



The Great Green Adventure

Pre-Visit Vocabulary (5-8)

Green – responding to environmental problems through actions that increase awareness and protection of the environment; less harmful for the environment.

Green House Effect & Climate Change

The *green house effect* is what makes the earth warm enough for life. Gases in the atmosphere trap heat from the sun. Green house gases let light pass through the atmosphere to reach the surface of the earth, but they stop much of the heat energy that bounces back, keeping the surface of the earth about 60°F warmer than it would be without them. Carbon dioxide, methane, and water vapor are all examples of green house gasses.

Climate Change refers to a trend of warming temperatures on planet earth. In the past 100 years the earth has warmed about 1°F, and 8 of the hottest years on record have happened in the last 12 years. These are big changes for planet Earth – at the end of the last ice age the climate was only 7°F cooler and all of Michigan was covered in glaciers! *Climate* is the average of rainfall, temperature and seasonal changes in a place over a long period of time; it is not the same thing as weather, which describes what is happening in the atmosphere at a specific place and time.

The climate has changed before because of volcanic eruptions or changes in earth’s orbit, but there is evidence that the change happening now is caused by the actions of people. Most of the energy we use for electricity and transportation comes from burning fossil fuels, which releases carbon dioxide into the atmosphere. These and other activities increase the amount of green house gasses in the atmosphere causing more heat to be trapped near the earth.

Ecological Footprint – the amount of land and water a human population needs to produce the resources it uses and to absorb all its wastes. An ecological footprint compares the amount of natural resources humans demand to the natural resources the earth can provide.

Efficiency – what you get for a certain amount of input; a ratio of work done to energy used. Something can be ‘more efficient’ by producing more from the same starting amount, or by requiring less to produce an equal outcome.

Emissions Standards – requirements that set a limit on the amount of a pollutant that can be released into the environment. Emissions are measured for “point sources” like factories and power plants, and for “mobile sources” like cars, lawn mowers and airplanes.

Leadership in Energy and Environmental Design (LEED)

An internationally recognized green building certification system that provides 'third-party' verification that a building or community was designed and built using strategies to improve environmental impact, including:

- Saving Energy
- Conserving Water
- Reducing CO₂ emissions
- Improving indoor environmental quality
- Stewardship of resources and sensitivity to their Impacts

Reused vs. Recycled vs. Renewable Resources

To *reuse* means to use something for a new purpose without changing it. For example, a glass jelly jar can be reused as a drinking glass instead of being thrown away.

To *recycle* means to take a product (or waste from a product) that has been used, and turn it into something new. There are three steps to recycling – collection, re-manufacture, and resale. For example, an empty pop bottle can be collected, melted and combined with other plastic, and resold as a fiber for blankets or carpets.

A *renewable resource* will replenish itself with time. If a renewable resource is harvested and allowed enough time, it will grow back with no extra help. A cotton T-shirt is an example of a product that is made from a renewable resource – the cotton plant. Cotton seeds are harvested for fibers to make cloth, and with time cotton plants replenish those seeds by growing more. Different kinds of renewable resources will take different lengths of time to grow back after harvest.

Sustainability – meeting the needs of the current generation without sacrificing the ability of future generations to meet those needs. Sustainability refers to “a method of harvesting or using a resource so that the resource is not depleted or permanently damaged,” (Merriam-Webster). Recently, the term sustainability has expanded from a term referring solely to the environment, to one that includes the economic and social impacts of human development, as well as interactions between them.

'Third-party' verification – information to support claims about a product is checked by a group or individual who does not work for the company selling the product or the purchaser buying the product. 'Third-party' verification generally provides an objective guarantee that product claims are true.