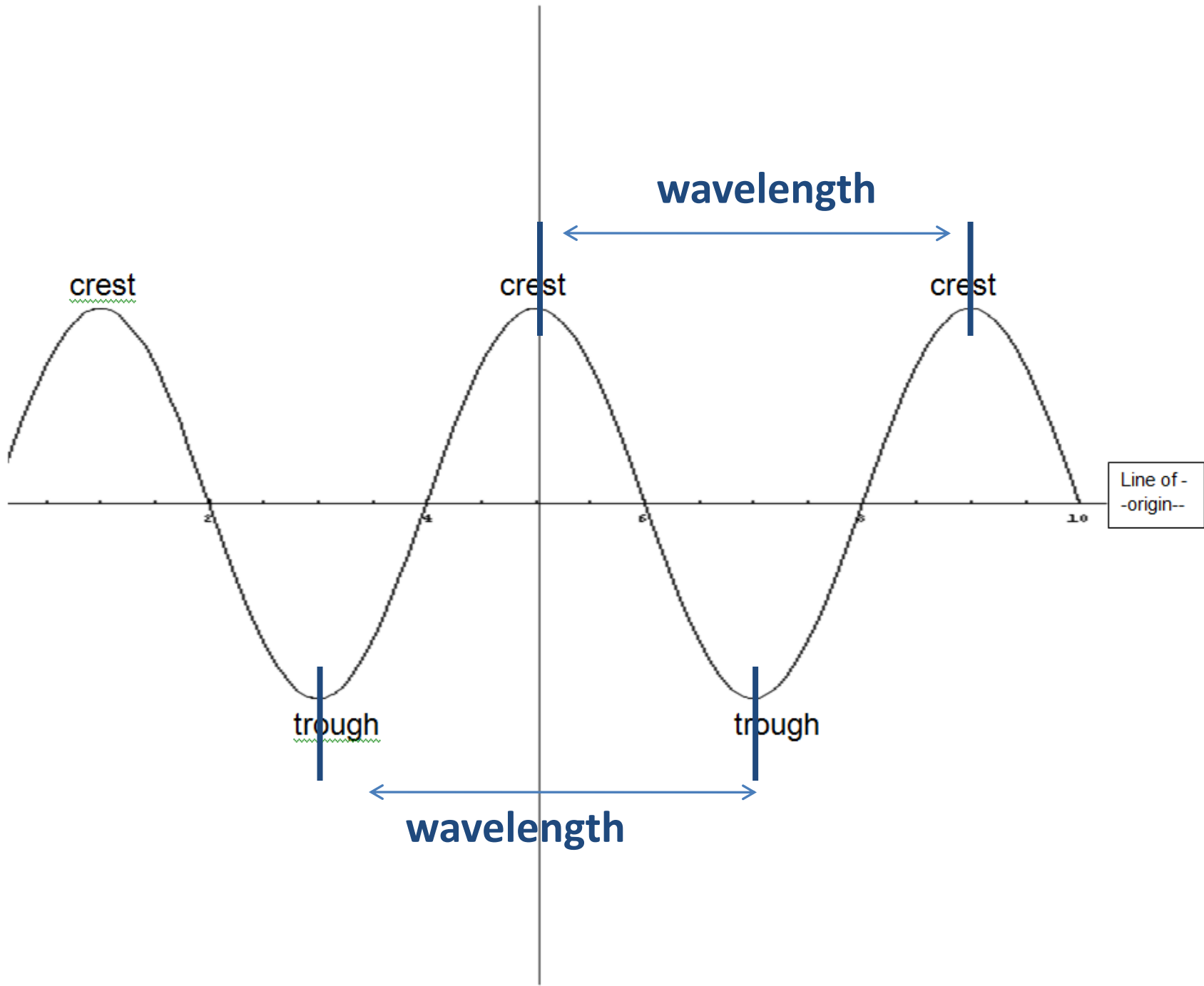
