I Think There’s a Genetically Engineered Fly in My Genetically Modified Pea Soup!

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Science and Global Issues: Biology

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Science Education for Public Understanding Program

- Science curriculum design and professional development
- Based at the Lawrence Hall of Science, University of California at Berkeley
- Designing science curriculum, working with teachers, and supporting quality science instruction since 1983
- Major funding for curriculum work from the National Science Foundation
Lab-Aids, Inc.

- Publishes and supports the use of SEPUP materials in classrooms across the United States
- Publishing quality science curricular materials, providing curricular support since 1963
- Based in Ronkonkoma, New York
Science and Global Issues (SGI)

- NSF curriculum development project
- Uses sustainability as the unifying context for studying important biological concepts
- Inquiry-based, issue-oriented science...
  - Students talk, think, and discuss content as it relates to personal, societal, and global issues
  - Students learn to use evidence in the decision-making process
- Embedded assessments and literacy strategies
- Research-based and extensively field tested

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## Science and Global Issues: Biology

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Sustainability

- In the context of human development:
  - Meeting the needs of the present without compromising the ability of future generations to meet their own needs
- Examined through three perspectives:
  - Environmental, economic, and social
- Considered on three levels:
  - Personal, community, and global
Activity: Cell Differentiation and Gene Expression

- Occurs late in the unit (17)
- Students have basic understanding of major genetic concepts
- Students comfortable with 4-2-1 model and literacy strategies
- Several case studies already covered
Activity: Cell Differentiation and Gene Expression

- Read Introduction
- Part A: Work in groups of four
Activity: Cell Differentiation and Gene Expression

- Part B: Complete Procedure steps 8-16
- Part C: Read Procedure steps 17-20, skim case study - “Terminator Technology”
Read, Think, and Take Note: Guidelines

As you read, from time to time, write one of the following on a sticky note:

- Explain a thought or reaction to something you read.
- Note something in the reading that is confusing or unfamiliar.
- List a word that you do not know.
- Describe a connection to something you learned or read previously.
- Make a statement about the reading.
- Pose a question about the reading.
- Draw a diagram or picture of an idea or connection.
Genetics Topics

- Basic genetic concepts
  - Genotype and phenotype
  - Punnett squares
  - Mono- and dihybrid crosses
  - Genes, alleles, chromosomes & DNA
- Mendel’s work
- Mechanisms of inheritance
- Selective breeding

- Mitosis and meiosis
- Genetic modification
- Gene expression
- DNA structure & replication
- Protein synthesis
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