Chapter 4 Standard Learning Map

**Know:**

Resources are things we use. They can be renewable or non-renewable.

Fossil fuels are non-renewable. These fuels are hydrocarbons, primarily coal, oil, or natural gas, formed from the remains of dead plants and animals.

Tar sands and oil shale are also fossil fuels that may be used to supplement dwindling supplies of traditional fossil fuels. Colorado has huge reserves of oil shale.

An ore is a metal-bearing mineral or rock that **can be mined at a profit**.

Fresh water is one of our most precious resources.

If it is not grown, it is mined.

Cars are an example of nonpoint source pollution. Factories are examples of point source pollution.

The two main categories of energy are Potential and Kinetic.

Efficiency is always less than 100%

**Understand:**

Alternative energy sources all have positive and negative characteristics as far as replacing fossil fuels. Their main benefit is they do not produce CO2 and they are renewable (with the exception of Nuclear).

As population grows, so does demand on resources and even renewable resources may become unsustainable. Resources like sunlight are not affected by human consumption and are considered perpetual, while resources like fresh water and crops are affected by human consumption and are considered conditionally renewable.

Recycling helps maintain a resource but does not make it renewable.

Tar sands and oil shale cannot replace traditional fossil fuels for a long period of time. We will likely need to incorporate them into our energy plan in the short term, but ultimately, we need to turn to sustainable alternatives for our energy needs.

Electricity is created in the same way regardless of its source (with the exception of solar). A turbine (usually driven by steam) spins a generator to create electricity.

Energy is always lost in energy transformations, usually in the form of heat

**Do:**

Construct a chart of the types of alternative energy sources and list the benefits and drawbacks of each.

Make an argument of why one alternative energy fuel is better for replacing fossil fuels than another and support your argument with facts.

Interpret graphs on population, resource depletion, CO2 emissions, etc.

Determine the energy transformations, step by step, that take place in the production of electricity