WASHINGTON STATE LASER

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

SEPUP

Exploring the Solar System

November 1, 2010

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Application ~ APPA

Content Standard People have always used technology to solve problems. Advances in human civilization are linked to advances in technology.

Performance Expectation • Describe how a technology has changed over time in response to societal challenges.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 85	**Aligned with modifications (see comments)**	SG pp G-4-6; TG pp G-3-6	The unit/lesson is an integral part of a learning progression. The teacher needs to intentionally take advantage of multiple opportunities to discuss change in technology over time. Teacher must make use of information found in TG as a minimum base for future activities.
Activity 93	**Aligned as designed**	SG p G-37; TG p G-75	The teacher needs to be intentional about discussing the standard and the problem involved, (i.e., how do you examine something you cannot see).
Activity 94	**Aligned as designed**	SG p G-41; TG p G-82	The teacher needs to be intentional about discussing the standard and the problem involved, (i.e., how do you examine something you cannot see or get close enough to touch).
Activity 97	**Aligned with modifications (see comments)**	SG pp G-57-63; TG pp G-103-107	The teacher needs to be intentional about discussing the standard as it relates to application of technology developed for the space program to other human needs, (i.e. medicine, energy, transportation, etc.).

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Application ~ APPA

Content Standard People have always used technology to solve problems. Advances in human civilization are linked to advances in technology.

Performance Expectation • Describe how a technology has changed over time in response to societal challenges.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 98	**Aligned as designed**	SG pp G-66-67	

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
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
Activity 97	**Aligned with modifications (see comments)**	SG pp G-57-63; TG pp G-103-107	The teacher needs to be intentional about discussing the standard as it relates to the activity. (3 different professions or viewpoints). Good springboard for discussion of the standard.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
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
Activity 85	**Aligned with modifications (see comments)**	SG pp G-4-6; TG pp G-3-6	The unit contains many opportunities to address the standards but the teacher must be intentional in directing students to think of the scientists and engineers in tandem (e.g., there would be no scientists in space had the engineers not built the space ships).
Activity 86	**Aligned with modifications (see comments)**	SG p G-10; TG p G-18	The unit contains the opportunities to address the standards if teacher intentional discussed the use of telescopes as a technical engineering solution to a scientific problem.
Activity 86	**Aligned as designed**	SG p G-7-10; TG p G-18	
Activity 87	**Aligned with modifications (see comments)**	SG pp G-13-15; TG pp G-23-26	The unit/lesson is an integral part of a learning progression. The teacher needs to intentionally take advantage of multiple opportunities to discuss change in technology over time. Teacher must make use of information found in TG as a minimum base for future activities. Check sepuplhs.org for possible updates.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
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
Activity 87	**Aligned as designed**	SG pp G-12-16; TG pp. G-21-27	The unit contains multiple opportunities to address the standards if teacher emphasizes the use of telescopes as a technical engineering solution to a scientific problem.
Activity 93	**Aligned as designed**	SG p G-37; TG p G-75	The teacher needs to be intentional about discussing the standard and the problem involved, (i.e., how do you examine something you cannot see).
Activity 94	**Aligned with modifications (see comments)**	SG p G-44; TG p G-82	The teacher needs to be intentional about discussing the standard and possibly giving other examples, (i.e., remind them about the telescope).
Activity 97	**Aligned with modifications (see comments)**	SG pp G-57-63; TG pp G-103-107	The teacher needs to be intentional about discussing the standard as it relates to the activity. Good springboard for discussion of the standard.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
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
Activity 98	**Aligned as designed**	TG pp G-113-115	The unit/lesson contains many opportunities to discuss how science and technology.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Application ~ APPF

Content Standard Solutions must be tested to determine whether or not they will solve the problem. Results are used to modify the design, and the best solution must be communicated persuasively.

Performance Expectation
• Test the best solution by building a model or other representation and using it with the intended audience. Redesign as necessary.
• Present the recommended design using models or drawings and an engaging presentation.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 97	**Aligned with modifications (see comments)**	SG pp G-57-63; TG pp G-103-107	The teacher needs to be intentional about discussing the standard as it applies to the choice between manned and unmanned exploration. Teachers need to emphasize that discussion must be persuasive, not personnel.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Application ~ APPH

Content Standard People in all cultures have made and continue to make contributions to society through science and technology.

Performance Expectation • Describe scientific or technological contributions to society by people in various cultures.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 85	**Aligned with modifications (see comments)**	SG pp G-4-6; TG pp G-3-6; Activity cards	This will better meet the standard if the teacher intentionally takes advantage of multiple opportunities to discuss contributions of other individuals from varying cultures and the synergy needed by all to accomplish the tasks of space exploration. Teacher must make use of information found in TG as a minimum base for future activities. Activity cards can serve as a good base.
Activity 87	**Aligned as designed**	SG pp G-13-15; TG pp G-23-26	The unit/lesson is an integral part of a learning progression. The teacher needs to intentionally take advantage of multiple opportunities to discuss contributions of other societies. TG provides excellent summary. Current events may be relevant.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
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
Activity 86	**Aligned as designed**	SG pp G-7-11; TG pp G-15-19	
Activity 88	**Aligned with modifications (see comments)**	SG pp G-17-19; TG pp G-29-35	Teacher must make use of information found at the SEPUP web site(sepuplhs.org). The teacher tab gives updated definitions for planets, dwarf planets and small solar system bodies. Click on "student book pages" to download an additional reading and questions for Pluto.
Activity 89	**Aligned with modifications (see comments)**	TG p G-39; Student sheet 89.1	Teacher must make use of information found on sepuplhs.org for publisher updates.
Activity 90	**Aligned as designed**	SG p G-25; TG pp G-43, G-49	Teachers need to emphasize Earth's position.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
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
Activity 91	**Aligned as designed**	TG p G-59; Student sheets G- 63, 65, 67	Teacher must make use of information found in the extension activity TG p 59 to better complete the performance expectation of comparing relative size and distance of planets.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Earth Science ~ ES1D

Content Standard Gravity is the force that keeps planets in orbit around the Sun and governs the rest of the motion in the Solar System. Gravity alone holds us to the Earth's surface.

