

Planetarium Tutorial

Navigate to the following website:

<https://sciencewombat.com/projects-planetarium>

This website has instructions for how to use the planetarium. If at any stage you want to learn more about the controls, the information should be here.

Getting Started

<https://sciencewombat.com/planetarium.html> is the planetarium link.

You should see the sun, planets and moons of our solar system (very small).

- Press the cog on the top left to make the controls appear.
- Find Earth by hovering over the different objects with the cursor.
- If you can't find Earth, change the System Zoom to 30 pixels/AU. Earth should be a blue dot. You can drag the bar on the Zoom control AND use the up/down arrows for fine tuning.

Question 1:

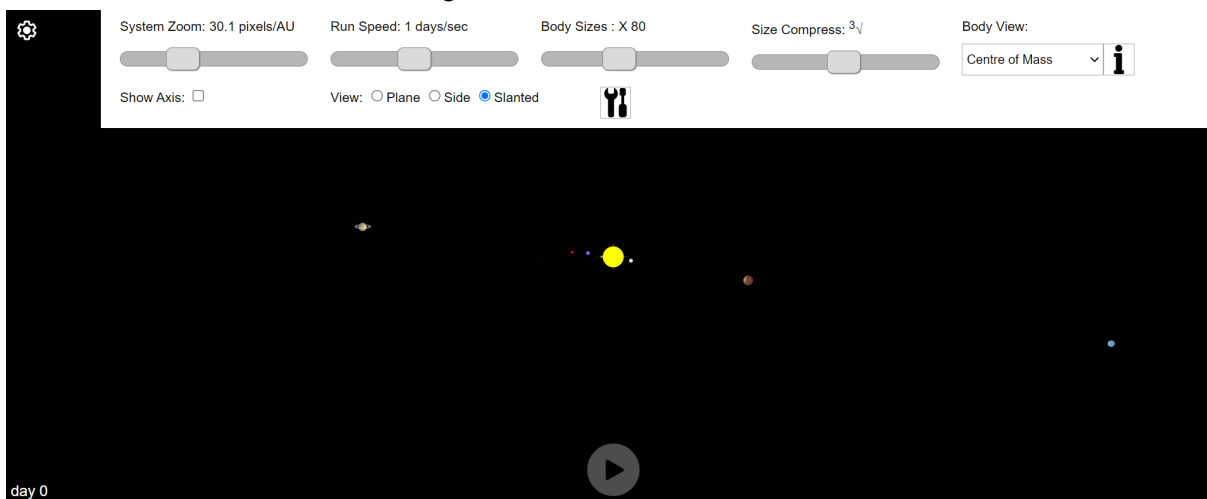
What do you notice about the relative sizes and distances of the planets?

- Change the Body Size and Compression until the planets are a reasonable size (eg. body size = 80 and size compress = $\sqrt[3]{}$ could work)

Question 2:

How many trips to Jupiter would take you to the furthest planet in the solar system (Uranus)?

Your screen should look something like this:



- Press the play button
- The planets start moving around the sun
- This is a bit slow, so change the Run Speed to 12 days/sec

Question 3:

Which planets are slowest, and which are fastest in their orbits? How does this relate to Kepler's law?

The ancient Greeks (Aristotle etc.) thought the Earth was at the centre of the solar system. Let's have a look at that view.

- Click the 'i' button at the top right, next to Body View.
You'll notice the Sun is called 'Sol'. This is its scientific name.
- Select Earth. Now you can see all the planets and the sun revolving around Earth.
- A better view can be seen if you click on the "Plane" View. This is the view from above the solar system.

Question 4:

Can you see why the ancients thought the orbits of the planets were quite complicated?

Question 5:

The ancients explained their observations with the concept of 'epicycles'. Research what an 'epicycle' is.