

WASHINGTON STATE LASER

Alignment of Washington 6-8
Science Standards by EALR/Domain for

STC/MS

Earth in Space

December 20, 2010

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Application ~ APPC**

Content Standard Science and technology are interdependent. Science drives technology by demanding better instruments and suggesting ideas for new designs. Technology drives science by providing instruments and research methods.

Performance Expectation • Give examples to illustrate how scientists have helped solve technological problems (e.g., how the science of biology has helped sustain fisheries) and how engineers have aided science (e.g., designing telescopes to discover distant planets).

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 01	Aligned as designed	Reading: Astronomy SG pp 9-11	
Lesson 02	Aligned as designed	Inquiry 2.1 p 14	The unit/lesson is an integral part of a learning progression. Lesson 2 through 6 all focus on using physical models to explain days, years, phases of the moon and eclipses.
Lesson 02	Aligned with modifications (see comments)	Reading: Scaling the Sun-Earth-Moon System SG pp 18-21	Talks about the sun's place in the Milky Way, but does not mention other solar systems, other galaxies, and other possible planets. Need to be supplemented.
Lesson 02	Aligned as designed	Reading: Scaling the Sun-Earth-Moon System SG pp 18-21	Teachers need to emphasize the SEM system is subsystem of a larger system, the solar system and galaxy.

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Earth Science ~ ES1C**

Content Standard Most objects in the Solar System are in regular and predictable motion. These motions explain such phenomena as the day, the year, phases of the moon, and eclipses.

Performance Expectation • Use a simple physical model or labeled drawing of the Earth-Sun-Moon system to explain day and night, phases of the Moon, and eclipses of the Moon and Sun.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 02	Aligned as designed	Inquiry 2.1 p 14	The unit/lesson is an integral part of a learning progression. Lesson 2 through 6 all focus on using physical models to explain days, years, phases of the moon and eclipses.
Lesson 03	Aligned as designed	Inquiry 3.4 p 34-35	Inquiry 3.1, 3.2, 3.3 all lead up to Inquiry 3.4. The unit/lesson is an integral part of a learning progression. Lessons 2 - 6 all focus on using physical models to explain days, years, phases of the moon and eclipses.
Lesson 03	Aligned with modifications (see comments)	Reading: The Anasazi SG pp 40-41	Teacher needs to make the connection between technology and the use of technology.
Lesson 04	Aligned as designed	Reading: Reasons for the Seasons SG pp 54-57; Inquiry 4.1 SG pp 45-49; Inquiry 4.2 and 4.3 support the idea that earth rotates; SG pp 50-53; Reading: Steering by the Stars SG pp 58-61	After the inquiry, during the reflections, Teachers must be intentional about sharing the ideas that as the earth rotates from solar noon of one day to solar noon of the next day makes one day. Teachers must be intentional about sharing that as the earth orbits the sun from summer of one year, to summer the next year makes one year.

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Earth Science ~ ES1A**

Content Standard

The Moon's monthly cycle of phases can be explained by its changing relative position as it orbits Earth. An eclipse of the Moon occurs when the Moon enters Earth's shadow. An eclipse of the Sun occurs when the Moon is between the Earth and Sun, and the Moon's shadow falls on the Earth.

Performance Expectation

- Use a physical model or diagram to explain how the Moon's changing position in its orbit results in the changing phases of the Moon as observed from Earth.
- Explain how the cause of an eclipse of the Moon is different from the cause of the Moon's phases.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 05	Aligned as designed	Inquiry 5.1, 5.2 SG pp 64-67; Student Sheets 5; TG p 71; 5.1, TG p 69; 5.2, TG p 70	The unit/lesson is an integral part of a learning progression. This lesson focuses on phases of the moon. Lesson 6 finishes this standard by including eclipses, and the geometry of the sun-earth-moon.
Lesson 05	Aligned as designed	Inquiry 5.2 SG pp 67 - 69; Inquiry 5.1 builds a static model; Inquiry 5.2 has a model that includes motion	
Lesson 05	Aligned as designed	Reading: Apollo 11 Lands On the Moon pp 70-73	
Lesson 05	Aligned as designed	Reading: Apollo 11 SG pp 70-73	

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Earth Science ~ ES1A**

Content Standard

The Moon's monthly cycle of phases can be explained by its changing relative position as it orbits Earth. An eclipse of the Moon occurs when the Moon enters Earth's shadow. An eclipse of the Sun occurs when the Moon is between the Earth and Sun, and the Moon's shadow falls on the Earth.

