

Demonstrating the Rotation and Revolution of the Moon

The same side of the Moon always faces the Earth as it travels in its orbit around the Earth. This simple demonstration illustrates that the period of rotation of the Moon is the same as the period of revolution (the time it takes for the Moon to complete one orbit around the Earth).

In this demonstration, the Earth is represented by a globe placed on top of a stool. The orbit of the Moon can be represented by a Hula Hoop placed on two meter sticks that are crossed at 90° and positioned on the stool beneath the globe.

In this demonstration, the student represents the Moon. The front of the student represents the side of the Moon that always faces the Earth. The student can orbit the Moon by moving around the model Earth while always facing the globe.

It is important for the student to consider how they have rotated in their orbit around the Earth. As the student moves one-quarter of the way around the Earth, have her stop and consider how much she has rotated with respect to her original orientation (90°). Half way around the Earth, she should recognize that she is facing in the opposite direction (180°) than when she started her orbit around the Earth. Three-quarters around the model Earth, she has rotated 270° and when she returns to original position, she has simultaneously completed one complete rotation (360°) and one revolution around the Earth.

This is a model of how the Moon orbits the Earth. It is useful to have students evaluate the accuracy of the model and to point out possible inaccuracies or problems with the model. In addition, it is a valuable opportunity for students to propose improvements in the model. For example, if the Hula Hoop represents the Moon's orbit, the actual orbit of the Moon is located approximately midway with respect to the Earth (the Earth's equator) and not below the Earth.

