

WASHINGTON STATE LASER

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

SEPUP

Ecology

November 1, 2010

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Systems ~ SYSC**

Content Standard

The output of one system can become the input of another system.

Performance Expectation

- Give an example of how output of matter or energy from a system can become input for another system

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 81	Aligned with modifications (see comments)	SG p E-53 Extension 2; TG pp E-122, E-129; Transparency 81.1; Student Sheet 81.2	The unit/lesson is an integral part of a learning progression. Teacher must be intentional about use of the terms 'inputs' and 'outputs' when describing photosynthesis.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Systems ~ SYSD**

Content Standard In an open system, matter flows into and out of the system. In a closed system, energy may flow into or out of the system, but matter stays within the system.

Performance Expectation • Given a description of a system, analyze and defend whether it is open or closed.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 80	Aligned as designed	TG pp E-107-108 Follow-up	Teachers need to emphasize the class discussion from the "Follow-up" to address systems language.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Systems ~ SYSF**

Content Standard

The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as “systems.”

Performance Expectation

- Given a complex societal issue with strong science and technology components (e.g., overfishing, global warming), describe the issue from a systems point of view, highlighting how changes in one part of the system are likely to influence other parts of the system.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 77	Aligned as designed	SG pp E-32-36; TG pp E-63-72; Student Sheet 77.2	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
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 81	Aligned as designed	SG p E-52 Part B; TG p E-124	
Activity 83	Aligned as designed	SG pp E-59-60 Part A; TG pp E-154-155	
Activity 86	Aligned with modifications (see comments)	SG p E-76 Analysis Questions; TG pp E-188-190	The unit/lesson intentionally refers to a field study as a means for student observation and generating questions about an ecosystem.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Inquiry ~ INQC**

Content Standard

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

- Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.

Performance Expectation

- 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 77	Aligned as designed	SG pp E-32-36; TG pp E-63-72; Student Sheet E-75, E-77	
Activity 81	Aligned as designed	SG p E-52 Part B; TG p E-124	
Activity 83	Aligned as designed	SG pp E-59-60 Part A; TG pp E-154-155	
Activity 84	Aligned as designed	SG pp E-68-69; Student Sheets 84.1; Transparency 84.2; TG pp E-169-171	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Inquiry ~ INQC**

Content Standard

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

- Communicate results using pictures, tables, charts, diagrams, graphic displays, and text that are clear, accurate, and informative.

Performance Expectation

- 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 88	Aligned as designed	SG pp 18-19, TG p G-33	Students are asked to develop a classification system from data they are given and analyze while identifying patterns in data sets.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Inquiry ~ INQD**

Content Standard

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.

Performance Expectation

• 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.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 81	Aligned as designed	SG p E-52 Part B; TG p E-124	
Activity 83	Aligned as designed	SG pp E-59 -60 Part A; TG pp E-154-155	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
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 84	Aligned as designed	SG pp E-67-68; Transparency 84.1; TG pp E-166-168	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Inquiry ~ INQE**

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

- 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.

Performance Expectation

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 74	Aligned as designed	SG p E-16; TG pp E-37-38	
Activity 81	Aligned as designed	SG p E-52 Part B; TG p E-124	
Activity 83	Aligned as designed	SG p E-64 Analysis Question 1; TG pp E-157	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Inquiry ~ INQG**

Content Standard

Scientific reports should enable another investigator to repeat the study to check the results.

Performance Expectation

• 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.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 81	Aligned with modifications (see comments)	SG p E-52 Part B; TG p E-124	Teachers need to emphasize the 'limitations' of the investigation.
Activity 83	Aligned with modifications (see comments)	SG p E-64 Analysis Question 3; TG pp E-158	Teachers need to ask students to explain limitations of the investigation.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
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 75	Aligned as designed	SG p E-21, E-22 Reflection; TG pp E-46-47	
Activity 76	Aligned as designed	SG pp E-23-24; TG pp E-57-60	
Activity 85	Aligned as designed	SG p E-73 Stopping to Think 4; TG p E-182	
Activity 88	Aligned as designed	SG p E-82 Procedures, E-83 Analysis; Transparency 88.1	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Inquiry ~ INQI**

Content Standard Scientists and engineers have ethical codes governing animal experiments, research in natural ecosystems, and studies that involve human subjects.

Performance Expectation • Demonstrate ethical concerns and precautions in response to scenarios of scientific investigations involving animal experiments, research in natural ecosystems, and studies that involve human subjects.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 74	Aligned with modifications (see comments)	SG p E-16	Teachers need to emphasize ethical concerns and precautions in response to scenarios of scientific investigations involving animal experiments.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS1A**

Content Standard

All organisms are composed of cells, which carry on the many functions needed to sustain life.

Performance Expectation

- Draw and describe observations made with a microscope showing that plants and animals are made of cells, and explain that cells are the fundamental unit of life.
- Describe the functions performed by cells to sustain a living organism (e.g., division to produce more cells, taking in nutrients, releasing waste, using energy to do work, and producing materials the organism needs).

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 82	Aligned with modifications (see comments)	SG pp E-55-56; TG pp E-141-144; Student Sheet 82.1	This unit/lesson is a part of a conceptual sequence. Students are only asked to observe and draw plant cells.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS1D**

Content Standard

Both plant and animal cells must carry on life functions, so they have parts in common, such as nuclei, cytoplasm, cell membranes, and mitochondria. But plants have specialized cell parts, such as chloroplasts and cell walls, which provide plants their overall structure.

Performance Expectation

- Use labeled diagrams or models to illustrate similarities and differences between plant and animal cell structures and describe their functions (e.g., both have nuclei, cytoplasm, cell membranes, and mitochondria, while only plants have chloroplasts and cell walls).

