

GRADE 9 EARTH AND SPACE SCIENCE: SPACE EXPLORATION

PRESCRIBED LEARNING OUTCOMES	SUGGESTED ACHIEVEMENT INDICATORS
<p><i>It is expected that students will:</i></p>	<p><i>The following set of indicators may be used to assess student achievement for each corresponding prescribed learning outcome.</i></p> <p><i>Students who have fully met the prescribed learning outcome are able to:</i></p>
<p>D1 explain how a variety of technologies have advanced understanding of the universe and solar system</p>	<ul style="list-style-type: none"> <input type="checkbox"/> identify and describe a range of instruments that are used in astronomy (e.g., telescopes, spectrosopes, satellites, probes, robotic devices) <input type="checkbox"/> give examples of how astronomers use astronomical and space exploration technologies to advance understanding of the universe and solar system (e.g., using red shift to support the idea of an expanding universe, using parallax to measure distance)
<p>D2 describe the major components and characteristics of the universe and solar system</p>	<ul style="list-style-type: none"> <input type="checkbox"/> identify galaxies, star clusters/types, planets, constellations, nebulae according to their distinguishing characteristics <input type="checkbox"/> relate mass to different stages in the life cycle of stars <input type="checkbox"/> describe theories on the nature of the solar system (e.g., Ptolemy, Copernicus, Kepler) <input type="checkbox"/> describe the formation of the solar system (e.g., condensing nebula) and its components (e.g., planets, moons, comets, asteroids, the Sun) and the formation of the universe (e.g., Big Bang) <input type="checkbox"/> describe the processes that generate and events that distribute the energy of the Sun and other stars (e.g., nuclear fusion, solar flares and prominences, sun spots, solar wind)
<p>D3 describe traditional perspectives of a range of Aboriginal peoples in BC on the relationship between the Earth and celestial bodies</p>	<ul style="list-style-type: none"> <input type="checkbox"/> identify passages related to the relationship between the Earth and various celestial bodies within specific traditional stories of BC Aboriginal peoples <input type="checkbox"/> respond to BC Aboriginal stories and presentations focusing on the nature of stars, the moon, planets, comets, or eclipses (e.g., by creating illustrations; by identifying similarities among stories or between stories and contemporary scientific understanding)
<p>D4 explain astronomical phenomena with reference to the Earth/moon system</p>	<ul style="list-style-type: none"> <input type="checkbox"/> describe the formation of the Earth's moon, with reference to supporting evidence <input type="checkbox"/> describe the significance of Earth's rotation, revolution, and axis tilt (e.g., seasons, day/night) <input type="checkbox"/> describe the celestial sphere in relation to constellations and their locations <input type="checkbox"/> explain the apparent motion of constellations, planets, the Sun, the moon, asteroids, and comets <input type="checkbox"/> explain and illustrate solar and lunar eclipses

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D5 analyse the implications of space travel	<ul style="list-style-type: none"><li>❑ identify various possibilities and limitations associated with space travel (e.g., with reference to factors such as time, essential human needs, robots, budget choices, militarization of space)<li>❑ debate a range of ethical issues related to space travel (e.g., appropriateness of terraforming another planet, exposing humans to risks)<li>❑ research current ideas or initiatives for further space exploration (e.g., space elevator, colonization of other planets, search for extraterrestrial life)