



ELL Adaptation For Four Corners Hantavirus: Mapping Geography and Health

Author	Crystal Vaagen and Ronald Dorn
Grade Level	6-8
Duration	1-2 class periods

ELL Adaptation by Ronald Dorn and Karen Guerrero

SIOP Elements		
Preparation Adapting content Linking to background Linking to past learning Strategies used	Scaffolding Modeling Guided practice Independent practice Comprehensible input	Grouping Option Whole class Small groups Partners Independent
Integrating Processes Reading Writing Speaking Listening	Application Hands on Meaningful Linked to objectives Promotes engagement	Assessment Individual Group Written Oral

TESOL Standard(s)

ESL: English For Content
Through The Use Of ESL Methodologies, The Student Will:
EFC-A. Create, read and interpret visual information relating to science, social studies and math.
 A5. Create visuals to present information.
EFC-C. Compose in a variety of forms.
 C1. Use Math, Social Studies, and Science target vocabulary.
 C2. Paraphrase written information.
EFC-E. Comprehend reading materials.
 E6. Scan material for relevant information.

Arizona ELP Standards

Stage IV
Basic
Comprehension of Oral Communications
Standard 2: The student will express orally his or her own thinking and ideas. The student will communicate orally by:
 B-6: making predictions about academic content using complete sentences.

Reading
Standard 4: The student will analyze text for expression, enjoyment, and response to other related

Four Corners Hantavirus

content areas. The student will demonstrate knowledge of reading comprehension by:

B-8: summarizing the main idea and supporting details from text.

B-21: applying understanding of content area vocabulary within math, science and social studies texts.

B-28: interpreting information in functional documents (*e.g., maps, schedules, letters, graphic organizers*)

Writing

Standard 1: The student will express his or her thinking and ideas in a variety of writing genres.

The student will express his or her thinking and ideas by using a variety of writing genres, as demonstrated by:

B-7: writing friendly letters, messages, invitations, and thank-you notes that address the audience, stated purpose and context, and addressing an envelope.

Overview

Geography helps doctors learn about many diseases. A number of factors influence how researchers connect geography to a disease, such as areas of historical occurrence, time of year, vector habitat availability, and incidence of human exposure.

A current example is Hantavirus. Incidences of the Hantavirus are infrequent, but an outbreak took place in 1993. Mapping was a first step in understanding the Hantavirus disease.

Key Vocabulary

Breathe dust - Inhale tiny pieces of dirt

Disease – Illness

Four corners - Region where Arizona, Colorado, New Mexico and Utah meet. In the center of the Colorado Plateau

Mouse/Mice - Small rodent

Droppings – poop, scat of animals

Symptoms - Evidence that you have a disease

Additional Materials Needed for ELL

- Letter Writing Assessment
- Beginning and Intermediate ELL Worksheets on Hantavirus
- Beginning and Intermediate ELL Hantavirus Student Guides
- Graphic Organizer
- Vocabulary Cards

Procedures

Day One

1. Ask the students if they have ever gotten sick before. Discuss what illnesses they have had and hypothesize how they got the illness. Record illnesses, symptoms and transmission of diseases on board in columns. Use vocabulary cards to illustrate words. **(Preparation: Linking to background)**

If mosquitoes don't come up as a transmission of disease, discuss what they know about the subject. Bring up the idea of a vector, where a mosquito can carry malaria or West Nile virus.

2. Explain a geography mystery took place in the Four Corners area in the spring and summer of 1993. Show a map of Arizona or the United States, point out the location of the Four Corners and use the vocabulary cards. Tell the students that healthy people started getting very sick, suddenly (use disease and symptoms vocabulary card). Why did dozens of healthy people get sick? The only clue was that they all lived in the Four Corners area. Have the students make predictions on why this disease might have occurred. **(Promotes engagement)**

3. In a whole group session: **(Grouping Option Whole class)**

- Orally practice saying the name of the disease: Hantavirus. Go over the vocabulary cards with everyone. Write the definitions on the board and have students come to the board and match the vocabulary card to the definition

- Focus on the "dropping" vocabulary card. For your ELL III students, focus on the idea that this word can be a noun (poop) and a verb (to fall). Act out the verb by dropping a book. Then focus on the terms to "breathe dust".

Hantavirus

Now act out (teacher or students) the following sequence of events utilizing the vocabulary cards and your flair for acting.

Hantavirus is a disease. It comes from field mice. The symptoms are fever, chills, muscle pain, and breathing problems. Hantavirus occurs in the Four Corners. The Four Corners is where Arizona, Colorado, New Mexico, and Utah touch. In 1993, more rain made more food. More food made more mice. More mice made more droppings. More droppings meant more people would breathe in the dust. Therefore, more people got sick. Some died.
(Scaffolding: Comprehensible input)

4. As a group, have students select a symbol that would relate that mouse droppings are bad. Possible options might be a mouse with a slash or droppings with a slash). Break students into partners, **(Grouping: Partners, small groups)**

5. In pairs have students draw the cycle using their vocabulary cards. **(Assessment: Written)**

6. Have students share their cycle with two other pairs and have a few pairs present to the class their cycle and drawings. **(Grouping: Partners, small group)**

Day Two

7. Have the students read the Hantavirus Student Guide and complete the worksheets that are appropriate for their level of ELL or non-ELL. **(Application: Linked to objectives). (Preparation: Adapting Content) (Assessment: Written)** You may need to model the first question and clarify directions. **(Scaffolding: Modeling, Guided Practice)**

Hint: Beginning ELLs should be paired up with students receiving the ELL-3 student guide. This is because the questions are the same. When the student receiving the Intermediate ELL student guide examines the Beginning ELL materials. Encourage students to use the vocabulary cards and their drawings.

8. On the overhead, model writing the friendly letter. **(Scaffolding: Modeling)** Ask all students to summarize the lesson through this friendly letter. Encourage ELL students to use their drawings, the vocabulary cards, and the reading. This letter can be completed as homework.

9. Closure is essential in this lesson. First, you want to make the children feel safe. It is important to reassure students who live in a large metropolitan area like Phoenix or Tucson that incidences are very low. Second, you want to have a discussion about the purpose of the author. You start out by getting students to note that the author's goal is to encourage students to keep mice away from where they live. You can physically demonstrate cleaning and use the vocabulary card.

Then, ask students if they can think of another purpose of the author. Many will identify that a goal is for students to identify symptoms right away. You can use the illness and symptoms vocabulary card to extract the answer. This disease can go from mild to very serious symptoms in just a few hours..

Assessment

The ELL students are assessed just like the mainstream students, through completing the worksheet and writing/ illustrating the contents of the friendly letter. **(Integrating Processes: Reading, Writing)**

Mastery for Beginning ELL students:

- correctly draw the cycle of hantavirus illness
- Tell the cycle of hantavirus orally to a partner
- correctly answer 4 or the 5 questions on the worksheet

Mastery for Intermediate ELL students:

- correctly match vocabulary cards to the definitions
 - write a friendly letter that demonstrates satisfactory control over rudimentary structures
- correctly answer 5 of the 6 multiple choice questions on the worksheet. **(Assessment : Individual)**

Sources

The graphics used on vocabulary cards and in the lesson are courtesy of from NASA, the National Science Foundation, the National Institute of Health, and Arizona Department of Health.