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

NOTE: This alignment document was prepared BEFORE the STC Children's' Book for this unit was completed. It is the intent to complete this document when a review of that resource is possible.

SOILS DEEP ALIGNMENT

EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
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.	Lessons 11 and 12 Lesson 15	♦V	In Lessons 11 and 12, students construct a filtration *system* for investigating how water moves through soil. Teachers should be intentional about using the term *system* as they teach these lessons. In Lesson 15, the same filtration *system* is used.
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.	Lessons 11 and 12	♦V	In Lessons 11 and 12, teachers must engage students in a conversation about the parts of the filtration *system* and how the *system* will not *function* as intended if one of its parts is missing.
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).	Lessons 9, 10 and 13 Lessons 11 and 12	♦V	The whole plant system can do things that one of its parts (stem, root, leaves) cannot. The whole filtration system can function as intended when just one of its parts cannot.

System	2-3	SYSD	Some objects need to have their parts connected in a certain way if they are to *function* as a whole.	*Explain* why the parts in a *system* need to be connected in a specific way for the *system* to *function* as a whole (e.g., batteries must be inserted correctly in a flashlight if it is to produce light).	Lessons 11 and 12	♦V	The teacher must be intentional in describing the *filtration system* as a *system* that must be connected in a specific way for the it to *function* as designed.
Systems	K-1	SYSA	Living and nonliving things are made of parts. People give names to the parts that are different from the name of the whole object, plant, or animal.	Given an illustration of a whole object, plant, or animal, name at least five different parts. *Compare* a part of an object with the whole object, correctly using the words *whole* and *part.*	Lessons 9, 10 and 13 Lesson 13 extension #5	♦V ▲E	In Lessons 9, 10 and 13 when students examine their plants, the teacher must be intentional about naming the plant's parts. Lesson 13, extension #5: Be sure students label the parts of the plants in the planting tube drawings

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EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
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*.	Lessons 6-8,11,12,14-16	♦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).

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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.	Addressed throughout the unit. Lesson 12 extension #2	♦ ♦E	Students use magnifiers to observe soils, redworms, and plants throughout the unit. In extension #2 in Lesson 12, students use a timer to see how long water takes to go through sand and clay.
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.	Lessons 2, 6, 7, 11,and 13	♦V	Teachers would need to intentionally point out that *models* are demonstrations of larger/more complex *systems* (compost bag/bin, the filtration system, the settling tube).
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*.	Addressed throughout the unit.	♦	As students do each lesson they build a body of evidence to develop an explanation about soil types. Lesson 8 and Lessons 14-16 require an explanation of the observations made.
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.	Addressed throughout the unit.	♦V	The final activities of every lesson include students recording in their journal/science notebook and sharing publicly and participating in a facilitated discussion with their classmates about their findings and questions. Teachers should intentionally engage students in conversations about how results must be recorded honestly even when they contradict their predictions or expectations.

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Inquiry	K-1	INQA	Scientific investigations involve asking and trying to answer a *question* about the *natural world* by making and recording *observations*.	Ask *questions* about objects, *organisms*, and events in their *environment*. Follow up a *question* by looking for an answer through students' own activities (e.g., making *observations* or trying things out) rather than only asking an adult to answer the *question*. Observe patterns and *relationships* in the *natural world*, and record *observations* in a table or picture graph.	Addressed throughout the unit.	♦	
Inquiry	K-1	INQC	Scientists develop *explanations*, using recorded *observations* (*evidence*).	*Describe patterns* of data recorded, using tallies, tables, picture graphs, or bar-type graphs. Participate in a discussion of how the recorded data might help to *explain* the observations.	Addressed throughout the unit. Lesson 16	♦	Throughout the unit students are recording data that will help them explain their observations. In Lesson 16, students create and analyze a graph to compare plant growth in 4 different types of soil.
Inquiry	K-1	INQD	Scientists report on their investigations to other scientists, using drawings and words.	Report *observations* of simple investigations, using drawings and simple sentences. Listen to and use *observations* made by other students.	Addressed throughout the unit.	♦	

