



Starters and Plenaries

for GCSE Eduqas

Food Preparation and Nutrition

Principles of Nutrition

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Teacher's Introduction

This pack of Starters and Plenaries is designed to help you deliver the content of the GCSE Eduqas Food Preparation and Nutrition specification.

The starter worksheets aim to either introduce new terms or recapitulate the information gained during previous lessons. The plenaries are to summarise the basic concept of the lesson and help to take the main message home.

A range of activities has been created in this resource which incorporates independent, paired and group work and which will be engaging for the students. The varied nature of the activities provides an opportunity for a range of learning styles to be developed, including visual, verbal, auditory and kinaesthetic.

A cross-reference table has been provided which links each activity to the specification points it covers and also identifies which activities are considered to be starters and which plenaries. However, the identification of each activity as a starter or plenary is only a suggestion and you might find that some of the activities are interchangeable.

Each activity should take from 5 to 15 minutes, which makes it easy to incorporate into a lesson.

December 2019

Free Updates!

Register your email address to receive any future free updates* made to this resource or other Food resources your school has purchased, and details of any promotions for your subject.

* resulting from minor specification changes, suggestions from teachers and peer reviews, or occasional errors reported by customers

Go to **zzed.uk/freeupdates**

Specification Cross-reference

This table will enable you to pick and choose starters or plenaries relevant to the teaching. While each activity has been selected as either a starter or a plenary you may find that starter and plenary tasks may be interchangeable dependent on how you teach them. Some may not work so well as a starter or as a plenary. It is at the teacher's discretion.

No.	Activity	Extra resources	
Principles of nutrition			
1	Macronutrients (proteins) – Fallen tiles	Scissors	S
2	Macronutrients (proteins) – Soy awesome!	Crayons or highlighters	S
3	Macronutrients (fats) – Tri-answer	-	P
4	Macronutrients (carbohydrates) – Cards against carbohydrates	Scissors, glue	S
5	Macronutrients (carbohydrates) – The Carbdashians	Crayons or colourful pens	P
6	Dietary fibre – Match(a) made in heaven	Scissors, glue	P
7	Macronutrients – Odd one out	-	S
8	Micronutrients (vitamins) – Fishbone	A3 paper sheets	S
9	Micronutrients (minerals) – Draw it	Crayons or colourful pens	P
10	Micronutrients (minerals) – I can't live without it!	Timers (e.g. in mobile phones)	P
11	Water – Asparagus	-	S
12	Consequences of actions of nutrients – We make a nice	-	P

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Activity 1 – Macronutrients (proteins)

Teacher's Notes

Starter activity: Fallen tiles	
Aim of the activity	To discover the names of various essential and non-essential amino acids.
Teacher's instructions	Split students into groups of 4. Copy the student's worksheet accordingly. Allow students 10 minutes to cut out the tiles and arrange them to identify essential amino acids and four non-essential amino acids.

Answers

Non-essential amino acids:

- histidine
- isoleucine and leucine
- lysine
- methionine
- phenylalanine
- threonine
- tryptophan
- valine

Essential amino acids:

- alanine
- asparagine
- aspartic acid
- glutamic acid

It is the essential amino acids that need to be provided as part of a balance diet. They cannot be built by the body from scratch.

One can ensure that they are eating enough of them by:

- either including foods rich in complete (high biological value, HBV) proteins in their diet (e.g. fish, eggs, dairy)
- or applying protein complementation technique, i.e. consuming some foods rich in one essential amino acid (e.g. beans) with foods rich in another essential amino acid (e.g. sesame seeds).

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Macronutrients: Fallen tiles

There are about 20 amino acids which build the proteins our bodies need. Can you name them? Can you name them can you name?

In pairs, cut out the tiles below (or write them) and rearrange them to form the names of 20 amino acids. Then decide which of them are essential amino acids, and which are non-essential amino acids.

✂

his	met	as	ptop	phe
ine	ala	glu	hio	line
thr	d	tid	ta	par
a	nyla	arag	lani	c
va	ly	try	mic	iso

Essential amino-acids:

Non-essential amino

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Which of the amino acids have to be provided as part of a balanced diet?

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How can you ensure that you are eating enough of them?

