

YEAR 9 GEOGRAPHY CRUCIAL KNOWLEDGE

Resource Management

A resource is any physical material constituting part of Earth that people need and value.

One way to deal with the water supply and demand problem in the UK is to transfer water from surplus areas to deficit areas (Water Transfer Schemes).



Resource security is when a country has reliable and affordable access to the resource, compared to insecurity, where people do not have reliable or affordable access to a resource to meet their needs.

Water supply is impacted by a country's climate, geology, pollution, infrastructure, poverty, and levels of abstraction. Water insecurity impacts the spread of disease, food production, industrial output, and conflict.

Sustainable energy meets current needs without compromising the ability of future generations to meet their own needs. Examples of sustainable energy include wind, solar, hydroelectric, geothermal and bioenergy.



Energy security is essential for economic development. Reliable energy supplies are important to support industrial activity, power businesses, and drive economic growth. Energy insecurity can lead to higher energy prices, damaging businesses and social stability.

Agribusiness is large-scale capital-intensive, commercial farming. Organic Produce is the product of a farming system which avoids the use of man-made fertilisers, pesticides, and livestock feed additives.

A country's energy mix shows their consumption broke down into primary energy source (coal, oil, renewables etc.).

Food supply is impacted by a country's climate, levels of water, access to technology, conflict, and levels of poverty. Food insecurity can cause famine, undernutrition, soil erosion, and rising prices.

Natural gas is a mixture of gases which are rich in hydrocarbons. Natural gas reserves are deep inside the earth near other hydrocarbons beds like coal and crude oil.



Cold Environments

Polar and tundra environments are found in cold environment. Polar areas are usually below freezing and have low precipitation.

Plants are low growing to be protecting from the wind and have short growing seasons. Animals are well insulated and have thick fur to cope with extremely cold temperatures.

Places like Svalbard create development opportunities as they are rich in mineral resources, fish, and energy. They are also attractive to tourists who want a sense of adventure. All of these bring money and jobs into the region.



Extreme temperatures and inaccessibility make it difficult to develop places like Svalbard, Norway.



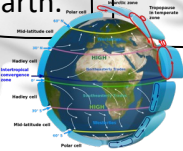
Cold environments need protecting as they take a long time to recover, are habitats to animals/plants and have scientific value for research.

Cold environments are managed through governments, international agreements, technology, and conservation groups.

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Weather Hazards

Global atmospheric circulation is the circular movement of air around the earth, known as cells, created by differences in pressure. These cells work together to move heat around the earth.



Tropical storms are low pressure weather systems that develop between 5 and 30 degrees north and south of the equator, with a sea temperature of 27 degrees and depths over 60m and a low wind shear. The rotation of the earth on its axis (Coriolis Effect) causes the storms to spin.

Typhoon Haiyan hit the Philippines in 2013, having devastating primary and secondary effects (over 8000 deaths, 5.6 million lost jobs). The Philippines and wider world responded quickly though (800,000 were evacuated, \$300 million raised to rebuild).

Tropical storms are measured by the Saffir-Simpson Scale which goes from a 'category 1' to a 'category 5'.

Climate Change is impacting Tropical Storms by increasing their frequency, intensity and distribution.



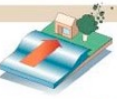
CATEGORY 1

Barometric pressure: 28.94
Winds: 74 to 95 mph
Storm surge: 4 to 5 feet
Damage: Minimal; signs, tree branches, power lines down



CATEGORY 2

Barometric pressure: 28.50 to 28.93
Winds: 96 to 110 mph
Storm surge: 6 to 8 feet
Damage: Moderate; larger signs, tree branches blown down



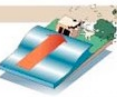
CATEGORY 3

Barometric pressure: 27.91 to 28.49
Winds: 111 to 130 mph
Storm surge: 9 to 12 feet
Damage: Extensive; minor damage to buildings, trees blown down



CATEGORY 4

Barometric pressure: 27.17 to 27.90
Winds: 131 to 155 mph
Storm surge: 13 to 18 feet
Damage: Extreme; almost total destruction of doors, windows



CATEGORY 5

Barometric pressure: Less than 27.17
Winds: More than 155 mph
Storm surge: More than 18 feet
Damage: Catastrophic; buildings, roofs, structures destroyed



STAFF GRAPHIC

Climate Change and UK Weather

Climate Change is a long-term change in the Earth's climate, especially a change due to an increase in the average atmospheric temperature.

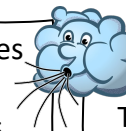


Climate change occurs naturally due to Milankovitch Cycles (eccentricity, obliquity, and precession), major volcanic eruptions, solar outputs and global oceanic currents.

