

# ENERGY AND WAVES PHYSICS LAB 201

## APPLIED SCIENCES

**Designed For Students:**  
Grades 6th-8th  
Ages 11-13

**Program Length:**  
3 hours

**Park:**  
*Magic Kingdom®* Park  
Meet inside the turnstiles, at the Floral Mickey display in front of the train station

### OVERVIEW

Witness physics principles at work in creating true to form Disney attractions. With hands-on experiments and behind-the-scenes demonstrations, students come to understand the fundamentals of acoustics and optics, and the different mediums that affect the transmission of light and sound waves.

### LEARNING OUTCOMES

#### The Science of Sound

Stitch's Great Escape!™ sets the stage for an introduction into an exploration of sound energy.

- Students discover that sound travels in a compression wave
- Students learn that the medium in which sound travels affects the transmission of the sound wave
- Students learn that the frequency of a sound wave affects what is heard
- Students gain knowledge of the various factors that affect the speed of sound

#### Did You See That?

The energy produced by the sun is of great interest to scientists who strive to understand it, manipulate it, and put it to work for humankind.

- Students examine the wide range of the electromagnetic spectrum
- Students learn the parts of a wave, discover that light waves vary in length and make up only a small portion of the Electromagnetic Spectrum

- Students explore how light can be refracted, reflected, and absorbed, as well as manipulated to create illusions and other effects
- The mystery of The Haunted Mansion® ballroom scene is unlocked as students go behind-the-scenes to discover the science behind the magic

#### Putting Waves To Work

With the help of Mickey's PhilharMagic, students experience how the application of light and sound energy creates an immersive attraction experience.

- Students learn that through the knowledge of acoustics, sound can be produced, manipulated, and controlled
- Students discover that optics and light can be manipulated and controlled
- Students come to realize that the brain stores memories and emotions that are associated with specific sounds
- Students discover how Disney Imagineers use the properties of light and sound in designing attractions

### GROUP LEADER RESOURCES

A **video overview** of *Energy and Waves Physics Lab* is available on the Disney Youth Programs YouTube Channel.

**National Standards and supplemental educational materials** aligned with this program are available at DisneyYES.com.



Disney Youth Education Series programs are accredited by the  
Northwest Accreditation Commission.

All programs subject to availability. Program content, times, attractions, and locations subject to change due to inclement weather, availability, or group dynamics. Students must meet minimum age/grade requirements.

**Start planning your field study today! Call 877-FIELDTRIP (877-343-5387) • Visit DisneyYES.com**



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