

Answers:
HBV and LBV proteins

1a

Study the images below and sort the foods into those that contain HBV (High biological value) proteins and those that contain LBV (Low biological value) proteins.

High biological value proteins

- Meat
- Soya beans
- Quinoa
- Fish
- Cheese
- Milk
- Eggs

Low biological value proteins

- Lentils
- Brazil nuts
- Sunflower seeds
- Bulgur
- Peanuts



Lentils



Soya beans



Cheese



Quinoa



Brazil nuts



Bulgur (wheat)



Eggs



Meat



Peanuts



Milk



Fish













Sunflower seeds

Answers:
Protein complementation

1c

LBV proteins do not contain all the essential amino acids we need but if you eat a mixture of them the missing essential amino acids in one may be provided by one of the others. This is called protein complementation. Study the foods below, identify the LBV proteins and then make suggestions for three meals that would combine two or more of them in the same dish.

 <p>Meat</p>	 <p>Toasted bread</p>
 <p>Kidney beans</p>	 <p>Soya beans</p>
 <p>Rice</p>	 <p>Cheese</p>
 <p>Peanut butter</p>	 <p>Baked beans</p>
 <p>Eggs</p>	 <p>Bulgur (wheat)</p>

Baked beans on toast

Bean and rice salad (not with soya beans)

Peanut butter on toast

Bulgur and bean salad (not with soya beans)

Vegetable satay and rice

Answers: Invisible fats in food 1d

The numbers below the pictures show the rank order for the invisible fat content of each food.

Number 1 has the highest amount of invisible fat.

Number 14 has the lowest amount of invisible fat.

Under each number is the average amount of fat found in 100g of each food product so you can see and easily work out the percentage of fat in each.

				
Chocolate biscuits	Sponge cake with buttercream and jam filling	Cheesecake	Jam doughnut	Lemon meringue pie
6 28g fat/100g	7 27g fat/100g	4 37g fat/100g	12 16g fat/100g	13 15g fat/100g
				
Sausage roll	Quiche lorraine	Mayonnaise	Salami	Potato crisps
8 24g fat/100g	11 18g fat/100g	1 79g fat/100g	3 45g fat/100g	5 35g fat/100g
				
Potato chips	Fried mushrooms	Chicken tikka masala ready meal	Peanut butter	
10 19g fat/100g	9 22g fat/100g	14 11g fat/100g	2 52g fat/100g	

How close were you to the answers?

Why is mayonnaise number 1?

Which foods surprised you with the amount of fat they contain?

Why do potato crisps contain more invisible fat than potato chips?

Answers: Find the fat

1e

Examine each of these food labels and identify which of the ingredients are fats.

Supafresh chocolate sponge cake

Water, Sugar, Chocolate (9%), Wheat flour, Single cream, **Suet**, Modified maize starch, Cocoa powder, **Mono-glycerides**, Skimmed milk powder, **Shortening**, Cream powder, Stabiliser: E461; Salt, Whey powder, Glycerine, Emulsifier: E481; Raising agents: E450, E500

JPL Dunne's food family chicken ingots

Chicken (63%), British wheat flour (Flour, Calcium carbonate, Niacin, Thiamin), Salt, **Polyunsaturates**, **Sunflower oil**, Maize flour, **Monounsaturates**, Salt, Raising agents: Sodium hydrogen carbonate, Disodium diphosphate; Sugar

Super Scorchin' green Thai curry

Water, Chicken (18%), Jasmine rice, Green beans (2%), Bamboo shoot (2%), **Rapeseed oil**, Chicken extract, Sugar, Anchovy extract (**Fish**), Cornflour, Coriander, **Ghee**, **Coconut oil**, **Creamed coconut**, Garlic, Green chilli, Lemon grass, **Palm kernel**, **Palm oil**, Sea salt, Shallot, Galangal, Ginger, Salt, Tamarind, Ginger purée, Cumin, Kaffir lime peel, Onion, Carrot, Sweet basil, Coriander seed, Dried sweet basil, Milk solids

