

Due Date:	Friday, 16th April 2021
Student Number:	
Name:	



B1 - Photosynthesis

Visit the BBC Bitesize link: www.bbc.co.uk/bitesize/guides/zq8s2nb/revision/1

Question	Answer
What is the word equation for photosynthesis?	Carbon dioxide + Water → Glucose + Oxygen
Where does photosynthesis take place?	Photosynthesis takes place in the chloroplasts .
How many stages is photosynthesis?	There are 2 stages in photosynthesis.
Why is photosynthesis an endothermic reaction?	Photosynthesis is endothermic because energy is absorbed (taken in) from the surroundings in the form of light.
How does photosynthesis affect the concentration of carbon dioxide in the atmosphere?	Photosynthesis decreases the concentration of carbon dioxide in the atmosphere.
How does deforestation affect the concentration of carbon dioxide in the atmosphere?	Deforestation (the removal of trees) increases the concentration of carbon dioxide . This is because there is now less photosynthesis taking place, so less carbon dioxide is removed from the air.
Why do plants carry out photosynthesis?	Plants carry out photosynthesis to produce food (in the form of glucose) for themselves.
What happens to the glucose made during photosynthesis?	<ul style="list-style-type: none"> • Can be respired to released energy • Can be stored as starch (for later use) • Used to make proteins e.g. cellulose
Why do root hair cells not contain chloroplasts?	Root hair cells do not photosynthesise so do not need chloroplasts. This is because they receive no/very little light underground.

Look, Cover, Write, Check

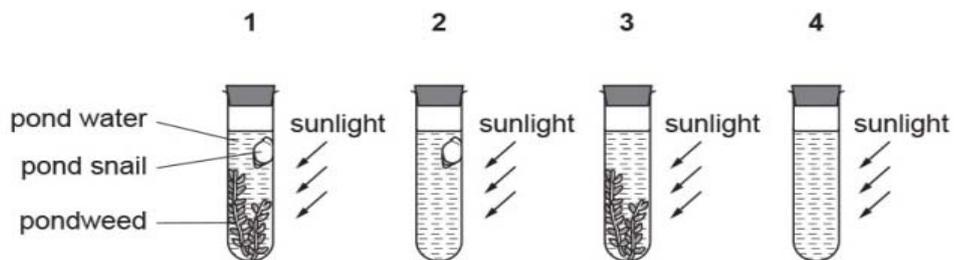
Question	Answer
How does deforestation affect the concentration of carbon dioxide in the atmosphere?	
Why do root hair cells not contain chloroplasts?	
How many stages is photosynthesis?	
Why is photosynthesis an endothermic reaction?	
How does photosynthesis affect the concentration of carbon dioxide in the atmosphere?	
What happens to the glucose made during photosynthesis?	
Why do plants carry out photosynthesis?	
What is the word equation for photosynthesis?	
Where does photosynthesis take place?	

Look, Cover, Write, Check

Question	Answer
What is the word equation for photosynthesis?	
How many stages is photosynthesis?	
	... to produce food (in the form of glucose) for themselves.
How does deforestation affect the concentration of carbon dioxide in the atmosphere?	
How does photosynthesis affect the concentration of carbon dioxide in the atmosphere?	
	... because energy is absorbed (taken in) from the surroundings in the form of light.
	<ul style="list-style-type: none">• Can be respired to released energy• Can be stored as starch (for later use)• Used to make proteins e.g. cellulose
Where does photosynthesis take place?	
	... because root hair cells do not photosynthesise.

Exam Question:

1. Pond snails and pondweed are living in water in sealed test tubes.



Carbon dioxide dissolves in water and forms an acid.

In which test tube would the water become most acidic?