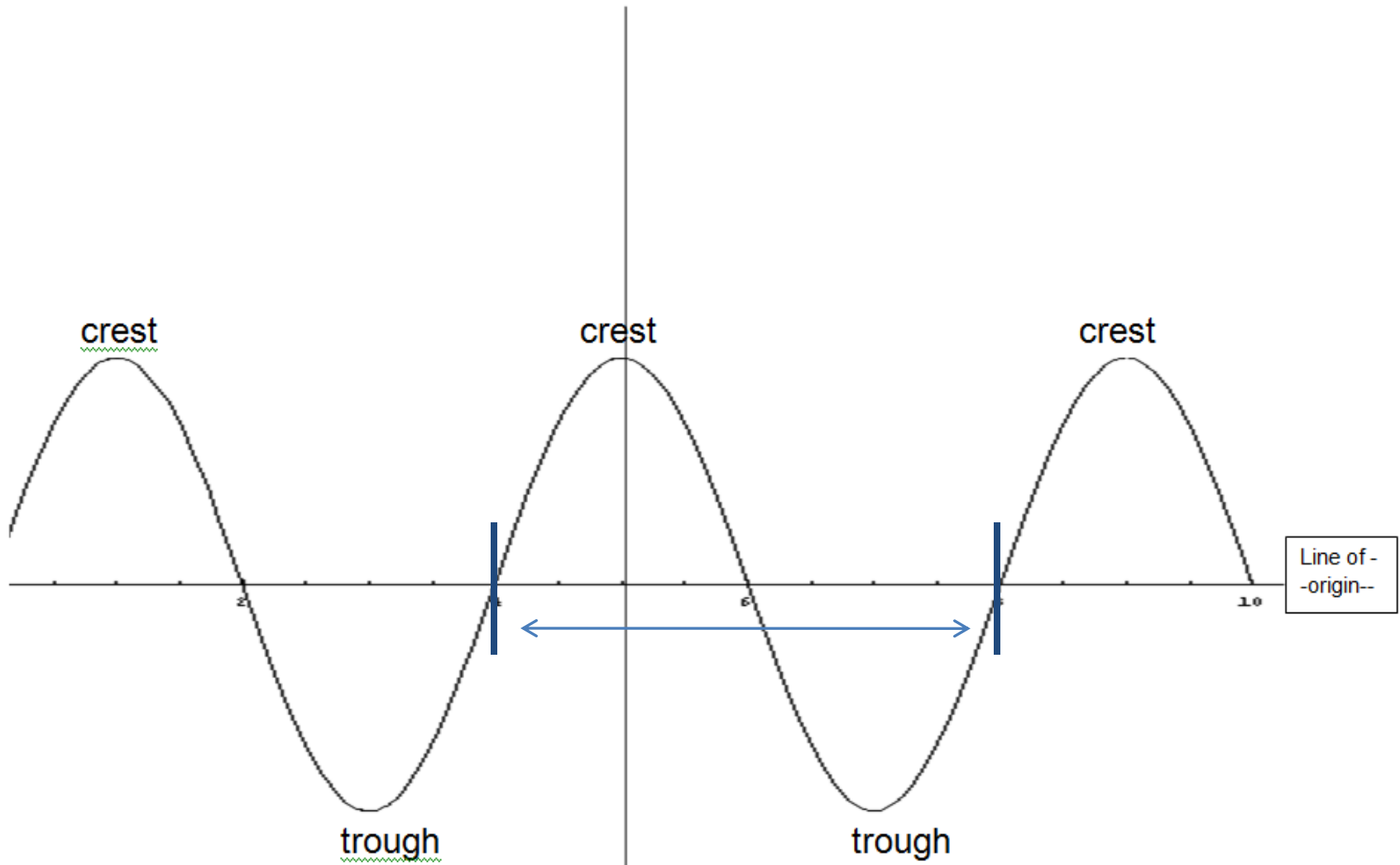


