STANDARDS ALIGNMENT KEY

♦	Unit is aligned as is.
♦ V	Unit is aligned with the intentional use of vocabulary from the Washington Science Standards
♦ R	Unit is aligned with the intentional use of the STC Children's Book
♦ r	Unit is aligned with the intentional use of the readings within the unit.
♦ E	Unit is aligned with the intentional use of the lesson extensions
▲	Unit needs identified changes or additions to be aligned

LAND AND WATER DEEP ALIGNMENT

EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
Systems	4-5	SYSA	Systems contain *subsystems*.	Identify at least one of the *subsystems* of an object, plant, or animal (e.g., an airplane contains *subsystems* for propulsion, landing, and *control*).	Lesson 9	♦V	Students create tributaries in their stream tables. Teachers should intentionally explain that tributaries are small parts, or *subsystems,* of a larger river *system* or watershed.
Systems	4-5	SYSC	Systems have *inputs* and *outputs*. Changes in inputs may change the *outputs* of a *system*.	*Describe* what goes into a *system (input)* and what comes out of a *system (output)* (e.g., when making cookies, inputs include sugar, flour, and chocolate chips; *outputs* are finished cookies). *Describe* the *effect* on a *system* if its *input* is changed (e.g., if sugar is left out, the cookies will not taste very good).	Throughout the unit.	♦V	In many of the lessons in this unit, the input is the water being added to the stream table and the water + sediment is the output that is either observed or measured.
Systems	2-3	SYSA	A system is a group of interacting parts that form a whole.	*Give examples of simple living and physical systems (e.g., a whole animal or plant, a car, a doll, a set of table and chairs). For each example, explain how different parts make up the whole.*	Throughout the unit.	♦V	The stream table, as described in the 4-5 standards on Systems, is considered a *system* and that vocabulary should be used when referring to the stream table and the components (interacting parts) that make up this model.

Systems	2-3	SYSB	A whole object, plant, or animal may not continue to function the same way if some of its parts are missing.	*Predict what may happen to an object, plant, or animal if one or more of its parts are removed (e.g., a tricycle cannot be ridden if its wheels are removed).* *Explain how the parts of a system depend on one another for the system to function.*	Throughout the unit.	♦V	If one or more of the components of the stream table *system* are missing, the *system* will not function as it is intended.
Systems	2-3	SYSC	A whole object, plant, or animal can do things that none of its parts can do by themselves.	*Contrast the function of a whole object, plant, or animal with the function of one of its parts (e.g., an airplane can fly, but wings and propeller alone cannot; plants can grow, but stems and flowers alone cannot).*	Throughout the unit.	♦V	The whole stream table *system* can do things that just one of its parts (soil, cups, water) cannot.

LAND AND WATER DEEP ALIGNMENT

EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
Inquiry	4-5	INQA	Scientific investigations involve asking and answering *questions* and comparing the answers with *evidence* from the real world.	Identify the *questions* being asked in an investigation. Gather scientific evidence that helps to answer a *question.*	Lessons 7, 9-14	♦	In this unit, students engage in multiple scientific investigations where they predict, observe, collect data, and answer a question posed to them by the unit.
Inquiry	4-5	INQB	Scientists plan and conduct different kinds of investigations, depending on the *questions* they are trying to answer. Types of investigations include systematic *observations* and descriptions, *field studies*, *models*, and *open-ended explorations* as well as *experiments*.	Given a research *question*, plan an appropriate investigation, which may include systematic *observations, field studies, models, open-ended explorations*, or *controlled experiments*. Work collaboratively with other students to carry out an investigation, selecting appropriate *tools* and demonstrating safe and careful use of equipment.	Throughout the unit.	♦	

Inquiry	4-5	INQC	An *experiment* involves a *comparison*. For an *experiment* to be valid and fair, all of the things that can possibly change the outcome of the *experiment* should be kept the same, if possible.	Conduct or critique an *experiment*, noting when the *experiment* might not be fair because some of the things that might change the outcome are not kept the same.	Addressed throughout the unit.	♦V	In this unit, students start each investigation using the stream table, by blocking the soil (made up of the same ingredients) to ensure a fair and valid test Also, the size of the holes in the water cups are controlled across teams as well as the amount of water (two liters) in the bottles. Teachers should be intentional about pointing out the elements of the experiments which are controlled to create fair and valid tests.
Inquiry	4-5	INQD	Investigations involve systematic collection and recording of relevant *observations* and data.	Gather, record, and organize data using appropriate units, tables, graphs, or maps.	Addressed throughout the unit.	♦	
Inquiry	4-5	INQE	Repeated *trials* are necessary for *reliability*.	*Explain that* additional *trials* are needed to ensure that the results are repeatable.	Lessons 4, 7, 9, 10, 13 and 14	♦V	The class conducts repeated trials during each of the indicated lessons. Each group represents one trial. Teachers much deliberately refer to stream table investigating the same variable as repeated trials. If you have eight groups you will have eight trials.