Big'n'Tastee cheese and bacon soup

Water, Flour, Bacon pieces, Potato starch, **Hydrogenated fat**, Milk solids, Milk powder, Cheese flavouring, Sugar, Salt, Corn starch, Concentrated onion juice

Supafresh mixed poultry casserole and dumplings

Water, Potato, Carrots, Chicken (15%), Onion extract, **Lard**, Flour, **Goose fat**, Chicken flavouring, Leeks, **Suet**, **Chicken fat**, Garlic powder, Bay, Clove extract, Stabiliser (lecithin), Salt

Answers: Carbohydrate classification 1

1g

Study the list of individual carbohydrates below. Write M, D or C next to each of them to match them to their correct classification.



Monosaccharides (M)

Disaccharides (D)

Complex carbohydrates (C)

Glucose	M
Maltose	D
Galactose	M
Sucrose	D
Starch	C
Pectin	C
Dextrin	C
Lactose	D
Fructose	M
Non-starch polysaccharide (NSP)	C

Answers: Carbohydrate classification 2

1h

Study the list of carbohydrate-containing foods below. Identify the carbohydrate(s) found within them and write M, D or C next to each of them to match them to their correct classification. Some have more than one carbohydrate present.



Monosaccharides (M)

Disaccharides (D)

Complex carbohydrates (C)

Granulated sugar	D		
Plain yogurt	D		
Brown rice	C	C	
Toast	C	C	
Sweet potato	M	C	
Milk	D		
Golden syrup	D		
Apple	M	M	C
White bread	C		
Honey	M		

Granulated sugar (sucrose – D)

Plain yogurt (lactose – D)

Brown rice (NSP – C; starch – C)

Toast (starch – C; dextrin – C)

Sweet potato (glucose – M; starch – C)

Milk (lactose – D)

Golden syrup (sucrose – D)

Apple (glucose – M; fructose – M; pectin – C)

White bread (starch – C)

Honey (fructose – M)

Answers: Find the sugars

11

Examine each of these food labels and identify which of the ingredients are sugars.

Supafresh chocolate sponge cake

Water, **Sugar**, Chocolate (9%), Wheat flour, Single cream, Suet, Modified hydrolysed starch, Cocoa powder, **Molasses**, Mono-glycerides, Skimmed milk powder, **Glucose syrup**, Shortening, Cream powder, **Dextrose**, Stabiliser: E461; Fat powder, Salt, Whey powder, Glycerine, Emulsifier: E481; Raising agents: E450, E500

JPL Dunne's food family mince pies

Mincemeat (43%) (**Sugar**, Apple purée, Sultanas, Currants, **Glucose syrup**, Apricot purée (Apricots, **Sugar**), Candied mixed peel (**Glucose-fructose syrup**, Orange peel, **Treacle**, Lemon peel), Acidity regulator: Citric acid); Preservative, Vegetable suet, Wheat flour, **Maltose**, Sunflower oil, Cornflour, Acid: Acetic acid; Cinnamon, Crystallised ginger (Ginger, **Fructose**), Allspice, Orange oil

Super Scorchin' green Thai curry

Water, Chicken (18%), Jasmine rice, Green beans (2%), Bamboo shoot (2%), Rapeseed oil, Chicken extract, **Sugar**, Anchovy extract (**Fish**), Cornflour, Coriander, Ghee, Coconut oil, Creamed coconut, Garlic, Green chilli, Lemon grass, Palm kernel, **Sugar cane**, Palm oil, Sea salt, Shallot, Galangal, Ginger, Salt, Tamarind, Ginger purée, Cumin, Kaffir lime peel, Onion, **Sucrose**, Coriander seed, Dried sweet basil, Milk solids.

Big'n'Tastee chocolate pancakes

Sugar, Milk, Flour, Sunflower oil, Egg, Dark chocolate (6%) (Fat-reduced cocoa powder, Cocoa mass, Emulsifier: Soya lecithin), **Liquid glucose**, **Caramel**, Butter (milk), **Lactose** (milk), Skimmed cow's milk powder, Cocoa powder, **Muscovado sugar**, Water, Salt

Supafresh British apple pie

British Bramley apples (58%), Wheat flour (Wheat flour, Calcium carbonate, Niacin, Thiamin), **Granulated sugar**, Unsalted butter, Palm oil, Pasteurised egg, Fruit juices, **Sugar cane**, Water, Rapeseed oil, **Demerara sugar**, Cornflour, Starch, Milk, Lemon juice, Salt

Answers: How much sugar am I drinking?

