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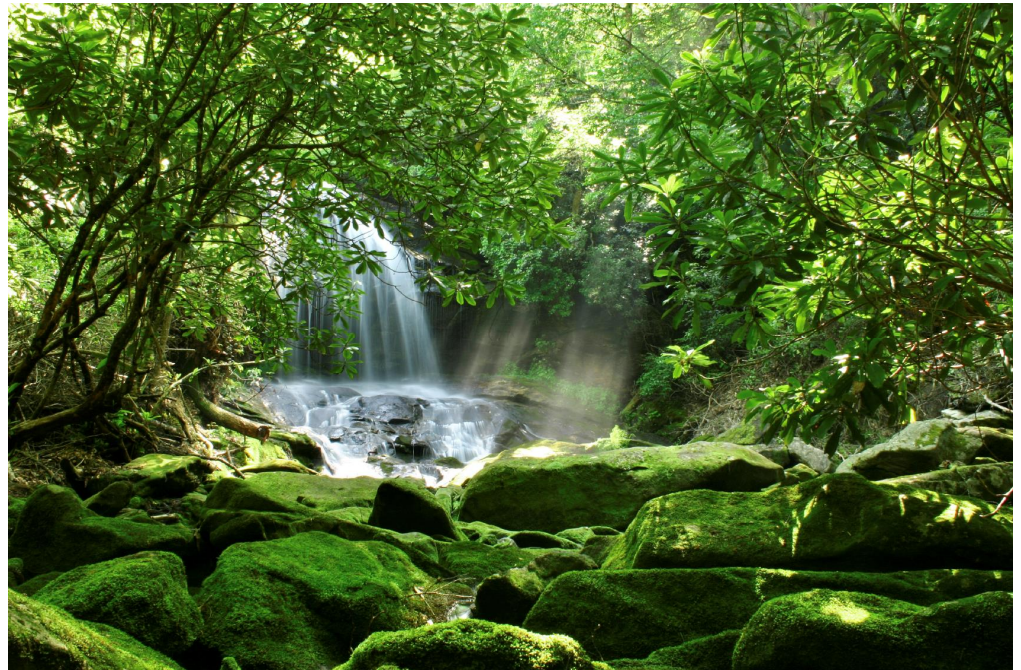
Conserving Resources

Vocabulary

- " Natural Resource
- " Renewable Resource
- " Nonrenewable Resource
- " Petroleum
- " Fossil Fuel
- " Hydroelectric Power
- " Nuclear Energy
- " Geothermal Energy

Natural Resources

- “ Natural Resources are the parts of the environment that are useful or necessary for the survival of living organisms
- “ Food, air and water
- “ Plants, minerals, energy



Renewable Resources

- “ Renewable resources are recycled or replaced constantly by nature.
- “ Renewable resources are practically unlimited.
- “ Sunlight, water, air and plants.



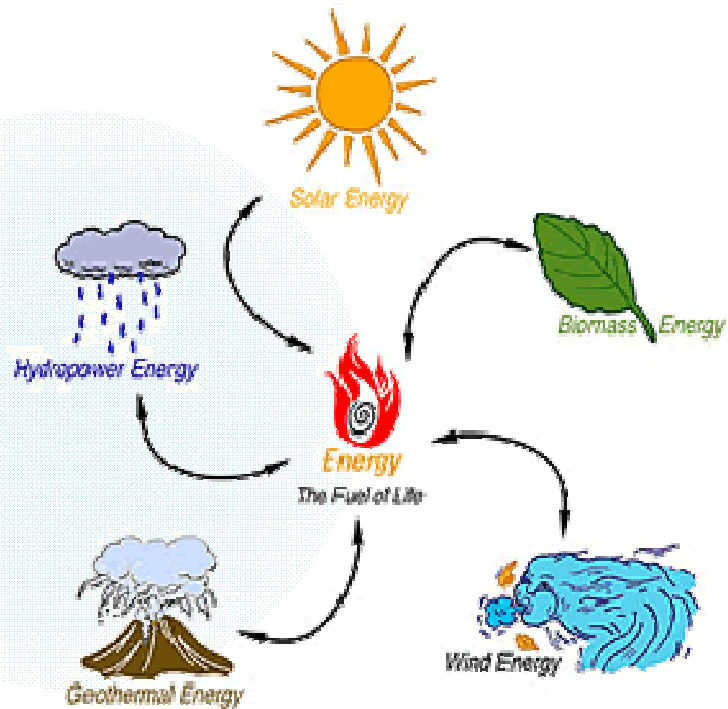
Nonrenewable Resources

- “ Resources that are used up quicker than they can be replaced are nonrenewable resources.
- “ Nonrenewable resources are limited.
- “ Minerals and metals, petroleum

