



Knowledge Organiser

**FOOD PREPARATION AND
NUTRITION**

Food Preparation and Nutrition



Food, Nutrition and Health Macronutrients	
Question:	Answer:
What are Macronutrients?	A type of food (e.g. fat, protein, carbohydrate) required in large amounts in the diet.
Why does are body needs protein?	Growth of all body cells and tissue Repair and maintenance of all body tissue Making hormones, enzymes and antibodies
What are the three protein alternatives?	Soya, Mycoprotein and quinoa
What are amino acids?	Basic components of all proteins
What is a HBVP?	A protein that contains all ten essential amino acids. High Biological value protein
What is a LBVP?	A protein that lacks one or more essential amino acid. Low biological value protein
Which foods are high biological value proteins?	Meat, fish dairy products and eggs
Which foods are low biological value proteins?	Beans, pulses, nuts, seeds and cereals
What is Kwashiorkor?	A type of malnutrition linked to lack of protein and energy.
Describe three functions of fat in the diet.	Making all blood cells Keeping the body warm Protecting vital organs Provide the Fat-Soluble vitamins A, D, E and K Provides the essential fatty acids
Name some sources of animal fat.	Butter, lard, beef, lamb, chicken, pork Oily fish – Tuna, salmon Yoghurts, hard cheese, cream and eggs
Name some sources of vegetable fat.	Olive, sunflower, rapeseed Avocados and olives Nuts Fat spreads
What are the two different types of fat?	Saturated fats Unsaturated fats
What are essential fatty acids?	Omega 3 and omega 6 are two polyunsaturated fatty acids that are very important for health. These must be eaten in the diet as the body cannot make them.
Why does are body need carbohydrates?	Energy needed for movement, growth and chemical reactions and processes.
What is meant by the term 'free sugar'?	Sugar which is added to food
What are hidden sugars?	Hidden sugars can be found in foods that you wouldn't expect sugar to be found including savoury foods.
Carbohydrates can be divided into three parts, what are they called?	Sugar, starches and dietary fibres.
What is the difference between high biological value protein and low biological value protein?	HBV protein is food that contains all the essential Amino acids and LBV protein that lack one or more of the essential amino acids.
Describe two products that are made from soya beans.	Tofu is made from soybeans that are ground in water, heated, and coagulated with minerals like calcium or magnesium salt. The curds are then pressed into a block, which is then sold as tofu . soya milk , is a plant-based drink produced by soaking and grinding soybeans , boiling the mixture, and filtering out remaining particulates.
What does the term protein complementation mean?	A combination of LBV protein foods to form a HBV protein meal.
What is the link between heart disease and fat?	Too much saturated fat in the diet has been linked to high blood cholesterol, which can increase the risk of heart disease. Too much bad cholesterol and saturates fat in the body can build up in arteries and cause heart disease.
Describe the role of cholesterol in the diet.	Cholesterol is a fatty substance that is needed by the body to make cell membranes and help with the digestion of fats. Cholesterol is carried around the body by proteins called Lipoproteins . There are two types of lipoprotein. <ul style="list-style-type: none"> • Low-density lipoprotein - 'bad cholesterol' • High-density lipoprotein - 'good cholesterol' Good cholesterol may help to protect against heart disease
What is the difference between a free sugar and a fruit sugar?	Free sugars are added to food or found outside the cell structure (e.g. Granulated sugar, icing sugar, treacle, syrup and honey). Fruit sugars are found naturally inside fruit and vegetables.
What is the difference between soluble and insoluble dietary fibre?	Insoluble fibres pass through the body mostly unchanged as it is undigested. Soluble fibres slow down the digestion and absorption of carbohydrates, so it helps to control blood sugar levels.

Micronutrients	
What are micronutrients?	The nutrient needed in small amounts. Vitamins and minerals
What is the name of the fat soluble vitamins?	A,D,E and K
What are Antioxidants?	Vitamin A,C and E which protects the cells from harmful substances.
What are the two types of vitamin A?	Retinol and Betacarotene. Retinol is a vitamin A from animal sources Bectacarotene is a Vitamin A from vegetable sources
What is a deficiency of iron known as?	Anaemia
What is a deficiency of vitamin D known as?	Rickets
What is calcium needed for?	Build strong and teeth Controlling muscle contraction including the heartbeat

