

CHAPTER FOUR SECTION ONE

Forces below the Earth's surface

Geology-is the study of the Earth's physical structures and the processes that created them.

Scientists have identified four zones of the Earth's interior

Core:

inner core-is believed to be a solid condition of nickel and iron

outer core-is believed to be a condition of liquid nickel and iron

Mantle-the layer below the surface. It consists of molten rock and dirt called magma.

Crust-outer most layer made up of solid rock and dirt.

Scientists believe that internal forces such as earthquakes and volcanoes have helped to shape the Earth's surface. The Earth's surface consists of several continental plates. The plates move in a process called *continental drift*. This action is described in the *theory plate tectonics*. This theory describes the action of folding, bending, and faulting along these plate boundaries.

These movements scientists think cause earthquakes and volcanic activity.

Plate Movement

Scientists describe three types of plate movement: spreading, colliding, and subduction.

Spreading they think is occurring along the rift valley of the Atlantic Ocean Plates-Mid Atlantic Ridge.

Subduction they think is occurring along the Pacific Ocean floor. The plate boundary is sliding underneath continental plates of Asia and America. Trench zones in the Pacific.

Collision they think occurs where coastal mountains exist. Their suggestion is the plate boundaries collided and pushed upward creating these mountain ranges. Folding and faulting earthquake zones.

Forces on the Earth's Surface

Weathering-the gradual reduction of rock over a long period of time.

chemical-acid rain

physical-natural changes

Sediment-are the small particles of rock created by weathering.

Erosion is the movement of sediment by wind water or ice.
water-running water carving up the Earth's surface

Wind-carries particles away, or abrasive action

ice-glaciers moving across the land eroding and moving sediment

Shapes on the Land

Tectonic Processes-many *mountains and valleys*

Erosion Processes-lands leveled by the movement of dirt. Other landscapes are left behind like *plateaus, plains*.

Depositing Processes-soil that is carried to a new location is deposited creating an *Alluvial Plain/Delta*.

CHAPTER FOUR SECTION TWO

Water on Earth

97% of the world's water is ocean. These waters are too salt for human use. Because only 3% of the Earth's water nations are using a process called Desalinization to create fresh water from salt water.

The amount of water on the Earth varies at any given time. Most of the time this water is different physical states. This process is called the Hydrologic Cycle. This is the movement of water from vapor to liquid back to a vapor.

Surface water

Headwaters-these are streams formed from rain runoff.

Tributary-smaller stream that empties into a river.

Basin/watershed-an area drained by a river and its tributaries

Lakes-large bodies of surface water that has collected in one place

Estuaries-is where a river meets an inlet of a sea/ocean

Wetlands-an area of land that is covered with water part of the year

Groundwater-water found below the Earth's surface.

watertable-where all spaces are filled with water
this level varies with rainy and dry seasons

Floods-occur when rivers and streams can no longer hold water inside its banks. These are caused by heavy rains, or rapid ice/snow melts.

Floods can be very devastating, killing people, livestock, crops. Flood damage comes from many aspects: people living too close to rivers, not raising their homes above floodplains.

Floodplains are fertile farmlands areas.

How can you control flooding?

CHAPTER FOUR SECTION THREE

Landforms and water are among Earth's most valuable resources.

Resources-are any physical material that makes up part of the Earth that people need and value.

non-renewable-materials that cannot be replaced naturally

renewable-materials that natural processes replace

Soil is natural material that includes rocky sediment and organic matter.

Organic Material-formed from decayed plants and animals.

Humus-soil that is formed by bacteria, worms, and insects breaking down the plants and animals.

Parent Rock- is the rock in which soil composition originates.

Moisture, sunlight, temperatures, wind, plants and animals in a region determine the profile of soil. The amount of rainfall in an area may contribute to soil Leaching.

Leaching is the downward movement of nutrients in soil away from plants.

Soil types vary according to climate and vegetation. Preserving this resource can be difficult. Erosion is a natural process that carries soil away from an area.

Farmers can control erosion of farmlands by Contour Farming. Also by planting certain crops that protect the soil from those that cause soil exhaustion. Those are crops that draw nutrients out of the soil. Crop rotation alternating crops each year to change the organic material.

Irrigation-water that is artificially applied to soil. Though this is a helpful process some areas of the world have salt content in its soil. As water drains or evaporates salt can concentrate-salt salinization

Forest lands are beneficial in protecting soil, habitats for animals, and produce materials for certain products.

Deforestation-is process of destroying forest lands faster than natural growth replacement.

Reforestation-is the process of replanting trees.

Air Quality-the combination of atmospheric gases provide for a balance in the life cycle of the Earth's living things. Our quality has been threatened by pollution. Breathing is difficult in high pollution areas like Los Angeles, Mexico City, Santiago(Chile). Pollutants also cause other problems such as Acid Rain.

Acid Rain-chemicals combining with water vapor. Causing a change in rain water pH levels, which change the chemical make up of areas of rainfall.

Ozone Depletion-CO₂ is causing the breakdown of the ozone molecules weakening the UV protection we normally have.

Water Supplies-the world's water supply is unevenly distributed. Providing freshwater for consumption and farming is difficult. Dry areas suffer the most because of their limited supplies. Diverting water has been used throughout the history of man to meet demands. Aqueducts built to transport water, dams, canals, reservoirs also constructed to meet an area's need.

Aquifers-underground supplies, usually replenished by rainfall

Fossil Water-water that was deposit underground in the past, but is not being replenished.

Mineral Resources are solid substances that come form the ground.

Ores-are the mineral bearing rocks that exist in the Earth's crust.

These materials are extracted to produce products. Recycling is helpful to conserve minerals.

Energy Resources-resources used to provide power for daily living. Most energy resource are nonrenewable and come from materials formed by dead plants and animals. These are know as Fossil Fuels.

List some Fossil Fuels

Coal-was one of the earliest forms of energy used. It is black rock located in mountainous areas near the surface. It is burned to create electricity.

Petroleum-major discoveries in the 1920's. It is a liquid and through chemical process is converted into gas, heating oil. Petro chemicals are also produced-plastics, medicines...

Natural gas-an ororless gas that burns fairly clean. An odor substance is add to detect it in homes, etc...

Burning fossil fuels create pollution, that scientist believe are having a negative effect on our environment.

Atomic energy from uranium is a powerful form of energy. It can produce a large amount of energy from a small quantity, and has little or no pollutants. Its waste is dangerous and will last for thousands of years.

Hydroelectric-electricity generated by moving water

Winmills-winds harnessed to create electricity

Geothermal-eletricity generated from the Earth's heat