Lesson details - Wednesday 24th June

Year Group: 9
Subject: Science
Where I will find my work: In this document
Hyperlinks: Throughout

Do Now Questions

13. Name three topics you have studied this year
14. Consider these topics, which was your favourite?
15. Why did you enjoy this topic the most?

Engage

LO: To revise science from this year, to prepare for next year.

Keywords:

Chemistry, Biology, Physics, Cell, Atom, Force

Learn

Use the following BBC bitesize pages to refresh your knowledge!

Biology https://www.bbc.co.uk/bitesize/subjects/z4882hv
Chemistry https://www.bbc.co.uk/bitesize/subjects/znxtyrd
Physics https://www.bbc.co.uk/bitesize/subjects/znxtyrd

Build

Complete BBC Bitesize quizzes from the pages linked above.

Apply

Answer the learning grid questions below.

Review

Purple Pen the learning grid questions using the model answers

Well done!

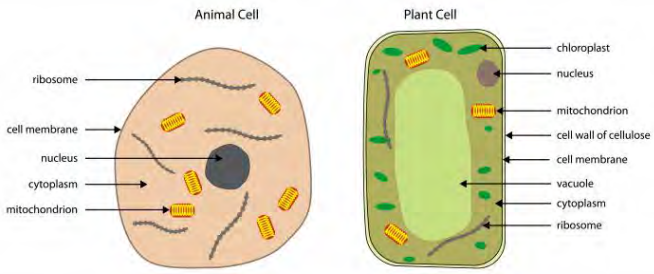
Cells: learning grid. Year 9 summer learning

Read the question and do some short research. Write a couple of sentences into the answer space.

Question	***Your answer***
Draw a picture of an animal and plant cell and write down what they do.	
How are plant and animal cells the same? How are plant and animal cells different?	
What are the different types of specialised cells in the human body and what are their functions?	
How does the process of osmosis work in plant and animal cells?	
What are the stages of the cell cycle and how does cell division occur?	

Cells: learning grid. Year 9 summer learning

Solutions

Question	***Answers you can use to make your answers better.***
What is the structure and function of cell organelles such as the nucleus, mitochondria, and chloroplasts? Draw a picture of an animal and plant cell and write down what they do.	
How are plant and animal cells the same? How are plant and animal cells different?	Plant and animal cells have some differences. Plant cells have a cell wall, chloroplasts and a vacuole, which animal cells don't have. Both plant and animal cells have a nucleus, cytoplasm, and cell membrane to help them work as well as ribosomes and mitochondria.
What are the different types of specialised cells in the human body and what are their functions?	In our body, there are different types of cells that have special jobs. For example, red blood cells carry oxygen, muscle cells help us move, and nerve cells help us feel and think. Each type of cell is shaped and organised in a way that helps them do their specific job in our body.
How does the process of osmosis work in plant and animal cells?	Osmosis is a process where water molecules move through cell membranes from an area where there is more water to an area where there is less water. This helps balance the amount of water inside and outside the cell, which is important for the cell to function properly.
What are the stages of the cell cycle and how does cell division occur?	The cell cycle is the process of cell growth and division. It has different stages, like the resting phase, where the cell prepares to divide, and the division phase, where the cell splits into two new cells. This helps our body grow and repair itself.

Body systems and how they are organised: learning grid. Year 9 summer learning

Read the question and do some short research. Write a couple of sentences into the answer space.

Question	***Answers you can use to make your answers better.***
What are the different levels of organisation in living organisms, from cells to tissues, organs, and organ systems?	
How do the digestive, circulatory, and respiratory systems work together to provide nutrients and oxygen to cells and remove waste?	
What is the structure and function of the heart, including its different chambers and valves?	
How does the nervous system transmit messages between different parts of the body and enable us to sense and respond to our environment?	
What are the different types of pathogens, such as bacteria and viruses, and how does our immune system defend against them?	

Body systems and how they are organised: learning grid. Year 9 summer learning

Solutions

Question	***Answers you can use to make your answers better.***
What are the different levels of organisation in living organisms, from cells to tissues, organs, and organ systems?	Living organisms are organised in different levels. Cells are the smallest building blocks, and they come together to form tissues, which work together to make organs, and organs work together in systems to help the body function.
How do the digestive, circulatory, and respiratory systems work together to provide nutrients and oxygen to cells and remove waste?	The digestive system helps break down food and absorb nutrients, the circulatory system carries nutrients and oxygen to all parts of the body through the blood, and the respiratory system helps us breathe in oxygen and breathe out carbon dioxide.
What is the structure and function of the heart, including its different chambers and valves?	The heart is a special organ that pumps blood to all parts of the body. It has different chambers that fill with blood and then squeeze to push the blood out. The valves in the heart help keep the blood flowing in the right direction.
How does the nervous system transmit messages between different parts of the body and enable us to sense and respond to our environment?	The nervous system is like the body's communication system. It sends messages using special cells called neurons, which carry signals between different parts of the body. This helps us feel things, move our muscles, and think and learn.
What are the different types of pathogens, such as bacteria and viruses, and how does our immune system defend against them?	Pathogens are tiny organisms that can make us sick, like bacteria and viruses. Our immune system helps protect us from these pathogens by recognising and attacking them to keep us healthy. It's like having an army inside our body that fights off the enemy!

Atmosphere and fuels: learning grid. Year 9 summer learning

Read the question and do some short research. Write a couple of sentences into the answer space.

Question	***Your answer***
What is combustion, and how does it happen when we burn fuels like wood or gasoline?	
What are the different sources of fuel that we use for cooking, heating, and transportation, and how do they release energy when they burn?	
How does a fire start and spread, and what are the conditions needed for combustion to occur?	
What are the effects of burning fuels on the environment, such as air pollution and the release of greenhouse gases?	
Can you investigate renewable sources of energy that can replace traditional fossil fuels and reduce the impact of combustion on the environment?	

Atmosphere and fuels: learning grid. Year 9 summer learning

Solutions

Question	***Answers you can use to make your answers better.***
What is combustion, and how does it happen when we burn fuels like wood or gasoline?	Combustion is when something burns, like a fire. When we burn fuels like wood or gasoline, it combines with oxygen from the air and releases heat and light energy.
What are the different sources of fuel that we use for cooking, heating, and transportation, and how do they release energy when they burn?	We use different fuels for cooking, heating, and transportation. For example, wood, coal, and gas are fuels that can be burned to produce heat, while gasoline and diesel are fuels used in cars and other vehicles to make them move.
How does a fire start and spread, and what are the conditions needed for combustion to occur?	Fire starts when we have three things together: fuel (like wood or paper), heat (like a spark or flame), and oxygen from the air. When these three things are present, the fire can start and spread.
What are the effects of burning fuels on the environment, such as air pollution and the release of greenhouse gases?	Burning fuels can release gases and particles into the air, which can cause air pollution. Some fuels, like coal and oil, can also release greenhouse gases that contribute to climate change and affect the environment.
Can you investigate renewable sources of energy that can replace traditional fossil fuels and reduce the impact of combustion on the environment?	There are renewable sources of energy that we can use instead of traditional fuels. Examples include solar energy from the sun, wind energy from the wind, and hydroelectric energy from flowing water. These sources of energy are better for the environment because they don't produce pollution when they generate electricity.