

# GCSE Food Preparation and Nutrition

## Core Knowledge Book



**Name:** .....

**Teacher:** .....

**Group:** .....



# GCSE Food Preparation and Nutrition Core Questions

## Set 1: Principles of Nutrition

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Q No.	Question	Answer
1.	Define the term nutrient.	The chemicals found in food which give the body nourishment and are needed to maintain life.
2.	Define the term macronutrient.	A class of nutrients which the body requires in large amounts – measured in g (gram).
3.	What are the three groups of macronutrients?	Carbohydrates, proteins and fats.
4.	Define the term micronutrient.	A class of nutrients which the body requires in small amounts – measured in mg (milligram) or µg (microgram).
5.	Other than nutrients, what else does the body need?	Water and fibre.
6.	What is the function of carbohydrates in our diet?	For energy.
7.	What process in plants produces energy from water and carbon dioxide?	Photosynthesis.
8.	What type of carbohydrate are the simple sugars glucose and fructose?	Monosaccharide.
9.	Sucrose is an example of what type of carbohydrate, made from two sugar molecules joined together?	Disaccharide.
10.	Name the three types of polysaccharide.	Starch, and the non-starch polysaccharides, pectin and cellulose.
11.	What other nutrients do starchy carbohydrates provide the body with?	Protein, calcium, iron, B vitamins and fibre.
12.	Why is sugar sometimes referred to as “empty calories”?	It has no nutritional value other than providing energy.
13.	What health conditions can a diet high in sugar cause?	Obesity, type 2 diabetes, heart disease, some cancers and tooth decay.
14.	What are the effects of eating too much carbohydrate?	Excess carbohydrates are stored as glucose in the liver and muscle cells and eventually converted into fat cells.
15.	What are the effects of eating too little carbohydrate?	Short term: feeling hungry, weak or tired. Longer term: stored fats and eventually protein is digested to provide energy.

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16.	Why do starchy foods make a better energy source than sugar?	Energy is released more slowly and steadily from starch foods as they contain slow release carbohydrate, whereas sugars are fast release carbohydrates.	
17.	What fraction of the diet should be from starch carbohydrates?	1/3.	
18.	What are intrinsic and extrinsic sugars.	Intrinsic sugars are found naturally in foods, such as fruit. Extrinsic sugars are added to food.	
19.	What is the maximum amount of sugar recommended for children aged 4-6, 7-10 and adults and children over 11?	4-6 – 19g 7-10 – 24g Adults and children over 11 – 30g	
	What are the three main functions (other than to provide energy) of proteins.	Growth, repair and maintenance of cells.	
20.	What are the main animal sources of protein in our diet?	Meat, dairy, fish, eggs.	
21.	What are the main plant sources of protein in our diet?	Cereals, nuts, pulses and seeds.	
22.	What are proteins made of?	Amino acids.	
23.	What are essential amino acids.	Amino acids which our bodies cannot manufacture, so we must get them through our diet.	
24.	Name two essential amino acids.	Histidine, isoleucine, lysine, leucine, methionine, phenylalanine, threonine, tryptophan, valine.	
25.	What are non-essential amino acids.	Amino acids we can make inside our bodies.	
26.	Name two non-essential amino acids.	Alanine, asparagine, aspartic acid, glutamic acid.	
27.	What are HBV proteins?	High Biological Value proteins – they contain all the essential amino acids.	
28.	Which foods contain HBV proteins?	Animal sources of protein as well as meat substitutes (tofu, Quorn and TVP) and the cereal quinoa.	
29.	What are LBV proteins?	Low Biological Value proteins – they contain some, but not all the essential amino acids.	
30.	Which foods contain LBV proteins?	Seeds, nuts, beans, legumes and cereals.	
31.	What are the dietary reference values for proteins for the following ages of people?	1-3 year olds	15g
		4-6 year olds	20g
		7-10 year olds	28g
		11-14 year olds	42g
		15-50 year olds	55g
		Over 50s	53g
32.	What are the consequences of not eating enough protein (malnutrition)?	Wasting of muscle tissue, oedema (fluid retention, mainly in feet and ankles), anaemia, slow growth, kwashiorkor	
33.	What is kwashiorkor?	A severe case of lack of protein in the diet as a result of starvation – fluids build up in the stomach (oedema), causing a pot belly, fragile bones and failure to grow.	

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34.	What does the term complementary proteins mean? Give an example.	When we combine two or more LBV protein foods, so that all the essential amino acids are consumed. Examples: beans on toast, pitta and hummus, dhal and rice.
35.	Other than providing energy what functions do fats perform in the body?	<ol style="list-style-type: none"> <li>1. Insulates the body.</li> <li>2. Protects the vital organs</li> <li>3. Carries fat-soluble vitamins (A, D, E &amp; K) into the body.</li> <li>4. Used in producing hormones.</li> <li>5. Contains essential fatty acids which the body needs to grow and function.</li> </ol>
36.	What are the two main types of fats?	Saturated and unsaturated.
37.	What are the health risks associated with saturated fats?	Can raise blood cholesterol leading to coronary heart disease.
38.	What foods contain saturated fats?	Lard, butter, full fat dairy foods, the visible fat on meat, processed foods, including sausages, burgers, pastries, cakes and biscuits. Also block margarine, palm oil and coconut oil.
39.	Why are unsaturated fats healthier for us?	They promote the healthier type of cholesterol (HDL)
40.	What foods are monounsaturated fats found in?	Olive and rapeseed oils, almonds, hazelnuts, peanuts and avocados.
41.	What foods are polyunsaturated fats found in?	Sunflower, corn, soya and sesame oils, whole grains and seeds, nuts, fruit and vegetables.
42.	What are essential fatty acids.	Substances in fats which are needed in the body, but which the body cannot make enough of.
43.	Name two essential fatty acids.	<ol style="list-style-type: none"> <li>1. Omega-3</li> <li>2. Omega-6</li> </ol>
44.	In which foods is each found?	<ol style="list-style-type: none"> <li>1. Omega-3 – oily fish (salmon, herring, mackerel, trout, sardine), walnuts, soya and rapeseed oils.</li> <li>2. Omega-6 – poultry, eggs, nuts cereals, vegetable oils.</li> </ol>
45.	What are the health benefits of Omega-3.	Omega-3 – prevents blood from clotting, keeps the heart rhythm regular and improves our chances of survival after a heart attack.
46.	What fraction of our energy should come from fat?	1/3.
47.	What are the consequences of a diet too low in fat?	May develop vitamin deficiency of the fat-soluble vitamins A, D E and K.
48.	What are the risks of a diet that is too high in fat?	The body will gain weight. Extra fat is stored in fat cells and if it is saturated fat it can lead to an increased risk of heart disease.
49.	What are vitamins?	Vitamins are essential nutrients the body needs in tiny amounts (mg or µg) in order to function properly.
50.	Which vitamins are fat soluble?	Vitamins A, D, E and K.