1j

Study the drinks below. Rank them according to how much sugar you think they contain. Which one has the most? Which one has the least? Are you surprised by your findings?

Drink	Grams of sugar per 150ml	Rank 1–12	Teaspoons of sugar per 150ml
Pure grape juice	24.75g	1	6.9
Ginger beer	22.8g	2	6.4
Passion fruit juice drink	19.65g	3	5.5
Cherry cola	16.8g	4	4.7
Energy drink	16.5g	=5	4.6
Strawberry yogurt drink	16.5g	=5	4.6
Smoothie energise drink	16.5g	=5	4.6
Chocolate milkshake	16.2g	8	4.5
Cola	15.9g	9	4.4
Orange juice	15g	10	4.2
Sparkling lemon drink	13.35g	11	3.7
Lemonade	6.3g	12	1.7

Answers:
Vitamins wordsearch



R	Q	O	I	L	Y	F	I	S	H	F	W	A	V	I	Q	O	F	N	N
R	B	Q	W	Q	T	R	F	G	J	J	Q	A	F	H	R	R	S	I	I
F	P	E	E	S	C	U	R	V	Y	K	R	N	G	N	F	A	D	G	G
G	N	F	R	W	F	V	Q	C	C	L	T	T	I	L	C	N	H	H	H
I	M	V	Q	I	V	B	N	M	E	A	R	I	C	K	E	T	S	T	O
R	H	D	W	Y	B	P	S	E	R	D	N	O	B	S	D	E	D	B	R
O	L	E	R	U	M	E	H	J	E	G	L	X	E	S	F	S	F	L	A
N	G	R	A	T	R	L	R	S	A	J	J	I	T	O	G	A	V	I	N
Y	T	T	S	L	W	L	R	I	L	F	G	D	A	R	T	L	M	N	G
D	M	N	J	K	L	A	N	M	S	A	D	A	C	E	R	A	K	D	E
W	S	U	N	L	I	G	H	T	O	T	Y	N	A	M	E	C	A	N	S
D	F	G	N	B	K	R	I	T	T	T	L	T	R	O	K	I	A	E	N
S	U	N	L	I	G	A	Y	U	E	Q	U	S	T	U	L	A	G	S	B
V	I	W	U	A	D	F	G	H	N	R	T	Y	L	T	V	E	H	S	T
S	A	A	N	A	E	M	I	A	E	M	B	R	A	H	E	C	O	J	U
K	M	T	D	C	V	B	R	S	T	Y	U	I	L	V	A	S	L	B	B
A	D	E	E	T	O	S	T	E	O	M	A	L	A	C	I	A	Q	O	F
E	R	R	T	Y	G	H	K	D	Q	W	S	A	D	T	R	Y	U	M	T
D	F	O	L	A	T	E	E	F	X	V	B	N	G	T	R	W	Q	U	G
D	G	H	Y	C	K	L	P	M	E	N	E	R	G	Y	E	S	Z	L	N

Answers: What do vitamins do?

11

Match each function with the correct vitamin. Take care: some vitamins perform up to 5 functions!

