

Due Date:	Friday, 16th 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

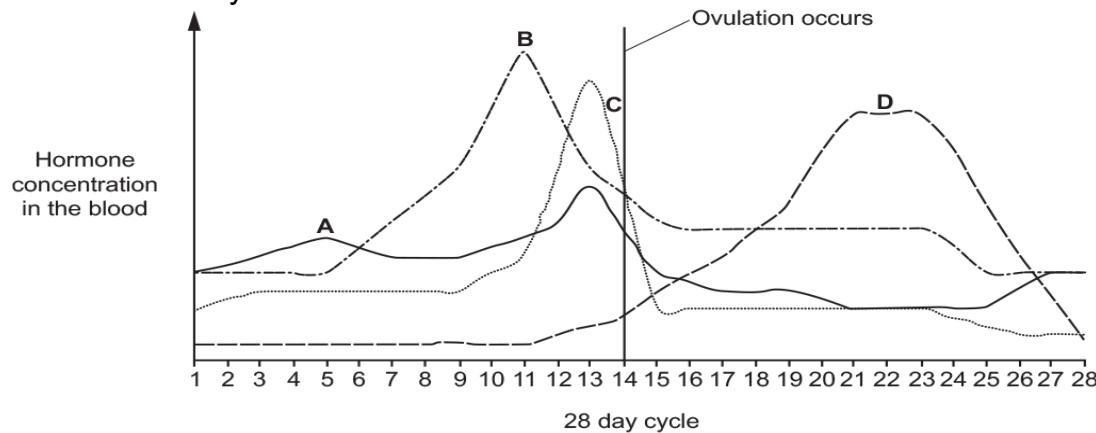
Question	Answer
What is the 'menstrual cycle'?	
How long does the menstrual cycle last?	
What occurs during days 1-4?	
What occurs during days 4-14?	
What occurs on day 14?	
What occurs during days 14-28?	
What is the role of FSH?	
What is the role of oestrogen?	
What is the role of LH?	
What is the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

B4 – Ecosystems

Visit the BBC Bitesize link: www.bbc.co.uk/bitesize/guides/zw6wgqdm/revision/5

Question	Answer
Define 'ecosystem'	All the living organisms and non-living factors in an area.
What is a 'producer'?	An organism that produces its own food e.g. plants
What is a 'consumer'?	An organism that eats other organisms for energy e.g. animals
What is a 'decomposer'	An organism that feeds on dead or decaying material for energy e.g. bacteria or fungi.
What is a biotic factor? Give 2 examples.	A living factor . E.g. Number of predators, number of bacteria
What is an abiotic factor? Give 2 examples.	A non-living factor . E.g. soil pH and temperature.
What do animals compete for?	Food, water, space (territory), shelter, breeding partners
What do plants compete for?	Light, minerals, carbon dioxide, water, space.
What is predation?	When an animal (predator) hunts and eats another animal (prey).
What is a mutualistic relationship? Give an example.	A mutualistic relationship is when both organisms benefit from each other another. E.g. Oxpecker and buffalo – the oxpecker eats the fleas off the buffalo.
What is a parasitic relationship? Give an example.	A parasitic relationship is when only one organism benefits and the other organism is harmed. E.g. Fleas living on other animals .

Look, Cover, Write, Check

Question	Answer
What is a 'decomposer'	
What is a 'producer'?	
What is a 'consumer'?	
Define 'ecosystem'	
What do plants compete for?	
What is an abiotic factor? Give 2 examples.	
What do animals compete for?	
What is a biotic factor? Give 2 examples.	
What is a parasitic relationship? Give an example.	
What is a mutualistic relationship? Give an example.	
What is predation?	

Look, Cover, Write, Check

Question	Answer
Define 'ecosystem'	
	An organism that produces its own food e.g. plants
	An organism that eats other organisms for energy e.g. animals
What is a 'decomposer'	
What is a biotic factor? Give 2 examples.	
	A non-living factor . E.g. soil pH and temperature.
What do animals compete for?	
What do plants compete for?	
	When an animal (predator) hunts and eats another animal (prey).
What is a mutualistic relationship? Give an example.	
What is a parasitic relationship? Give an example.	

Exam Question:

Q1. Which statement best describes an ecosystem?

- A. A community of organisms and the abiotic factors affecting them.
- B. A group of organisms of the same species living together in the same habitat.
- C. The position occupied by an organism within a community.
- D. The total population of organisms living in a habitat.

Your answer

Q2. Farmers grow sugar beet plants in large fields.

