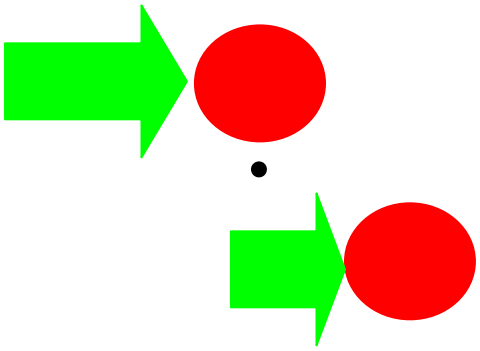
5-1a Properties of Vibrations and Waves

Vibrations are caused by forces and inertia.

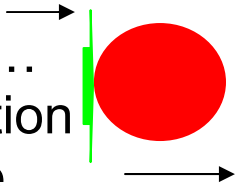
Force 1 pushes an object that is at rest …



which continues to move

as the first force gets smaller

and finally disappears…
but the object is in motion
and continues to move
inertia

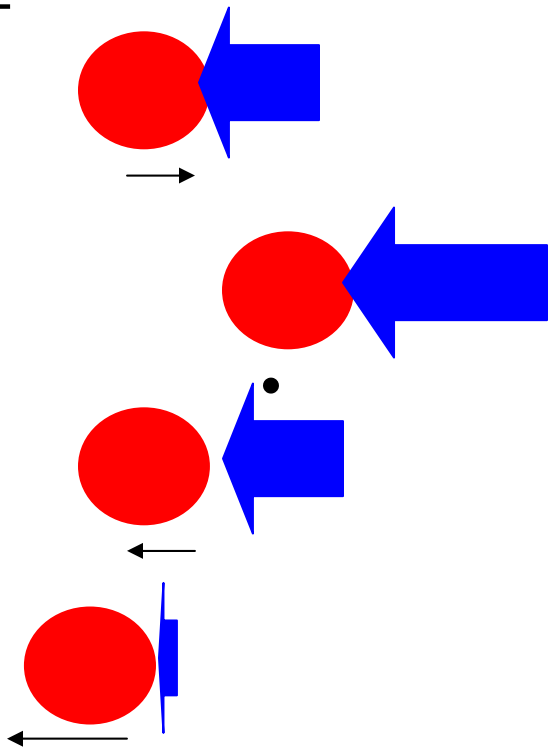


COMPLETELY!

because of

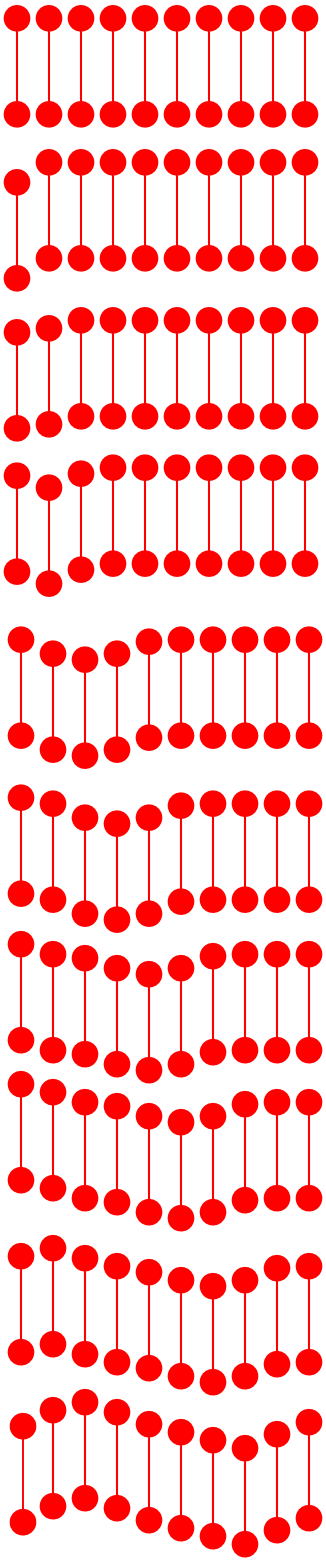
UNTIL

another force acts on it,
slowing it down,
stopping it,
and sending it back
in the other direction
starting the cycle
all over
again!



5-1b Properties of Vibrations and Wave

Waves are vibrations that spread through a material called a medium.



When a medium is disturbed, energy is transferred from one particle to another.

This transfer of energy occurs with no actual transfer of matter except for the back and forth motion of a longitudinal wave or up and down motion of a transverse wave.

An example of a longitudinal wave is sound.

Vibrating springs and strings are examples of transverse waves.

These waves need a medium, a material in which they travel.

Electromagnetic energy, such as light, are transverse waves that do not require a medium.

Physics Through Inquiry © by Bruce Hughes, published by *TEACHINGpoint*
as part of the *Expert Systems for Teachers*™ Series