Lesson Plan Title:

Moore's Law: Its Significance

Overview:

Students will use their favorite web browser and the Glossary and Timeline of the CHM online exhibition (see http://www.computerhistory.org/semiconductor/glossary.html and http://www.computerhistory.org/semiconductor/timeline.html), and other sources, as necessary, to provide background information. They will specifically investigate Moore's Law, analyze various graphs that illustrate Moore's Law, and discuss its significance in computer history.

Objectives:

To help students understand the meaning and significance of Moore's Law, by using various charts and graphs to make an analysis using the data. Students will be encouraged to think about the amazing speed of technological advances.

Materials:

- Online exhibit timeline: "The Silicon Engine: A Timeline of Semiconductors in Computers," located at http://www.computerhistory.org/semiconductor/timeline.html
- Also, online exhibit glossary: "The Silicon Engine: A Timeline of Semiconductors in Computers," located at http://www.computerhistory.org/semiconductor/glossary.html, to look at additional vocabulary words
- Web browser
- Index cards, or word-processing computer program

Vocabulary Words and Key Phrases:

- Chip
- Circuit
- Integrated Circuit (or IC)
- Moore's Law

Teaching/Visual References:

Online exhibition, "The Silicon Engine: A Timeline of Semiconductors in Computers," especially http://www.computerhistory.org/semiconductor/ with a description of Moore's Law – a forecast and prediction for the semi-conductor industry by Intel co-founder Gordon Moore, made in 1965.

"Transistor density on integrated circuits doubles about every two years."

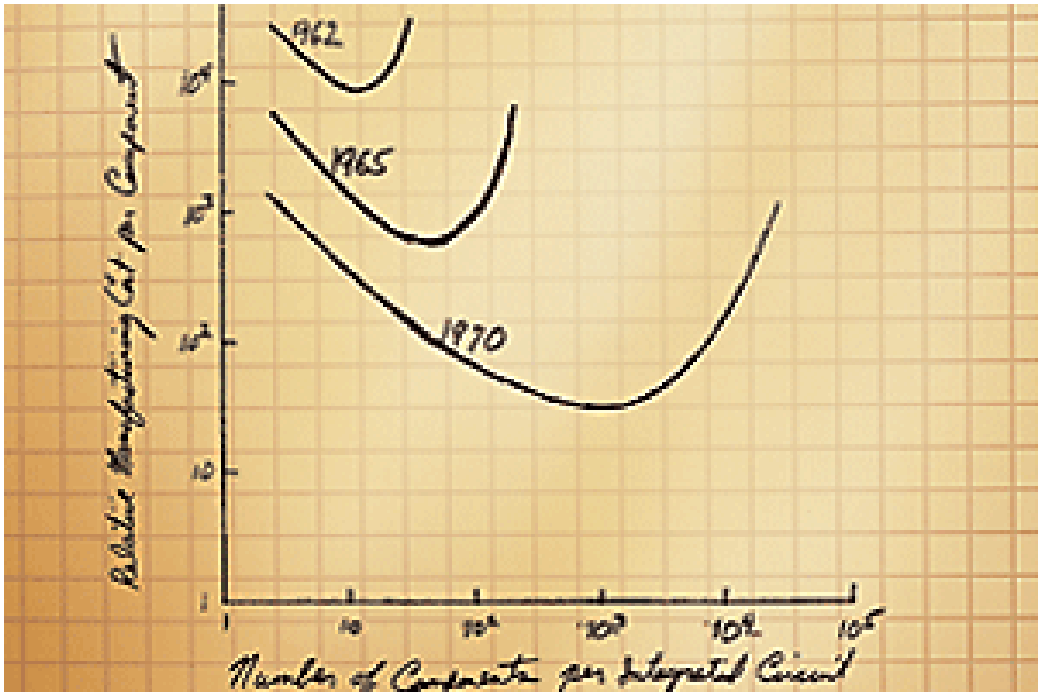
Copyright 2007 by CHM. All rights reserved. For classroom use only

Teaching Strategy/Procedure:

1. Have students view the page http://www.computerhistory.org/semiconductor/ with the graphic images showing how microelectronic computer "chips" have grown in capability from a single transistor in the 1950s to hundreds of millions of transistors per chip on today's microprocessor and memory devices.