- A 1
- B 2
- C 3
- D 4

Your answer

Due Date:	Friday, 23 rd April 2021
Student Number:	
Name:	



B2 – Diffusion and Gas Exchange

Visit the BBC Bitesize link: www.bbc.co.uk/bitesize/guides/zwkn7p3/revision/1

Question	Answer
Define 'diffusion'	The net movement of particles from a region of high concentration to a region of low concentration.
What 4 factors affect the rate of diffusion?	- Temperature - Concentration gradient - Surface area: volume ratio - Diffusion distance
What is meant by the term 'concentration gradient'?	The difference in concentration between two areas.
How can you increase the rate of diffusion?	Increase temperature; increase concentration gradient; increase surface area: volume ratio; decrease the diffusion distance.
How can you decrease the rate of diffusion?	Decrease temperature; decrease concentration gradient; decrease surface area: volume ratio; increase the diffusion distance.
Where does diffusion occur in living organisms?	Gas exchange between the lungs and blood; gas exchange between the blood and cells; gas exchange in and out of the stomata.
How is the alveoli adapted for gas exchange?	Thin walls, large surface area, good blood supply
How does breathing allow oxygen to diffuse into the blood?	Breathing allows large amounts of oxygen to enter the lungs. This creates a high concentration gradient between the alveoli and the blood, allowing oxygen to enter the blood by diffusion.

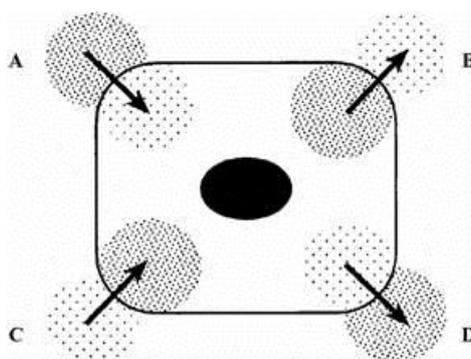
Look, Cover, Write, Check

Question	Answer
What is meant by the term 'concentration gradient'?	
What 4 factors affect the rate of diffusion?	
Define 'diffusion'	
How can you increase the rate of diffusion?	
How is the alveoli for adapted gas exchange?	
How does breathing allow oxygen to diffuse into the blood?	
How can you decrease the rate of diffusion?	
Where does diffusion occur in living organisms?	

Look, Cover, Write, Check

Question	Answer
What is meant by the term 'concentration gradient'?	
	Increase temperature; increase concentration gradient; increase surface area: volume ratio; decrease the diffusion distance.
Define 'diffusion'	
What 4 factors affect the rate of diffusion?	
Where does diffusion occur in living organisms?	
How does breathing allow oxygen to diffuse into the blood?	
	Decrease temperature; decrease concentration gradient; decrease surface area: volume ratio; increase the diffusion distance.
How is the alveoli adapted gas exchange?	

Exam Question: The diagram shows four ways in which molecules may move into and out of a cell. The dots show the concentration of molecules.



The cell is respiring aerobically.

Which arrow, **A**, **B**, **C** or **D** represents:

(i) movement of oxygen molecules; _____

(ii) movement of carbon dioxide molecules? _____

(2)

(c) Name the process by which these gases move into and out of the cell.

_____ (1)

Due Date:	Friday, 30 th April 2021
Student Number:	
Name:	



B3 – Menstrual Cycle

Visit the BBC Bitesize link: www.bbc.co.uk/bitesize/guides/z9btrwx/revision/5

Question	Answer
What is the 'menstrual cycle'?	A monthly cycle during which a female's body prepares for pregnancy.
How long does the menstrual cycle last?	28 days.
What occurs during days 1-4?	The uterus lining sheds. This is called menstruation (a period).
What occurs during days 4-14?	The uterus lining thickens.
What occurs on day 14?	An egg is released from the ovaries. This is called ovulation.
What occurs during days 14-28?	The uterus lining remains thick, in case the egg becomes fertilised.
What is the role of FSH?	Causes the egg to mature.
What is the role of oestrogen?	Causes the uterus lining to thicken.
What is the role of LH?	Causes the release of the egg (ovulation).
What is the role of progesterone?	Maintains the thickness of the uterus lining.