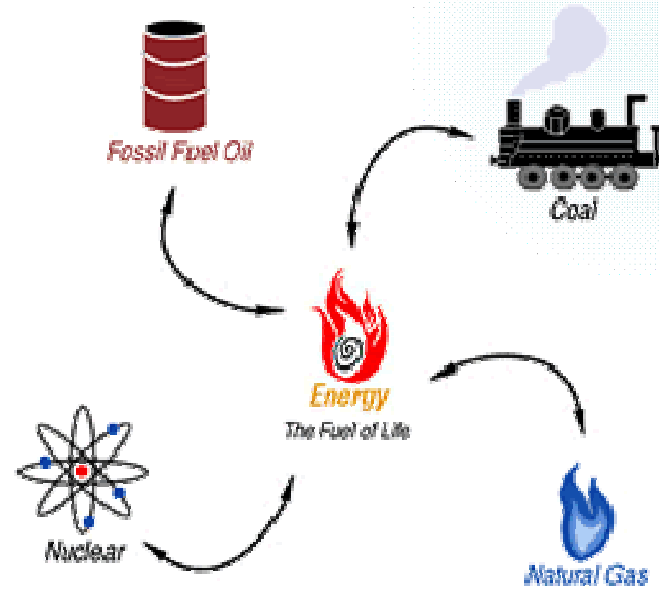


Renewable Vs. Nonrenewable Energy

Renewable Energy



Non-Renewable Energy



Fossil Fuels

- “ Fossil fuels are fuels that were formed in the Earth's crust over hundreds of millions of years
- “ Oil, coal, natural gas



Fossil Fuel Usage

- “ Oil and natural gas are used to produce over 60% of the energy supply in the US
- “ Over half of the oil used is imported from other countries.
- “ Many scientists suggest that emissions from burning fossil fuels are principally responsible for global warming.



Alternatives To Fossil Fuels

- “ An approach to reducing fossil fuel use is to develop other sources of energy.
- “ Most of the energy used today comes from power plants that burn fossil fuels.
- “ Fossil fuel power plants boil water to produce steam that turns turbines.
- “ Alternative energy sources can be used in place of fossil fuels to turn turbines.
 - “ Wind, water and atomic energy can be used



Hydroelectric Power

- “ Electricity is produced by falling/flowing water turning the turbines of an electric generator.
- “ Does not pollute the air
- “ Building a dam changes ecosystems



Wind Power

- “ Wind turns the blades of a turbine
- “ Does not cause air pollution
- “ Wind must be blowing almost 20 mph
- “ Can be noisy
- “ Can kill birds



Nuclear Power

- “ Nuclear energy is released when billions of atomic nuclei from uranium are split apart in nuclear fission.
- “ This energy produces steam that turns turbines.
- “ Does not cause air pollution
- “ Nonrenewable
- “ Used uranium must be disposed of properly
- “ Mining uranium can disrupt ecosystems



Geothermal Energy

- “ Geothermal energy is the heat contained in the Earth's crust
- “ The heat can come from lava and/or hot gases from volcanos, or from hot water from geysers
- “ Geothermal energy is only available where natural geysers or volcanos are found.
- “ The heat generated can cause steam to turn turbines, which generate electricity.
- “ Excess heat can also be used to heat homes, businesses and other places.



Solar Energy

- “ Solar panels use photovoltaic cells to produce electrical current
- “ Sunlight can be captured and used to heat buildings by using materials which absorb heat and release it slowly throughout the day and night
- “ Solar panels aren't highly efficient yet, but are getting far better and cheaper as more money is being spent to further develop them.
- “ Solar panels only work during daylight hours.



Pollution

- “ A pollutant is a substance that contaminates the environment.
- “ Air pollutants can be soot, smoke, ash, and gasses such as carbon dioxide, carbon monoxide, nitrogen oxides and sulfur oxides
- “ Air pollution can be caused by factories, power plants, homes, vehicles and airplanes.
- “ Air pollution can also be caused by natural occurrences such as volcanic eruptions, wind-blown dust and sand, and forest fires.



