**CHAPTER 29 – PLANT DIVERSITY I: HOW PLANTS COLONIZED LAND**

1. How does the presence of plants enable other life-forms to survive?

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1. What are the closest relatives of plants? What are the four distinctive traits that they share?

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1. What is the significance of sporopollenin in enabling plants to move to land?

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1. What are the four evolved traits of land plants that are not present in the charophyte algae? Provide a brief description of each.
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   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the function of the cuticle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Division** | **Grade** | **Phylum/Clade** | **Characteristics** | **Examples** |
| Vascular  Plants | Seedless | Lycophyta |  |  |
| Pterophyta |  |  |
| Seeded | Gymnosperms  (not a phyla) |  |  |
| Angiosperm  (not a phyla) |  |  |
| Non-Vascular Plants  (Bryophytes) |  | Hepatophyta |  |  |
| Anthocerophyta |  |  |
| Bryophyta |  |  |

1. What is the function of a protonema? How does it enhance gamete production? How does it aid in the absorption of water? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What is the function of the stomata? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What types of vascular tissue to plants possess? What was the evolutionary advantage of these systems? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Explain the evolution of both roots and leaves in plants. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Describe the major differences between homospores and heterospores. Use the chart on page 613 to synthesize your ideas. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What is the significance of seedless vascular plants and the industrial revolution?

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