Integrating World Health Issues into a Life Science Classroom

Laura Lenz, SEPUP
Lawrence Hall of Science
UC Berkeley

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With your neighbor

Discuss the following:

How do you typically begin a unit on cell biology?

Issue-oriented Science: SEPUP's Model

- Science courses, units, or activities that involve students in learning science concepts and processes and applying their understanding and evidence to a problem, issue, or decision.
- The issue is not an add-on, but is woven into the curriculum.
- The issues and content are closely related.

Issue-Oriented Science

- Provides a natural hook for students
- Allows for learning of science concepts in a relevant, more familiar context
- Students use scientific evidence in part to make informed decisions
- Encourages students to look at both sides of an issue and evaluate trade-offs

Learning Outcomes are Enhanced in Issue-oriented Science Activities

Traditional instruction	**Issue-oriented instruction**
Content driven	Issue and content driven
Science process skills	Science process skills
	Science in personal and societal perspectives standards

Cell Biology: World Health

- From *Science and Global Issues*
  - A unit that focuses on sustainability from a health perspective.

  Students:
- Study life at the cellular level.
- Examine health issues across the world and over time.
- Decide how to allocate limited funding to address problems of world health.

Activity 1: World Health and Sustainability

- In this activity students examine health data for several countries.
- They apply these data as indicators of the sustainability of the populations in those countries.

Activity: World Health and Sustainability

- Read the introduction and Challenge.

World Health and Sustainability

- Work with your partner to complete Procedure Steps 1-4.
- Work with your group to complete Step 5.
- Complete Steps 6-9.

World Health and Sustainability

What are the links that you notice between Data Sets 1 and 2 and Data Sets 3 and 4?

Activity 2: Cells and Disease

Students review the symptoms of two patients, and compare their blood to normal blood in order to diagnose.

Cells and Disease

- Read the Challenge and Steps 1-5 of Part B in the Procedure.
- Examine the photos of the blood samples.
  - What would be your diagnosis?

Cells and Disease

- Students use a microscope to observe cells in blood samples
  - Disease is a result of damaged cells or foreign cells/microbes
  - Sometimes this can be observed under a microscope and used for diagnosis

Cells and Disease

Case Study: Malaria

- Explains the cellular mechanism of the disease malaria
- Provides a discussion of the social, economic, and environmental factors involved in malaria

In conclusion

Engaging students in activities that explore life at the cellular level in the context of the dynamics of issues related to world health can lead to:

- More robust learning outcomes
- Relevant learning in a meaningful context
- Examination of the trade-offs of decisions

Contact Information

Laura Lenz
SEPUP curriculum developer
UC Berkeley, Lawrence Hall of Science
lalenz@berkeley.edu
(510) 642-8718