Anatomy of a Wave

9/3/14

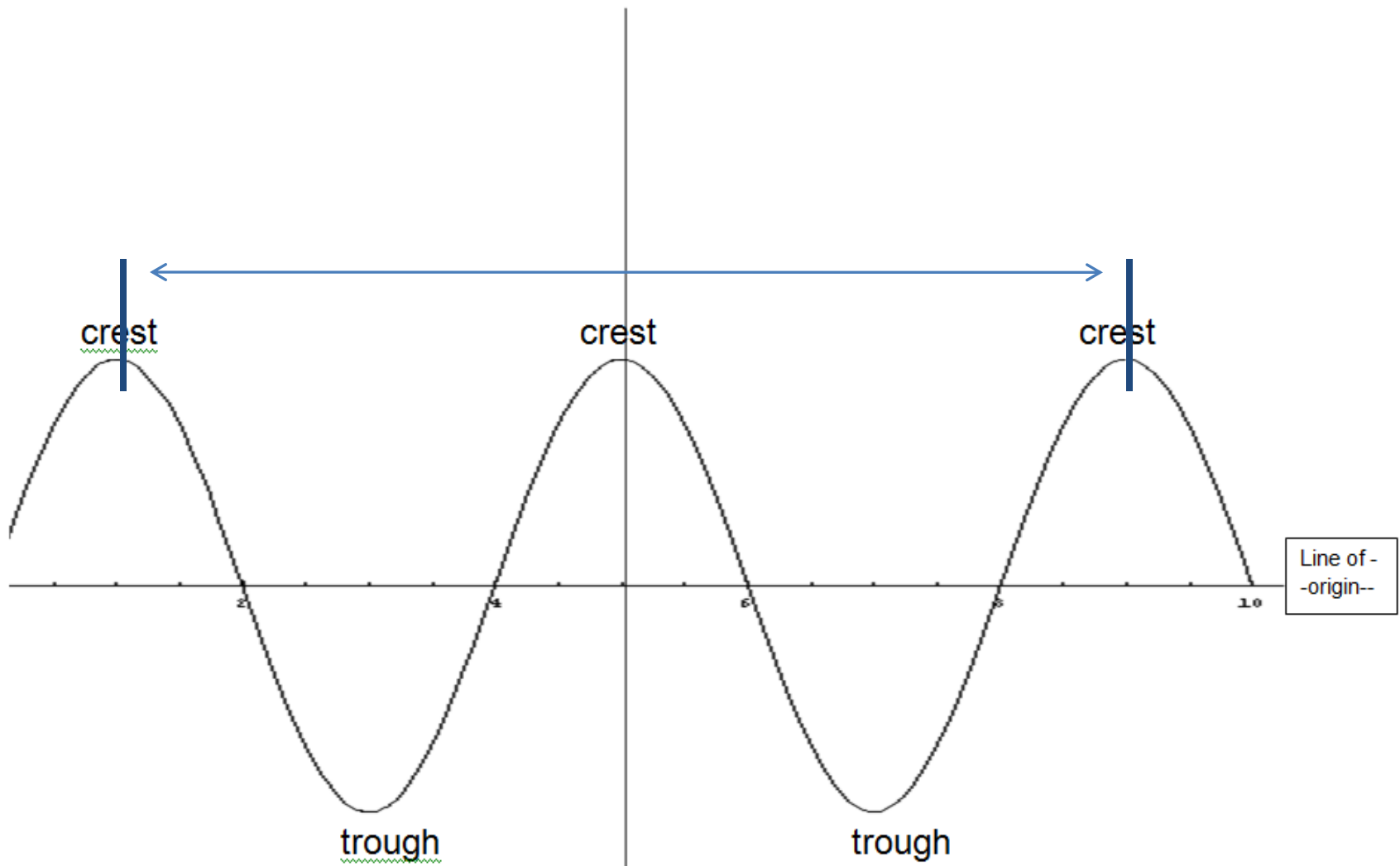




Is this a wavelength?

A. Yes

B. No



Is this a wavelength?

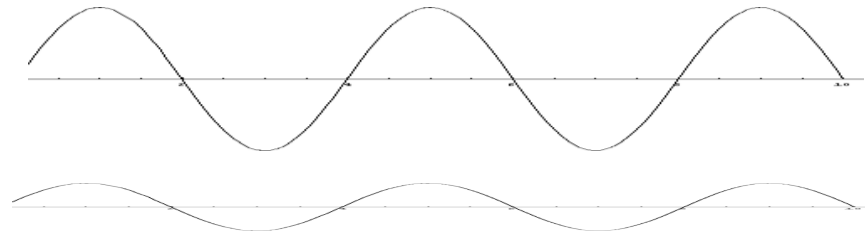
A. Yes

B. No

What is

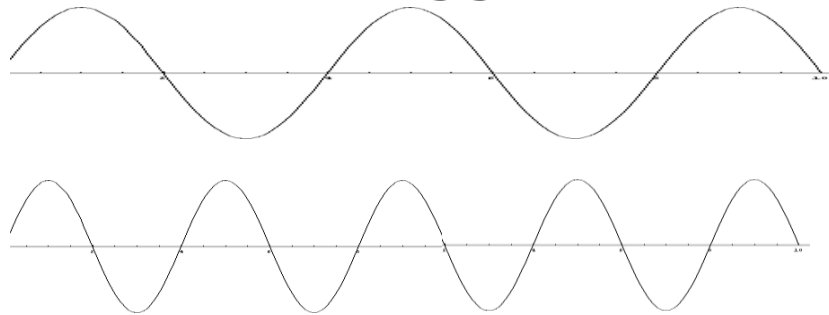
- **Amplitude?**

- How high/low the crests/troughs are.



