

# THE SCIENCE OF DISNEY IMAGINEERING: GRAVITY

Designed for Students  
Grades 6th-8th  
Ages 11-13

Program Length  
2.5 hours

Park Location  
Disney's Hollywood  
Studios®

## SYNOPSIS

Acting as honorary Imagineers, students will uncover how Walt Disney Imagineering uses science to transform ordinary spaces and "rides" into exhilarating, immersive, and theatrical experiences.

With a little help from tablet technology, students explore how kinetic and potential energy, speed, velocity, acceleration, gravity, inertia, and centripetal force help create the unique settings that takes us out of one world and transports us to another.

Hands-on activities illustrate Newton's First and Second laws of motion and help pave the way for an attraction experience where students discover balanced and unbalanced forces at play. These activities provide an opportunity for students to gain insights and understanding of how story elements combine with an innovative ride-system to alter our perception of gravity and immerse us in an alternate reality.

Everyday materials further showcase the interplay between force, mass and acceleration and stimulate our senses by putting science to work.

A final attraction provides the backdrop for a look at one of the fundamental forces of the universe—magnetism. Students experience the power of electromagnetism and discover how it works with gravity to tell a story and generate thrills in a completely new way.

Concluding the experience is a call to action for students to dare to think like a Disney Imagineer and discover science at work in our world.

## LEARNING OUTCOMES

After completing The Science of Disney Imagineering: Gravity, participants will be able to:

- ✓ Illustrate Newton's First Law of Motion and Newton's Second Law of Motion
- ✓ Differentiate between a balanced and unbalanced force
- ✓ Demonstrate how force and mass affect the acceleration of an object
- ✓ Summarize how Disney Imagineers used an understanding of gravity and Newton's Laws of Motion to create the free-fall effects seen/experienced in a select attraction
- ✓ Explain the difference between mass and weight
- ✓ Articulate how Walt Disney Imagineers and Engineers used an understanding of magnetism and Newton's Laws of Motion to accelerate the ride vehicles on a select attraction