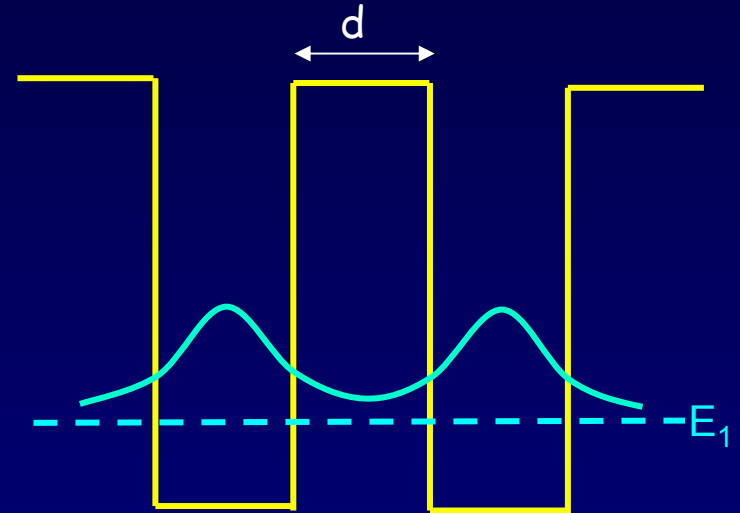# Another Consequence of "Tunneling"

Consider a situation in which a particle (e.g., an electron or an atom) can be in either of two wells separated by a potential barrier.

Is the particle on the left or right?

Both! If the barrier is finite, the wave function extends into both wells

Lowest energy state:
$\psi$ is small but non-zero inside the barrier.

Here is the state with the next higher energy:
Why does this state have higher energy?

Note that the potential is symmetric about the middle of the barrier. Therefore, the energy states must be either symmetric or antisymmetric. Also, remember that there are n-1 nodes.