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	Ensuring the blood clot normally
What is the function of iron?	Iron is stored in the liver Iron is needed to make red blood cells, which carry oxygen around the body.
What is Haem iron?	Iron which comes from animal sources
Why do vegans have a problem getting enough vitamin B12.	Main source of B12 comes from animals and vegans do not any animals' products.
How you can make sure water-soluble vitamins are retained during food.	Use a small amount of water when cooking vegetables to prevent water-soluble vitamins from dissolving. Avoid peeling fruit and vegetables because vitamins are found just under the skin. Avoid storing food in sunlight as UV light destroys vitamins Use the cooking water to make gravies, soups and sauces, to ensure vitamins are eaten.
Describe the effects of too much fluoride in the diet.	Too much fluoride in your diet can cause tooth decay. Staining and pits develop on the tooth.
Why is phosphorous important in the diet?	Works with calcium to maintains bones and teeth Releases energy from food
Describe two functions of water in the diet.	Cools the body by sweating, to prevent cell damage and overheating. Removes waste from the body
Describe two effects of a lack of water on the body	If you do not get enough water you feel thirsty and become dehydrated. You may have dark urine, less urine, experience a headache, lack of energy or light-headedness.
Which four factors affect the amount of water you need?	Health – fever can increase water loss. Vomiting and diarrhoea can cause high loss of fluids Age – young children need lots of water relative to their size because they are very active and have a higher surface area of skin compared to adults. Physically activity – during exercise the body sweats to cool down. The longer the exercise, the greater the demand to replace lost fluids. Environment – hot or humid weather increases sweat losses, heated indoor air can increase sweat and skin losses during the winter.

Nutritional needs and health	
What is the Eatwell guide?	The Eatwell guide shows the proportions in which different groups of foods can contribute to a healthy balanced diet.
Which food group is the largest on the Eatwell guide?	Food and vegetables Carbohydrates
Why are wholegrain cereals recommended for a healthy diet?	Wholegrain cereals are best as these increase the fibre in the diet
Which group of people who would need smaller meal portion sizes?	School children (5-12) and Young children (1-4) – their stomachs are small, so they cannot eat large meals.
Why are fibre and sufficient liquids so important for the elderly?	Dietary fibre and sufficient liquids are important to ensure the proper working of the digestive system to prevent constipation, diverticular disease and cancer of the bowel.
Why are large portion size a problem?	Large portion sizes encourage overeating which can lead to weight gain.
What can family with children do to reduce food bills?	Write a shopping list Lookout for special offers Plan meals in advance Shop towards the end of the day when price reduction is made on items close to their date mark. Food shopping online can be easier for families with children, to avoid 'Pester power' and impulse buying.
Which two groups of vegetarians do not eat eggs?	Lacto Vegetarians Vegans
Which foods should a coeliac avoid?	Bread Pasta Oats Rye
Why is a high- fibre diet is beneficial to health?	Helps prevent constipations Help to reduce cholesterol Helps to fill you up so you are less likely to overeat and become overweight.
Why does are body needs energy?	Breathing The function of internal organs and for digesting problems Activities such as walking, running, cycling and even sitting down
What PAL means and how it is calculated?	Physical activity level shows your daily activity levels as a number. PAL = Total energy expenditure (over 24 hours) ----- Basal metabolic rate (over 24 hours)
	Follow the eat well guide and do not overeat Reduce salt and sugar in your diet

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What can we do to our diet to help prevent cardiovascular disease?	People should not drink too much alcohol Regularly exercise
What can we do to reduce sugar consumption can?	Swapping sugary soft drinks for water and milk Have sugar free soft drinks Check your breakfast cereals as some are high in sugar
Which vitamin and mineral increase bone strength?	Calcium Vitamin D
Why do teenage girls need more iron than teenage boys?	Girls and woman who have heavy periods (menstruation) are at risk of this type of anaemia
What are the three risk factors for developing type 2 diabetes?	Overweight or obese Eat fatty, salty and sugary foods often Have high blood pressure You do not exercise

