



ORBITING OBJECTS

Demonstrate how gravity works around large bodies in space.

Materials

- Stretchy material
- Marbles or small balls
- Binder clips or clothespins
- A large bowl
- A heavy ball

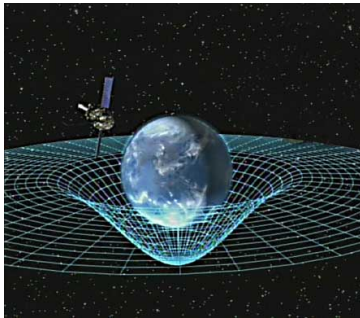


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Procedure

- Put the bowl on a flat surface. Stretch the material firmly over the bowl.
- Secure the material to the rim of the bowl with binder clips or clothespins so that it stays taut.
- Put the heavy ball on the middle of the fabric. Observe how it changes the shape of the surface.
- Put a marble down on the edge of the material and observe what it does.
- Try rolling marbles around the larger ball. Observe how they move.

Results

The heavy ball changes the shape of the surface, drawing the other balls in toward it.

Why?

The heavy ball acts like a black hole, warping the fabric of space. Because it's heavy, it draws lighter objects in toward it. The marbles will even orbit the heavy ball for a short time when rolled around it because of the way it changes the shape of the fabric. Black holes are incredibly heavy, creating the same kind of change in the fabric of space. They create so much gravity that they will pull in anything near them. Lighter things, like our sun or the earth, also have gravity that pull in lighter objects and cause them to orbit.