THE STANDARD

Scale Model of the Solar System

Analyze and interpret data to determine scale properties of objects in the solar system.

DCI — DISCIPLINARY CORE IDEA

ESS1.B · Earth and the Solar System

> *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.*

The solar system is one star (the Sun), eight planets, a handful of dwarf planets, dozens of moons, an asteroid belt, comets, and the Kuiper belt. Everything orbits the Sun because the Sun's gravity holds it all in place. The planets are not interchangeable. **Each one is a specific size, a specific distance away, and made of specific stuff.**

SEP — SCIENCE & ENGINEERING PRACTICE

Analyzing and Interpreting Data

> *Analyze and interpret data to determine similarities and differences in findings.*

Students don't memorize planet facts. They work from real data: tables of diameters and orbital distances, photos from Cassini and New Horizons, drawings of planetary layers. **They look for similarities and differences, group objects that behave alike, and explain the patterns they find.**

CCC — CROSSCUTTING CONCEPT

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.*

The solar system is too big to see. A diagram in a textbook lies about scale, because if Earth is a pea, Neptune is over a mile away. **Students reason about proportions: how many Earths fit across Jupiter, how many AU out Neptune sits, how many times bigger the Sun is than everything else combined.**