- **Frequency?**

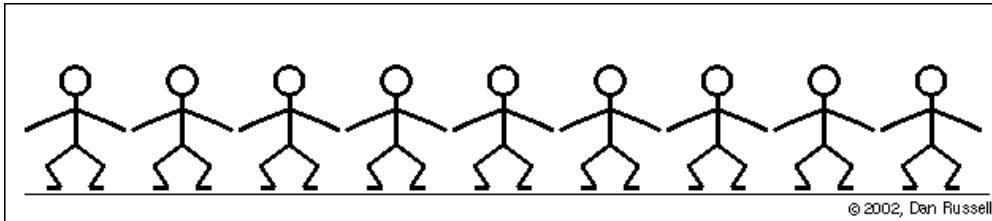
- Rate of the wiggle



Waves travel

Do the wave

- **Did the wave make it across the room?**
- **Did the people who started it move across the room?**

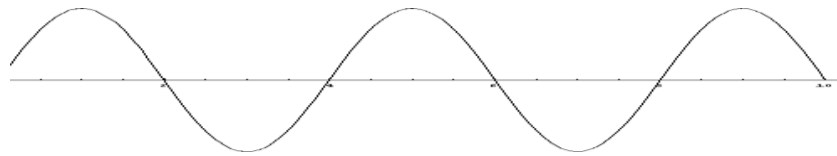
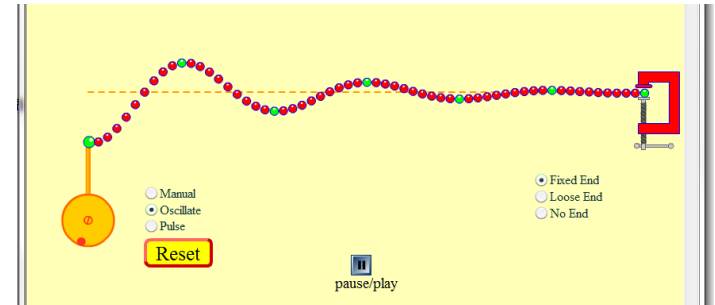
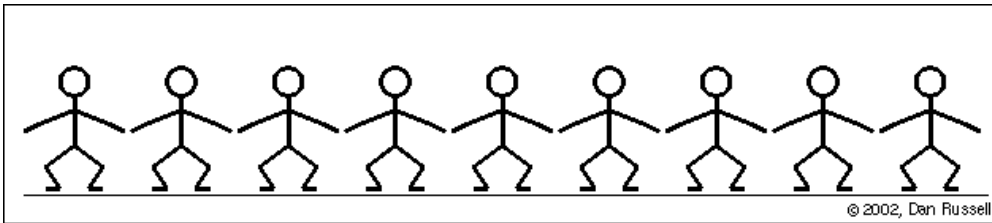


- People move up and down as the wave's energy goes past.

Waves carry energy

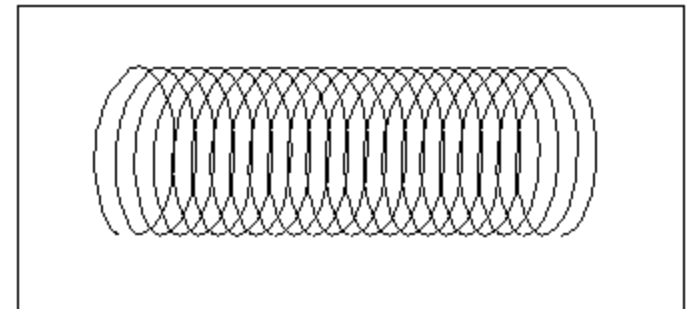
Types of Waves

Transverse Waves



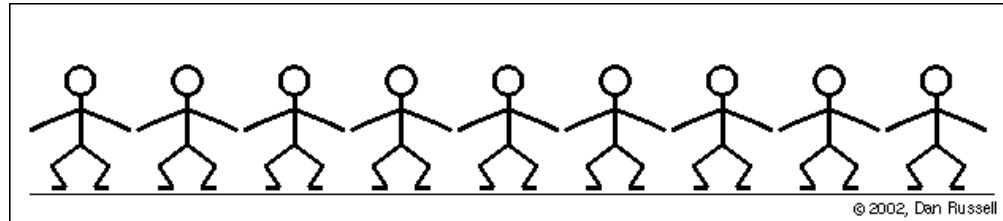
Longitudinal Waves

[Transverse, Longitudinal, and Periodic Waves](#)