Food science	
Cooking of food and heat transfer	
Why we cook food?	Food is safe to eat Cooking improves flavour, appearance and smell of food Food is easier to chew and digest Cooking food extends its shelf life meaning it could be stored for longer
What are the three methods of heat transfer?	Conduction Convection Radiation
Describe three ways in which cooking affects the sensory qualities of food.	Texture – food can change from soft to firm Smell – appealing aroma Colour – chicken will turn from pink to white and brown. Bread dough will turn golden brown Size -food will shrink or rise Appearance
Describe how food is cooked by convection currents.	Convection is when heat travels through air or water. A convection current is the movement of heat in water or in air. Convection current happen because hot air rises and cool air falls Ovens are heated by convection currents Baking, boiling, poaching and steaming all use convection currents to transfer heat into food
Explain how heat travels when: A) Cooking with water B) Cooking with 'dry' heat conduction, when dry frying food e.g. Bacon in a frying pan. C) cooking with fat	A) heat will pass through water very quickly. It is transferred by conduction and convection currents. B) heat will pass through the air in convection current in the oven and as radiation from a grill or barbecue. C) Heat will pass through oil and fat by conduction or convection current
Describe three advantages and three disadvantages of cooking with water	Advantages <ul style="list-style-type: none"> Loss nutrient can be small Healthier as no fat is used Quick Disadvantages <ul style="list-style-type: none"> Some flavour and colour will be lost Vitamins can be lost Some cooking method requires skill
Describe three advantages and three disadvantages of cooking with dry heat.	Advantages <ul style="list-style-type: none"> Most vitamins and minerals are retained Aroma of the food improves Texture improves Disadvantages <ul style="list-style-type: none"> Some vitamins are lost due to intense heat Food can be over cooked Some food may lose their flavour and colour
Describe three advantages and three disadvantages of cooking with fat	Advantages <ul style="list-style-type: none"> Gives good texture to the food Most vitamins and mineral are retained Tenderises meat Disadvantages <ul style="list-style-type: none"> fat content of the food can increase Can overcook food Some vitamins can be lost due to the heat and long cooking time

Functional and chemical properties of food	
At what temperature does gelatinisation begin and ends?	The liquid is heated to 60c when gelatinisation begins and is completed until boiling point (100c)
Describe three factors that will affect gelatinisation	Amount of liquid – A small amount of starch in proportion to the liquid will produce a runny sauce. A large amount of starch in proportion to the liquid will produce a thicker sauce.

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	<p>Temperature – Hot, moist conditions are needed. Starch grains cannot thicken cool liquids.</p> <p>Stirring – essential for a smooth, gelatinised sauce.</p>
Which two starches molecules cause gelatinisation?	Amylose Amylopectin
How does dextrinization improve the flavour and colour of food?	Dextrinization is when dry heat turns a starch brown. It occurs when starch is broken down into dextrin by dry heat. Dextrin adds a sweet taste to baked products.
Describe what happens when moist or dry heat is applied to sugar.	Caramelisation occurs when heat is applied to sugar.
Why is shortening important in baked products?	Shortening gives biscuits, shortbread and pastries a crumbly texture. Prevents the flour from absorbing water and reduces the development of gluten.
Describe how air is added to a cake moisture when using the creaming method.	When fat and sugar are creamed together using a whisk or wooden spoon bubbles of air are enclosed in the mixture; this makes a stable foam baking gives the cake a springy.
Describe the two different types of emulsion.	Oil in water emulsion – This is formed when the amount of water is more than the amount of oil. Tiny droplets of oil are spread throughout the water. Water in oil emulsion – This is formed when the amount of oil or fat is more than the amount of water are spread through the fat and oil. Butter and fat spread are water in oil emulsion.
How does emulsifiers work.	An emulsifier has two parts. One part of the emulsifier attracts the water and one part attracts oil. This combination holds the oil and water together, so that they can combine to form a stable emulsion.
What causes enzymic browning in fruit and vegetables?	Over ripening Cutting Bruising Slicing
Describe two ways in which enzymic browning can be slowed down.	Refrigeration and chilling – all temperatures below 7c, enzyme activity slows down. Blanching – Boiling water denatures the enzymes.
Which vitamins are lost due to oxidation?	Water soluble vitamins B group and vitamin C
Describe two methods that will help to reduce oxidation in fruit and vegetables.	Reduce cooking time by using lids and saucepans. Minimise contact with air during preparation
What three gases do raising agents produce?	Air Steam Carbon dioxide
What is the name of two chemical raising agents?	Baking powder Bicarbonate soda
Describe four ways that air can be added to a mixture.	Whisking – high speed whisking traps air bubbles Sieving – traps air in flour Beating – Using a spoon air bubbles are trapped in a liquid Rubbing in – rubbing fat into flour
Describe three conditions required for yeast to ferment.	Warmth – 25 – 29c Food – Sugar Liquid – Water or Milk
Describe the two different types of yeast.	Fresh yeast is a firm, moist, cream coloured block that must be stored in a refrigerator. Dried yeast – takes the form of small granules of yeast, which will keep for many months.