Performance Expectation

- Use a physical model or diagram to explain how the Moon's changing position in its orbit results in the changing phases of the Moon as observed from Earth.
- Explain how the cause of an eclipse of the Moon is different from the cause of the Moon's phases.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 06	Aligned as designed	Video: Sun, Earth, Moon; Inquiry 6.1 SG pp 76-77; Inquiry 6.2 SG pp 78-80; Reading: Eclipses SG pp 81-84	The unit/lesson is an integral part of a learning progression. This lesson, combined with Lesson 5, presents a complete investigation of standard ES1A.
Lesson 06	Aligned as designed	Video: Sun - Earth - Moon; Inquiry 6.1 SG pp 76-77; Reading: Eclipses SG 81-84; Table 6.3 SG pp 80	
Lesson 07	Aligned as designed	Reading: Our Sun's Energy	
Lesson 07	Aligned as designed	Inquiry 7.1 SG pp 90-92; Reading: Our Sun's Energy; SG pp 98-100	Teachers need to emphasize the energy transformations: electric energy to light, light to heat, heat to motion.

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Inquiry ~ INQB**

Content Standard

Different kinds of questions suggest different kinds of scientific investigations.

- Plan and conduct a scientific investigation (e.g., field study, systematic observation, controlled experiment, model, or simulation) that is appropriate for the question being asked.
- Propose a hypothesis, give a reason for the hypothesis, and explain how the planned investigation will test the hypothesis.
- Work collaboratively with other students to carry out the investigations.

Performance Expectation

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 07	Aligned as designed	Inquiry 7.2 SG pp 93,94; Student Sheet TG p 343	
Lesson 07	Aligned as designed	Inquiry 7.1 and 7.2 SG pp 90-94; TG page 89; Reflection 2.C	
Lesson 07	Aligned as designed	Reading: Using Eclipses To Study Solar Wind SG pp 95-97	
Lesson 07	Aligned as designed	Reading: Using Eclipses to Study Solar Wind SG pp 95-97	

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Life Science ~ LS2C**

Content Standard

The major source of energy for ecosystems on Earth’s surface is sunlight. Producers transform the energy of sunlight into the chemical energy of food through photosynthesis. This food energy is used by plants, and all other organisms to carry on life processes. Nearly all organisms on the surface of Earth depend on this energy source.

Performance Expectation

- Explain how energy from the Sun is transformed through photosynthesis to produce chemical energy in food.
- Explain that producers are the only organisms that make their own food. Animals cannot survive without producers because animals get food by eating producers or other animals that eat producers.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 07	Aligned as designed	Extension 4 TG p 92	
Lesson 07	Aligned as designed	Extension 4 TG p 92	
Lesson 08	Aligned as designed	Inquiry 8.2 SG pp 108-109 Communicate sunspot positions by using tables and drawings; Inquiry 8.3 SG pp 109-112 Analyzing Sunspot data by graphing historical data and observe patterns in sunspot activity	
Lesson 08	Aligned as designed	Extension 2 TG p 108	

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Application ~ APPB**

Content Standard Scientists and technological designers (including engineers) have different goals. Scientists answer questions about the natural world; technological designers solve problems that help people reach their goals.

Performance Expectation • Investigate several professions in which an understanding of science and technology is required. Explain why that understanding is necessary for success in each profession.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 09	Aligned as designed	Reading: Fastplants SG pp 126-127	
Lesson 10	Aligned with modifications (see comments)	Student Sheet 10.1c	The unit/lesson is an integral part of a learning progression. Scale of the Sun-Earth-Moon is introduced early (Lesson 2). Comparing planets is the focus of the anchor project (Lesson 10). Asteroids are focused on in Lessons 12 and 17. Lesson 11 focuses on scale of the solar system. Teachers need to emphasize planet size, composition, and relative position.
Lesson 10	Aligned as designed	Reading: Mission Introduction SG pp 137-143	
Lesson 11	Aligned as designed	Reading: Scaling the Sun-Earth-Moon System; SG pp 18-21; Inquiry 11.1 SG pp 147-148; Inquiry 11.3 SG pp 150-151	The unit/lesson is an integral part of a learning progression. Scale of the Sun-Earth-Moon is introduced early (Lesson 2). Comparing planets is the focus of the anchor project (Lesson 10). Asteroids are focused on in Lessons 12 and 17.

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Earth Science ~ ES2E**

Content Standard The solid Earth is composed of a relatively thin crust, a dense metallic core, and a layer called the mantle between the crust and core that is very hot and partially melted.

Performance Expectation • Sketch and label the major layers of Earth, showing the approximate relative thickness and consistency of the crust, core, and mantle.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 11	Aligned with modifications (see comments)	Reading: Earth SG 288	On SG p 288, there is one page of information about the layers of the Earth, poorly associated with a few lessons.
Lesson 12	Aligned with modifications (see comments)	Earth has formations that are formed by asteroid impact; Figure 12.2, SG p 161; Figure 12.7 SG p 163	This unit/lesson is a part of a conceptual sequence that continues with surface features (Lesson 13).
Lesson 13	Aligned with modifications (see comments)	Inquiry 13.1 SG pp 180 - 190	Teacher must be intentional about use of the terms convection, crustal plates, plate boundaries.
Lesson 13	Aligned as designed	Inquiry 13.1 SG pp 180-190	

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Earth Science ~ ES3D**

Content Standard Earth has been shaped by many natural catastrophes, including earthquakes, volcanic eruptions, glaciers, floods, storms, tsunamis, and the impacts of asteroids.

