Plants Chapter Test Review

For each pair of terms, explain the relationship between the terms

1. Seed: embryo surrounded by a protective case

 Spores: reproductive cell surrounded by a hard outer wall,

1. Vascular plant: Vascular tissues, true roots and leaves

non-vascular plant: no vascular system, no true roots nor leaves

1. Phloem: carries organic compounds

 xylem: carries water and dissolved substances

For each pair of terms, explain how the meanings of the terms differ

1. Gymnosperm: produce seeds that are nor enclosed in a fruit

Angiosperm: flowering plants that produce seeds that are enclosed in a fruit

1. Gametophytes: haploid and produces eggs and sperm

Sporophyte: are diploid and produce spores

1. Monocot: have one cotyledon in their embryo
2. Dicot: have two cotyledon in their embryo

Summarize how plants are adapted to living successfully on land

-Waxy cuticle

-haploid spore and diploid seeds

-vascular tissue (xylem and phloem)

Name two basic differences between non-vascular and vascular plants

Vascular plants have phloem and xylem, true roots and leaves.

Describe alternation of generations

* The **gametophyte generation** begins with a **spore** produced by meiosis. The spore is haploid, and all the cells derived from it (by mitosis) are also haploid. In due course, this multicellular structure produces gametes — by [**mitosis**](http://www.biology-pages.info/M/Mitosis.html) — and sexual reproduction then produces the diploid **sporophyte generation**.
* The sporophyte generation thus starts with a zygote. Its cells contain the diploid number of chromosomes. Eventually, though, certain cells will undergo meiosis, forming spores and starting a new gametophyte generation.

Explain how specialized conducting tissues give vascular plants an adaptive advantage over non-vascular plants

These plants can grow taller since they vascular system carries water and nutrients, Also they can extend up looking for sunlight.

Describe the functions of

Parenchyma: involved in metabolic functions.

Collenchyma: support regions of the plant that are still lengthening.

sclerenchyma: support and strengthen plants in areas where growth is no longer occurring

Explain the difference between

primary growth: Roots increase in length through cell division, elongation, and maturation in the apical meristem in the root tip

secondary growth: Secondary growth begins when a pericycle and other cells form a vascular cambium between primary xylem and primary phloem.

Describe the types of stems:



Describe the structure of leaves:



Leaves that only have one blade are called **simple leaves.**

Leaves are called **compound leaves** if they have a blade divided into leaflets

Describe the function and structure of roots

When a seed sprouts, it produces a primary root. If this first root becomes the largest root, it is called a **taproot.**

In some plants, the primary root does not become large. Instead, numerous small roots develop and branch to produce a **fibrous root system**

Describe the following properties of water

1. Cohesion: water molecules attach to each other
2. Adhesion: water molecules attach to objects
3. Polarity: Hydrogen is + Oxygen is – thus attracting each other
4. Surface tension: when small objects are able to float in water
5. Capillary action: water molecules are drawn up through small spaces

Compare monocot and dicot plants

-type of roots

-number of seed leaves

-Leaf venation -number of flower plants

Describe the process of photosynthesis:

-Light dependent reaction:

The light reaction consists mainly of the conversion of H2O into O2 with the help of light, ATP, and NADP+ . This part of photosynthesis takes place in the membranes of small sacs found in the chloroplast called thylakoids.

The overall electron path is:

1. from water

2. to photosystem II (chlorophyll A)

 3. down the photosystem II electron transport chain

 4. to photosystem I (cholophyll A)

5. either down the photosystem II electron transport chain and back to NADPH

-Light independent reaction (Calvin Cycle)

The dark reactions include the making of glucose (C6H12O6) and water from CO2, ATP, and NADPH. In this reaction, 3 CO2 are mixed together with 3 molecules of ribulose bisphosphate ( RuBP: a five carbon sugar) to make 6 molecules of glucose-3-phosphate (G3P). This is the actual product of the dark reaction. ATP and NADPH are used as energy sources in this reaction and are changed back into ADP and NADP+ . They then are recycled to the light reactions. Water is also produced in this process





