AP Biology **Name:** **Per:**

Plant Structure & Function Review

1. Fill in the following table about major plant groups by placing an "x" in each square that applies to that grouping.

	Nonvascular	Vascular	Produces Seeds	Produces Flowers	Produces Cones	Produces Fruits	Sporophyte grows on top of the gametophyte
Ferns							
Bryophytes							
Liverworts							
Angiosperms							
Gymnosperms							

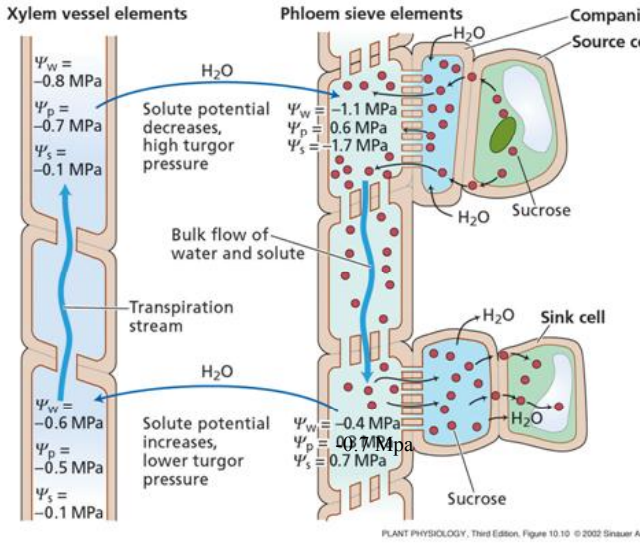
2. Your mom puts her newest house plant by the window so that it will get enough sunlight. Having just learned about tropisms in AP Biology, you try to explain to her that this will cause the plant to not grow straight.

a) Which side of the plant stem would you find **more** auxin present in?
FARTHER FROM WINDOW CLOSEST TO THE WINDOW

b) What would you expect to happen if you cut the tips of each of the stems off of this house plant? (circle one)
A) The plant will begin to grow towards the sunlight at a fast rate.
B) The plant will begin to grow away from the sunlight.
C) The plant will not show any more movement towards or away from the sunlight.

c) Explain your answer to (b)

3. Use the diagram to the right to answer the next questions.



a) Which of the following is true about water? (circle one)
A) Water flows from a high to a low water potential.
B) Water flows from a low to a high water potential.
C) Water flows only when the potentials are equal.

b) What process moves sucrose from the source cell to the companion cell? (circle one)
A) Osmosis
B) Passive Diffusion
C) Active Transport
D) Translocation

c) Circle in the diagram where the area of highest pressure is.

d) What type of plant does this diagram represent? (circle one)
A) Gymnosperm
B) Bryophyte
C) Angiosperm
D) Hornwort

e) Describe why water moves from the phloem to the xylem in the lower part of this diagram.

4. If a plant is transpiring, which of the following must be TRUE (put an "X" next to all correct statements. There may be more than one):

___ Guard cells have a high turgor pressure in them.
___ Water has an upward movement through the phloem.
___ Hydrogen bonding occurs between water molecules.
___ Water vapor can be detected in the spongy mesophyll.
___ The concentration of solutes in the stele is LESS than in the cortex of the root.

5. Describe one advantage of asexual reproduction in plants.

6. Describe one advantage of sexual reproduction in plants.

7. Which of the following is TRUE about Venus Flytraps? (circle ONE)

A) They don't photosynthesize.
B) They don't obtain a large amount of nitrogen from the soil.
C) They are unable to fix carbon dioxide.
D) They live in environments with a high (and toxic) level of sulfur.

8. Describe two advantages that seeds offer to plants:

a)

b)

9. The diagram to the right shows the angiosperm li
Use it to answer the following questions:

a) What term describes "A"? (circle one)

A) Ovule B) Stigma C) Style

b) What term describes "B? (circle one)

A) Ovule B) Stamen C) Style

c) What terms describes the process that happens
Step C? (circle one)

A) Mitosis B) Meiosis C) Fertilization

d) Is the embryo considered: (circle one)

A) Diploid B) Triploid C) Haploid

e) Put a square around one of the parts of the diagram that represents at SPOROPHYTE.

f) Put a circle around one of the parts of the diagram that represents a GAMETOPHYTE.

g) If a microspore has 22 chromosomes, how many chromosomes does the embryo have? _____

