

Orbits

What is an orbit?

An orbit is the curved path which something takes around a star, planet or moon. Lots of different things can be in orbit - in our solar system eight planets orbit the Sun, our local star. On Earth we have one moon which orbits our planet but with over 80 confirmed moons Saturn is the winner in our solar system. We also send satellites into space which also orbit the Earth, moons and other planets.

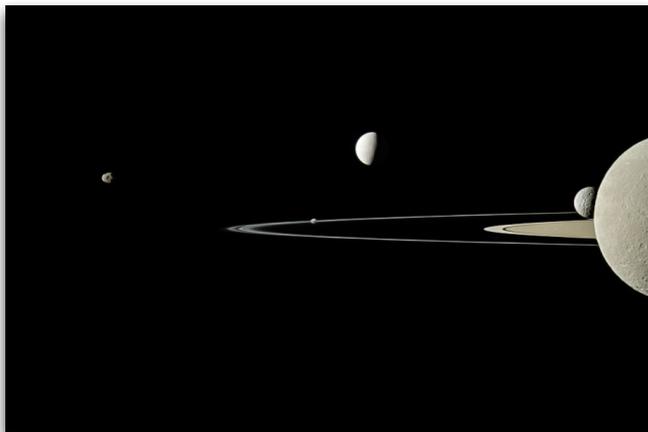
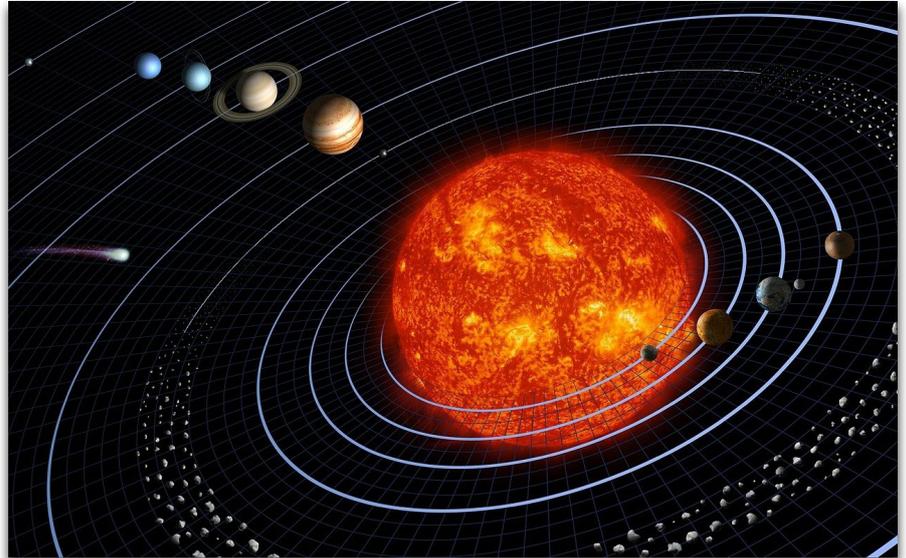


Image credit: NASA

This is an amazing photo taken by the Cassini spacecraft showing just 5 of Saturn's moons and its rings too!

Because keeping track of the orbits of all the planets and moons is quite complicated, we need to build models to track and predict their movements. Today these are computer models but in the past they would have been physical models called Oerries. →



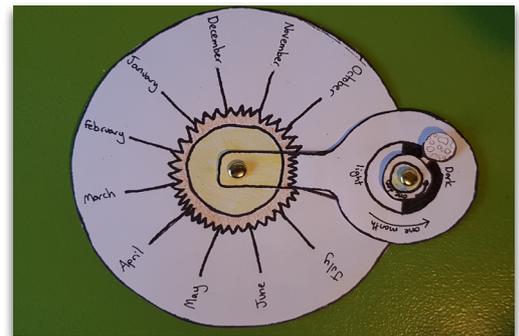
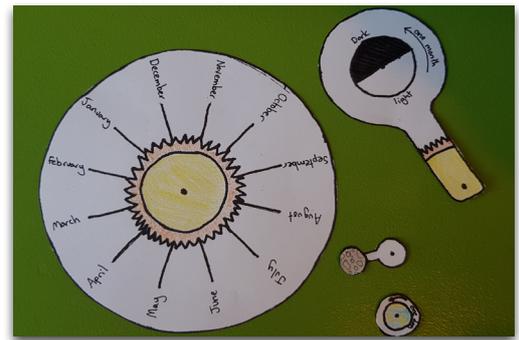
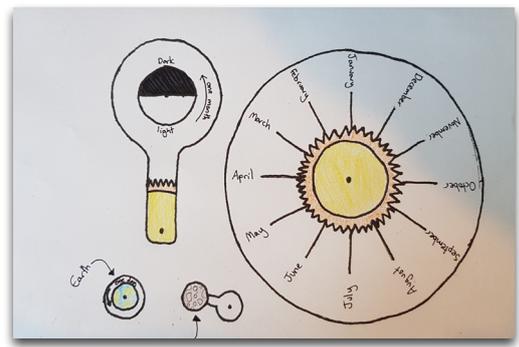
Make your own orrery

