**Abscisic acid**- plant hormone that functions in many plant developmental processes; it also plays an important part in plant responses to environmental stress and plant pathogens. It is produced in terminal buds and this slows plant growth and directs leaf primordial to develop scales to protect the dormant buds during the cold season. It also inhibits the division of cells in the vascular cambium by adjusting to cold conditions in the winter. Abscisic acid is also produced in response to deceased soil water potential and other situations in which the plant may be under stress.

**Cellulose**-organic compound (C6H10O5); structural component of the primary cell wall of green plants Most common organic compound on Earth  
 33% of all plant matter is cellulose  
first isolated in 1834 by French on accident and found to be broken down in to basic units of starch; found to be the first/primary link in food chain

**Bryophyte**-nonvascular terrestrial plants that first emerged about 420 million yrs ago; for the nonmonophyletic grouping Bryophyta and include mosses, liverworts, and hornworts  
 produce spores but not seeds and have dominant gametophytes; need moisture for sexual reproduction; sporophytes are dependent on the gametophytes and exist on short stalks, called seta  
significant role in contributing to nutrient cycles, providing seed-beds for larger plants, and form microhabitats for insects and other microorganisms; important factor in eliminating the deteriorating effect of heavy rains, add to hill stability and help prevent soil erosion; some important biological activities-against certain cancer cell lines, antibacterial properties, anti-microbial, anti-fungal and muscle relaxing activity

**Ethylene-** plant hormone that is a gas; H2C=CH2; this is released from the plant (usually fruits) as they approach maturity; this promotes the ripening of the fruit  
-other functions is affects include but aren’t limited to  
 -abscission of leaves, fruits, and flower petals; drooping of leaves; sprouting of potato buds; seed germination; stem elongation in rice; flower formation in some species  
- it is significant in the study of plants because some commercial fruit growers can buy equipment to generate ethylene so that their harvest ripens quickly and uniformly; it is important to the economy as well as some people’s income

**Gibberellins-** plant hormones that stimulate growth in the stem and leaves, trigger the germination of the seed and breaking of bud dormancy, and stimulate fruit development with auxin; occurs mainly in the roots and young leaves; generally don’t have any influence on plants of normal size but if given to a dwarf plant, then it can grow to normal size; the key part in renewing the growth of the embryo   
-western scientist learned of gibberellins after World WarII and over the last thirty years many different scientist identify over seventy types of gibberellins, most of which occurred naturally in plants; found to have many different effects on plants  
-significant in the study of plants: example, seedless grapes are treated with gibberellins so that the fruit enlarges (lack ovules so don’t grow as much)=that is why they are just as large as the grapes with seeds; gibberellins is not known to cause any human problems in studies so this is a good thing!

**Lignin-** complex organic polymer found in the tissues of plants; found specifically in the cell walls of plants and it binds with cellulose to make sturdy, strong walls; the more lignin, the woodier it is; provides the shape and form of stalks, twigs, and tree trunks; helps parent plant conduct water and it sequesters carbon in the plant  
-significance: the more lignin, the sturdier and stronger it will be , making it suitable for more tasks; burns very efficiently (popular as fuel); important role in the structure and development of wood; when extracted, can be uses as an emulsifying, sequestering, binding, or dispersal agent; found when extracted from willow, can be used to produce expanded polyurethane foam; developed a process for turning lignin into a substance, Arboform, behaves identically to plastic for injection molding

**Chlorophyta-** is the name for green algae; get the color from chlorophyll a and b; beta-carotene(yellow pigment); may be unicellular, multi-cellular, colonial, or coenocytic; membrane bound chloroplasts and nuclei; most green are aquatic are freshwater and marine habitats and some are terrestrial, growing on soil, trees, or rocks; can be symbiotic with fungi or animals; asexual reproduction may be by fission, budding, fragmentation, or by zoospores  
-significance in medicine and health: organic beta-carotene is produced in Australia from hypersaline green alga=been shown to be very effective in preventing some cancers, including lung cancer; caulerpa (marine genus chlorophyta) found to have led to the introduction of a number of invasive species (not a good thing); chlorella (genus of freshwater and terrestrial green alga) taken in tablets or capsules, or added to food=said to improve the nutritional quality of a daily diet, better health

**Phloem-** tissues in plants that conduct foods made in leaves to all other parts of the plant; composed of still-living cells called sieve tubes, companion cells, phloem fibres, and phloem parenchyma cells; main function is to transport sugars and other food (amino acids) from the leaves; usually found close to the other transport tissue in plans (xylem);  
-significance in understanding how plants get nutrients: pressure flow hypothesis-high concentration of organic substance inside cells of the phloem at a source creates a diffusion gradient that draws water into the cells, movement occurs by bulk flow-turgor pressure gradient; another significance is how farmers get those prize awarding large fruits and vegetables. This is done through girdling- place a girdle at base of a large branch, and remove all but one fruit/vegetable from that branch=all the sugars manufactured have no sinks to go to but the one fruit/vegetable, thus expanding it beyond normal size

**Gametophyte-** the haploid, multi-cellular phase of plants and algae that undergo alternation of generations, with each of its cells containing only a single set of chromosomes; produces male or female gametes by mitosis=can produce diploid zygotes which develop into sporophytes=goes onto produce spores by meiosis and develop into a haploid gametophyte  
-significance to the study of plants because it has evolved over time: early land plants reproduced sexually with flagellated sperm. An adaptation to terrestrialization was the development of upright meiosporangia for dispersal by spores to new habitats. Also the tissues of the vascular sporophyte changed by spore germination

**Cuticle-**a non-cellular protective layer covering the outer cell layer (epidermis) of the green, aerial parts of land plants; protect against dessication, UV radiation and various kinds of physical, chemical, and microbiological agents; provide some support as well; among the most resistant parts of the plant, and in compression floras they are often the only part of the plant that still provides some information on cellular stuctures  
-significance in the study of plants is that each plant species has its own specific epidermal pattern so can be used for identifying plant remains=kind of like the plant’s fingerprint; only need a small piece for justified identification; other uses, valuable source for further information such as gross morphology , ecology, and climate; the uniqueness of cell patterns, and their high fossilization potential, the study of cuticles has become a standard method in palaeobotany