

Due Date:	Friday, 5th November 2021
Student Number:	
Name:	

Y11 T2 W1 B3 - The Nervous System

Visit the BBC Bitesize link: [The structure and function of the nervous system - Coordination and control - The nervous system - OCR Gateway - GCSE Combined Science Revision - OCR Gateway - BBC Bitesize](https://www.bbc.co.uk/bitesize/guides/zq68n39/the-structure-and-function-of-the-nervous-system-coordination-and-control)

Question	Answer
What do receptor cells detect?	They detect different stimuli.
What are the three main neurons called?	Sensory neurone, relay neurone and motor neurone.
What happens to a stimulus once it has been detected?	It is converted into an electrical impulse which can travel along sensory neurones to the CNS.
What are the receptors and stimuli associated with the skin organ?	Receptor cells detect pressure and temperature. The stimulus is pressure and heat.
What is a reflex action?	A reflex action is an involuntary response that bypasses the brain.
Write the pathway/order of a nervous reaction	Stimulus → Receptor cells → Sensory neurone → Brain → Motor neurone → Effector → Response
Write the pathway/order of a reflex response	Stimulus → Receptor cells → Sensory neurone → Spinal cord → Motor neurone → Effector → Response
Why is a reflex response faster than a voluntary response?	The response bypasses (misses out) the brain, so the body can respond faster.
What is the difference between a receptor and an effector?	A receptor detects the change in stimuli whereas an effector is a muscle or gland that initiates a response

Look, Cover, Write, Check

Question	Answer
What do receptor cells detect?	
What are the three main neurons called?	Sensory neurone, relay neurone and motor neurone.
What happens to a stimulus once it has been detected?	
What are the receptors and stimuli associated with the skin organ?	
What is a reflex action?	
Write the pathway/order of a nervous reaction	
Write the pathway/order of a reflex response	Stimulus → Receptor cells → Sensory neurone → Spinal cord → Motor neurone → Effector → Response
Why is a reflex response faster than a voluntary response?	
What is the difference between a receptor and an effector?	A receptor detects the change in stimuli whereas an effector is a muscle or gland that initiates a response

Look, Cover, Write, Check

Question	Answer
What do receptor cells detect?	
What are the three main neurons called?	
What happens to a stimulus once it has been detected?	
What are the receptors and stimuli associated with the skin organ?	
What is a reflex action?	
Write the pathway/order of a nervous reaction	
Write the pathway/order of a reflex response	
Why is a reflex response faster than a voluntary response?	
What is the difference between a receptor and an effector?	

This question is about the nervous system.

- (a) Describe the difference between the function of a receptor and the function of an effector.

In your answer you should give **one** example of a receptor and **one** example of an effector.

(4)

Due Date:	Friday, 12th November 2021
Student Number:	
Name:	



Y11 T2 W2 B4 – Ecosystems

Visit the BBC Bitesize link: www.bbc.co.uk/bitesize/guides/zw6wgdm/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, 19th November 2021
Student Number:	
Name:	

Y11 T2 W3 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, 26th November 2021
Student Number:	
Name:	

Y11 T2 W4 P4 – Radioactivity

Visit the BBC Bitesize link: [Atoms and isotopes - Radioactive emissions - OCR Gateway - GCSE Combined Science Revision - OCR Gateway - BBC Bitesize](#)

Question	Answer
What is an isotope?	Atoms of the same element with different numbers of neutrons.
Why are some isotopes radioactive?	Some atoms are radioactive because they are unstable, usually due to too many neutrons.
What is radioactive decay?	The breakdown of a radioactive isotope by the release of alpha, beta, gamma or a neutron.
Where does radiation come from?	Radiation is released from the nucleus of the atom.
What is the structure of alpha radiation?	Alpha radiation is the same as a helium nucleus: 2 protons and 2 neutrons.
What is the structure of beta radiation?	Beta radiation is a high-speed electron.
What is the structure of gamma radiation?	Gamma is an electromagnetic wave with a very short wavelength and high frequency.
Why is radioactive decay described as random?	You cannot predict when, or which, nucleus will decay next.
What is activity?	The number of isotopes which decay per second. Measure in Becquerels (Bq).
What is the definition of half-life?	The time taken for the activity of a source to decay by half.

Look, Cover, Write, Check

Question	Answer
Where does radiation come from?	
What is activity?	
What is the structure of alpha radiation?	
Why are some isotopes radioactive?	
What is the definition of half-life?	
What is the structure of gamma radiation?	
What is the structure of beta radiation?	
What is an isotope?	
What is radioactive decay?	
Why is radioactive decay described as random?	

