### ELL CONNECT® - Content Area Lesson Plans for English Language Learners

**Subject:** Biology  
**Grade:** 9  
**Author:** Irving, Texas  
**Approximate Time:** 45 Minutes  
**Date:** Spring 2008

**Topic/Theme:** Viruses

#### Objectives:

**Content**  
The students will (1) describe the structure of a virus (2) describe the functions of a virus in causing disease (3) identify/list types of viruses including common colds, acquired immune deficiency syndrome, influenza, etc.

**Language**  
Students will use information and vocabulary from their texts about viruses in group discussions and note-taking.

#### Vocabulary:

<table>
<thead>
<tr>
<th>Content Specific</th>
<th>Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>virus</td>
<td>envelope</td>
</tr>
<tr>
<td>pathogen</td>
<td>immune</td>
</tr>
<tr>
<td>capsid</td>
<td>mutate</td>
</tr>
<tr>
<td>glycoprotein</td>
<td>evolve</td>
</tr>
<tr>
<td>bacteriophage</td>
<td>syndrome</td>
</tr>
<tr>
<td>prion</td>
<td>viroid</td>
</tr>
<tr>
<td>lytic</td>
<td>active</td>
</tr>
</tbody>
</table>

Note: These vocabulary words apply to the Virus unit. They will be introduced as they appear in the chapter and reviewed each day of the unit. By the end of this lesson, students are expected to be familiar with the highlighted words.

#### Materials:

- Biology textbook, pencil, notebook paper, K-L worksheet, virus image for computer or overhead projector, modified note-taking K-L sheet (for ESL and special needs students), index cards

#### Activities:

- Teacher shows photo of a virus to kick-off lesson – discuss any memories or previous learning.
- K-L Charts – in groups of four, students fill-out the “know” side of their individual charts with things they have heard/already know about viruses, using Think-Pair-Share strategy. As a group, list their ideas on the board.
- Introduce, identify in text, and explain highlighted vocabulary words. Identify other vocabulary words for reading purposes as they appear in text.
- In groups of four, students read text using a modified Squeepers strategy (SQP2RS). While they are reading, they will be taking notes on the “learned” side of their K-L charts.
- Groups will discuss questions at the end of the section.
- Entire group discusses reading and questions, led by teacher, while teacher writes key points on board.
**Closing Discussion:**

**Thinking out-of-the-box**

[Since biology is the study of life, this discussion is to help students think about why we are learning about something that is not considered living.]

Question – If viruses are not considered to be living organisms, why are they studied as part of biology?

Answer – Viruses are active inside living cells, and living cells are an important part of biology. Although viruses contain genetic material and can evolve as this material changes over time, they are not considered living because they (1) are not cellular (2) cannot make their own protein, and (3) cannot use energy in metabolic processes.

Question – If a person was infected by HIV, and the virus did not mutate while in the person’s body, would that person likely experience immune system failure? Why or why not?

Answer – No. If HIV did not mutate, it would remain in the macrophages. It is only after it mutates that it infects T cells and eventually destroys the immune system.

**Review & Assessment:**

**Vocabulary**

On an index card students will define *virus*, in their own words without using their notes, and hand-in as their “ticket out-of-the-door.”

**Content**

The three content objectives are reviewed in the group discussion after the small-group text reading; teacher monitors participation during this segment and reiterates main points.

**Extension / Take-home Activity:**

- Vocabulary foldable with highlighted words
- Highlighted vocabulary words added to word wall
- Build a model virus