Vitamin	Function in the body
Vitamin A	<ul style="list-style-type: none"> Keeps the skin healthy Helps us see in dim light Helps children to grow Keeps mucous membranes moist and healthy This vitamin is an antioxidant
Vitamin D	<ul style="list-style-type: none"> Helps calcium to be absorbed in the body Helps calcium to strengthen the bones and teeth
Vitamin E	<ul style="list-style-type: none"> This vitamin is an antioxidant
Vitamin K	<ul style="list-style-type: none"> Helps the blood to clot when the body is injured
Vitamin B1	<ul style="list-style-type: none"> Helps energy to be released from carbohydrate in the body
Vitamin B2	<ul style="list-style-type: none"> Helps energy to be released from carbohydrate, fat and protein in the body
Vitamin B3	<ul style="list-style-type: none"> Helps energy to be released from food in the body
Vitamin B9	<ul style="list-style-type: none"> Works with vitamin B12 to make healthy red blood cells Helps to reduce the risk of unborn babies developing spina bifida
Vitamin B12	<ul style="list-style-type: none"> Works with vitamin B9 to make healthy red blood cells Keeps nerve cells healthy
Vitamin C	<ul style="list-style-type: none"> Helps the body absorb iron Keeps connective tissue, which binds the body cells together, healthy This vitamin is an antioxidant

Answers: Vitamin deficiencies

1m

Identify the vitamin without which the body suffers the symptoms and diseases listed.

The vitamins are listed below the table.

Vitamin	Deficiency causes...
B3	Pellagra (diarrhoea, dementia, dermatitis)
D	Rickets in children
E	A deficiency is rare
A	Children don't grow properly
A	Infected mucous membrane
B2	Mouth gets sore at the corners
D	Osteomalacia in adults
A	Night blindness leading to total blindness
C	Scurvy
B1	Beri-beri
B9	May lead to spina bifida in babies
K	Babies sometimes lose some blood at birth
B9	Megaloblastic anaemia (large red blood cells)
B12	Pernicious anaemia
C	Anaemia

Vitamin A

Vitamin D

Vitamin E

Vitamin K

Vitamin B1

Vitamin B2

Vitamin B3

Vitamin B9

Vitamin B12

Vitamin C

Answers: The importance of minerals

1n

What do minerals do? Match each mineral function from the list below to the correct mineral in the table. The number of functions for each mineral is given in the brackets.

Mineral	Function in the body
Calcium (3)	Makes bones and teeth strong
	Makes the nerves and muscles work properly
	Helps the blood to clot when the body is injured
Iron (1)	Makes haemoglobin in red blood cells to carry oxygen to all body cells
Sodium (3)	Controls the amount of water in the body
	Helps to control nerves and muscles
	Helps the body to use energy
Fluoride (1)	Strengthens the bones and the enamel in the teeth and helps prevent tooth decay
Iodine (1)	Produces the hormone thyroxin, which controls the metabolic rate of the body
Phosphorus (4)	With calcium it makes the bones and teeth strong
	Helps the body release energy from food
	Essential for chemical reactions in the body
	Makes special fat molecules called phospholipids, in body cell membranes, especially in the brain and nervous system

- Makes bones and teeth strong
- Makes special fat molecules called phospholipids in body cell membranes, especially in the brain and nervous system
- Controls the amount of water in the body
- Makes haemoglobin in red blood cells to carry oxygen to all body cells
- Makes the nerves and muscles work properly
- Helps the body to use energy from food
- Strengthens the bones and the enamel in the teeth and helps prevent tooth decay
- Helps to control muscles and nerves.
- Produces the hormone **thyroxin**, which controls the metabolic rate of the body
- Helps the body release energy from food
- Essential for chemical reactions in the body
- Helps the blood to clot when the body is injured
- With calcium it makes the bones and teeth strong

Now match each mineral with the effect of its deficiency in the human body.

Mineral	Deficiency in the body
Calcium	<ul style="list-style-type: none"> • Rickets in children • Osteomalacia in adults • Muscles and nerves don't work properly • Blood will not clot properly over a wound after an injury
Iron	<ul style="list-style-type: none"> • Anaemia • Tiredness, weakness, weak nails, lack of energy
Sodium	<ul style="list-style-type: none"> • Muscle cramps
Fluoride	<ul style="list-style-type: none"> • Weak tooth enamel • More chance of tooth decay
Iodine	<ul style="list-style-type: none"> • Swelling in neck – goitre • Mental handicap (cretinism) in new-born babies
Phosphorus	<ul style="list-style-type: none"> • A deficiency is rare

Sodium, Fluoride, Iron, Iodine, Calcium, Phosphorus