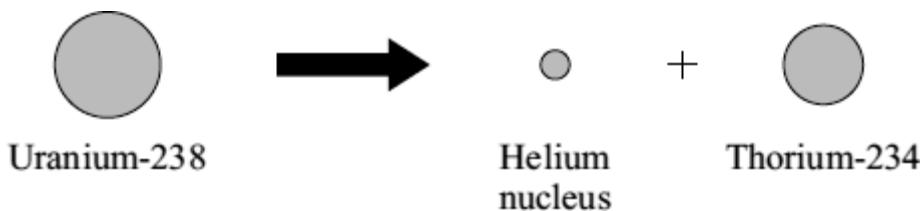
Look, Cover, Write, Check

Question	Answer
	The time taken for the activity of a source to decay by half.
Why are some isotopes radioactive?	
	Radiation is released from the nucleus of the atom.
What is activity?	
	Atoms of the same element with different numbers of neutrons.
	Alpha radiation is the same as a helium nucleus: 2 protons and 2 neutrons.
What is the structure of gamma radiation?	
What is radioactive decay?	
	Beta radiation is a high-speed electron.
Why is radioactive decay described as random?	

Exam Question:

Some rocks inside the Earth contain uranium-238, a radioactive isotope of uranium.

When an atom of uranium-238 decays, it gives out radiation and changes into a thorium-234 atom.



- (i) What type of radiation is emitted when a uranium-238 atom decays?

(1)

- (ii) From which part of a uranium-238 atom is the radiation emitted?

(1)

- (iii) Uranium-235 is another isotope of uranium.

How is an atom of uranium-235 similar to an atom of uranium-238?

(1)

Due Date:	Friday, 3rd December 2021
Student Number:	
Name:	

Y11 T2 W5 P4 - Waves

Visit the BBC Bitesize link: [Types of waves - Properties of waves - OCR Gateway - GCSE Combined Science Revision - OCR Gateway - BBC Bitesize](https://www.bbc.com/bitesize/articles/zx78qf9)

Question	Answer
What is wavelength?	The distance between two identical points on a wave e.g. peak to peak.
What is amplitude?	The distance from rest position to the peak or trough.
What is frequency?	The number of waves which pass a point in one second.
What is a peak?	The maximum height above rest position: the very top of a wave.
What is a trough?	The maximum height below rest position: the very bottom of a wave.
What is a transverse wave?	A wave where particles vibrate at 90° to the direction of energy transfer.
What is a rarefaction?	A point where particles have large spaces between them, pressure is very low.
What is a compression?	A point where particles are very close together, pressure is very high.
What is a longitudinal wave?	A wave where particles vibrate parallel to the direction of energy transfer.
What is a ripple tank?	A tank of water with a dipper which is used to model transverse waves.

Look, Cover, Write, Check

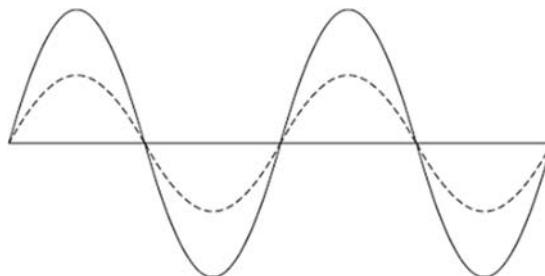
Question	Answer
What is a transverse wave?	
What is a compression?	
What is wavelength?	
What is a trough?	
What is a ripple tank?	
What is frequency?	
What is a rarefaction?	
What is a longitudinal wave?	
What is amplitude?	
What is a peak?	

Look, Cover, Write, Check

Question	Answer
	The number of waves which pass a point in one second.
	A tank of water with a dipper which is used to model transverse waves.
	The distance between two identical points on a wave e.g. peak to peak.
	The maximum height above rest position: the very top of a wave.
What is a longitudinal wave?	
	A point where particles have large spaces between them, pressure is very low.
	The distance from rest position to the peak or trough.
What is a transverse wave?	
What is a compression?	
What is a trough?	

Exam Question:

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

(1)

Due Date:	Friday, 10th December 2021
Student Number:	
Name:	

Y11 T2 W6 P4 – Electromagnetic Radiation

Visit the BBC Bitesize link: [Electromagnetic waves - Properties, uses and hazards of electromagnetic waves -](https://www.bbc.co.uk/bitesize/articles/zx7t2v4)

Question	Answer
What type of waves are electromagnetic waves?	Transverse
How fast do electromagnetic waves travel in a vacuum?	300 000 000 m/s or 3×10^8 m/s (The speed of light)
Name the waves in the electromagnetic spectrum.	Radio waves, microwaves, infra-red radiation, visible light, ultra violet (UV), X-rays, gamma rays.
Which electromagnetic wave has the longest wavelength?	Radio waves
Which electromagnetic wave has the highest frequency?	Gamma rays
Which type of electromagnetic wave has the highest energy?	Gamma rays
Which type of electromagnetic wave is emitted by hot objects?	Infra-red radiation
What are gamma rays used for?	Sterilisation of medical equipment Killing cancer cells (radiotherapy)
Which electromagnetic waves are harmful? Why?	UV, X-rays, gamma rays They are ionising and can cause DNA mutations which can lead to cancer.
Which type of electromagnetic waves are used in communication?	Radio waves, microwaves and visible light

Look, Cover, Write, Check

Question	Answer
What type of waves are electromagnetic waves?	
How fast do electromagnetic waves travel in a vacuum?	
Name the waves in the electromagnetic spectrum.	
Which electromagnetic wave has the longest wavelength?	
Which electromagnetic wave has the highest frequency?	
Which type of electromagnetic wave has the highest energy?	
Which type of electromagnetic wave is emitted by hot objects?	
What are gamma rays used for?	
Which electromagnetic waves are harmful? Why?	
Which type of electromagnetic waves are used in communication?	

