E5.10 Natural Resources

Almost everything people use comes from a natural resource (ex. air we breath, water to drink, soil to grow food, rocks and minerals to form soil, forests produce shelter and fuel)

Two types: nonrenewable and renewable

1. Nonrenewable resource takes longer than our lifetime to be made (ex. Fossil fuels –coal, oil *petroleum*, gas)
    - Fossil fuels formed millions of years ago from fossilized plants and animals. Once burned, they release pollution into the air (emissions)
        - Coal – burned in power plants to run electricity to towns (swamp)
        - Oil aka *Petroleum* – turned into heat energy to heat buildings (ocean)
        - Gas – runs engines for transportation (ocean)
2. Renewable resources are replaced very quickly (ex. Wind, water, sunlight, fish, trees, animal waste, plant materials)
    - Freshwater – makes up only 3% of water on earth
        - Most of Earth's freshwater is frozen – 2.3%. (glaciers, ice caps)
        - Only a limited amount of freshwater is liquid – 0.6%. (running water – rivers, standing water – reservior, groundwater – aquifer)
        - The remaining 0.1% is water vapor. (gas in the air)

E5.10 Alternative Energy Sources

Alternative energy sources are sources of energy that come from any place other than fossil fuels. These sources do not cause pollution excluding biomass.

1. Wind– as the wind blows, the windmill's turbines move and generate electricity. Con-interferes with bird migration
2. Moving water (hydropower) – as water flows, the hydroelectric dam's axles move and generate electricity. Con-interferes with water organisms
3. Sun (solar) – as the sun rises and sets, the solar panels absorb the sun's rays and generate electricity and heat energy. Con-only used in areas with mostly cloud-free days
4. Geothermal – as heat is produced inside the earth, steam is piped to machines that spin generators and generates heat energy. Con- only a few places are available for this on earth
5. Biomass – energy gotten from living or recently living organisms. Con-the burning of these materials produces carbon emissions

E5.10 Conservation

How to save earth's resources:

1. Turn off lights when leaving a room
2. Turn off electronic equipment when you aren't using it
3. Use water-conserving showerheads and take shorter showers
4. Turn off hot water when not in use
5. Carpool, ride a bike, or use public transportation whenever you can
6. Turn the heat down or A/C up when no one is home
7. Insulate windows and doors to prevent heat loss
8. Reduce – use less
9. Reuse – use again
10. Recycle – collect and bring to a *factory* so they can make it into something new

E5.10 Natural Disasters

- Tornado – WATCH means a tornado COULD form, WARNING means to take cover IMMEDIATELY!
    - Where to go? Move to a lower location with no windows, cover head
- Hurricane – WATCH 48 hours before damaging winds, WARNING 36 hours before damaging winds
    - Where to go? Evacuate: go more inland
    - What to have? Food, gas, water
- Flooding – occurs when too much rain is in a location or LEVEES break
    - Where to go? Move to higher ground and do NOT walk or drive down flooded roads

E5.10 Humans Change Earth

Humans have changed the environment because our population keeps growing. People take up space, grow and eat food, breathe air, and produce waste.

Changes to land: deforestation, urbanization (buildings and neighborhoods), landfills – can harm other organisms and create soil erosion

Changes to water: littering, industrial pollution, use too much freshwater – can harm other organisms

Changes to air: transportation fuels pollute the air, factory pollution – breathing trouble, acid rain (pollution w/water vapor) can damage land and water

Changes to animals: overhunting and overfishing – can reduce animal populations

Changes to vegetation: farming and planting crops, lumber, firewood – can cause soil erosion

Changes to living things: invasive species – can reduce organism populations

Changes in outer space: space debris