You will need:

- Print out of the template on the next page
- Coloured pencils or pens
- Scissors
- 2 split pins or paper fasteners

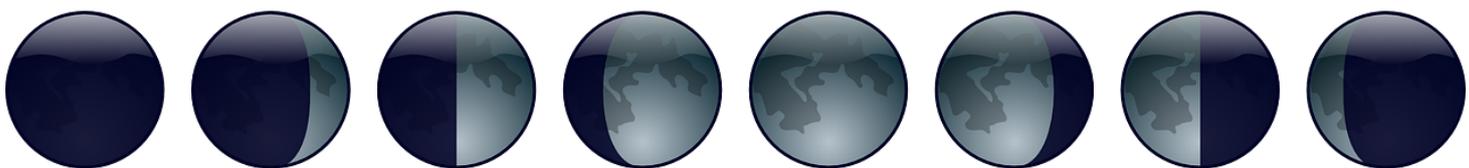
What to do:

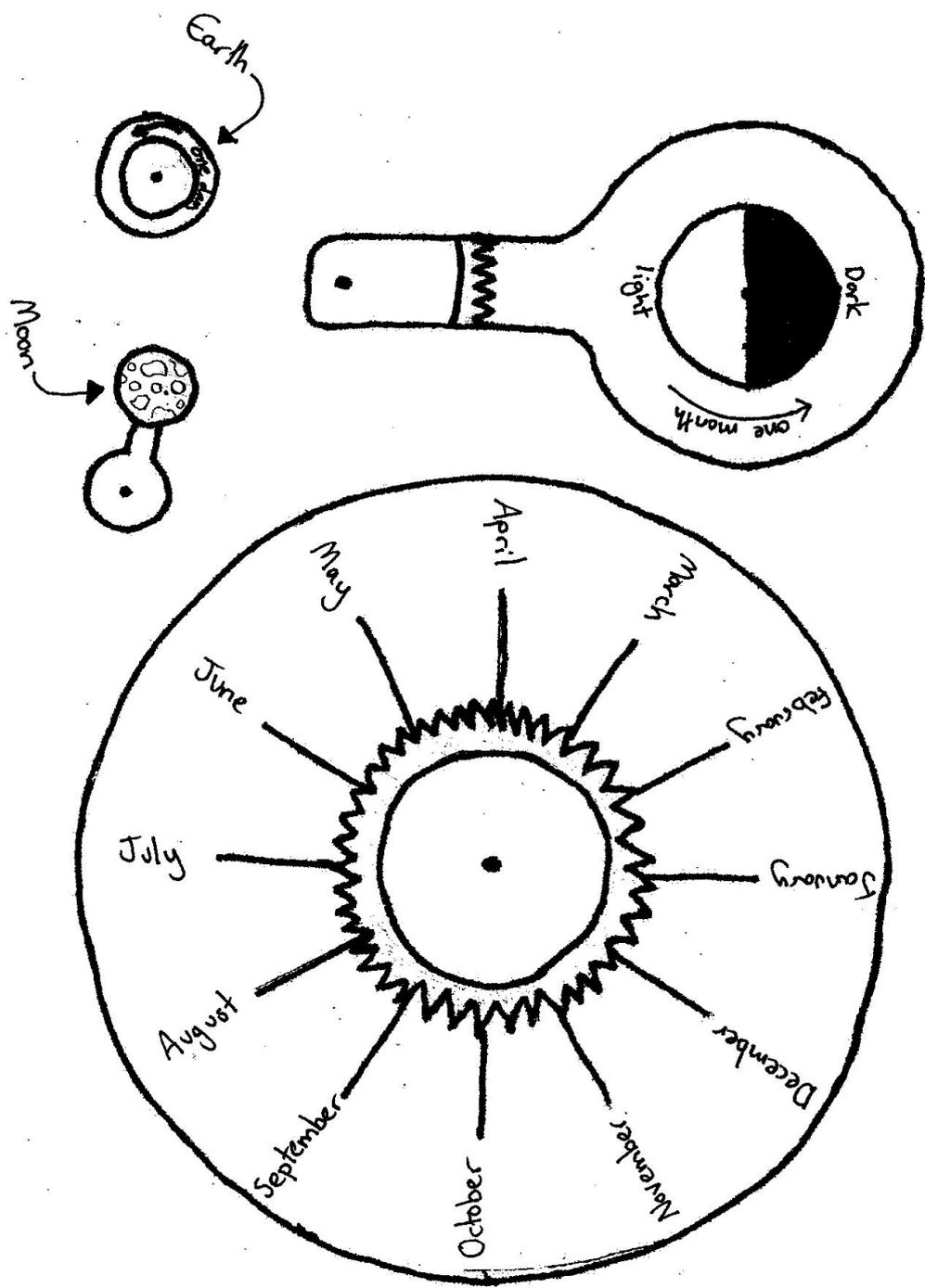
1. Colour in the Sun, Earth and Moon
2. Cut out the 4 shapes
3. Use a split pins to attach the earth and moon to the orbiting arm and the arm to the Sun
4. You have now made your paper orrery! Move the different pieces to see how the Earth and Moon move in relation to the Sun.
5. You can make more arms to add more planets and their moons - just be sure to make the arms longer so that they orbit further from the Sun.