Look, Cover, Write, Check

Question	Answer
What type of waves are electromagnetic waves?	
How fast do electromagnetic waves travel in a vacuum?	
	Radio waves, microwaves, infra-red radiation, visible light, ultra violet (UV), X-rays, gamma rays.
	Radio waves
Which electromagnetic wave has the highest frequency?	
Which type of electromagnetic wave has the highest energy?	
Which type of electromagnetic wave is emitted by hot objects?	
	Sterilisation of medical equipment Killing cancer cells (radiotherapy)
	UV, X-rays, gamma rays They are ionising and can cause DNA mutations which can lead to cancer.
	Radio waves, microwaves and visible light

Exam Question:

- (a) The diagram below shows six of the seven types of wave that make up the electromagnetic spectrum.

Gamma rays		Ultraviolet	Visible light	Infrared	Microwaves	Radio waves
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- (i) What type of electromagnetic wave is missing from the diagram?

(1)

- (ii) Which of the following electromagnetic waves has the most energy?

Draw a ring around the correct answer.

gamma rays

radio waves

visible light

(1)

- (iii) Which of the following electromagnetic waves is given out by a TV remote control?

Draw a ring around the correct answer.

infrared

microwaves

ultraviolet

(1)

Due Date:	Friday, 17th December 2021
Student Number:	
Name:	

Y11 T2 W7 P3 – Electricity

Watch the YouTube video: www.youtube.com/watch?v=q2kUj3xfM90

Question	Answer
Define 'current'	The rate of flow of charge.
Define 'potential difference'	The difference of electrical potential (energy) between two points in a circuit.
How does current behave in a series circuit?	Current is the <u>same</u> at every point in a series circuit.
How does potential difference behave in a series circuit?	Potential difference <u>is shared</u> between the components in a series circuit.
How does current behave in a parallel circuit?	Current <u>splits</u> between the loops in a parallel circuit.
How does potential difference behave in a parallel circuit?	Potential difference <u>is not shared</u> between the loops in a parallel circuit.
What is the relationship between resistance and current?	An increase in resistance leads to a decrease in current.

Look, Cover, Write, Check

Question	Answer
Define 'current'	
Define 'potential difference'	
How does current behave in a series circuit?	
How does potential difference behave in a series circuit?	
How does current behave in a parallel circuit?	
How does potential difference behave in a parallel circuit?	
What is the relationship between resistance and current?	

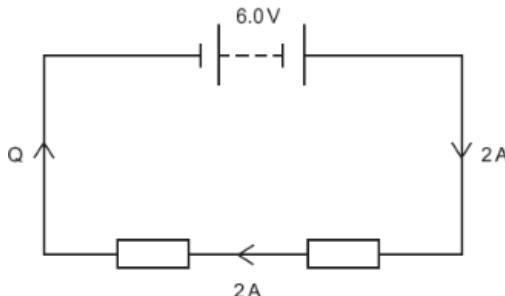
Look, Cover, Write, Check

Question	Answer
Define 'current'	
Define 'potential difference'	
	Current is the <u>same</u> at every point in a series circuit.
	Potential difference <u>is shared</u> between the components in a series circuit.
How does current behave in a parallel circuit?	
	Potential difference <u>is not shared</u> between the loops in a parallel circuit.
	An increase in resistance leads to a decrease in current.

Exam Question:

Q1. What is the current at point Q in the circuit?

- A 0A
- B 2A
- C 4A
- D 6A



Your answer

[1]

Q2. Figure 1 shows a circuit diagram containing two identical lamps arranged in parallel.

The reading on the ammeter is 0.186 mA

- (a) Which statement about the current through the lamps is true?
Tick **one** box.

The current through both lamp P and lamp Q is
0.093 A

The current through both lamp P and lamp Q is
0.186 A

The current through both lamp P and lamp Q is
0.93 A

The current through both lamp P and lamp Q is
1.86 A

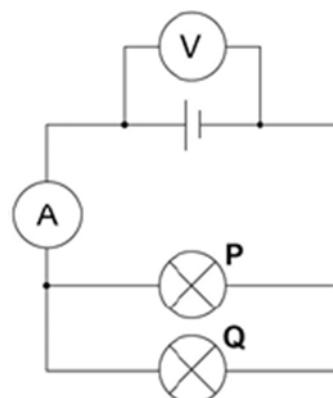


Figure 1