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BioB

**Plant Essay**

          Plant evolution has resulted in increasing levels of complexity. It has gone from plants living in water to plants being able to adapt to their environment to be able to live on land. To be able to show how all the plants are related and the evolution of plants you can use a phylogenetic tree diagram. A phylogenetic tree is designed show the relationships between plants by showing branches that tell you who came from whom, and who was there first. The Characteristics of plants are Chloroplast, cell wall, and photosynthesis. Chloroplast makes plant cells, and it is where photosynthesis occurs. It is also usually green. The cell wall surrounds the cell and protects the plant cell membrane. Photosynthesis is the process plants use to make energy. Photosynthesis uses carbon deoxidize, water, and sunlight. The food web is a food chain that explains who eats who. The plants are at the bottom of the food chain because they are eaten by almost everything, and do not eat anything. Without plants everything would get no oxygen and suffocate leading to starvation.

          Green algae also know as chorophytes looks like a variety of shapes. There are plants that are called not true plants, which means that they do not have all the plant characters. The true plants are vascular plants, and everybody but chorophytes. Ancestral plants are hypothesized to be the great ancestors of plants. These plants live in water, and breed in water too. They are the only aquatic plant, the rest all live on land. Unless they are lichen they live in the water. Lichen is algae and fungus put together. In algae I'd gets it food, and in fungus, it gets its house, or shelter. It lives in the fungus. Non-Vascular plants don't have the ability to move around water using tubes/ vessels. Spirogyra is a chrorphyte that is filled with a green spiral that makes it so it can perform photosynthesis.

          What is a cuticle?  A cuticle is tough but also flexible. It is a non-mineral outer layer, covering an organism. It can hold the water that is needed, with it’s the waxy like skin. The Stomata which is a gap in the middle of a cuticle, allows gas exchange when it opens. The Stomata holds in water by closing. Vascular tissue is a type of tissue that transports fluid through the plant. The vascular tissue can move with tubes. The two types of vascular tissue are Xylem and Phloem. Xylem is a type of vascular tissue that transports water and transports water and dissolves nutrients. Phloem is a type of vascular tissue that transports food from photosynthesis. Transpiration is the act of transpiring through the stomata of plant tissue. Transpiration can not hold water, but it can work with stomata to keep water in when needed.

Pterophytes; commonly known as ferns, and horsetails. Mosses and ferns are alike by their seedless spores, and live in moist areas. Pterophytes can handle more dry areas than mosses, but still need moist areas. They have to live in moist areas because of their spores. They reproduce by their sperm swimming in water from males to females. Sori are the structure that hold and create the ferns. Sori are on the underside of the fern. The seeds are different from spores by smaller, don’t have as much resources for baby plants, and don’t need to be fertilized to grow into a plant. They rely on water for reproduction, because of the male sperm to swim to the female. Ferns do have a vascular tissue, so they can move water. The vascular tissue mass made it so that the fern is no longer constrained to have maximum surface area for osmosis. They don’t have to be longer or short, or fat or skinny.

 What are Gymnosperms? Gymnosperms are most commonly known as conifers, or pine trees. Conifers and ferns are alike, because they both live on land. They are also vascular plants. They use xylem and phloem. They also have seeds, which is how they reproduce. These seeds are the first seeds, and are called ancestral. Since they have naked seeds, they use a cone to protect their seeds on the inside. They do have vascular tissue, which lets it get all the water from the base of the trees to the top of the trees. Having vascular tissue makes it so that it makes the tree grow taller.

What is an Angiosperm?  An Angiosperm is commonly known as flower plants. They are similar to conifers. They are land plants, they have vascular tissue (xylem and phloem), and have seeds. They live on land, and can reproduce by seeds. There seeds are evolved to protect the baby plant. The flowers are to attract pollinators. There fruits are able to move the baby far away from the mom so they are not competing for resources. They can attract pollinators to get better genetics, and get more diverse genes and become healthier and better at evolving. Flowers can attract pollinators by being pretty and pollinators love the color red. The flowers smell attracts species by scent rather than sight. Bees can see UV light, which is what flowers have. They can also use Trickery (ex: Orchids look like lady wasp, and a male wasp will come over to mate with it, and become pollinated.) They do have a vascular tissue that can move water. The vascular tissue is no longer constrained to have maximum SA for osmosis. Instead they can be any size.

 Evolution is the slow process that organism do over many generations to adapt to their environment. Plant evolution had gone on for many generations from ancestral green algebra plants to a more derived plants like flower plants. It is a slow process that takes many small steps. Natural selection is the section of the most adapted and most evolved plants.