

Understanding Gravity Demo

NGSS Standards:

3-PS2-2 Motion and Stability: Forces and Interactions

Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

HS-PS2-5 Motion and Stability: Forces and Interactions

Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

Objectives:

Students will be able to explain Gravitational theory via the demonstrated model

Students will be able to critique the Immovable Mover concept using ideas seen in the demonstration

Materials:

Blanket or fabric sheet (Lycra works best)

Marbles

Various Weighted Objects

Procedure:

<https://www.youtube.com/watch?v=MTY1Kje0yLg>

(Video Explanation of Demo and Procedure)

The Fabric of the Cosmos Video

<https://www.pbs.org/wgbh/nova/video/the-fabric-of-the-cosmos-universe-or-multiverse/>

Clips to use:

2:35-12:30

Used to explain the Multiverse theory and how it came to be. Goes into explanation of Alan Guth's conclusion on how the Big Bang came to existence and the continued acceleration of the universe

25:00- 34:00

Used to explain Dark Energy and its effect on the acceleration of the universe/multiverses. Our universe and the formation of planets are possible because of the significantly low value for Dark Energy.

34:15-42:30

Used to explain String theory and the particle physics behind the Multiverse theory. String theory is discussed with its connection to the theory of the Multiverse which both show astronomical possibilities for the properties of a universe.

Ant-Man clip of the Quantum realm:

<https://www.youtube.com/watch?v=ulUMjqhbYPs>

Start at 0:44—2:39