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51.	Which food supply us with fat-soluble vitamins?			Fatty foods and animal products (dairy, eggs, liver, oily fish, vegetable oils)		
52.	Why don't we need to eat fat-soluble vitamins every day?			They can be stored in the liver and fatty tissue.		
53.	Which vitamins are water soluble?			B Vitamins and vitamin C.		
54.	Which food supply us with water-soluble vitamins?			Fruit, vegetables, dairy and cereals.		
55.	How can we prevent the loss of water-soluble vitamins in food preparation?			<ol style="list-style-type: none"> <li>1. Limit the amount of water used in cooking vegetables, e.g. steaming.</li> <li>2. Using cooking liquid to make sauces.</li> <li>3. Eating vegetable raw.</li> </ol>		
	Group	Micro-nutrient	Function in the diet	Main sources	Consequences of malnutrition – under	Consequences of malnutrition – over
56.	Fat-soluble vitamins	Vitamin A	<ul style="list-style-type: none"> <li>• Keeps the immune system healthy.</li> <li>• Helps us see in the dark.</li> </ul>	<ul style="list-style-type: none"> <li>• Dairy, eggs, oily fish.</li> <li>• Yellow, red and leafy vegetables.</li> <li>• Yellow fruit.</li> </ul>	<ul style="list-style-type: none"> <li>• Night blindness</li> <li>• Reduce ability to fight infections</li> <li>• Limit growth in children</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced bone health</li> <li>• Birth defects.</li> </ul>
57.		Vitamin D	<ul style="list-style-type: none"> <li>• Strong bones and teeth.</li> </ul>	<ul style="list-style-type: none"> <li>• Oily fish, eggs, liver, fortified foods.</li> <li>• Sunlight.</li> </ul>	<ul style="list-style-type: none"> <li>• Rickets</li> </ul>	<ul style="list-style-type: none"> <li>• Hypercalcaemia</li> </ul>
58.	Water-soluble vitamins	Vitamin B1 (Thiamine)	<ul style="list-style-type: none"> <li>• Releases energy from carbs</li> <li>• Keeps nervous system healthy</li> <li>• Helps growth in childhood</li> </ul>	<ul style="list-style-type: none"> <li>• Red meat, liver</li> <li>• Whole grain cereals</li> <li>• Yeast &amp; yeast extract</li> <li>• Dairy products</li> <li>• Eggs</li> <li>• Fresh and dried fruits</li> <li>• Seeds, nuts and beans</li> <li>• Fortified breakfast cereals and wheat products</li> </ul>	<ul style="list-style-type: none"> <li>• Beri beri – a muscle wasting disease – in developing countries where white rice is a staple food.</li> <li>• Beri-beri in alcoholics</li> </ul>	<ul style="list-style-type: none"> <li>• Headaches and insomnia.</li> </ul>
59.		Vitamin B2 (riboflavin)	<ul style="list-style-type: none"> <li>• Releases energy from food</li> <li>• Keeps eyes, skin and nervous system healthy</li> <li>• Helps growth in childhood</li> </ul>	<ul style="list-style-type: none"> <li>• Red meat</li> <li>• Yeast &amp; yeast extract</li> <li>• Dairy products</li> <li>• Eggs</li> <li>• Rice</li> <li>• Mushrooms</li> <li>• Fortified breakfast cereals and wheat products</li> </ul>	<ul style="list-style-type: none"> <li>• Swollen tongue, dry skin, sores around mouth</li> </ul>	<ul style="list-style-type: none"> <li>• Rarely can increase risk of kidney stones</li> </ul>
60.		Vitamin B3 (Niacin)	<ul style="list-style-type: none"> <li>• Releases energy from food</li> <li>• Keeps skin and nervous system healthy</li> </ul>	<ul style="list-style-type: none"> <li>• Red meat</li> <li>• Whole grain cereals</li> <li>• Yeast &amp; yeast extract</li> <li>• Dairy products</li> </ul>	<ul style="list-style-type: none"> <li>• Rarely, pellagra</li> </ul>	<ul style="list-style-type: none"> <li>• Over a long period can lead to liver damage</li> </ul>

