Using NewsHour Extra Feature Stories

STORY
The Human Genome Project, A Decade Later
07/07/2010

http://www.pbs.org/newshour/extra/features/science/july-dec10/genome_07-07.html
Estimated Time: One 45-minute class period with possible extension

Student Worksheet (reading comprehension and discussion questions without answers)

PROCEDURE

1. WARM UP
Use initiating questions to introduce the topic and find out how much your students know.

2. MAIN ACTIVITY
Have students read NewsHour Extra's feature story and answer the reading comprehension and discussion questions on the student handout.

3. DISCUSSION
Use discussion questions to encourage students to think about how the issues outlined in the story affect their lives and express and debate different opinions.

INITIATING QUESTIONS

1. What are some of the most important scientific discoveries?
2. What are some key medical technologies that have improved health care in the United States?
3. Why are human DNA and genes important?

READING COMPREHENSION QUESTIONS

1. What is the human genetic code?

ANSWER
The human genetic code is DNA.

2. What has been called “the most significant scientific discovery since evolution”?

ANSWER
Cracking the entire human genetic code (DNA), therefore essentially opening the “key of life”.

3. Who is Dr. Francis S. Collins and why is he important to the Human Genome Project?

ANSWER
Currently the director of the National Institutes of Health and he led the U.S. Genome Project.

4. When did the Human Genome Project begin and what was the main goal?
The Human Genome Project began a decade before the human genome was mapped. In 1990, the U.S. Department of Energy teamed up with the National Institutes of Health to identify all the genes in human DNA, store all information in databases, share key discoveries with the private sector and address any ethical, legal and social issues that arose during the project.

5. What is DNA comprised of?

**ANSWER**
DNA is comprised of four chemicals called bases and labeled A, T, C, and G.

6. What does DNA help to determine in human beings?

**ANSWER**
Unique characteristics such as skin complexion, eye/hair color, height and personality traits.

7. Name two diseases that the Human Genome Project developments have impacted.

**ANSWER**
Breast cancer and Alzheimer’s.

**DISCUSSION QUESTIONS (more research might be needed)**

1. The story says that the mapping of the human genome was widely considered “the most significant scientific discovery since evolution.” Do you agree with that statement? Why or why not?

2. How have the scientific advances that resulted from mapping the human genome differed from what scientists expected at the beginning of this decade? Why do you think their expectations differed from reality? Can you give another example of where expectations and reality diverged in the scientific world?

3. Name some science fiction or futuristic movies that deal with human genetics. How is technology portrayed in the movies?

4. In the article, Dr. Collins predicts that “a complete transformation in therapeutic medicine” will occur in the next 15-20 years as a result of mapping the genome. What kinds of advances do you think scientists will achieve in the next two decades because of the Human Genome Project?

5. Do you know anyone who has suffered from cancer or Alzheimer’s disease, two diseases that could especially benefit from genome research? If so, what kinds of treatments or tests did those individuals receive? Were any of the treatments or tests linked to the human genetic code?

6. Would you like to have your DNA sequenced so you could know which diseases you might be susceptible to? Why or why not?

**Extension Activity**
Write a 300-500 word essay on this topic providing clear examples. Send your completed editorial to NewsHour Extra (extra@newshour.org). Exceptional essays might be published on our Web site.
Student Worksheet

DIRECTIONS
Read the following news story and answer the reading comprehension and discussion questions. Use additional paper if necessary.

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