Source, Receiver & Medium

- People Wave



What is the *Source*?

first person

What is the *Receiver*?

last person

What is the *Medium*?

all the people

Source, Receiver & Medium

- Wave on a String

What is the *Source*?

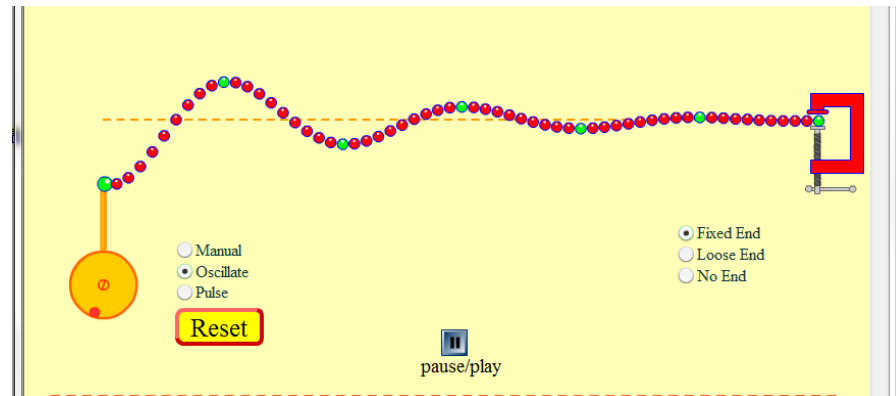
Orange Pump

What is the *Receiver*?

Clamp

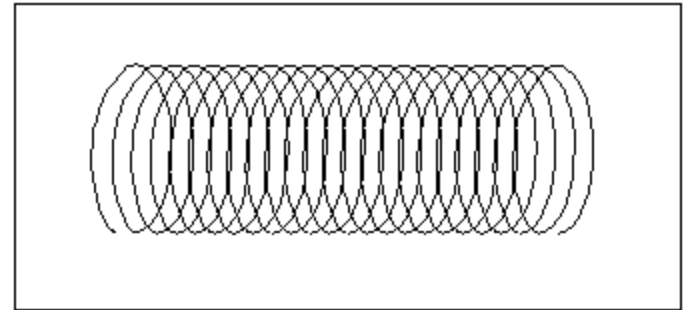
What is the *Medium*?

The string of red beads



Source, Receiver & Medium

- Longitudinal slinky wave



What is the *Source*?

start of slinky

What is the *Receiver*?

start of slinky

What is the *Medium*?

