

UNDERSTANDING OUR WORLD AND BEYOND TOPIC: Our Changing World



OVERVIEW:

Pack your passport and revel in awe at what the seven continents have to offer. Whilst travelling to each new continent, we'll be exploring key physical features of certain areas, climate zones, biomes and the living things that live there. We'll also be researching key human features and discovering where and how other people live around the world. Whilst taking in the many wonders our world has to offer, we will also learn about how our world is changing, the challenges nature is facing and how we can do our part to save our incredible planet. The class will also be considering the changes coming up in their own lives, with a focus on transitioning to secondary school and in SRE we will be continuing to explore the changes that take place in puberty and learning about reproduction.

Books:

Can You See Me? – Libby Scott & Rebecca Westcott

Knowledge:

Summer 2 - Our Changing World - Knowledge Organiser

Key Words

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| Climate | The average weather conditions over a long period of time |
| Climate change | A change in global or regional climate patterns |
| Global warming | The gradual increase in the overall temperature of the earth's atmosphere |
| Fossil fuels | A natural fuel such as coal or gas formed from the remains of organisms that lived long ago |
| Greenhouse gases | Gases in the air that trap energy from the sun e.g. carbon dioxide and methane |
| Greenhouse effect | Warming of the earth caused by the trapping of the sun's energy by greenhouse gases |
| Atmosphere | The mixture of gases that surrounds the earth |
| Primary effects | The immediate consequences of something happening |
| Secondary effects | Things that occur days, weeks or months after something happens |

Natural Factors There are several possible natural causes of climate change:

- Stable Climate:** The Earth's orbit changes from circular to elliptical, which affects the amount of solar energy it receives. The Earth's temperature is likely to increase, as the Earth is closer to the Sun. When the orbit is elliptical, the temperature is likely to decrease, as the Earth is further from the Sun.
- Volcanic Activity:** Volcanic eruptions release particles of SO₂ and CO₂ into the atmosphere. The SO₂ particles reflect the Sun's rays, leading to a cooling effect. In the short term, conversely, CO₂ is a greenhouse gas. It traps the Sun's heat, resulting in warmer global temperatures.
- Solar Output:** The Sun's solar energy output varies over time, which could result in changes to the Earth's climate. However, over the last 100 years, the Sun's output has declined slightly, despite the rise in global temperatures. Therefore, many people reject this theory.

Human Factors The greenhouse effect is a naturally occurring phenomenon that insulates the Earth and keeps it warm enough to sustain life. However, it is believed that human activity increases the greenhouse effect, resulting in higher global temperatures.

When the Sun's solar radiation reaches the Earth's surface, most of it is absorbed, but some is reflected into the atmosphere and back into space. Some of the solar energy passes through the atmosphere and back into space. Some of it is trapped by greenhouse gases, such as methane and CO₂, in the atmosphere and back into space. Forests are being cleared for agriculture, often to grow food for animals. When there is less forest, wild animals can be forced into conflict with humans and livestock. Many animals, such as rhinos and tigers, are hunted for their body parts. The area of forest we use to raise animals for food is now the size of the Amazon, including the space needed to grow the food they eat. The polar jet stream is a circle of fast-moving air currents created by the difference in temperature between the cold Arctic and warmer areas further south. Warmer Arctic temperatures melt the polar jet stream, changing its shape and causing extreme weather. Forest fires release smoke and ash into the atmosphere, causing global warming that leads to a rise in sea levels. Forest fires release smoke and ash into the atmosphere, causing global warming that leads to a rise in sea levels. As sea levels rise, coastal areas are at risk of flooding. Coastal areas are at risk of flooding. Coastal areas are at risk of flooding.

Effects on the Environment

- Warmer global temperatures cause glaciers and ice sheets to melt, leading to rising sea levels and the loss of polar habitats. Rising sea levels will result in low-lying coastal areas becoming more frequently submerged in water. Many species of plants and animals are at risk of becoming extinct as their habitats are altered or damaged by climate change. For example, many of the world's coral reefs are at risk of bleaching and destruction due to rising sea temperatures. Warmer temperatures and higher sea levels will lead to more extreme weather events and a change in precipitation patterns.

Effects on People

- As global temperatures rise, there is a growing risk of increased risk of droughts, heatwaves, and wildfires. Many coastal areas are at risk of flooding and erosion, which may become permanently submerged in water. The need for water is increasing, and water scarcity is becoming a major issue. Although agriculture is now more mechanised, it still relies on human labour. Warmer temperatures and higher sea levels will lead to more extreme weather events and a change in precipitation patterns.

Fossil Fuels Fossil fuels such as oil, gas, and coal are burnt to generate energy for transportation, manufacturing, and electricity production. However, the process of burning fossil fuels releases CO₂ into the atmosphere and is the main source of greenhouse gas emissions.

Agriculture Agriculture, especially livestock and rice farming, produces large amounts of CO₂ being removed from the atmosphere. It is released by the burning of fossil fuels, by methane produced by microbes in flooded rice paddies, and by the respiration of livestock.

Deforestation Trees absorb CO₂ through photosynthesis. Therefore, clearing trees means less CO₂ being removed from the atmosphere. This is worsened by the burning of fossil fuels, by methane produced by microbes in flooded rice paddies, and by the respiration of livestock.

Oceans

- Overfishing, excessive fishing, and pollution are making the oceans less healthy. More than 1 million tons of plastic waste makes its way into the sea each year, harming animals and polluting the food chain.
- Warming ocean temperatures make the sea more acidic, killing coral reefs on which many animals depend for food and shelter.
- In many parts of the world, illegal logging is taking place. Forests are being cleared for agriculture, often to grow food for animals.
- Fragmented forests cannot support animals such as gorilla bears or Siberian tigers, as they need large areas of continuous forest to survive.
- Wood is used by more than a quarter of the world's population for cooking and heating.