Performance Expectation • Predict what would happen to an orbiting object if gravity were increased, decreased, or taken away.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 95	**Aligned as designed**	TG p G-89, Followup- #3.	The teacher needs to be intentional about discussing what might happen if the gravity of two objects were increased, decreased, or taken away (performance expectation).
Activity 96	**Aligned as designed**	TG pp G-93-99; SG pp G-49-56	

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Earth Science ~ ES1E

Content Standard Our Sun is one of hundreds of billions of stars in the Milky Way galaxy. Many of these stars have planets orbiting around them. The Milky Way galaxy is one of hundreds of billions of galaxies in the universe.

Performance Expectation • Construct a physical model or diagram showing Earth's position in the Solar System, the Solar System's position in the Milky Way, and the Milky Way among other galaxies.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 92	**Aligned as designed**	SG pp G-33-34	

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Earth Science ~ ES2B

Content Standard The Sun is the major source of energy for phenomena on Earth's surface, such as winds, ocean currents, and the water cycle.

Performance Expectation
- Connect the uneven heating of Earth's surface by the Sun to global wind and ocean currents.
- Describe the role of the Sun in the water cycle.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 92	**Aligned as designed**	SG pp 32-33	

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Inquiry ~ INQB

Content Standard Different kinds of questions suggest different kinds of scientific investigations.

Performance Expectation
• 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.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 86	**Aligned with modifications (see comments)**	SG pp G-7-11; TG pp G-15-19	The unit/lesson contains many opportunities to discuss the different types of scientific investigations and methods in which to collect data. Having students participate in the extension, TG pp G-18 and SG pp G10- and G-11 may help to solidify the different methods scientists use to observe our surroundings.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Inquiry ~ INQC

Content Standard Collecting, analyzing, and displaying data are essential aspects of all investigations.

Performance Expectation
• Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.
• Recognize and interpret patterns – as well as variations from previously learned or observed patterns – in data, diagrams, symbols, and words.
• Use statistical procedures (e.g., median, mean, or mode) to analyze data and make inferences about relationships.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 86	**Aligned as designed**	SG pp G-7-11; TG pp G-15-19	
Activity 93	**Aligned as designed**	SG pp G-38-40; TG pp G-75-77; Student sheet 93.1	The teacher needs to be intentional about supporting students to see the link between the data collected and the observed patterns representing the surface (topography) of the "planet".
Activity 95	**Aligned as designed**	SG pp G-45-4; TG pp G-88-89	Teachers need to ask students to explain the linear relationship that exists between gravitational pull and mass of the object. Strong link to the Math Connections.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Inquiry ~ INQE

Content Standard Models are used to represent objects, events, systems, and processes. Models can be used to test hypotheses and better understand phenomena, but they have limitations.

Performance Expectation • Create a model or simulation to represent the behavior of objects, events, systems, or processes. Use the model to explore the relationship between two variables and point out how the model or simulation is similar to or different from the actual phenomenon.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 90	**Aligned as designed**	SG pp G-26-7; G-27 analysis question 2; TG pp G-45-47	
Activity 91	**Aligned as designed**	SG pp G-28-31; TG pp G-55-67	The unit/lesson is strong in math connections. Some students may need additional support to complete the mathematics.
Activity 93	**Aligned as designed**	SG pp 38-40, TG pp 75-76	Teachers need to ask students to explain how and why the topographical map they create can be a model.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Inquiry ~ INQF

Content Standard It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.

Performance Expectation
• Generate a scientific conclusion from an investigation using inferential logic, and clearly distinguish between results (e.g., evidence) and conclusions (e.g., explanation).
• Describe the differences between an objective summary of the findings and an inference made from the findings.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 95	**Aligned with modifications (see comments)**	SG p G-4; TG pp G-88-89	Teachers need to emphasize the use of evidence (data in both question 3 & 4) to support inferences ("Explain" in question #3)
Lesson 95	**Aligned with modifications (see comments)**	SG p G-47; Analysis questions 3-4; TG pp G-88-89	The unit contains many opportunities to address the standards but the teacher must be intentional in using the term "inference" and "evidence" when discussing and scoring analysis questions 3-4.

Alignment of Washington 6-8 Science Standards with
SEPUP Exploring the Solar System
Inquiry ~ INQH

Content Standard

Science advances through openness to new ideas, honesty, and legitimate skepticism. Asking thoughtful questions, querying other scientists' explanations, and evaluating one's own thinking in response to the ideas of others are abilities of scientific inquiry.

Performance Expectation

• Recognize flaws in scientific claims, such as uncontrolled variables, over generalizations from limited data, and experimenter bias.
• Listen actively and respectfully to research reports by other students. Critique their presentations respectfully, using logical argument and evidence.
• Engage in reflection and self-evaluation.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 92	**Aligned with modifications (see comments)**	SG p G-92; TG p G-69	The unit/lesson contains many opportunities to discuss how science advances through openness to new ideas, honesty, and legitimate skepticism.
Activity 97	**Aligned as designed**	SG p G-63; TG pp G-105-107	Intentional use of the discussion protocol outlined in the teachers guide is necessary to facilitate student discussions that will meet this standard.
Activity 98	**Aligned as designed**	SG p G-65; TG p G-113; TR pp 62-65	Teachers need to emphasize group discussion skills.