Chapter 1

- **Planet Earth**

- Environmental Science - is the _____
  _____
  _____. This includes the living and non-living factors As Earth's human population continues to grow, as technology advances and human needs and wants increase, our impacts on the world become more widespread and severe, despite improvement in some areas.

- What's so special about Earth?

  Earth supports life due to the presence of _____.

  Earth maintains a steady surface temperature due to _____
  _____.

  Many more unique qualities

- Is the Sun Important?

  _____
  _____
  _____

  Light travels to Earth in the form of _____

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- 1.1 Planet of Life

  Living things are called _____.

  _____ – Layer of land that forms Earth's surface.

  _____ – All the parts of Earth that are made up of water.

  _____ – Layer of air that surrounds Earth.

  _____ – Anywhere on Earth where life exists

- 1.2 Earth's Land and Water

  Lithosphere

  3 Main rock types:

  - _____, _____, and _____

  Majority of rock is Igneous, however the rocks that we are in contact with are Sedimentary for the most part.

  Major Minerals – Silicates

- Examples of Igneous rocks that would form from lava include basalt, obsidian, scoria, and pumice.

- Metamorphic Rock - Rock that is changed by heat and pressure

- Sedimentary Rock - Rock that is formed from smaller particles that are squeezed together due to pressure.

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- Hydrosphere

  More than _____.

  - _____ of it is Salt water and _____ Fresh water

- 2/3 or _____

  As our ice caps melt our freshwater decreases and our saltwater increases.

  Surface water – ponds, lakes, and streams

  Groundwater – aquifers

- 1.3 The Atmosphere

  4 Atmospheric layers based on temperature change.

  _____ (Highest)

  _____

  _____

  _____ (Lowest)

  The atmosphere becomes less dense the farther you travel from Earth.

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- The Air Pollution Problem

  Air is a mixture of gases.

  - Nitrogen ___% and Oxygen ___% followed by _____ of Argon, CO2, and WV.

- **Air pollution** is the contamination of the atmosphere by wastes from sources such as industrial burning and automobile exhausts.

- A **_____** is a pollutant that is put _____or natural activity. An example would be soot from smoke.

- A **_____** is a pollutant that _____, natural components in the air, or both. An example would be ground-level ozone.

  Ground level ozone forms when the emission from cars react with the UV rays of the sun and then mix with the oxygen in the atmosphere

- What Causes Acid Precipitation?

  Acid precipitation _____

  _____

  _____When fossil fuels are burned, they release oxides of sulfur and nitrogen.

  When these oxides combine with water in the atmosphere they form sulfuric acid and nitric acid, which falls as acid precipitation.

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- **Acid Precipitation**

  Acid precipitation has become more common in the last 200 years due to increased fossil fuel use.

- What Causes Acid Precipitation?

  This acidic water flows over and through the ground, and into lakes, rivers, and streams.

  Acid precipitation can kill living things, and can result in the decline or loss of some local animal and plant populations.

- What Causes Acid Precipitation?

  A **pH** number _____
  _____
  _____.

  Each whole number on the scale indicates a tenfold change in acidity.

  A pH of 7 is neutral, a pH of less than 7 is acidic, and a pH of greater than 7 is basic.

  Pure water has a pH of 7.0, while normal precipitation has a pH of about 5.6.

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- What Causes Acid Precipitation?

  Normal precipitation is slightly acidic because atmospheric carbon dioxide dissolves into the precipitation and forms carbonic acid.

  Precipitation is considered acid precipitation if it has a pH of less than 5.0

  The pH of precipitation in the eastern U.S. and Canada ranges from 4.2 to 4.8, with the most acidic precipitation occurring around Lake Erie and Lake Ontario.

- **Global Warming**

  Light energy enters the atmosphere and is absorbed at the surface. Light energy is changed to heat. Heat energy is radiated back to space in the form of infrared radiation.

- **The Greenhouse Effect**

  CO2 is the most significant greenhouse gas emitted in large quantities by humans.

  Greenhouse effect got its name because heat is trapped.

  Ice cores – long cylinders of ice that are drilled and removed from deep within a sheet of polar ice.

  Ways to reduce Greenhouse Gases in the atmosphere:

  - Electric Cars
  - Solar Power
  - Increasing Fuel Efficiency Standards

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- **Effects of Greenhouse Gas Pollution**

  During the past 150 years, levels of atmospheric CO2 has increased due to increased fossil fuel use.

  Global Warming – _____
  _____
  _____

  Some computer models project that Earth's temperatures will rise by 2 – 4 degrees C.

  Ice Caps will melt, coastal areas will flood, weather patterns will change, salt water will enter freshwater aquifers.

- 1.4 The Biosphere

  Anywhere that life can and is supported.

  It is _____

- Spheres Interact

  Lithosphere interacts with the Hydrosphere when toxins from a factory run off into a water system and poison fish in a body of water

  Hydrosphere interacts with the Atmosphere when water evaporates and forms clouds

  Atmosphere interacts with the Lithosphere when acid rain falls and dissolves limestone