Look, Cover, Write, Check

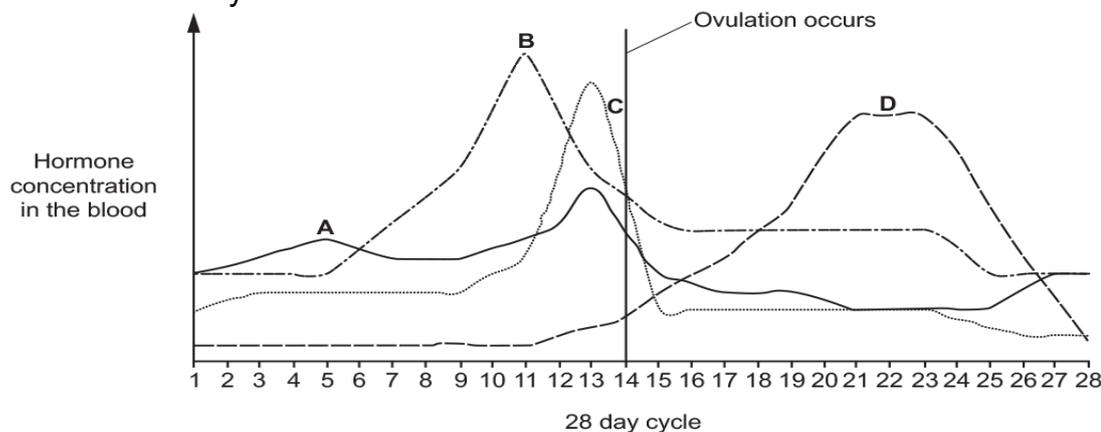
Question	Answer
What is the 'menstrual cycle'?	
How long does the menstrual cycle last?	
What occurs during days 1-4?	
What occurs during days 4-14?	
What occurs on day 14?	
What occurs during days 14-28?	
What is the role of FSH?	
What is the role of oestrogen?	
What is the role of LH?	
What is the role of progesterone?	

Look, Cover, Write, Check

Question	Answer
What is the role of progesterone?	
How long does the menstrual cycle last?	
	The uterus lining sheds. This is called menstruation (a period).
What occurs during days 4-14?	
What is the role of oestrogen?	
	Causes the egg to mature.
	The uterus lining remains thick, in case the egg becomes fertilised.
What occurs on day 14?	
	Causes the release of the egg (ovulation).
	A monthly cycle during which a female's body prepares for pregnancy.

Exam Question:

The diagram shows the changes that occur to female hormone concentrations in the blood during the menstrual cycle.



- i. Which line represents the hormone **progesterone**?
Choose from **A, B, C** or **D**

_____ [1]

- ii. Explain your answer to part (i).

_____ [1]

- iii. Describe the role of progesterone in the menstrual cycle

_____ [1]

Due Date:	Friday, 7 th May 2021
Student Number:	
Name:	



