Name:

Plant Unit

Study Guide

1. Define angiosperms and gymnosperms. What is the major difference?

**angiosperms are seed plants that produce flowers, gymnosperms are seed plants that do not produce flowers. The major difference would be if there is a flower or not.**

2. Define vascular plants and nonvascular plants. What is the major difference?

**Vascular plants have tubes or tissues that allow water and food to move through them. Nonvascular plants do not have these. Without the tubes, nonvascular plants grow close to the ground.**

3. What part of the plant anchors and provides water? **ROOTS**

4. Describe the process of

transpiration – **extra water is removed from the plant through stomata on the leaves**

cellular respiration – **food sugars are broken down into usable energy for the plant, opposite of photosynthesis**

photosynthesis- **the plant produces food sugars in the leaves using energy from the sun**

5. What are the cambium, xylem, and phloem of a plant?

**cambium – the layer in the plant that forms and separates the xylem and phloem**

**xylem – tubes in the plant that allow water and minerals to move UP through a plant**

**phloem – tissue in the plant that allows food to move from the leaves to the rest of the plant**

6. What are the stomata on a leaf? **tiny pores on the leaf that allow extra water and gases to leave the plant**

7. What is the role of the leaf’s cuticle?

**it is a waxy covering on the leaf that prevents water from evaporating from the plant**

8. Define asexual and sexual reproduction. Give advantages and disadvantages of each.

**asexual reproduction – production of new organisms from just one parent**

**advantages – no need to find a mate, convenient**

**disadvantages – genetic flaws are passed to next generation**

**sexual reproduction – production of organisms which requires male and female cells to join**

**advantages – variety within a species, genetically superior organisms survive**

**disadvantages – takes longer, need to find a mate**

9. Describe each of the following types of asexual reproduction

budding – **a new organisms grows from the existing one, may break off or may remain attached**

splitting – **the parent organism splits into two identical organisms**

vegetative propagation – **a new plant is grown from the leaves, roots, or stem of an existing plant**

10. Describe the difference between cross-pollination and self-pollination

**In cross-pollination a pollinator carries pollen from the male part of one plant to the female part of another plant. In self-pollination both male and female parts are present in the same plant and it pollinates itself.**

11. Define each of the following parts of a flower AND be able to label them on a diagram.

petals – **brightly colored outer part of a flower**

anther **– at the top of the filament, produces pollen**

nectar- **sweet liquid in flower to attract pollinators**

stamen - **the male part of the flower**

pistil- **flower’s female organ**

filament- **thin stalk portion of the stamen**

pollen- **yellow powder containing the sperm cells**

ovary- **houses the egg, fertilization occurs here**

sepal**- covers and protects the flower when it is still a bud**

stigma- **the opening at the top of the pistil**

12. What are the names of the male and female sex cells?

**male – sperm female - egg**

13. What is a cotyledon?

**food source within the seed for the developing embryo**

14. What is the difference between a monocot and a dicot?

**a monocot has one cotyledon while a dicot has two**

15. Define germination.

**the development of a seed into a new plant**

16. Describe alternation of generations.

**a type of reproduction in which one generation reproduces asexually and the next generation reproduces sexually, the process repeats**

17. What is a conifer? **a plant that has seeds but no flowers, pines, firs and other evergreens**

18. What is the reproductive organ of an angiosperm? **the flower**

19. Why do plants produce bright, colorful flowers and nectar? **to attract pollinators**

20 Why is sexual reproduction better than asexual reproduction for ensuring the survival of a species in a changing environment?

**because asexual reproduction creates an EXACT copy of the parent. It wouldn’t change with the environment**

21. Compare woody stems to soft stems. Why would some plants need one type vs the other?

**woody stems provide strength and structure to the plant, usually covered in bark for protection**

**soft stems are usually green and contain chlorophyll to produce food**

22. List the 4 types of roots and describe each one.

**tap root – single, main stalk-like root that plunges deep into the ground w/ smaller roots branching off of it**

**fibrous root- thin branching roots, don’t grow deep in the ground**

**aerial root- roots never touch the ground. Anchor to rocks & other surfaces**

**prop root- grow at bottom of stem and prop up plant**

23. Can fertilization take place without pollination occurring in flowering plants? Explain.

**No. The male and female cells have to join**

24. Review the activity on page 97. Understand the data that is given in the line graph (NOT the data table)