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Activity 2 – Macronutrients (proteins) – 5

Teacher's Notes

Starter activity: Spider diagram	
Aim of the activity	To introduce or recapitulate information about protein sources
Teacher's instructions	<p>Copy the student's worksheet to allow one per person.</p> <p>Allocate 10 minutes up to 10 minutes to complete the activity, then discuss advantages and disadvantages of vegetarian and vegan diets. Use traditional English foods such as shepherd's pie to make them groups of people.</p>

Answers

Sources of protein could include:

- Red meat and poultry (pork, beef, venison, chicken, turkey, duck, etc.) (not suitable for vegetarians or vegans)
- Fish and shellfish (e.g. prawns, mussels, crab, lobster) (not suitable for vegetarians or pescatarians)
- Eggs (suitable for lacto-ovo-vegetarians and ovo-vegetarians, but not lacto-vegetarians or vegans)
- Milk and dairy (e.g. cheese, yoghurt) (suitable for lacto-ovo-vegetarians and lacto-vegetarians or vegans)
- Quorn™ (some varieties are produced without egg white, making them suitable for vegetarians and vegans)
- Textured vegetable protein (TVP) (suitable for all)
- Soya beans and soy-based products (suitable for all)
- Quinoa (suitable for all)

Examples of soy-based foods and their culinary uses include:

- soy milk; can be used in smoothies, in soups, with cereals
- tempeh; can be used, for example, in burgers, salads
- soy sauce; used in sauces, soups, burgers, stews, marinades
- miso paste; used in soups, marinades
- edamame beans (fresh soy beans); eaten as a snack, added to salads
- natto (fermented soy beans of slimy texture and distinctive aroma); eaten as main component of a meal

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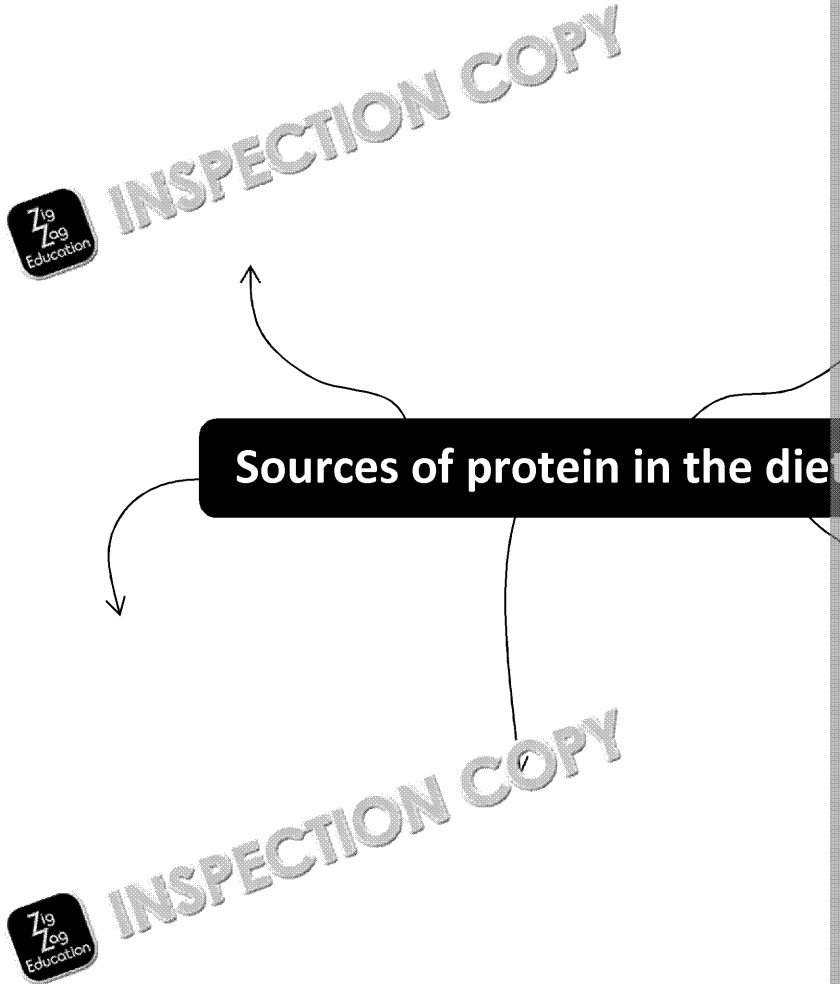
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Macronutrients: Soy awesome

A balanced diet should provide around 15% of energy from protein. Can you find it?!

Complete the diagram below to identify various sources of protein in



Some people, such as vegetarians and vegans, do not eat certain foods. Have a look at the foods you identified above. Colour-code in yellow for vegetarians, and in blue those which are suitable for vegans.



As vegetarians and vegans do not eat meat, they strive to provide them with protein alternatives which are not of animal origin. Very often these are beans. How many soy-based foods can you suggest one dish you could use it in (one has

1. Tofu (various types); could be used for example, in salads, burgers

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Activity 3 – Macronutrients (fats) – 1

Teacher's Notes

Plenary activity: Tri-answer

Aim of the activity	To recap knowledge about various fats and their function for health. This activity may be used to practise answering more complex questions.
Teacher's instructions	Copy the student's worksheet to allow one per person. Allow students 10-15 minutes to complete the activity. Collect the worksheets in.

