li> <li>some fortified breakfast cereals</li> </ul>	<p><b>Deficiency</b> - If you eat meat, fish or dairy foods, you should be able to get enough vitamin B12 from your diet. Vitamin B12 is not found naturally in foods such as fruit, vegetables and grains, vegans may not get enough of it. <b>Excess</b> - body excretes it.</p>

**Minerals**

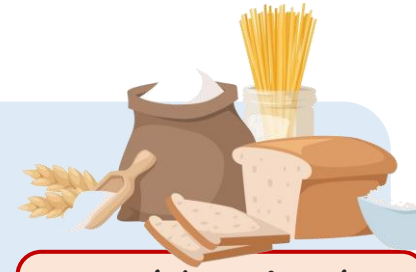
A vitamin that can dissolve in water. Vitamins are nutrients that the body needs in small amounts to stay healthy and work the way it should. Water-soluble vitamins are carried to the body's tissues but are not stored in the body.

	Mineral	Needed For	Found In	Deficiency/Excess
<b>MICRONUTRIENTS</b>	<b>Iron</b>	<p>Iron is important in making red blood cells, which carry oxygen around the body.</p> <ul style="list-style-type: none"> <li>• 8.7mg a day for men over 18</li> <li>• 14.8mg a day for women aged 19 to 50</li> <li>• 8.7mg a day for women over 50</li> </ul>	<ul style="list-style-type: none"> <li>• liver (but avoid during pregnancy)</li> <li>• meat</li> <li>• beans</li> <li>• nuts</li> <li>• dried fruit - such as dried apricots</li> <li>• wholegrains - such as brown rice</li> <li>• fortified breakfast cereals</li> <li>• soybean flour</li> <li>• most dark-green leafy vegetables - such as watercress and curly</li> </ul>	<p><b>Deficiency - Iron Deficiency Anaemia</b></p> <ul style="list-style-type: none"> <li>• tiredness and lack of energy</li> <li>• shortness of breath</li> <li>• noticeable heartbeats (heart palpitations)</li> <li>• pale skin</li> </ul> <p><b>Excess</b> Side effects of taking high doses (over 20mg) of iron include constipation, feeling sick, vomiting, stomach pain. Very high doses of iron can be fatal, particularly if taken by children.</p>
	<p><b>Calcium</b></p> <p>Adults aged 19 to 64 need: 700mg</p> <p><a href="#">See older adults (slide 13) for more info.</a></p>	<ul style="list-style-type: none"> <li>• helping build strong bones and teeth</li> <li>• regulating muscle contractions, including heartbeat</li> <li>• making sure blood clots normally</li> </ul>	<ul style="list-style-type: none"> <li>• milk, cheese and other dairy foods</li> <li>• green leafy vegetables - such as broccoli, cabbage and okra, but not spinach</li> <li>• soya beans</li> <li>• tofu</li> <li>• soya drinks with added calcium</li> <li>• nuts</li> <li>• bread and anything made with fortified flour</li> <li>• fish where you eat the bones - such as sardines and pilchards</li> </ul>	<p><b>Deficiency</b> A lack of calcium could lead to a condition called rickets in children and osteomalacia or osteoporosis in older adults.</p> <p><b>Excess</b> Taking high doses of calcium (more than 1,500mg a day) could lead to stomach pain and diarrhea.</p>
	<p><b>Sodium/Salt</b></p> <p><b>Riboflavin</b></p> <p>Adults aged 19 to 64 need: No more than 6g per day</p>	<p>The human body requires a small amount of <b>sodium</b> to conduct nerve impulses, contract and relax muscles, and maintain the proper balance of water and minerals.</p> <p>Salt is also called <b>sodium chloride</b>. Sometimes, food labels only give the figure for sodium. There is a simple way to work out how much salt you are eating from the sodium figure: <b>Salt = sodium x 2.5</b> Adults should eat no more than 2.4g of sodium per day, as this is equal to 6g of salt.</p> <p><b>Children aged:</b></p> <ul style="list-style-type: none"> <li>• 1-3yrs no more than 2g salt a day (0.8g sodium)</li> <li>• 4-6yrs no more than 3g salt a day (1.2g sodium)</li> <li>• 7-10yrs no more than 5g salt a day (2g sodium)</li> <li>• 11+yrs no more than 6g salt a day (2.4g sodium)</li> </ul>	<ul style="list-style-type: none"> <li>• anchovies</li> <li>• bacon</li> <li>• cheese</li> <li>• gravy granules</li> <li>• ham</li> <li>• olives</li> <li>• pickles</li> <li>• prawns</li> <li>• salami</li> <li>• salted and dry-roasted nuts</li> <li>• salt fish</li> <li>• smoked meat and fish</li> <li>• soy sauce</li> <li>• stock cubes</li> <li>• yeast extract</li> </ul> <p><b>Other high salt products:</b></p> <ul style="list-style-type: none"> <li>• bread products such as crumpets, bagels and ciabatta</li> <li>• pasta sauces</li> <li>• crisps</li> <li>• pizza</li> <li>• ready meals</li> <li>• soup</li> <li>• sandwiches</li> <li>• sausages</li> <li>• tomato ketchup, mayonnaise and other sauces</li> <li>• breakfast cereals</li> </ul>	<p><b>Deficiency</b> Hyponatremia is a condition that occurs when the sodium in your blood falls below the normal range. In severe cases, low sodium levels in the body can lead to muscle cramps, nausea, vomiting and dizziness. Eventually, lack of salt can lead to shock, coma and death.</p> <p><b>Excess</b> Too much salt can raise your blood pressure, which puts you at increased risk of health problems such as heart disease and stroke. You don't have to add salt to food to be eating too much - 75% of the salt we eat is already in everyday foods such as bread, breakfast cereal and ready meals.</p>

## Carbohydrates and Glycemic Index



## What should I eat?

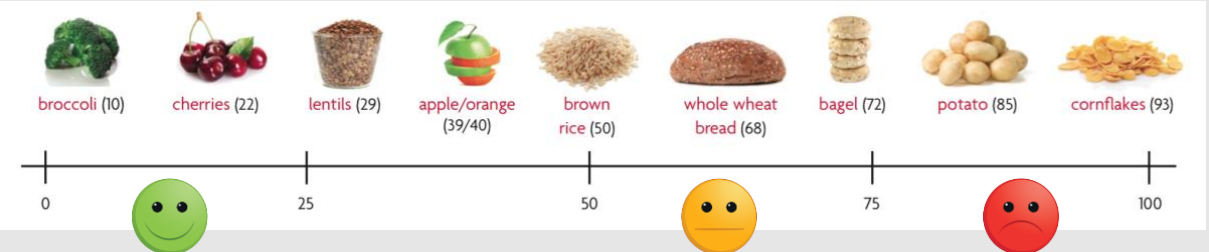


- Healthy Fibrous Carbohydrates**
  - Vegetables
  - Cucumbers
  - Asparagus
  - Broccoli
  - Carrots
  - Peppers
  - Tomatoes
  - Beans
- Healthy Starchy Carbohydrates**
  - Grains generally
  - Whole grains
  - Whole grain pasta
  - Beans
  - Whole grain bread
  - Potatoes
  - Sweet potatoes
- Healthy Simple Carbohydrates**
  - Fruit generally
  - Apples
  - Oranges
  - Bananas
  - Pineapple
  - Berries
  - Avoid non-fresh fruit juices!

## Glycemic Index Explained

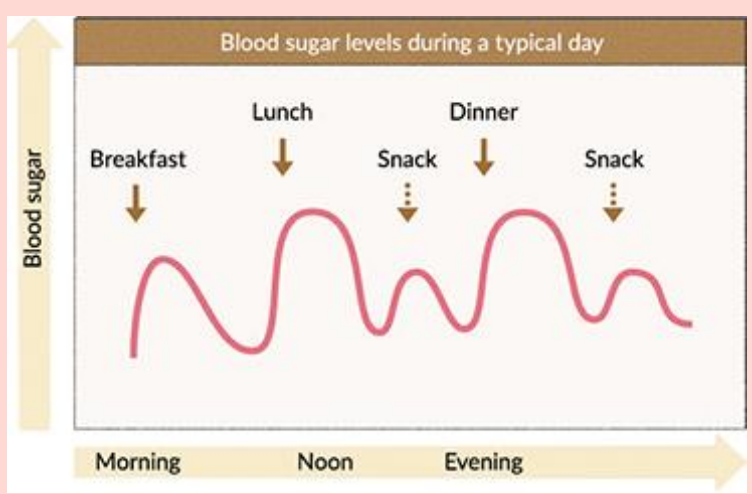
The glycemic index (GI) is a scale that rates carbohydrate-carrying foods from 0 to 100 based on their direct effect on blood-sugar levels.

Foods that are high on the GI scale are digested quickly and spike sugar levels in the blood; low-GI foods take longer to digest and allow sugar to leak slowly into the bloodstream, providing a more constant and even source of energy.

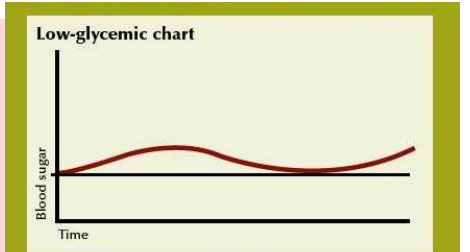


Most veggies, fruits, nuts, legumes, and healthy grains are low to medium on the scale, while white bread, white rice, and sweetened foods (like sweets or fizzy drinks) are much higher.

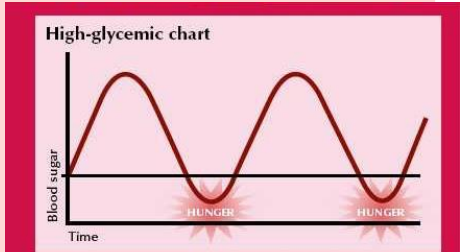
## Effect on Blood Sugar



Every time we eat our blood sugar levels rise, depending on the amount of carbohydrate we consume and the type (low or high GI). High GI foods cause peaks and troughs in blood sugar levels, which makes us feel hungry sooner.



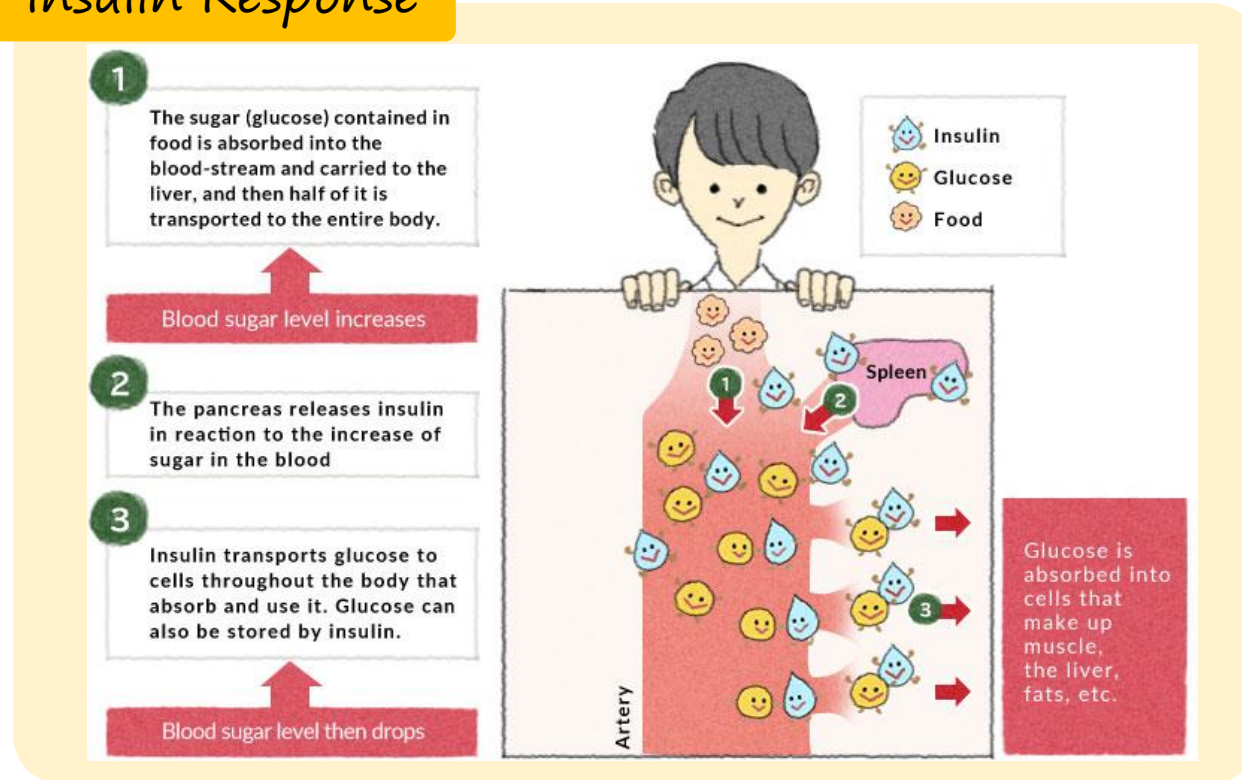
RELEASE ENERGY SLOWLY  
↓  
FEEL FULL LONGER  
↓  
EAT LESS



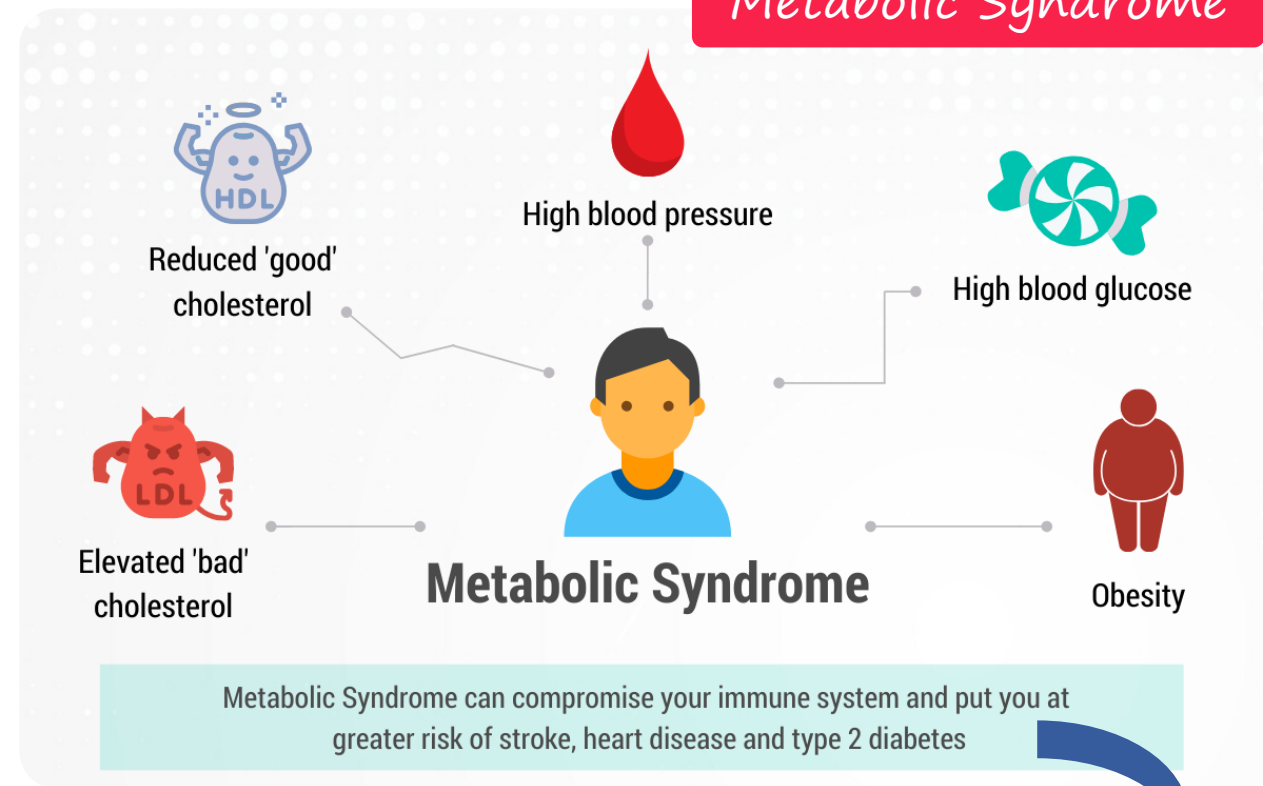
RELEASE ENERGY QUICKLY  
↓  
FEEL HUNGRY SOONER  
↓  
EAT MORE

## Carbohydrates and Insulin

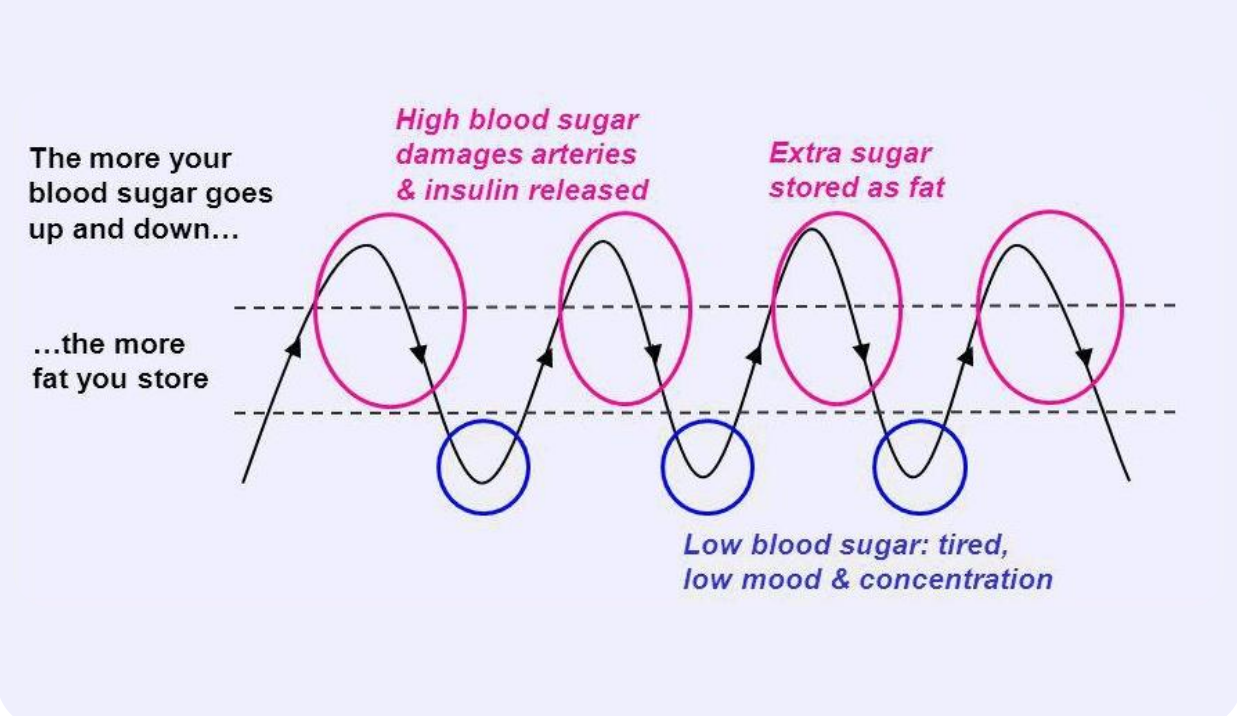
### Insulin Response



## Metabolic Syndrome



## Blood Sugar Levels Explained



## Metabolic Syndrome Explained

Metabolic syndrome is the medical term for a combination of diabetes, high blood pressure (hypertension) and obesity.