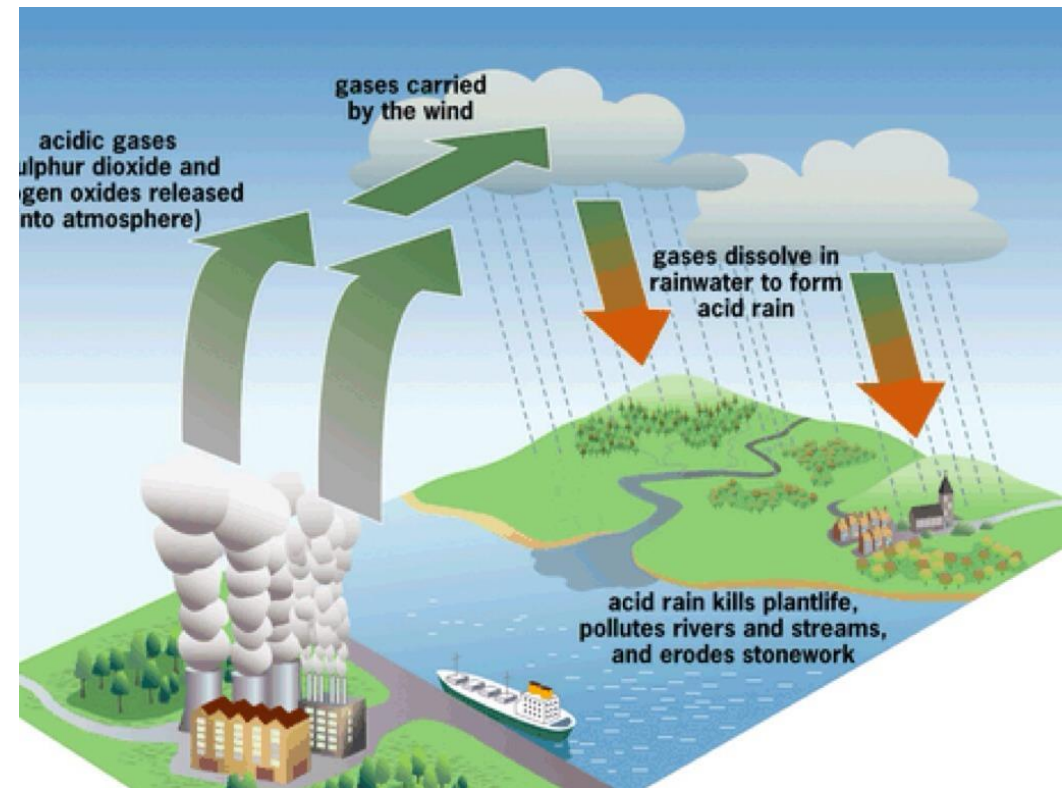
Air Pollution

- “ Air pollution has many different forms and can cause many different problems.
- “ Smog is created when sunlight reacts with pollutants created by burning fossil fuels.
- “ The word Smog is a combination of Smoke and Fog
- “ In Los Angeles, CA, the smog problem is due to a large number of motor vehicles and the city being surrounded by mountains.
- “ Because of the mountains, the air gets trapped and doesn't move freely.



