

ABOUT THE PROJECT

Physics Observatory is a virtual observatory which allows you to study the effects of gravity found on different planets and safely conduct physics experiments.

Imagine throwing a wooden block while on the Moon's gravity, getting zapped by a Tesla coil, or dropping weights to test their speed on different planets! As you explore the *Physics Observatory* you will learn about great scientists, and be able to uncover different scenarios to discover key principles of physics.

This project encourages exploration as you interact with and observe different elements and how they can be affected by their environment.

ON-SCREEN ACTIVITIES

Gravity Board

Start by moving the blocks and objects scattered around the observatory – lift them, toss them, and watch what happens. Did the blocks float or drop?

Can you find the Gravity Board? It lists different planets and their gravity. Change to a different planet. Use the blocks to observe the effects of the new gravity on the objects in the observatory.

Tip: An object's **weight** is dependent on its mass and how strongly gravity pulls on it. But **mass** stays the same regardless of location and gravity.

Amazing Orrery

Can you find the clockwork Orrery? What was an Orrery used for?

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Great scientists

The observatory contains statues of some of the great scientists from history. Use the magnifying glass symbol to reveal information about these famous scientists.

Name all of the scientists displayed

Which of these scientists was the first to win two Nobel prizes?

Pendulum swing

Touch and hold the pendulum, pull it back and let it go from various heights.

Does changing the gravity effect the period of swing?

Tip: A pendulum is an object hung from a fixed point that swings back and forth under the action of gravity and acquired momentum.



Ball Drop

Pull the lever and test how long it takes the two balls to drop a distance of 1.86 metres.

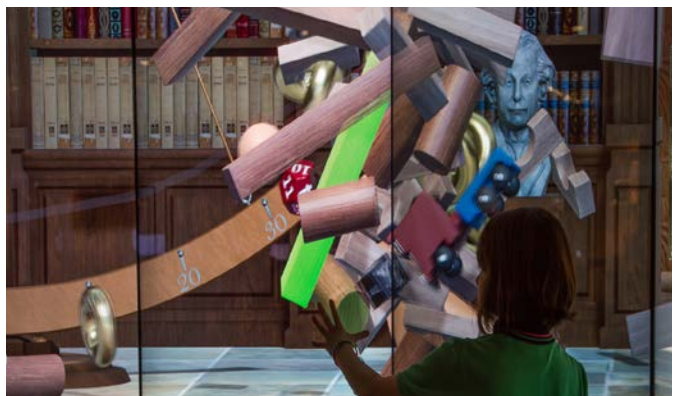
Record the time it takes to drop on different planets

The balls are of different weights. Does the heavier ball fall at the same speed as the lighter one? Why?

Gravity Well

Set the gravity to zero. Touch Einstein's information to activate the gravity well. Toss blocks toward the gravity well and watch what happens!

Tip: A 'gravity well' is a conceptual model demonstrating the pull of gravity exerted by a large body in space.



Light Travel

Have you ever wondered how long it takes for light from the sun to reach the earth? Press the sundial and watch the light as it travels through the solar system.

How long does it take for light to reach Pluto?

Tip: Light travels at a speed of 299,792 kilometres per second. It takes 499.0 seconds or 8.3 minutes for light to travel from the Sun to the Earth, a distance called 1 Astronomical Unit.