

Traffic Jam

In the diagram, there are seven stepping stones and six people.



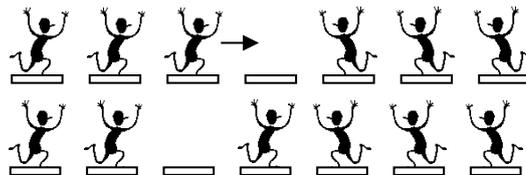
On the three lefthand stones, facing the center, stand three of the people. The other three people stand on the three righthand stones, also facing the center. The center stone is not occupied.

The challenge: exchanging places

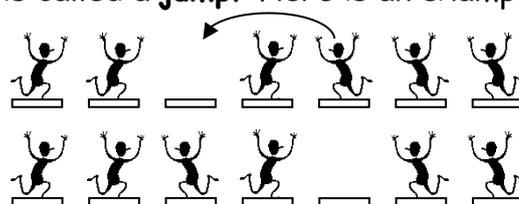
Every person must move so that the people originally standing on the righthand stepping stones are on the lefthand stones, and those originally standing on the lefthand stepping stones are on the righthand stones, with the center stone again unoccupied. The stepping stone without a person is called the **space**.

There are two allowable moves:

1. If the space is next to a person, that person can move to the space. Such a move is called a **slide**. Here is an example of a slide:



2. A person can jump over another person if the space is on the other side of that person. This move is called a **jump**. Here is an example of a jump:



Budding Genius

What is the **minimum** number of moves needed to solve this puzzle?

You may find it easier to first start with 2 people and 3 stepping stones, and find the minimum number of moves to solve that puzzle. Then try 4 people and 5 stepping stones. Finally try 6 people and 7 stepping stones.

Genius

Can you find the minimum number of moves for 8 people and 9 stepping stones?

Supreme Genius

Can you find the *general* rule, that works for any even number of people?

Note: this is a *hard* problem. Do not be discouraged if you can not find the answer.