Lesson Plan Title:
Introduction to Semiconductors

Overview:

Students will use their favorite web browser and the Glossary of the CHM online exhibition (see http://www.computerhistory.org/semiconductor/glossary.html) to investigate a number of suggested key words and phrases, to gain a basic understanding of semiconductors:

Students will be asked to take notes and do research on these terms (and others they may find along the way), in order to come to a better understanding of how they relate to each other, and how they describe the basic functioning and uses of semiconductors.

Then, they will be asked to describe in their own words (using their notes or note cards) the basics of semiconductor technology, without getting into too much technical detail. They will be asked to consider why it is important to study the topic of semiconductors in today's world, and to answer the crucial question: "Why are semiconductors an important topic of study"?

Objective:

To help students begin to understand the complex subject of semiconductors and related technology, in order to provide a foundation for further study.

Vocabulary Words and Key Phrases:

Conductor (or conductance, or conductivity)
Semiconductor
Insulator
How Do Semiconductors Work?
What is a Semiconductor?
Microprocessor chip (or chip)
Integrated Circuit (circuit or IC)
Diode
Silicon
Doping (or dopants)
Impurity
Electric current
Transistor

Materials:

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

Website References:

Online exhibition: "The Silicon Engine: A Timeline of Semiconductors in Computers"
http://www.computerhistory.org/semiconductor/

Teaching Strategy/Procedure:

1. Have students (either in groups, pairs, or individually) begin their research on the concepts listed above, using the suggested sources and resources, in order to be able to explain, in their own words, what they have learned. Students will be taking notes from their resources, either in a word-processing program or on note cards. Emphasize that they must use their own words in their notes. Suggest that the students try to imagine explaining the words and concepts to a complete beginner, so they should try to simplify their explanations as much as possible.

2. Various spokespersons in the class will be called upon to explain or report out about each of the words and other concepts/ideas. Other classmates will be asked to comment upon each report.

3. Students should be able to fully answer these two questions by the conclusion of this lesson:

- What are the basics of semiconductor technology?
- Why are semiconductors an important topic of study in today's world?