

Lesson Plan Title:

Computer Revolution Biographies

Overview:

After having browsed the CHM online exhibition, “The Silicon Engine: A Timeline of Semiconductors in Computers”, located at <http://www.computerhistory.org/semiconductor/people.html>, students will research one of the people mentioned in the timeline, in order to define his/her unique contribution to the development of semi-conductor technology.

Students will be required to perform further research with other sources in order to gather more information about each inventor, but can begin with the CHM timeline and people sections as their starting point. They must be able to properly document and cite their sources in their individual biographical reports.

Objective:

To help students learn about the important individuals who shaped the technological computer revolution in general and the semiconducting industry in particular.

Materials:

- Online exhibit, “The Silicon Engine: A Timeline of Semiconductors in Computers”, located at: <http://www.computerhistory.org/semiconductor/people.html>
- Web browser
- Index cards, or word-processing computer program

Brief Example of Biographical Research:

Robert Noyce (December 12, 1927 – June 3, 1990)

- 1949: B.S. Degree from Grinnell College (Iowa), where he first took an interest in transistors
- 1953: Graduated from M.I.T. with a PhD in Physics
- 1956: Became key engineer at Shockley Semiconductor Laboratory in the future Silicon Valley area; researched the physics of silicon transistors
- 1957: As one of “Traitorous Eight” engineers, left Shockley and Founded Fairchild Semiconductor Corporation, the first company to mass produce integrated circuits
- 1958: Fairchild Introduced Its First Transistors
- 1959: Fairchild filed a Patent (awarded in 1969) for Semiconductor Integrated Circuit (IC), combining all the multiple circuit interconnections required for sophisticated electronics on a single silicon chip
- 1960: First Planar Integrated Circuit is Fabricated
- 1968: Co-founded Intel Corporation with Gordon Moore, where he oversaw Ted Hoff’s invention of the microprocessor; Intel would become the world’s largest producer of semiconductor chips

- 1978: Awarded the IEEE Medal of Honor "for his contributions to the silicon integrated circuit, a cornerstone of modern electronics."
- 1988: Formed and led Sematech, a consortium of 14 semi-conductor companies

Other Online Sources: (an example)

- "The Man Behind the Microchip," <http://www.themanbehindthemicrochip.com>
- "The Robert Noyce Foundation," <http://www.noycefdn.org>
- PBS Biography, Robert Noyce, <http://www.pbs.org/transistor/album1/addlbios/noyce.html>

Teaching Strategy/Procedure:

1. Have each student select an individual on the timeline that they would like to investigate further. Have students begin with the CHM people timeline, located at <http://www.computerhistory.org/semiconductor/people.html> . Note that the various sections of the timeline use both linear (chronological) and non-linear (biographical) formats to convey information.
2. Once each student has selected an interesting person to study, have them prepare approximately five to ten things that are appropriate to share with the class about the individual's contributions. Instruct them to look for key milestones or important moments that shaped the individual or his/her achievement. Direct them to look for obstacles, challenges and missed opportunities. Students may use either a linear or non-linear format for their presentation. Students are encouraged to use visual images, PowerPoint, or other displays to illustrate their reports.
3. As part of the presentations, ask the students to speculate about the individual: What were the driving forces in this person's life? Why were they so persistent in their quest for solutions to problems? Are there any lessons to be learned from this person's life that can be applied to one's own?