

The World of Plants

Pre-Test

Instructions:

Fill in the blanks from the words listed below. Not all words will be used and there may be more than one correct choice for some blanks.

1. The embryo of a plant is found in its _____.
2. The sex cells of ferns and mosses need _____ in order to fuse together.
3. In flowering plants, male reproductive cells are found in the _____.
4. Photosynthesis requires four basic ingredients. They are _____, _____, _____, and _____.
5. Plant cells have _____ and _____ but animal cells do not.

pollen
anther
water
mitosis
cell walls
diploid
seed



stigma
stamen
pistill
chlorophyll
sepal
chloroplasts
carbon dioxide

2

VOCABULARY LIST



The World of Plants

Vocabulary List

NAME _____

Angiosperm- Flowering plants, plants that produce seeds with hard outer coverings.

Anther- The part of the stamen where pollen is made.

Asexual reproduction- Reproduction that doesn't require fertilization, the fusion of sex cells. Offspring produced by asexual reproduction are genetically identical to the parent organism.

Autotrophic- Able to produce its own food. Plants are autotrophs.

Cell membrane- (or plasma membrane) The thin membrane that surrounds the protoplasm of cells and that regulates what enters and exits the cell.

Cell wall- A thick layer of material that surrounds the cell membrane of plants, fungi, bacteria, and algae, which provides support and protection for the cell.

Chlorophyll- The green colored pigment needed for photosynthesis.

Chloroplast- Cellular organelles in plants where photosynthesis occurs.

Classification- The placement of organisms into different groups according to the presence or absence of particular traits.

Cones- The woody male and female reproductive structures of gymnosperms.

Cotyledon- A seed leaf. Leaf like structures that store food from the endosperm for the developing plant embryo.

Cross-pollination- When pollen from one plant fertilizes the eggs of another plant of the same species.

Diploid- Having two full sets of chromosomes.

Division- The major classification groups of the plant kingdom.

Egg nucleus- Out of the eight nuclei in the megaspore only the egg nucleus can be fertilized and then divide to form a plant embryo.

Embryo- An organism in the early stages of development.

Endosperm- The triploid part of the seed that serves as food for the plant embryo.

Filament- The part of the stamen that supports the anther.

Fruit- The thickened walls of the ovary that surrounds seeds.

Gametophyte- (gametophyte generation) A haploid plant that produces sex cells.

Gamete- Sex cells, eggs and sperm.

Genus- A classification group of closely related species.

Germination- When a seed starts to grow.

Gymnosperm- Plants with so called "naked seeds." Most seed plants are cone-bearing plants (conifers) such as pine, fir, and spruce trees.

Haploid- Having a single set of chromosomes.

Liverwort- A primitive spore-producing plant.

Megaspore- Single large spore created in an ovule by meiosis after the other three female spores shrivel up. The megaspore gives rise to the female gametophyte in seed plants.

Meiosis- The process of reduction division in which the DNA replicates once but the nucleus divides twice. Through this process a diploid nucleus is converted into a haploid nucleus.

Microspore- Haploid male spores created in the anther by meiosis. Microspores give rise to the male gametophyte in seed plants.

Mitosis- Reproduction of the nucleus.

Multicellular- Composed of many cells.

2

VOCABULARY LIST



The World of Plants

Vocabulary List (cont.)

NAME _____

Nucleus- The control center of a cell where most of its DNA is located.

Ovary- In plants the ovary forms the base of the pistil. It is where egg cells are produced.

Ovules- Divisions of the ovary where egg cells are made. Ovules develop into seeds after fertilization occurs.

Photon- A "packet" or unit of light energy.

Photosynthesis- Through photosynthesis carbon dioxide and water are combined to form the energy rich sugar glucose, releasing oxygen in the process. Light and chlorophyll are needed for photosynthesis to occur.

Phylum- The largest classification groups in the animal kingdom.

Pistil- The female reproductive parts of a flower consisting of the stigma, style, and ovary.

Pollen- A protective structure enclosing the used in the reproduction of all seed plants.

Pollen tube- The tube created as the tube nucleus grows down the style to the ovary after pollination. The sperm nuclei pass through the pollen tube on their way to the ovule.

Pollination- When pollen attaches to the stigma.

Pollinators- Organisms such as bees that help transfer pollen from the anthers to the stigma.

Radicle- The first part of the embryo to emerge from the seed. The radicle becomes the main root of the plant.

Reduction division- Meiosis.

Seed- An embryonic plant and its food supply usually in a protective coat.

Seed leaves- Cotyledons.

Self-pollination- The eggs of a flower are fertilized by its own pollen (instead of by pollen from another plant).

Sepal- The outer leaves that enclose the flower when it is a bud.

Species- A small classification of group of very closely related organisms that are capable of interbreeding and producing offspring.

Sperm nuclei- The two nuclei in a pollen grain. One fuses with the egg nucleus and the other fuses with the two central nuclei of the megaspore.

Sporangia- Site of spore production in ferns, mosses, etc.

