Questioning and Using Cognitive Structures

By asking yourself questions before, during, and after you read or take class notes, you can help yourself in a number of ways. Asking the right questions can help you to:

- Identify your goals and to focus your attention.
- Determine what you already know (or don't know) and thereby concentrate on getting the information you need.
- Monitor your understanding and when you don't understand, determine other strategies or get help.
- "Chunk" information for better understanding and retrieval.
- Check your work by asking: "Does this make sense?"

But there's a lot more to questioning that you need to know. There are approximately six "levels of cognition" or thinking. You need to understand information at all of these levels in order to learn and to prepare for tests thoroughly. Shown in order of least difficult to most challenging, they are:

1. **Knowledge** – to identify or recall information. Most of the information found in textbooks is written at the knowledge level-- providing facts and supporting details (including examples and some applications). Matching, true-false and many multiple choice test questions are written at this level.

   You show that you have obtained this knowledge when you answer the questions:
   - Who, what, when, where, how?
   - Define a term.
   - Describe a process.

2. **Comprehension** – to organize and select facts and ideas.
   When you summarize information, or are able to make inferences from what you have read or heard, you are functioning at the comprehension level. Fill-ins, short-answer, and most multiple choice questions are written at this level.

   Questions that help to demonstrate your comprehension include:
   - Retell in your own words…
   - What is the main idea of…?

3. **Application** – to use facts, rules, principles. Lab and problem-oriented courses such as math, science, engineering, or psychology as well as occupation-related courses like computer science or medical assisting, often utilize this level of thinking both in class and during tests.

   Questions that help to demonstrate your ability to apply course content might include:
   - How is … an example of …?
   - How is … related to …?

- Why is … significant?

Most essay tests are designed to evaluate your understanding at the highest levels of cognition. However, not all textbooks or lectures teach the information at these levels. If you want to be fully prepared for tests and exams, you must ask yourself questions to help yourself to think at these cognitive levels as listed below:

4. **Analysis** – to separate a whole into component parts.

   Questions that assess your ability to analyze include:
   - What are the parts or features of …?
   - Classify … according to …
   - Outline/diagram/web …
   - How does … compare/contrast with …?
   - What evidence can you give (list) for …?

5. **Synthesis** – to combine ideas to form a new whole.

   Questions that assess your ability to synthesize include:
   - What would you predict/infer from …?
   - What ideas can you add to …?
   - How would you create/design a new …?
   - What might happen if you combined … with …?
   - What solutions would you suggest for …?

6. **Evaluation** – to develop opinions, judgements, or decisions.

   Questions that demonstrate your ability to evaluate include:
   - Do you agree …?
   - What do you think about …?
   - What is most important …?
   - Prioritize …
   - How would you decide about …?
   - What criteria would you use to assess …?

You can help yourself to process information at all of these levels of cognition by asking yourself questions at each of these levels, and by using visual organizers to help yourself to "see" these kinds of relationships.