C1 - Atomic Structure and Isotopes

Visit the BBC bitesize link: www.bbc.co.uk/bitesize/guides/z2qq4qt/revision/1

Question	Answer
What is the mass of a proton?	1
What is the mass of a neutron?	1
Define 'atomic number'	The number of protons in the nucleus of an atom.
Define 'relative atomic mass'	The number of protons and neutrons in the nucleus of an atom.
How do you calculate the number of protons in an atom?	Number of protons = atomic number
How do you calculate the number of neutrons in an atom?	Number of neutrons = (relative atomic mass – atomic number)
Define an isotope.	Atoms of the same element with the same number of protons but a different number of neutrons.
Why do isotopes of an element have the same atomic number?	Isotopes have the same atomic number because they have the same number of protons.
Why do isotopes of an element have different relative atomic mass numbers?	Isotopes have a different relative atomic mass because they have a different number of neutrons.
Why is ${}^6\text{C}_{13}$ an isotope of ${}^6\text{C}_{12}$?	${}^6\text{C}_{13}$ and ${}^6\text{C}_{12}$ have the same number of protons (they both have an atomic number of 6) but different number of neutrons (they have a different relative atomic mass).
Why is ${}^6\text{C}_{12}$ <u>not</u> an isotope of ${}^7\text{C}_{12}$?	Isotopes have the same number of protons but a different number of neutrons. ${}^6\text{C}_{12}$ and ${}^7\text{C}_{12}$ have a different number of protons (hence a different atomic number). This means that they are in fact different elements. An atom with an atomic number of 7 is in fact nitrogen, not carbon.

Look, Cover, Write, Check

Question	Answer
What is the mass of a proton?	
What is the mass of a neutron?	
Define 'atomic number'	
Define 'relative atomic mass'	
How do you calculate the number of protons in an atom?	
How do you calculate the number of neutrons in an atom?	
Define an isotope.	
Why do isotopes of an element have the same atomic number?	
Why do isotopes of an element have different relative atomic mass numbers?	
Why is ${}^6\text{C}_{13}$ an isotope of ${}^6\text{C}_{12}$?	
Why is ${}^6\text{C}_{12}$ <u>not</u> an isotope of ${}^7\text{C}_{12}$?	

Look, Cover, Write, Check

Question	Answer
	1
Define an isotope.	
	The number of protons in the nucleus of an atom.
Why do isotopes of an element have different relative atomic mass numbers?	
How do you calculate the number of protons in an atom?	
	Relative atomic mass – atomic number
	1
Why do isotopes of an element have the same atomic number?	
	The number of protons and neutrons in the nucleus of an atom.
Why is ${}^6\text{C}_{13}$ an isotope of ${}^6\text{C}_{12}$?	
Why is ${}^6\text{C}_{12}$ <u>not</u> an isotope of ${}^7\text{C}_{12}$?	

Exam Question:

1. An atom has both an **atomic number** and a **mass number**. What do these **two** terms mean?

[2]

2. An atom of chlorine can be represented as



Different **isotopes** of chlorine exist.

Nick thinks the following are three isotopes of chlorine.

Only one is correct. Which one?



[1]

Due Date:	Friday, 14 th May 2021
Student Number:	
Name:	



C2 – Giant Covalent Structures

Watch the Youtube Video: www.youtube.com/watch?v=tGH0mXCcEFU

Question	Answer
Define a 'covalent bond'.	A shared pair of electrons between 2 non-metal atoms.
Give an example of a giant covalent structure.	Diamond, graphite and silicon dioxide.
Why do giant covalent structures have a high melting and boiling point?	They have lots of covalent bonds, therefore lots of energy is required to break these covalent bonds.
Define 'allotrope'	Different structural forms of the same element in the same physical state.
Name 2 allotropes of carbon.	Diamond and graphite.
State some properties of graphite.	Soft and slippery; good conductor of heat and electricity; high melting and boiling point.
State some uses of graphite	Pencils; lubricant; electrodes in batteries and electrolysis.
Describe the bonding in graphite.	Each carbon atom is covalently bonded to 3 other carbon atoms, forming hexagons. The sheets of carbons are arranged in layers. There are delocalised electrons between the layers that allow the layers to slide over each other.
State some properties of diamond.	Very hard; shiny; does not conduct heat or electricity; high melting and boiling point.
State some uses of diamond	Jewellery; cutting tools.
Describe the bonding in diamond.	Each carbon atom is covalently bonded to 4 other carbon atoms. This forms a tetrahedral structure.