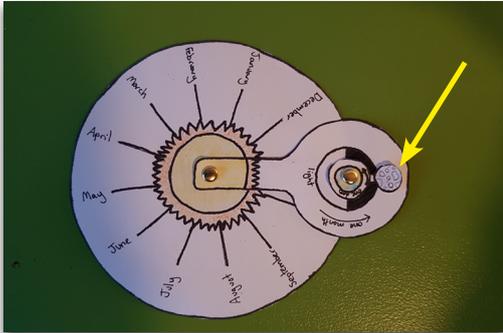
Why are orbits important?

As you can see on your orrery, the Moon moves around the Earth and the Earth moves around the Sun. As the Moon orbits the Earth we can see different amounts of the moon being lit by the Sun. We call these the phases of the moon.





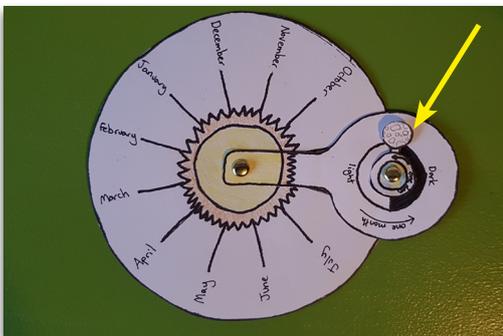
When the Sun and Moon are lined up like this:



There is a full moon because all of the surface of the Moon being lit by the Sun is visible on Earth



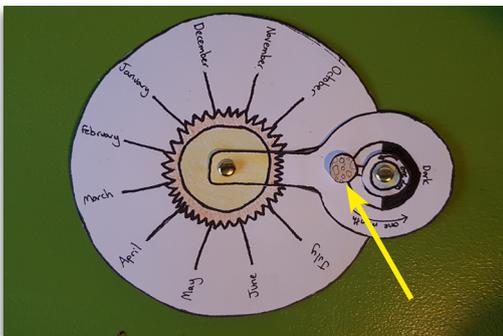
When the Sun and Moon are lined up like this:



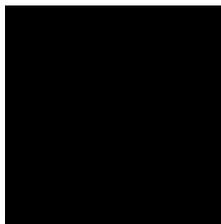
There is a half-moon because only half of the surface of the Moon being lit by the Sun is visible on Earth



When the Sun and Moon are lined up like this:



There is a new moon because none of the surface of the Moon being lit by the Sun is visible on Earth



Sometimes, when everything lines up perfectly, the new moon will block out the Sun and cause a solar eclipse!