*It puts you at greater risk of getting coronary heart disease, stroke and other conditions that affect the blood vessels.*

On their own, diabetes, high blood pressure and obesity can damage your blood vessels but having all 3 together is particularly dangerous.

They're very common conditions that are linked, which explains why metabolic syndrome affects an estimated **1 in 3 older adults aged 50 or older in the UK**. Metabolic syndrome is often associated with being **overweight or obese**, and a **lack of physical activity**.

It's also linked to **insulin resistance**, which is a key feature of type 2 diabetes. Blood sugar levels are controlled by a hormone called insulin. If you have insulin resistance, too much glucose can build up in your bloodstream.



# AC2.1.1 Nutrition: Describe functions of nutrients in the human body.

## Nutritional Needs: Adults



The NHS recommends the average healthy adult has the following intakes of each nutrient per day.



Following a healthy, balanced diet helps make sure that adults get all the nutrients needed to work well from day to day and can also reduce the risk of diseases like heart disease, stroke, type 2 diabetes and some types of cancer in the longer term.



Nutrient	Amount	Calories per gram
Energy (calories) Male Female	2,500kcal 2,000kcal	
Carbohydrate of which sugars	At least 260g 90g	4kcal
Protein	50g	4kcal
Fat of which saturates	Less than 70g Less than 20g	9kcal

What is a calorie?

What are carbohydrates?

Protein and muscles

What is fat?

The main principles of a health balanced diet for an adult are:

- including plenty of a range of fruit and vegetables - at least 5 A DAY
- including plenty of fibre-rich foods, especially wholegrains
- including a range of protein-sources especially beans, peas and lentils
- including some dairy foods or fortified alternatives
- choosing mainly unsaturated fats and oils, and
- minimising foods and drinks that are high in fat, salt and sugars.

Fruit and vegetables provide a range of essential nutrients and fibre, as well as chemical compounds that occur naturally in plants that may have health benefits.

Different types and colours of fruits and vegetables contain different combinations of important nutrients like:

- **vitamin C** - important for maintaining healthy body tissues.
- **vitamin A** - important for maintenance of normal vision, skin and the immune system.
- **folate** - important for normal and healthy blood formation.
- **fibre** - helps to maintain a healthy gut.
- **potassium** - helps to maintain a healthy blood pressure and is also important for the normal functioning of the nervous system

**Micronutrients** are vitamins and minerals needed by the body in very small amounts, however a deficiency in any of them can cause severe and even life-threatening conditions! Notice males and females require different amounts of some nutrients.



Nutrient	Males	Females
Vitamin A	700mcg	600mcg
Vitamin D	10mcg	
Vitamin E	4mg	3mg
Vitamin K	1mcg per kg of body weight	
Vitamin B	Thiamin: 1mg Niacin: 16.5mg Riboflavin: 1.3mg Vitamin B12: 1.5mcg	Thiamin: 0.8mg Niacin: 13.2mg Riboflavin: 1.1mg Vitamin B12: 1.5mcg
Vitamin C	40mg *Vitamin C cannot be stored in the body, so you need it in your diet every day.	
Sodium (Salt)	Less than 6g	
Iron	All (M) 8.7mg	(F) 19-50yrs 14.8mg / 50yrs+ 8.7mg
Calcium	700mg	

How do vitamins work?

What are vitamins?

## Key Words

<b>Healthy diet</b>	A diet low in fat, salt and sugar but high in fibre.
<b>Energy needs</b>	The average amount of energy required from food by individuals. Measured in calories (kcal). This can be different for different life stages and activity levels.
<b>Reference intakes (RIs)</b>	Guidelines about the approximate amount of particular nutrients and energy required for a healthy diet. Provided by the NHS.
<b>Macronutrients</b>	Nutrients needed by the body in large amounts.
<b>Micronutrients</b>	Nutrients needed by the body in smaller amounts.

## Nutritional Needs: Children

Like adults, children should follow a healthy balanced diet to support their growth and development. However, there are some nutrients children should consume in smaller amounts to prevent becoming overweight, e.g., fat.

Children 3-7yrs	
Males	Female
<b>Calories per day</b> 1,300kcal increasing to 1,600kcal	<b>Calories per day</b> 1,250kcal increasing to 1,500kcal
<b>Carbohydrate:</b> 130g	<b>Carbohydrate:</b> 130g
<b>Protein:</b> 20g	<b>Protein:</b> 20g
<b>Fats:</b> 50g <b>Saturates:</b> 15g	<b>Fats:</b> 50g <b>Saturates:</b> 15g
<b>Vitamins and Minerals</b> <b>Iron:</b> 6.1mg/d <b>Calcium:</b> 450mg/d <b>Sodium:</b> 700mg/d	<b>Vitamins and Minerals</b> <b>Iron:</b> 6.1mg/d <b>Calcium:</b> 450mg/d <b>Sodium:</b> 700mg/d
<b>Fibre:</b> <b>Male:</b> 20g	<b>Fibre:</b> <b>Female:</b> 20g

### Children need lots of:

- Protein for **growth** and **development**
- Calcium and vitamin D for growth of **bones and teeth**
- Food containing lots of energy such as **wholegrain foods**
- Vitamin C to help release iron from foods and for clear skin and to fight **infections**
- Milk to provide **calcium and fats**
- Many children diets vary but it is recommended they eat 1300kcal per day made up of the right balance of **nutrients**
- Avoid sweets as these **can cause tooth decay**
- Avoid fatty foods as this will **cause children to consume too many calories**
- Build up **good eating habits in early life.**

Children 7-10yrs	
Males	Female
1,649kcal	1,530kcal
1,745	1,625kcal
1,840	1,721kcal
2,032	1,936kcal

Children aged 7 to 10 years old need lots of energy and nutrients because they're **still growing**. Children in this age group need **slightly more calories** than children aged 3-7yrs. **A healthy, balanced diet for children aged 7 to 10 should include:**

- 5 portions of a variety of fruit and veg per day
- meals based on starchy foods, such as potatoes, bread, pasta and rice
- some milk and dairy products or alternatives
- some foods that are good sources of protein, such as meat, fish, eggs, beans and lentils

**Carbohydrate Function: For energy.** Starchy carbohydrates are the best source of energy for a growing child and will encourage healthy eating habits for life.

### Food sources:

**Complex carbohydrates:** potatoes, bread, rice, pasta, breakfast cereals, oats, couscous and other grains.

**Simple carbohydrates:** fizzy drinks, juice drinks, sweetened drinks chocolate, sweets, cakes, breakfast cereals and biscuits.



**Protein Function: For growth, maintenance and repair** of the body. Protein foods also provide other important nutrients, such as iron, omega 3s, zinc, B vitamins, vitamin D, calcium and selenium. **Plant-based proteins** are a great addition and contain vitamins and minerals as well as extra **fibre**. Examples include beans, lentils and pulses such as chickpeas.

### Food sources:

**HBV Protein:** lean meat, fish, dairy products, eggs and soya products.

**Some HBV proteins** are also high in saturated fat, such as red meat.

**LBV Protein:** peas, beans, nuts, lentils, cereals (rice, oats, barley, rye)

cereal products (bread, pasta), seeds. Protein alternatives are manufactured food products, with a high protein content, e.g. mycoprotein (Quorn), tofu, TVP and tempeh. They are used instead of meat in meals.

**Fats Function:** Some fat is needed in the diet, but it needs to be the right type of fat and in the right amount. Unsaturated fats are healthier than saturated fats, which are linked to long term ill health such as heart disease and obesity. Unsaturated fat is also a good source of Omega 3 and 6 fatty acids.

Children need fats to **fuel** the body and help **absorb** some **vitamins**. They also are the building blocks of **hormones** and they **insulate** the body.

### Food Sources:

**Unsaturated fats:** olive, rapeseed, sunflower and corn oils, oily fish, nuts and seeds.

**Saturated fat:** animal products such as fatty meats, butter, lard, ghee, and

dairy products and foods made with these such as cakes, biscuits and

**Omega 3 and 6 Fatty Acids Function:** Long chain omega 3's are essential for normal brain development. Our bodies cannot make this type of fat, so it is important we get it from the diet.

**Food sources:** Oily fish such as salmon, mackerel, trout and sardines.

## Nutritional Needs:

Teenagers require more energy from food than adults because they are growing and often very active. Puberty is a time of rapid growth and changing energy requirements and therefore a risk period for developing obesity.

Teenagers often struggle to meet their daily recommended intake of **iron, calcium, vitamin D, and zinc**, so it's important to eat foods that are rich in these. Teenagers should also remember to eat foods containing **vitamin C and protein**, which are essential for supporting their immune system and muscles.

### Teenagers 13-19yrs

Nutrient	Food Source
Iron	Meats (including beef, chicken, and pork), legumes and nuts, dried fruit, green leafy vegetables, and beans.
Vitamin C	Most fruits and vegetables, particularly citrus fruits, leafy greens, red and green peppers, tomatoes, and broccoli.
Calcium	Milk, cheese, tinned fish (such as sardines), green leafy vegetables, tofu, and beans.
Vitamin D	Egg yolks, oily fish, beef liver, and fortified foods (such as margarine and breakfast cereals).
Zinc	Shellfish, red meats, dairies, legumes (such as chickpeas and lentils), and fortified foods.
Protein	Meats, fish, poultry, eggs, beans and legumes, seeds and nuts, and tofu.

### Teenagers need lots of:

- **Protein** for growth and repair
- **Calcium and vitamin D** to reach peak bone mass
- **Girls** especially need **iron** to replace that lost during their **periods**.
- **Vitamin C** to help absorb **iron** from foods and for clear skin and to fight infections
- Many teenagers vary their diet, but it is recommended they eat **1800kcal** per day made up of the right balance of nutrients.
- **Boys** need **extra iron** initially for growth and muscles, but this need decreases after age 19.
- Boys need more **protein and energy** than girls due to their later growth spurt
- Many **UK teenagers** are lacking in calcium, iron and vitamin A.



### Vegetarian Teenagers

Teenagers who follow a vegetarian or vegan diet may experience a lack of iron, which is needed for healthy red blood cells, so it is important to find good alternatives.

Vegetarian sources of iron include:

- Leafy green vegetables
- Dried fruit
- Fortified cereal
- Beans
- Lentils



However, vegetarian sources of iron aren't absorbed by the body as well as animal sources. To help with this, a glass of vitamin C-rich orange juice could be taken at mealtimes to help the body absorb iron.



Vegetarians and vegans also need to make sure they get enough Omega 3, a fatty acid essential for keeping the brain and cells healthy, as the body cannot produce it on its own. Good food sources include a handful of walnuts, tofu or soya.



### Healthy Hormones

Zinc is needed in the diet for making many enzymes and hormones, including growth hormones, insulin and testosterone. This is particularly important for teenagers who are developing fast and need the best nutrition they can get.

Zinc can be found in red meat, seeds, spinach, cocoa, mushrooms and oysters.

B-vitamins and Omega 3 can be found in oily fish, wholegrain bread, eggs, milk and vegetables and help to balance hormone production, which is particularly supportive for girls suffering with negative symptoms of PMS.

Alcohol, sugar, saturated fat and caffeine intake have a strong impact on the amount of testosterone in a teenage body, which can easily cause acne breakouts. Consumption of these types of food should be limited to improve skin conditions and mood swings.



**20% of teenagers in England are currently overweight**

## Nutritional Needs: Older

Like adults, older adults should follow a healthy balanced diet to support the maintenance and proper function of the body. Many older adults experience a lowering or loss of appetite, and may need some nutrients in more or less amounts.

### Diabetes

Elderly diabetics find it **difficult to control their blood sugar levels**, so they need to eat starchy foods at regular intervals. **They should avoid foods high in sugar.**

### Low fat diets

Older adults **do not need as many calories** due to being less active. This could be due to retirement or from lack of mobility because of medical conditions such as arthritis.

### Low salt diet

Older adults should **avoid foods high in salt** as this can cause heart problems.



The Elderly 65+ yrs	
Males	Females
<b>Calories per day</b> Inactive males: 2,000kcal Somewhat active males: 2,200kcal	<b>Calories per day</b> Inactive females: 1,600kcal Somewhat active females: 1,800kcal
<b>Carbohydrate:</b> 130g - 260g	<b>Carbohydrate:</b> 130g - 260g
<b>Protein:</b> 50g	<b>Protein:</b> 50g
<b>Fats:</b> 70g <b>Saturates:</b> 20g	<b>Fats:</b> 70g <b>Saturates:</b> 20g
<b>Vitamins and Minerals</b> Iron: 8.7mg/d Calcium: 1,000 - 1200mg/d Sodium: 1600mg/d	<b>Vitamins and Minerals</b> Iron: 8.7mg/d Calcium: 1,000 - 1200mg/d Sodium: 1600mg/d
<b>Fibre:</b> Males: 30g	<b>Fibre:</b> Females: 21g

Women reach **peak bone mass** around the age of **25 to 30 years**, when the skeleton has stopped growing and bones are at their strongest and thickest.

The female hormone, **oestrogen**, plays an important role in maintaining bone strength. **Menopause** (the natural ending of periods that usually occurs between the ages of **45 and 55**) can increase your risk of developing osteoporosis, a condition in which bones become thin (less dense) and may fracture easily.

The **drop in oestrogen levels** that occurs around the time of menopause results in **increased bone loss**. It is estimated that, on average, women lose up to **10 per cent of their bone mass in the first five years after menopause**.

To reduce the risk of osteoporosis, post-menopausal women should eat a diet **rich in calcium** and do regular weight-bearing exercise.

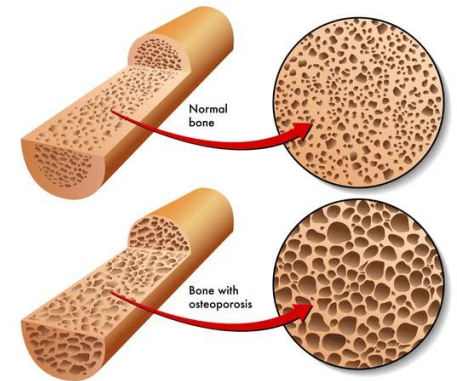
**Before menopause**, older female adults should have **1,000 mg of calcium daily**.

After menopause, older female adults should have up to **1,200 mg of calcium daily**.

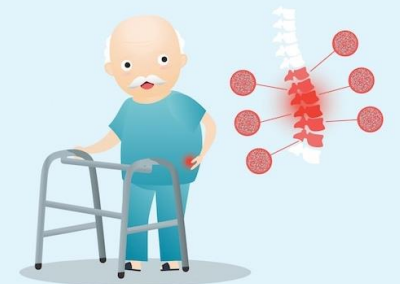
**Vitamin D** is also very important for **calcium absorption** and bone formation.

### SUMMARY

- Loss of appetite
- **Diabetes** - need to eat starchy foods at regular intervals. They avoid foods high in sugar.
- Need **less calories** - dishes should be **low in saturated fat**.
- **Low salt diet** - elderly people avoid foods high in salt as this can cause medical problems such as **high blood pressure**.
- Regular **exercise and activity** helps boost appetite, which some elderly people cannot manage.
- Many older adults **don't get enough fluids and become dehydrated** more easily because of age-related changes or **medications** they're taking.



Although osteoporosis is perceived as a female disease, **1 in 8 men over 50 years** will experience a fragility fracture during his lifetime;




## Nutritional Needs:

Because the body becomes **more efficient at absorption during pregnancy**, normal nutritional requirements apply until the **last trimester of pregnancy**, when some **extra energy and calcium is required**. Pregnant and lactating women should eat a varied diet rich in fresh fruit and vegetables and wholegrains (**in line with the Eatwell Guide**).