They try and stop weeds growing in between the sugar beet plants.

One way to do this is by adding chemicals to kill the weeds.

Explain why removing weeds makes sugar beet plants grow bigger.

Due Date:	Friday, 30th April 2021
Student Number:	
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C1 - Atomic Structure and Isotopes

Visit the BBC bitesize link: www.bbc.co.uk/bitesize/guides/z2qg4qt/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]

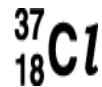
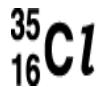
2. An atom of chlorine can be represented as



Different **isotopes** of chlorine exist.

Nick thinks the following are three isotopes of chlorine.

Only one is correct. Which one?



[1]

Due Date:	Friday, 7th May 2021
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C4 – Reactivity of Group 1, 7 and 0

Visit the BBC bitesize link and watch the video: www.bbc.co.uk/bitesize/clips/z2qb9j6

Question	Answer
What is the name of group 1?	Alkali metals.
What is the name of group 7?	Halogens.
What makes group 1 metals reactive?	They want to lose 1 electron and form a full outer shell.
What makes group 7 reactive?	They want to gain 1 electron and form a full outer shell.
Describe the trend in reactivity of group 1.	As you go down group 1, reactivity increases.
Why do group 1 elements become more reactive down the group?	Atomic radii increases, the electrostatic attraction becomes weaker so it is easier to lose an electron.
Describe the trend in reactivity of group 7.	As you go down group 7, reactivity decreases.
Why do group 7 elements become less reactive down the group?	Atomic radii increases, the electrostatic attraction becomes weaker so it is harder to gain an electron.
What does 'inert' mean?	Unreactive
Why are group 0 inert?	They already have a full outer shell therefore they do not want to lose or gain electrons.

Look, Cover, Write, Check

Question	Answer
What is the name of group 1?	
What is the name of group 7?	
What makes group 1 metals reactive?	
What makes group 7 reactive?	
Describe the trend in reactivity of group 1.	
Why do group 1 become more reactive down the group?	
Describe the trend in reactivity of group 7.	
Why do group 7 become less reactive down the group?	
What does 'inert' mean?	
Why are group 0 inert?	

Look, Cover, Write, Check

Question	Answer
	Alkali metals.
	Halogens.
What makes group 1 metals reactive?	
Why are group 0 inert?	
	As you go down the group, reactivity increases.
Why do group 1 elements become more reactive down the group?	
	As you go down the group, reactivity decreases.
	Atomic radii increases, the electrostatic attraction becomes weaker so it is harder to gain an electron .
	Unreactive
What makes group 7 reactive?	

Exam Questions:

Q1. This question is about the elements in Group 1.

Which row of the table is correct? Circle the correct letter.

	Reactivity	Reason
A	decreases down the group	it is easier to form positive ions
B	decreases down the group	it is easier to form negative ions
C	increases down the group	it is easier to form positive ions
D	increases down the group	it is easier to form negative ions

Q2. The diagram shows the part of the Periodic Table that includes the elements in Group 7.

Which element in Group 7 is the **most** reactive?

.....

F fluorine
Cl chlorine
Br bromine
I iodine
At astatine

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



P5 – Waves

Watch the YouTube Video: www.youtube.com/watch?v=aCu4VRKMstA

Question	Answer
What is a transverse wave?	A wave in which the particles vibrate at 90° to the direction of energy transfer.
Give an example of a transverse wave.	Light and water.
What is a longitudinal wave?	A wave in which the particles vibrate parallel to the direction of energy transfer.
Give an example of a longitudinal wave.	Sound.
What is a peak?	The very top of a wave.
What is the trough?	The very bottom of a wave.
Define 'wavelength'	The distance between two identical points on a wave e.g. peak to peak.
Define 'frequency'	The number of waves which pass a point in one second.
Define 'amplitude'	The distance from the middle of the wave to the peak or trough of the wave. In other words, half the height of the wave.
Define 'time period'.	The time it takes for one wave to pass a given point.
What equation links wave velocity, frequency and wavelength? State the units.	Wave velocity (m/s) = frequency (Hz) x wavelength (m)