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	Water-soluble vitamins		<ul style="list-style-type: none"> <li>• Helps lower level of fat in blood</li> </ul>	<ul style="list-style-type: none"> <li>• Eggs</li> <li>• Seeds, nuts and beans</li> <li>• Fortified breakfast cereals and wheat products</li> </ul>		
61.		Vitamin B12 (Cobalamin)	<ul style="list-style-type: none"> <li>• Making red blood cells</li> <li>• Keeping nervous system healthy</li> <li>• Releasing energy from food</li> <li>• Processing folic acid</li> </ul>	<ul style="list-style-type: none"> <li>• Liver, meat</li> <li>• Fish</li> <li>• Milk, cheese</li> <li>• Eggs</li> <li>• Fortified breakfast cereal</li> <li>• yeast</li> </ul>	<ul style="list-style-type: none"> <li>• Pernicious anaemia</li> <li>• Fatigue and depression</li> <li>• Long term deficiency can damage the brain and nervous system</li> <li>• Vegans must supplement their diet</li> </ul>	<ul style="list-style-type: none"> <li>• No toxic side effects</li> </ul>
62.		Vitamin B9 (Folic acid)	<ul style="list-style-type: none"> <li>• Releasing energy from food (protein)With vitamin B12 helps for red blood cells</li> <li>• Reduce development of spina bifida in babies</li> </ul>	<ul style="list-style-type: none"> <li>• Green leafy veg</li> <li>• Liver</li> <li>• Potatoes</li> <li>• Beans, seeds, nuts</li> <li>• Whole grain cereals</li> <li>• Oranges, berries, yeast extract</li> </ul>	<ul style="list-style-type: none"> <li>• Can cause spina bifida in the unborn child</li> <li>• Type of anaemia</li> </ul>	<ul style="list-style-type: none"> <li>• Stomach problems, trouble sleeping, skin reactions</li> </ul>
63.		Vitamin C	<ul style="list-style-type: none"> <li>• Helps the body absorb iron</li> <li>• Needed to make collagen (in whole body – provides strength and structure in bones, muscles, skin and tendons).</li> <li>• Prevents infections</li> <li>• Helps heal wounds</li> </ul>	<ul style="list-style-type: none"> <li>• Fruits, especially citrus fruits</li> <li>• Dark green vegetables</li> <li>• Potatoes</li> </ul>	<ul style="list-style-type: none"> <li>• Scurvy (very rare now) – bleeding gums, wounds not healing and tiredness.</li> <li>• Iron deficiency anaemia</li> </ul>	<ul style="list-style-type: none"> <li>• Passed out in urine.</li> </ul>
64.	What are minerals?			Minerals are micronutrients the body needs in tiny amounts (mg or µg) in order to function properly.		
	Group	Micro-nutrient	Function in the diet	Main sources	Consequences of malnutrition - under	Consequences of malnutrition - over
65.	Minerals	Calcium	<ul style="list-style-type: none"> <li>• To form and strengthen bones and teeth</li> <li>• For blood clotting</li> </ul>	<ul style="list-style-type: none"> <li>• Dairy</li> <li>• Green, leafy vegetables</li> <li>• Bread – white flour and its products must, by law, be fortified with calcium</li> </ul>	<ul style="list-style-type: none"> <li>• Rickets</li> <li>• Osteoporosis</li> </ul>	<ul style="list-style-type: none"> <li>• Stomach pain and diarrhoea</li> <li>• Calcium build up in the kidneys can be fatal</li> </ul>

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				<ul style="list-style-type: none"> <li>• Whole grain cereals</li> <li>• Fish with edible bones</li> </ul>		
66.		Iron	<ul style="list-style-type: none"> <li>• Helps make haemoglobin in red blood cells, which carries oxygen around the body</li> </ul>	<ul style="list-style-type: none"> <li>• Red meat and offal</li> <li>• Whole grain cereals</li> <li>• Green leafy vegetables</li> <li>• Fortified breakfast cereals</li> </ul>	<ul style="list-style-type: none"> <li>• Anaemia-symptoms are being tired, weak and pale</li> </ul>	<ul style="list-style-type: none"> <li>• Constipation, vomiting, nausea, constipation</li> </ul>
67.		Potassium	<ul style="list-style-type: none"> <li>• Helps to build strong bones</li> <li>• Important for energy release and other metabolic processes</li> </ul>	<ul style="list-style-type: none"> <li>• Fruit and vegetables</li> <li>• Pulses, nuts and seeds</li> <li>• Fish, shellfish</li> <li>• Beef</li> <li>• Chicken, turkey</li> </ul>	<ul style="list-style-type: none"> <li>• Diarrhoea</li> <li>• Heart failure</li> </ul>	<ul style="list-style-type: none"> <li>• Stomach pain, nausea, diarrhoea</li> </ul>
68.		Magnesium	<ul style="list-style-type: none"> <li>• Bone development</li> <li>• Helps nervous system work properly</li> <li>• Important for energy release</li> </ul>	<ul style="list-style-type: none"> <li>• Meat</li> <li>• Fish</li> <li>• Dairy</li> <li>• Nuts, seeds</li> <li>• Whole grain cereals</li> <li>• Green leafy vegetables</li> </ul>	<ul style="list-style-type: none"> <li>• Nausea, loss of appetite, vomiting, fatigue</li> <li>• May cause high blood pressure and heart disease</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
69.	What does the term complementary action of nutrients mean? Give an example.			Some nutrients work together to improve the way the nutrients are absorbed. Eg - Vitamin C and iron are complementary – a bowl of cereal topped with fruit. Eg – vitamin D helps us absorb calcium – macaroni and cheese		
70.	What are trace elements?			Micronutrients which are needed for the body to function properly, but in much smaller amounts than vitamins and minerals.		
	Group	Micro-nutrient	Function in the diet	Main sources	Consequences of malnutrition - under	Consequences of malnutrition - over
71.	Trace elements	Iodine	<ul style="list-style-type: none"> <li>• Helps make the thyroid hormone which controls growth</li> </ul>	<ul style="list-style-type: none"> <li>• Sea fish, shellfish, seaweed</li> <li>• Dairy</li> <li>• Plant foods</li> </ul>	<ul style="list-style-type: none"> <li>• Goitre – enlargement of the thyroid gland</li> </ul>	<ul style="list-style-type: none"> <li>• Can affect the growth</li> </ul>
72.		Flourine	<ul style="list-style-type: none"> <li>• Helps harden tooth enamel, preventing tooth decay</li> </ul>	<ul style="list-style-type: none"> <li>• Tea</li> <li>• Fish</li> <li>• Vegetables</li> <li>• Added to drinking water in some parts of the UK and to toothpaste</li> </ul>	<ul style="list-style-type: none"> <li>• Tooth decay</li> </ul>	<ul style="list-style-type: none"> <li>• Discolouration of teeth</li> </ul>
73.	Dietary fibre is also called NSP. What does this stand for?			Non-starch polysaccharide.		
74.	What does the term insoluble fibre mean?			It is not digested and absorbed by the body but passes through as roughage.		



