

Name _____

Date _____

Towers of Hanoi

According to legend from parts of Southeast Asia, the world is going to end when the Tower is moved.

Ever since the beginning of the world, some monks at a legendary temple have been playing a game called Towers of Hanoi. When the game is over, the world will end. You can play the same game. Luckily, the monks are playing with more Towers than you are, so it will take them a lot longer to finish their game.

Here are the rules.

1. Start with disks stacked largest to smallest, bottom to top.
2. You are going to move all the disks from one place to another, one disk at a time.
3. You can only place a small disk on top of a larger disk - you can never place a large disk on top of a smaller one. So you need three stacks.
4. The game ends when you have rebuilt the stack of disks in another place.
5. Count how many moves it takes. Your goal is to rebuild the Tower in the fewest possible moves.

Start with 2 disks. Stack them in the middle circle.

1. Move the top (small) disk to the right circle.
2. You can't just put the larger disk on top of the small one, so you move the large disk to the left circle.
3. Then you put the small disk on top of the large one.

Follow these steps using 2 disks on the "circle page."

How many moves does it take to rebuild the stack of 2 disks? _____

Now try again with **3 disks**. Count your moves and use tally marks to record the number of moves here: _____

How many moves with 3 disks? _____

Repeat with **4 disks**. Count your moves and use tally marks to record the number of moves here: _____

How many moves with 4 disks? _____

There is a pattern to the smallest number of possible moves for a certain number of disks. Fill out the table on the back and see if you can find the pattern.

Towers of Hanoi Recording Sheet

Number of Disks	Record your moves with Tally Marks	Fewest number of Moves
2		
3		
4		
5		
6		
7		
8		

Bonus questions:

1. Pretend that the monks are playing with 12 disks. How many moves would it take them to finish the game and end the world?
2. Actually, they're playing with 64 disks. You would need a good computer to work this out, and much more than this sheet of paper to write the solution down. Try this at home. Good luck!





