The Tower of Hanoi

OBJECTIVES:

- Develop group work environment.
- Make and verify guesses of patterns observed in the process.

ACTIVITIES

Make a group of three students. When you write your explanations, concentrate on the main results of the activities. The particular cases you will consider are aimed to help you gain insight into the problem.

SITUATION

There are three pegs where you will place a stack of rings. You start with the stack of rings in one of the three pegs. The rings are arranged from the largest to the smallest, with the largest at the bottom of the stack.

TASK:

Move the given stack to any of the other three pegs.

RULES

- You move only one ring each time, and
- A smaller ring always goes at the top.

WHAT TO DO:

Start playing the game with a stack of two rings, then do it with three, four, and five rings. In each case determine the minimum number of moves to execute this task.

Present an argument to justify that your answer from (a) “is” indeed the minimum number. (Hint: try to justify your answer using the information from the previous case).