Subject: Science  Grade: 10  Author: Irving, Texas
Approximate Time: 55 Minutes  Date: Fall 2008

Topic/Theme: Plant Cell

Objectives:

**Content**  The student is expected to (1) evaluate the significance of structural and (2) distinguish adaptations of plants to their environments.

**Language**  Students will write and orally present the metacognitive journal pertaining to the article summarizing plant adaptation.

Vocabulary:

**Content Specific**
Cell, Photosynthesis
Cell Wall, Chloroplast

**Related**
Animal Cell, Adaptation

Note:

Materials:

Biology textbook, Notebook, Pencil, Plant Cell Model, Picture of Plant Cell, Metacognitive Journal Outline, Article: Plant Adaptations, Power Point Presentation on key terms and cell model pictures, Vocabulary Flash Cards

Activities:

- Students will recall previous knowledge in plant cell and animal cell.
- Teacher will present the Plant Cell Model and other slide pictures of the plant cell.
- Demonstrate power point to introduce key terms and write in their journals the definitions.
- In groups of two students will make own flash cards using the key terms written in their notebook and assess each other.
- Groups will then be given an article of how plants adapt to the environment.
- Instruct students how to implement the Metacognitive Journal.
- Discuss the article using the Metacognitive Journal.
- Organize a chart applying the Metacognitive Journal
- Student presents the article and journal to class.
- Review Vocabulary Words
- Check students for understanding of vocabulary words and article.

Closing Discussion:

**Thinking out-of-the-box**
How are plants able to adapt to different climates and zones?
For example, adaptation in the winter and adaptation in the desert.
Have students discuss within their groups and write down the question and answer in their notebooks.

**Review & Assessment:**

**Vocabulary**
Give a worksheet with key terms and match to either definition or picture.

**Content**
In groups student orally present how plant structure can adapt to its environment by implanting the metacognitive journal.

**Extension / Take-home Activity:**
- Students will bring in part of a plant from either inside or outside their home to discuss its environment where it came from.