Food Safety	
Micro-organism and enzymes	
What causes food spoilage?	When food is contaminated by yeast, moulds or bacteria, which makes the food unsafe or undesirable to eat.
What does Yeasts, moulds and bacteria need to grow?	Food, moisture, warmth and time.
What are yeasts?	Yeasts are tiny, single-celled fungi, which reproduce by budding.
What foods does yeasts spoil?	Jam, honey, fruit, yoghurt and fruit juices.
What does yeast need to ferment?	Sugar
What are moulds?	Moulds are tiny fungi that produce thread like filament. These filaments help the mould to spread around the food, extracting nutrients from it.
What are the bacteria called that causes food poisoning?	Pathogens or pathogenic bacteria.
What is the name of the yeast that best grows in the presence of oxygen?	Aerobic yeasts
What can be done to prevent mould from growing in bread?	By adding preservatives.
Which food additives stop mould growth?	Preservatives.
The signs of food spoilage	
what can be done to prevent enzymic browning when making either fresh fruit dessert or guacamole?	Add acid, example- vinegar, lemon.
How can yeast spoil food?	As yeasts ferment the sugars in certain foods, they produce alcohol and the gas carbon dioxide.
What does sterilised mean?	Heated to kill bacteria, yeasts and moulds.
What does pasteurised mean?	Heat treatment of food to kill most micro-organism.

Microorganism in food production	
Which two foods are produced by harmless bacteria?	Cheese and yoghurt.
What cheeses rely on mould for their colour and flavour?	Brie, camembert and stilton.
What is Monosodium glutamate?	Is a flavour enhancer, which is a type of a food additive.
Which foods use yeast in food production as a raising agent?	Bread, crumpets, doughnuts and currant buns.

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What is needed for soy sauce production?	Yeast and mould
What happens to milk as bacteria feeding on lactose sugar form lactic acid?	It goes sour

Bacterial contamination	
Which food is a source of salmonella bacteria?	Egg and raw chicken
What is pest contamination caused by?	Cockroaches, rats and flies.
What is E.coli?	A kind of bacteria responsible for food poisoning
Listeria is linked to which food?	Unpasteurised milk
What is a common source of campylobacter is?	Animals
When should the kitchen bin be emptied?	Everyday
What does the lion mark on an egg mean?	The hen has been vaccinated against salmonella and has a best before date.
When do symptoms of food poisoning appear?	Between 1 hour and 5 days.
What group of people can have serious effects of food poisoning?	Babies and very young children Pregnant women Elderly people Those with reduce immunity (due to illness or medical treatment).
What are the symptoms of food poisoning?	Vomiting Diarrhoea Nausea Stomach pains Dehydration
What is anti-bacterial spray?	Clear spray that kills 99.9% of bacteria.

Food Choices	
Factors affecting food choices	
What does PAL stand for?	Physical activity level
What may influence food choices?	Celebration/occasions Cost of food PAL Healthy eating Income/cost Lifestyles Seasonality Time available to prepare/cook Enjoyment
State one food that each of the following will not eat. Jews Hindus Muslims	Jews –shellfish and pork Hindus – beef Muslims – pork
Which foods should a person with lactose intolerant avoid?	Dairy products and foods that contain dairy.
What are the symptoms of an allergic reaction?	Rash Itchy skin, eyes and mouth Swollen lips, face, eyes Difficulties in breathing
What are the advantages of eating foods in season?	Plentiful and therefore often cheaper Locally produced Fresher
What social change has had an impact on food choices.	Children – parents working Increase in people living alone People working longer hours and travelling longer distances to work.
What does food intolerance mean?	Sensitivity to some foods
What is lactose?	Sugar naturally found in milk
What is coeliac disease?	Bowl disease; sensitivity to gluten
Traditional British cuisine	
What is the definition of cuisine?	Cuisine is a style of food characteristics to a particular country or region.
What vegetables are grown in Britain?	Potatoes, onions, leeks, sprouts, peas and beans
What fruits are traditional grown in Britain?	Apple, strawberries, plums and rhubarb
What traditional herbs are grown in Britain?	Mint, chives and sage
What is the name of the traditional fish caught in Britain?	Mackerel, cod, haddock and salmon
What are the names of the popular traditional British sweet dish?	Pastries, fruit crumbles, custard, bread and butter pudding, Victoria sponge cake, scones and steamed puddings.

