

The "Rationale and Objectives" in your Syllabus, page 1, are aimed at fostering *botanical literacy*. This quality is actually a component of the broader concept of *biological literacy*, defined as follows:

**BIOLOGICAL LITERACY:** The quality of being able to understand biological concepts, make moral and ethical judgements about biological issues, and solve real-world problems that involve biological issues.

**BOTANICAL LITERACY:** A component of biological literacy related to *botany*.

How does one develop greater "botanical literacy?" By analogy, think of your textbook, syllabus, this *Guide*, and other study materials as the BLUEPRINT. Like a blueprint, these materials can assist you in bringing about the reality of botanical literacy -- i.e., constructing the BUILDING representing the conceptual framework you will develop. The framework is composed of boards and nails, representing the vocabulary, facts, concepts, and data which you encounter. Just as a building is more than a collection of boards and nails, so botanical literacy represents more than facts and definitions, important as they are. Rather it is an orderly assembly of concepts into a framework and the quality of being able to continually modify, build onto, and apply this framework to address new topics/problems.

According to contemporary science education theory, each person who "builds" his/her botanical literacy is advancing information through several "literacy levels" as illustrated below. Note the increasing richness of understanding of the concept of PHOTOSYNTHESIS one can attain by advancing to *structural literacy* and *multidisciplinary literacy* levels:

LITERACY LEVEL	DESCRIPTION	DEMONSTRATED BEHAVIOR
NOMINAL LITERACY	<i>Recognizes</i> a term as "botanical"	Associates "PHOTOSYNTHESIS" with BOTANY
FUNCTIONAL LITERACY	<i>Defines</i> or <i>describes</i> a term from memory	PHOTOSYNTHESIS = a process that converts light energy into chemical bond energy in plants
STRUCTURAL LITERACY	<i>Constructs</i> appropriate meaning of concept based upon his/her own understanding/experiences	PHOTOSYNTHESIS is the principal process responsible for sustaining life on Earth.
MULTIDIMENSIONAL LITERACY	<i>Applies</i> knowledge to solve real-world problems	In light of a growing human population, how can PHOTOSYNTHESIS be enhanced to increase food supply?

Your objective should be to recognize that, in instances where your literacy is at this *nominal literacy* level (simply recognizing a word as "botanical"), you must strive to move to higher levels.

Do you want to excel in General Botany by developing botanical literacy while using study time productively? This Guide will be useful **if** you use it to prepare for lecture-discussions and for post-lecture study and review. If you are at *nominal* or *functional literacy* levels, you must focus on moving from *recognition* and *definition* of terms to *construction* of "appropriate meaning" within your conceptual framework. To make it work, follow two suggestions on the next page:

**Organize a "Botany Journal"** as described in your Syllabus, page 4.

**Approach Each Assignment Logically** as directed. Each study assignment is intended to help you establish your "jump-on point" from where you are familiar and help you "move yourself along" to higher literacy levels as illustrated with "PHOTOSYNTHESIS." This is a sequence of SURVEY->INQUIRY->READING->DEFINITION->EXAMPLES->CONCEPTUALIZE->APPLY, and is modified from the SQ3R Method (Robinson, F.P. 1961. *Effective Study*, Harper). We call it the "S-I-R D-E-C-A Method". Each study assignment has roughly the following format, and "SIR DECA" is integrated with each part:

1. **Identify Your Assignment:** Your Syllabus, page 6, lists each upcoming Study Assignment. Locate the Chapter and pages in your text, and the accompanying location in your *General Botany Study Guide*. But, instead of diving into the reading, do the following:

SURVEY the assigned pages in your text--beginning by reading the *Chapter Title* and the *Chapter Overview*, Then, read each heading of the *Chapter Outline* and note the organization of the chapter. Finally, skim each page, noting headings, pictures, and diagrams. Look for familiar terminology. Here, you should determine your general level of literacy.

2. **Stir Up Your Mind:** Your textbook author presents **Concepts** in highlighted boxes in each chapter to *highlight specific learning tasks*. You should now move into a questioning mode:

INQUIRY -- Carefully read each **Concept**. What questions come to mind that must be answered to understand each concept? Also, take time to read "**LECTURE DISCUSSION QUESTIONS**" in your *Study Guide*. Studying in this way will create "mental magnets" in your mind and make you more receptive to the content of the assignment.

READING -- You are now ready to read with the purpose of answering the questions you formulated. Here active inquiry should replace passive plodding. Pray for an alert, "magnetic", inquiring mind.

DEFINITION -- Botany has an extensive vocabulary which must be mastered. Having read the assignment, you may want to list key words and define them in meaningful terms. Some vocabulary will receive more emphasis than others--note the degree of emphasis in the *General Botany Study Guide* under **LECTURE DISCUSSION QUESTIONS** or in the **STUDY OUTLINE**.

EXAMPLES -- From the context, list examples to assist in relating each vocabulary word and concept to your personal experience. Definitions + Examples promote *functional literacy*.

3. **Build Your Conceptual Framework** to gain *structural literacy* and make practical application to the real world (*multidisciplinary literacy*) as follows:

CONCEPTUALIZE -- Having good definition and examples (*functional literacy*) will assist you in associating a vocabulary word with some regular pattern of objects or events. Then, **LECTURE DISCUSSION QUESTIONS** test your readiness to see relationships between or among concepts as they relate to a particular phenomenon, model, or theory. Also, revisit the **STUDY OUTLINE** which emphasizes the conceptual framework.

APPLY your new understanding as you answer **LECTURE DISCUSSION QUESTIONS**. Some of the study assignments are intended to stimulate you to apply the concepts in problem-solving situations either individually or in a **COOPERATIVE LEARNING GROUP** situation. The combination of individual study and group discussion should help you relate new concepts to your interests and previous knowledge gained from this course or in other science courses.

4. **Attend Lecture** with satisfaction that you have tried to prepare for further discussion of the content.