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## Set 1: Principles of Nutrition

75.	What is a possible health benefit of soluble fibre?	It may help reduce the level of cholesterol in the blood and guard against coronary heart disease.
76.	Why do we need dietary fibre?	<ol style="list-style-type: none"> <li>1. It makes us feel fuller for longer.</li> <li>2. It keeps the bowel healthy and makes stools easier to pass.</li> <li>3. Prevents constipation, haemorrhoids (piles), diverticulitis, some cancers, type 2 diabetes.</li> </ol>
77.	What are the possible effects of too little fibre in the diet?	Constipation, haemorrhoids, diverticulitis and cancer.
78.	What are the possible effects of too much fibre in the diet?	Feeling bloated, having stomach cramps or flatulence. Can deprive the body of some minerals and may lead to diarrhoea.
79.	What is the recommended fibre intake for: a) children aged 2-5, b) children aged 5-11, c) children aged 11-16 and d) adults and children over 11?	<ol style="list-style-type: none"> <li>a) 15g</li> <li>b) 20g</li> <li>c) 25g</li> <li>d) 30g</li> </ol>
80.	What are the sources of insoluble fibre in the diet?	Whole grain cereals, wholemeal bread, fruit and vegetables.
81.	What are the sources of insoluble fibre in the diet?	Oats, barley, rye, most legumes, fruit and root vegetables.
82.	List three functions of water in the body.	<ol style="list-style-type: none"> <li>1. Transporting nutrients in the blood.</li> <li>2. Removing waste products.</li> <li>3. Regulating body temperature (sweating)</li> <li>4. Helping digestion and preventing constipation</li> <li>5. Acting as a lubricant and shock absorber in our joints.</li> </ol>
83.	Where do we get water in our diet?	Water, all other fluids – milk, tea, coffee, soup, juice, soft drinks.
84.	How much water do we need in our diet?	Depends on body size, metabolism, climate, the food we eat and our activity levels.
85.	What happens if we consume too little water?	<ul style="list-style-type: none"> <li>• Dehydration – thirst, dry sticky mouth, tiredness, dizziness, losing concentration and headaches.</li> <li>• Can increase the risk of kidney stones and bladder infections.</li> </ul>
86.	What happens if we consume too much water?	<ul style="list-style-type: none"> <li>• Very rare, but can cause hyponatremia, which can lead to seizures and coma.</li> </ul>

## GCSE Food Preparation and Nutrition Core Questions

### Set 2: The Function of Ingredients (Commodities)

Ingredient	Function
Meat and Poultry	<ul style="list-style-type: none"> <li>• Protein for growth and repair</li> <li>• Contains saturated fat</li> <li>• Fat provides flavour in the meat</li> <li>• High in iron</li> <li>• B vitamins</li> </ul>
Fish and Seafood	<ul style="list-style-type: none"> <li>• Protein for growth and repair</li> <li>• Essential fatty acids</li> <li>• Low in calories</li> <li>• Minerals – iron, zinc, iodine and selenium</li> <li>• High in vitamins A and D</li> </ul>
Eggs	<ul style="list-style-type: none"> <li>• Adds colour</li> <li>• Adds flavour</li> <li>• Holds air when whisked</li> <li>• Binds ingredients together</li> <li>• Coagulates / sets mixtures</li> <li>• Enriching, thickening</li> <li>• Glazing</li> <li>• Coating / enrobing</li> <li>• Adds to the nutritional value</li> </ul>
Flour	<ul style="list-style-type: none"> <li>• Forms the main structure of a product due to its gluten content.</li> <li>• Adds bulk</li> <li>• Self raising flour contains a raising agent</li> <li>• If wholemeal – provides fibre</li> <li>• Gelatinises in liquids (thickens sauces)</li> </ul>
<b>Fats:-</b> Butter Margarine Lard Oil Veg white fat	<ul style="list-style-type: none"> <li>• Adds colour and flavour if butter or margarine is used</li> <li>• Holds air bubbles during mixing to create texture and volume</li> <li>• Helps to extend shelf life.</li> <li>• To shorten a flour mixture to make it crisp or crumbly in texture</li> <li>• Frying / sautéing</li> <li>• To form emulsions (salad dressing)</li> <li>• Binds ingredients</li> </ul>
Sugar	<ul style="list-style-type: none"> <li>• Sweetens</li> <li>• Increases bulk</li> <li>• Develops flavour</li> <li>• Holds air</li> <li>• Acts as a preservative (jam)</li> <li>• Aids fermentation (bread)</li> </ul>
Salt	<ul style="list-style-type: none"> <li>• Helps develop flavour</li> <li>• Strengthen gluten in flour</li> <li>• Controls the action of yeast</li> <li>• Used as a preservative (dried/salted meat / fish)</li> </ul>

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### Set 2: The Function of Ingredients (Commodities)