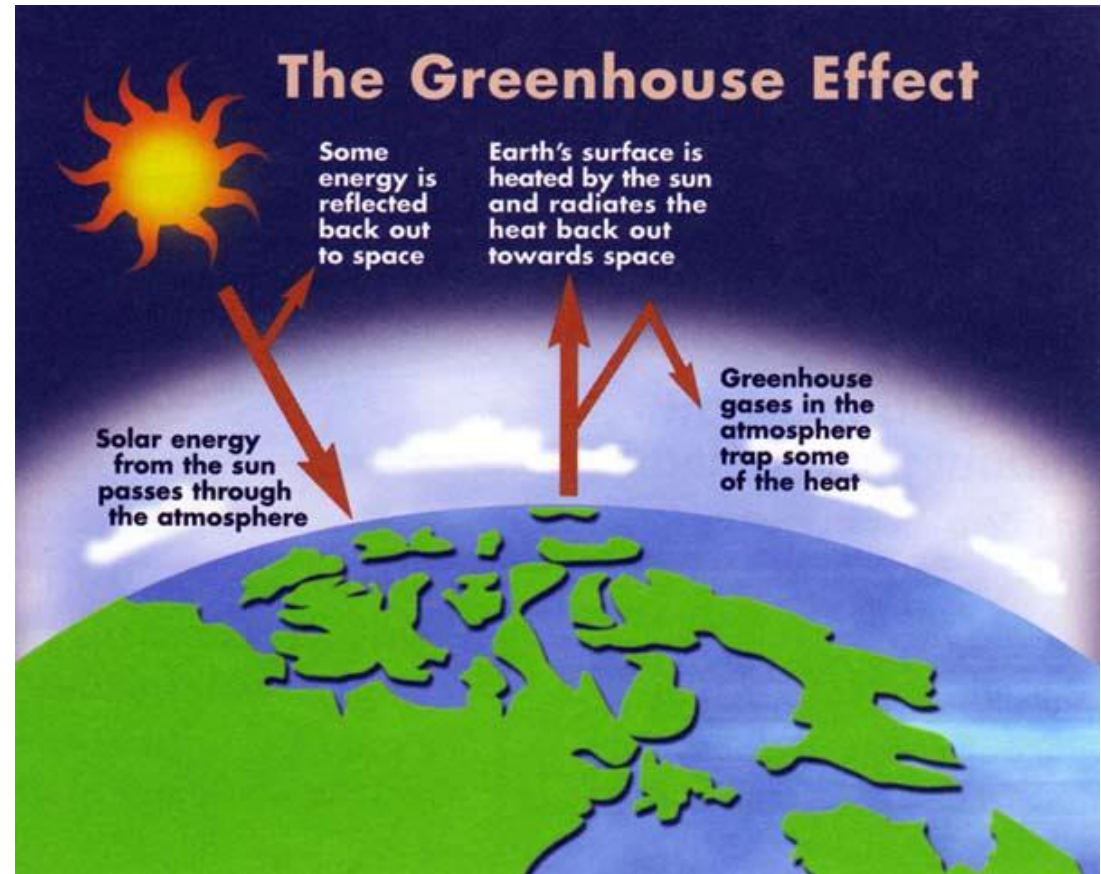
Acid Precipitation

- “ Water vapor condenses on dust particles in the air to form droplets that combine to create clouds.
- “ Air pollutants from the burning of fossil fuels can react with the water in the atmosphere to form strong acids.
- “ Acid precipitation has a pH below 5.6
- “ Acid precipitation can stunt the growth of plants.
- “ The organisms that consume these plants have less food available, and the food chain gets disrupted.
- “ Acid precipitation can be reduced by using low sulfur fossil fuels.



Greenhouse Effect

- “ Sunlight gets reflected from the Earth's surface and gets trapped by gases in the atmosphere, causing heat.
- “ The gasses are called greenhouse gasses ó mainly carbon dioxide (CO₂)
- “ The greenhouse effect is needed to sustain life on Earth.
- “ When too much CO₂ gets trapped in the atmosphere, the Earth can get too warm ó Global Warming.
- “ Global warming can lead to disruptions in food chains and erratic weather patterns.



