

# STEM Program



## Marble Clock

### Astrophysics and Gravity Waves

Gravitational Waves - This activity will demonstrate how gravity affects the orbit of planets and how it changes strength with distance and what that means.

#### Suited to Section



Joey Scouts



Cub Scouts



Scouts



Venturer Scouts



Rover Scouts

#### Key SPICES Growth



SOCIAL



PHYSICAL



INTELLECTUAL



CHARACTER



EMOTIONAL



SPIRITUAL

#### Challenge Area



COMMUNITY



PERSONAL GROWTH



OUTDOORS



CREATIVE

#### Likely Scout Method Elements



COMMUNITY INVOLVEMENT



LEARNING BY DOING



NATURE AND THE OUTDOORS



PATROL SYSTEM



PERSONAL PROGRESSION



PROMISE AND LAW



SYMBOLIC FRAMEWORK



YOUTH LEADING, ADULTS SUPPORTING

# STEM Program



## Marble Clock

### Plan

Materials needed:

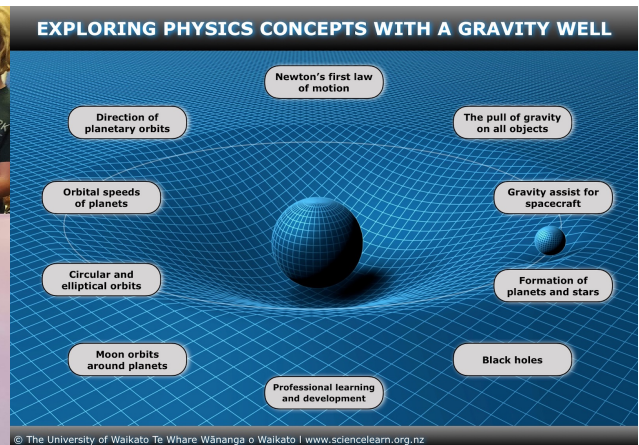
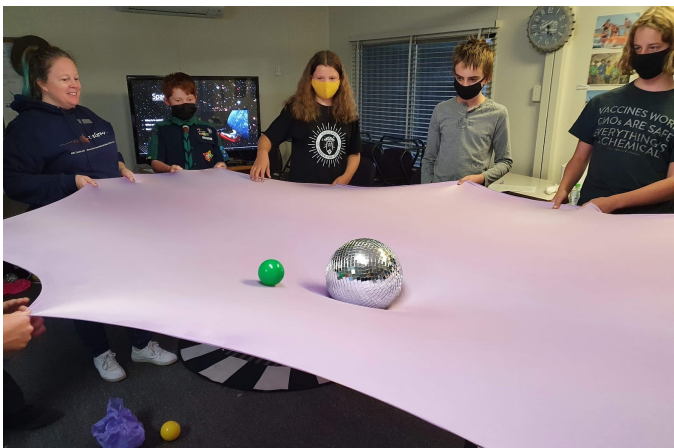
1. Square stretchy fabric (make sure it stretches evenly) (preferably black, but any colour will do)
2. 1 heavy ball
3. 2 or more lighter balls

### Do

1. Hold fabric taut
2. Run one of the lighter balls across the fabric, observe how the ball moves
3. Place the heavier ball on the fabric and let it fall into the centre
4. Once it has stopped moving take the smaller balls from earlier and repeat step 2
5. Record and discuss what has changed

### Review

1. What did you notice change throughout the experiment?
2. Why do you think this happened?
3. Where can this be seen happening?
4. What do you think the fabric represents?
5. How does this relate to general relativity?



### Want To Learn More?

- Science Learn - Gravity Well: <https://bit.ly/ScienceLearnGravityWell>
- Instructables Spacetime Table: <https://www.instructables.com/Spacetime-Table/>
- General Relativity YouTube: <https://bit.ly/GeneralRelativityVideo>

### SciScouts Physics of Waves

The SciScouts Physics of Waves is a National Science Week project, undertaken in collaboration with Fizzics Education. These instructions were prepared by Scouts for Scouts. This National Science Week project is supported by the Australian Government.

Scouting has always been strong on STEM skills. Maths to calculate catering quantities and navigate, the science of water purification, the physics of abseiling, and the engineering of pioneering structures – they all have their place. In the current program for our youth members, STEM and Innovation forms one of six Special Interest Areas that enable Scouts to set goals and pursue their own ideas.