Fruit and vegetables	<ul style="list-style-type: none"> <li>• Adds fibre</li> <li>• Adds colour and flavour</li> <li>• Adds texture</li> <li>• Thickens when puréed</li> <li>• Adds nutritional value (mention which vitamins)</li> <li>• To garnish</li> </ul>
Herbs and spices	<ul style="list-style-type: none"> <li>• To improve and add flavour</li> <li>• To garnish</li> </ul>
Gelatine	<ul style="list-style-type: none"> <li>• To set liquids (jelly)</li> </ul>
Chocolate, icings	<ul style="list-style-type: none"> <li>• To coat or decorate</li> </ul>
<b>Dairy:-</b> Milk Cream Cheese Yoghurt Fromage Frais etc	<ul style="list-style-type: none"> <li>• High in fat (unless using the low fat version)</li> <li>• High in protein</li> <li>• Vitamins A and D</li> <li>• Calcium</li> <li>• Adds texture</li> <li>• Adds volume</li> <li>• Adds flavour</li> </ul>
<b>Starchy foods (all cereals):-</b> Rice Pasta Noodles Couscous Maize (corn) Oats Breakfast cereals	<ul style="list-style-type: none"> <li>• Provides slow released energy</li> <li>• Wholegrain versions are high in fibre</li> <li>• High in B vitamins</li> <li>• Provides the main source of starch in a meal.</li> </ul>
<b>Pulses:-</b> Lentils Peas Beans Chick peas	<ul style="list-style-type: none"> <li>• Adds protein</li> <li>• Adds fibre</li> <li>• Adds texture</li> <li>• Absorbs flavour</li> </ul>
Baking powder	<ul style="list-style-type: none"> <li>• To act as a raising agent</li> </ul>
Yeast	<ul style="list-style-type: none"> <li>• Acts as a raising agent</li> <li>• Sometimes adds flavour</li> </ul>

## GCSE Food Preparation and Nutrition Core Questions

### Set 3 Diet and good health

	<b>Questions</b>	<b>Answers</b>
1.	What does RI stand for?	Recommended Intake: of nutrition on labels.
2.	What does EAR stand for?	Estimated Average Requirements of nutrition.
3.	What is BMI?	Basic Metabolic Index: measured by age, weight and height. 19-24 healthy range.
4.	What is malnutrition?	Enough food in diet but not enough nutrients.
5.	What is undernutrition?	Not enough food to get the nutrients.
6.	What is coeliac disease?	Intolerance to gluten.
7.	What is lactose intolerance?	Intolerance to milk and milk products
8.	What is diabetes type 1?	Body makes little or no insulin. Common in young children and teenagers. Must take insulin daily.
9.	What is diabetes type 2?	Body makes little or is resistant to insulin. Glucose stays in body and not used for fuel for energy so weight gain.
10.	What is the difference between intolerance and an allergy?	Intolerance is a reaction from the gut; an allergy is a reaction from the immune system and can be fatal.
11.	What does BMR stand for and what is it?	Basic Metabolic Rate: the number of kilojoules/kilocalories which the body uses to stay alive a day.
12.	What does PAL stand for and what is it?	Physical Activity Level: the number of kilojoules/kilocalories which the body uses to fuel physical activity.
13.	BMR multiplied by PAL equals ...?	Daily energy requirement (kcal.)
14.	What diet is required for someone suffering from cardiovascular disease?	-Lower saturated fats; instead have oily fish, nuts, seeds, olive oil. -High fibre. -At least 5 fruit & vegetables a day. -Maximum of 6g salt a day.
15.	What diet is required for someone suffering with diabetes?	-Regular meals. -Include healthy starch .carbohydrates (NSP) wholegrains. -Lower saturated fats. -Lower sugars. -Lower salt.
16.	What are the 8 government guidelines for healthy eating?	1. Base your meals on starchy foods. 2. Eat lots of fruit & vegetables. 3. Eat more fish. 4. Cut down on saturated fats. 5. Eat less salt. 6. Drink plenty of water. 7. Eat breakfast. 8. Get active.
17.	What is a balanced diet?	A diet with a variety of foods, following the Eatwell guide to get a good balance of nutrients.

## GCSE Food Preparation and Nutrition Core Questions

### Set 3 Diet and good health

18.	What is anaemia and what diet is required for someone suffering from anaemia?	Iron deficiency, iron rich foods: -Dark green leafy vegetables -Brown rice -Pulses, beans - &seeds -Meat, fish & tofu -Eggs -Dried fruit: apricots, prunes &raisins
19.	What is the energy in food measured by?	Kilocalories/kilojoules.
20.	What does a vegetarian not eat?	Meat & fish.
21.	What do lacto vegetarians not eat?	Meat, fish & eggs.
22.	What do ovo vegetarians not eat?	Meat, fish or dairy products.
23.	What do vegans not eat?	Any foods from animals or animal products.
24.	What are the reasons for following a vegetarian diet?	- Ethical beliefs. -Religious beliefs. -Medical & health reasons. -Cost factor. -Family influences. -Dislike of texture. -Environmental concerns.
25.	What are the Reference Intakes for an average adult?	Energy – 8400kJ/2000kcal Fat – 70g Saturates – 20g Carbohydrates – 260g Sugars – 90g Protein – 50g Salt – 6g
26.	At what age are babies weaned off milk and start having soft foods?	Around 6 months old.
27.	What foods should a baby, from 9 months old, be eating in soft, small portions?	Fruit, vegetables, chicken, fish, dairy foods, pasta, rice and bread.
28.	What foods should a baby, from 9 months old, NOT be eating?	Nuts, fried food, salt and added sugar.
29.	Children grow quickly and are active, what nutrients should be in their balanced diet and why?	-Protein- for growth & repair. - Carbohydrates – for energy & fibre. -Fats – in small amounts for energy & essential vitamins (A,D,E,K). -Calcium & Vitamin D – for bone & teeth development.
30.	Teenagers have rapid growth spurts, what nutrients should be in their balanced diet and why?	- Protein – for growth & repairs (boys need more than girls). - Iron & Vit. C- Vit. C helps absorb iron into body (important for girls menstruation.) -Calcium & Vit. D- to help skeleton develop properly.
31.	Teenage boys and men need more calories than teenage girls and women. True/False	True.
32.	Pregnant women can apply additions to their balanced diet during pregnancy and lactation. What additions should the balanced diet include?	-Starchy, fibre-rich foods-wholegrains. -Vitamin D- absorbs calcium-sunlight, oily fish. -Folic acid (folate Vit.B9)-reduce the risk of spina bifida-green vegetables, bread. -Calcium & vitamin C. -Iron. -Protein.

