

Space Science

Middle School –Grade 6

Texts to be used:

McDougal Littell & *Unit Resource Book (URB) where noted

Space Science (SS)

RI Statements of Enduring Knowledge - (Established Goals):

ESS2 The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.

PS2 Energy is necessary for change in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.

PS3 The motion of an object is affected by forces.

Related Rhode Island GSE's (Understandings)	RI Assessment Targets Assessment Evidence
<p>SS2 (7-8) -8 Students demonstrate an understanding of gravitational relationships between or among objects of the solar system by... 8f explaining that the sun's gravitational pull holds the Earth and other planets in their orbits, just as the planet's gravitational pull keeps their moons in orbit. The following are just introduced at the grade six level but, will be discussed in more depth at grade 8 with Forces & Motion</p> <p>ESS2 (5-6)-8 Students demonstrate an understanding of gravitational relationships between or among objects of the solar system by.. 8d <u>defining the Earth's gravity as a force that pulls any object on or near the Earth toward its center without touching it.</u></p> <p>ESS2 (7-8)-8 Students demonstrate an understanding of gravitational relationships between or among objects of the solar system by.. 8f <u>explaining that the sun's gravitational pull holds the Earth and other planets in their orbits just as the planet's pull keeps their moon's in orbit.</u></p>	<p>ESS2 (5-8) SAE+ POC –8 <i>Explain temporal or positional relationships between or among the Earth, sun, and moon (e.g., night/day, seasons, year, tides) or how gravitational force affects objects in the solar system (e.g., moons, tides, orbits, satellites).</i></p> <ul style="list-style-type: none"> • Reference Chapter 2.0-2.2, pp.40 -51 (SS) • Investigation "How do shadows move?" P41 (SS) • Activity "What time is it in Iceland right now?" p.43 (SS) • URB P.91 • Investigation: What causes day and night? P.44 (SS) • Class discussion: Interpreting and modeling "Seasons" diagram, p. 47 (SS) -Earth's Tilted axis and orbit: • URB P.92 • Investigation: Modeling Seasons" p. 50 & 51 (SS) • URB pp. 124-132 • Reference Chapter 2.3 pp.58-66 (SS) • Investigation: Why does the moon seem to change shape? P.62 (SS) • URB P. 114 • Investigation: Moon Features, p. 55, (SS) • URB P. 103

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	Focus Questions (Essential Questions)	Instructional Activities & Investigations (INQ)	Big Ideas (Understandings)
1	<p>What keeps planets in orbit around the sun?</p> <p>What keeps "moon(s) orbiting planets?</p>	<ul style="list-style-type: none"> Reference Chapter 2.0-2.2, pp.40 -51 (SS) Investigation "How do shadows move?" P.41 (SS) Activity "What time is it in Iceland right now?" p.43 (SS) URB P.91 	<ul style="list-style-type: none"> The sun's gravitational pull holds the Earth and other planets in their orbits, just as the planet's gravitational pull keeps their moons in orbit. The annual orbit around the sun is 365 ¼ days approximately.
2	<p>What causes day & night?</p> <p>What causes seasons?</p> <p>What causes tides, that we observe on earth?</p>	<ul style="list-style-type: none"> Investigation: What causes day and night? P.44 (SS) Class discussion: Interpreting and modeling "Seasons" diagram, p. 47 (SS) - Earth's Tilted axis and orbit: URB P.92 	<ul style="list-style-type: none"> The rotation of the Earth on its axis =24 hours The tilt of the Earth on its axis is 23.5 degrees as it orbits the sun (365.25 days) The moon's gravitational attraction on the earth causes the tides.
3	<p>How is the motion and orbit of the earth affected by other bodies such as the sun and moon?</p> <p>How are the phases of the moon related to the earth/moon/sun relative positions.</p>	<ul style="list-style-type: none"> Investigation: Modeling Seasons" p. 50 & 51 (SS) URB pp. 124-132 Reference Chapter 2.3 pp.58-66 (SS) Investigation: Why does the moon seem to change shape? P.62 (SS) URB P. 114 	<ul style="list-style-type: none"> The tilt of the earth on its axis of ration (23.5 degrees) causes the seasons and the seasons are reversed in the two hemispheres. Tides are caused by the moon's gravitational pull on the earth due to its proximity. The phases of the moon related to the earth/moon/sun relative position
4	<p>How did the Moon's features form?</p>	<ul style="list-style-type: none"> Investigation: Moon Features, p. 55, (SS) URB P. 103 	<ul style="list-style-type: none"> The Moon's surface, as did the Earth's, changed over time