Answers

- **Saturated fats** – type of fats which have only single chemical bonds within the molecule; will become solid at room temperature
- **Unsaturated fats** – type of fats which have one (*monounsaturated fats*) or more (*polyunsaturated fats*) double chemical bonds within the molecule; will become liquid at room temperature

Dietary reference value: No more than 35% of food energy

Functions of fats could include:

- providing energy (fats are a primary source of energy)
- insulating from cold (as they form a layer of fat tissue under the skin)
- building hormones (such as sex hormones)
- stabilising and protecting internal organs (such as the heart, or the kidneys)
- storing energy for later (in the adipose tissue; this can be used in times of great need, such as pregnancy and lactation, or during starvation)
- supporting healthy skin and hair (as it is a solvent for vitamins A and E)

Sources could include:

- saturated fats: meat and poultry, bacon, eggs, butter, milk and dairy, coconut oil
- unsaturated and omega-3 fats: fish and fish oil, flaxseed, avocados, olives, nuts
- trans fats: vegetable fat spreads, cakes and biscuits, candies, confectionery

Effects of excess could include:

- weight gain, overweight and obesity (if too much is eaten)
- increased risk of developing conditions such as type 2 diabetes, atherosclerosis, stroke and heart attack
- increased risk of developing other conditions, such as depression, arthritis, joint pain

Accept other suitable answers.

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Macronutrients: Tri-answer

Despite some of their bad publicity, fats are very important for health. Answer the questions below and try to answer as many of them as possible. Then check your answers with your classmate or with your teacher.

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Outline the difference between the two types of fat

Saturated

Unsaturated

Dietary reference value:

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Identify food sources of each type of fat

Saturated	Unsaturated and omega-3	Trans fats

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List and describe the effects of excess of fats in a diet

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Activity 4 – Macronutrients (carbohydrates)

Teacher's Notes

Starter activity: Complete the sentence	
Aim of the activity	To introduce or recall information about various carbohydrates in the human body.
Teacher instructions	<p>Copy out the student's worksheet to allow one per person.</p> <p>Allow students up to 10 minutes to cut out the answer cards and match them to the statements (note that there are more answers than sentences).</p> <p>You can choose to use this activity at the beginning of the lesson to see whether more answers are correct and whether students</p>

Answers

- Monosaccharides include glucose, fructose and galactose.
- Sugars should not provide more than 5% of daily energy.
- Lactose is a disaccharide naturally found in milk.
- Starch is a polysaccharide and its main sources include bread, pasta and cereals.
- Disaccharides include lactose, sucrose and maltose.
- Excess intake of sugars can lead to weight gain and tooth decay.
- Sugars naturally present in food are referred to as intrinsic sugars.
- Dietary fibre is a type of complex carbohydrate.
- Carbohydrates are a primary source of energy.

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Macronutrients: Cards against carbohydrates

Carbohydrates are a very important group of macronutrients – it's time to find out more about them!

Complete the sentences below using the answer cards from the next page.

Monosaccharides include...



Sugars should not provide more than...

Starch is a polysaccharide and its main sources include...



Disaccharides include...

Sugars naturally present in food are...



Dietary fibre is a type of...

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Macronutrients: Cards against carbohydrate



a primary source of energy in the human body.	referred to as intrinsic sugar.
simple carbohydrate	5% of daily energy intake.
a disaccharide naturally present in milk.	glucose, fructose and galactose.
weight loss, swelling and hair loss.	rice, milk and chocolate.
lactose, sucrose and maltose.	45% of daily energy intake.

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Activity 5 – Macronutrients (carbohydrates) The Carbdashians

Teacher's Notes

Plenary activity – Storytelling	
Aim of the activity	To recap information about various types of carbohydrate and their effects on the body.
Teacher's instructions	Copy out student's worksheet to allow one per person. Allow students up to 10 minutes to complete the activity. Optional extension: Students could perform their storyboards.

Answers

The answers could include a reference to:

- weight gain and obesity
- dental caries
- type 2 diabetes, high glycaemia (blood sugar level), increased burden on the pancreas
- cholesterol levels: high levels of low density lipoprotein (LDL); low levels of high density lipoprotein (HDL)
- increased feeling of hunger (especially if eating large amounts of simple sugars)
- the need to control sugar intake (no more than 5% of daily energy intake)
- carbohydrates as the main source of energy in a healthy balanced diet (50%)
- the need to include more carbohydrates when training, e.g. for a marathon

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Macronutrients: The Carbdashi

There's nothing better than a good soap opera. You're in luck – we've got some talented film producers to write and direct a number of short films (five in total) to study the effects of increased carbohydrate consumption.

To take part in the casting, fill in the attached storyboard with short sketches of causes and effects, and what can be done about it. You may wish to undertake short interviews with experts in nutritionists or doctors.

Underneath each sketch, outline the concept that you wish to film, and the voiceover you would like to include.

Good luck!