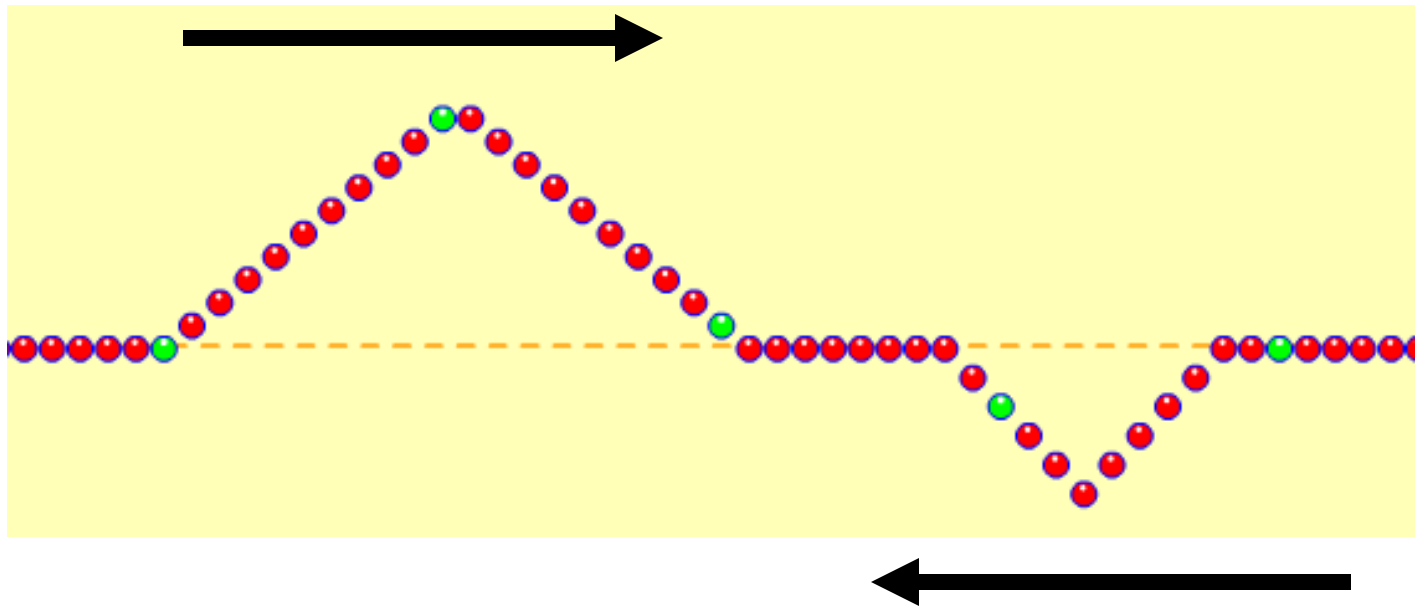
The slinky

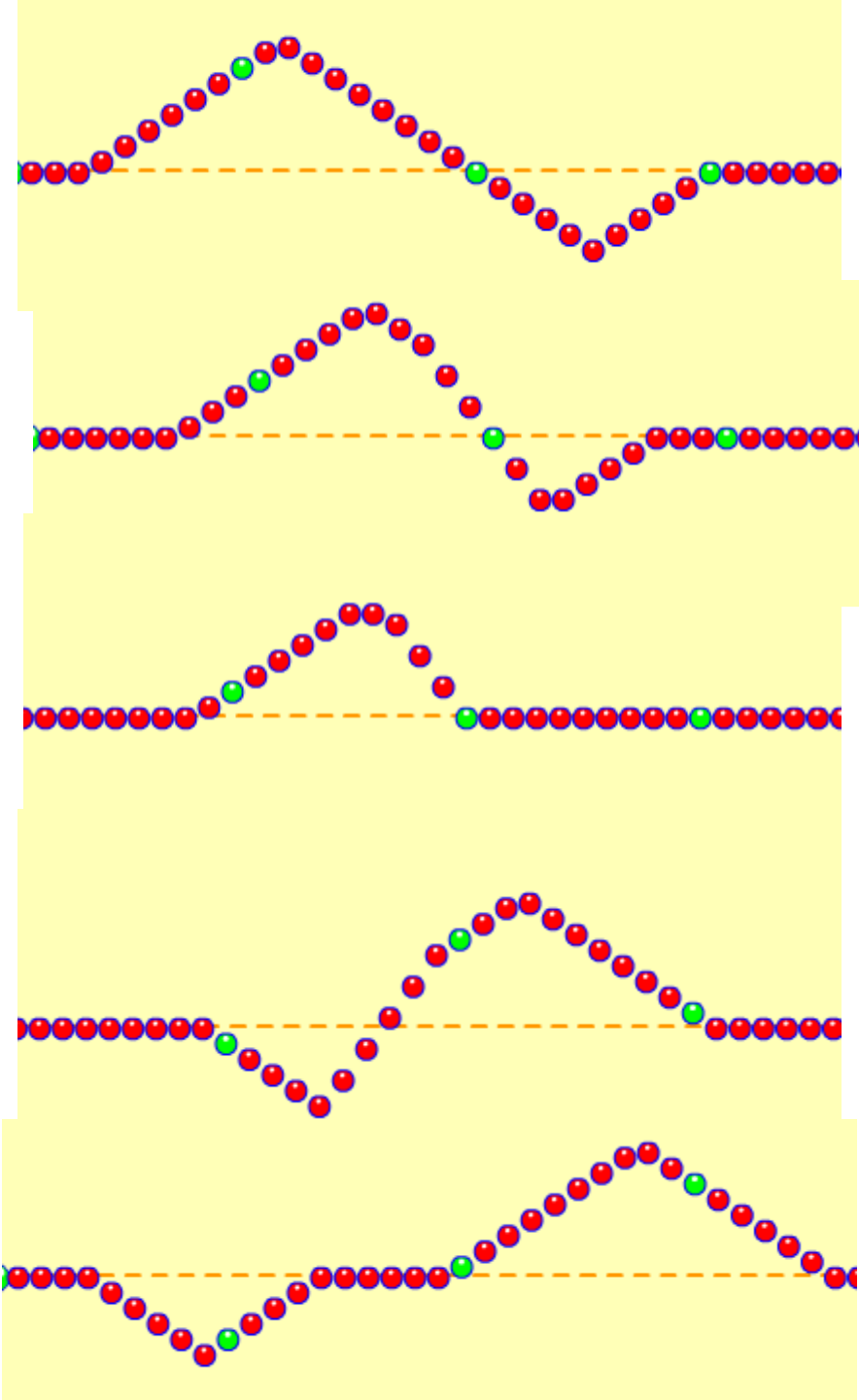
Source

- <https://www.youtube.com/watch?v=Wji8cNpFhas>

How do waves add?

Sketch what you think the pattern will look like





Resonance

When an object is driven (wiggled or oscillated) at its natural frequency

Resonance

When an object is driven (wiggled or oscillated) at its natural frequency

Natural Frequency

The frequency and object likes to vibrate
at

Resonance

When an object is driven (wiggled or oscillated) at its natural frequency

Resonance