## GCSE Food Preparation and Nutrition Core Questions

### Set 3 Diet and good health

33.	Expectant mothers should avoid foods that may contain salmonella. What are these foods?	<ul style="list-style-type: none"> <li>- Uncooked meats.</li> <li>-Uncooked vegetables.</li> <li>-Unpasteurised milk, cheese, yoghurts.</li> </ul>
34.	Expectant mothers should avoid foods that may contain listeria. What are these foods?	<ul style="list-style-type: none"> <li>-Raw &amp; lightly cooked meat &amp; poultry.</li> <li>- Raw eggs and products eg. homemade mayonnaise.</li> <li>-Soft and blue veined cheeses.</li> <li>-Pates made from livers as high amount of vitamin A.</li> </ul>
35.	What are the health problems of obesity?	<ul style="list-style-type: none"> <li>-High blood pressure and high cholesterol which increases the chance of cardiovascular disease.</li> <li>-Greater risk of diabetes type 2.</li> <li>-Liver disease.</li> <li>-Breathing difficulties.</li> <li>-Tiredness.</li> <li>-Low self esteem.</li> </ul>
36.	What diet do people in early to middle adulthood need to maintain?	<ul style="list-style-type: none"> <li>-a balanced and varied diet with a good level of activity.</li> </ul>
37.	What diet do people in late adulthood need to maintain?	<ul style="list-style-type: none"> <li>-reduce energy intake.</li> <li>-muscle is replaced with fat so need to keep active and eat less fatty foods.</li> <li>-ensure enough, calcium &amp; vitamin D for bone health.</li> <li>-Vitamin B12 for healthy brain function and memory.</li> <li>-Fibre for healthy gut &amp; bowls.</li> <li>-Vitamin A for keeping good eyesight.</li> </ul>
38.	What is the diet followed by Buddhists?	<ul style="list-style-type: none"> <li>Strict vegetarians, in some countries vegans. As they believe they should not be responsible for the death of any living organism.</li> </ul>
39.	What is the diet followed by Jews?	<ul style="list-style-type: none"> <li>-Food must be Kosher. Animals with a split hoof and chew cud are acceptable eg.cows, goats &amp; sheep.</li> <li>Not horses or pigs.</li> <li>-Meat must not be cooked or eaten with dairy products.</li> <li>Separate utensils and cooking surfaces are used for meat &amp; dairy.</li> <li>-Pork, birds of prey, eels &amp; fish without scales are forbidden.</li> </ul>
40.	What is the diet followed by Christians?	<ul style="list-style-type: none"> <li>-Some denominations eat fish on Fridays.</li> <li>- Lent, Ash Wednesday &amp; Good Friday meat is not allowed.</li> <li>-Fasting from solid foods on Ash Wednesday &amp; Good Friday in strict Catholic religions.</li> </ul>
41.	What is the diet followed by Muslims?	<ul style="list-style-type: none"> <li>-Meat must be Halal, which means animals are killed according to Muslim law.</li> <li>-Pork, fish without scales, shellfish and alcohol are forbidden.</li> </ul>
42.	What is the diet followed by Rastafarians?	<ul style="list-style-type: none"> <li>- They will only eat Ital foods, which are natural, free from artificial colours, flavourings or preservatives.</li> <li>-Many are vegetarians or vegans.</li> <li>-They avoid coffee &amp; caffeinated drinks as seen to confuse the soul.</li> </ul>
43.	What is the diet followed by Sikhs?	<ul style="list-style-type: none"> <li>-Meat and alcohol are forbidden.</li> </ul>

## APPENDIX 1

### Reference nutrient intake per person per day

Data is taken from the Department of Health, Dietary Reference Values for Food Energy and Nutrients for the United Kingdom, HMSO, 1991

Children	Males							Females					Pregnant females
	Under 1	1 to 3	4 to 6	7 to 10	11 to 14	15 to 18	19 to 50	50+	11 to 14	15 to 18	19 to 50	50+	
Age:													
Energy <sup>(a)</sup>	721	1197	1630	1855	2220	2755	2550	2340	1845	2110	1940	1877	2140
Protein	13.5	14.5	19.7	28.3	42.1	55.2	55.5	53.3	41.2	45.0	45.0	46.5	51.0
Calcium	525	350	450	550	1000	1000	700	700	800	800	700	700	700
Iron	5.4	6.9	6.1	8.7	11.3	11.3	8.7	8.7	14.8	14.8	14.8	8.7	14.8
Sodium <sup>(b)</sup>	0.3	0.5	0.7	1.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Vitamin A	350	400	500	500	600	700	700	700	600	600	600	600	700
Vitamin B1 (Thiamin)	0.2	0.5	0.7	0.7	0.9	1.1	1.0	0.9	0.7	0.8	0.8	0.8	0.9
B2 (Riboflavin)	0.4	0.6	0.8	1.0	1.2	1.3	1.3	1.3	1.1	1.1	1.1	1.1	1.4
B3 (Niacin (Nicotinic acid))	4	8	11	12	15	18	17	16	12	14	13	12	13
B6 (Pyridoxine)	0.3	0.7	0.9	1.0	1.2	1.5	1.4	1.4	1.0	1.2	1.2	1.2	1.2
B9 (Folic acid/Folate)	50	70	100	150	200	200	200	200	200	200	200	200	300
B12 (Cobalamin)	0.3	0.5	0.8	1.0	1.2	1.5	1.5	1.5	1.2	1.5	1.5	1.5	1.5
Vitamin C	25	30	30	30	35	40	40	40	35	40	40	40	50

(a) Estimated Average Requirement

(b) The RNI for sodium is the amount that is sufficient for 97 per cent of the population. In May 2003 the Scientific Advisory Committee on Nutrition made recommendations about the maximum amount of salt that people should be eating, i.e. that the average salt intake for adults should be no more than 6 grams per day, equivalent to 2.4 grams of sodium per day.