Performance Expectation • Interpret current land forms of the Pacific Northwest as evidence of past geologic events (e.g., Mount St. Helen's and Crater Lake provide evidence of volcanism, the Channeled Scablands provides evidence of floods that resulted from melting of glaciers).

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 13	Aligned as designed	Entire lesson; Wind erosion SG p 182; Water erosion SG p 185; Tectonics SG p 187; Vulcanism SG p 189	
Lesson 14	Aligned with modifications (see comments)	Inquiry 14.1 SG pp 202-203; Reading: Mass and Weight SG pp 206-209	Module does not emphasize that gravity holds things on the Earth. Teachers need to emphasize the difference in weight is because more massive planets have greater gravitational pull. Review Student Misconceptions in the teachers guide. TG pp 212
Lesson 15	Aligned as designed	CD-ROM: Explore the Planets, Starry Night Backyard; Inquiry 15.1, 15.2, 15.3 SG pp 221-223	
Lesson 15	Aligned as designed	Inquiry 15.1 SG pp 218-219; Inquiry 15.2, 15.3 SG pp 219 - 223; Inquiry 15.4 SG pp 223-225; Reading: Heavy Thoughts SG pp 226-228	

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Earth Science ~ ES1B**

Content Standard

Earth is the third planet from the sun in a system that includes the Moon, the Sun, seven other major planets and their moons, and smaller objects such as asteroids, plutoids, dwarf planets, and comets. These bodies differ in many characteristics (e.g., size, composition, relative position).

Performance Expectation

- Compare the relative sizes and distances of the Sun, Moon, Earth, other major planets, moons, asteroids, plutoids, and comets.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 17	Aligned as designed	CD-ROM Explore the Planets, Asteroid segment in Tour the Planets section; Reading: Asteroids, Comets, and Meteoroids, SG pp 272-275	The unit/lesson is an integral part of a learning progression. Scale of the Sun-Earth-Moon is introduced early (Lesson 2). Comparing planets is the focus of the anchor project (Lesson 10). Asteroids are focused on in Lessons 12 and 17. Lesson 11 focuses on scale of the solar system.
Lesson 17	Aligned with modifications (see comments)	Reading: Earth SG p 288	On SG p 288, there is one page of information about the atmosphere of the Earth, poorly associated with a few lessons.
Lesson 17	Aligned as designed	Reading: The Space Name Game SG p 289	
Lesson 17	Aligned as designed	Extension 2 TG p 275	

**Alignment of Washington 6-8 Science Standards with
STC/MS Earth in Space
Earth Science ~ ES3B**

Content Standard Thousands of layers of sedimentary rock provide evidence that allows us to determine the age of Earth's changing surface and to estimate the age of fossils found in the rocks.

Performance Expectation • Explain how the age of land forms can be estimated by studying the number and thickness of rock layers, as well as fossils found within rock layers.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Lesson 18	Aligned as designed	Inquiry 18.1 SG pp 209 - 297; Reading: Fossils SG pp 301-304; Reading: Dating Rocks SG pp 309-311	
Lesson 18	Aligned as designed	Figure 18.2 and Figure 18.3 SG pp 296-297; Inquiry 18.1, 18.2, SG pp 290-298	
Lesson 18	Aligned as designed	Reading: The Great Asteroid and the End of the Dinosaurs SG pp 305-307	
Lesson 19	Aligned as designed	Inquiry 19.1 SG p 314; Student Sheet 10.1c; Reading: Little Things Mean a Lot, SG pp 319-320	The unit/lesson is an integral part of a learning progression. Scale of the Sun-Earth-Moon is introduced early (Lesson 2). Comparing planets is the focus of the anchor project (Lesson 10). Asteroids are focused on in Lessons 12 and 17. Lesson 11 focuses on scale of the solar system.

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Lesson 19	Aligned as designed	Reading: Science Fiction-Science Fact SG pp 321-323	
Lesson 20	Aligned as designed	SG pp 328-333; Inquiry 20.1 SG pp 326-327	
Lesson 20	Aligned as designed	Inquiry 20.1 SG pp 326-327; Reading: Spinoffs From Space SG pp 328-333	
Lesson 20	Aligned as designed	Entire Lesson 20	

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Lesson 20	Aligned as designed	Extension 1 TG p 297	