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Inquiry	K-1	INQE	*Observations* are more *reliable* if repeated, especially if repeated by different people.	State verbally or in writing a need to repeat *observations* to be certain the results are more *reliable*.	Addressed throughout the unit.	♦V	Throughout the unit students work with partners and compare results with other partner groups doing the same investigation thus *creating repeated trials.*
Inquiry	K-1	INQF	All scientific *observations* must be reported honestly and accurately.	Record *observations* honestly and accurately.	Addressed throughout the unit.	♦V	Teachers must intentionally remind students throughout the unit not to change predictions or observation results even if they are contradictory.

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EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
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 5 reading selection	♦ r	In Lesson 5, the reading selection titled *Have You Seen Sand or Clay Today?*, students read about uses for sand and clay in other cultures (S. American Indians, China, US)
Application	2-3	APPD	Tools help scientists see more, measure more accurately, and do things that they could not otherwise accomplish.	Select appropriate *tools* and materials to meet a goal or solve a specific problem (e.g., build the tallest tower with wooden blocks, or longest bridge span) and *explain* the reason for those choices.	Addressed throughout the unit.	♦	
Application	2-3	APPE	Successful *solutions* to problems often depend on selection of the best tools and materials and on previous experience.	Students can also *evaluate* how well it solved the problem and discuss what they might do differently the next time they have a similar problem.	Lesson 8 Lessons 14 - 16	♦	In Lesson 8, students need to use the right tools or best materials to test soils. In Lessons 14-16, students use previous experience to choose the right tools or best materials to conduct the tests.
Application	K-1	APPA	*Common tools* can be used to solve problems.	Use simple *tools* and materials to solve a simple problem (e.g., make a paper or cardboard box to hold seeds so they won't get lost).	Addressed throughout the unit.	♦	

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Application	K-1	APPB	Different materials are more suitable for some purposes than for other purposes.	Choose a material to meet a specific need (e.g., cardboard is better than paper for making a box that will stand up by itself) and explain why that material was chosen.	Lessons 2, 6, 7,and 10-13	♦	Students use a variety of tools/materials in these lessons to determine which soil is will be most effective for plant growth.
Application	K-1	APPD	Counting, classifying, and measuring can sometimes be helpful in solving a problem.	*Apply* the abilities of counting, measuring, and classifying to solving a problem (e.g., Is that enclosure big enough for a pet to stand up in? What types of food can it eat? How much food should I put into the enclosure for my pet?).	Lessons 11 and 12	♦	In Lessons 11 and 12, students apply the ability to measure when examining the soils and their ability to hold water.

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EALR	Grade Band	Code	Content Standard	Performance Expectation	Lesson Number	Alignment Symbol	Comments/Evidence
Physical Science	2-3	PS2A	Objects have *properties*, including size, *weight*, hardness, color, shape, texture, and magnetism. Unknown substances can sometimes be identified by their *properties*.	Given an object, list several of its *properties*. Given several objects, select one that best matches a list of *properties*. Sort objects by their *functions*, shapes and the materials they are composed of.	Lessons 3-5 Lessons 6 and 7	♦V	In Lessons 3, 4 and 5, students use senses to observe various properties of three types of soil (color, texture, shape). In Lesson 7 and 8 they may infer size and weight of particles based on the outcome of the settling investigation. Teachers should intentionally discuss this concept with their students.
Life Science	2-3	LS2D	Humans impact *ecosystems* in both positive and negative ways. Humans can help improve the health of *ecosystems* so that they provide *habitats* for plants and animals and resources for humans over the long term. For example, if people use fewer resources and recycle waste, there will be fewer negative impacts on natural systems.	*Describe* a change that humans are making in a particular *ecosystem*, and *predict* how that change could harm or improve conditions for a given type of plant or animal. Propose a plan to protect or improve an *ecosystem*.	Lesson 13 reading selection	♦r	In Lesson 13 reading selection called *Anita's Compost Pile*, recycling and composting are discussed as ways of impacting ecosystems in a positive way.