Sensory evaluation	
What is a sensory evaluation?	When you eat food, you are judging the: Appearance taste texture/mouthfeel consistency smell or aroma
What are the names of the four taste buds?	Sweet, salt, sour and bitter
What is the fifth taste bud called?	Umami
What is the name of the test that requires trained food tasters.	Triangle test and profiling test
How long should you wait between tasting each sample?	30 seconds

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Food Labelling	
Why are food labels important to a consumer?	It contains information provided by food businesses about their products and covers all food that is sold in shops, cafes, restaurants and other catering establishments.
What information must be on a food packaging by law?	The name of the food Ingredients Allergens Weight/volume Date Storage information Name and address of the food manufacturer Country of origin Instructions for use The alcoholic strength by volume (If required) Nutritional information
What does allergen mean?	Allergen is a substance that may cause an allergic reaction.
What is reference intake (RI)?	Is a guide to the maximum amount of fat, saturates, sugar and salt that an adult should eat each day.
What does marketing mean?	Marketing is identifying consumers' needs and wants and using that information to supply consumers with products that match their needs and wants.
What are the different ways a supermarket can promote a new product range?	<ul style="list-style-type: none"> • Buy one get one free • Special offers • Free samples • Product placement – eye level • Meal deals • Loyalty cards

Food provenance	
What is seasonal food?	Foods that are only available at certain times of the year.
What are the advantages of buying seasonal ingredients?	<ul style="list-style-type: none"> • Food miles will be low and will support local farms • Healthier because it is fresher – it's not travelled across the world spending time in transport and storage • Food in season are often plentiful and therefore cheaper
Why would consumers choose to buy food with the RSPCA assured label?	RSPCA food label indicates that the animal has had good life and it has been treated with compassion and respect.
What is the name of a sustainable method of egg production?	Barn eggs – these refer to the barns where hens are kept, with plenty of space, perches and nest boxes. Free range – this means the hens have access to an outside area
What types of fish are sustainable?	<ul style="list-style-type: none"> • Cod • Crab • Haddock • Hake • Salmon • Shrimp/prawn • Lobster
Explain the advantages of buying locally produced fruits, vegetables and meat.	Less food miles Foods fresher Healthier Supporting the local farms
What is free range production?	Free range – this means the hens have access to an outside area, rather than being restricted to an enclosure for 24 hours each day. Animals farmed using free range production methods include pigs, grass fed beef, laying hens, chicken and turkey.
What is meant by the term genetically modified food?	Food produced from plants or animals that have had their genetic information changed.
What are the benefits of genetically modified food?	<ul style="list-style-type: none"> • GM foods are cheaper in the long run • Fresher for longer, so extends its shelf life • GM foods can be developed large amount of specific nutrients
What is food security?	When all people always have access to enough safe and nutritious food for them to lead an active healthy life.
What problems are associated with genetically modified food?	<ul style="list-style-type: none"> • GM technology can affect animal habitats. • The pollen from GM crops could mix with wild plants. This could affect the natural species in the long term. • Some GM foods are modified using bacteria and viruses, so there is a fear that new diseases will develop.
What is the red tractor food assurance scheme?	The red tractor is a food assurance scheme which covers production standards such as safety, hygiene, animal welfare and the environment.

Practical Skills	
What equipment is used for weighing and measuring?	Digital/ electronic kitchen scales Measuring jugs Measuring cups Measuring spoons
How can you check if food is cooked?	Temperature probe Skewer – to check if cakes are cooked Finger/ poke test – check small cakes, smaller cuts of meat

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	Visual colour check Taste test – pasta should be al dente
What are garnishes?	Decorations on savoury food
What equipment can be used to portion food?	A scoop – ice cream or mash potato Individual pie dish
What are the names of the five different types of knives?	Filleting knife Cook's knife Paring knife/vegetables knife Carving knife
What other equipment can you use for cutting?	A corer A peeler
What are different colour chopping boards used for?	Green – salad and fruit Brown – vegetables Red – meat and chicken Blue – fish Yellow – cooked meats White – bread and dairy products
What are two techniques for holding and cutting fruit and vegetables?	Bridge and claw technique
What are the names of the 4 different vegetable cuts?	Julienne – cutting vegetables into matchsticks strips Brunoise – cutting vegetables into tiny dice from julienne strips Macedoine – cutting vegetables into medium dice Jardinier – cutting vegetables into battons
What is a fish fillet?	Cut of a fish that is free from bones
What is a rind?	Outside skin of bacon and gammon.
Name the different types of garnishes.	Fanning Scoring with fork Twists Ribbons Curls
What are the different methods of grilling?	Grilling under heat Using a char grill Barbecuing
What are the different uses of an oven?	Baking Roasting casseroles tagines Braising
What are the names of the different types of blenders?	Liquidiser Smoothie maker Hand blender Soup maker
What is water-based methods using the hob?	Boiling Steaming Poaching Simmering Blanching
What food is for suitable for grilling?	Meat Vegetables Fish Halloumi Seeds and nuts Breads