History of DNA Technology Lesson Plan

Purpose: Use the Progress of Science digital timeline to allow students to investigate the history of DNA technology. This activity asks students to compare changes in DNA technology to changes in television technology and to identify important events and innovations.

Learning Target:
I can communicate the impact of modern genomic research projects on my understanding of gene structure and function.

Materials:
Computer with Internet access (one per student or group of students)
History of TV handout
Progress of Science digital timeline (http://timeline.hudsonalpha.org)

Procedure:
1. Teacher will demonstrate tracing the early history of DNA technology following the timeline from the first microscope images of cells (Hooke 1665) to the discovery of the structure of DNA (Watson and Crick 1953). Demonstrating both slider bar and scroll features of the timeline provides some initial familiarity with the timeline’s functionality. Suggested stopping points:
   a. Hooke 1665
   b. Bauer 1802
   c. Fleming 1870
   d. Morgan 1910
   e. Belozersky 1935
   f. Avery 1944
   g. Chargaff 1950
   h. Hersey and Chase 1952
   i. Franklin 1952
   j. Watson and Crick 1953
2. Guide students to the introduction of the color television in 1951, on the timeline. Ask students how televisions have changed from 1951 to today. Pause for student responses. Teacher may list contributions on the board.
3. Point out that Watson and Crick’s work was relatively close to the release of the color television. Ask students if they think DNA technology has changed as much as television technology.
4. Distribute the History of Television activity sheet. Explain that several key events or innovations in the history of television are included.
5. Students will use the Progress of Science digital timeline to identify key events and innovations in DNA technology from 1953 to present times and include them on the opposite side of the History of Television sheet. Encourage students to investigate events of interest by following timeline links to more detailed information.

6. Remind students that their key events need not be in the same year as the history of television events. Encourage students to seek out paradigm shifting changes in technology that cause industry revolutions in DNA technology in ways that listed innovations caused revolutions in the television industry.

7. Lead a summary discussion in which students share events they selected as key innovations/discoveries and ask students to justify their choices.