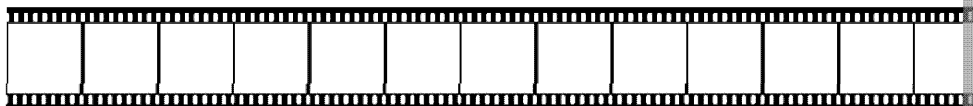
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Production _____

Scene _____ Artist/Writer _____



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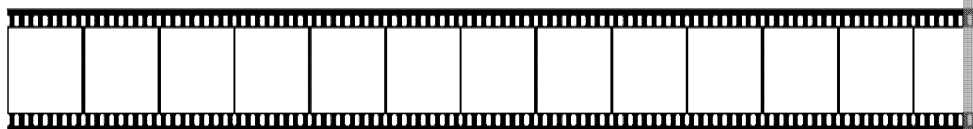


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Activity 6 – Dietary fibre – Match(a) ma

Teacher's Notes

Plenary activity: Match up	
Aim of the activity	To recap knowledge about the functions of soluble and insoluble fibre.
Teacher's instructions	Copy the student's worksheet to allow one per person. Copy the card labels to allow one set per person. Allow students up to 10 minutes to match the labels to the two types of fibre (soluble and insoluble). Collect the answers and discuss them at the next lesson.

Answers

Soluble fibre:

- also known as fermentable fibre
- found in oats, barley and rye, bananas and apples, carrots and potatoes, beans
- helps to treat constipation
- excess causes diarrhoea
- helps to reduce blood cholesterol
- slows down glucose absorption
- lowers blood sugar level
- supports growth of good bacteria in the gut

Insoluble fibre:

- found in breakfast cereals, bread and pasta; wholemeal and wholegrain food
- bulks up stool and regulates bowel movements
- excess causes constipation
- helps to lower risk of cancer
- can cause flatulence
- includes cellulose, lignin, xanthan gum
- can help to treat diarrhoea
- increases insulin sensitivity and prevents diabetes

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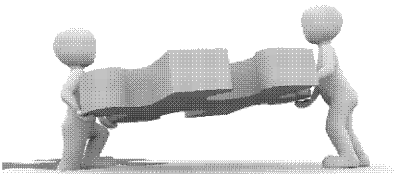
Dietary fibre: Match up

Dietary fibre, although indigestible for humans, is an indispensable element of a balanced diet. There are two main types of dietary fibre, and each has a specific function in our bodies.

Match each label (given below) to one of the categories below to show your knowledge about dietary fibre!

also known as fermentable fibre	excess causes constipation	helps to reduce blood cholesterol	breakfast cereals, bread and pasta
bulks up stool and regulates bowel movements	cellulose, lignin, xanthan gum	oats, barley and rye	slows down absorption of sugars and fats
helps to treat constipation	can help to treat diarrhoea	helps to prevent bowel cancer	excess can cause diarrhoea
lowers blood sugar level	beans and pulses	carrots and potatoes	can cause flatulence

Soluble fibre	Insoluble fibre



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Activity 7 – Macronutrients – Odd

Teacher's Notes

Starter activity: Odd one out	
Aim of the activity	To introduce the sources and functions of macronutrients.
Teacher's instructions	Split the students into pairs. Copy the student's worksheet and allow students 5–10 minutes to complete the activity and then discuss.

Answers

1. **Tofu** – because it's a plant source of protein (rather than an animal source of protein).
2. **Honey** – because it's a source of free sugars (rather than intrinsic sugars).
3. **Avocado** – because it's rich in omega-3/unsaturated fatty acids.
4. **Rice** – because it is not a source of fat.
5. **Glycaemia** – because it's related to the sugar level in the blood (the other words are related to protein in the human body).
6. **Anaemia** – because it develops due to deficiency of micronutrients, rather than macronutrients.
7. **Lactose** – because it's a disaccharide (not a monosaccharide).
8. **Obesity** – because it's a result of excessive intake of food (especially fats and protein).
9. **Pasta** – because it's a product made from processed wheat, while the others are natural products.
10. **Glucose** – because glycerol and fatty acids together build triglycerides (fats), while glucose is involved in the process.

Accept any other suitable alternative differences.

Bonus question:

- 15% with protein
- up to 5% with free sugars
- 45% with complex carbohydrates (up to 5% with free sugars), total of 50%

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Macronutrients: Odd one out

Macronutrients are a group of chemical compounds which humans need in large quantities. They are needed by our bodies for a number of reasons and are found in a variety of foods.

With a classmate, have a look at the keywords below and try to find the odd one out in each set of three. Explain why you think it does not fit with the remainder.

egg white	salmon	tofu	honey
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avocado	butter	lard	salmon
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cell membranes	glycaemia	hormones	anaemia
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glucose	fructose	lactose	kwashiorkor
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buckwheat	pasta	rice	glycerol
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Bonus question:

Remember how much energy should be provided with each macronutrient in a balanced diet?

