

## Lesson details - Wednesday 24th June

Year Group: 8

Subject: Science

Where I will find my work: In this document

Hyperlinks: Throughout

### Do Now Questions

7. Name three topics you have studied this year
8. Consider these topics, which was your favourite?
9. 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/znxytyrd>

Physics <https://www.bbc.co.uk/bitesize/subjects/znxytyrd>

### 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!

## Respiration and photosynthesis: learning grid. Year 8 summer learning

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

<b>Question</b>	<b>Your answer</b>
What is respiration, and why is it important for living organisms? How do different organisms, such as humans and plants, carry out respiration?	
What is photosynthesis, and how do plants use it to make food?	
How do respiration and photosynthesis relate to each other? What is the connection between the products and reactants?	
Can you investigate the different factors that affect the rate of respiration and photosynthesis?	
What are the similarities and differences between aerobic and anaerobic respiration? Can you find examples of organisms that use one type of respiration over the other, and why?	

## Respiration and photosynthesis: learning grid. Year 8 summer learning

### Solutions

<b>Question</b>	<b>Answers you can use to make your answers better.</b>
What is respiration, and why is it important for living organisms? How do different organisms, such as humans and plants, carry out respiration?	Respiration is how living things get energy from the food they eat. Humans and animals breathe in oxygen and release carbon dioxide when they respire. Plants also respire, but they also do something special called photosynthesis to make their own food.
What is photosynthesis, and how do plants use it to make food?	Photosynthesis is a process that plants use to make food using sunlight, water, and carbon dioxide. They absorb sunlight through their leaves and use it to convert water and carbon dioxide into glucose (a type of sugar) and oxygen. This process is important because it provides food for the plant and releases oxygen into the air for us to breathe.
How do respiration and photosynthesis relate to each other? What is the connection between the products and reactants?	Respiration and photosynthesis are connected because they both involve the exchange of gases. In respiration, organisms use oxygen to break down food and release energy. This energy is then used by cells. In photosynthesis, plants use carbon dioxide and release oxygen as a byproduct.
Can you investigate the different factors that affect the rate of photosynthesis?	The rate of photosynthesis in plants can be influenced by factors like sunlight intensity, water availability, and the concentration of carbon dioxide in the air.
What are the similarities and differences between aerobic and anaerobic respiration? Can you find examples of organisms that use one type of respiration over the other, and why?	Aerobic respiration happens when there is enough oxygen available, and it produces more energy than anaerobic respiration. Anaerobic respiration occurs when there is not enough oxygen, and it produces less energy and can result in the build-up of a substance called lactic acid.

## Health and digestion: learning grid. Year 8 summer learning

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

<b>Question</b>	<b>Answers you can use to make your answers better.</b>
How does the digestive system work, and what are the different organs involved in the process of digestion?	
What are the different types of nutrients our bodies need for good health, and how do they contribute to our growth and energy?	
What is the importance of a balanced diet, and how can we make healthy food choices to support our overall well-being?	
How does exercise and physical activity benefit our health and digestion? What are some fun ways to stay active and keep our bodies healthy?	
What are the common digestive problems, like indigestion or constipation, and how can we prevent or treat them? Can we make lifestyle changes to improve our digestion?	

## Health and digestion: learning grid. Year 8 summer learning

### Solutions

<b>Question</b>	<b>Answers you can use to make your answers better.</b>
How does the digestive system work, and what are the different organs involved in the process of digestion?	The digestive system helps us break down the food we eat into smaller pieces so our bodies can use the nutrients. Organs like the mouth, stomach, and intestines work together to digest the food and absorb the nutrients.
What are the different types of nutrients our bodies need for good health, and how do they contribute to our growth and energy?	Our bodies need different nutrients like carbohydrates, proteins, fats, vitamins, and minerals to stay healthy. Carbohydrates give us energy, proteins help us grow and repair our bodies, and vitamins and minerals keep our bodies functioning properly.
What is the importance of a balanced diet, and how can we make healthy food choices to support our overall well-being?	Eating a balanced diet means having a variety of foods from different food groups, like fruits, vegetables, grains, protein-rich foods, and dairy. It's important to choose foods that are good for us, like whole grains, lean meats, and fresh fruits and vegetables.
How does exercise and physical activity benefit our health and digestion? What are some fun ways to stay active and keep our bodies healthy?	Exercise and physical activity help keep our bodies strong and healthy. It can improve our digestion by keeping things moving smoothly in our digestive system. We can stay active by playing sports, dancing, biking, or even taking a walk with friends and family.
What are the common digestive problems, like indigestion or constipation,	Sometimes we may have digestive problems like feeling uncomfortable after eating or having trouble going to the bathroom. To prevent these problems, it's important to

and how can we prevent or treat them? Can we make lifestyle changes to improve our digestion?	eat a balanced diet, drink plenty of water, and get enough fiber from fruits, vegetables, and whole grains. If we do have problems, talking to a doctor or making small changes to our diet and lifestyle can help.
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## Acids and alkalis: learning grid. Year 8 summer learning

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

<b>Question</b>	<b>Your answer</b>
What are acids and alkalis, and how do they differ from each other? Can you find examples of common household items that are acidic or alkaline?	
How do acids and alkalis react with each other? What happens when they are mixed together?	
What are the properties of acids and alkalis, such as taste, touch, and reaction with indicators like litmus paper?	
How do acids and alkalis affect our everyday lives? Can you investigate their use in cleaning products, food, or medicine?	