Spore- A reproductive cell that develops into a haploid organism without first having to fuse with another cell.

Sporophyte-(or sporophyte generation) The spore producing diploid stage of all plants.

Stamen- The male reproductive parts of a flower consisting of the anthers and filaments.

Stigma- The rough or sticky part of the pistil to which pollen attaches.

Stomata- Pores in the leaves that regulate transpiration and allow carbon dioxide to enter the plant.

Style- The part of the pistil between the stigma and ovary.

Taxonomy- The science of classification.

Transpiration- Loss of water through the stomata.

Triploid- Having three complete sets of chromosomes.

Vacuole- A water filled sac inside a plant cell.

Vascular plant- Plants which possess an internal system for water distribution.

Zygote- A fertilized egg.

The World of Plants

Vocabulary List Activity

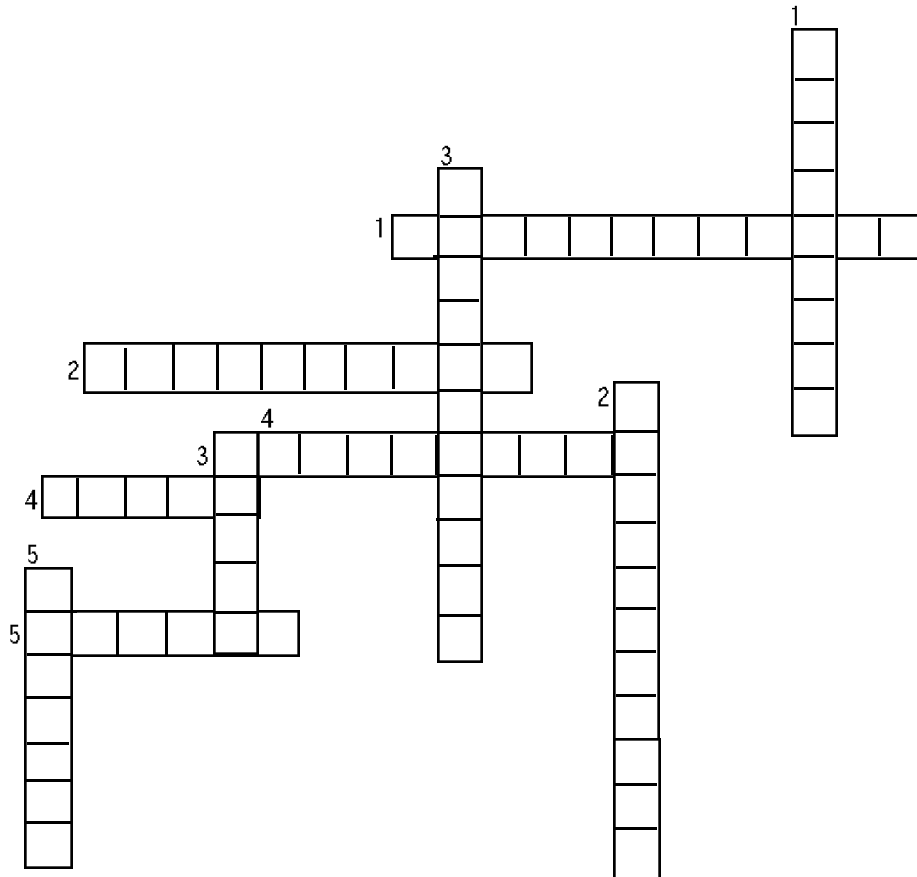
Fill in the blanks with the appropriate words from the vocabulary list.

1. A haploid plant that produces sex cells or gametes is called the plant's _____ generation.
2. The egg nucleus of a seed plant develops inside the _____.
3. The tube nucleus creates a _____ from the stigma to ovule.
4. _____ are leaves that surround a flower's bud.
5. New plants can develop from "cuttings" of branches. This an example of _____ reproduction because the new plant will be genetically identical to its parent.



The World of Plants

Crossword Puzzle



ACROSS

1. The cellular organelles found in plants that are used in photosynthesis are called _____.
2. Flowering plants are known scientifically as _____.
3. In the alternation of generations the spore producing plant is called the _____.
4. When the walls of the ovary thicken around seeds _____ is produced.
5. Pollen is made in the part of the stamen called the _____.

DOWN

1. The triploid nucleus in the megaspore divides to produce _____, which provides the plant embryo in the seed with food.
2. _____ is when a seed begins to grow.
3. Plants get their greenish color from the photosynthetic pigment called _____.
4. The _____ is the middle part of the pistil.
5. Because they have just one set of chromosomes gametophytes are said to be _____.



The World of Plants

Video-Quiz

1. True or False? Plants need the greenhouse gas carbon dioxide to survive.
2. True or False? Pollen is produced in a flower's stigma.
3. True or False? Endosperm is composed of triploid cells.
4. True or False? Flowering plants are called angiosperms.
5. True or False? There are more divisions of the plant kingdom than there are phyla of the animal kingdom.