The impacts of climate change are drought, flooding, sea level rise, extinction, decreasing access to safe water and the increasing spread of disease.

Managing climate change involves mitigation (where we try to stop the change from happening), and adaptation (where we change our lifestyle to accommodate for the impact of climate change).

The UK experiences lots of different weather hazards such as strong winds, storms, flooding, droughts.



The Beast from the East happened in 2018 due to sudden stratospheric warming causing the winds to come from the east. This caused up to 50cm of snow and 10 deaths, with many businesses and travel being disrupted.



The UK's weather is becoming more extreme as we see a greater range of extreme weather types, they are becoming more frequent, lasting longer and are more intense.



In 2018 the UK experienced a heatwave (where a location records a period of at least three consecutive days with daily maximum temperatures). This caused vegetation to die, a hosepipe ban and heat-related deaths.

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Urban Issues and Challenges



Cities grow due to rural-urban migration, natural increase, economic development, and location.

Urbanisation is process where an increasing proportion of the population lives in towns and cities resulting in their growth. As a country industrialises, the number of people living in urban areas tends to increase.

A megacity is an urban area with a population of over ten million people. Cities have emerged as megacities due to natural increase, push factors, capital cities, ports and trading, and colonial influences.

Rio De Janeiro is a megacity on the west coast of Brazil, it is the second largest city in Brazil and a major economic hub.



Social challenges and opportunities in Rio include education, water supply, health care and energy.

Rio De Janeiro is split into 4 zones (North, West, Centro, and South), each having different characteristics.



Economic challenges in Rio include few job opportunities, low wages, a lack of social amenities, and high crime rates. Economic opportunities in Rio include improvements in services and infrastructure as well as increasing employment opportunities.

Environmental challenges and opportunities in Rio include pollution and waste.



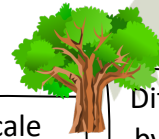
Ecosystems and Tropical Rainforests

An ecosystem is a natural system made up of plants, animals, and the environment. This includes abiotic (non-living) and biotic (living) components.

Buttress Roots are an adaptation of a tree where the roots come over the ground to provide extra support and nutrients. Epiphytes have adapted by attaching to trees for physical support so they can access air and water.

Epping Forest is a small-scale ecosystem in the UK, it is a deciduous woodland in south-east England. A deciduous woodland is where trees drop their dead leaves because of lower temperatures in winter.

Animals adapt through their physical appearance, internal systems, and their behaviour. For example, sloths have adapted by having green algae on their fur and move very slowly to help them camouflage.



Different ecosystems are determined by the climate (the temperature and amount of precipitation they receive). The world's biomes show this as they appear to follow the lines of latitude with differing climates.

Deforestation is the action of clearing a wide area of trees.



Tropical rainforests are found in places with a hot (over 20°C) and wet (over 2000 mm) equatorial climate. Rainforests grow between the Tropic of Cancer and the Tropic of Capricorn.

Malaysia's rainforest is under threat by deforestation due to logging, farming, energy development, population pressure and mineral extraction. The impact of this is soil erosion, climate change, loss of biodiversity and economic development.

Rainforests are important for biodiversity, climate change, medicine, resources, water, and people.

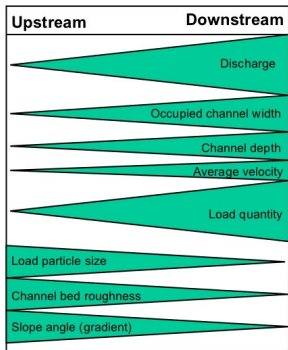


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Rivers

The course of a river is split into 3 sections: upper, middle, and lower. A long profile of a river shows this course from the source to the mouth.

The Bradshaw Model shows how rivers change as they flow downstream. The Hjulstrom Curve shows the relationship between the size of sediment and the velocity for different processes to occur.



Waterfalls and gorges are found in the upper course of a river where the river flows over an area of hard rock followed by an area of soft rock. Interlocking spurs are created in the upper course as the river lacks the power to erode sideways so has to wind around the hillsides.



The three main processes within a river system are erosion (rocks being worn away), transportation (sediment being moved down the river) and deposition (sediment being dropped - no longer transported).

Meanders are large bends in the middle and lower courses of a river that formed by erosion and deposition as the current flows faster on the outside of a bend so erodes more.

Floodplains are flat areas of land next to a river that floods.

Levées are natural embankments where the river has deposited material at the edges of the river channel.

There are four types of erosion: hydraulic action, attrition, abrasion, and solution.

There are four types of transportation: traction, saltation, suspension, and solution.

Estuaries are tidal areas where the river meets the sea.

The River Tees is an example of a river landscape in the UK, located in North East England. It has features such as High Force Waterfall, meanders and levées.