### High Risk Foods to Avoid:

- Unpasteurised milk products and undercooked meats/cured meat products - they may contain listeria which is harmful to unborn babies
- Pate, liver and liver products - due to high vitamin A content (Vitamin A is harmful to unborn babies if eaten in large quantities)
- Swordfish, marlin and shark as they are high in mercury which can be harmful to unborn baby

Differences to non-pregnant women	Possible deficiencies when pregnant:
<p><b>Avoid high risk foods when pregnant:</b></p> <ul style="list-style-type: none"> <li>• raw or undercooked meat</li> <li>• liver and liver products</li> <li>• all types of pâté, including vegetarian pâté</li> <li>• game meats such as goose, partridge or pheasant</li> <li>• any other foods made from unpasteurised milk, such as soft ripened goats' cheese</li> <li>• pasteurised or unpasteurised soft blue cheeses</li> <li>• unpasteurised cows' milk, goats' milk, sheep's milk or cream</li> <li>• raw or partially cooked hen eggs that are not British Lion or produced under the Laid in Britain scheme</li> <li>• raw or partially cooked duck, goose or quail eggs</li> <li>• smoked fish, such as smoked salmon and trout</li> <li>• alcohol</li> <li>• no more than 200mg caffeine per day</li> <li>• <b>More calories in 2<sup>nd</sup> and 3<sup>rd</sup> trimester</b></li> </ul>	<ul style="list-style-type: none"> <li>• Iron</li> <li>• Vitamin B12</li> <li>• Folate</li> <li>• Iodine</li> <li>• Zinc</li> <li>• Vitamin D</li> <li>• Vitamin C</li> <li>• Calcium</li> <li>• Fibre</li> <li>• Water</li> </ul> 



### FOLIC ACID IN PREGNANCY

It's recommended to take:

- 400 micrograms of folic acid every day - from before pregnancy until 12 weeks pregnant
- This is to reduce the risk of problems in the baby's development in the early weeks of pregnancy.

### VITAMIN D IN PREGNANCY

Pregnant women need 10 micrograms of vitamin D each day and should consider taking a supplement containing this amount between September and March.

Vitamin D regulates the amount of calcium and phosphate in the body, which are needed to keep bones, teeth and muscles healthy.

**Vitamin D can be found in the following foods:**

- oily fish (such as salmon, mackerel, herring and sardines)
- eggs
- red meat
- Vitamin D is added to some breakfast cereals, fat spreads and non-dairy milk alternatives. The amounts added to these products can vary and might only be small.

**Having more than 100 micrograms (4,000 IU) of vitamin D a day as it could be harmful.**

### IRON IN PREGNANCY

During pregnancy, a woman's blood volume increases to support the growing baby. This means more red blood cells are needed and therefore more iron to make them. Not having enough iron to meet this demand could lead to **tiredness and anaemia**. Lean meat, green leafy vegetables, dried fruit, and nuts contain iron. **Many breakfast cereals have iron added to them.**

### CALCIUM IN PREGNANCY

Calcium is vital for making the growing baby's bones and teeth.

**Sources of calcium include:**

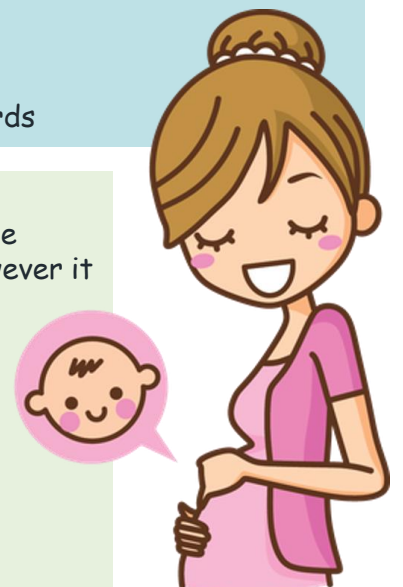
- milk, cheese and yoghurt
- green leafy vegetables, such as rocket, watercress or curly kale
- tofu
- soya drinks with added calcium
- bread and any foods made with fortified flour
- fish where you eat the bones, such as sardines and pilchards

### VEGETARIAN and VEGAN DIETS IN PREGNANCY

A varied and balanced vegan or vegetarian diet should provide enough nutrients for mother and baby during pregnancy, however it might be more difficult to get enough **iron and vitamin B12**.

**Iron-rich foods for vegetarians and vegans include:**

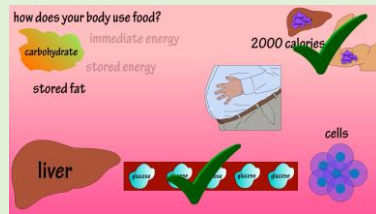
- lentils
- cannellini beans
- tofu
- fortified cereals
- dark chocolate
- baked potatoes
- spinach



## Nutritional Needs: Activity

We need energy for:

- Breathing
- Organ function
- Digesting food
- Activities such as walking, running and even sitting down



The amount of energy we need depends on our age, gender, activity level, health and body mass (size).

### What is BMR?

BMR is the number of calories your body uses to maintain vital functions, such as breathing, heart rate, and brain function. It is the rate at which we use energy when we are resting. Basically, BMR is a calculation of how much energy (calories) the body needs just to stay alive! You can use the formulas below to calculate your own BMR.



$$\text{BMR} = 88.362 + (13.397 \times \text{weight in kg}) + (4.799 \times \text{height in cm}) - (5.677 \times \text{age in years})$$



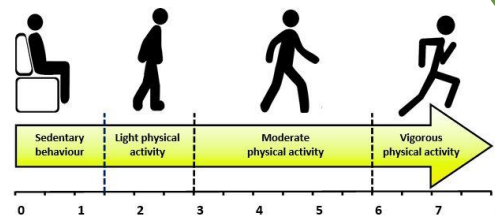
$$\text{BMR} = 447.593 + (9.247 \times \text{weight in kg}) + (3.098 \times \text{height in cm}) - (4.330 \times \text{age in years})$$

### Activity Levels

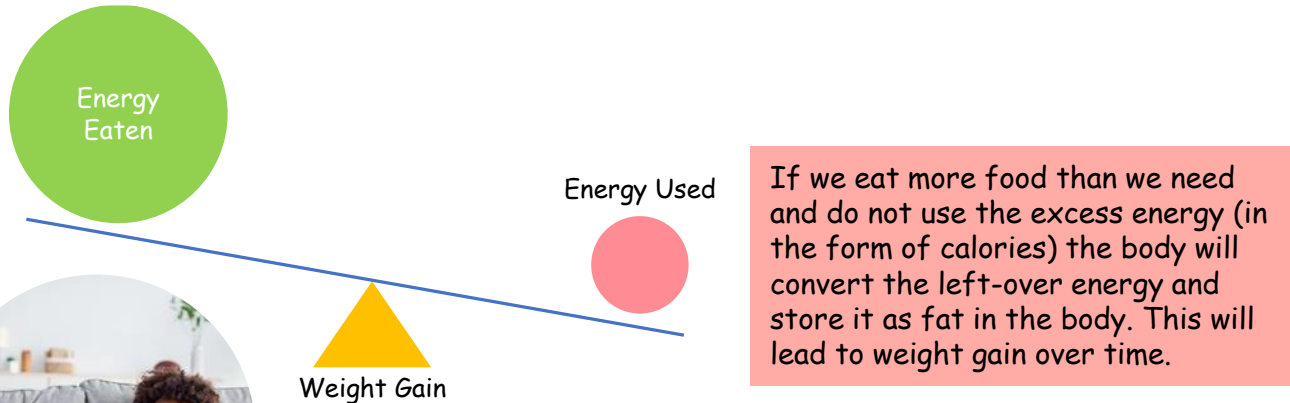
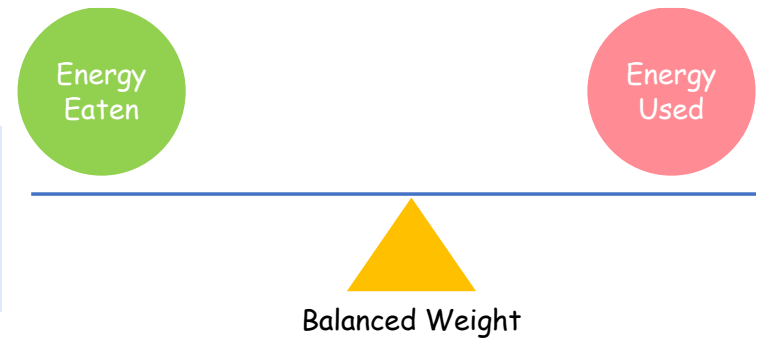
Basal Metabolic Rate (BMR) is determined by age, gender, weight and height however, this number increases the more active you are.

**Active people require more calories than sedentary (non-active) people.** People who are sedentary are more likely to gain weight and develop chronic conditions such as obesity, diabetes and heart disease.

Multiply your BMR by your activity level	Multiply BMR by	Exercise Level
Sedentary	1.2	No exercise
Light Activity	1.375	1-3 x per week
Moderate Activity	1.55	3-5 x per week
Very Active	1.725	6-7 x per week
Athlete	1.9	2 x per day or very active job

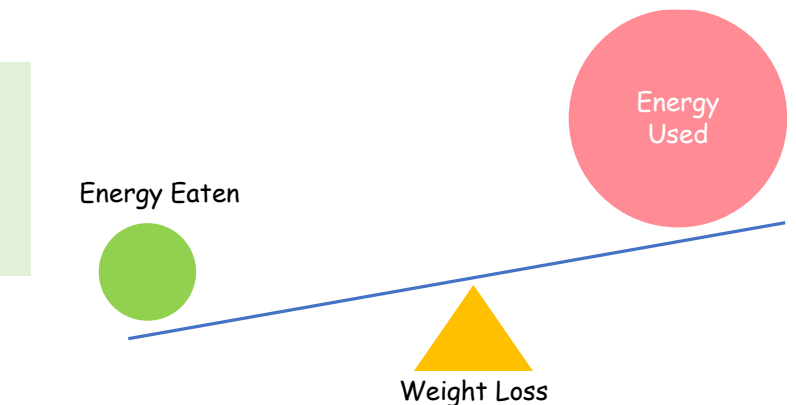


If we eat the right amount of foods for our energy needs, then our body weight is maintained (stays the same).



If we eat more food than we need and do not use the excess energy (in the form of calories) the body will convert the left-over energy and store it as fat in the body. This will lead to weight gain over time.

If we eat less food than we need but still require more energy (calories) the body will convert stored energy (fat) for use, and we would lose weight.

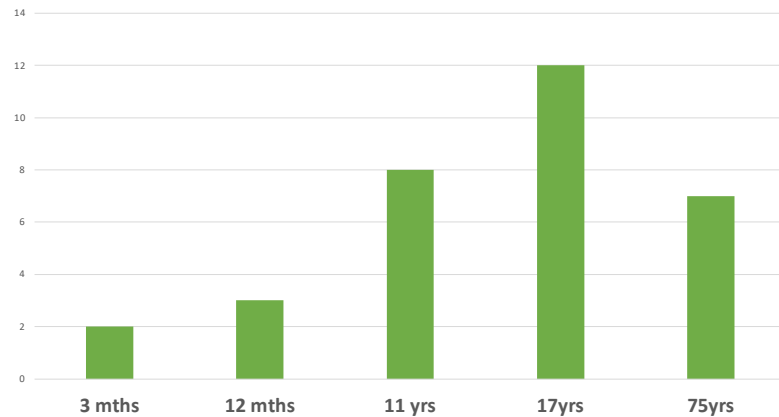


Key Words	
<b>BMR - Basal metabolic rate</b>	The minimum amount of energy we need to function and stay alive.
<b>Consume</b>	To eat
<b>Chronic</b>	Long term
<b>Sedentary</b>	Inactive

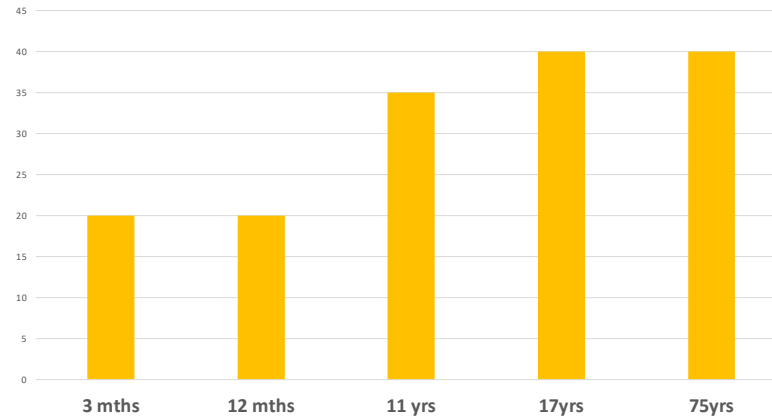
## Nutritional Needs:

Analysing data can be very helpful when comparing nutritional needs of different groups of people. The graphs below show how much of each nutrient the body requires at different ages. Statistics are also useful when justifying your points.

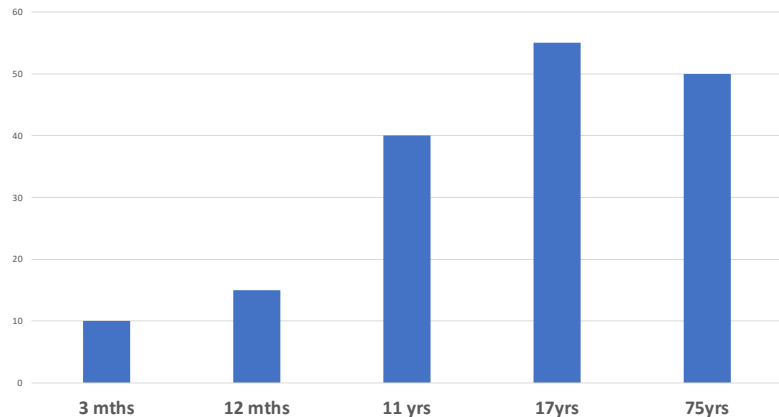
Energy Needs (MJ)



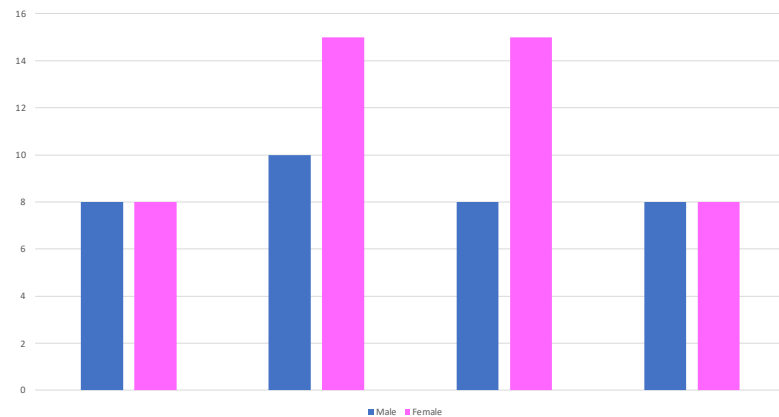
Vitamin C Needs (mg)



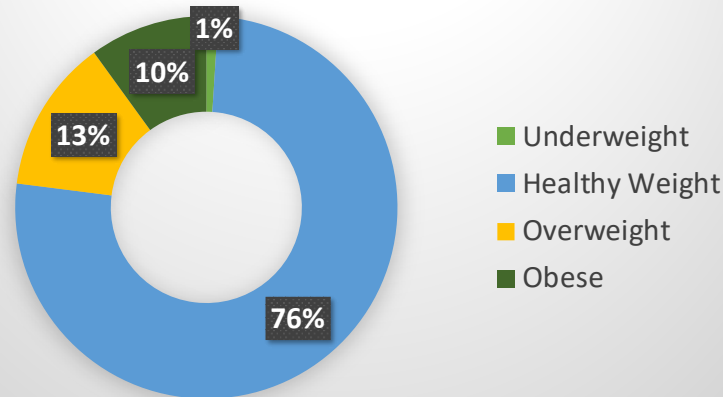
Protein Needs (grams)



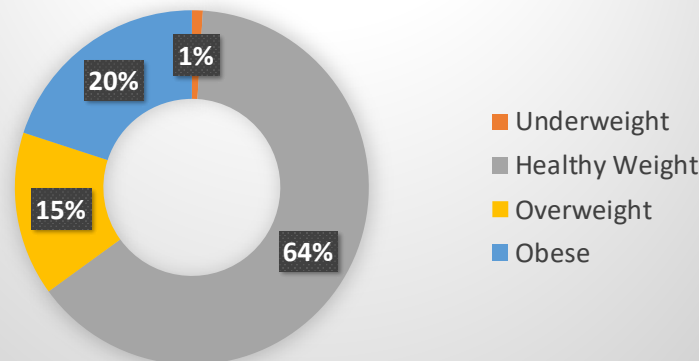
Iron Needs (mg)



Reception (aged 4-5 years)



Year 6 (aged 10-11 years)



Younger generations are becoming obese at earlier ages and staying obese into adulthood



Of every 100 4 & 5 year olds in England there are...



Of every 100 10 & 11 year olds in England there are...



