Geography AQA A-Level

The Water and Carbon Cycle

Definition Flashcards

Acidification

Acidification

The gradual reduction of pH of the oceans, due to dissolving carbon dioxide from the atmosphere.

Afforestation

Afforestation

Planting trees and vegetation in the aim of increasing forest cover.

Anticyclone

Anticyclone

A system of high pressure, causing high temperatures and unseasonably high evaporation rates.

Aquifer

Aquifer

A permeable or porous rock which stores water.

Biofuel

Biofuel

Burning crops and vegetation for electricity and heat.

Carbon Capture and Storage (CCS)

Carbon Capture and Storage (CCS)

The capture of carbon dioxide emissions directly from the factory, pumped into disused mines rather than being released into the atmosphere.

Carbon Fluxes

Carbon Fluxes

The movement of carbon between stores.

Carbon Neutral

Carbon Neutral

A process that has no net addition of carbon dioxide to the environment.

Carbon Stores

Carbon Stores

Places where carbon accumulates for a period of time such as rocks and plant matter.

Channel Flow

Channel Flow

Water flowing in a rivulet, stream or river.

Choke Points

Choke Points

Points in the logistics of energy and fuel that are prone to restriction.

Combustion

Combustion

The process of burning a substance, in the presence of oxygen, to release energy.

Convectional Precipitation

Convectional Precipitation

Solar radiation heats the air above the ground, causing it to rise, cool & condense forming precipitation (often as thunderstorms).

Cryosphere

Cryosphere

The global water volume locked up within a frozen state (i.e. snow and ice).

Decomposition

Decomposition

The break down of matter, often by a decomposer which releases carbon dioxide through their own respiration.

Depression

Depression

A system of low pressure, with fronts of precipitation where low and high pressure air masses meet.

Desalination Plant

Desalination Plant

The conversion of seawater to freshwater, suitable for human consumption.

Desublimation

Desublimation

The change of state of water from gas to solid, without being a liquid (the opposite process to sublimation).

Drainage Basin

Drainage Basin

The area of land drained by a river and its tributaries.

Drainage Density

Drainage Density

The total length of all rivers & streams divided by the area of the drainage basin.

Drought

Drought

An extended period of deficient rainfall relative to the statistical average for the region (UN).

Economic Water Scarcity

Economic Water Scarcity

When water resources are available but insufficient economic wealth limits access to it.

Energy Mix

Energy Mix

The composition of a country's energy sources.

Energy Security

Energy Security

The ownership and full control of a country's energy source, production and transportation.

Energy Pathway

Energy Pathway

The movement of energy from its extraction or source, through pipes, freight logistics or cabling.

Energy Players

Energy Players

Key companies and individuals who own, distribute and sell energy and energy sources.

Enhanced Greenhouse Effect

Enhanced Greenhouse Effect

The build-up of greenhouse gases in the atmosphere, reducing the amount of solar radiation reflected into space.

ENSO Cycles

ENSO Cycles

El Nino Southern Oscillations - naturally occurring phenomena that involves the movement of warm water in the Equatorial Pacific.

Evapotranspiration

Evapotranspiration

The combined total moisture transferred from the Earth to the atmosphere, through evaporation and transpiration.

Frontal Precipitation

Frontal Precipitation

Where air masses of different temperatures meet at a front, one mass will be forced over another, causing precipitation beneath the front.

Global Hydrological Cycle

Global Hydrological Cycle

The continuous transfer of water between land, atmosphere and oceans. The Earth is a closed system.

Groundwater Flow

Groundwater Flow

Water moving horizontally through permeable or porous rock due to gravity.

Hydrological Drought

Hydrological Drought

Insufficient soil moisture to meet the needs of vegetation (crops, trees, plants) at a particular time.

Infiltration

Infiltration

The movement of water vertically through the pores in soil.

Integrated Drainage Basin Management

Integrated Drainage Basin Management

Establishing a frame of coordinated efforts between administrations (e.g. local government) and stakeholders (e.g businesses) to achieve balanced management of a basin (World Bank).

Inorganic Carbon

Inorganic Carbon

Carbon stored in carbonated rocks.