Forests

- When there is less forest, wild animals can be forced into conflict with humans and livestock. Many animals, such as rhinos and tigers, are hunted for their body parts.
- The area of forest we use to raise animals for food is now the size of the Amazon, including the space needed to grow the food they eat.

Grasslands

- The polar jet stream is a circle of fast-moving air currents created by the difference in temperature between the cold Arctic and warmer areas further south. Warmer Arctic temperatures melt the polar jet stream, changing its shape and causing extreme weather.
- Forest fires release smoke and ash into the atmosphere, causing global warming that leads to a rise in sea levels. Forest fires release smoke and ash into the atmosphere, causing global warming that leads to a rise in sea levels. As sea levels rise, coastal areas are at risk of flooding. Coastal areas are at risk of flooding. Coastal areas are at risk of flooding.

Assessment:

THE CLIMATE CHANGE QUIZ

Find out how much you know about climate change.

- What is climate change?**
- Name a human activity that contributes to climate change.**
- Name three effects of climate change.**
- How many people in the world are vulnerable to the effects of climate change?**
- If the global temperature rises by over 1.5°C what percentage of species will be at risk of extinction?**
- Which is the name of the gas that is responsible for 75% of the warming effect from greenhouse gases?**
- Which three of the following are fossil fuels?**

- In the UK, the food we eat is responsible for what percentage of our CO₂ emissions?**
 - ☐ None – food does not generate CO₂ emissions.
 - ☐ Less than 5%
 - ☐ more than 30%
- What is the link between chocolate and climate change?**
- In which European city did 196 nations agree on a landmark global plan to curb climate change in December 2015?**
 - ☐ Vienna
 - ☐ Paris
 - ☐ New Delhi
- Name three types of renewable energy.**
- What is a carbon footprint?**
- Name three ways that we can reduce our carbon footprint.**
- Which of these countries has the highest per capita CO₂ emissions?**
 - ☐ China
 - ☐ USA
 - ☐ India
 - ☐ UK
- Name three places in the world that are affected by climate change and say how.**

Knowledge:





Climate Change

- I can explain the difference between weather and climates.
- I can explain key features of different climate zones.
- I can explain what climate change is.
- I can explain the impacts climate change is having environmentally and on people around the world.
- I can identify possible natural and human-caused reasons for global warming.
- I can make suggestions on how to stop climate change.

The Seven Continents

- I can use maps, atlases and computer mapping to locate countries
- I can identify the seven continents and some countries within them.
- I can describe and understand key aspects of physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes
- I can describe the environment within each biome and name animals and plants that live there.
- I can research and explain the evolving challenges that living things are currently facing within different biomes.

- I can describe and understand key aspects of human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.
- I can explain the effects of certain human behaviour and its impact locally and around the globe.

| What should we know? | Connections | What should we be able to do? |
|--|--|--|
| <ul style="list-style-type: none"> How people choose to have babies and how to choose the right time. How most babies are made. What happens in sexual intercourse between a man and a woman? The names of the body parts involved in sexual intercourse. Sexual intercourse can be a delightful and spiritual union between two people. This ultimate closeness can affect people physically and emotionally. What the law is on the age of consent for sex. Some people believe the best context for this level of closeness is in a long-term, faithful relationship such as marriage. Some people prefer to be celibate (not have sexual intercourse with anyone). What happens at conception? What happens between conception and birth? Having a baby can be a wonderful event in people's life and is a huge responsibility. | <div>  <p>Sexual intercourse</p> </div> <div>  <p>Conception</p> </div> <div>  <p>Gestation (pregnancy)</p> </div> <div>  <p>Babies</p> </div> | <p>I can...</p> <ul style="list-style-type: none"> Explain what happens in sexual intercourse between a man and a woman. Name the key parts of the body involved in sexual intercourse. Explain how intimate relationships might affect people physically, emotionally and spiritually. Describe why some people think that the best time for such closeness is within a long-term, faithful, committed relationship such as marriage. Explain why it is important to only do this when you are at least 16 (British values/ Citizenship) and when I know it is right because both people will cherish each other. (In some beliefs or cultures the only right time is within marriage.) Explain what happens at conception and be able to explain the journey from pregnancy to birth. (Science) Explain that some people make a positive choice for themselves not to have sex with anyone. Talk about why having a baby is wonderful but a huge responsibility. |

| Vocabulary | Definition |
|-------------------------------|---|
| Vagina | The passage in a woman that leads from the uterus to the outside opening of the female sex organs |
| Uterus | Also called the womb - the place a baby grows |
| Penis | The male sex organ – it has a channel through which sperm leave the body. It is also used to discharge urine from the body. |
| Sperm | A cell made by a male that can fertilise an egg made by a female, so that they can reproduce |
| Sexual intercourse | Heterosexual intercourse involves the penetration or insertion of the penis into the vagina . |
| Celibate | The state of voluntarily choosing not to have sex |
| Conception | The event of a sperm entering an egg and a new life beginning |
| Gestation | The process of a baby growing inside the womb from the time of conception until birth |
| Pregnancy | The state of having one or more babies growing in the womb |
| Parent | A mother or a father |
| Theological vocabulary | Definition |
| Created | All people have been created by God, in the image of God, and deserve to be observed and cherished as image-bearers of God. We are privileged to be given the power to create life and have the duty of using that power wisely and to take on the responsibility for the nurture of new life as parents. |
| Worthy | We are worthy of being protected and careful with ourselves and of being delighted in |
| Faithful | Staying true to someone and sticking by them; being loyal and constant even when it is difficult; going through life with someone and not giving up (unless there is a risk they will harm you or someone else). |