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Glue on this side

# Climate

1	I can state that carbon is present in different forms on the Earth and its atmosphere and I can name some of these carbon-containing compounds
2	I can describe ways that carbon can move between organisms and parts of the Earth
3	I can explain how the composition of the Earth and its atmosphere gives rise to characteristics of the Earth
4	I can give an example of a greenhouse gas
5	I can describe how global warming can happen

1	atmosphere	The mixture of gases surrounding the Earth.
2	carbon cycle	The carbon cycle shows carbon sinks and summarises how carbon and its compounds enter and leave the atmosphere and these sinks.
3	carbon sink	Areas of vegetation, the ocean or the soil, which absorb and store carbon. Carbon and its compounds may remain in carbon sinks for many years.
4	climate change	A long-term change in weather patterns.
5	global warming	The gradual increase in the average surface temperature of the Earth.
6	greenhouse effect	When energy from the Sun is transferred to the thermal energy store of gases in Earth's atmosphere. The greenhouse effect keeps the surface of the Earth warmer than it would otherwise be.
7	greenhouse gas	A gas that contributes to the greenhouse effect, such as carbon dioxide.

Prior knowledge from KS2: At KS2 you will have covered the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials.

**Future learning:**  
In GCSE chemistry you will also cover in more detail how the Earth's atmosphere has changed and consequences of global warming. You will also learn more about sustainable development and nutrient cycles in biology.

**Careers:**  
Aerospace engineer  
Climatologist  
Meteorologist  
Geologist

## Global warming

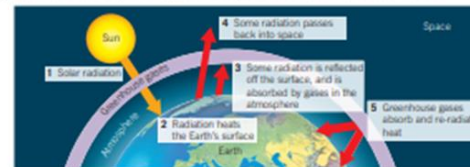
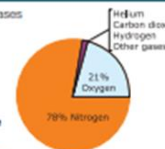
- **Global warming** is the gradual increase in temperature of the Earth
- This is closely linked to the rise in carbon dioxide levels in the atmosphere

### Why?

The impact of the change in the atmosphere is affecting resources, wildlife and is a huge issue around the world.

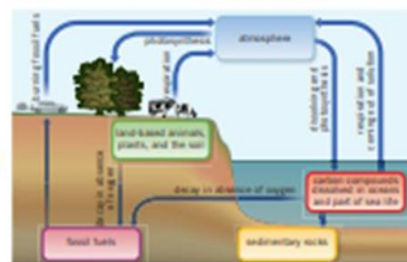
## The atmosphere

- The air around us all of the time is known as the **atmosphere**, it is made up of a mixture of gases
- When the Sun heats the Earth's surface, some of the radiation is absorbed and some is reflected back into space
- Some of the gases in the atmosphere absorb radiation that is about to be reflected into space, this keeps the Earth at a warmer temperature than it would be without the atmosphere, this is needed as otherwise it would be too cold for life
- The gases in the atmosphere which absorb and trap this radiation are known as **greenhouse gases**, the most commonly known greenhouse gases are carbon dioxide and methane



## The carbon cycle

- The **carbon cycle** is the processes by which carbon is naturally transferred to different stores through a range of natural processes
- Carbon is released into the atmosphere through **combustion of fossil fuels**, and **animal respiration**
- It is then reabsorbed by plants during **photosynthesis**



Complete some of the tasks below to reach a total of \_\_\_\_\_ points over this unit of work – Highlight the box you have completed.

Topic	1 Point	2 Points	4 Points	6 Points	10 Points
<b>Acids</b> 	Make a list of different substances in your house that are acids	Use the pH scale to explain why hydrochloric acid is a strong acid and why vinegar is a weak acid	Write a short paragraph explaining what you would expect to see when universal indicator is added to an acid. Explain why (pH scale)	Make a lab leaflet stating what an acid is, the pH of strong and weak acids, different acids, what the risks are of working with acids and what to do to work with them safely.	Design an experiment too determine what pH different acidic substances are. Make sure you include the independent, dependent and control variables
<b>Alkalis</b> 	Make a list of different substances in your house that are alkalis	Use the pH scale to explain why sodium hydroxide is a strong alkali and why sodium carbonate is a weak alkali	Write a short paragraph explaining what you would expect to see when universal indicator is added to an alkali. Explain why (pH scale)	Make a lab leaflet stating what an alkali is, the pH of strong and weak alkalis, different alkalis, what the risks are of working with alkalis and what to do to work with them safely.	Design an experiment too determine what pH different alkaline substances are. Make sure you include the independent, dependent and control variables
<b>Neutralisation</b> 	Use a pH scale to state what pH neutral is and why it is neutral.	Write down examples of uses of neutralisation reactions in everyday life	Use your knowledge of neutralisation to explain how lemon juice can be used to treat a wasp sting (think about pH)	"If 50 ml of an acid with a pH of 1 is added to 50 ml of an alkali with a pH of 8, the solution at the end will be neutral." Is this right or wrong? Defend your answer.	Design an experiment too determine what how to make a neutral solution from hydrochloric acid and sodium hydroxide. Make sure to talk about independent, dependent and control variables.
<b>Acids and metals</b> 	Write a poem or create an acronym to remember the word equation for the reaction between an acid and a metal	Create a poster that state the similarities and differences of the reactions between acids and alkalis, and acids and metals. Include the word equations and drawings!	Create the word equations for the following reactions: Hydrochloric acid with magnesium Sulphuric acid with sodium Nitric acid with zinc	Explain why hydrogen forms in the reactions between acids and metals, but water is formed in the reaction between an acid and an alkali	Find out why copper doesn't appear to react with hydrochloric acid, but magnesium does

