

GRAVITY AND WEIGHTLESSNESS IN SPACE

3.20.2019

Subject

Basic science

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

- 1.Gravity
- 2.Movement in space
- 3.Weightlessness in space

Objectives

Students should be able to;

1. To explain the relationships between weight, mass, and gravity.
2. To practically see the law of gravity as evaluated by Newton's law of motion

Activity Starter/Instruction

1. Ask three students to come in front of the class, one with a book, other with an eraser and the third one with a pencil.
2. Ask them to drop these objects or throw them upward.
3. Then ask the following questions: In which direction to these things fall? (students' response: Towards earth).
4. Why do these things fall down?(students' response: The earth pulls everything towards it with some force).
5. Inform the students that this force is called the gravitational force of earth.
6. Now show a big and small wooden blocks to the students. Mark "A" on the big block and 'B' on the small block.
7. Ask the students following questions:
8. Which of the two blocks has more quantity of matter in it; A or B?
9. Which of the two blocks is heavier: A or B ? (Students' response: The quantity of matter block "A" is more than in Block

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. Give a tennis ball and ask him/her to throw it upwards.
2. Ask the students: What will happen when the ball is thrown upward? (Students' response: The ball will come down). Why the ball comes back to ground? (students' response: The force of attraction of the earth acts on everything which pulls objects towards it.This is called the gravitational force of earth.) Does the gravitational force act on the ball only when it is falling down? (Students' response: No.)
3. Draw out the conclusion that gravitational force of earth pulls the objects downwards it. It acts on the ball not only when it is falling down but also when it is going up.

Guided Practice

Day 3/ Lesson 3: 15 Mins

1. Discuss the standard ways to measure

Materials Required

- A book,
- eraser,
- pencil,
- two wooden blocks of different masses,
- tennis ball,
- polystyrene cup,
- physical balance,
- spring balance,
- textbook.

Additional Resources

- <http://montana.pbslearningmedia.org/resou>
- <https://www.pbslearningmedia.org/resource>
- <https://www.pbslearningmedia.org/resource>
- <https://study.com/academy/lesson/gravity-l>

Additional Notes

B.)

10. Inform them that the quantity of matter in any objects is called its mass.

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. Tell the students that the weight of an object can be measured by a spring balance.
2. Ask one students to hang the wooden block from the hook of the spring balance and read the scale at the pointer.
3. Ask the other students what does scale show? (Scale shows the reading of weight in Newton?)s
4. Then ask the students: If you take the block away from the surface of earth and measure the weight, what will happen to the weight?
5. After students response: explain to them that : The weight of an object will decrease because the gravitational force acting on an object is called weight There is less gravitational force on the object at a place away from the surface of earth as compared to that on the surface of the earth.

weight and mass.

2. Talk about how pounds is a Customary Unit of Weight, however, scientifically speaking, Newtons are the correct measurement of force, therefore, Newtons are used to measure weight because weight refers to the force of gravity on an object.
3. Talk through the importance of using a balance scale to measure mass as we can use this same tool on the moon and the mass would be the same. On the flip side, if we took a platform scale that measures kilograms, we would be measuring the pull of gravity instead of the amount of matter in an object.
4. To bring closure to the lesson, ask students what conclusions they can draw about gravity, weight, mass, and an astronaut's jump on the Moon verses the Earth.

	<p>Assessment Activity</p> <p>Students will identify the definition of mass, distance, and gravity. Students will think it, pair it, and share it. The teacher circulates listening to responses. After the students have shared they will randomly be asked to share aloud and misconceptions addressed.</p>	<p>Assessment Activity</p> <p>Ask the following questions to the students:</p> <ol style="list-style-type: none"> Why do things fall down? What is the gravitational force of earth? In which direction the gravitational force of earth act on the things? What is the difference between mass and weight? What happens to the weight of a body when we take it away from the surface of earth? What happens with the mass of the body when we take it to another place?
	<p>Summary</p>	