Look, Cover, Write, Check

Question	Answer
Define an 'allotrope'	
Name 2 allotropes of carbon.	
Give an example of a giant covalent structure.	
Define a 'covalent bond'.	
Why do giant covalent structures have a high melting and boiling point?	
State some properties of graphite.	
State some properties of diamond.	
Describe the bonding in graphite.	
Describe the bonding in graphite.	
State some uses of graphite.	
State some uses of diamond	

Look, Cover, Write, Check

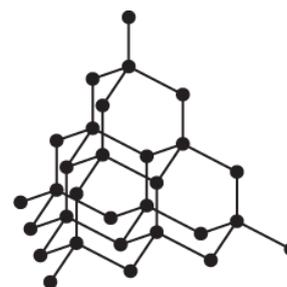
Question	Answer
	A shared pair of electrons between 2 non-metal atoms.
Give an example of a giant covalent structure.	
Why do giant covalent structures have a high melting and boiling point?	
	Different structural forms of the same element in the same physical state.
Name 2 allotropes of carbon.	
	Soft and slippery; good conductor of heat and electricity; high melting and boiling point.
State some uses of graphite.	
Describe the bonding in graphite.	
	Very hard; shiny; does not conduct heat or electricity; high melting and boiling point
State some uses of diamond	
Describe the bonding in diamond.	

Exam Questions:

Q1. Diamond is a form of carbon.

It has a giant molecular structure.

Write about **four** of the physical properties of diamond and explain, in terms of properties, why diamond is used in cutting tools.



[4]

Q2. Graphite can conduct electricity, however diamond cannot. Explain why this is.

[2]

Due Date:	Friday, 21 st May 2021
Student Number:	
Name:	



P1 - Density

Visit the BBC bitesize link: www.bbc.co.uk/bitesize/guides/zswpgdm/revision/2

Question	Answer
Define 'density'	The amount of mass in a certain volume.
What is the equation for density? Include units.	Density (kg/m ³) = mass (kg) / volume (m ³)
What apparatus is used to measure mass?	Mass balance
How do you convert from g to kg?	Divide by 1000.
How do you convert from kg to g?	Multiply by 1000.
Mass and weight are not the same. How is mass different to weight?	Mass is the amount of matter in an object, measured in g or kg. Weight is the force of gravity acting on a mass, measured in N. If you went to another planet, your mass would stay the same but your weight would change because the strength of gravity varies on different planets.
Define 'volume'	The amount of space an object occupies.
How do you measure the volume of a regular object?	Length x width x height
How do you measure the volume of an irregular object?	Fill a Eureka can with water up to the spout. Place the irregular object in the water-filled Eureka can. The water will rise and spill out of the Eureka can. Catch the displaced water in a measuring cylinder. The volume of displaced water is equal to the volume of irregular object. 1ml = 1cm ³
Which state of matter has the highest density? Explain your answer	Solid because the particles are closely-packed together so there are lots of particles in a certain volume.
Which state of matter has the lowest density? Explain your answer.	Gas because the particles are spread out so there are few particles in a certain volume.

Look, Cover, Write, Check

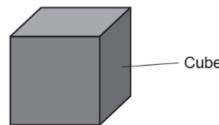
Question	Answer
How do you convert from kg to g?	
What is the equation for density? Include units.	
How do you measure the volume of an irregular object?	
How do you convert from g to kg?	
Define 'density'	
Mass and weight are not the same. How is mass different to weight?	
Define 'volume'	
Which state of matter has the lowest density? Explain your answer.	
What apparatus is used to measure mass?	
Which state of matter is the highest density? Explain your answer.	
How do you measure the volume of a regular object e.g. a cube.	

Look, Cover, Write, Check

Question	Answer
	Divide by 1000.
What is the equation for density? Include units.	
How do you measure the volume of an irregular object?	
Mass and weight are not the same. How is mass different to weight?	
Define 'density'	
	Multiply by 1000.
How do you measure the volume of a regular object e.g. a cube.	
	Gas because the particles are not touching (spread out) so there are few particles in a certain volume.
What apparatus is used to measure mass?	
Which state of matter has the highest density? Explain your answer.	
	The amount of space an object occupies.

