

WASHINGTON STATE LASER

Alignment of Washington 6-8
Science Standards by Lesson Number for

SEPUP

Water

November 1, 2010

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 30**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQB	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-4-6; TG pp C-5-6	Aligned as designed	
INQB	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-4-6; TG pp C-5-6	Aligned as designed	
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-5-6; TG p C-6	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 31**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
SYSB	The boundaries of a system can be drawn differently depending on the features of the system being investigated, the size of the system, and the purpose of the investigation.	<ul style="list-style-type: none"> • Explain how the boundaries of a system can be drawn to fit the purpose of the study (e.g., to study how insect populations change, a system might be a forest, a meadow in the forest, or a single tree). 	SG p C-9; TG p C-9; TR 31.1	Aligned with modifications (see comments)	Teacher must be intentional about use of the terms "system" and "boundaries".

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 32**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-13-14; TG pp C-20-21, 23-25	Aligned as designed	The unit/lesson contains many opportunities to discuss Scientific Inquiry.

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 33**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-15-20; TG pp C-29-37	Aligned as designed	Teachers need to emphasize "analyze" and "communicate".

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 35**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
PS2A	Substances have characteristic intrinsic properties such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample.	<ul style="list-style-type: none"> • Use characteristic intrinsic properties such as density, boiling point, and melting point to identify an unknown substance. 	SG pp C-31-33; TG pp C-50-56; Student Sheet 35.1	Aligned as designed	
PS2E	Solids, liquids, and gases differ in the motion of individual particles. In solids, particles are packed in a nearly rigid structure; in liquids, particles move around one another; and in gases, particles move almost independently.	<ul style="list-style-type: none"> • Describe how solids, liquids, and gases behave when put into a container (e.g., a gas fills the entire volume of the container). Relate these properties to the relative movement of the particles in the three states of matter. 	SG p C-29; TG p C-48	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 36**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQE	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.	<ul style="list-style-type: none"> • 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. 	SG p C-38; TG pp C-67-68	Aligned as designed	
PS2C	All matter is made of atoms. Matter made of only one type of atom is called an element.	<ul style="list-style-type: none"> • Explain that all matter is made of atoms, and give examples of common elements—substances composed of just one kind of atom. 	SG pp C-34-37; TG p C-63	Aligned as designed	
PS2D	Compounds are composed of two or more kinds of atoms, which are bound together in well-defined molecules or arrays.	<ul style="list-style-type: none"> • Demonstrate with a labeled diagram and explain the relationship among atoms, molecules, elements, and compounds. 	SG p C-37; TG pp C-63-64	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 37**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-40-42; TG p C-76; Student Sheet 37.1	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 38**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQD	For an experiment to be valid, all (controlled) variables must be kept the same whenever possible, except for the manipulated (independent) variable being tested and the responding (dependent) variable being measured and recorded. If a variable cannot be controlled, it must be reported and accounted for.	<ul style="list-style-type: none"> Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. Determine which variables should be kept the same (controlled), which (independent) variable should be systematically manipulated, and which responding (dependent) variable is to be measured and recorded. Report any variables not controlled and explain how they might affect results. 	SG pp C-43-46; TG p TR-123; TG pp C-89-97	Aligned as designed	Teacher must be intentional about use of the terms "hypothesis" and variables (manipulated, responding, and controlled).

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 39**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
ES2C	In the water cycle, water evaporates from Earth's surface, rises and cools, condenses to form clouds and falls as rain or snow and collects in bodies of water.	<ul style="list-style-type: none"> Describe the water cycle and give local examples of where parts of the water cycle can be seen. 	SG pp C-47-51; TG pp C-101-117	Aligned as designed	
ES2D	Water is a solvent. As it passes through the water cycle, it dissolves minerals and gases and carries them to the oceans.	<ul style="list-style-type: none"> Distinguish between bodies of saltwater and fresh water and explain how saltwater became salty. 	SG pp C-47-51; TG pp C-101-117	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 40**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> • 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. 	SG p C-55; TG pp C-122-124	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 41**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQG	Scientific reports should enable another investigator to repeat the study to check the results.	<ul style="list-style-type: none"> • Prepare a written report of an investigation by clearly describing the question being investigated, what was done, and an objective summary of results. The report should provide evidence to accept or reject the hypothesis, explain the relationship between two or more variables, and identify limitations of the investigation. 	SG pp C-57-61; TG pp C-139-141, TR-125	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 42**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
PS2B	Mixtures are combinations of substances whose chemical properties are preserved. Compounds are substances that are chemically formed and have different physical and chemical properties from the reacting substances.	<ul style="list-style-type: none"> • Separate a mixture using differences in properties (e.g., solubility, size, magnetic attraction) of the substances used to make the mixture. • Demonstrate that the properties of a compound are different from the properties of the reactants from which it was formed. 	SG pp C-62, 64-65; TG pp C-146-148; Transparency 42.1	Aligned with modifications (see comments)	Teacher must be intentional about use of the terms, "mixtures", "compounds", "physical and chemical properties". The teacher needs to be intentional about discussing the standard as applied to this lesson.

