

FOSS Planetary Science Course, Second Edition

Investigation 4: Moon Study

Part 2 How Big/How Far?

In this FOSS investigation part, students explore the Earth/Moon relationship by creating a scaled model of the system. Using a small globe as a starting point, they calculate the diameter of a ball to represent the companion Moon, and then position it at the right distance to represent the Moon's orbital distance.

- Scale is the size relationship between a representation of an object and the object.
- Scale can be expressed as a ratio when an object and its representation are measured in related unit.

NGSS Standards Addressed	Disciplinary Core Ideas (Framework) Addressed	Crosscutting Concepts Addressed	Scientific and Engineering Practices (SP/EP) Addressed
MS-ESSI-3. Analyze and interpret data to determine scale properties of objects in the solar system.	ESSI.A Patterns of the apparent motion of the Sun, the Moon, and stars in the sky can be observed, described, predicted, and explained with models. ESSI.B The solar system consists of the Sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the Sun by its gravitational pull on them.	Scale, Proportion, and Quantity Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. Systems and System Models Models can be used to represent systems and their interactions.	Asking questions (SP)/Defining problems (EP) Developing and using models (SP) Planning and carrying out investigations (EP) Using mathematics and computing thinking (EP) Obtaining, evaluating, and communicating information (SP/EP)

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