Obesity costs the NHS 5.1 billion pounds per year

1 in 4 adults are obese

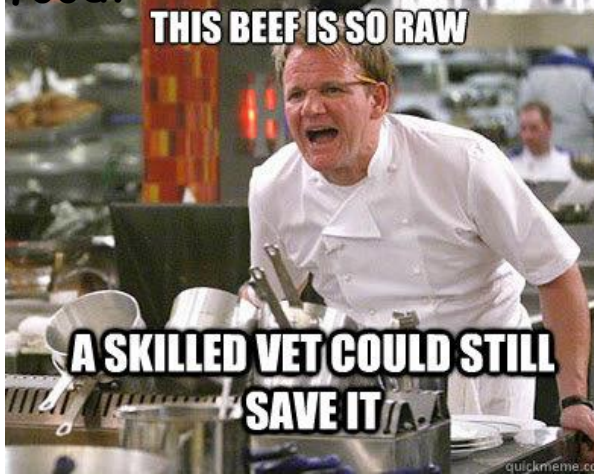
By 2050 it is estimated 60% of men and 50% of women will be obese

Obesity in children under 16yrs will increase by 25%





## Why do we cook food?



Cooking food **improves digestion** and **increases the absorption** of many nutrients. Different cooking methods alter the nutritional composition of foods and can degrade some nutrients, while enhancing the availability of others. For example, the protein in cooked eggs is **180% more digestible** than that of raw eggs. This is also true of vegetables, as cooking **breaks down the thick cell walls** of many plants, releasing the nutrients stored in them. A great example of this is cooked tomatoes, which have a higher lycopene (an amino acid) content than raw tomatoes.

We also cook foods to make them safer to eat. For example, eating raw potatoes would give you **stomach ache!** Uncooked meat could give you **food poisoning**. Cooking food **kills bacteria** and can make food look and taste **more appealing** by altering the colour and texture of it.

### INTERESTING FACT!

Virtually all **minerals** are unaffected by heat. Cooked or raw, food has the same amount of calcium, phosphorus, magnesium, iron, zinc, iodine, selenium, copper, manganese, chromium, and sodium.

The main foods affected by moist cooking methods are **fruit and vegetables which contain water soluble vitamins, B and C**. The **B Group** of vitamins, (B1, B2, B3, B5, B6, B7 and B8) and **vitamin C** are also sensitive to heat and can be destroyed by high cooking temperatures.



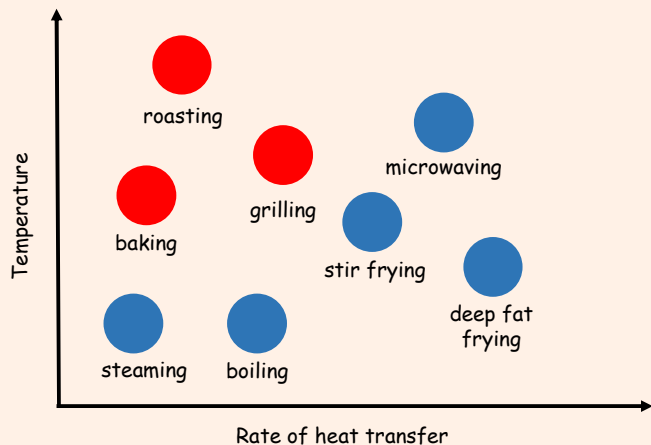
The **longer** fruit and vegetables cook, the **more** nutrients are lost.



**Chopping and slicing up fruit and vegetables causes loss of nutrients, so cut up these foods just before you need them.**



The **longer** food is **heated**, and the **higher** the **temperature**, the **greater** the **nutrient loss**.



**Fat soluble vitamins A, D, E and K** are also **destroyed with heat**.

Cooking methods such as frying and roasting that use fat **increase the fat content and total calories** in food cooked this way.

### Nutrient Content Comparison by Cooking Method

Type of potato	Amount of fat per 100g	Vegetable	Amount of vitamin C per 100g
Potato, baked flesh only	7g	Raw spinach	26mg
Potato, mashed with butter	4g	Boiled spinach	8mg
Potato wedges, baked	7.7g	Raw peas	24mg
Potato, roasted	4.5g	Boiled peas	16mg
Chunky chips deep fat fried	5.2g	Canned peas	1mg



When animal sources of protein are cooked slowly, any connective tissues present in the meat are likely to **dissolve**. Heat does not destroy the protein in food, but it may **reduce the overall content**.

Protein that is exposed to **hot temperatures**, shrinks and loses moisture. This usually occurs at temperatures between **70°C - 85°C**.



## Moist Cooking Methods



### Boiling and Simmering

Boiling reduces vitamin C content more than any other cooking method. As vitamin C is water soluble and sensitive to heat it can leach out of vegetables when they are immersed in hot water, such as in boiling. Broccoli and spinach may lose up to 50% or more of their vitamin C when boiled! B vitamins are similarly heat sensitive. Up to 60% of thiamine, niacin, and other B vitamins may be lost when meat is simmered and its juices run off.

However, when the liquid containing these juices is used to make stocks and gravies, 100% of the minerals and 70-90% of B vitamins are retained. Interestingly, boiling fish can preserve omega-3 fatty acid content significantly more than frying or microwaving.

Boiling is most suitable for cooking dry, starchy ingredients such as pastas, rice and grains. The rapidly boiling liquid is needed to keep the ingredients moving so they do not stick together. Starch (carbohydrate) is gelatinised when cooked in liquid making it easier for the body to digest and therefore use for energy.

Boiling is also used for blanching many vegetables (to kill bacteria for food safety requirements). Prolonged boiling is never recommended because it can damage the flavour and ingredients.



### Steaming

Steaming is one of the best cooking methods for preserving nutrients, including water-soluble vitamins, which are sensitive to heat and water.

Steaming broccoli, spinach and peas reduces their vitamin C content by only 9-15%. The downside is that steamed vegetables may taste bland. However, this is easy to remedy by adding some seasoning and oil or butter after cooking.

### Poaching

Poaching is a cooking technique that involves cooking by submerging food in a liquid, such as water, milk, stock or wine. Poaching is differentiated from the other "moist heat" cooking methods, such as simmering and boiling, in that it uses a relatively low temperature.

Delicate foods such as fish and eggs are often cooked this way as they are less likely to break apart during the cooking process and retain their shape.

As this cooking method involves submerging food in water, water soluble vitamins B and C are lost in the process.

When acidic liquid such as wine is used to poach foods, such as fruit, the acidity can also destroy vitamins and minerals.



### Microwaving

Microwaving is an easy, convenient, and safe method of cooking. Short cooking times and reduced exposure to heat preserve the nutrients in microwaved food.

Microwaving is the best method for retaining the antioxidant activity of garlic and mushrooms. Meanwhile, about 20-30% of the vitamin C in green vegetables is lost during microwaving, which is less than most cooking methods.

## Dry Cooking Methods



### Grilling

Grilling is a method of cooking with dry heat. Grilling is one of the most popular cooking methods because of the great flavour it gives food. Unfortunately, up to 40% of B vitamins and minerals may be lost during grilling or broiling when the nutrient-rich juice drips from the meat. There are also concerns about polycyclic aromatic hydrocarbons (PAHs), which are potentially cancer-causing substances that form when meat is grilled and fat drips onto a hot surface.



### Roasting and Baking

Roasting and baking are both dry heat methods of cooking. Roasting is typically used for meat while baking is used for bread, muffins and cakes. Most vitamin losses are minimal with this cooking method, including vitamin C. However, due to long cooking times at high temperatures, the B vitamins in roasted meat may decline by as much as 40%. The meat juices could be used to make stocks and gravy after cooking to retain B vitamins and minerals lost.



### Stir frying

With sautéing and stir-frying, food is cooked in a saucepan over medium to high heat in a small amount of [oil](#) or butter. Cooking for a short time without water prevents the loss of vitamins B and C, and the addition of fat improves the absorption of plant compounds and antioxidants. In fact, [beta carotene](#) was 6.5 times greater in stir-fried carrots than in raw ones. On the other hand, stir-frying significantly reduces the amount of vitamin C in broccoli and red cabbage.



### Shallow frying

Frying involves cooking food in a large amount of fat — usually oil — at a high temperature. Food is often coated with batter or bread crumbs, such as fish and chips or deep fried chicken. When the skin makes contact with the very hot oil it forms a seal, which ensures that the inside remains moist and cooks evenly. However, not all foods are appropriate for frying. Fatty fish (source of omega-3 fatty acids) is very delicate and prone to damage at high temperatures. For example, frying tuna has been shown to degrade its omega-3 content by up to 70–85%, while baking causes only minimal losses. In contrast, frying preserves vitamin C and B vitamins, and it may also increase the amount of fibre in potatoes by converting their starch into resistant starch.

### SUMMARY

- Water-based cooking methods cause the greatest losses of water-soluble vitamins, they have very little effect on omega-3 fats.
- Grilling provides great flavour but also reduce levels of B vitamins. Grilling generates potentially cancer-causing substances (PAHs).
- Microwaving is a safe cooking method that preserves most nutrients due to short cooking times.
- Roasting or baking does not have a significant effect on most vitamins and minerals, except for B vitamins.
- Sautéing and stir-frying improve the absorption of fat-soluble vitamins and some plant compounds, but they decrease the amount of vitamin C in vegetables.
- Frying can provide some benefits when healthy oils are used. It's best to avoid frying fatty fish.
- Steaming is one of the best cooking methods for preserving nutrients, including water-soluble vitamins.

### HOW TO RETAIN NUTRIENTS WHEN PREPARING AND COOKING FOOD

- Use as little water as possible when poaching or boiling.
- Use the liquid left in the pan after cooking vegetables.
- Add back juices from meat that drip into the pan.
- Leave skin on vegetables to increase fibre content.
- Cook vegetables in smaller amounts of water to reduce the loss of vitamin C and B vitamins.
- Eat cooked vegetables within a day or two, as their vitamin C content may continue to decline when the cooked food is exposed to air.
- Cook vegetables for only a few minutes whenever possible.
- When cooking meat, poultry, and fish, use the shortest cooking time needed for safe consumption.
- Some chefs use baking soda when cooking vegetables to help them retain their colour, however vitamin C will be lost in the alkaline environment produced by baking soda.

## Seasonal Foods

Seasonal food is fresh food that is ready to eat during its preferred season. For example, English strawberries are juicy and delicious in the summer and early autumn. They do not grow wild in England during winter as it is too cold. Some foods are not seasonal. Meat and dairy are available all year round. Cows are milked and chickens produce eggs from January all the way to December.



### Cheaper

Seasonal produce that is locally sourced is often cheaper than buying out of season food that's been brought in. Seasonal food is cheaper to harvest, transport and sell as it's in abundance - driving down the market price. A good tip is to look for the Red Tractor logo; this symbol shows that the food is "traceable (back to a UK farm), safe and farmed with care".

### Tastes Better

Seasonal produce will be at its peak for both flavour and health benefits. It's harvested at exactly the right time, so the taste is riper, sweeter, and generally more delicious. The chef/cook won't need to use seasonings such as salt or spices. Out of season food gets picked before it's ripe and then gets spoilt during transport. This compromises freshness and flavour of the food, so the chef gets lower quality at a higher cost.

### Local Economy

As well as getting food at its prime, you'll also be supporting your local economy. Money spent in local businesses is normally reinvested into other local stores; helping to generate jobs and support local producers. Buying directly from the farmer or producer also means you no longer have to wonder where your food came from.



**Easter:** Easter is the most important festival in the Christian calendar. It celebrates Jesus rising from the dead, three days after he was executed. An egg is a symbol of new life. For Christians, Easter eggs are used as a symbol for the resurrection of Jesus. Easter is often celebrated with the giving and receiving of chocolate eggs.

### Environment

Seasonal food is often grown/reared much closer to you. Reducing the environmental damage done by carrying and shipping foods long distances and keeping them cold. This is called 'food miles'. Food grown locally will also need fewer fertilisers and pesticides, which lessens water, air, and soil pollution, supporting a healthier community. Buying seasonal food will help to reduce your own carbon footprint and support a more sustainable food economy.



**Eid:** Celebrated worldwide by Muslims to mark the end of **Ramadan**. Eid ul-Fitr takes place on the first day of the tenth month of the Islamic lunar calendar, and Muslims are not permitted to **fast** on that day.

**Ramadan:** During the month of Ramadan, Muslims won't eat or drink during the hours of daylight. This is called fasting. Children are not expected to fast until they reach puberty, usually around the age of 14.



**Christmas:** Christmas is a Christian holy day that marks the birth of Jesus, who Christians believe to be the Son of God. Christmas dinners are an important part of the celebrations. Families and friends will share food together, eating traditional foods, such as turkey, mince pies and Christmas puddings.

### Healthier

Foods grown out of season can't follow normal growing and ripening cycles, which our bodies are naturally in sync with. But by altering the menu to follow the seasons, dishes will have a better nutrient value. This is a great selling point for a food establishment, especially those catering to a wide variety of customers such as the young and elderly.

Produce that is flown thousands of miles also loses some of its nutritional and vitamin value. Fruit and vegetables that have been blanched, tinned or dehydrated to enhance the lifespan lose nutrients as well.

### Disadvantages

Some disadvantages of using seasonal foods are that you may have to change your menu according to the seasons, this might push customers away who prefer certain dishes. This is a similar challenge to the chef, who may struggle to make the dishes interesting with limited ingredients. The skills required to be able to prepare and cook seasonal food may be a disadvantage to a business as staff costs may be higher. Employing high skilled staff may create an increase in food costs.

## Skills of Chefs

Catering jobs are available at various levels, ranging from trainee and apprenticeships to executive level. Here are a few examples of the different types of jobs that are available in the catering industry:



### EXECUTIVE CHEF

An executive chef manages the kitchen. He or she is responsible for monitoring and maintaining the quality of all dishes that leave the kitchen, creating menus and inventing new dishes, and supervising the kitchen staff. Except in small establishments, an executive chef will generally spend more time on administrative and managerial tasks than on food preparation.

### QUALIFICATIONS

- Formal culinary training
- Previous restaurant experience
- Extensive food and beverage knowledge
- Restaurant industry knowledge
- Knowledge of restaurant regulations

Because the executive chef is the most senior person in the kitchen, he or she is often required to have a minimum of 5 - 8 years of relevant experience.

+ The qualifications listed under Section Chef.

### SKILLS

- Cooking skills
- Menu planning skills
- Communication skills
- Leadership skills
- Time management skills
- Attention to detail
- Organisational skills
- Problem solving skills
- Work well under pressure
- Self-motivated
- Customer service skills
- Positivity
- People management skills
- Numerical skills



### SOUS CHEF

Works alongside head chef to manage daily kitchen activities, including overseeing staff, aiding with menu preparation, ensuring food quality and freshness, and monitoring ordering and stocking. Provides meal quality and consistency by following designated recipes.

### QUALIFICATIONS

- Formal culinary training
- Previous restaurant experience
- Extensive food and beverage knowledge
- Restaurant industry knowledge
- Knowledge of restaurant regulations
- + The qualifications listed under Section Chef.

### SKILLS

- Cooking skills
- Communication skills
- Numerical skills
- Leadership and teamwork skills
- Organisational skills
- Problem solving skills
- Work well under pressure
- Self-motivated
- Customer service skills
- Positivity
- People management skills
- Attention to detail



### SECTION CHEF

The chef de partie or section chef preps, cooks and assembles dishes and makes sure that they go out on time. They are in charge of a specific section of the kitchen such as sauces, fish or pastry, so need to have a sound knowledge of cooking. The chef de partie also assists the sous chef or head chef in developing menus.

### QUALIFICATIONS

- City & Guilds 706/1 | 706/2 Catering
- NVQ Level 2
- Level 1 and 2 Food Safety Awards
- Minimum 1 years relevant experience
- Awareness of manual handling techniques
- Awareness of Control of Substances Hazardous to Health Regulations (COSHH) and chemical safety

### SKILLS

- Cooking skills
- Work independently
- Manage Commis Chefs
- Communication
- Team management
- Communication skills
- Attention to detail
- Numerical skills
- Adaptability
- Positivity
- Team player

## Skills of Chefs



### COMMIS CHEF

A Commis Chef assists a section chef (Chef de Partie). The commis chef is the first rung of the ladder to becoming a great chef. In most kitchens the commis chef will do food preparation work and basic cooking under the supervision of a chef de partie or section chef, rotating through sections such as sauce, vegetables, fish and butchery roughly every six months.

### QUALIFICATIONS

- Level 1 and 2 Food Safety Awards
- Minimum 6 months relevant experience
- Awareness of manual handling techniques
- Awareness of Control of Substances Hazardous to Health Regulations (COSHH) and chemical safety
- Experience of kitchen equipment
- Experience of dangerous equipment such as knives
- Competent level of English spoken and written

### SKILLS

- Communication skills
- Teamwork skills
- Working quickly and efficiently
- Stamina
- Willingness to learn
- Patience
- Attention to detail
- Passion for food
- Work well under pressure



### CATERING ASSISTANT

The purpose of this role is to provide general assistance to the catering manager. The catering assistant will be required to assist with performing administrative tasks, preparing and serving food, and communicating with guests.

### QUALIFICATIONS

Formal qualifications are not required. However, a basic certificate in nutrition, catering, or food safety management will count in your favour when applying for a job. The level of experience required will differ from one job to another. An entry-level job in this field will usually require little to no experience, and will allow you to learn on the job.

### SKILLS

- Communication skills
- Problem solving skills
- Ability to work in a team
- Ability to work under pressure

There are no fixed educational requirements for becoming an executive chef. While it may be possible to work your way up to this position through on-the-job training and practical experience, it is recommended that you study towards a relevant qualification, such as a restaurant management certificate, hospitality management certificate, culinary arts degree, or hospitality management qualification.

## Equipment

## Chef's Knives

**Chef's Knife**

All purpose knife generally used for cutting meat, dicing vegetables, disjuncting some cuts, slicing herbs, and chopping nuts.

**Bread Knife**

The serrated edge cuts through the crust without flattening the bread.

**Pairing Knife**

Very versatile, often used to peel or cut fruit and vegetables into small pieces, or to carry out other similar precision work.

**Carving Knife**

Used for carving large roasts, poultry, and filleting large fish. The blade edge of a carving knife is either smooth or bevelled. The blade should be large enough to carve across the cut of meat, poultry, or fish in one sweep.

