

Names: _____

The equation for the force of gravity between two objects is

$$F = G \frac{m_1 m_2}{r^2}$$

Here, F = the force of gravity, G = gravitational constant ($6.674 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$), m_1 = mass of the first thing (in kg), m_2 = mass of the second thing (in kg), and r = distance between the two things (in m)

For this activity, you will calculate the force of gravity between the Earth and the Sun.

1) What information do you know?

2) What information do you need to find out?

Once you answer question 2, get an iPad from your teacher.

3) Look up the information that you need to find out. Write it in *scientific notation*.

4) Is everything in the correct units (meters or kilograms)? If not, write it the correct units.

5) Write the equation for calculating the force of gravity between the Earth and the Sun.

6) Solve that equation. What is the force of gravity between the Earth and the Sun?

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For this activity, you will calculate the force of gravity between the Earth and the Sun.

1) What information do you know?

The force of gravity.

2) What information do you need to find out?

The mass of the Earth and the sun, and their distance.

Once you answer question 2, get an iPad from your teacher.

3) Look up the information that you need to find out. Write it in *scientific notation*.

Mass of earth: 5.97219×10^{24}

Mass of sun: 1.9891×10^{30}

Distance: 1.5×10^{11}

(according to Google)

4) Is everything in the correct units (meters or kilograms)? If not, write it the correct units.

It is with the values I gave you. They may fix it now if it is not.

5) Write the equation for calculating the force of gravity between the Earth and the Sun.

$$6.67 \times 10^{-11} * (5.97 \times 10^{24} * 1.99 \times 10^{30}) / (1.5 \times 10^{11})^2$$

6) Solve that equation. What is the force of gravity between the Earth and the Sun?

They should find that $F = 3.52 \times 10^{22}$

As homework, you can tell the students to do this at home, except determining the pull of gravity between the earth and the moon