

# Challenge of all Challenges — The Tower of Hanoi

by Ian Mitchell

**I**n speaking with my high school-aged daughter one night about a Leadership Course she was taking at school, I heard about how they were learning to work together by solving a number of complex puzzles as a group. Well, being Director of Venturers, this spiked my interest, especially in light of the fact that my *Leader Magazine* deadline had passed about one week ago. So, upon further queries she produced three of these puzzles which, when applied to Venturers, will create opportunities for youth to not only witness and practice leadership skills but will also tax even the quickest, sharpest young mind.

All three puzzles are built around a tower of tires (anything can be substituted for these, even different kinds of doughnuts), each displaying a number. By moving the tires from post to post the group must, under certain rules, end up with a certain arrangement on the opposite post. *Note:* The Tower of Hanoi puzzle was invented by the French mathematician Edouard Lucas in 1883.

Does it sound somewhat interesting? Well, try these puzzles out at your next meeting or camp. I'm sure they will keep your Venturers guessing. Please forward any creative ways that you used these puzzles with your Venturers (photographs included) to: [imitchell@scouts.ca](mailto:imitchell@scouts.ca). Good luck! \X

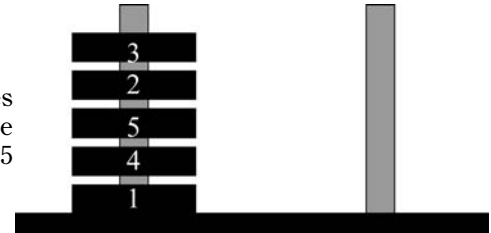
— Ian Mitchell is the Program Director for Scouts, Venturers and Rovers and enjoys a good challenge. After all, that's the Venturer Motto!

## The Tower of Hanoi #1

*Task:* Re-arrange the jumbled tires in the first pile, to an ordered pile of tires on the second pole with #5 on the bottom.

*Rules:*

1. You may move any number of tires at a time, but you are not allowed to change the order whilst between poles.
2. You are not allowed to place tires on the ground outside the poles.
3. You are not allowed to separate groups of tires whilst between poles.

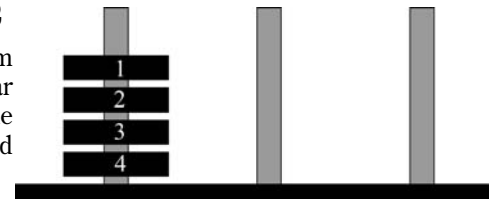


## The Tower of Hanoi #2

*Task:* Transfer the entire tower from the left pole, to the one on the far right, moving only one tire at a time and never placing a larger numbered tire on a smaller numbered one.

*Rules:*

1. You may use the center pole.
2. You may not place tires on the ground outside the poles.
3. To move tires, there must only be one tire outside the poles at any time.

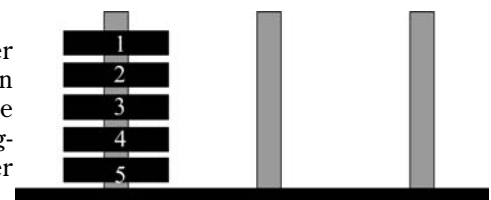


## The Tower of Hanoi #3 — (Expert Level)

*Task:* Transfer the entire tower from the left pole, to the one on the far right, moving only one tire at a time and never placing a larger numbered tire onto a lower numbered tire.

*Rules:*

1. You may use any pole.
2. You may not place tires down outside the poles.
3. To move tires, there must only be one tire outside the poles at any time.



## Answers:

The Tower of Hanoi #3 – (Expert Level) has 31 steps to achieve the task! For the answer, you can visit the web site where Ian found the puzzles and answers at: <http://www.shurdington.org/Downloads/TowersofHanoiSolution.gif> or, find the answer on Scouts Canada's web site, under *The Leader files*, April 2008. Good luck.

## The Tower of Hanoi #2

