# THEKNOWLEDGE

### Year 8 B2.1:

# Health and lifestyle

### Sentence starters: A balanced diet is ..... Passive smoking is ..... Drugs are .....

Nutrien	<u>ts:</u>							Keywords:	. <u>Digestive syste</u>	<u>m:</u>	
Nutr	rient	Prir	nary	functio	ons			Nutrients, carbohydrates,	Mouth	Food is chewed an	d mixed with saliva. Teeth help to break
Wate	ər	Dis: rem tem	solves loves	and ca waste, ure	arries r and re	utrients, gulates bo	xdy	lipids, protein, vitamin, minerals,	Gullet	Food passes down	this tube.
Prote	ein	Buil enz com	ds ne ymes, npoun	w tissu , hormo ds	es, ant ones, a	ibodies, nd other		fibre, malnourishment, starvation,	Stomach Small intestine	Digestive juices fro digestion is comple	digestive juices and acids. m the liver and pancreas are added and ited. Small molecules of nutrients pass
Carb Fat	oohydrate	Prov	vides vides , and	energy long-te protect	rm ene	rgy, insula	a-	obese, deficiency, digestive system, enzyme,	Large intestine	through the intestir Only food that can back into the body,	ne wall into the bloodstream. Not be digested gets this far. Water passes leaving a solid waste of undigested food
Vitar	Vitamins Facilitate use of other nutrients; involved in regulating growth and manufacturing hormones				catalyst, medicinal drug, recreational drug,	Rectum Anus	Called feces. Feces are stored here until they leave the body. This is a muscular ring through which feces pass out of the body.				
Mine	Minerals Help build bones and teeth; aid in muscle function and nervous system activity			depressant, passive smoking, stimulant	from mouth						
Food tes	<u>st</u> :							Drugs:			
CHEMICAL	TESTS FOR 1 HI Starch ioc for for ch	OW TO CARRY OUT THE TEST   Add the dire solution rectly to the bstance to trested (in lid or liquid rm) and look r a colour ange.	Turns blue black with starch	CHEMICAL	rests roe	HOW TO CARRY OUT THE TEST 1.) Add Biuret's to the solution/ suspension to be tested and look for a colour change.	KESUUT Turns purple with protein	Medicinal drugs are used in medicine and benefit your health. Recreational drug are used for enjoyment,		gullet stomach small intestine	<ul> <li><u>3 main groups of enzyme</u>:</li> <li>1. Carbohydrases break down carbohydrates into smaller molecules.</li> <li>2. Proteases breaks down</li> </ul>
	Reducing Sugar 2.) min ba for for	Add nedict's to the ution/ spension to tested. Heat for 2 ns in a water th at bailing int and look a colour ange.	Turns brick red with reducing sugars (green/ yellow/ orange if less sugar present)		Lipid (known as the Emulsion test)	1.) Add ethanol to the solution/ suspension to be tested and shake thoroughly. 2.) Then add water and look for a colour change.	Turns cloudy/ milky with lipid	to relax, or to help stay awake. They have no health benefits.		large intestine rectum	proteins into amino acids. 3. Lipases break down lipids into fatty acids and glycerol .

### THE KNOWLEDGE Year 8 B2.2 **Ecosystem Processes**

Leaves &

called producers

environment into

carbon dioxide + water

absorbs light

(reactants)

light

energy

### Sentence starters:

Aerobic respiration is .....

Photosynthesis occurs in .....



chain this is called **bioaccumulation**.

plants need four important minerals -

- Nitrates (contain nitrogen) for healthy growth.
- Phosphates (contain phosphorus) for healthy roots
- **Potassium** for healthy leaves and flowers
- **Magnesium** for making chlorophyll If a plant does not get enough minerals its growth will be poor. This is called a mineral deficiency.

Farmers replace missing minerals in the soil with chemicals called fertilisers.



# THEKNOWLEDGE Year 8 C2.1 The Periodic Table

### **Groups and Periods**

In the periodic table, the vertical columns are called **groups** and the horizontal rows are called **periods**.

Elements in the same group have similar **properties**. Going down a group, there are usually patterns in the properties such as melting point, boiling point and density.

There are also patterns in the properties of elements going across a period.

# Metals and Non-Metals Image: Ima

liquids gases at room temperature

▲ The Periodic Table. This version does not include every element.

Elements are classified as **metals** or **non-metals**. Metals and non-metals have different chemical and physical properties.

In the periodic table, metals are on the left and non-metals are on the right (above the stepped line).

### Sentence starters:

The properties of metals are... The properties of non-metals are...

### <u>Glossary</u>

Metals Non-metals Groups Periods Physical properties Chemical properties Density Reactive Unreactive Displacement

### Group 0

Group 0 elements are non-metals. They are all gases and are sometimes called the noble gases.

Group 0 elements have very low melting and boiling points. They are colourless gases at room temperature.

