

<p>Important Concepts</p> <p>Solar System and Universe</p> <p>3-5 Level</p>	<p>Alaska Science Content Standards <b>D3</b> Students develop an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion in our solar system. (partially addressed)</p> <p><b>D4</b> Students develop an understanding of the theories regarding the evolution of the universe.</p>
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Grade Level Expectations:

The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by:

[4] **SD3.1** recognizing changes to length of daylight over time and its relationship to seasons

[5] **SD3.1** observing a model that shows how the regular and predictable motion of the Earth and moon determine the apparent shape (phases) of the moon over time (**L**)

The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by:

[3] **SD4.1** recognizing that objects appear smaller the farther away they are

[3] **SD4.2** recognizing that objects have properties, locations, and movements that can be observed and described

[3] [4] [5] **SD4.3** recognizing and using appropriate instruments of magnification (e.g., binoculars and telescopes) (**L**)

[4] **SD4.1** recognizing that stars are like the sun but are so far away that they look like points of light

[4] **SD4.2** recognizing that objects have properties, locations, and movements that can be observed and described

[5] **SD4.1** distinguishing among stars, planets, moons, comets, and meteors (**L**)

[5] **SD4.2** recognizing that the Earth is in regular and predictable motion and this motion explains the length of a day and a year

According to AAAS's Benchmarks for Science Literacy\* some of the things that students should know and understand by the end of the fifth grade are:

The earth is approximately spherical in shape. Like the earth, the sun and planets are spheres.

The rotation of the earth on its axis every 24 hours produces the night-and-day cycle. To people on earth, this turning of the planet makes it seem as though the sun, moon, planets, and stars are orbiting the earth once a day.

The patterns of stars in the sky stay the same, although they appear to move across the sky nightly, and different stars can be seen in different seasons.

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.

Planets change their positions against the background of stars.

\*Project 2061, American Association for the Advancement of Science, Benchmarks for Science Literacy. New York: Oxford University Press, 1993.

The earth is one of several planets that orbit the sun, and the moon orbits around the earth. Stars are like the sun, some being smaller and some larger, but so far away that they look like points of light.

A large light source at a great distance looks like a small light source that is much closer.