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Activity 8 – Micronutrients (vitamins)

Teacher's Notes

Starter activity: Fishbone	
Aim of the activity	To recall and introduce information about various fat-soluble and water-soluble vitamins.
Teacher's instructions	<p>Split students into groups of four. Copy the student's worksheet.</p> <p>Assign each group one of the vitamins from: vitamin A, vitamin D, vitamin B2 (riboflavin), vitamin B3 (niacin), vitamin B9 (folic acid), vitamin B12 (cobalamin), vitamin C (ascorbic acid).</p> <p>Allow students 5–10 minutes to complete the activity, then hang the worksheets on the wall.</p> <p>As the lesson develops, the students should be able to add more information to their worksheets.</p>

Answers

The answers could include a reference to:

- the function of the vitamin in the human body
- the sources of the vitamin
- dietary reference values for various groups of people
- effects of excess and deficiency
- other information, e.g. working with another vitamin, being especially susceptible to deficiency

Vitamin	Function	Sources	RNI	Deficiency
Vitamin A	<ul style="list-style-type: none"> - supports growth - supports healthy skin and membranes - antioxidant - helps the ability to see in dim light 	<ul style="list-style-type: none"> - liver and offal - milk and dairy - egg yolk - orange, yellow, red and green vegetables and fruits, e.g. carrots, spinach, apricots - oily fish 	600 mcg/day (girls) or 700 mcg/day (boys)	<p>deficiency: night blindness, dry, sore, cracked skin</p> <p>excess: toxic – may harm foetus during pregnancy</p>
Vitamin D	<ul style="list-style-type: none"> - supports growth and development of bones and teeth - helps absorb calcium 	<ul style="list-style-type: none"> - milk and dairy - oily fish - egg yolk - mushrooms - fortified cereals, breads 	10 mcg/day	<p>deficiency: rickets in children, osteoporosis in adults</p> <p>excess: rare, but can cause nausea, vomiting, loss of appetite, weakness, fatigue, itching</p>
Vitamin B1	<ul style="list-style-type: none"> - helps release energy from food - supports the brain and the nervous system 	<ul style="list-style-type: none"> - liver and offal - red meat, poultry - milk and dairy - eggs - nuts - peas 	0.8 mg/day (girls) to 1.1 mg/day (boys)	<p>deficiency: beriberi, muscle loss, weakness, fatigue</p> <p>excess: high levels can be toxic</p>

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Vitamin	Function	Sources	RNI	Deficiency/Excess	Other
Vitamin B2	<ul style="list-style-type: none"> - helps release energy from food - supports healthy skin and membranes - supports the brain and the nervous system 	<ul style="list-style-type: none"> - meat and poultry - eggs - milk and dairy - fish - vegetables - cereals - fruits - beans 	1.1 mg/day (girls) to 1.3 mg/day (boys)	deficiency: dry, sore, cracked skin; cracked corners of the mouth; poor growth excess: no known side effects	chemical name riboflavin
Vitamin B3	<ul style="list-style-type: none"> - helps release energy from food - helps to lower fat levels in the blood - supports healthy skin and the nervous system 	<ul style="list-style-type: none"> - meat and poultry - fish - eggs - milk and dairy - fortified cereals and bread 	12–18 mg/day, depending on age and sex	deficiency: 4D syndrome (diabetes, dermatitis, deep venous thrombosis (DVT), and depression); pellagra (dementia, diarrhoea and dermatitis) Excess: itchy red skin	
Vitamin B9	<ul style="list-style-type: none"> - helps the central nervous system - helps build red blood cells - prevents spina bifida in babies - needed to build DNA 	<ul style="list-style-type: none"> - liver and offal - wholemeal cereals and fortified cereals - beans and pulses - leafy green vegetables 	200 mcg/day	deficiency: spina bifida in babies; anaemia; tiredness excess: no known side effects	
Vitamin B12	<ul style="list-style-type: none"> - necessary to build red blood cells - supports the brain and the nervous system - necessary in the process of making new cells in the body 	<ul style="list-style-type: none"> - animal-derived foods only (meat, poultry, fish, eggs, milk and dairy) 	1.0 mcg/day (girls up to the age of 14), 1.2 mcg/day (boys up to 14 years old), 1.5 mcg/day (men and women above 15 years old)	deficiency: anaemia; dementia; tiredness; muscle weakness excess: no known side effects	
Vitamin C	<ul style="list-style-type: none"> - helps absorb iron - supports production of collagen in the skin - antioxidant - boosts immunity 	<ul style="list-style-type: none"> - plant foods only (vegetables, fruits, beans, nuts) 	children up to 14 years old 35 mg/day, people above 15 years old 40 mg/day	deficiency: scurvy (bleeding of the gums); anaemia; non-elastic, dry skin excess: rare (may observe nausea, diarrhoea)	