Look, Cover, Write, Check

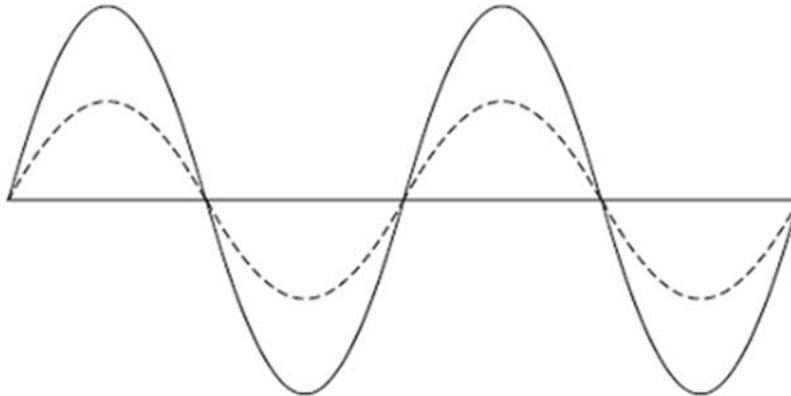
Question	Answer
What is a transverse wave?	
Give an example of a transverse wave.	
What is a longitudinal wave?	
Give an example of a longitudinal wave.	
What is a peak?	
What is the trough?	
Define 'wavelength'	
Define 'frequency'	
Define 'amplitude'	
Define 'time period'.	
What equation links wave velocity, frequency and wavelength? State the units.	

Look, Cover, Write, Check

Question	Answer
	A wave in which the particles vibrate at 90° to the direction of energy transfer.
	A wave in which the particles vibrate parallel to the direction of energy transfer.
	The time it takes for one wave to pass a given point.
Give an example of a longitudinal wave.	
	The very bottom of a wave.
	The very top of a wave.
What equation links wave velocity, frequency and wavelength? State the units.	
Define 'frequency'	
	The distance from the middle of the wave to the peak or trough of the wave. In other words, half the height of the wave.
Give an example of a transverse wave.	
Define 'wavelength'	

Exam Questions:

Diagram 1 shows two waves.



- (i) Name **one** wave quantity that is the same for the two waves.

_____ (1)

- (ii) Name **one** wave quantity that is different for the two waves.

_____ (1)

- (iii) The waves in **Diagram 1** are transverse.

Which **one** of the following types of wave is **not** a transverse wave?

Draw a ring around the correct answer.

gamma rays

sound

visible light

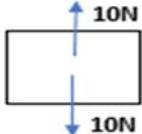
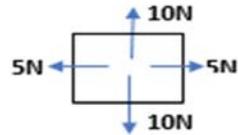
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Due Date:	Friday, 21st May 2021
Student Number:	
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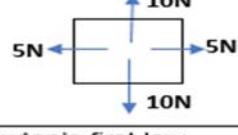
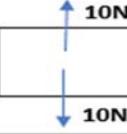
P2 - Newton's First and Second Law

Video about Newton's first law: www.youtube.com/watch?v=W3VbonFNcw

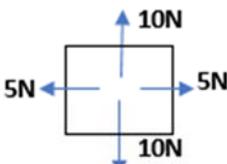
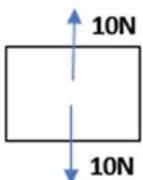
Video about Newton's second law: www.youtube.com/watch?v=SqdCCxv9YzI

Question	Answer
What are the units for forces?	Newtons (N)
State Newton's first law.	An object will remain stationary or travel at a constant speed unless acted on by a resultant force.
How do you calculate the resultant force acting on an object?	Resultant force = larger force acting in one direction – smaller force acting in opposite direction e.g. 3N  9N Resultant force = 6N right
How does this show Newton's first law? 	There is no resultant force acting on the object (result force = 0N), so the object will remain stationary.
How does this show Newton's first law? 	There is no resultant force acting on the object (result force = 0N), so the object will travel at a constant speed.
State Newton's second law.	If the resultant force acting on an object is not zero, the object will change speed or direction.
What equation links force, mass and acceleration? Include units.	Force (N) = mass (kg) x acceleration (m/s ²)
How does this show Newton's second law? 	The resultant force is 6N right (in other words, the resultant force is not zero), so the car will accelerate (speed will increase) right.

Look, Cover, Write, Check

Question	Answer
How do you calculate the resultant force acting on an object?	
State Newton's second law.	
What are the units for forces?	
How does this show Newton's second law? 	
How does this show Newton's first law? 	
State Newton's first law.	
What equation links force, mass and acceleration? Include units.	
How does this show Newton's first law? 	

