

Miniature Model of Gravity

Summary

A demonstration/participation activity where students can see how the distance between an object and the Earth affects the pull of gravity.

Time Frame

1 class period of 15 minutes each

Group Size

Large Groups

Materials

- a large sheet
- a heavy round object (bowling ball, medicine ball, etc...)
- two or three tennis balls
- bouncy ball

Background for Teachers

Safety issues

: Watch out for smashed toes.

Instructional Procedures

Review the definition of gravity

Drop a ball and explain why it falls downward Explain that the strength of a gravitational pull is determined by the masses of the objects involved and the distance between the objects

Explain that the depression in the sheet represents gravity, the large object represents the Earth and the smaller objects represent asteroids.

Have the students pull the edges of the sheet outward. Make sure the sheet is taut.

Have a couple of students roll the lighter balls across the sheet. Note how they travel in a straight line.

Place the heavy object in the center of the sheet. Keep the sheet pulled taut. Roll the lighter balls across the sheet once again. Note how they now curve.

Allow the students to play with the model a little and lead them into a discussion about how the tennis balls move faster the closer they get to the heavy object. Explain that gravity works the same, the closer an object is to the earth, the more Earth's gravity affects its motion.

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)