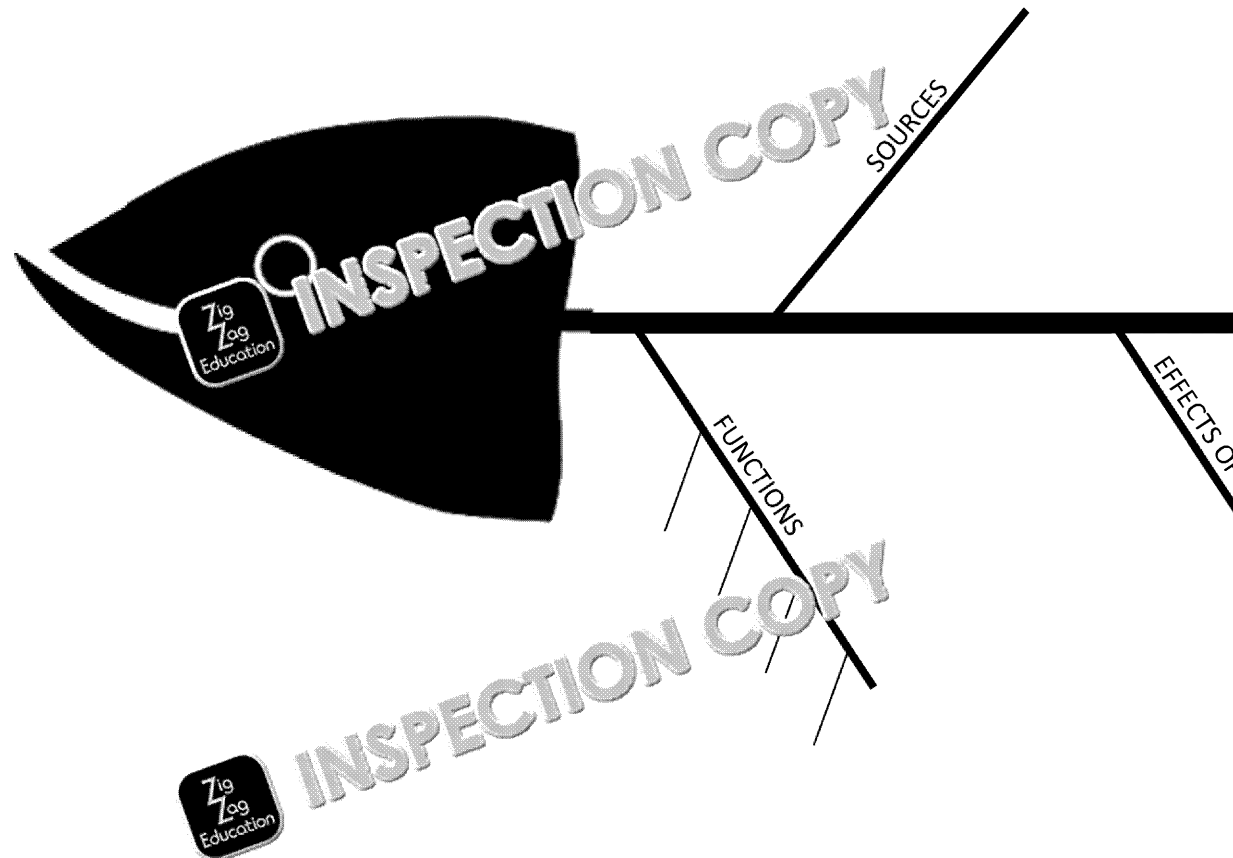
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Miscellaneous nutrients: Fishbone

Vitamins are organic compounds which our bodies need in very small amounts to carry out many of the functions of the body. Much more than you already know!

Get into groups of four. The teacher will assign you with one vitamin. Your task is to note down the sources, functions and effects of the vitamin (one piece of paper for each fishbone). During the lesson you will learn more – add to your fishbone as you go. Each group will be given a different coloured pen.

Vitamin: _____



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Activity 9 – Micronutrients (minerals)

Teacher's Notes

Plenary activity: Draw it	
Aim of the activity	To recap on the function of minerals in the human body.
Teacher's instructions	Split the students into pairs and copy the student's worksheet. Allow each group 10 minutes to draw the functions of minerals. Then allow the pairs to swap the worksheets to see what they have drawn for additional functions.

Answers

Exemplary answers could include a reference to:

Calcium

- helps build the bones
- helps build the teeth
- electrolyte (helps to carry nerve impulses)
- supports muscle contraction
- supports blood clotting

Iron

- builds haemoglobin in the red blood cells
- carries oxygen around the body

Potassium

- electrolyte (helps to carry nerve impulses)
- helps to control blood pressure
- supports muscle function (e.g. heart activity)

Magnesium

- electrolyte (helps to carry nerve impulses)
- supports muscle contraction
- prevents muscle cramps
- necessary for synthesis of the DNA

Iodine

- supports correct functioning of the thyroid gland
- necessary to build hormones
- controls metabolism

