AP Biology Plant Unit Study Guide

1. Sketch a cladogram including the four major groups of land plants and include the major derived characters.
2. Review your knowledge of the structure, life cycles, evolution and uses of the major land plant groups. Match each statement with a group or groups of plants.

|  |  |
| --- | --- |
| A. Bryophytes (Mosses)  | \_\_\_\_\_\_\_\_ 1. Flowering plants |
| B. Ferns | \_\_\_\_\_\_\_\_ 2. Two types of plants that produce seeds |
| C. Gymnosperms | \_\_\_\_\_\_\_\_ 3. The simplest vascular plants |
| D. Angiosperms | \_\_\_\_\_\_\_\_ 4. Plants that produce fruits |
|  | \_\_\_\_\_\_\_\_ 5. Nonvascular plants |
|  | \_\_\_\_\_\_\_\_ 6. Two types of plants with flagellated swimming sperm |
|  | \_\_\_\_\_\_\_\_ 7. Conifers |
|  | \_\_\_\_\_\_\_\_ 8. Roses, apples, maples, daisies |
|  | \_\_\_\_\_\_\_\_ 9. Two types of plants whose spores develop into pollen and ovules |
|  | \_\_\_\_\_\_\_\_ 10. The group that first developed good roots and rigid stems |
|  | \_\_\_\_\_\_\_\_ 11. The simplest plants |
|  | \_\_\_\_\_\_\_\_ 12. Plants that produce “naked” seeds  |
|  | \_\_\_\_\_\_\_\_ 13. The majority of modern land plants |
|  | \_\_\_\_\_\_\_\_ 14. Two types of plants without seeds |
|  | \_\_\_\_\_\_\_\_ 15. Source of most of our food |

1. Which derived character enabled plants to move away from water?
2. Which group(s) rely on water for fertilization?
3. Which group(s) rely on pollination for fertilization?
4. How do seedless vascular plants disperse?
5. Identify the two types of vascular tissue and their functions.
6. Review alternation of generations. Just get the big idea.
7. Review the parts of the flower and their functions. Be prepared to label a diagram. For practice, match each flower part with its function.

|  |  |
| --- | --- |
| 1. Petal
 | \_\_\_\_\_\_\_\_ 1. Eggs develop in this chamber. |
| 1. Style
 | \_\_\_\_\_\_\_\_ 2. Consists of filament and anther. |
| 1. Sepal
 | \_\_\_\_\_\_\_\_ 3. Produces pollen. |
| 1. Ovary
 | \_\_\_\_\_\_\_\_ 4. Attracts pollinators. |
| 1. Stamen
 | \_\_\_\_\_\_\_\_ 5. Female structure with ovary at its base. |
| 1. Carpel
 | \_\_\_\_\_\_\_\_ 6. Protects the flower before it opens. |
| 1. Stigma
 | \_\_\_\_\_\_\_\_ 7. Sticky tip that traps pollen. |
| 1. Filament
 | \_\_\_\_\_\_\_\_ 8. Stalk that supports anther |
| 1. Anther
 | \_\_\_\_\_\_\_\_ 9. Between stigma and ovary. |

1. Review the actions of the five classes of plant hormones by matching the hormones with their overall functions.

|  |  |
| --- | --- |
| 1. Abscisic acid
 | \_\_\_\_\_\_\_\_ 1. Stimulate cell division and growth, affect root growth; oppose auxin by stimulating branching |
| 1. Cytokinins
 | \_\_\_\_\_\_\_\_ 2. Stimulates stem elongation; affects root growth, fruit development, tropisms |
| 1. Gibberellins
 | \_\_\_\_\_\_\_\_ 3. Inhibits growth, maintains dormancy, closes stomata during stress |
| 1. Ethylene
 | \_\_\_\_\_\_\_\_ 4. Promote seed germination and bud development, stem elongation, leaf growth, flower and fruit development |
| 1. Auxin
 | \_\_\_\_\_\_\_\_ 5. Promotes fruit ripening, leaf drop, aging; opposes some auxin effects |

1. Tropisms are directed growth responses that enable plants to adapt to environmental circumstances. Complete this chart comparing tropisms.

|  |  |  |
| --- | --- | --- |
| *Name* | *Description* | *Mechanism* |
| Phototropism |  |  |
|  | Growth movement in response to gravity |  |
|  |  | Contact triggers greater growth on opposite side, causing tendril to bend toward support |

1. Review leaf anatomy. What is the function of each labeled part? Name them.



1. Review angiosperm pollination. Complete the chart about methods of pollination.

|  |  |
| --- | --- |
| *Mechanism* | *Special adaptations* |
| Wind |  |
|  | Light colored flowers with nice smell |
|  | Colorful flowers that smell sweet and produce nectar |
| Birds |  |

1. Complete the chart about angiosperm seed dispersal.

|  |  |  |
| --- | --- | --- |
| *Mechanism* | *Description* | *Example* |
| Water |  |  |
| Wind |  |  |
| Animal other than ingestion |  |  |
| Animal through ingestion |  |  |

1. Review transpiration. What is transpiration pull?
2. What is needed for seeds to come out of dormancy? What is the first stage of seed germination? What hormone is involved?
3. What are some adaptations of xerophytes?
4. What are mycorrhizae? How does each part benefit each other? What type of relationship do they have?
5. Complete the chart about plant groups

|  |  |  |
| --- | --- | --- |
| *Group name* | *Description* | *Example* |
|  | Plant grows on another plant, but does not obtain water and minerals from host plant |  |
| Parasitic plants |  |  |
|  |  | Venus Fly Trap |

1. How can plants deal with herbivory?
2. Review water potential. Be prepared to solve some problems!