

ENERGY & WAVES PHYSICS LAB 201

APPLIED SCIENCES

Designed For Students:
Grades 6th-12th
Ages 11-18

Program Length:
3 hours

Park:
Disney California Adventure® Park
in California

HELLO EDUCATOR!

Disney Youth Education Series is pleased to be able to provide you with these supplemental materials to gauge your students' progress as they prepare for and complete their Disney Y.E.S. experience.

This information is designed to help you, the teacher or group leader, prepare your class or group for their Disney Youth Education Series experience. All of this information will be covered during the program. It can also serve as a tool after the experience to help your students recap what they've learned.

These tools are sure to get your students moving in the right direction and help ensure a learning experience that is relevant, inspiring, and thought-provoking!

We look forward to hosting you at the Disneyland® Resort where iconic settings, imagination, and storytelling come together to create a unique learning environment and life-long memories. See you soon!

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Vocabulary List

- **Energy** - The cause of any change
- **Wave** - Disturbance that moves energy from one place to another
- **Atom** - The smallest unit of a chemical element
- **Electron** - A subatomic particle that carries an electric charge
- **Proton** - A subatomic particle that carries a positive electric charge
- **Neutron** - A subatomic particle that has no electric charge or mass
- **Vacuum** - A volume of space that is substantially empty of matter
- **Visible Light** - The portion of the electromagnetic spectrum that is visible to the human eye
- **Refraction** - Change in direction of a wave due to velocity
- **Reflection** - Change in direction of a wave front between two different mediums, the wave front is returned to its original medium
- **Projection** - The display of an image
- **Concave** - Curving in
- **Convex** - Curving outward
- **Vibration** - Mechanical motion
- **Medium** - Materials through which waves propagate
- **Electromagnetic Spectrum** - The range of wavelengths or frequencies over which electromagnetic radiation extends.

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Suggested Questions

- What is the difference between a concave and convex lens?
- What is another word for Visible Light?
- How do prisms refract white light? Draw an example.
- Can light travel through a vacuum?
- What is the speed of light?
- What three types of mediums can sound travel through?
- Sound travels through what type of wave?
- Give an example of where we use ultraviolet light in our day to day lives.
- Give an example of where we use reflection in our day to day lives.
- Give an example of where we use projection in our day to day lives.
- Observe the surroundings in your classroom; give an example of sound and light?
- How would your classroom differ if one of these components were missing?
- What is a permanent magnet?
- Is an electromagnet a permanent or temporary magnet?
- How many electrons are in a permanent magnet made of iron?
- Give an example of how a permanent magnet is made.
- Take a look around your classroom, where do you use electromagnets?
- Where do you use permanent magnets?

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Ideas

- Write a 250 word essay on Walt Disney and his life or create a drawing about and the contributions that he made
- Design and create your own attraction or ride:
 - ✓ What would be the theme of your attraction?
 - ✓ What types of special effects would you use?
 - ✓ What feeling would you want your guest to walk away with?

Here is a brief description of the Walt Disney Imagineers that have impacted the growth and development of the Disney brand:

- Recognizing how the various talents of many different people can come together so powerfully is one of the great lessons a student can take away from a visit to the Disneyland® Resort.
- Walt Disney Imagineering is the business unit under The Walt Disney Company that is responsible for bringing big ideas to life through the Disney Parks around the world.
- The term “Imagineering” is simply a combination of the words “imagination” and “engineering.” Without imagination and creativity, the Disney Parks wouldn’t be very magical and without the engineering and sound construction, the Parks wouldn’t function very well. It takes both parts working together to create the most magnificent attractions, shows, and parades in the world.
- The Walt Disney Imagineers are best known for designing and building the five world famous Disney theme parks all over the world:
 - ✓ Disneyland® Resort, Anaheim, CA
 - ✓ Walt Disney World® Resort, Lake Buena Vista, Florida
 - ✓ Tokyo Disney Resort, Urayasu, Chiba, Japan
 - ✓ Disneyland Resort Paris, Marne-la-Valle, France
 - ✓ Hong Kong Disneyland, Lantau Island, Hong Kong

Because it takes a combination of both imagination and engineering, Imagineers come in all forms. Artists, writers, architects, landscapes architects, engineers, model builders, construction managers, technicians, designers and a whole range of other talents make up the Imagineering team. It takes a lot of teamwork between all these different specialists to be able to make dreams come true for all our guests around the world.