Gravity Force Lab: **Grade: 11th - 12th**
https://phet.colorado.edu/sims/html/gravity-force-lab/latest/gravity-force-lab_en.html

Brief Notes:

Gravity force acts between two objects because of their masses. For homogeneous spherical bodies, the magnitude of force depends upon their masses and distance (center to center) between them.

Mathematically, it is given as:
$$F = \frac{Gm_1m_2}{r^2}$$

Explore:

Two spheres of masses, 50 kg and 200 kg are separated by distance 4 m. Calculate the force between them and verify its value from simulation.

Bring both spheres closer, what happens to force as separation decreases?

Increase their masses, how does the force change?

Click upon Constant Radius. What happens to force? Does gravity force depend upon the radius of spheres?

How can you get maximum gravity force in simulation? What is this max value? Compare this force, with the force applied by an object of 10 gm mass on your palm.

Think:

Is gravity force an attractive or repulsive force?

Is gravity force a weak force or strong force?

Two balls of masses 10 kg and 20 kg are kept at 10 m apart (center to center distance). The radius of the one ball is 1 m and another has 2 m. Find the gravitational force between them. Now, these are replaced by other balls of similar masses, but radii of 2 m and 3m respectively. If the center to center distance remains same, what will be new gravity force between them?

How can an object apply gravity force on another object, even though they are not in direct contact?

Contributions:

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