# **Plant Structure and Classification Discussion Guide (for use during or after reading)**

1. How do botanists categorize, or classify, plants? (Studying Plants, p. 6-7)
   1. Botanists use a taxonomy to categorize, classify, and organize different types of plants. They consider plants’ common descent. Botanists also consider the traits plants have in common including their overall appearance, internal structures, and reproductive organs.
2. Consider how the kingdom taxonomy is organized. What happens as you move up the levels? (Scientific Classification, p. 8-9)
   1. As you move up the levels of the taxonomy, the relationships between the plants become more distant. They are less similar toward the top of the taxonomy than the bottom of it.
3. How are vascular plants different than nonvascular plants? (Classes of Plants, p.12-13)
   1. Vascular plants have special tissues called vascular tissues that carry water and food throughout the plant. This can help some plants grow to large sizes. Nonvascular plants, on the other hand, do not have these special tissues to carry water and food to their various structures. Because of this, nonvascular plants often grow in moist, shady places. They also do not have typical roots. Instead, they have growths that anchor them to the ground so they do not blow away and so they can absorb nutrients.
4. How do scientists determine and create names for species? (What’s in a Name?, p. 14-15)
   1. Scientists use Latin and Greek words to describe each species. They create a scientific name for each plant by combining the name for its genus and species. This helps avoid any unnecessary confusion that might occur when using common names. In addition, scientific names can be used to identify relationships among plants before even seeing them!
5. What are stems and what function do they serve in plants? (Roots and Stems, p. 16-17)
   1. Stems are the stalk that supports the body of the plant. They often make up the largest part of a plant. They help plants grow upright toward the sun and support other structures throughout the plant.
6. What do scientists consider when classifying plants based on their leaves? (Leaves, p. 18-19)
   1. Scientists consider the size and shape of a leaf as well as any structures it provides the plant when classifying based on leaves. Edges of leaves might be smooth, wavy, or ridged. Some leaves are slender and long. Other plants produce spines that are sharp.
7. How are angiosperms and gymnosperms different? (Seeds, p. 20-21 and Flowers and Fruits, p. 22-23)
   1. Although angiosperms and gymnosperms are both vascular plants that produce seeds, they are different because angiosperms produce fruit and gymnosperms do not.
8. Consider what you know about plants and their role in our world. In general, why should humans help plants survive and reproduce? (Helping Plants, p. 26-27)
   1. Humans should help plants survive and reproduce because not only do we rely on them directly for survival (we need oxygen produced through photosynthesis to breathe), humans also rely on them indirectly. For example, without plants, we would not be able to eat certain foods or animals that survive on plants themselves. In addition, we would not have access to a lot of technologies we have developed as adaptations for survival (such as tools, furniture, houses) because they come from plants.
9. Who was Tu Youyou and what was her claim to fame? (Who’s Who, p. 32-33)
   1. Tu Youyou was a Chinese pharmacologist. She studied ancient Chinese herbal medicine and plants. She was able to use that knowledge to discover a treatment for an extremely dangerous and deadly disease called malaria.
10. Which fun fact was most interesting to you and why? (Can You Believe It?!, p. 36-38)
    1. Students’ answers will vary.