

Wave on a string

In this activity you observe that vibrating (moving) one end of a string (or jump rope) can simulate the way that waves pass through a medium such as water or air. The quick shake that you give to the jump rope is an impulse (like a “bump”) moving along the rope that propagates to the opposite end. The rope moves up and down, but the wave propagates from side to side, from one end of the rope to another. When 'damping' is at none, the wave keeps going. As damping is increased, the wave's amplitude gets smaller and smaller, faster and faster.

When the wave reaches a fixed end (held in place), the wave returns to the beginning, but on the bottom of the medium. When the wave reaches a free (loose) end, the wave returns to the beginning on the same side.