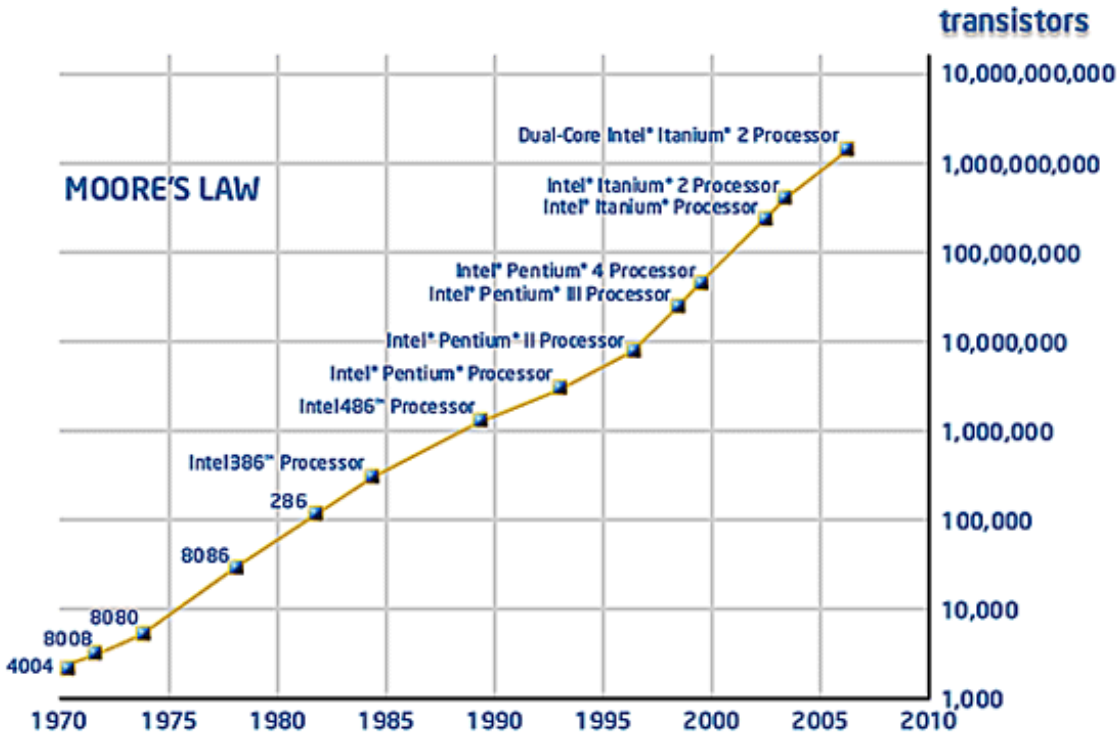
2. If possible, have students also do a web search on "Moore's Law" and report on what they discover, in their own words. In particular, have them determine the significance and importance of Moore's Law, for classroom discussion purposes. A web image search on "Moore's Law" is also recommended.

3. Have students visit the Intel website (http://www.intel.com/technology/mooreslaw/index.htm) where they can view the following original sketched graph (below) made by Gordon Moore in 1965, when he proposed his theory (later called "Moore's Law" in 1970) in *Electronics Magazine*:



Copyright 2007 by CHM. All rights reserved. For classroom use only

4. Also, have students look at the following timeline chart that shows the actual rate of growth in the industry, specifically the tremendous increase in processing power due to the sharp increase in the number of transistors. How accurate was the original “Moore’s Law”? Have them make factual statements based upon what the charts are communicating. Again, ask what was the significance and importance of the prediction?



For Further Study and Reference:

Visit the online Intel sites and read more about Gordon Moore and his Law - http://www.intel.com/museum/archives/history_docs/moore.htm , including the Moore’s Law Flash animation located at (http://www.intel.com/technology/silicon/mooreslaw/eml_demo/demo.htm) .

Copyright 2007 by CHM. All rights reserved. For classroom use only