Interception

Interception

Raindrops are prevented from falling directly onto the ground, instead hitting the leaves of a tree.

Meteorological Drought

Meteorological Drought

When long-term precipitation trends are below average.

Monsoon

Monsoon

The drastic variation between wet and dry seasons for sub-tropical areas, caused by a changed prevailing wind. Can lead to annual flooding.

Non-Renewable

Non-Renewable

A source of energy that can only be used once to generate electricity or takes thousands of years to replace. E.g. Fossil Fuels.

Nuclear Fusion

Nuclear Fusion

The process of joining atomic nuclei together, to produce energy.

OPEC

OPEC

Oil and Petroleum exporting countries.

An organisation that supports and coordinates fossil fuel exporting countries.

Open System

Open System

A system affected by external flows and inputs (such as a drainage basin, or a sediment cell).

Organic Carbon

Organic Carbon

Carbon stored in plant material and living organisms.

Outgassing

Outgassing

The release of dissolved carbon dioxide (e.g. at plate boundaries, warming the oceans).

Percolation

Percolation

Water moving vertically from soil into permeable rock.

Photosynthesis

Photosynthesis

The process of converting carbon dioxide and water into glucose and oxygen. All plants and some organisms rely on this process to survive.

Physical Water Scarcity

Physical Water Scarcity

A physical lack of available freshwater which cannot meet demand.

Phytoplankton

Phytoplankton

Small organisms that rely on photosynthesis to survive, so intake carbon dioxide from the atmosphere.

Primary Energy

Primary Energy

The initial source of energy, as it is naturally found. This could be natural ores, water, crops or radioactive material.

Relief Precipitation

Relief Precipitation

Precipitation caused when air masses are forced to rise over high land, determined by the relief/ morphology of the land.

Renewable

Renewable

Primary energy that can be re-used to produce electricity or has a short lifetime, therefore any used can be replaced quickly. E.g. Hydroelectric, biomass, solar.

Respiration

Respiration

The process of converting glucose and oxygen into carbon dioxide and energy. Some organisms rely on respiration to survive.

River Regime

River Regime

The pattern of river discharge over a year.

Runoff

Runoff

Water flowing over the surface of the ground eg. after precipitation or snowmelt.

Salinisation

Salinisation

Where salt water contaminates freshwater stores or soils, creating saline conditions and reducing human use/ consumption.

Saltwater Encroachment

Saltwater Encroachment

The movement of saltwater into freshwater aquifers or soils. This may be caused by sea level rise, storm surges or over-extraction.

Secondary Energy

Secondary Energy

The product of primary energy, mostly electricity.

Sequestration

Sequestration

The transfer of carbon from the atmosphere to stores elsewhere - living biosphere, inorganic rocks, etc.

Smart Irrigation

Smart Irrigation

Providing crops with a water supply less than optimal, to make crops resistant to water shortages.

Storm Hydrograph

Storm Hydrograph

Variation of river discharge over a short period of time (days).

Sublimation

Sublimation

The change of state of water from solid to a gas, without being a liquid.

Thermohaline Circulation

Thermohaline Circulation

The movement of volumes of seawater from cold deep water to warm water surface water.

Throughflow

Throughflow

Water moving horizontally through the soil, due to gravity.

Tipping Point

Tipping Point

A critical threshold where any changes to a system after the tipping point are irreversible.

Transpiration

Transpiration

The process through which water evaporates through the stomata in plants' leaves.

Urbanisation

Urbanisation

The growth of populations in towns and cities.

Water Budget

Water Budget

The annual balance between inputs and outputs within a system.

Water Conservation

Water Conservation

Strategies to reduce water usage and demand.

Water Recycling

Water Recycling

The treatment and purification of waste water, to increase supply.

Water Scarcity

Water Scarcity

There are limited renewable water sources (between 500 and 1000 cubic metres per capita per year).

Water Security

Water Security

The ability to protect and access a sustainable source to adequately meet demand.

Water Sharing Treaty

Water Sharing Treaty

International agreements for transboundary sources.

Water Transfer

Water Transfer

Hard engineering projects, such as pipelines or aqueducts, that divert water between basins to meet demand.

Watershed

Watershed

The boundary between neighbouring drainage basins.