Fluoride

- helps build the teeth
- strengthens the enamel
- helps build strong bones

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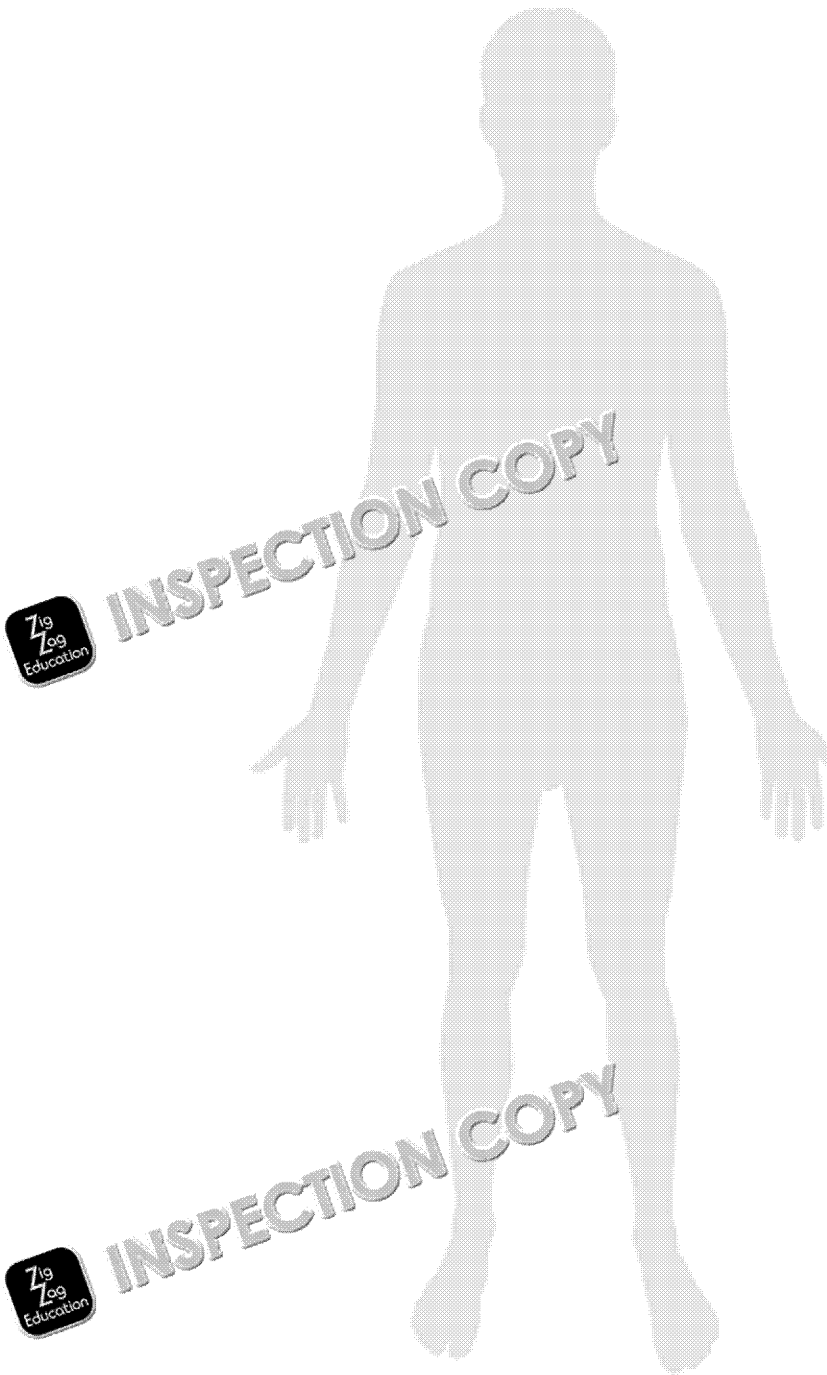


Micronutrients: Draw it

Minerals play multiple functions in the human body – it's time to check what you know about!

Get into pairs and add as many functions of minerals in the human body to the diagram below. Then colour-code them to identify the mineral that they relate to. Be cautious: some functions may be carried out by more than one mineral.

calcium	iron	potassium	magnesium	
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Activity 10 – Micronutrients (minerals) – 10

Teacher's Notes

Plenary activity: Just a minute	
Aim of the activity	To recapitulate and complete information about the minerals
Teacher instructions	<p>Split the students into six groups. Copy the student's worksheet that they can take notes at the end of the lesson.</p> <p>Assign each group one mineral / trace element from: <i>calcium, iodine, fluoride.</i></p> <p>Ask each group to sit in a circle and set a timer for 60 seconds. The first person starts to talk about their given mineral either until they run out of a mistake or hesitation. If they make a mistake, the person to their right continues – but cannot repeat the information already given by the person speaking when the time ends, wins.</p>

Answers

The answers could refer to:

- the function of a given micronutrient in the human body
- the main food sources
- dietary reference values and characteristic information (e.g. teenage girls and boys or men of the same age)
- consequences of excess consumption
- consequences of deficiency
- complementary action

For ideas on possible answers please see Activity 9.

