

Science Detectives Grades 3, 4, or 5

Mission 1. The Space Chase Begins: On Your Mark...Get Set...Go!

AAAS BSL Grades 3 – 5, 4A The Universe: The Earth is one of several planets that orbit the sun, and the moon orbits around the Earth.

NSES Grade 5 - 8 Earth and Space Science: The Earth is the third planet from the sun in a system that includes the moon, the sun, and eight other planets and their moons, and smaller objects, such as asteroids and comets. The sun, an average star, is the central and largest body in the system.

Mission 2. What a State We're In! The Anatomy of a Planet

NSES Grades K – 4 Physical Science: Materials can exist in different states – solid, liquid, and gas. Some common materials, such as water, can be changed from one state to another by heating or cooling.

NSES Grades 5 - 8 Physical Science: A substance has characteristic properties, such as density, a boiling point, and solubility, which are independent of the amount of the sample.

Mission 3. What's My Planet? Building Layer by Layer

NSES Grades K - 4 Earth Science: Earth materials are solid rocks and soils, water, and the atmosphere.

NSES Grades 5 - 8 Inquiry: Develop descriptions, explanations, predictions and models using evidence.

NSES 5 – 8 Earth Science: The solid Earth is layered with a lithosphere, hot, convecting mantle, and dense, metallic core.

Mission 4. How Big Is My Planet? Learning About the Concept of Scale

AAAS BSL Grades 3 – 5, 9C Shapes: Scale drawings show shapes and compare location of things very different in size.

AAAS BSL Grades 6 – 8, 9C Shapes: The scale chosen for a graph or drawing makes a big difference in how useful it is.

Mission 5. “Seeing” Planet Attributes: Many Things Are the Same Many Things Are Different

AAAS BSL Grades 3 - 5 , 4A The Universe: The Earth is one of several planets that orbit the sun, and the moon orbits the Earth.

AAAS BSL Grades 6 – 8 , 4A The Universe: Nine planets of very different size, composition, and surface features move around the sun in very nearly circular orbits. Some planets have a great variety of moons and even flat rings of rock and ice particles orbiting around them.

Mission 6. Making the Most and Least of Things: Getting Everything in Order

NSES Grades K – 4 Inquiry: Employ simple equipment and tools to gather data and extend the senses.

AAAS BSL Grades 6 – 8, 4A The Universe: Nine planets of very different size, composition, and surface features move around the sun in very nearly circular orbits. Some planets have a great variety of moons and even flat rings of rock and ice particles orbiting around them.

Mission 7. Adventures with Telescopes: It's So Far Away, But It Looks So Near!

AAAS BSL Grades 3 – 5, 4A: Telescopes magnify the appearance of some distant objects in the sky. Including the moon and the planets. The number of stars that can be seen through telescopes is dramatically greater than can be seen by the unaided eye.

NSES Grades 5 – 8 Physical Science: Light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection). The see an object, light from that object – emitted by or scattered from it – must enter the eye.

Mission 8. Observing the Planets! Looking Into the Sky by Day and Night

AAAS BSL Grades 3 – 5, 4A: The Earth is one of several planets that orbit the sun, and the moon orbits around the Earth.

AAAS BSL Grades 6 – 8, 4A: Nine planets of very different size, composition, and surface features move around the sun in very nearly circular orbits. Some planets have a great variety of moons and even flat rings of rock and ice particles orbiting around them. Some of these planets and moons show evidence of geologic activity. The Earth is orbited by one moon, many artificial satellites, and debris.

Mission 9. Cosmic Wheels: Measuring the Orbits of Planets

NSES Grades K – 4 Earth and Space Science: Objects in the sky have patterns of movement.

NSES Grades 5 – 8 Earth and Space Science: Most objects in the solar system are in regular and predictable motion.

Mission 10. Moon Phases: How the Sun Affect the Moon

NSES Grades K – 4 Earth Science: Objects in the sky have patterns of movement.... The moon moves across the sky on a daily basis much like the sun. The observable shape of the moon changes from day to day in cycle that lasts about a month.

NSES Grades 5 - 8 Earth Science: Most objects in the solar system are in regular and predictable motion. Those motions explain such phenomena as the day, the year, phases of the moon and eclipses.

AAAS BSL Grades 6 – 8, 4B: The moon's orbit around the Earth once in about 28 days changes what part of the moon is lighted by the sun and how much of that part can be seen from the Earth – the phases of the moon.

Mission 11. Planets and Moons: Am I Seeing Double?

NSES Grades K – 4 Inquiry: Employ simple equipment and tools to gather data and extend the senses.

NSES Grades 5 - 8 Inquiry: Develop descriptions, explanations, predictions and models using evidence.