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Geology

1. Population Growth has to do with the births in an area vs the deaths. This is important because its the rate that comes from this is what we use to decide the growth rate. The growth rate is important because it helps us stay on top of our resource use and sustainability, which are also closely intertwined. Resource use is really self explanatory, its just the amount of things we use. Sustainability however, is the ability to meet our needs, without compromising the future, or in other words, controlling our resource use. This is very important because we need to control our population so that we can help control our resource use, so that we can watch our sustainability.
2. The scientific method is a process of making observations, making a hypothesis about those observations, confirming the hypothesis with data collection, and analyzing the data to make a decision. This can be used in almost any situation, including environmental studies. You could be solving a problem with pollution in the air, and by using these steps you could get to the bottom of it.
3. Ground water is a supply of water that is under the ground that we walk on. Most of it is found within .5 miles of the surface. This is the supply of drinking water all across the country. Some places though, like Long Island, New York, suffer from ground water pollution. This is because of urbanization pollutants like septic tanks polluted runoff. We need to be really careful that we don't pollute the groundwater underneath us, because it is extremely hard to clean up.
4. Water is a very simple thing, that is very important and made into a very complex thing that we depend on. Our water use has become more efficient in the last decade. At a time where the population was going up, our water use was going down. Which is really good thing. However, there are still a lot of things we can do. We can monitor evaporation, create more efficient irrigation, and more efficient bathroom appliances. There are natural wetlands that provide many different uses for the world. Those act as a buffer for coastal erosion. They act as a water filtration system between the ocean and inland water supplies. They can also act as groundwater rechargers. Then there are dams that have been constructed all over the country. These at the time seemed like good ideas, but have since proven to hurt the environment. They have been such a problem, that the area below the dam, and the area above the dam are considered different eco systems. Some dams have been removed, and the results are often really positive for the species in the area.
5. The Clean Water Act is the law that protects our rivers, streams, and groundwater. The Safe Drinking Water Act takes that a step further and protects the water that we drink, which comes a lot from the groundwater. This act requires that naturally occurring things like arsenic be treated. Point sources are typically things like pipelines that empty into water sources. These are regulated on site. Nonpoint pollution comes from changes in the land use like climate, hydrology, native vegetation, and geology. A common nonpoint pollution is runoff from city streets. It is typically harder control and to pinpoint. The main types of pollution are oxygen- demanding waste, which is usually dead organic matter that decays in the water. There is pathogenic organisms, those are things like cholera, typhoid infections, hepatitis, and dysentery.Oil is another huge water pollutant. Things like BP oil spill are huge concerns. There are a lot of things that go into fixing groundwater pollution. Some common methods of fixing it are, extraction wells, vapor extraction, bioremediation, or permeable treatment bed.
6. Pollution is a huge problem that we are currently facing. Not only is it unhealthy for us, but it is hurting the natural state of the world that we live on. Sometimes we don't realize how bad it actually is, until you see a cold winter day in utah during the inversion. When you can see the air you are breathing, you know there is a problem there. Some say that “dilution is the solution to pollution”. Although this helps, it cannot always be the right answer. Eventually we will run into the exact same problem again.
7. Human Health Risk Assessment and Toxicology is around to help keep us safe and healthy. There are 3 main types of environmental media. These are land, air, and water. All of these things have the potential to harm us. For example, we breath in air every day, we shower with water, and we are in contact with land every day.
8. Renewable resources are things that are available in an unlimited supply. There are things such as hydro, geothermal, tidal, wind, and solar power. Non Renewable resources are things like minerals, oil, gas, and coal. Typically the renewable things are clean energy while the non renewable are dirty because they create pollutants.
9. Minerals are huge part of our lives, even if we don't realize it. All around us, especially in Northern Utah, there are mines. And with these mines come compromises. There is a lot of waste that is generated with mines. This has the potential to become a big problem. Ways to help fix this, are becoming more efficient in the recycling of our minerals. If we do this not only will we not have to mine as much, helping with the waste problem, but we will also help the problem of sustainability and minerals. Currently we are using the non-renewable minerals at a pretty rapid rate. If we are not careful, there won't be any left for the future generation.
10. Oil is a very important source of energy that is used all around the world. Peak oil will happen when 50% of the possible oil to extract from the earth has been extracted. Now we won't actually be out of oil at this point, but the price is going to go up exponentially. Not only will the demand be greater for it, but the supply will be going down at a rapid rate without any hope of renewal. This goes into sustainability. Are we leaving enough oil for the future generations? At this rate no. What we can do to help this, is find new sources of renewable energy and start easing off of Oil. This will also help us when the day of Peak Oil comes.
11. Climate Change and Global Warming are two similar things. Global Warming is seen on a global scale, while Climate Change is seen on a local scale. Global Warming to me is a factor of what is changing Climates all around the world, but not the entire reason. The key cause of Global Warming is the Greenhouse Effect. This is what is keeping the majority of C02 that humans are putting into the atmosphere in. This is causing the earth to warm up. We can pinpoint it to this, because the average temperature of the sun is not changing. So it means it is our fault. Climate Change has many different factors that go into it. Humidity, cloudiness, and rain/snow are all factors that go into Climate Change.
12. Examples of paleoclimate proxies are ice cores, tree rings, sub-fossil pollen, and corral. Ice Cores are sections of ice, typically from polar ice caps that contain a lot of information about climate. Tree rings are the rings that indicate how old a tree is. By looking at these, scientists are able to tell a lot about the conditions of the climate that year. Sub-fossil pollen, this is when particulate samples are collected from the air and water from fossils of any age. These can also be used to tell about ancient climates. Corral can be used to check the salinity of ancient water, the oxygen isotopes in the water, or even surface water temperatures.