Investigative Case: Real or Replica

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Agenda

Contemporary Curriculum
Why Use Cases?
Investigative Case: Real or Replica
Know/Need to Know
Questions
Resources:
  Image J
  NCBI
  Yodio
  Data files
Group Work
Why Use Cases?
The international Commission on Biology Education (CBE) raised the bar for scientists and educators:

“Influencing almost all our activities, from inception to the grave, this (biological) revolution will require profound decisions with respect to the ethical, legal, social, cultural, educational, and development issues that are sure to arise, affecting our personal lives and society in ways that we have never experienced before.”

(Vohra 2000)
Criticism of the way we teach science

“Build into every course inquiry*, the processes of science, a knowledge of what practitioners do, and the excitement of cutting edge research.”

“involving the student in asking questions and finding answers”

*Shaping the Future: New Expectations for Undergraduate Education in Science, Mathematics, Engineering and Technology NSF, 1996. (p. 53)
Entry into the Age of Cyberlearning

Our students engage in new methodologies:
   Self-directed
   Instant information retrieval
   Social networking - construction/collaboration
   Open resources
One strategy to address contemporary biology education is to use investigative cases.
Investigative cases:

• use realistically complex problems
• are interdisciplinary
• introduce data, tools, and background
• invite collaborative exploration
• ask learners to make and support decisions and conclusions
Learners work to develop questions and reasonable investigative approaches, gather data and information, test their hypotheses, and work to persuade others of their findings.
CASE ANALYSIS

What is this case about?

Recognize potential issues and major topics in the case.
What Do I Know?  What Do I Need to Know?

Groups should make a list what they already know that is related to the case in the “What Do I Know” column.

List questions you would like to learn more about in order to understand the case in the “What Do I Need to Know” column.
Questions
What Data?

Maria’s itinerary
Maria’s photos
Maria’s textile samples:
  ➢ Fiber images
  ➢ Molecular sequences

What Tools?

➢ Image J
➢ NCBI
Group Work

Support your conclusions with a Yodio

- Sign up
- Upload images
- Call to record your conclusions
- Submit to create a Yodio to share
Why use cases?

• To initiate open investigations
• To utilize new technologies and resources in problem solving
• To develop local and global perspectives
• To emphasize the value of interdisciplinary and collaborative approaches
• To structure student assessment through student products
• To support diverse objectives within a shared work space
• To engage students in cyberlearning