**Cleaver/Butcher Knife**

A cleaver is a large knife that varies in its shape but usually resembles a rectangular-bladed hatchet. It is largely used as a kitchen or butcher knife and is mostly intended for splitting up large pieces of soft bones and chopping through thick pieces of meat.

**Boning Knife**

Boning knives have long, thin, flexible blades with a sharp tip to make piercing meat easier and safer. The blade is designed to cut through ligaments and connective tissue to remove raw meat from the bone. Boning knives have to be extremely sharp.

**Filleting Knife**

A filleting knife gives good control and aids in filleting fish. It is a very flexible member of the boning knife family. Fillet knife blades are typically 15 to 28 cm.

**Salmon Knife**

A salmon knife is used to slice, fillet and remove the skin from larger fish, like salmon. They're slender enough to fit between the skin and flesh without damaging the delicate fish, allowing the chef to create clean, tidy fillets.

**Santoku Knife**

Santoku bocho knives, which translates as 'three uses', are ideal for mincing, dicing and slicing, as they feature a straight edge with a narrow sheep's foot blade. These knives have evolved from the traditional Japanese vegetable knife which has a rectangular blade.

**Tomato Knife**

The serrated edge allows the knife to penetrate the tomato skin quickly and with a minimum amount of pressure without crushing the flesh.

**Peeling Knife**

A peeling knife is primarily used to peel vegetables, potatoes and fruit, and it's also sharp enough to easily slice through tough skins.

**Cheese Knife**

The blades of cheese knives are usually made of a material such as stainless steel, which is resistant to the stickiness of cheese. Another design feature often found is the presence of holes in the blade to help to prevent the cheese from sticking to it.

**Other Cutting Equipment**

Food processors, mincer, mandolins, graters, peelers, corers, cutters, can openers, scissors, shears and gravity feed slicer.

## Large Scale Equipment



### Combi Oven

Simple and quick operation, all at the touch of a button. This oven allows pre-prepared settings, has a wide range of cookery options and even cleans itself. These functions support the chef in their daily duties.



### Commercial Range

Many commercial ranges have boost burners which generate 25% more power. They have semi-sealed hobs and drip trays to facilitate ease of cleaning. These ovens allow the chef to prepare and cook large scale operations due to the power and size.



### Deep Fat Fryer

Free standing fryers are extremely large and allow large batch cooking as well as the option to cook separately in either basket. Training must be given before they can be used as they can be extremely dangerous.



### Blast Chiller

Blast chilling is a method of cooling food quickly to a low temperature that is relatively safe from bacterial growth. By reducing the temperature of cooked food from +70°C to +3°C or below within 90 minutes, the food is rendered safe for storage and later consumption.



### Commercial Fridge/Freezer

Large scale fridges and freezers allow you to safely store food at the correct temperature and comply with HACCP 2006.

Fridge temperature: 1-5°C  
Freezer temperature: -18°C



### Four Pot Bain Marie

Perfect for safely holding sauces, gravy and pre-cooked foods for up to two hours at serving temperature above 63°C. These are very useful when wanting to serve customers quickly or store foods safely without fear of them burning. You have most likely seen this piece of equipment in your school's canteen!



### Rotisserie Oven

Rotisserie grilling produces superb duck, crisping the skin and melting out the fat. Rib roast comes out dark and crusty on the outside, red and juicy inside, with a live fire flavour better than that of a roast cooked in the oven. Poultry produces good results when cooked in a rotisserie.

## Powered Equipment



### Mincer

A meat mincer is a small kitchen appliance used to grind meat into a smooth, uniform soft mass without the need of any other accessory. A meat mincer machine is a clean, effective and safe way of obtaining minced meat.



### Portable Induction Hob

Portable induction hobs are much safer to use, as most will feature a boil dry detection as well as switching off automatically when a pan is removed and resume when pan is returned. They are ideal for indoor or outdoor cooking. These are extremely energy efficient and support the environment. These cookers also don't heat the surface of the cooker, so are much safer to use.



### Food Processor

A food processor is a motorised appliance that quickly performs food prep tasks traditionally carried out by hand. Some food processors can chop vegetables; some can blend ingredients into soups, pastes and sauces; and others can mix things like batter and cream.



### Electric Whisk

Electric hand mixers - sometimes called beaters - really speed up whisking egg whites, creaming butter with sugar and whipping cream. They are less powerful than stand mixers, so are perfect for mixing small quantities, and for when you want more direct control over the mixture.



### Blender

Produces smoothies, cocktails, fruit purées, velvety smooth soups and sauces in seconds.

### Standing Mixer

Great for multi-tasking, a standing mixer is perfect for mixing large batches of dough or batter whilst you concentrate on other tasks. A standing mixer is also good for tougher mixing tasks such as bread kneading and pastry making.





## Handheld Equipment



### Melon Ball Scoop

A sharp-edged scoop or cup-shaped, half sphere implement used for cutting fruits and vegetable into small balls. Normally used by the Garde Manger Chef.



### Cook's Fork

Cook equipment used for lifting and turning meat and other items must be strong enough to hold heavy loads.



### Palette Knife

A 2 to 3 cm wide, flexible handled blade with a rounded, unsharpened end used for manipulating foods such as spreading and for smoothing icings on cakes and for mixing and scraping bowls.



### Offset Spatula

Used for turning and lifting eggs, pancakes and meat on the griddle, grills, sheet pans, and so on. It can also be used as a scraper to clean bench or griddle.



### Rubber Spatula

A broad, flexible plastic or rubber scraper, that is rectangular in shape with a curve on one side, used to scrapping bowl and pans—also used for folding in eggs foam or whipping cream.



### Bench Scraper

A broad, rectangular stiff piece of metal with a wooden handle on one edge used to cut pieces of dough and to scrape workbenches.



### Pizza Wheel

A round, rotating blade plain or plated with a handle used to cut rolled out dough pastries, and baked pizzas.



### Spoons

Used for stirring, mixing, and serving. Slated and perforated spoon is used when liquid must be arranged from solid materials.



### Skimmer

Used for skimming froth from liquid and for removing solid pieces from soup, stock and other liquids.



### Tongs

Used to pick up and handle food in the kitchen.

## Handheld Equipment



### Balloon Whisk

Balloon whisks have many flexible wires and are used for whipping egg, cream, hollandaise, and for mixing thinner liquids.



### Conical Strainer

Is used for straining stocks, soup, sauces, and other liquids. Pointed shapes allow cooks to drain liquid through a relatively small opening.



### Sieve

A screen-type mesh supported by a round metal frame used for sifting dry ingredients like starch and flour.



### Colander

A perforated bowl of varying sizes made of stainless steel, aluminium or plastic used to drain washed or cooked vegetables, green salad, pasta, and other foods.



### Grater

A four-sided metal box with grids of varying sizes. Used for shredding and grating vegetables, cheese, citrus rinds, and other foods.



### Zester

A small fine-toothed metal grater often mounted on a wooden or plastic handle to remove the zest or coloured portions of citrus peels in thin strips.



### Pastry Bag and Nozzles

A funnel-like or cone-shaped cloth or plastic bag with an open end that can be fitted with metal or plastic tubes or tips of varying sizes and designs.



### Food Mill

A device with hand-turned blade that forces food through a perforated disk that is interchangeable with different coarseness or fineness reduce a solid to small, fine pieces or powdery particles like vegetables, coffee, pepper, spices, etc.



### Colour Coded Chopping Boards

White: bakery and dairy products  
Yellow: cooked meat  
Brown: root vegetables  
Red: raw meat  
Blue: raw fish  
Green: salad, fruit and fresh vegetables



### Chip Scoop

Featuring a tubular handle, the scoop remains cool to the touch when in use, ensuring the safety and comfort of staff. Made with a perforated head, the scoop allows residue to easily drain away to ensure chips are not soggy or too oily.

## Handheld Equipment



### Pestle and Mortar

This tool is ideal for mashing, grinding, muddling and bashing. By mashing ingredients, you can release all the natural oils and flavours from herbs and spices.



### Fish Slice

Features a wide, flat blade with long holes in it, used for lifting and turning food while cooking. It was originally a serving implement for fish, usually made of silver, antique examples of which commonly appear at auction.



### Bamboo Steamer

A bamboo steamer is a versatile cooking tool often used to steam dumplings but can in fact be used in the same way as a 3-tier steamer, used to steam cook meat, fish and vegetables.



### Steak Hammer

Tenderising meat with the mallet softens the fibres, making the meat easier to chew and to digest. It is useful when preparing particularly tough cuts of steak, and works well when grilling or frying meat.



### Peeler

A peeler (vegetable scraper) is used to remove the outer layer (the "skin" or "peel") of some fruits and vegetables such as potatoes and carrots, apples and pears.



### Digital Scales

Used to measure ingredients accurately. Ingredients can be measured in kg, g, ml, lbs, oz and fl.oz.



### Measuring Jug

Used to measure liquids accurately.



### Lifter/Spider

A spider is ideal for lifting and draining foods from hot oil, soups, stocks and boiling water. It is the perfect tool for skimming stocks, blanching vegetables and deep frying foods. This kitchen utensil is most often used to retrieve foods that are being cooked in pots or pans of hot water.



### Stick Blender

Used to quickly blend soups, stews and sauces in the pot without having to transfer back and forth to a blender or food processor.



### Potato Ricer

Ricers are often used to puree food, most notably mashed potato. A ricer can be used to remove excess water from foods such as cooked greens that are to be added to quiche, thawed frozen spinach, and sliced or grated potatoes to improve the quality of potato chips or hash browns made from them.

## Handheld Equipment



### Saucepan

- Reheating soups
- Smaller volumes of sauces
- Ideal smaller portions



### Deep Boiling Pot

- Cooking larger stews and soups
- Making larger volumes of sauces
- Ideal for bulk cooking where multiple portions are to be served



### Stainless Steel Sauté Pan

- Stir fries, vegetables, braising and finishing dishes



### Non-Stick Sauté Pan

- Cooking eggs and fish
- Allows cooking at lower temp.
- Don't use metal instruments as they will scratch the Teflon surface



### Cast Iron Pan

- Grilling meats, fish and vegetables
- Can take high heat and go in oven
- Cast iron won't tarnish and is easy to clean



### Cast Iron Griddle Pan

- Has grooves in the bottom for searing meat
- Fat stays below in the grooves
- Make sure to season and clean between the grooves

## Training and Safe Use

### Points to Consider

#### Is your equipment suitable for your provision?

It goes without saying that you should never use domestic equipment in commercial kitchens. Not only are such appliances unable to keep up with the day-to-day demands of professional kitchens, but understandably, most manufacturers won't honour warranties for products designed for domestic use when used for commercial purposes.



#### Are your kitchen appliances fit for purpose?

Will your catering equipment be able to meet demand and produce food in the quantities you require?

As well as the size and quality of the kit, also consider its power capabilities. Less powerful equipment is unlikely to be able to keep up.



#### Do appliances meet food safety requirements?

There are more than a million cases of food poisoning a year in the UK. Many of these cases are the result of eating food prepared in a professional kitchen. It is an offence to 'render food injurious to health' or to sell food that does not meet safety requirements - with severe penalties, including unlimited fines, or even imprisonment for failure to comply. Specially designed catering equipment such as blast chillers can help ensure this legislation is met, reducing your exposure to risk, looking after the health of your customers, and protecting your hard-earned reputation.



#### Using Equipment Safely

- Do not use electrical equipment when your hands are wet or use near water.
- Do not put electrical equipment in water to clean it.
- Switch electrical equipment off at the socket when you have finished using it.
- Do not put your hands or spoons into an electrical mixing bowl or processor while in use.
- Wash equipment carefully - sharp equipment such as knives should never be submerged in soapy water where they cannot be seen.
- Do not use metal spoons in a saucepan as they conduct heat.



#### Can your appliances cope with emerging food trends and dietary requirements?

- The food and catering industry in the UK has changed dramatically over the last few years in the face of changing dietary requirements, allergies, and food intolerances.
- As such, today's commercial kitchens must be structured in a way to avoid cross contamination and cater for broader customer tastes.
- Today's commercial kitchens should have a layout that means you can avoid cross contamination when using ingredients like nuts, eggs, wheat and other common allergens.
- Fryers carry a particularly high risk of allergen cross-contamination, and it only takes a minuscule amount of an ingredient to cause an allergic reaction.

## Type of Provision

Different occasions suit different types of menu. For example, if you go to a wedding you would expect a sit down meal, often silver service. If you go to a party you would probably expect a buffet. Most importantly, the style of service, menu and event needs to suit what the **customer expects and wants**.

### When planning your menu you should consider:

Time of year, weather, types of customer, time available, price, portion control, ability of the cook, ability of the waiting staff, equipment available (for preparation, serving, cooking), balance (colour, flavour, texture, shape, variety of ingredients), presentation.



#### Children's Menu

Should be fun and include healthy alternatives to children's favourites, e.g. potato wedges instead of chips. Children could have more choice by offering smaller portions of main meal dishes from the adult menu. Children's menus should not be excessively high in fat, salt and sugar and demonstrate smaller portion sizes.



#### Breakfast

Breakfasts usually offer a choice of hot (bacon, egg, sausage, tomato etc.) and cold continental (rolls, croissants, cheese, cold meats, fruits and yoghurts). Hot and cold drinks and a tasty selection of preserves are also often offered.



customers' needs



#### Specials

Many restaurants have 'specials boards', which is a good way of adding seasonal dishes to the menu.



#### Lunch

Often needs to be served quickly for customers who have limited time. Sandwiches, wraps and baguettes are ideal. An ideal menu will offer a variety of breads with a selection of hot and cold fillings, together with snack items such as jacket potatoes, salads, pastries, cakes and muffins.



#### Evening meal

Vegetarian and healthy choices should be offered as well as dishes using a variety of cooking methods. In the UK, the most popular menus offer hot and cold starters, a variety of main courses and a selection of desserts that include chocolate and fruit.

Menu Type	Description	Advantages	Disadvantages
<b>Table d'hôte or set-price menu</b>	A fixed or set-price menu with a limited selection of dishes for every course.	Faster service and less wastage as less items on the menu for the chef team to prepare.	Limited choice
<b>A la Carte menu</b>	All dishes are individually priced. Menu comprises of starters, mains, desserts and side dishes. A type of menu often used in restaurants.	Wide variety and choice. Food items and dishes listed and priced individually so the customer can make their own meal from a selection of dishes.	Creates longer wait times for customers as dishes are cooked to order, slowing down the chef team. Can generate a lot of waste for the establishment if a dish is not popular.
<b>Rotating menu cycle</b>	Often used in schools and hospitals. A fixed pattern of menus is used to cover a fixed number of days. The minimum number of days is eight, so that menus are never repeated on the same day each week.	Chef/catering team will be familiar with the menus and therefore able to cook to a high standard consistently.	Food is often made with cheaper ingredients, resulting in poorer quality as focus is not on awards or reviews.
<b>Ethnic or Specialty menu</b>	Can be fixed price or A La Carte. Some offer dishes from particular countries, e.g. China, Italy. Others offer specialised food, e.g. fish or vegetarian dishes.	Chefs who are familiar with the type of cuisine are often employed, therefore dishes cooked to a high standard. Very popular in modern dining.	Limited choice other than the theme of menu on offer. Menu may not suit a wide variety of customers.
<b>Fast-Food menu</b>	This is similar to a specialty menu. Food tends to have 'themes' such as burgers, chicken or baked potatoes. Items are priced individually.	Low skilled staff can be employed to cook food as it is often prepared and delivered from a larger manufacturer. Makes staff wages lower, saves money.	Food is seen as 'cheap' and therefore prices must reflect this. Restaurant would have to sell in high volumes to make a profit.
<b>Party or Function menu</b>	Usually a fixed-price menu offered for parties or functions such as wedding receptions. Some party's menus offer a limited choice. Price is set per head (per person) rather than by dish.	Costing the menu per person helps the chef to budget for ingredients and staff. Food can be prepared and chilled ahead of time as menu items are already decided.	Limited choice, especially for customers with allergens and intolerances.

## Type of Provision

When an planning your menu you must consider the following factors:

- Type of function/event
- Date and time
- Type of venue
- Number of guests
- Risk Assessment (allergens and intolerances)

**Type of function:** The most important factor to consider is what type of event are you planning? Common functions/events in the hospitality industry are: weddings, charity fundraisers, school proms, awards nights (the Oscars), business networking, opening of a new business, staff Christmas party, christenings, birthdays, confirmations, bar mitzvah, sporting events e.g. football hospitality (private boxes), horse racing (The Grand National). The menu may have to suit the theme, sports club, company or brand. If the event is a special occasion/luxury a silver service may be expected, however work parties and discos may only require a buffet service. The type and purpose of the event will determine every other factor and decision.

**Date:** Time of year, e.g. Christmas, Easter, Summer, Spring. The time of year might have an impact on the theme you choose or ingredients that are in season. The date may be specific to the client, e.g. a wedding day, date of the school prom, that cannot be changed.

**Time:** Morning = Breakfast Dishes such as cooked breakfast (Full English), light snacks, fruit, pastries, Danishes, yoghurt.

Daytime = Lunch/Snacks such as sandwiches, baked potatoes, wraps, salads, pasta dishes.

Evening = 2 or 3 course dinner, starters, mains, desserts, vegetarian options.

The time may dictate the type of food you serve or style of service, e.g. in the evening guests would not expect a breakfast course, in the morning, guests probably don't expect a 3-course meal. When planning a menu always think about the time of **day or year!**



## Venues

Once you have chosen your brief, you can begin to think about the style of menu that will suit the occasion. For example, children's parties may take place at a soft play area where a small buffet style meal would be suitable. You could even create a dinosaur or superhero themed menu with set items. The menu would have to consider the equipment available at a soft play area, which is unlikely to have a fully functioning commercial kitchen onsite. An adult's party may take place at a restaurant where a wider variety and choice is expected. You may even be asked to design a menu for a holiday park bistro, where all ages must be catered for!



