Topic: Algorithms

Activity Guidelines

Group Size: 3

Method of Assigning Students: Count the number of students in the class, divide by 3, count off from 1 to the quotient, and group identical numbers.

Materials:

- ✓ Handout (one copy per group) with questions to be answered at the end of the session

Roles:

Robot: Person expected to execute the given instructions.

Time Recorder: Responsible for writing down the team's ideas, key points and decisions.

Direction giver: In charge of dictating instructions to the robot.

Individual Accountability: Individuals are expected to understand the detail needed to write an algorithm, the different scenarios that need to be developed by the team, and to explain what an algorithm is and why it is important.

Activity Summary

Each group will come up with an algorithm for getting a "robot" to reach a predetermined location.

The algorithm will be given to a different group to verify that it works. This time the "robot" (student) will be blindfolded. The robot will be given the instructions as stated in the instructions. If it does not work, the group that designed the algorithm will need to revise their algorithm and try again.

Have the groups discuss what is needed to write an effective algorithm.

- ▪ What did you have to consider when writing an algorithm?
- ▪ What changes did you have to make to the algorithm after you tested it?
- ▪ Why is verification important?
- ▪ What did your experience teach you about writing computer algorithms?

INTRODUCTION TO COMPUTER SCIENCE
    PEER SESSION

Algorithms

1. Discuss the following questions:

    ▪ What is an algorithm?
    ▪ Why do you think we, Computer Scientist, need to know about algorithms?

2. Activity:

    ▪ With your teammates come up with an **algorithm** for getting a "robot" (aka. one of y our teammates) to reach a predetermined location. If your team cannot decide the location to which the robot should reach ask the peer leader to assign your team one location.

    ▪ Once the algorithm is complete let your peer leader know that you are finished

    ▪ Once every team is finish, grab another team algorithm and execute it with your tea m robot.

3. Answer the following questions:

    ▪ What did you have to consider when writing an algorithm?
    ▪ What changes did you have to make to the algorithm after you tested it?
    ▪ Why is verification important?
    ▪ What did your experience teach you about writing computer algorithms?