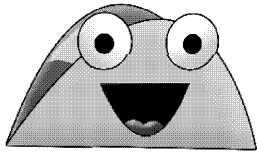
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Micronutrients: Let's taco 'bout



Minerals are very important for the correct function of the body. Let's see how much you know about them!

Split into groups and sit in a circle. In each group, one person has to start – that's how much time they have to talk. They then pass the baton to the next person who has to tell you what they learnt about the mineral. If they hesitate or make a mistake, the right takes over.

Remember that the person cannot repeat what the previous person/people have said (this doesn't happen). The game ends when you run out of things to say. The person who is left speaking when this happens, wins!

Use this space to record notes about specific minerals as you play...

My mineral:	
Person 2:	
Person 3:	
Person 4:	
Person 5:	
Person 6:	

And the overall winner is...

Can you think of any other points that you didn't manage to say during the game?

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Activity 11 – Water – Wa(i)ter pl

Teacher's Notes

Starter activity: Table / diagram

Aim of the activity	To introduce or recapitulate the various functions of water in the body
Teacher's instructions	Split the class into pairs. Copy the student's worksheet according to the number of pairs. Allow students 10 minutes to complete the activity, then discuss the answers. How much water may be lost from the human body and the effects of dehydration.

Answers

The functions of water could include:

- carrying out chemical reactions around the body – water is both a solvent for many reactions
- regulating body temperature – either through breathing or perspiration, which cools the body and prevent heat stroke
- regulating blood pressure – having too little water will cause low blood pressure
- removing waste products – with urine and stool
- enabling dietary fibre to work – as fibre needs to absorb water to carry out its function
- supporting the digestive tract – e.g. by providing moisture in saliva and stomach
- providing minerals – drinking water is usually quite rich in certain minerals such as calcium
- transporting nutrients around the body – as water makes a large part of the blood, it carries oxygen and nutrients around the body

You should drink approximately eight glasses of water a day, which is approximately 2 litres.

The best source of water is drinking water (either bottled or tap).

Water can be found in large quantities in:

- milk and milk beverages, such as buttermilk, yoghurt, kefir, milkshakes
- fruit and vegetable juices, smoothies
- fruit and vegetables
- beverages and drinks of any sort (however, some of them are not the best sources of water due to the large quantities of free sugars)
- bread, pasta and rice (as rice and pasta absorb water during cooking)

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Water: Wa(i)ter please!

Water is the essence of life – without it there would be no living organisms on Earth. But what do our bodies use water for, anyway?

In pairs, discuss the various functions of water in the human body.

Function	Description

Now that you know what you need the water for, complete the diagram. How much water is needed and how it can be provided in the diet.

Pick up: you should drink at least ___ glasses of water a day. That's approximately ___ litres!

___ are also a great source of water!

I think you can also get water from ___

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Activity 12 – Complementary actions of make a nice pear!

Teacher's Notes

Plenary activity: Match up and explain	
Aim of the activity	To recapitulate knowledge about the complementary actions and their impact on health.
Teacher instructions	Copy out student's worksheet to allow one per person. Allow students up to 10 minutes to complete the activity. Collect potential mistakes or misconceptions during the next lesson. Alternatively, ask students to swap the worksheets between themselves to check other's work.

Answers

Examples could include:

Calcium and dietary fibre	Dietary fibre may bind calcium from food and in the intestine, potentially leading to deficiencies
Calcium and magnesium	Work together to enable proper working of the heart and muscles
Calcium and fluoride	Work together to build the enamel and strengthen teeth
Calcium and vitamin D	Work together to build healthy bones and teeth, and osteoporosis
Vitamin C and iron	Vitamin C improves absorption of iron in the intestine, preventing deficiencies and anaemia
Lysine and methionine	These are two essential amino acids which often plant-based foods; eating foods containing high levels of one and low levels of the other leads to protein deficiency. Lysine enables the body to use the protein in full
Sugar and dietary fibre	Dietary fibre helps to slow down and control absorption of sugar in the intestine, helping to control glycaemia (blood sugar levels) and spikes in insulin levels

Examples of other interactions could include:

- Vitamin D and vitamin K in ensuring correct calcium metabolism and blood clotting
- Water and dietary fibre to enable fibre to bulk and support digestion
- Calcium and phosphorus in building healthy bones and teeth
- Vitamin B12 and folate (folic acid, vitamin B9) in building red blood cells

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Complementary actions of nutrients: We m

Now that you have learnt all about macronutrients and micronutrients, apply your knowledge in practice. Let's see how much you remember!

Complete the table below to identify nutrients which work together, and identify whether by working together they improve ☺ or worsen the human body.

calcium	vitamin C	lysine	sugar
fluoride	dietary fibre	magnesium	methionine

Nutrients which work together		How they work together

Bonus question:

Can you think of any other interactions of nutrients in the human body? Note them down!

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