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 82	Aligned with modifications (see comments)	SG pp E-55-57; TG p E-141-144; Student Sheet 82.1	This unit/lesson is a part of a conceptual sequence. Teachers need to emphasize function of cell structures.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS1E**

Content Standard

In classifying organisms, scientists consider both internal and external structures and behaviors.

Performance Expectation

• Use a classification key to identify organisms, noting use of both internal and external structures as well as behaviors.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 75	Aligned as designed	SG pp E-19-22; TG pp E-41-49	
Activity 76	Aligned as designed	SG pp E-23-24; TG pp E-57-60	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS2A**

Content Standard An ecosystem consists of all the populations living within a specific area and the nonliving factors they interact with. One geographical area may contain many ecosystems.

Performance Expectation

- Explain that an ecosystem is a defined area that contains populations of organisms and nonliving factors.
- Give examples of ecosystems (e.g., Olympic National Forest, Puget Sound, one square foot of lawn) and describe their boundaries and contents.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 77	Aligned as designed	SG pp E-32-36; TG pp E-63-72; Student Sheet 77.2	The unit/lesson is strong in the area of the concept of populations.
Activity 83	Aligned as designed	SG pp E-60-65; TG pp E-155-159; Student Sheet 83.1	The unit/lesson is strong in nonliving factors.
Activity 86	Aligned as designed	SG p E-75 Procedures; TG p E- 187	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS2B**

Content Standard Energy flows through an ecosystem from producers (plants) to consumers to decomposers. These relationships can be shown for specific populations in a food web.

Performance Expectation • Analyze the flow of energy in a local ecosystem, and draw a labeled food web showing the relationships among all of the ecosystem’s plant and animal populations.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 78	Aligned as designed	SG pp E-37-38; SG p 38 Analysis questions Food Web development 1 and 2; TG pp E-83-87	This unit/lesson is a part of a conceptual sequence.
Activity 79	Aligned as designed	SG pp E-41-45; TG pp E-95-96; Transparency 79.1; Student Sheet 79.1	This unit/lesson is a part of a conceptual sequence.
Activity 80	Aligned as designed	SG pp E-46, Analysis Questions E-49 all; TG pp E-107-108, Follow-up	The unit/lesson is strong in concept of decomposers and reinforces producers and consumer roles in ecosystem.
Activity 86	Aligned as designed	SG p E-75 Procedure #6; TG p E-188	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
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
Activity 79	Aligned as designed	SG pp E-41-45; TG pp E-95-96; Transparency 79.1; Student Sheet 79.1	
Activity 81	Aligned as designed	SG pp E-50-53; TG pp E-122; Student Sheet 81.2	Teachers need to emphasize Student Guide Analysis Questions 4 and 5 on p E-53.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS2D**

Content Standard

Ecosystems are continuously changing. Causes of these changes include nonliving factors such as the amount of light, range of temperatures, and availability of water, as well as living factors such as the disappearance of different species through disease, predation, habitat destruction and overuse of resources or the introduction of new species.

Performance Expectation

- Predict what may happen to an ecosystem if nonliving factors change (e.g., the amount of light, range of temperatures, or availability of water or habitat), or if one or more populations are removed from or added to the ecosystem.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 73	Aligned as designed	SG pp E-9-13; TG pp E-13-31	This unit/lesson is a part of a conceptual sequence.
Activity 77	Aligned as designed	SG pp E-32-36; TG pp E-63-72; Student Sheet 77.2	The unit/lesson is strong in the concept of introduced species.
Activity 79	Aligned as designed	SG pp E-41-45; Analysis questions; TG pp E-95-96; Transparency 79.1	The unit/lesson is strong in concept of Introduced Species.
Activity 82	Aligned with modifications (see comments)	SG p E-57; TG pp E-145-146	Teachers need to emphasize Student Guide Analysis Question #6.

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS2D**

Content Standard

Ecosystems are continuously changing. Causes of these changes include nonliving factors such as the amount of light, range of temperatures, and availability of water, as well as living factors such as the disappearance of different species through disease, predation, habitat destruction and overuse of resources or the introduction of new species.

Performance Expectation

- Predict what may happen to an ecosystem if nonliving factors change (e.g., the amount of light, range of temperatures, or availability of water or habitat), or if one or more populations are removed from or added to the ecosystem.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 84	Aligned as designed	SG pp E-66-69; TG pp 166-168	
Activity 85	Aligned as designed	SG p E-72 Stopping to Think 3; SG p E-73 Analysis Question 1C; TG p E182	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS2E**

Content Standard Investigations of environmental issues should uncover factors causing the problem and relevant scientific concepts and findings that may inform an analysis of different ways to address the issue.

Performance Expectation

- Investigate a local environmental issue by defining the problem, researching possible causative factors, understanding the underlying science, and evaluating the benefits and risks of alternative solutions.
- Identify resource uses that reduce the capacity of ecosystems to support various populations (e.g., use of pesticides, construction).

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 73	Aligned as designed	Student Sheet 73.1	
Activity 87	Aligned as designed	SG p E-80 Analysis; Student Sheet 87.1	
Activity 88	Aligned as designed	SG p E-82 Procedures, E-83 Analysis; Transparency 88.1	

**Alignment of Washington 6-8 Science Standards with
SEPUP Ecology
Life Science ~ LS3F**

Content Standard Extinction occurs when the environment changes and the adaptive characteristics of a species, including its behaviors, are insufficient to allow its survival.

Performance Expectation • Given an ecosystem, predict which organisms are most likely to disappear from that environment when the environment changes in specific ways.

Lesson Number	Alignment	Evidence of Alignment	AlignmentComments
Activity 72	Aligned with modifications (see comments)	SG pp E-6-8 Nile Perch Reading	Teachers need to emphasize the concept of extinction.