Soft Play Areas



Children's Party



Corporate Meeting Rooms



Sports Arenas



Stately Homes



Outdoor Marquee



Restaurants



Seasonal Events



Charity Events



## Number of Guests

The number of guests is **VERY important!** The catering manager/chef needs to make sure that if 60 guests are expected, 60 guests are catered for, plus some extra in case people turn up unexpectedly. A wedding is a great example of where the number of guests must be correct, as the cost per person is often expensive (around £70 per guest)! If an event expected lots of guests (over 200) the chef may suggest serving a buffet as a 3-course meal for over 200 people may be time consuming (unless there are many chefs and wait staff employed for the event). All these things must be considered so the event runs smoothly, and everyone is catered for.

## Portion Control

Portion control is extremely important. Customers need to feel they are getting 'value for money' and having the same size portion as everyone else.

It helps the caterer when planning to know how many portions the ingredients will make? The caterer can then determine a selling price (how much should be charged to cover costs and make a profit?) and avoids waste.

Using standard recipes can help a caterer by determining how many ingredients will make 10, 20, 30 or more portions. **Equipment can also be used to control portions:**





Costing



Food costs are large percentage of costs for most hospitality businesses. When planning menus chefs must calculate how much dishes will cost per portion to be able to justify keeping it on the menu. Expensive dishes that are not ordered often may lead to wasted ingredients that are unused, which result in less profit. Chefs must design dishes that generate a profit to stay operational.

Ingredient	Grams per recipe	Weight bought	Cost of food bought	Actual Cost
<b>For the béarnaise sauce (serves 4)</b>				
Tarragon vinegar	30ml	355ml	£5	42p
White wine	50ml	75cl (750ml)	£5	33p
1 tsp white pepper corns	5g	105g	£2	10p
1 small banana shallot, finely diced	20g	300g	75p	4p
4 eggs yolks only	68	240g	89p	25p
Lemon, juice only	15ml	60g	28p	7p
Butter melted	200	250g	£1.45	£1.16
Chopped tarragon leaves	2.5g	5g	£1.60	80p
<b>For the chateaubriand (serves 4)</b>				
Chateaubriand, fully trimmed	1600g	2kg	£42	£63.20
Olive oil	15ml	750ml	£4	8p
Butter	75g	250g	£1.45	44p
4 small stems cherry tomatoes on the vine	220g	220g	£1.35	£1.35
4 large potatoes	600g	600g	£2	£2
Bunch watercress	10g	40g	24p	6p
			<b>TOTAL</b>	<b>£70.30</b>

To keep costs of your dishes reasonably low you could suggest ...

- Buy food in season so it is not imported and expensive
- Buy food locally so that you don't have to travel too far to buy it and reduces carbon footprint e.g. support local business.
- Minimise the waste produced in both food and resources.
- Control the portion size so that you do not waste food that people are not going to eat and everyone gets the same size portion.
- Not buying ready prepared ingredients because it is cheaper to prepare them from scratch.
- Buying cheaper cuts of meat, this can effect the quality and fat content.
- Buy non branded food- supermarket own brands are cheaper.
- Freeze left over foods or use in other dishes.
- Store the ingredients at the correct temperature so they don't spoil.
- Buying organic, free range, fair trade foods will cost more but is better for the environment and improved taste e.g. free range eggs, chicken, chocolate, bananas.

Cost per portion = £70.30 / 4

= £17.56 per portion

To work out the minimum cost per portion for the business to make a profit, businesses use the following formula:

$$\frac{\text{Cost per portion} \times 100}{40}$$

The cost would be rounded up so the number ends in a 5 or 0 so it is more realistic.

Based on the per portion being **£17.56**, calculate the minimum cost of the dish to make a profit:

$$£17.56 \times 100 = 1,756$$

$$1,756 / 40 = \underline{\underline{£43.90}}$$



## Environmental Considerations

When planning your menu, you must consider the impact your choice of dishes and preparation methods will have on the environment.

Environmental issues you must consider also include:

- Conserving energy and water when preparing food
- 3 Rs Reduce, Reuse, Recycle
- Food sustainability and provenance



### Buying ingredients – what to consider?

- Have the ingredients travelled from far away by environmentally damaging transport?
- Have the ingredients been processed and purified using a lot of energy carbon footprint
- Ingredients locally produced – saving food miles and environmental damage
- Organic ingredients not using excess fertiliser, pesticide or artificial hormones for animals
- Animal welfare e.g. free range or barn eggs, free range meats, organic meats
- Fruits and vegetables and meat produced locally or sustainably
- Ingredients such as cocoa, coffee, syrup produced by fair trade farmers.

### Food miles/Carbon footprint

The distance the food or ingredients travel from production/growing to where it is consumed or sold. Transporting food long distances is harmful to the environment. Some foods can't be grown in this country due to the climate and therefore must be transported overseas to reach us.

Visit [foodmiles.com](http://foodmiles.com) to calculate the food miles of your chosen ingredients:



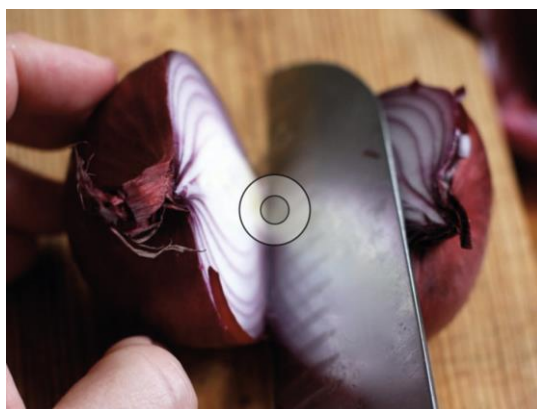
Choose **sustainable food**. By this we mean buy local, seasonal and environmentally friendly food. For example, try local farmer's markets, choose products with a Fairtrade stamp, select fish that has been sustainably farmed. By buying locally your ingredients will travel less miles to reach the kitchen, reducing carbon footprint.

Using **organic foods** is also extremely environmentally friendly as these products don't use any pesticides and fertilisers. However, many supermarkets reject these due to their shape and size being 'non-uniform'. These are often wasted or used as animal feed.



To conserve energy, it's best to keep your pans covered while cooking. Covering your pans will require less cooking time. This is also a good way to prevent grease splatters that will require you to use additional water or cleaning products to remove. While cooking, you can lift the covers briefly to stir or flip over food so that it doesn't burn. **This style of cooking speeds the foods cooking time by 25%.**

As induction hobs are more energy efficient than gas hobs, a chef could consider switching to induction hobs, however gas hobs allows better control over cooking temperatures. You could plan your menu around faster cooking methods such as sautéing and stir frying to minimise the amount of energy used.



Cutting your food into smaller pieces has long been an effective green cooking method. Smaller meat and vegetable pieces can be heated faster so that **less energy** will have to be used. This will also make it easier for you to see how well your food is cooking so that you can manage your cooking time more effectively without burning anything.

Cutting meat into smaller portions can also **reduce the chances of food borne illness** from raw or undercooked meat dishes. Additionally, if you use this method on meat, you should also be able to avoid overcooking and **therefore prevent food wastage.**

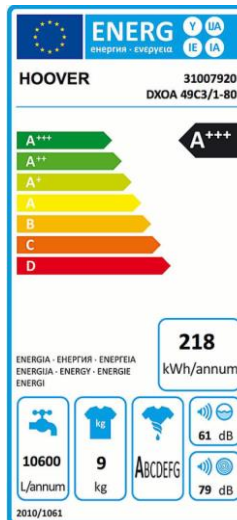
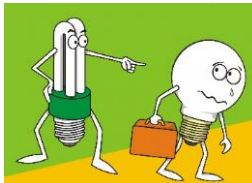
### Key Words

<b>Reduce</b>	lowering the amount of waste produced
<b>Reuse</b>	using materials repeatedly
<b>Recycle</b>	using materials to make new products
<b>Sustainable</b>	able to be maintained or continue

## Environmental Considerations



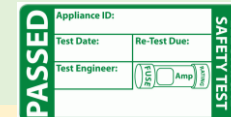
Each time that you cook, you should prepare a larger food portion so that you can use it again. Since reheating will require less energy use, preparing a larger portion will save you from having to use more heating power to prepare new meals. This can also help you reduce your clean up times and cut down on your water use. A great example of this is to make 20 portions of lasagne and once cooled, you can portion, freeze and reheat when required.



### Energy Efficient Equipment

Energy efficiency simply means using less energy to perform the same task - that is, eliminating energy waste. Energy efficiency brings a variety of benefits:

- reducing greenhouse gas emissions,
- reducing demand for energy imports
- lowering our cost



When using water to boil anything in a pan, make sure that you only use as much water as is needed to cover the amount of food you're cooking - one of the most common forms of energy wastage is the energy it takes to boil water you don't need. Use the kettle to boil water quickly and transfer to a pan on the hob for steaming and boiling vegetables or pasta. Always use a pan which is the right size for the amount of food you are cooking to ensure that you use less energy in heating a bigger surface area when you don't necessarily need to. Use a double steamer to cook vegetables so you can layer vegetables on top of each other and still use one ring. Turn down the level of the ring or burner once the cooking temperature or state is reached; most dishes need to simmer, not boil.



Check your fridge regularly to see what food you have, what's going off soon, what can be frozen, what vegetables are on the turn that can be made into a quick side dish? Or even cook to destroy spoilage bacteria and preserve the foods shelf life. By also checking that food has been stored correctly you can prevent food wastage by preventing food spoilage. Avoid over purchasing ingredients, buy ingredients with your menu in mind and the number of customers you are likely to serve. Avoid serving large portions to prevent food wastage by customers. Don't forget, food waste can be composted and used to grow more crops. You could even serve some fruits and vegetables with the skin on to prevent waste and increase the fibre content of the dish!

### ENERGY SAVING TIPS FOR CHEFS

- **STAFF INVOLVEMENT**  
Raise energy awareness among kitchen and waiting staff and appoint "Energy Champions", staff members responsible for turning off lights, ovens and equipment when not in use and making sure that heating and hot water are set at the right temperature.
- **REFRIGERATION**  
**Fridges and freezers** should be located away from the hot kitchen. Ensure refrigeration temperatures are set correctly and review the condition of the door seals. Keep fridge doors closed as much as possible - install door closers or alarms to prevent staff members accidentally leaving the fridge/freezer doors open.
- **REVIEW EQUIPMENT**  
A new machine could save money and energy. A combi oven, for example, which offers convection, steam and combination cooking, can save energy, while induction hobs are more energy efficient than a traditional electric hob.
- **REVIEW YOUR DISHWASHER**  
Don't set the dishwasher away half full, wait until a full load is ready to save water and energy.

## Cattle Farming



Reduce how much meat and dairy you use! By using less beef and dairy products you can reduce health risks and greenhouse gases. Beef's environmental impact exceeds that of other meat including chicken and pork, experts believe that eating less red meat would be a better way for people to cut carbon emissions than giving up their cars. The heavy impact on the environment of meat production, research shows a new scale and scope of damage, particularly for beef. **The popular red meat requires 28 times more land to produce than pork or chicken, 11 times more water and results in five times more climate-warming emissions.** When compared to staples like potatoes, wheat, and rice, the impact of beef per calorie is even more extreme, requiring 160 times more land and producing 11 times more greenhouse gases, in particular 'methane'.



## Over Fishing



Occurs when humans take fish from the marine and freshwater sources at a rate faster than fish can repopulate. It's the reason seafood is expected to be depleted from the oceans by 2048. Overfishing is a result of modern advancements in the fishing techniques such as trawling and dredging, which disrupt the physical habitat and biologic structure of ecosystems in the ocean. Fish such as cod, salmon and tuna are in danger as these make up the vast majority of species fished for.

## Conserving Energy

### Conserving energy by:

- Keep equipment clean and maintained so it uses less energy including filters on ventilation and refrigeration
- Descale equipment used for boiling
- Keep lids on saucepans
- Energy efficient lighting, auto switch off
- Turn off equipment and lights when not in use
- Don't put hot food in fridges, uses more energy to cool down
- Energy efficient boilers etc for hot water, don't have water too hot (above 55°C for legionella)
- Replace old equipment with more energy efficient models
- Gas heats up and cools down more rapidly but needs ventilation



### Conserving water by:

- Taps that disperse only short bursts of water
- Motion sensor taps
- Only use minimum water to cook food
- Use a steamer instead of boiling in water
- Reduce flow of taps, use a spray head for washing
- Have taps which turn themselves off
- Use a bowl, keep the plug in when washing up
- Full loads for washing machines and dishwashers
- Serve water on tables at customer's request
- Reduce flow rate to equipment such as potato peelers
- Water metering



### REDUCE

- Only buy what is needed for preparation
- **Storage** - check temperatures, use airtight containers label food with dates, use first in first out for ingredients
- **Preparation** - do not over trim, use carcasses and trimmings to make soups, stocks and sauces
- **Portion sizes** - do not offer excessive portion sizes people will leave lots of food, wastes energy in preparing food that is not going to be eaten
- **Write menus** that consider using offcuts such as chicken trimmings used to make a pie
- **Turn dry fruit and veg** into powders and seasonings
- **Turn excess fruit and veg** into chutneys, sauces, jams, pickles
- **Freeze** leftover food for later use in dishes.



### REUSE

- Keep food in **reusable** containers
- **Serve** water in glass bottles or carafes
- Use **refillable containers** for condiments, salt and pepper, sauces etc instead of single serve
- **Use food not served to make new meals** e.g., bubble and squeak with left over potato and green veg, stir fries with small pieces of veg, trifle with left over cake, meringue with left over egg white, soup with veg and meat leftovers, Bread and butter pudding or croutons with bread.



### RECYCLE

- **Recycle sturdy containers** for food storage
- Send food waste to be used for compost or animal feed instead of throwing it away
- **Recycle used cooking oil.** Some companies collect it for free and then turn it into bio diesel
- **Recycle paper, cardboard, cans, glass bottles and jars.** Councils will collect for recycling.
- **Buy recycled** glass, food grade plastic containers, recycled paper
- Use the correct recycling bins - **train staff**

## Packaging



Most food items sold in shops and in bulk to catering establishments have some form of packaging. This packaging is often made from plastic, which contributes to the release greenhouse gases in their manufacture. Whilst plastic can be recycled, when contaminated with food it cannot be recycled, and ends up in landfill. Today, the biggest concern is how much plastic ends up in the World's oceans, where it can be harmful to aquatic life.

## Alternatives to Polystyrene

With the banning of chemical-filled & non-biodegradable polystyrene due to health and environmental concerns being demanded, eco-friendly materials for restaurants and caterers recycling products are in more demand than ever. There are many alternatives to polystyrene boxes and food containers such as:

### Compostable containers

Compostable containers are made up of peat fibre, palm fibre, insulated paper board, wheat stocks and corn starch that are easy to break down in to compost. However, there is a need to protect palm groves from becoming extinct, from over-use.



### Reusable containers

A **more expensive** alternative to polystyrene or plastic containers, but it can have the **most advantages for the planet**, consumer and the business that uses reusable containers to avoid waste.

These non-disposable food-wares made of metal, qualitative plastics & ceramics which puts **less of a strain on waste disposal systems**. A customer could rent a mug or glass, for instance, and they would pay an additional deposit, which would be refunded upon return. Just like returning empty glass milk bottles for refills!



The total amount of waste, including food, packaging and other 'non-food' waste, 2.87 million tonnes

1.3 million tonnes of packaging and 0.66 million tonnes of other 'non-food' wastes are also discarded, that includes items such as disposable kitchen paper and newspapers.

## Buying in Bulk

### Reduce Waste

By shopping at bulk food stores, you will reduce both your packaging and your food waste. Buying in bulk eliminates the need for fancy packaging and single-use plastic, meaning that you are only buying the delicious food, and not the unnecessary packaging.

### Reduce Transport Miles

Bulk goods require less overall transportation because there are less packaging components that must be produced and transported prior to being filled. The transportation of bulk products is more efficient because they can be packed more densely on a truck in large sacks and boxes as opposed to individually packaged items.

### It's Cheaper

Generally speaking buying in bulk is cheaper than shopping in a traditional mass supermarket because you aren't paying for the excess packaging. Without the fancy branding that companies charge for, buying in bulk means you are getting nothing but the product.

### You Can Buy Exactly How Much You Need

When you buy in bulk you can scoop out exactly how much you need so there is no food waste. Because you can buy exactly what you need, you will no longer have old packets of half-used products sitting in the kitchen store cupboard! You can therefore benefit from the freshest produce.



### Edible food containers

Edible food containers were first trialed by KFC for their Rice Bowlz using tortilla bowls for their rice, vegetable and chicken dishes.

### Edible cups

Edible cups have been trialed by KFC in the UK. They used alternative coffee cups made of biscuit, sugar paper and heat resistant white chocolate. Coming up with replacements for large quantities of polystyrene cups used every day is now a possibility for caterers everywhere.



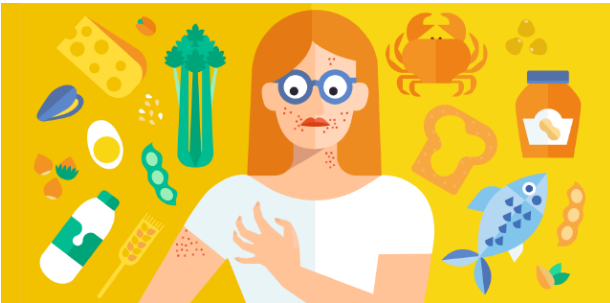
62% of packaging and other 'non-food' waste is recycled. The highest level of recycling is for glass and cardboard.