- Swinging

<http://www.youtube.com/watch?v=I4FPK1oKddQ>

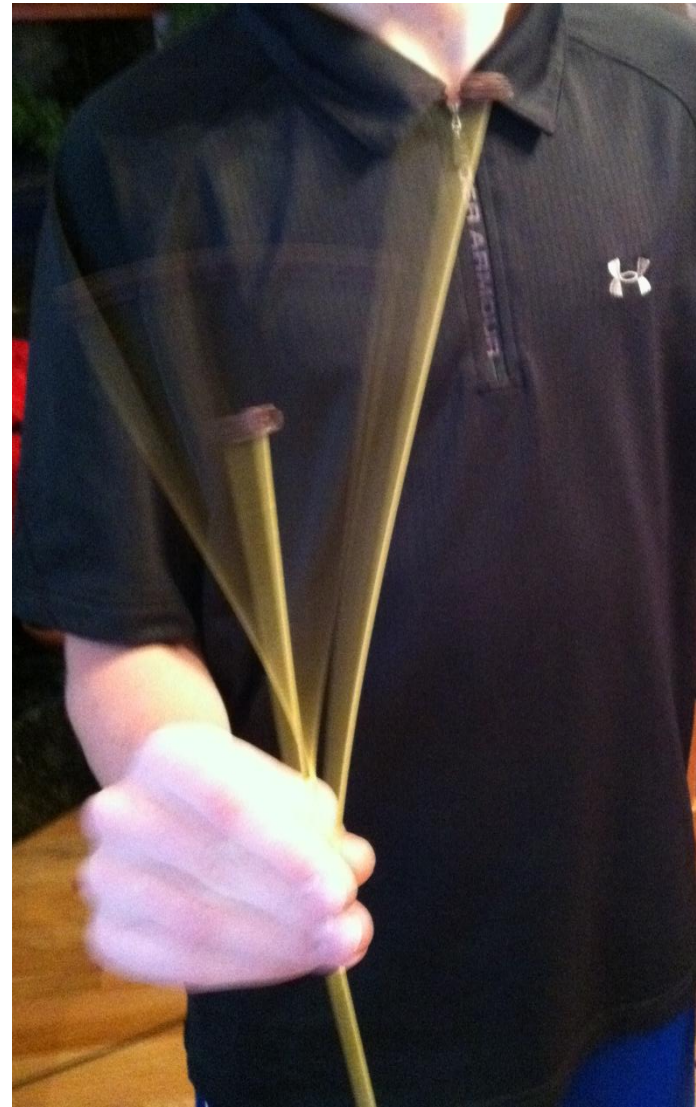


Pushing to match the natural frequency

Resonance

- Pasta/raisin demonstration

Shaking an object at its
natural frequency



Resonance

Wiggling something at its natural frequency

- [Wave on a String](#) (A=3, f=50, Damp = 0, Tension = high)

Resonance

Shaking something at its natural frequency

- Tall vs. Short Building damage

http://www.iris.edu/hq/programs/education_and_outreach/videos#O

<https://www.youtube.com/watch?v=OCmzvWEAV10>

