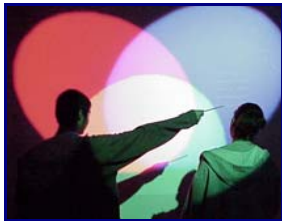




Science Exhibits and Activities at LIGO Hanford Observatory

LIGO offers hands-on experiences that relate to the science of detecting gravitational waves. Learners of all ages are invited to explore these exhibits on a field trip, on a tour or at a LIGO public event.



Colored Shadows

Science themes: Light, color spectrum, primary and mixed colors

Try it: Make various colored shadows by moving your hand in front of our colored lights



Gravity Well

Science themes: Gravity, circular motion, angular velocity, friction

Try it: Roll a ball bearing into the well and watch it orbit the center



Spectroscopy

Science themes: Light, wave behavior, diffraction, atomic structure, elemental composition

Try it: Observe the spectral make-up of several light sources using a spectroscope



Search for the Stars

Science themes: Astronomy, constellations, sky navigation

Try it: Use a Web tutorial to learn how to identify the locations of several prominent stars and constellations



Michelson Interferometer

Science themes: Light waves, interference, sensitive measurement techniques, gravitational waves

Try it: A small model of LIGO. Move a mirror a millionth of a meter and watch the interference pattern change.



Interferometer Simulator

Science themes: Light waves, interference, sensitive measurement techniques, gravitational waves

Try it: Slide the wooden 'mirrors' and watch the simulated interference pattern change.



Simple Pendulum

Science Themes: Gravity, periodic motion

Try it: Investigate the factors that determine the swing rate of a pendulum



Journey to the Stars

Science themes: Astronomy, constellations, astronomical distances, scale

Try it: Walk your way to several constellations painted on the LIGO sidewalks. Calculate stellar distances based on the number of steps you take.



Vibrating String

Science Themes: Wave behavior and properties, standing waves, natural frequency, harmonics

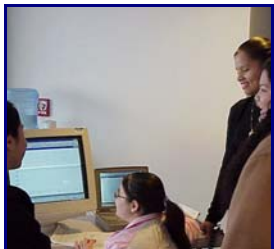
Try it: Turn on the motor, pull some tension on the string and make standing wave patterns on the string



Giant Slinky

Science Themes: Wave behavior and properties, standing waves, natural frequency/resonance, harmonics, transverse and longitudinal waves

Try it: Put waves on the Slinky by pushing the actuator rod that protrudes from the blue can. Go wild!



Sound Waves

Science Themes: Wave behavior and properties, resonance, harmonics/overtones, frequency, sound

Try it: Ring a tuning fork and watch a trace of the sound waves on the computer screen



Pendulum Snake

Science Themes: Gravity, periodic motion, wave behavior

Try it: Activate all seven pendulums at once and watch the fascinating slow pattern that they form



Pencil waves

Science Themes: Periodic motion, wave behavior and properties

Try it: Push down on a pencil then release your hand. Watch the waves.



Gravity Racer

Science Themes: Gravity, forces and motion, acceleration

Try it: Use the launcher to race the golf balls down the tracks. Launch the balls by hand from different locations on the tracks.



Waves in Time and Frequency

Science themes: Wave behavior and properties, measurement and characterization of waves

Try it: Look and listen. Compare the wave graphs on the two instruments to the sound waves from the speakers.