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Life Science	2-3	LS3B	The offspring of a plant or animal closely resembles its parents, but close inspection reveals differences.	*Compare* the offspring of a plant or animal with its parents, listing features that are similar and that are different.	Lessons 2 and 13 Lessons 9, 10, 13, 14 - 16	♦V	Students may observe differences in the size of redworms. The teacher needs to intentionally point out that the smallest redworms are offspring of the adult worms. So too, when planting the cucumber seeds, the teacher should be intentional about stating that a cucumber seed will produce a cucumber plant which will closely resemble the parent plant.
Earth & Space Science	K-1	ES2B	Earth materials include solid rocks, sand, soil, and water. These materials have different observable physical *properties*.	*Describe* Earth objects using appropriate terms, such as hard, soft, dry, wet, heavy, and light, to *describe* these materials. Sort Earth objects by one observable property (e.g., rocks by size or color). *Compare* Earth objects by at least two properties (e.g., first *compare* rocks by size, then by color).	Addressed throughout the unit.	♦	
Earth & Space Science	K-1	ES2C	Some Earth objects are made of more than one material.	Observe and *describe* objects made of more than one Earth material (e.g., certain rocks and soil).	Lessons 1, 8,14-16	♦	In the listed lessons, students investigate soils and discover that most soils are composed of more than one material.

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Life Science	K-1	LS1B	All plants and animals have various external parts.	Identify the external parts of different plants and animals (e.g., legs on an insect, flowers, stems, and roots on many plants, feathers on birds, scales on fish, eyes and ears on many animals).	Lessons 9-16 Lesson 10 reading selection Lesson 10, Extension #6	♦	In Lessons 9-16, students observe plant growth, roots, stems and leaf growth. They record growth data and analyze growth relative to various soil types. In the reading selection *Earthworm: Nature's Plow*, the mouthparts and exterior bristles of the worm are discussed. In Lesson 10, Extension #6, students are encouraged to read more about earthworms and their body parts.
Life Science	K-1	LS1C	The parts of a plant or animal appear different under a *magnifier* compared with the unaided eye.	Observe how parts of a plant or animal look under a *magnifier* and draw or use words to *describe* them (e.g., a single hair, the leg of an insect, a fingerprint).	Lessons 1, 2, 12, 13, 16	♦	In these lessons, students use a magnifier to look at redworms and the other components in compost. They also use the magnifier to examine the plant roots and various organisms in garden/local soil.
Life Science	K-1	LS1F	Most plants have roots to get water and leaves to gather sunlight.	*Explain that* most plants get water from soil through their roots, they gather light through their leaves.	Lessons 10 and 13	♦ ▲	Students examine root growth in clear tubes containing the 3 types of soil and discuss the function of the roots. To fully meet this standard, teachers should intentionally discuss the role leaves play in gathering sunlight for the plant.

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Life Science	K-1	LS2C	Humans can change natural *habitats* in ways that can be helpful or harmful for the plants and animals that live there.	List two or more things that humans do that might harm plants and animals in a given habitat (e.g., throwing litter in a pond might cause difficulty for water birds and fish to find food or might poison the plants and animals that live there). Communicate ways that humans protect *habitats* and/or improve conditions for the growth of the plants and animals that live there. (e.g., reuse or recycle products to avoid littering.)	Lesson 13 reading selection	♦r	In Lesson 13 reading selection called *Anita's Compost Pile*, recycling and composting are discussed as ways of impacting ecosystems in a positive way.
Life Science	K-1	LS3A	Some things are alive and others are not.	Use logical rules to sort objects into two groups, those that are alive and those that are not.	Lessons 1,14-16	♦V	In these lessons, students predict, observe and record living and non-living elements in local/garden soil. Teachers need to be intentional to discuss with students those things that are alive/were alive and those that are not alive/never were alive. The humus, for example, contains living and nonliving things.