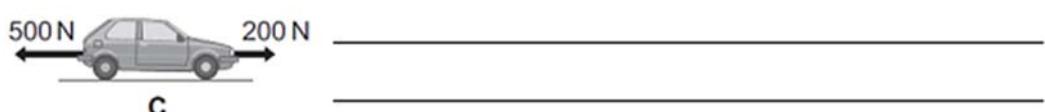
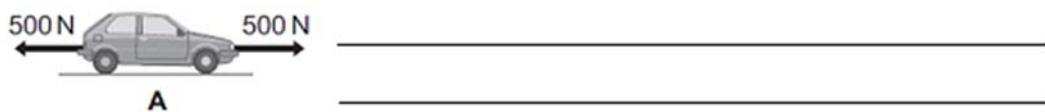
Look, Cover, Write, Check

Question	Answer
State Newton's first law.	Newton's First Law states that an object will remain at rest or in uniform motion unless acted upon by a resultant force.
How do you calculate the resultant force acting on an object?	The resultant force is calculated by adding all the individual forces together.
How does this show Newton's first law?	
How does this show Newton's first law?	
	If the resultant force acting on an object is not zero, the object will change speed or direction.
How does this show Newton's second law?	
What equation links force, mass and acceleration? Include units.	$F = ma$

Exam Question

Q1. A car is being driven along a straight road. The diagrams, **A**, **B** and **C**, show the horizontal forces acting on the moving car at three different points along the road.

Describe the motion of the car at each of the points, **A**, **B** and **C**.



Due Date:	Friday, 28th May 2021
Student Number:	
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Energy Transfers

Visit the BBC Bitesize link: <https://www.bbc.co.uk/bitesize/guides/zqs2k2p/revision/1>

Question	Answer
What is the equation for GPE?	$GPE = \text{mass} \times \text{gravity} \times \text{height}$
What is the equation for KE?	$KE = 0.5 \times \text{mass} \times \text{velocity}^2$
What is the equation for work done by a force?	$\text{Work done} = \text{Force} \times \text{distance}$
What is the equation for work done by a current?	$\text{Work done} = \text{power} \times \text{time}$
What is the equation for efficiency?	$\text{Efficiency} = \frac{\text{useful energy output}}{\text{total energy input}}$
What is the definition of specific heat capacity?	Specific heat capacity is the energy required to raise the temperature of 1kg by 1°C.
How can efficiency be improved?	Adding insulation, lubricating machines or using technology to improve device design.
What is the definition of thermal conductivity?	The measure of how quickly energy is lost through a 1m ² area of wall 1m thick, with a temperature difference of 1°C across it.
What is the conservation of energy?	Energy cannot be created or destroyed: it is transferred from one store to another.
What does energy dissipation mean?	Dissipation is when energy is transferred to a store which is not useful, for example when it heats the atmosphere.

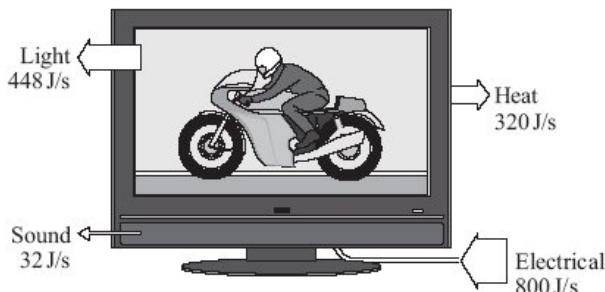
Look, Cover, Write, Check

Question	Answer
What is the definition of thermal conductivity?	
What is the equation for KE?	
What is the equation for efficiency?	
What does energy dissipation mean?	
What is the equation for GPE?	
What is the conservation of energy?	
What is the equation for work done by a current?	
What is the definition of specific heat capacity?	
What is the equation for work done by a force?	
How can efficiency be improved?	

Question	Answer
	Dissipation is when energy is transferred to a store which is not useful, for example when it heats the atmosphere.
What is the equation for work done by a force?	$GPE = \text{mass} \times \text{gravity} \times \text{height}$
	Adding insulation, lubricating machines or using technology to improve device design.
What is the conservation of energy?	
	Specific heat capacity is the energy required to raise the temperature of 1kg by 1°C .
	$\text{Work done} = \text{power} \times \text{time}$
What is the definition of thermal conductivity?	
What is the equation for KE?	
What is the equation for efficiency?	

Exam Question:

- (a) The diagram shows the energy transformations produced by a TV.



- (i) Calculate the efficiency of the TV, using the information in the diagram.

$$\text{Efficiency} = \frac{\text{Useful Energy}}{\text{Total Energy}} \times 100\%$$

(2)

- (ii) What eventually happens to the useful energy transferred by the TV?

(1)

- (iii) A stereo on standby has a power rating of 10W. How much energy is transferred while a family is on holiday for 175 hours?

(2)