Unifying Theme: Objects in the Sky

Essential Standards and Clarifying Objectives
3.E.1 Recognize the major components and patterns observed in the earth/moon/sun system.
3.E.1.1 Recognize that the earth is part of a system called the solar system that includes the sun (a star), planets, and many moons and the Earth is the third planet from the sun in our solar system.
3.E.1.2 Recognize the changes in the length or direction of an object's shadow indicate the apparent changing position of the sun during the day although the patterns of the stars in the sky, to include the sun, stay the same.
4.E.1 Explain the causes of day and night and phases of the moon.
4.E.1.1 Explain the cause of day and night based on the rotation of Earth on its axis.
4.E.1.2 Explain the monthly changes in the appearance of the moon, based on the moon's orbit around the Earth.
4.P.3 Recognize that energy takes various forms that may be grouped based on their interaction with matter.
4.P.3.2 Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed.
3.E.2 Compare the structures of the Earth's surface using models or three-dimensional diagrams.
3.E.2.1 Compare Earth's saltwater and freshwater features (including oceans, seas, rivers, lakes, ponds, streams, and glaciers).
3.E.2.2 Compare Earth's land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using models, pictures, diagrams, and maps.
Unpacking What does this clarifying objective mean a child will know, understand and be able to do?
3.E.1.1 Students know that we live on a planet that is part of a solar system. Students know that a solar system includes a star and planets, and other objects. The planets and other objects revolve around the star. Students know that in our solar system Earth is the third planet from the sun (a star).
3.E.1.2 Students know that the sun and stars in the sky [appear to] move in consistent patterns. Students know that shadows are created by objects blocking the light. Students know that as the sun changes its apparent position in the sky, the shadows cast by objects will change. Students know that the Earth rotates on its axis and revolves around the sun.
4.E.1.1 Students know that the Earth rotates on an axis and that this rotation causes one side of our planet to receive light rays from the sun (day) while the other side is in darkness (night). This rotation occurs over a 24-hour period.

4.E.1.2 Students know that the moon rotates and revolves around the Earth. The moon's appearance (phase) is determined by its position relative to the Earth and the Sun. The appearance of the moon changes in a specific pattern and repeats this sequence over the course of approximately 28 days. During part of this cycle, the moon's visible portion appears to grow larger (waxes, waxing). This is followed by a period during which the moon's visible portion appears to reduce in size (wanes, waning). Students are familiar with the following phases of the moon: New Moon, First Quarter, Full Moon, and Last Quarter.
4.P.3.2 Students know that light travels in a straight line. Students know that light can be refracted, reflected, and/or absorbed.
3.E.2.1 Students know that there are bodies of water on the surface of the earth and that they are often named based on their characteristics and location. Some bodies of water are salty, some are fresh, some are brackish, and some are frozen in ice sheets and glaciers. Different t types of organisms have developed to live in these different bodies and types of water.
3.E.2.2 Students know that the surface of the earth has many different types of physical features and that these features are named according to their structure. There are many representations for any given land feature and these possess correspondences consistent with their attributes.