

READING and STUDY PLAN:

Begin this assignment by consulting the READING and STUDY PLAN which explains the uses and benefits of this Study Guide. Then, the following resources should help you learn from Chapter 1 of Stern's, *Introductory Plant Biology*.

TEXT READING: Chapter 1

THEMES: The importance of plants, development of botany, stewardship of the creation

LECTURE DISCUSSION QUESTIONS:

[Note: Consider your written or typed answers to these questions as a step toward self-assessment of your understanding and an aid for later review. The Study Outline (next page) will be generally followed in our class discussion.]

1. Begin your study notes by listing as many as possible of the ways that plants are important.
2. Which of the "plant importances" in #1. above are of significance to the *human* and *nonhuman* species alike? Circle these entries on your list. How would you classify this group of contributions in contrast to those which are *uniquely human-related* uses?
3. Based upon the two groupings in #2, and from a Scriptural perspective, what principle can you identify that should govern the responsibility of mankind toward the rest of creation?
4. What is *botany*? What are two driving forces that spawned the *science of botany*?
5. From the opening pages of the chapter, write out several questions that piqued your curiosity and that would be conducive to botanical investigation from a scientific perspective.
6. Stern contends that human culture evolved from a Stone Age "hunter-gatherer" to "agricultural." How does this contention conflict with the scriptural accounts such as Genesis 1:11-13 and 2:15-17? How do these Scriptures provide motivation for yourself and all humans to study plants?
7. Discuss three ways in which plant biology will contribute in efforts to meet human needs on planet Earth in the years ahead.
8. From what you have learned, make a case for or against the inclusion of botany in the curriculum for a biology major in a liberal arts university.
9. Visit several of the internet sites with botanical relevance given near the end of Chapter 1. Make bookmarks ("Favorites") of several for your later reference.

THREE MAJOR THEMES -- Importance of plants + Development of botany + Human stewardship

A. WHY ARE PLANTS IMPORTANT?

1. List specific "importances" of plants:

2. Classify each "importance" into 2 categories (See Question #2): [Hint: Both begin with "Eco"]
 - a. _____ –
 - b. _____ –

3. What Scriptural principle should be the basis for assigning "economic" value?
☼ The Principle of S_____ –

4. TWO DRIVING FORCES leading to the development of BOTANY as a science:
 - a. _____
 - b. _____

CONSIDER: Which of the two is the most influential in "driving" science today?

5. What questions stirred your curiosity as you read the opening pages? State in the form of a *hypothetical question*. [i.e. conducive to developing a testable hypothesis]
 - a. _____
 - b. _____
 - c. _____

6. Which of above driving forces (Question #4) was most influential first?
 - a. ...FROM EVOLUTION VIEW? --> "need-driven" [hunter-gatherer]?
 - b. ...FROM SCRIPTURAL VIEW? --> both motives simultaneously?

BIBLICAL RECORD OF HUMAN CONTACT WITH PLANTS:

- a. GARDEN – Genesis 1:11-13 ("kinds") - a "genetic statement"
– Genesis 2:15-17 ("stewardship" — > "cultivation")

- b. PLANTS/ANIMALS: Genetically ready for cultivation (gene pool as "library")
 - > H_____ = caretaking so as to bring out genetic potential ("fruitfulness")
in a suitably maintained environment
 - > Artificial Selection/Breeding has led in recent years to biotechnology (gene manipulations)

7. Three ways in which botany will contribute toward meeting human needs on planet Earth in the years ahead.:

- a. _____
- b. _____
- c. _____

APPLICATION: How do the following Scriptural principles justify human study of plants?

- a. Stewardship –
- b. Fruitfulness –

8. From what you have learned, list *pros* and *cons* of inclusion of botany in the curriculum for a biology major in a liberal arts university. Would your rationale be different for zoology?

9. What are botanists doing these days? [Visit several of the Internet Sites listed on page 11, Chapter 1 of Stern. Bookmark (“Favorite”) several.] Consider the following major categories:

1. LEARNING HOW PLANTS WORK? – plant anatomy, plant physiology, genetics
2. PLANT BIODIVERSITY AS A RESOURCE -- taxonomy, protection of endangered species, new phytomedicines
3. IMPROVEMENT OF AGRICULTURE, ECOSYSTEMS -- genetics, biotechnology, missions
4. PLANT CLASSIFICATION -- part of organized knowledge of the sciences, new species

Assignment: Your Cooperative Learning Group will be assigned one to the categories listed in SA #4 before the class is dismissed. See SA #4 for more details.

Gen 2:9 Out of the ground the LORD God caused to grow every tree that is pleasing to the sight and good for food; the tree of life also in the midst of the garden, and the tree of the knowledge of good and evil.

(Note: Answer on back of previous page when space is limited.)