Inquiry	4-5	INQF	A scientific *model* is a simplified representation of an object, event, *system*, or process created to understand some aspect of the *natural world*. When learning from a *model*, it is important to realize that the *model* is not exactly the same as the thing being modeled.	Create a simple *model* to represent an event, *system*, or process. Use the *model* to learn something about the event, *system*, or process. *Explain how* the *model* is similar to and different from the thing being modeled.	Throughout the unit.	♦	
Inquiry	4-5	INQG	Scientific explanations emphasize *evidence*, have logically consistent arguments, and use known scientific *principles, models*, and theories.	*Generate* a conclusion from a scientific investigation and show how the conclusion is supported by *evidence* and other scientific *principles*.	Lessons 4, 10, 13	♦	In Lesson 4, 10, and 13 students conduct similar scientific investigations with one changed variable between lessons. Students draw conclusions from the evidence they collect during these investigations.

Inquiry	4-5	INQH	Scientists communicate the results of their investigations verbally and in writing. They review and ask *questions* about the results of other scientists' work.	Display the findings of an investigation, using tables, graphs, or other visual means to represent the data accurately and meaningfully. Communicate to peers the purpose, procedure, results, and conclusions of an investigation. Respond non-defensively to comments and *questions* about their investigation. Discuss differences in findings and conclusions reported by other students.	Addressed throughout the unit.	♦	Students communicate their observations and the results of their investigations verbally and written form through the use of the science notebook.
Inquiry	4-5	INQI	Scientists report the results of their investigations honestly, even when those results show their predictions were wrong, or when they cannot *explain* the results.	*Explain* why records of *observations* must never be changed, even when the *observations* do not match expectations.	Lessons 11, 13, 14	♦V	In Lessons 11, 13, and 14 students are asked to predict the outcome of their investigation. Teachers need to intentionally explain the importance of fairly reporting their results when they differ from predictions or expectations.
Inquiry	2-3	INQA	Scientific investigations are *designed* to gain knowledge about the *natural world*.	Explain how observations can lead to new knowledge and new *questions* about the *natural world*.	Addressed throughout the unit.	♦	

Inquiry	2-3	INQB	A scientific investigation may include making and following a plan to accurately observe and *describe* objects, events, and *organisms*; make and record measurements: and *predict* outcomes.	Work with other students to make and follow a plan to carry out a scientific investigation. Actions may include accurately observing and describing objects, events, and *organisms*; measuring and recording data; and predicting outcomes.	Addressed throughout the unit.	♦	
Inquiry	2-3	INQC	*Inferences* are based on *observations*.	Distinguish between direct *observations* and simple *inferences*.	Lesson 5, 6	♦V	Students are asked to develop inferences about observations of soil components. Teachers must be intentional to discuss the difference between a student's observation (what happened and was seen) and the inferences they draw (why it might have happened).
Inquiry	2-3	INQD	Simple instruments, such as *magnifiers*, *thermometers*, and rulers provide more information than scientists can obtain using only their unaided senses.	Use simple instruments (e.g., metric scales or balances, thermometers, and rulers) to observe and make measurements, and record and display data in a table, bar graph, line plot, or pictograph.	Lessons 4-7, 10, 13 and 14	♦	Students use magnifiers, rulers, graduated cylinders, measuring cups, marine sand to provide detailed information.
Inquiry	2-3	INQE	*Models* are useful for understanding *systems* that are too big, too small, or too dangerous to study directly.	Use a simple *model* to study a *system*. *Explain how* the *model* can be used to better understand the system.	Throughout the unit.	♦	

Inquiry	2-3	INQF	Scientists develop explanations, using *observations (evidence)* and what they already know about the world. Explanations should be based on *evidence* from investigations.	Accurately *describe* results, referring to the graph or other data as *evidence*. Draw a conclusion about the *question* that motivated the study using the results of the investigation as *evidence*.	Lessons 4, 10, 13	♦	In Lessons 4, 10, and 13 students conduct similar scientific investigations with one changed variable between lessons. Students draw conclusions from the evidence they collect during these investigations.
Inquiry	2-3	INQG	Scientists make the results of their investigations public, even when the results contradict their expectations.	Communicate honestly about their investigations, describing how *observations* were made, and summarizing results.	Lesons 11, 13, 14	♦V	In Lessons 11, 13, and 14 students are asked to predict the outcome of their investigation. Teachers need to intentionally explain the importance of fairly reporting their results when they differ from predictions or expectations.

EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
Application	4-5	APPB	People in different cultures all around the world use different materials or *technologies* to solve the same problems.	Give examples of how people around the world use different materials or technologies to solve the same problem. (e.g., in some countries, people use forks for eating, while in other countries they use chopsticks; people in different countries use different materials to build their houses.)	Lesson 2	♦r	In Lesson 2, the reading called *Tapping into the Water Cycle*, students read about various technologies for collecting water utilized in different countries or regions around the world.
Application	2-3	APPC	People in all cultures around the world have always had problems and invented tools and techniques (ways of doing something) to solve problems.	Describe a problem that people in different cultures around the world have had to solve and the various ways they have gone about solving that problem.	Lesson 2	♦r	In Lesson 2, the reading called *Tapping into the Water Cycle*, students read about various technologies for collecting water utilized in different countries or regions around the world.

EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
Physical Science	4-5	PS2A	Substances can exist in different physical *states—solid, liquid*, and *gas*. Many substances can be changed from one state to another by heating or cooling.	*Explain that* water is still the same substance when it is frozen as ice or *evaporated* and becomes a *gas*.	Lesson 2 STC Children's Book	♦ ♦R	Students construct a model of the water cycle illustrating water in two of the physical states *(liquid* and *gas).* In Lesson 2's reading, *Tapping into the Water Cycle*, the water cycle is discussed in all physical states, *solid, liquid,* and *gas.* STC Children's Book: • *Glaciers: Rivers of Ice* discusses water in the physical states of *solid* and *liquid.*
Earth & Space Science	4-5	ES2A	Earth materials include solid rocks and soil, water, and *gases* of the atmosphere. Materials have different *physical* and *chemical properties*, which make them useful in different ways. Earth materials provide many of the resources that humans use.	*Describe* Earth materials and list their physical and *chemical properties*. *Explain how* the *properties* of an Earth material make it useful for certain purposes, but not useful for other purposes (e.g., wood is easily cut, is a good *insulator*, and does not conduct electricity, so it is used to build houses, not for electrical wires). Give examples of *human-made* materials, including those that are changed only a little (e.g., wood and stones used for building) and those that look very different from the raw materials (e.g., metal, ceramics, and plastics).	Lessons 2, 4, 5, 6 STC Children's Book	♦ ♦R	This unit has multiple opportunities to examine the physical properties of the soil components making up the stream table. STC Children's Book: • *Rocks in Our World*

Earth & Space Science	4-5	ES2B	*Weathering* is the breaking down of rock into pebbles and sand, caused by physical processes such as heating, cooling, and pressure, and chemical processes, such as acid rain.	*Describe* and give examples of the physical and chemical processes of w*eathering* of rock.	Lesson 7 reading selection	♦r	Students read about the effects of glaciers and how they shape the land. Teachers should emphasize that glaciers also break down *(weather)* rocks into smaller soil components.
Earth & Space Science	4-5	ES2C	*Erosion* is the movement of Earth materials by processes such as *wind*, water, ice, and *gravity*.	*Describe* the *forces* of water and *wind* as major causes of *erosion*. Identify local examples where *erosion* has occurred and *describe* the processes that most likely caused the *erosion*.	Addressed throughout the unit. STC Children's Book	♦ ♦R	Throughout the unit students observe erosion as water flows through the stream table. STC Children's Book: • *The Dust Bowl*
Earth & Space Science	4-5	ES2D	*Soils* are formed by *weathering* and *erosion*, decay of plant *matter*, settling of volcanic ash, transport by rain through streams and rivers, and *deposition* of *sediments* in valleys, riverbeds, and lakes.	*Explain how* the formation of soils is related to the following processes: *weathering* of rock; decay of *plant matter*; settling of volcanic ash; transport by rain, streams, and rivers; *deposition* of *sediments* in rivers and lakes.	Addressed throughout the unit. STC Children's Book	♦V ♦R	Throughout the unit students observe the deposition of *sediments* in their stream table through the process of *erosion.* Teachers must intentionally discuss *erosion/deposition* as a means of soil formation. STC Children's Book: • *Volcano in a Corn Field*

Earth & Space Science	4-5	ES2E	Soils are often found in layers, with each layer having a different chemical composition and different physical *properties*.	*Compare* different layers in soil with respect to physical *properties* (e.g., color, texture, particle size, amount of dead plant and animal material, capacity for holding water).	Lessons 5 and 6	♦	
Earth & Space Science	4-5	ES2F	*Erosion* plays an important role in the formation of soil, but too much erosion can wash away fertile soil from ecosystems and farms.	*Explain* the role that *erosion* plays in forming soils, and how *erosion* can also deplete soils. *Describe* methods people use to reduce soil *erosion*.	STC Children's Book	♦R	STC Children's Book: • *The Dust Bowl* Students read about the effects of too much erosion, how fertile soil is eroded from farms, and the methods farmers use to reduce soil erosion.
Earth & Space Science	2-3	ES2A	Water plays an essential role in Earth *systems*, including shaping landforms.	*Identify* where natural water bodies occur in the students' local *environment*. Show how water has shaped a local landform (e.g., river valley, canyon, Puget Sound).	Addressed throughout the unit.	♦	