56% of packaging and other 'non-food' waste that is thrown away could have been readily recycled.



## Customer Needs

Menu Planning is an essential part of the hospitality industry. Chefs, restaurant managers, establishment owners must plan menus to meet the needs of a wide range of people, as we are not all the same. Not only is this good business practice, it is also a legal requirement, especially for food allergies and intolerances. Below are some of the factors a menu planner **MUST** consider:



**Allergies**  
Some people may develop an allergy to peanuts or to the gluten in wheat. If they eat foods containing these, they may become very ill, and possibly die.

**The 8 most common food allergies include:**  
Cow's milk, Eggs, Tree Nuts, Peanuts, Shellfish, Wheat, Soy and Fish.

**Symptoms can occur anywhere from a few minutes after exposure to a few hours later, and they may include some of the following:**  
Swelling of the tongue, mouth or face, Difficulty breathing, Low blood pressure, Vomiting, Diarrhea, Hives, Itchy rash.

**Cow's Milk Allergy**  
**Foods found in:**  
Milk, Milk powder, Cheese, Butter, Margarine, Yogurt, Cream, Ice Cream



**Nut Allergy**  
**Foods found in:**  
Brazil nuts, Almonds, Cashews, Macadamia nuts, Pistachios, Pine nuts, Walnuts



**Seafood Allergy**  
**Foods found in:**  
Shrimp, Prawns, Crayfish, Lobster, Squid, Scallops



You can alert customers of allergies by printing information on your menus. In UK we use recognisable logos for nut, lactose and gluten containing products to make it easier for the customer to make an informed choice. Servers should also be knowledgeable to answer any guest queries on allergens.

**Coeliac Disease**  
**This is intolerance to gluten which is found in wheat, rye and barley.** Coeliacs cannot absorb nutrients if they eat gluten. Corn rice and potatoes do not contain gluten. You can use the following alternatives in recipes instead of wheat: brown, white and wild rice, buckwheat, almond flour, coconut flour, corn, corn flour

**Lactose Intolerance**  
**Can't digest lactose (because they don't produce the lactase enzyme).** Milk, milkshakes and other milk-based beverages, whipping cream and coffee creamer, ice cream, cheese, butter, puddings, custards, cream soups, cream sauces, foods made with milk. Lactose free alternatives include soya milks, yoghurts and some cheeses, rice, oat almond, hazelnut, coconut, quinoa and potato milks.



### Ethical Diets

Some people avoid meat due to environmental issues or health risks. Some people avoid beef due to concerns over BSE. Some avoid chicken and turkey due to the bird flu issues. Some people avoid fish due to the overfishing. Or prawns because this fishing is very energy expensive and wasteful. Producing unnecessary greenhouse gases. Some people just don't like the thought of harming animals.

#### Types of Vegetarian:

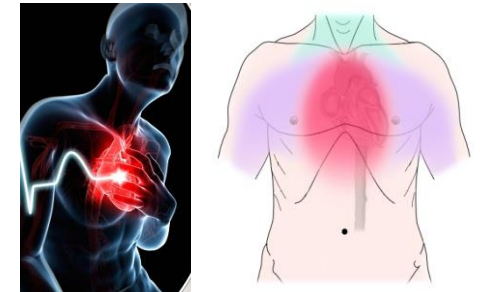
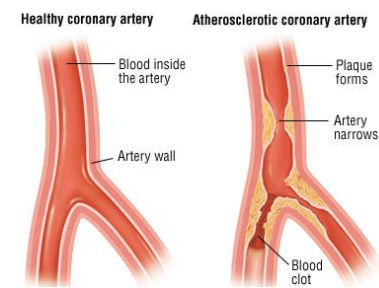
**Vegetarians:** Do not eat meat or fish.

**Lacto-vegetarians:** Do not eat the flesh of any animal but they will eat eggs, milk, cheese, honey etc.

**Vegans:** Do not eat any animal products (including honey).

**Pescetarians:** Do not eat chicken or red meat but do eat fish.

**Demi or Semi Vegetarians:** Often choose to eat a mainly vegetarian diet because they don't eat red meat. They sometimes eat poultry and fish and eggs, milk and cheese.



Some people may choose or be advised to eat a low saturated fat (often comes from animal fats such as meat and butter) diet for health reasons:

**Coronary Heart Disease (CHD)** is a build up of fatty deposits in the coronary arteries. Should avoid high saturated fat foods and foods that have been deep fat fried. More fruit, vegetables and fibre in diet.

**High Blood Cholesterol** is high level of cholesterol in the blood. Should avoid high saturated fat foods. Consumption of healthy fats (unsaturated) can help lower cholesterol.

**High Blood Pressure (BP)** is higher force than normal pushing against the artery walls (caused by having fatty deposits in the arteries which narrows the artery, increasing the force against the walls). Should avoid high salt foods and foods that have been processed, e.g., ready meals and high salt snacks.

### Religious Diets

**Muslim Diet:** Do not eat pork. Only eat Halal meat (which is killed in the same way as Kosher). Sea food without fins or scales (such as crabs, prawns and squids) considered undesirable by some Muslims. Muslims also avoid alcohol.

**Jewish Diet (Judaism):** Do not eat shell-fish or pork. They do not eat dairy and meat in the same meal (this is because they do not eat mother and child together - so you can not have chicken and egg together or milk and beef). They only eat Kosher meats (where the blood is drained from the body through a slit in the throat before the meat is soaked or salted). Kosher houses should have different sinks for dairy and meat along with different plates, cutlery and utensils: this is taken very seriously within the Jewish religion.

**Hindu Diet (Hinduism):** Do not eat beef or any beef product - this is because the cow is a sacred animal and is treated as such, this includes the use of leather for clothes and furniture. Milk is permitted as no animal is killed during the collection. Often vegetarian, which comes from the principle of Ahimsa (not harming). Most Hindus don't drink alcohol.

## Nutritional

The choice of ingredients and methods used to cook foods can greatly alter their nutritional content. For example, chips baked in the oven will contain less fat than chips that have been deep fat fried. Steamed cod is incredibly healthy, however battered cod is not. Whilst it is not a legal requirement to create all healthy dishes on your menu, it is important to offer customers some healthier options, especially if they are keeping saturated fat intake low for medical reasons.

### Unhealthy Cooking Methods

Some cooking methods can actually increase the fat content in dishes, especially methods that use fat such as oil or butter as the cooking medium. High saturated fat dishes are linked to increase risk of high cholesterol and heart disease, therefore, their use should be limited and not used for all dishes.



The unhealthiest cooking methods are:

- Deep fat frying
- Shallow frying
- Roasting



### Ingredient Alternatives

Avoid saturated fats such as butter, lard and dripping. Use heart healthy unsaturated fats such as olive oil, rapeseed and avocado oil.

Use wholegrain or brown flours where possible to increase fibre and B vitamin content. Avoid processed and refined flours (white) as these contain less nutritional benefits and digest like sugars.

Leave the skin on vegetables for extra fibre and vitamin C.

Replace cream in recipes with reduced fat crème fraiche.

Rather than adding free sugars to dishes, use naturally sweet ingredients instead, such as fruit. Honey is a great source of sweetness and also contains antioxidants.

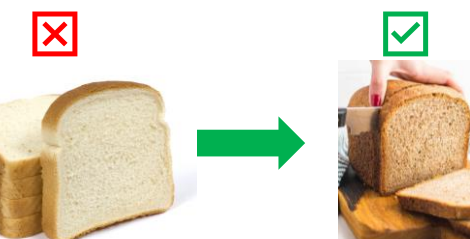
Bulk meals out with vegetables for added fibre, for example in lasagne and pies. Vegetables could be pureed and added to sauces for 'fussy eaters' too! Add fresh fruits as side dishes to desserts rather than ice cream or sorbet.

### Healthy Cooking Methods

Healthier cooking methods use very little or no fat to coat the pan/food, however this can sometimes make food taste bland. Therefore, herbs and seasoning are needed to add flavour. Some of the healthiest methods of cooking are water based, however, this does mean there can be some loss of water soluble nutrients, vitamins B and C.

The healthiest cooking methods are:

- Stir frying
- Poaching
- Boiling
- Steaming
- Grilling
- Baking
- Stewing
- Casseroling
- Braising



### In Preparation

When preparing food, excess visible fat can be trimmed from meat, for example the fat rind from bacon.

When boiling foods such as pasta, adding salt can dramatically increase the sodium content of the dish. We only need 6g per day, so be careful when adding salt to cooking water.

When creating marinades, sugar is often used to achieve a sweet and sticky glaze. Use sugar sparingly, as it is a source of empty calories and not beneficial in our diet.

When preparing fruit and vegetables, prepare as close to the time needed as possible, as once cut and exposed to oxygen nutrient loss begins.

Try not to add more fat/oil than needed when frying food. Spray oils are good for controlling the amount of fat added to the pan, or use measuring spoons.



### Low Fat Cooking

- Use less oil, try cooking sprays or apply a small amount of oil with a pastry brush.
- Cook in liquids (such as stock, wine, lemon juice or water) instead of oil.
- Use low-fat yoghurt, low-fat milk, evaporated skim milk or corn flour instead of cream in sauces or soups.
- An alternative to browning vegetables by pan-frying is to cook them first in the microwave, then crisp them under the grill for a minute or two.
- Use pesto, salsas, chutneys and vinegars in place of sour creams, butter and creamy sauces.

### Retaining Nutrients

**Water-soluble vitamins are delicate and easily destroyed during preparation and cooking. To minimise nutrient losses:**

- Scrub vegetables rather than peel them, as many nutrients are found close to the skin.
- Microwave or steam vegetables instead of boiling them.
- If you like to boil vegetables, use a small amount of water and do not overboil them.
- Stir-fried vegetables are cooked quickly to retain their crunch and nutrients.

## Sensory

The average person has about **10,000 taste buds** and they are replaced every 2 weeks or so. But as a person ages, some of those taste cells don't get replaced. **An older person may only have 5,000 working taste buds.** That's why certain foods may taste stronger to children than they do to adults. Organoleptic means the qualities of food that people experience with their senses. There are 5 senses: sight, smell, taste and sound. To enable people to enjoy their food, it is important that the menu planning, preparation, cooking serving food is carried out well so that food is appetising.

When writing your 4-dish proposal, it's important to follow a consistent approach as well as covering all of the content required. Using **CATFLAPS** will help you achieve this. **CATFLAPS** is a mnemonic and stands for:

**C** OLOUR  
**A** PPEARANCE  
**T** EXTURE  
**F** LAVOUR  
**A** ROMA  
**P** ROBLEMS  
**S** UITABILITY

### Sight: Appearance and presentation of the meal

Adding vegetables to a dish to increase fibre, vitamins and minerals may also affect the colour of the dish.



Adding greens such as green peppers or green beans will create a fresher, more vibrant look.

Adding tomatoes/red peppers to a dish will make it look brighter.

Remember - contrast in colours within a dish is good, makes dishes look more appealing and delicious!

Changing carbs to wholegrain or skin-on versions may also change the colour of the dish, however this may increase the presence of brown in the dish, which is considered a 'dead' or dull colour, and will need brightening up in other ways.

### Taste: The flavours

There are 5 basic flavours: **salty, sweet, bitter, sour and umami (savoury)**



Reducing fat content in recipe may alter the taste - it can reduce creaminess aka 'mouth feel'.

Reducing the fat content of baked goods can also alter the taste - making them taste less rich.

Adding vegetables to dishes can alter the taste in many ways depending on what fruit/vegetables is added - e.g. red peppers will bring sweetness, adding kale will bring an earthy taste, adding broccoli will add a fresh taste.

### Texture: Mouth feel

Use fresh food - stale food loses texture e.g. fruit, vegetables and fish.

Prepare food well to remove edible parts e.g. shell, bones, stalk, tough skin.

Cook food well to avoid unexpected textures e.g. lumps in a sauce, under cooked egg white, under cooked cake.

Cook food at correct temperature and for correct time to allow textures to develop e.g. when melting chocolate, baking cake or bread, frying chicken.

Reducing fat content in recipe may alter the texture, making it drier or more brittle.

Adding vegetables or fruits to dishes can bring crunchiness, softness, chewiness.

Changing the cooking method will also alter the texture - frying or roasting food in fat creates crispy crunchy textures, whereas replacing frying/roasting with the healthier methods of steaming, boiling, stewing etc will create soft textures. Grilling and barbecuing will also create chewy/crispy textures.

Adapting the cooking method may also change the taste of a dish:

Steaming or poaching will preserve the flavours of the original food whereas barbecuing or grilling food will also impart charred flavours.

Saut eing vegetables in butter or oil bring out the flavour.



### Sound: Snap, Crackle and Pop!

The sound of food can make it more appealing.

Certain foods you expect to sound in a particular way e.g. crisp to crunch, biscuits to snap and food being fried to make a sizzling sound.

To preserve these sounds food needs to be cooked and stored correctly to maintain its texture.



HEARING

### Aroma: How food smells

Use fresh ingredients - stale ones lose ability to produce aromas and can smell 'off'.

Using natural foods that produce a strong aroma e.g. fresh/dried herbs and spices, garlic, orange and lemon zest and cooking methods that develop aromas e.g. grilling, roasting, baking and frying.

Plan and select combination of foods to produce a mixture of aromas, but avoid using too many, as the overall effect will be spoiled.

Garnish desserts using fresh mint to cut through the rich/sweet aromas.

Making stock from meat, poultry or fish bones plus vegetables, herbs and spices.

Roasting root vegetables intensifies their flavour by evaporating water and caramelising the natural sugars they contain.

Using natural flavours e.g. citrus fruit zest, fresh herbs and spices.



SMELL

## Production Plan

Your production plan must include all of the following:

- Ingredient lists (including amounts in grams, millilitres)
- Equipment needed
- Mise en place - (getting ready and organised before you start preparing and cooking the food)
- Timing — for preparing, cooking, decorating, etc.
- Sequencing - the order in which you prepare and cook the food (including dovetailing)
- Cooling food down - where, how and for how long you will do this, and at what temperature?
- Hot holding - how you will keep food hot and at what temperature?
- Completion - how you will know your dish is finished?
- Serving/presentation - describe how the plate will look, what will you decorate the plate with and serve your food with e.g. salad, bread, ice cream?
- Removal of waste - especially if handling raw meat/fish
- Contingencies — e.g. what will you have ready in case something goes wrong?
- Health, safety and hygiene points - e.g. washing up, using oven gloves etc.
- Quality points - how will you make sure you achieve a professional dish?
- Storage of the food during the practical assessment so that it stays safe to eat - e.g. chilled food kept in fridge, dry food kept sealed off the floor.



### Health and Safety Points

- Use bridge and claw technique to prevent injury
- Make sure knives cleaned separately to prevent cuts
- Use oven gloves to prevent burns
- Use a blue plaster if you cut yourself
- Warn others of hot pans
- Stand back when opening ovens (risk of scalds from steam)



### Mise en place (preparation)

- Tie up hair/hair net, remove all jewellery
- Wash hands in hot soapy water, put a clean apron on
- Collect ingredients from the fridge, freezer, store cupboard.
- Weigh and measure using digital scales
- Wash vegetables, especially soil vegetables
- Peel and chop fruit/vegetables needed first
- Have recipes printed and a pen to tick steps
- Setting preparation area up by ensuring the ovens are pre-heated and the area is clean
- Checking ingredients for quality points and weighing ingredients
- Collecting equipment/getting serving dishes ready

### Logical Sequence

- Things that need to set in a fridge or cook for a long period of time are prepared first
- Use of specialist equipment such as ice cream machines/pasta machines
- State correct preparation terms e.g. chopping carrots into small dice: slice potatoes thinly: fillet the fish
- Simmer the sauce, sauté the beef, and glaze the pastry with egg wash
- State the required oven temperatures and length of cooking time
- State when dish goes in oven for how many minutes
- Remember to take dish out at correct time on the time plan

### Hygiene

- Allow time to wipe clean sink/cooker at the end of the assessment
- Ensure ALL equipment is cleaned in hot soapy water and dried with a clean towel. Placed back into the correct cupboards.

### Completing the dishes

- EACH dish should be allocated a colour as well as the special points and contingencies. This will support you when dovetailing the time plan.
- Discuss the use of specialist equipment and terminology e.g. bloom the gelatine for the panna cotta.
- Include as much hand washing/washing up as possible.
- Try and include HACCP at all times e.g. store the prepared fish fillets until required, on the bottom shelf of the fridge/in a sealed container.
- Make sure every section has at least one special point and contingency.
- List both the equipment required and ingredients
- (this will assist you when completing the assessment).
- Include garnishing and decoration time on your time plan.
- Allow time to arrange food on serving dishes and present on the table.
- Set time aside during the time plan for wiping surfaces/clearing up before starting the next dish.

### What is a special point?

- Wear clean apron and remove all jewellery
- Wash hands after handling raw meat to reduce the risk of cross contamination
- Use bridge and claw when using knife to reduce the risk of cutting yourself
- Do not put knives in the sink, clean them as you go, place back in secure and safe place
- Pan handles facing inwards to reduce the risk of spillages
- Use oven gloves to reduce the risk of burning your hands (ensure gloves are clean and dry)
- Safety points for using electrical equipment
- Use colour coded chopping boards: cooked meats (yellow), salad and fruit (green), raw meat (red), vegetables (brown), bakery and dairy products (white)
- High risk foods to be stored in fridge until needed
- Cook food to core temp of 75°C
- Wash all equipment after using high risk ingredients (raw meat, eggs) to prevent cross contamination
- Wash hands after using high risk ingredients to prevent cross contamination
- Cool food rapidly, keep out of danger zone (5-63°C)
- Check meat is cooked thoroughly to prevent food poisoning



## Production Plan

### What is a contingency point?

- A contingency plan is usually put into place to allow a business to find solutions if problems arise.
- When completing your production plan and assessment you might come up against these types of problems, so it's vital that you have a selection of effective and manageable 'PLAN Bs'.