Exam Question

A student is given a **solid** metal cube.



- i. Explain how the student can use a ruler to calculate the volume of the metal cube.

_____ [2]

- ii. The metal cube has a volume of 125 cm^3 and a mass of 850 g.

Calculate the density of the metal cube. Use the equation: density = mass \div volume

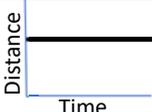
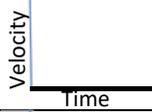
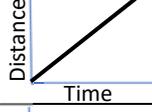
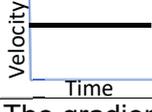
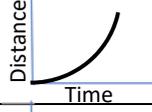
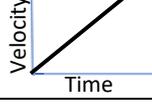
Density = _____ g/cm^3

Due Date:	Friday, 28 th May 2021
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P2 – Distance-Time vs Velocity-Time Graphs

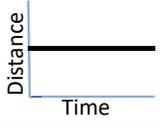
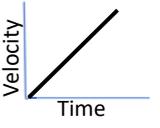
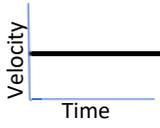
Watch the YouTube Video: www.youtube.com/watch?v=4il7f4xw0Bk

Question	Answer
Define 'stationary'	Not moving (still).
Define 'acceleration'	Velocity increasing.
Sketch a distance-time graph for an object that is stationary .	 <p>The line is straight because if an object is stationary (not moving), distance does not change.</p>
Sketch a velocity-time graph for an object that is stationary .	 <p>If the object is stationary (not moving), the speed (or velocity) will be equal to 0.</p>
Sketch a distance-time graph for an object travelling at a constant speed .	 <p>On a distance-time graph, the gradient (steepness) of the line is equal to the speed. So, for an object travelling at a constant speed, the gradient remains constant.</p>
Sketch a velocity-time graph for an object travelling at a constant speed .	 <p>If an object is travelling at a constant speed (or velocity), the line is straight because velocity is not changing.</p>
How is speed calculated from a distance-time graph?	The gradient (steepness) of the line.
Sketch a distance-time graph for an object that is accelerating .	 <p>Acceleration is an increase in speed (or velocity). Speed on a distance-time graph is equal to the gradient (steepness) of the line. So the gradient is increasing.</p>
Sketch a velocity-time graph for an object that is accelerating .	 <p>Acceleration is an increase in speed (or velocity). So acceleration on a velocity-time graph is shown by velocity increasing.</p>

Look, Cover, Write, Check

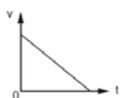
Question	Answer
Define 'stationary'	
Sketch a velocity-time graph for an object that is stationary .	
Sketch a distance-time graph for an object that is stationary .	
Define 'acceleration'	
How is speed calculated from a distance-time graph?	
Sketch a velocity-time graph for an object that is accelerating .	
Sketch a distance-time graph for an object that is accelerating .	
Sketch a velocity-time graph for an object travelling at a constant speed .	
Sketch a distance-time graph for an object travelling at a constant speed .	

Look, Cover, Write, Check

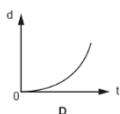
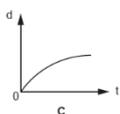
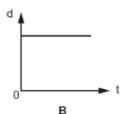
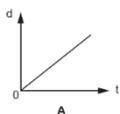
Question	Answer
	Not moving (still).
Sketch a velocity-time graph for an object that is stationary .	
	
	Increase in velocity.
How is speed calculated from a distance-time graph?	
	
Sketch a distance-time graph for an object that is accelerating .	
	
Sketch a distance-time graph for an object travelling at a constant speed .	

Exam Questions:

Q1. Look at the velocity-time graph for a car.



Which graph shows the correct distance-time graph for this car?



Your answer

[1]