# GCSE Food Preparation and Nutrition Core Questions

## Set 4: The science of food

Q No.	Question	Answer
1.	Why do we cook food?	I. To aid digestion, II. To improve the palatability (taste, texture and appearance), III. To avoid food contamination
2.	What are the 3 types of heat transfer?	I. Conduction II. Convection III. Radiation (infra-red and microwave)
3.	How is heat transferred to food by conduction?	Heat is transferred by direct contact with a hot surface
4.	Give some examples of how food is cooked using conduction?	Dry-frying, griddling, searing, sautéing.
5.	How is heat transferred to food by convection?	Heat is transferred when heated particles (liquid or gas) move into a cooler area.
6.	Give some examples of how food is cooked using convection?	Baking, roasting, deep frying, boiling, simmering, poaching
7.	How is heat transferred to food by infra-red radiation?	Heat is transferred using electromagnetic waves of heat or light.
8.	Give some examples of how food is cooked using infra-red radiation?	Toasting, grilling, barbequing
9.	How is heat transferred to food by microwave radiation?	The microwave oven converts electrical energy to microwaves which penetrate the food
10.	Give some examples of how food is cooked using microwave radiation?	Defrosting frozen food, heating up leftovers, ready meals.
11.	Give an example of a dish which uses more than one method of heat transfer in its production.	E.g. roast potatoes are cooked by convection in the air around them in the oven and conduction from the pan in which they sit.
12.	Give an example of a choice of cooking method which preserves nutritional value?	E.g. steaming rather than boiling retains the water-soluble vitamin content of vegetables.
13.	Describe how starch can be used to thicken a sauce by gelatinization.	When starch is heated in a liquid the starch granules soften and absorb water and the mixture thickens. Gelatinization (when a gel is made) happens at 66°C and above.
14.	What happens when starchy foods are cooked in a dry heat?	Dextrinisation – the food turns brown and the flavour changes.
15.	What happens when sugar is cooked?	Caramelisation – the food turns brown and the flavour changes.
16.	Describe the two ways fats are used to create texture in cakes and pastry?	1. Shortening - fat coats the flour particles, making a waterproof (or hydrophobic) coating, so the flour doesn't absorb water and gluten development is prevented. 2. Aeration – when creamed with sugar, fats aerate the mixture (trap tiny air bubbles) which helps make it rise.
17.	What happens to fat as they are cooked?	They soften and liquify and add flavour and colour.
18.	What do we mean by the plasticity of fats?	Plasticity is the ability of fats to be spread and shaped.



## GCSE Food Preparation and Nutrition Core Questions

### Set 4: The science of food

19.	What does the plasticity of different fats depend on?	Each fats plasticity depends upon the temperature at which it liquifies.
20.	What is an emulsion?	A fine mixture of droplets of one liquid in another.
21.	What is a stable emulsion?	A stable emulsion is one that won't separate.
22.	How can we make a stable emulsion?	Using an emulsifier, like egg yolk.
23.	What happens to proteins when they are cooked, beaten or have acid added to them?	The structure of the protein is irreversibly changed as the molecules denature (unravel) and coagulate.
24.	What happens when protein rich foods, like meat, are cooked in a dry heat?	The Maillard reaction – the food turns brown and the flavour changes.
25.	How is a foam created? Give some examples of foams.	A protein is aerated, by whisking or whipping, which denatures the proteins making them light and airy. E.g. beaten egg whites, whipped cream.
26.	How is gluten formed?	When flour is mixed with water two proteins in it (gliadin and glutenin) combine to create gluten strands. These strands will get stronger as the dough is kneaded.
27.	What is strong flour, what would you use it for and why?	Strong flour contains more of the proteins which form gluten, which makes the dough elastic. It is used to make breads, pasta and choux pastry, which need a chewy texture.
28.	What is soft flour, what would you use it for and why?	Soft flour contains less protein so less gluten is formed and is used to make cakes, biscuits and scones which need a light texture.
29.	What effect does oxygen have on fruit and vegetables?	Oxygen reacts with the enzymes in cut fruit and vegetables making them brown – enzymic browning.
30.	How can enzymic browning be slowed down?	Put cut vegetables in cold water and toss sliced fruit in lemon juice (citric acid).
31.	Whys do we use raising agents?	They produce a risen, light airy texture in food.
32.	How do mechanical raising agents work?	They trap air, which expands when heated.
33.	List 5 ways of incorporating air into recipes and give an example of each.	<ul style="list-style-type: none"> <li>i. Sieving flour (cakes)</li> <li>ii. Whisking eggs (meringue)</li> <li>iii. Rubbing in fat into flour (pastry)</li> <li>iv. Creaming fat and sugar (cakes)</li> <li>v. Lamination traps air between layers (flaky pastry)</li> </ul>
34.	Describe how steam is a physical raising agent.	In products containing a lot of water (like Yorkshire pudding or choux pastry) the water turns into steam and pushes the batter upwards. The heat of the oven set the flour and egg mixture around the hollows created by the steam.
35.	What products are used to add CO <sub>2</sub> to create a light, airy baked texture?	Bicarbonate of soda, baking powder and self-raising flour.
36.	Why should food be fried in hot fats or oils?	If the fat is not hot the food will absorb the fat or oil, becoming greasy.
37.	Why do cakes sink in the middle?	If they are not cooked for long enough or the oven door is opened during cooking.
38.	Why might a cake surface crack?	The oven was too hot or too much raising agent was used.