### They are all unreactive.

							н			Grou	рŌ	- the	e not	ole g	ases	/	Не
Li	Be							1				В	С	Ν	0	F	Ne
Na	Mg											Al	Si	Ρ	s	CI	Ar
к	Ca	SC	Ti	٧	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	se	Br	Kr
Rb	Sr	Y	Zr	Nb	Мо	TC	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Те	1	xe
CS	Ba	La	Hf	Та	w	Re	OS	Ir	Pt	Au	Hg	TI	Pb	Bi	PO	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg							

▲ Group 0 is on the right of the Periodic Table.

### Group 1

Group 1 elements are metals. They are sometimes called the **alkali metals**.

Like other metals, they are good conductors of electricity and heat and are shiny (when freshly cut).

Group 1 metals react with water to make hydrogen and metal hydroxides:

### Group 7

Group 7 – the halogens												He					
Li	Be												С	Ν	0	F	Ne
Na	Mg											Al	Si	Ρ	S	CI	Ar
к	Са	SC	Ti	۷	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Мо	ТС	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Те	I.	хе
Cs	ва	La	Hf	Та	W	Re	Os	Ir	Pt	Au	Hg	TI	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg							

▲ Group 7 is towards the right of the Periodic Table.

Group 7 elements are non-metals. They are sometimes called **the halogens**.

Like most non-metals, group 7 elements have low melting-points.

Group 7 elements are reactive. They all react with iron to make salts.



<b>THEKNOWLI</b> Electricity and M	DGE Year 8 P2.1 lagnetism	Sentence starters: In a series circuit, the currer In a parallel circuit the volta Resistance is caused by	nt is ge is
When electric charge more forced to move by the po- is what also gives the char a battery is connected to the cell starts to move roor Current is measured in an Voltage is measured in vo Some materials let current others and some material them. We call this proper measured in ohms.	ves it is called a <b>current</b> . The current is <b>tential difference (voltage)</b> . The voltage rge the <b>energy</b> it carries. When a <b>cell</b> or make a <b>circuit</b> , the charge stored up in und the circuit. <b>nps</b> with an <b>ammeter</b> . <b>Its</b> with a <b>voltmeter</b> . It move through them easier than is do not let current move through ty of materials <b>resistance</b> and it is	Glossary Current Charge Potential difference (Voltage) ammeter voltmeter Series and parallel Electromagnet Electric field Magnetic field Resistance	Magnets         Magnets are special objects that can attract or repel other objects. Every magnet has a north pole and a south pole.         Image: Comparison of the second secon
Series and parallel circuits In a series circuit, the same the circuit.	current moves through every component in <u>Advantages</u>	Resistance Resistance is friction between electrons and the atoms of the conductor they are moving through.	
In a series circuit, the reading on the ammeters is the same.	Simple and easy to make.  Disadvantages If one lamp breaks, the whole current stops flowing.	sections of resistor in a circuit electron flow electrons vibrating atoms	time we use a compass.
Parallel circuits These circuits have loops or	branches in them.	resistance ( $\Omega$ ) = potential difference (V) current (A)	
	Advantages f one bulb breaks the others stay on. Every bulb gets the full voltage of the cell. Disadvantages They are harder to make.	Metals are good conductors because they have lots of electrons that can flow easily. Non metals are poor conductors because electrons do not flow easily through them.	Electromagnets We can make a magnet that we can switch on and off. It is made of coils of wire wrapped around an iron core. When a current flows through the coil, the iron becomes magnetic. The strength of the magnetism depends on: • The number of coils • The size of the current

through them.

• The size of the current

THE KNOWLEDG Energy	Year 8 P2	2.2	Sentence starters: Energy is measured in There are many different types of energy store such as Power is Heat and temperature are different because						
Energy cannot be created or destroyed. It can transferred. This is know as <b>the law of conse</b> is measured in J or kJ. There are many different types of energy, the below. Energy	n be stored, or it can be ervation of energy. Energy eey are listed in the table	<u>Gloss</u> Energy, joule, of conservatio chemical store, thermal, gravitationa elastic, tem thermometer	sary kilojoule, law on of energy, , energy store, kinetic, l, potential, nperature, , conduction,	The heat and temperature         Heat energy is the random motion of molecules in a substance, and temperature is a measure of how fast the molecules are moving.         Solid       liquid       gas         Solid       liquid       gas         Work done       Solid       solid         Work is done whenever a force moves something over a distance. You can calculate the energy transferred, or work done, by multiplying the force by the distance moved in the direction of the force.         work done = force × distance					
Energy to do with food, fuels, batteries hot objects moving objects position in a gravitational field changing shape, stretching, or squashing total energy before = total e	Type of store       chemical       thermal       kinetic       gravitational potential       elastic	convection, infrared, ther fossil fuel, rene rating, watt kilowatt ho	radiation, mal imaging, wable, power t, kilowatt, our, work.						
Types of energy transfer In conduction particles transfer energy by collidin they vibrate. thermal store at a high temperature Convection - is when moving particles carr	g with other particles when thermal store at a low temperature y energy from one place	Power When work is dor energy is transfer which this energy called <b>power</b> . So powerful a device energy it will tran second <u>Calculating powe</u> The equation use	ne on an object, red. The <b>rate</b> at r is transferred is the more e is, the more isfer each e <u>r</u> d to calculate	(J) (N) on an object, d. The rate at transferred is e more the mor					
to another           Radiation           All objects transfer energy to their surround           radiation. The hotter an object is, the more off.	dings by <b>infrared</b> e infrared radiation it gives	the power is $power = \frac{wo}{tim}$ $P = \frac{E}{t}$	rk done ne taken	Power station	About t electric comes fuelled	three-quar city genera from pow I by fossil f	ters of the ted in the UK er stations uels.		

