

# OKLAHOMA ROCKS!

## shake, RATTLE & ROLL

### P Waves and S Waves

Primary or p waves (also called pressure waves), are the pressure front of molecules bumping into one another. This is the same way music coming from a speaker is transferred through the air. When an earthquake happens, the p waves are the fastest moving waves, and so are the first to be detected by seismometers.

#### P Waves



<http://www.earth.northwestern.edu/public/seth/202/lectures/Seismology/p&swaves.htm>

Secondary or s waves (also called shear waves), involve the transfer of vibrations along structures that are attached, or touching, as are rock and dirt particles. Think of how the attached particles that make up a rope will pull one another to make an S shape when you snap the end of the rope up and down. The direction of motion isn't just along the length of the rope, but actually causes the S shape to move down the length of the rope. The same type of motion happens in earthquakes, but the S shape is moving through the earth.

#### S Waves

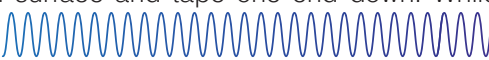



<http://www.earth.northwestern.edu/public/seth/202/lectures/Seismology/p&swaves.htm>

### Materials Needed:

- Slinky
- Tape
- Hard surface (desk or table)

### Making p waves and s waves in the classroom

With a slinky, it's very easy to make your own p waves and s waves. Loosely stretch the slinky out on a hard surface and tape one end down. While holding on to the loose end,  push the end you hold directly toward the taped end in a short, quick motion. The resulting pulse that moves along the slinky is a p wave.

Now, try moving the loose end from side to side in a quick motion (try not moving your end of the slinky toward the taped end at all). The resulting snake that moves along the slinky  is an s wave. Cool!