Year 8

How sustainable is the UK?

Key concepts – Climate change

Causes → Impacts → Mitigate + Adapt

3 Natural causes of climate change

Volcanic eruptions – Ash and gas stop the suns rays entering the atmosphere so it temporarily gets cooler

Sun spots – The more sun spots there are, the more energy it has so the warmer the temperature becomes.

Orbital theory – in an elliptical (oval) orbit the earth moves closer and further away to the sun. The earth is also on a tilt which moves closer and further from the sun.

3 Human causes of climate change

Fossil fuels – when oil, gas and coal are burned they release N2O and CO_2 into the atmosphere which causes the enhanced greenhouse effect.

Deforestation – when we cut trees down we release the CO2 stored in their trunks which causes the enhanced greenhouse effect.

Agriculture – Methane (a greenhouse gas) is released as a result of growing rice and cattle farming (cows).

4 impacts of climate change on the UK

- Less cold related deaths
- Warmer weather so more tourists
- More extreme weather and flash floods
- Increased risk of drought and water shortages

4 Impacts of climate change globally

- Potential to grow crops in new areas
- Lower energy costs as it is warmer
- Sea levels will rise so more coastal flooding, e.g. the Maldives will disappear!

3 ways to mitigate to climate change

Government agreements – The Kyoto Protocol and Paris Agreement are examples. Governments agree to limit their CO_2 emissions and work towards targets. They are a useful way of raising awareness and working towards a common goal. However, some of the biggest CO2 emitters have not agreed, e.g. USA.

Investing in renewable energy sources - Biomass, hydroelectric power, wind power, solar power and tidal power are all examples. They all reduce the need to rely on fossil fuels which reduces the enhanced greenhouse effect but they can be expensive to install and only work in certain conditions, e.g. if it's windy.

Investing in nuclear power – The UK has 15 nuclear reactors which provide 21% of its electricity. Nuclear power does not release CO_2 and is cheaper to produce than fossil fuels. However, nuclear disasters such as in Chernobyl can cause lots of social and environmental problems.

4 ways to adapt to climate change

United Arab Emirates – Buildings with green roofs to reflect the suns energy and create new habitats. This will reduce the Urban Heat Island Effect (UHIE)

India – Creating artificial glaciers that will melt during the spring to give farmers water for their crops. This will be useful as the glaciers in the Himalayas are melting.

The Netherlands – Building sea walls to hold back rising sea levels due to ice caps melting. This will reduce the risk of coastal flooding and erosion.

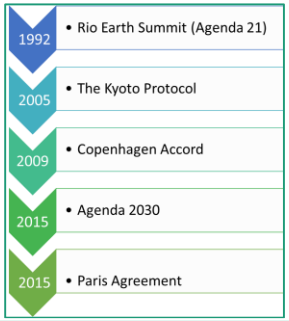
Kenya – Planting new crops that are drought resistant such as olives and millet. This will mean that people have food to eat and farmers can make money in increasing temperatures.

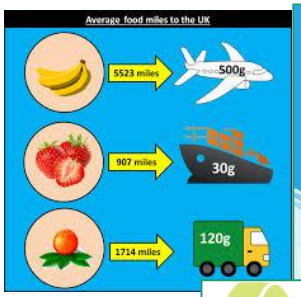
Russia – Adding climate change to the school curriculum to raise awareness of the causes and impacts. They are also building dams to reduce the impacts of flooding caused as a result of more extreme weather.

SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

The sustainable development goals address social, economic, environmental and political sustainability. They are all interconnected and were developed at the 2015 Sustainable Development Summit by the United Nations as part of Agenda 2030.





The stages of a Fieldwork Investigation

1. Identifying what you are going to investigate
2. Choosing appropriate methods of data collection
3. Collecting your data
4. Presenting the data you have collected in appropriate graphs
5. Analysing your data and reaching conclusions

Key Terms

Fossil fuels	A natural fuel like gas, oil or coal. They will run out.
Carbon zero	No carbon emissions are being released
Sustainable development	Development that meets people's needs today and in the future
Energy demand	The amount of energy the public require at a particular time
Renewables	Resources that can be re-used
Non-renewables	Resources that will run out or not be replenished for 1000's of years
Global warming	An increase in the overall temperature of the atmosphere
Greenhouse effect	A natural process that the earth needs for life to exist
Enhanced greenhouse effect	When humans create too much CO2, N2O and CH4 to the suns energy is trapped and the world gets warmer
Climate change	A change in the climate, e.g. global warming
Agriculture	The farming of crops and animals
Atmosphere	A layer of gases around the earth
Emissions	The production of something, e.g. carbon dioxide emissions.
Mitigation	Reducing something
Adaptation	Changing or adjusting to something
Eustatic change	Sea level change (rising) as a result of melting ice
Carbon dioxide	A greenhouse gas that contributes to global warming
Sun spots	Darker areas of the earth's surface that make the earth hotter
Paris Agreement	An agreement of 195 countries to reduce their carbon emissions
Geothermal	Renewable energy produced by the earth's core