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 43**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
PS2B	Mixtures are combinations of substances whose chemical properties are preserved. Compounds are substances that are chemically formed and have different physical and chemical properties from the reacting substances.	<ul style="list-style-type: none"> • Separate a mixture using differences in properties (e.g., solubility, size, magnetic attraction) of the substances used to make the mixture. • Demonstrate that the properties of a compound are different from the properties of the reactants from which it was formed. 	SG pp C-67-71; TG pp C-154-157	Aligned with modifications (see comments)	Teacher must be intentional about use of the terms, "mixtures", "compounds", "physical & chemical properties". The Unit/Lesson is an integral part of the learning progression students are asked to demonstrate conceptual understanding of standards in Activities 42 & 43.

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 44**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<p>INQF</p>	<p>It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.</p>	<ul style="list-style-type: none"> • 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. 	<p>SG pp C-73-77; TG pp C-162-167</p>	<p>Aligned as designed</p>	<p>The unit/lesson contains opportunities for the use of terms "results", "evidence", "explanation", & "conclusion", but it requires the intentional use by teachers. The unit/lesson intentionally refers to Activity 31.</p>

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 46**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-83-85; TG pp C-186-189	Aligned as designed	
PS2A	Substances have characteristic intrinsic properties such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample.	<ul style="list-style-type: none"> • Use characteristic intrinsic properties such as density, boiling point, and melting point to identify an unknown substance. 	TG pp C-184-185	Aligned with modifications (see comments)	Teachers need to emphasize "pH" as a characteristic intrinsic property.

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 47**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<p>PS2A</p>	<p>Substances have characteristic intrinsic properties such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample.</p>	<ul style="list-style-type: none"> • Use characteristic intrinsic properties such as density, boiling point, and melting point to identify an unknown substance. 	<p>SG pp C-86-90; TG pp C-191-194</p>	<p>Aligned with modifications (see comments)</p>	<p>Teachers need to emphasize "pH", "acids" and "bases" as characteristic intrinsic property.</p>

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 48**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> • 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. 	SG pp C-91-93; TG pp C-204-207	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 49**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQE	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.	<ul style="list-style-type: none"> • 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. 	SG pp C-94-97; TG pp C-209-213	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 50**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
<p>PS2D</p>	<p>Compounds are composed of two or more kinds of atoms, which are bound together in well-defined molecules or arrays.</p>	<ul style="list-style-type: none"> • Demonstrate with a labeled diagram and explain the relationship among atoms, molecules, elements, and compounds. 	<p>SG pp C-99-103; TG pp C-217-220; Student Sheet 50.2</p>	<p>Aligned with modifications (see comments)</p>	<p>Teachers need to emphasize the relationship among atoms, molecules, elements and compounds.</p>

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 51**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQB	Different kinds of questions suggest different kinds of scientific investigations.	<ul style="list-style-type: none"> 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. 	SG pp C-105-106; TG pp C-230-231	Aligned as designed	
INQC	Collecting, analyzing, and displaying data are essential aspects of all investigations.	<ul style="list-style-type: none"> 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. 	SG p C-107	Aligned as designed	
INQD	For an experiment to be valid, all (controlled) variables must be kept the same whenever possible, except for the manipulated (independent) variable being tested and the responding (dependent) variable being measured and recorded. If a variable cannot be controlled, it must be reported and accounted for.	<ul style="list-style-type: none"> Plan and conduct a controlled experiment to test a hypothesis about a relationship between two variables. Determine which variables should be kept the same (controlled), which (independent) variable should be systematically manipulated, and which responding (dependent) variable is to be measured and recorded. Report any variables not controlled and explain how they might affect results. 	SG pp C-106-107	Aligned with modifications (see comments)	Teacher must be intentional about use of the terms "variable", "manipulated", "responding", & "controlled".

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 51**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQF	It is important to distinguish between the results of a particular investigation and general conclusions drawn from these results.	<ul style="list-style-type: none"> • 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. 	SG p C-108	Aligned as designed	
INQG	Scientific reports should enable another investigator to repeat the study to check the results.	<ul style="list-style-type: none"> • Prepare a written report of an investigation by clearly describing the question being investigated, what was done, and an objective summary of results. The report should provide evidence to accept or reject the hypothesis, explain the relationship between two or more variables, and identify limitations of the investigation. 	SG p C-107	Aligned as designed	

**Alignment of Washington 6-8 Science Standards with
SEPUP Water ~ Activity 52**

Standard	Content Standard	Performance Expectation	Evidence of Alignment	Alignment	Alignment Comments
INQH	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.	<ul style="list-style-type: none"> • 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. 	SG pp C-109-111; Student Sheet 52.2	Aligned as designed	
APPE	Scientists and engineers often work together to generate creative solutions to problems and decide which ones are most promising.	<ul style="list-style-type: none"> • Collaborate with other students to generate creative solutions to a problem, and apply methods for making tradeoffs to choose the best solution. 	SG pp C-110-111; Student Sheet 52.1; TG pp C-243-245	Aligned as designed	