

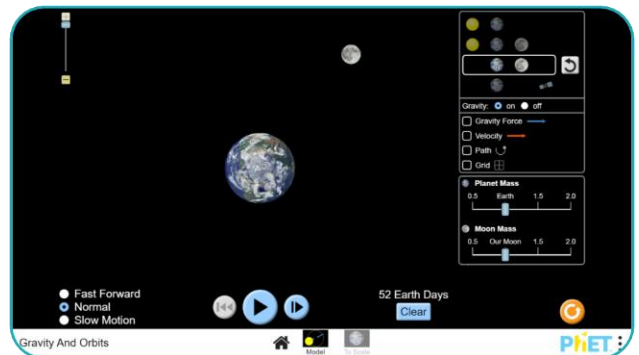
Moon orbit simulation

Use this handout as a guide to help you use the PHET interactive simulation and answer the following questions.

Click on the PHET interactive simulation and choose 'model'. To enter full screen, click the three dots in the bottom right hand corner and click 'Full Screen'.

On the right hand side, click the Earth and Moon option and press play.

1. Describe what you see



Turn gravity off

2. What happened? Why?

Click 'Return Objects' and turn gravity back on. Click 'Path' and 'Gravity Force' and press play.

3. Why does the Earth's gravity force arrow and the Moon's gravity force arrow always point toward each other?

Pause the simulation. Using the slider, change the mass of the planet.

4. What happens to the size of the arrows and why?

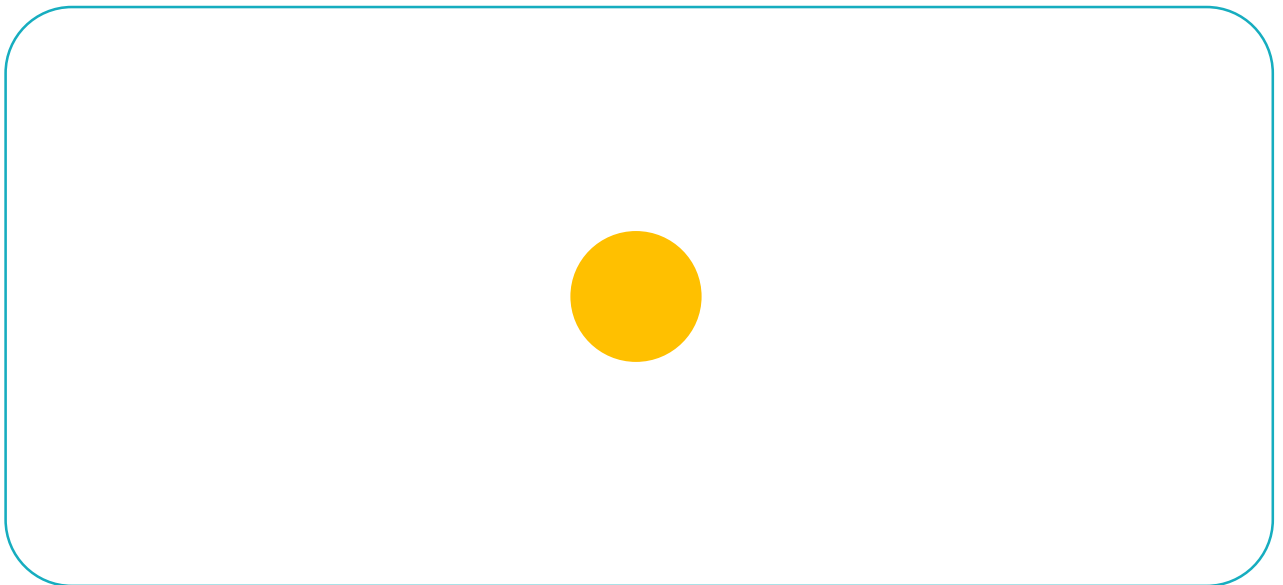
5. Investigate what happens to path of the Moons orbit when you change the planet mass. Write your finding here, making clear notes on what the planet mass was set to.

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6. Now do the same for the Moon mass, keeping the planet mass set to 'Earth'. Pay attention to the Earth's movement.

Click the orange reset button in the bottom right corner of the screen and select the Sun, Earth and Moon option. Press play

7. Draw in the space below what you think the Earth and the Moons orbit path will look like.



Click 'Path' and press play.

8. How close was your prediction. Explain what you got right and what you got wrong.

Click 'Velocity'.

9. How does the velocity of the Moon and the Earth change during their orbits?



Answer the following questions:

1. Why does the Moon orbit the Earth, as opposed to the Earth orbiting the Moon?

2. Most places to have two high tides a day.

a. Explain what causes each tide.

b. Draw a diagram to help explain your answer.

3. What is the difference between a solar eclipse and a lunar eclipse?

4. What two things keep the Moon in orbit around the Earth?

5. Why do we only see one side of the Moon?