## Key Tier 2 Terminology

Anomaly: Odd result Associated: Related to or connected to something. Coherent: Logical and consistent. Collide: Hit with force when moving. Conclude: To reach as a logically necessary end by reasoning. Concentrated: Present in high proportion to something else e.g. water.

Conserve: To keep or protect. Correspond: Match up or close similarity.

Determine: Figure out or discover the answer.

Emit: To give out / produce. Entity: Body

Excess: The amount of something that is more than necessary.

Fluctuate: Keep on rising and falling irregularly / changing continously Function: What it's used for / it's purpose.

Hierarchy: an order or ranking or classifying things relative to importance or inclusiveness. Hypothesis: An explanation based on limited evidence. This can be tested.

Indicator: Shows the state or level of something. Magnitude: Size

Occur: Something that happens or comes to mind.

Passive: Allowing what happens to happen.

Replenish: fill up again / restore to a former level or condition.

Require: To demand as necessary or essential.

Represent: To serve as a sign or symbol of something. Subsequent: Coming after something / following Technique: Method of doing something.



COMMAND WORDS

These are the words in your exam questions which tell you what the examiner

wants you to do. By understanding these exam words, you are on your way to understanding how to approach the question successfully.

Compare

To say how two things are similar or different

Discuss

To include many points of

view in your response.

Ę.

Explain

To say why by giving

reasons and causes

Justify

To include the reasons behind

your thoughts and decisions

Connectives

Emphasising

above all

in particular

especially

significantly

indeed

notably

Illustrating

for example

such as

for instance

as revealed by

in the case of

Sequencing

next

then

first, second,

third, ....

finally

meanwhile

eventually

after, before

Qualifying

however

although

unless

except

if

as long as

Analyse

To examine something in detail

1=

1=

1-

Describe

To give a detailed account that includes

all the relevant information

Evaluate

To review the information and

discuss the quality of it.

Identify

To select or recall

relevant information

Adding

and

also

as well as

moreover

100

Cause & Effect

because

SO

therefore

thus

consequently









Affect/Effect

Commonly misspelled words

Measure

This could be

because .... ...however...

I think this

because

...because. ...so....

...therefore...

**Use the PEEL** 

rule!

are both. Whilst...

However. In contrast.

In addition..

	Suggest	Apply your knowledge to give ideas on why something is the way it is	•••••••••••••••••••••••••••••••••••••••	State what you th Explain why you this (give evidence You are trying to persuade
X	plain	Show, using evidence, how or why something happens		Describe what is going on Say why it is happening State the evidence you have
ກ[	pare	Show how two or more things or ideas are the same and different		Give examples of they are the sam Give examples of they are differen Be specific!
		Give information to		Say what can be

Describe

Co

Name / State

Comparing

equally

in the same way

similarly

likewise

as with

like

Contrasting

whereas

instead of

alternatively

otherwise

unlike

on the other hand

# show what something is like Recall a simple piece of information

### Be accurate on spelling · No need to put into a sentence

# QWC long response answers 6 steps to success



# HOW TO USE THE KNOWLEDGE ORGANISERS

IN C	LASS	AT HOME				
Quiz your neighbour	Your teacher will give you a section to focus on. Test each other by making up questions.	20 mins per school night	Choose a subject you have the next day or one you don't feel confident in. Just focus on a section.			
Multiple choice quiz	Sometimes your teacher will prepare a quick quiz for you.	Quiz yourself	Use the Look, Cover, Write, Check method to actively learn a section at a time.			
Key words	As you come across the key words in lessons, tick them off. Record definitions in your key words box in your book.	Weekly quiz	This will appear on Show My Homework. You will get positive points for you and your house if you complete this.			
Key words in context	Sometimes your teacher will ask you to practice writing sentences using the key words.	Create flashcards	Turn the information into flashcards by using small squares of paper or use <u>Quizlet</u> to make digital ones.			
Spelling test	Sometimes your teacher will give you a spelling test on the key words.	Quizlet	If you create flashcards on Quizlet you can use them to learn, revise and test yourself in lots of ways.			
Reference	information you need is here.	Writing	Use it to improve other types of			
Extended writing	Work the information into your writing to show more specialist		homework, especially longer writing tasks, by adding more specialist knowledge.			
Knowledge test	At the end of a unit, your teacher will give you a test to see how well you have learned the information.	Revise	Towards the end of term, mix up your flashcards. Keep a pile of those you get wrong and focus on those as you get closer to the tests.			