# GCSE Food Preparation and Nutrition Core Questions

## Set 4: The science of food

39.	Why might a cake be too thin?	The tin was too small or not enough raising agent was used.
40.	Why is important to use lids on pans?	To prevent too much water from evaporating, making food dry or burn.
41.	Why should you beat sauces before they boil and scrape edges and base of the pan?	To combine all the starch to prevent the sauce becoming lumpy and to stop it sticking and burning.
42.	How could you rescue a lumpy sauce?	By liquidising or sieving it.
43.	What might make shortcrust pastry tough and shrink from the sides of a tin?	If it was stretched too much or too wet.
44.	What happens if shortcrust pastry is over-kneaded?	It will be tough.
45.	Why might puff pastry be flat?	If the oven was not hot enough or the door opened during cooking.
46.	Name some food products which use fermentation by lactic acid bacteria in their production?	Salami, chorizo, yoghurt and cheese.
47.	Name some food products which use fermentation by yeast in their production?	Bread, beer and wine.
48.	Name a food product which use moulds in their production?	Blue cheeses.
49.	How should ambient food be stored?	At room temperature in tightly sealed packaging or air tight containers.
50.	How should chilled foods be stored?	In a fridge between 4°C and 5°C.
51.	How should frozen foods be stored?	In a freezer at -18°C and not defrosted until required.
52.	What labelling information is useful in preventing food spoilage?	Use-by date and storage and preparation instructions.
53.	What 4 things cause food spoilage?	<ul style="list-style-type: none"> <li>i. Microorganisms – bacteria, mould, fungi and yeast.</li> <li>ii. Enzymes in the food.</li> <li>iii. Insects and rodents.</li> <li>iv. Chemical reactions (between the food and oxygen or water).</li> </ul>
54.	What do microorganisms need to grow?	<ul style="list-style-type: none"> <li>i. Warmth</li> <li>ii. Oxygen</li> <li>iii. Moisture</li> <li>iv. A specific pH</li> <li>v. Time</li> </ul>
55.	How can food spoilage be prevented?	<p>By making the conditions for microbial growth unfavourable, e.g making the environment:</p> <ul style="list-style-type: none"> <li>i. Too cold</li> <li>ii. Removing oxygen</li> <li>iii. Keeping the food dry</li> <li>iv. Changing the pH</li> <li>v. Using food quickly</li> </ul>
56.	What are the signs of food spoilage?	<ul style="list-style-type: none"> <li>i. Discoloration</li> <li>ii. Changes in texture</li> <li>iii. Visible mould</li> <li>iv. Unpleasant smell</li> <li>v. Changes in flavour</li> <li>vi. “Blown” cans or jar lids.</li> </ul>

## GCSE Food Preparation and Nutrition Core Questions

### Set 4: The science of food

57.	Name and explain the 3 ways food can be contaminated?	<ul style="list-style-type: none"> <li>i. Physical contamination - objects falling into food</li> <li>ii. Chemical contamination – cleaning products and pesticides in food</li> <li>iii. Bacterial contamination – microorganisms (bacteria, viruses, moulds and fungi) in food</li> </ul>
58.	What type of bacteria cause disease?	Pathogenic
59.	How does the bacteria which contaminates food come from?	<ul style="list-style-type: none"> <li>i. Poor hygiene</li> <li>ii. Raw meat and poultry</li> <li>iii. High risk foods</li> <li>iv. Pests</li> <li>v. Dust, dirty bins, waste food</li> <li>vi. Contaminated water</li> </ul>
60.	What is cross-contamination?	When bacteria from one food is transferred to another, as a result of poor hygiene.
61.	List the high risk foods.	<ul style="list-style-type: none"> <li>i. All animal protein foods (dairy, eggs, meat, poultry, fish, shellfish)</li> <li>ii. Gravies, soups and stocks</li> <li>iii. Cooked rice and pasta</li> <li>iv. Ready-made meals</li> </ul>
62.	What are the symptoms of food poisoning?	Tummy pain, diarrhoea, nausea, vomiting, fever or chills.
63.	Name 4 pathogenic bacteria and say where they are found.	<ul style="list-style-type: none"> <li>i. Campylobacter – raw poultry, meat, milk, sewage</li> <li>ii. Salmonella – human gut, raw poultry, meat, eggs, milk</li> <li>iii. Staphylococcus A – in human skin, hair, throat, nose, mouth, cuts, spots</li> <li>iv. E. coli - human and animal sewage, water, raw meat, muddy vegetables</li> </ul>
64.	What is the danger zone?	Temperatures in between 8°C and 63°C, at which bacteria will grow rapidly.
65.	How can foods be preserved to keep them safe for longer?	<ul style="list-style-type: none"> <li>i. Heating, e.g. pasteurisation</li> <li>ii. Freezing – bacteria will stop reproducing at low temperatures, but will not be killed</li> <li>iii. Drying e.g. dried noodles or pasta</li> <li>iv. Removing air, e.g. in cans and other packaging</li> <li>v. Chemical, e.g. preserving in vinegar, salt, sugar, smoke</li> <li>vi. Irradiation – low doses of radiation will kill all microorganisms</li> </ul>
66.	How can mishandling of food lead to increased food waste?	If food is mishandled it becomes spoiled and has to be thrown away.
67.	What are the benefits of reducing food waste?	It helps the environment (less landfill) and saves us money.
68.	What is coagulation	The setting of the protein in the egg