Microprocessors
Group Activities

Organize students into groups to complete the following group activities.

1. **High-Tech Sandwiches**
   Use the High-Tech Sandwiches handout to direct this fun activity where students write instructions for each other on how to make a peanut butter and jelly sandwich. They then try it out. Have lots of bread, peanut butter, and jelly on hand—and lots of paper towels!

2. **Fetch, Decode, and Execute**
   Use the Fetch, Decode, and Execute handout to organize students in groups and have them perform the three steps a microprocessor uses to process an instruction. This activity requires making index cards in advance with a variety of hand-written commands such as "fold this card in half and give it to a person with glasses."

3. **Taking Command**
   Use the Taking Command handout for a group activity where students working together writing programming instructions for a robot they each can take turns playing. This activity teaches the need for the proper order of instructions. To continue this activity and teach students about debugging instructions, use the Bugs and Debugging handout.

4. **Making a Complex Product**
   Use the Making a Complex Product handout to involve your class in an activity teaching how companies plan for and deal with a certain probability that a certain percentage of products in a lot will be defective.

5. **Paper Skyscrapers**
   People doing chip design must work with many restrictions. They have only a certain amount of space to use, they must use the available type of components, and they are limited by the fabrication technology available for their use. Put students into small groups and supply each group with three pieces of ordinary white letter-size paper, six short pieces of transparent tape, and three medium-sized paper clips. Have them create the highest possible standing structure using only the materials that you have given them. In addition, put a time limit for completion of the tower. Students will need to adapt their design to the nature of the material they are using, the limited amount of material available, and the time frame for designing and creating their towers.