**Assignment: Robotics and Patents (Teaching Notes)**

**Summary**

Students will make a drawn-to-scale mechanical drawing of their robot using the concepts of similar figures, proportion, and scale.

**Competencies**

Upon completion of this assignment, the students will be able to draw a scale design of a robot using the concept of proportions.

**Time**

The assignment will take approximately five hours to complete.

**Materials**

Pencil, paper, rulers, protractor, compass, and rubric

**Instructions**

1. Students draw a model of their robot. The drawing includes the actual, life-size finished measurements for their desired robot design. The drawing can include more than one view (i.e., front, back, and side).
2. Based on the actual measurements, students will use proportions to calculate the proposed measurements needed for their scale drawings.
   * Students will pick a ratio to use to convert the life-size measures into the drawn-to-scale measures. For example, one-foot equals one inch. The ratio will then be used to calculate a proportion and find the scale measurements. (See next page *Draw a Robot Model*.) If necessary, students will do many practice problems involving proportions before they perform the calculations for their projects.
3. Students will make a new drawn-to-scale drawing of their robot using rulers and the scale measurements from their calculations.

**Evaluation/Assessment of Student Competency**

Student assessment will be based on criteria found in *Rubric: Robotics and Patents*.

**Closure**

Share with students that this “transfer activity” will help them in the future. Students can take their knowledge of robot construction and put it to use as they build and program a real, working robot.