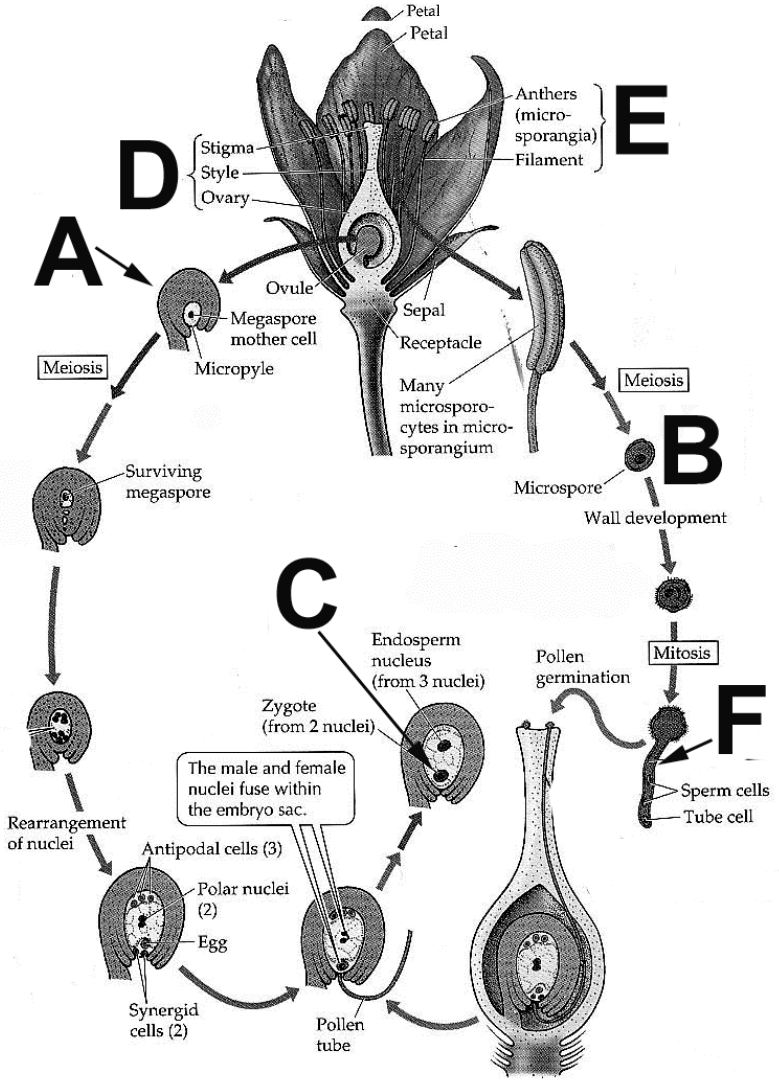
10. In angiosperms, double fertilization occurs. Explain <u>why</u> a triploid endosperm would be an advantage to the seed.

Classify the following as either <u>haploid</u> or <u>diploid</u>.

11. "B" _____
12. "C" _____
13. "F" _____
14. egg _____
15. cells of the filament _____
16. Does "D" refer to the <u>female</u> or <u>male</u> part of the plant?
17. The sperm that is released in the diagram was made directly by MEIOSIS or MITOSIS?

18. Are the cells in F considered "n" or "2n"?

19. What is the function of the pollen tube?



20. Which of the following is LEAST likely to be a factor in the movement of water through a terrestrial plant? (circle one)
    a) The cohesion of water
    b) The influence of gibberellin on cell expansion
    c) Capillary action
    d) Root pressure
    e) The evaporation of water from the leaves

21. Sucrose that is produced in the source cell can be used for all of the following EXCEPT: (circle one)
    a) a source of energy in the mitochondria
    b) a source of carbohydrate to build the cell wall
    c) a source of carbohydrate to produce starch
    d) a source of amino acids to produce proteins

22. Insects provide Venus Flytraps with a source of: (circle one)
    a) Nitrogen b) Glucose c) Sulfur d) Fats

23. Which of the following characteristics is common to all vascular plants that exhibit an alternation of generations in their life cycle? (circle one)
    a) Large, independent gametophytes
    b) Multicellular sporophytes
    c) Fertilization in water
    d) Diploid spores
    e) Seed production

24. The organic nutrients in an angiosperm would be transported by: (circle one)

a) Tracheids b) Vessel Elements c) Sieve Tube Elements d) Companion Cells

25. Describe three methods that a plant may use to prevent self-fertilization by a pollinator.

26. What structure has allowed gymnosperms and angiosperms to reproduce without reliance on water? (circle one)

a) Rhizome b) Antheridium c) Pollen Grain d) Cone

27. If you were a gardener and wanted to ensure that your plant has more lateral buds and was "bushier", what would you do to accomplish this? You can either use a hormonal or cutting method. Be sure to describe why your method will work.

28. Poinsettas are short-day plants. What can be done to encourage these plants to flower in December?

29. Based on your understanding of plant hormones, why does mixing leftover fruit salad with fresh fruit quicken the rotting of the mix?

30. Discuss how mosses and ferns are able to reproduce with seeds.

31. Which of the following hormones (choose only one fore each response) would cause the following responses? Hormones may be used more than once.

A. Auxin B. Cytokinins C. Ethylene D. Gibberellin E. Abscissic Acid

____ Would cause stomata to close.
____ Would cause a fruit to ripen.
____ Induces seed germination
____ Might be present during the fall when a plant becomes more dormant.
____ Could cause cell division.