These contingency points can be broken down into several sections:

- Equipment
- Ingredients
- Special diets
- Timings



### Timings

Timings are always a guide depending on your equipment such as your oven. If you remove your dish from the oven and it isn't cooked, simply place it back in for more time. A great example would be to probe the food, if it doesn't reach the required temperature, place it back into the oven.



### Equipment

Equipment could break at any moment during the assessment, if this happened how would you complete the dish? Look at alternatives when completing your plan, for example if the pasta machine broke whilst using it, what would you use? The contingency point could be a rolling pin.



### Ingredients

Ingredients can spoil, mistakes may happen, and the ingredient is ruined. If this was the case how could you continue to produce the dish? A great example is lasagne, if you ran out of beef mince what could be used as a substitute? Quorn mince? Turkey mince? Vegetables?



### Final Points to Consider

- Could you alter the cookery methods to save on time?
- Can you make the dish healthier? Cooking methods?
- How would you cook this dish in higher volumes?
- What would you do if you didn't have a certain piece of equipment? How would you adapt the recipe?
- How would you adapt the recipe for: allergies, intolerances, religious diets, vegan, vegetarians?
- How can you prevent cross-contamination of PHYSICAL, MICROBIOLOGICAL, ALLERGENIC and CHEMICAL contaminants?
- How will you store food throughout the preparation/cooking process?
- How will you control portion size to reduce waste?
- How will you present and serve dishes to meet customer needs?
- Have you mentioned personal hygiene and health and safety measures throughout your production plan?

### Special Diets

Special diets also need considering when completing your time plan. If a customer has a special diet, as a chef you should have the knowledge to be able to amend the dish to suit their needs, for example using gluten free flour in pasta.



## Production Plan Example

### Dish 1: Lasagna

Ingredients	Equipment
<p><b>For the meat sauce</b></p> <p>2 tbsp olive oil 1 celery stick, finely chopped 1/2 onion, finely chopped 1/2 carrot (about 100g), finely chopped 2 garlic cloves, crushed 500g beef mince 1 x 400g cans chopped tomatoes 2 tsp mixed Italian herbs 2 beef stock cubes</p> <p><b>For the pasta sheets</b></p> <p>200g '00" flour 2 large eggs 50g parmesan, finely grated</p> <p><b>For the white sauce (béchamel)</b></p> <p>500ml milk 50g butter 50g plain flour Good grating of nutmeg</p>	<p>Digital scales Green chopping board Sharp vegetable knife Grater Saucepan x 2 Wooden spoons Measuring jug Lasagna pots/ramekins Pasta machine Spiral whisk Tin opener Rolling pin</p>

Don't forget to give amounts in grams (g) or millilitres (ml).



### Dish 2: Panna Cotta

Ingredients	Equipment
<p>2 1/2 sheets gelatine 150ml milk 400ml double cream 60g caster sugar 1 vanilla pod, split lengthways fresh strawberries, to serve strawberry compote, to serve</p>	<p>Digital scales Mixing bowls Saucepan Wooden spoon Dariole molds Green chopping board Sharp vegetable knife</p>

Don't forget to be specific with your equipment, e.g. don't just say 'chopping board'. State which colour you will use to show you know your food safety and hygiene.

Do the same for knives and equipment. Stating the specific or specialist equipment needed demonstrates greater knowledge of equipment and preparation.



Time	Method	Special points & contingences
8.30	<p><b>Mise en place:</b> Tie long hair up or wear a hair net. Wash hands in hot soapy water and dry with a paper towel. Wear a clean apron.</p> <p>Gather equipment and set work area up. Attach pasta machine to bench.</p> <p>Gather ingredients and weigh out ready using a digital scale or measuring spoons.</p> <p>Switch on blast chiller and pre-heat oven (180°C).</p>	<p>Refrigerate perishables (beef mince and dairy) until needed.</p> <p>Hand washing water should be <b>35-43°C</b></p> <p>Use a disposable towel to dry hands to prevent cross-contamination - NOT A TEA TOWEL!</p>
8.45	<p><b>Panna Cotta:</b> Bloom gelatine by soaking in a bowl of cold water for 5 minutes. Whilst it blooms, split the vanilla pod lengthways with a sharp knife on a green chopping board and remove seeds.</p> <p>Pour the milk and cream into a saucepan with the sugar and vanilla seeds. Stir to combine and bring to a simmer, then remove from the heat. Take the gelatine out of the cold water and squeeze out the excess, then add to the milk mixture. Stir until completely dissolved. Tip into four ramekins and place in the blast chiller to set for at least a couple of hours.</p>	<p>Scrape the vanilla pod with the back of the knife to remove seeds.</p> <p>Use knife safety skills to slice vanilla pod.</p> <p>Use powdered agar agar and coconut milk instead of cream for vegan/lactose free alternative.</p> <p>Use the blast chiller to speed up setting.</p>
9.00	<p><b>Lasagna:</b> Whilst the panna cotta sets, start the lasagna. Add tbsp oil and 500g beef mince to a saucepan and mix with a wooden spoon until browned over a medium heat. Finely chop the celery and carrot and add to the pan along with the crushed garlic. Sprinkle in the stock cubes and stir. Add the can of chopped tomatoes and leave to simmer for at least 30 minutes.</p> <p>Check on the panna cotta, it should have a slight wobble.</p>	<p>Swap beef mince for Quorn for vegetarian option.</p> <p>Turn pan handles in when using the hob.</p> <p>Visual checks of beef mince for spoilage before using and check the 'use by' date.</p>
9.20	<p>Make the pasta sheets by combining 200g '00' flour and 2 eggs. Add a drop of cold water and knead to make a smooth dough. Knead for at least 15 minutes. Once smooth, roll out using a rolling pin, then pass through the pasta machine starting with the widest setting.</p> <p>Check and stir the mince in the saucepan.</p>	<p>The pasta is the right thickness when you can almost see your hand through it. Don't make it too thin as it won't hold the weight of the layers. Use gluten free flour and xanthan gum for coeliacs.</p>
9.45	<p>Make the Bechamel sauce by making a roux from the butter and flour. Then gradually add the milk, whisking in each addition to prevent lumps. Once all the milk has been added, add the nutmeg.</p>	<p>Soya milk and cornflour can be used to make a lactose free sauce. Melt the butter gently to avoid burning.</p>

# What skill level can you work at?

Preparation Techniques		
High	Medium	Low
crimping	creaming	blending
laminating (pastry)	dehydrating	beating
melting using bain-marie	folding	grating
unmoulding	kneading	hydrating
whisking(aeration)	measuring	juicing
pipng	skinning	marinating
shaping	toasting(nuts/seeds)	melting
	weighing	mashing
	mixing	sieving
	puréeing	tenderising
	Rubbing in	zesting
	rolling	proving
		shredding

Knife Techniques		
High	Medium	Low
julienne	bâton	chopping
mincing	chiffonade	peeling
deboning	brunoise	trimming
filleting	dicing	
segmenting	slicing	
	deseeding	
	spatchcock	



Open Baked Alaska



Tropical Panna Cotta



Neapolitan Parfait



Baked Toffee Alaska



Vanilla custard tart served with mint sorbet and orange panna cotta



Mini éclairs with strawberry ravioli



Classic Lemon Tart



Strawberries and Cream



Brownie Tart

# What skill level can you work at?

Cooking Techniques		
High	Medium	Low
baking blind	baking	basting
caramelising	blanching	boiling
deep fat frying	braising	chilling
emulsifying	deglazing	cooling
poaching	frying	dehydrating
tempering	griddling	freezing
	pickling	grilling
	reduction	skimming
	roasting	toasting
	sautéing	
	setting	
	steaming	
	stir-frying	
	water-bath (sous-vide)	



Open Seabass Lasagne



Seared mackerel salad with pesto



Classic Fish and Chips



Seared seabass, squid ink risotto with tomato salad



Grilled Salmon Niçoise



Salmon and squid ink lasagne with sweetcorn purée and vanilla foam



Grilled trout fillet on a bed of pea purée with tomato reduction



Seabass with tomato cannelloni squid ink emulsion and sweetcorn fritter



Poached cod loin, puff pastry hamper, pea velouté and seasonal vegetables



Cream cheese and asparagus ravioli



Classic carbonara



Salmon and squid ink ravioli with vegetable pearls



Beetroot noodles served with tempura king prawns



Classic Meatballs



Pasta Arrabiata



Squid ink pasta served with seasonal greens



Pasta Bruschetta



Chicken, Lemon and Thyme Ravioli

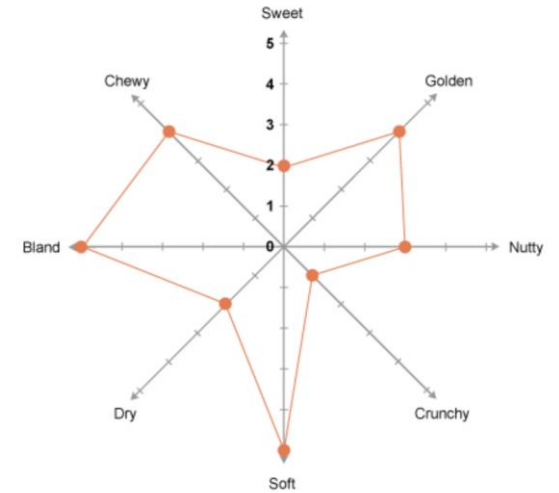
## Star diagrams and sensory analysis

Sensory evaluation is a scientific process that analyses and measures human responses to food and drink, e.g. appearance, touch, odour, texture, temperature and taste.

**Each desired aspect is rated according to this scale.**

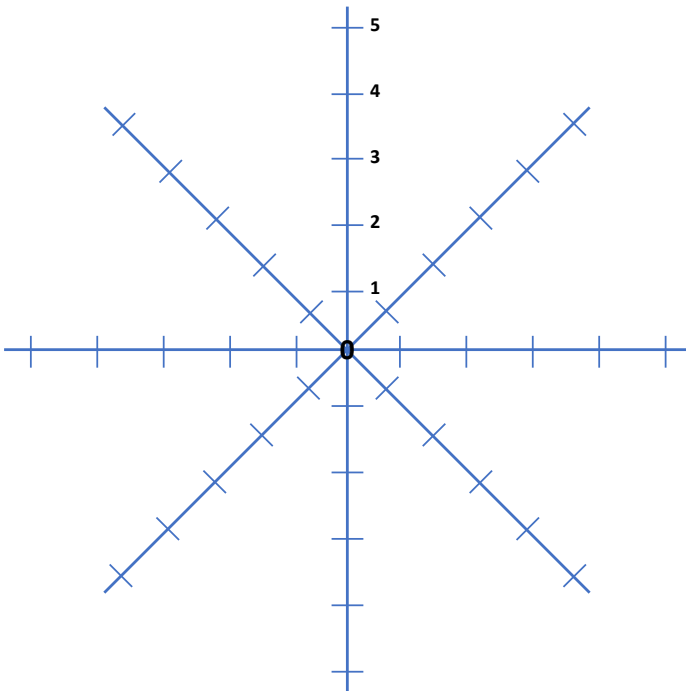
1. dislike a lot
2. dislike a little
3. neither like or dislike
4. like a little
5. like a lot

It is then put onto a star diagram like the one right.



Taste test both dishes and plot your results on the blank star profile diagrams below. You will need to decide the criteria for each axis of the diagram:

DISH 1:

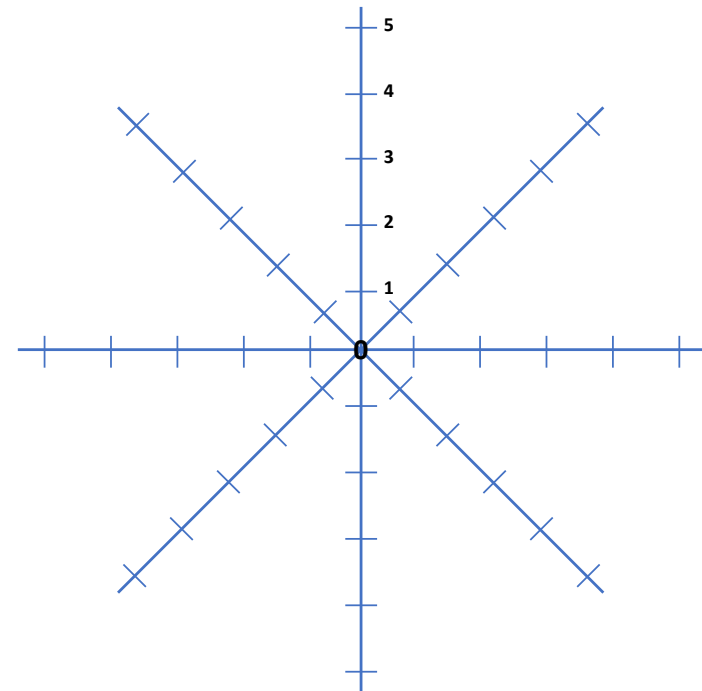


**DISH 1**

Use the sensory analysis descriptors (next slide) to fill this box with words to describe your dishes. This will help you when you come to write your evaluation:



DISH 2:

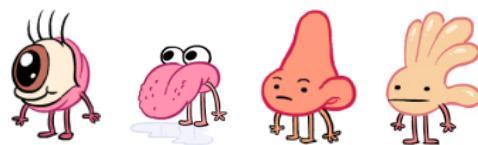


**DISH 2**

Use the sensory analysis descriptors (next slide) to fill this box with words to describe your dishes. This will help you when you come to write your evaluation:



## Sensory Descriptors



<b>C</b>	olour
<b>A</b>	pearance
<b>T</b>	exture
<b>FL</b>	avour
<b>A</b>	roma
<b>P</b>	roblems
<b>S</b>	uitability

**Colour:** even, golden, slightly dark, pale, rich, burnt, contrasts with..., deep, creamy, vibrant, fresh, dull

**Texture:** crisp, soft, doughy, spongy, gritty, short, chewy, greasy, creamy, crumbly, runny, rubbery, fibrous, pleasant, unpleasant, firm

**Aroma:** strong, delicate, highly fragranced, appealing, savoury, sweet fruity, appetising, unappetising, burnt

**Suitability:** Who is the dish suitable for? Does it meet the brief? Is the portion size correct - too big/too small? Can it be stored/reheated - how? Can the dish be easily adapted for allergies and intolerances - how?

**Appearance:** well risen, evenly browned, well sealed, smooth, rough, slightly lumpy, grainy, glossy, dull, appetising, unappealing, burned, even thickness, consistent

**Flavour:** salty, sweet, strong, contrasts well with, good balance of, delicate, combines well with, weak, bitter, sour, sharp, bland

**Problems:** unsuitable method, amounts/balance of ingredients, wrong/missing ingredients, oven temp or time, complicated method. How would you do it differently next time? Who is the dish not suitable for?

## Example: Quiche

The quiche was a **rich golden colour**, slightly **browned** on top. The flecks of mixed herbs were visible and some pieces of onion had just **over coloured** where they stuck out from the egg filling.

The pastry was **crisp and buttery**, of a **uniform thickness** and there was no **sogginess** in the base. The egg filling was **light and moist**.

On tasting, I found the onion flavour to be rather **strong** and **overpowered** the herbs. I could **reduce** the amount if I made it again.

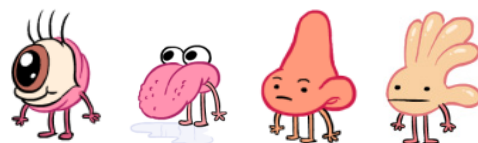
The overall aroma was of onion and herb, and they **combined well**.

There was no problem with the base as I **blind baked** the case before adding the filling to ensure it was **crisp**. The pastry was **difficult to handle** and **broke up** on rolling. I could put it in the **fridge for 20 minutes** to relax before rolling which might help.

The **slightly burned** onions may have been because the pieces were large and stuck out of the egg mixture before it was baked. I **should chop the onion finer** in future.

This quiche is suitable for serving 4 as a main course with vegetables or salad. It is not suitable for **freezing** as the egg mixture may separate, but it can be kept refrigerated for up to 3 days. **Reheating** works better in the oven rather than microwaving to keep the **pastry crisp**.

## Sentence Starters



My..... worked well because...

It tasted ...

I worked well in the lesson because...

It would be better if...

The aroma was...

The texture was...

The taste was ...

I had a problem with...

If I made this again I would...

The size could be better because...

It would look better if...

I was very happy with my work because...

The colour could be better by...

I needed help with...

The colour was ...

I found the practical work hard because...

The texture was...

I found it easy because...

## Key Questions

How can food waste be reduced? **Link to 2.2.1**

How did you manage portion control? **Link to 2.2.1**

How can the dish be adapted for special diets? **Link to 2.1.1/2.2.1**

How could you serve your dish differently to reduce cost/wastage/improve customer appeal? **Link to 2.2.1**



Evaluate yourself against the following criteria ...

Decision Making	Organisation/Time Management	Advantages/Disadvantages
Do the chosen dishes meet customer needs?	Did you work to your time plan?	What are the advantages of your chosen dishes to the customer?
How did you come to your decision?	Did any dishes take longer than expected? How could this time be shortened?	Do the dishes meet their needs?
Would you choose these two dishes again?	What did you do to manage your time well? E.g. mise en place	Can dishes be produced in bulk to speed up service time?
		Have you or could you include seasonal ingredients (better for the environment)?

Could your dishes be adapted to be:

allergen free	gluten free	dairy free
low fat	low salt	low sugar
halal friendly	kosher friendly	vegan/vegetarian