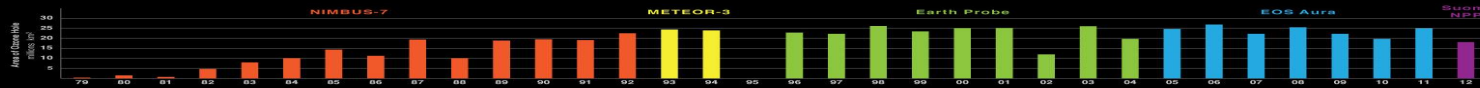
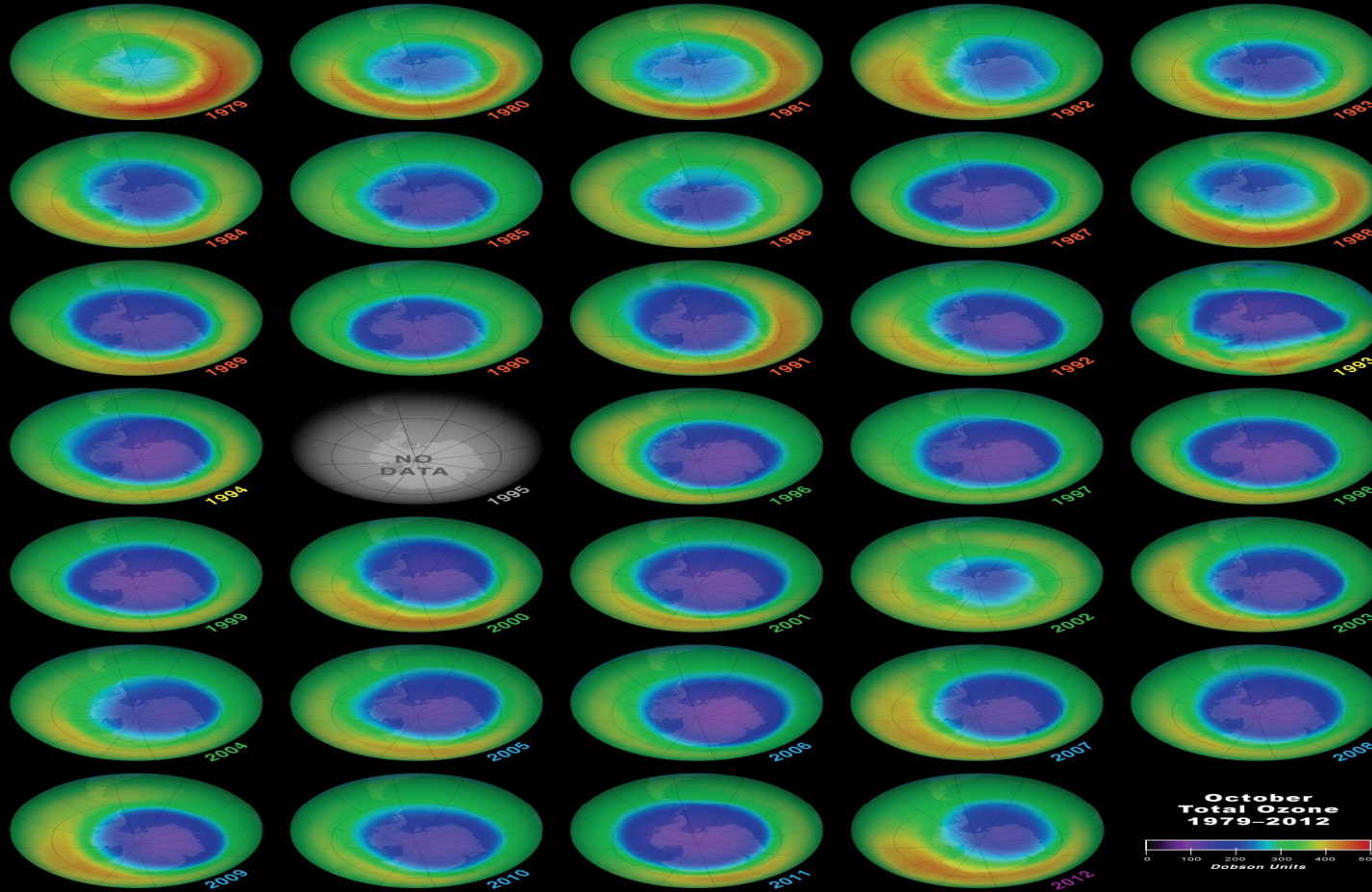
Ozone Depletion

- “ The ozone layer is approximately 12 miles (20 km) above the Earth's surface.
- “ The ozone layer absorbs some of the sun's harmful UV rays.
- “ The ozone layer is becoming thinner (ozone depletion) due to use of chlorofluorocarbons (CFCs).
- “ CFCs chemically react with ozone, breaking the ozone down.
- “ CFCs are commonly found in cooling systems in refrigerators, freezers and air conditioning units.
- “ CFCs can also sometimes be found in aerosol sprays.

The Ozone Hole

Over 30 Years of Satellite Observations

National Aeronautics and Space Administration



Water Pollution

- “ Air pollutants can drift into water or be washed out of the sky by precipitation.
- “ Waste water from factories and sewage treatment plants is often released into waterways.
- “ Pollutants can poison fish, kill plants, etc.
- “ Some pollutants such as mercury can build up in the fatty tissues of fish.



Soil Pollution

- “ Soil can become polluted when air pollutants drift to the ground.
- “ Soil can also be polluted when people litter.
- “ Solids waste can break down in the soil and its chemicals can seep into the ground.
- “ Liquid chemicals such as pesticides seep into the soil easily.
- “ These chemicals can eventually seep into water tables underground, thereby polluting drinking water.
- “ Cleaning underground water is nearly impossible.



The Three Rs Of Conservation

Reduce

- “ Reduce fossil fuel usage by using clean renewable energy resources
- “ Reduce waste by avoiding buying things you do not need
- “ Reduce waste by repairing broken things rather than replacing them

Reuse

- “ Reuse bags at the grocery store instead of using new ones
- “ Use washable plates, cups and silverware instead of disposable ones
- “ Donate goods such as clothes and furniture to charity



The Three Rs Of Conservation

Recycle

- “ Glass, plastic, paper and metals can be recycled.
- “ Recycling is breaking down a material (usually melting it) and reusing it.
 - “ Plastic bottles can be melted down and used as bottles, carpet, ropes, etc.
- “ Using 1 ton of recycled iron saves about 1.1 tons of iron ore from being mined.
- “ Using recycled steel reduces energy use by about 75%.
- “ Recycled glass reduces energy usage by about 25%.