<p>What are the safety precautions we should take when working with acids and alkalis? Can you explore the importance of proper handling and storage?</p>	
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## Acids and alkalis: learning grid. Year 8 summer learning

### Solutions

<b>Question</b>	<b>Answers you can use to make your answers better.</b>
<p>What are acids and alkalis, and how do they differ from each other? Can you find examples of common household items that are acidic or alkaline?</p>	<p>Acids are sour substances like lemon juice or vinegar, while alkalis are bitter and soapy substances like baking soda or soapy water. You can test if something is acidic or alkaline using litmus paper, which changes colour to show if it's an acid (usually red) or an alkali (usually blue or purple).</p>
<p>How do acids and alkalis react with each other? What happens when they are mixed together?</p>	<p>When acids and alkalis are mixed together, they can react and neutralise each other. This means they cancel out each other's properties. For example, if you mix lemon juice (an acid) with baking soda (an alkali), it creates carbon dioxide gas, water, and a neutral substance called salt.</p>
<p>What are the properties of acids and alkalis, such as taste, touch, and reaction with indicators like litmus paper?</p>	<p>Weak acids have properties like sour taste, can feel sticky or rough, and turn blue litmus paper red. Alkalis have properties like a bitter taste, feel slippery or soapy, and turn red litmus paper blue. We can also use universal indicator to work out the acidity or alkalinity of a substance (red to purple colour scale with green as neutral).</p>
<p>How do acids and alkalis affect our everyday lives? Can you investigate their use in cleaning products, food, or medicine?</p>	<p>Acids and alkalis have many uses in our everyday lives. Acids are used in cleaning products like vinegar for removing stains, while alkalis like baking soda can be used to neutralize acids or as a rising agent in baking. Some foods, like lemons or oranges, contain natural acids, while soap is an example of an alkali used for cleaning.</p>

<p>What are the safety precautions we should take when working with acids and alkalis? Can you explore the importance of proper handling and storage?</p>	<p>Safety is important when working with acids and alkalis. It's essential to wear protective gloves and goggles, and to handle them carefully to avoid spills or splashes. Always follow instructions and ask an adult for help when working with these substances.</p>
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**Atmosphere and Earths resources:** learning grid. Year 8 summer learning

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

<b>Question</b>	<b>Your answer</b>
<p>What is the process of burning fuels, and how does it release energy?</p>	
<p>What is electrolysis, and how is it used to extract metals from their ores?</p>	
<p>How do different factors, such as temperature or concentration, affect the efficiency of burning fuels?</p>	
<p>What are the advantages and disadvantages of using different types of fuels, such as fossil fuels or renewable energy sources?</p>	

<p>How can the extraction of metals through electrolysis help us recycle and reuse materials?</p>	
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## Atmosphere and Earths resources: learning grid. Year 8 summer learning

### Solutions

<b>Question</b>	<b>Answers you can use to make your answers better.</b>
<p>What is the process of burning fuels, and how does it release energy?</p>	<p>When fuels burn, they release stored energy in the form of heat and light. Some fuels, like fossil fuels, can produce pollution when they burn, so scientists are looking for cleaner and more sustainable alternatives.</p>
<p>What is electrolysis, and how is it used to extract metals from their ores?</p>	<p>Electrolysis is a process where electricity is used to separate metals from their rock ores.</p>
<p>How do different factors, such as temperature or concentration, affect the efficiency of burning fuels?</p>	<p>When burning fuels, factors like the amount of air or oxygen available can affect how well the fuel burns and how much energy is released.</p>
<p>What are the advantages and disadvantages of using different types of fuels, such as fossil fuels or renewable energy sources?</p>	<p>Different types of fuels have different benefits and drawbacks. Fossil fuels like coal, oil, and gas provide a lot of energy but contribute to air pollution and climate change. Renewable energy sources like solar or wind power are cleaner and better for the environment, but they may not always be available in large amounts.</p>

How can the extraction of metals through electrolysis help us recycle and reuse materials?

Extracting metals through electrolysis is an important part of recycling. It allows us to take old metal objects, like cans or old electronics, and turn them back into usable metal. This helps reduce waste and saves resources because we can reuse the metal instead of mining for new materials.