

ALIGNMENT WITH THE THREE DIMENSIONS OF NGSS

UNIT 5.2: HOW CAN WE MAKE WATER HEALTHY FOR ALL LIVING THINGS?

The following three tables explain how students engage in **Science and Engineering Practices**, use **Crosscutting Concepts**, and figure out **Disciplinary Core Ideas** in this unit's lessons. The codes used to identify each dimension's elements are described in the Teacher Handbook.

Developing and Using Science and Engineering Practices (by Lesson)

Practice	Lesson	How Students Engage In This Practice	Element of This Practice Used in This Lesson
Asking Questions and Defining Problems	1	In this lesson, students ask questions and develop investigation ideas related to the health of several water samples and the ways that they can be made healthy again.	Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. (AQDP-E3)
Asking Questions and Defining Problems	3	In this lesson, students define the problem of needing to filter their water samples, then identify criteria and constraints they need to consider as they design and test their filters.	Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (AQDP-E5)
Asking Questions and Defining Problems	13	Students define a simple design problem for a community that can be solved through the development of an object, tool, process, or system, while considering criteria and constraints.	Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (AQDP-E5)
Asking Questions and Defining Problems	15	Students define a problem with the water in a turtle tank and consider possible solutions based on criteria and constraints.	Define a simple design problem that can be solved through the development of an object, tool, process, or

			system and includes several criteria for success and constraints on materials, time, or cost. (AQDP-E5)
Developing and Using Models	1	In this lesson, students develop a model to explain the phenomenon of what makes some water samples unhealthy and some water samples healthy.	Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events. (MOD-E2)
Developing and Using Models	5	Students develop a model that describes how water that looks clear can have particles of matter that are unhealthy for certain living things. In <i>Unit 5.1: How does a nurse log help other things live and grow?</i> , students developed this practice when they created models that show how plants get the matter they need to grow and how matter transfers from one organism to another. In this lesson, students use and build on this practice by applying it to another situation.	Develop and/or use models to describe and/or predict phenomena. (MOD-E4)
Developing and Using Models	8	Students collaborate to develop a model for what happened to the different water samples when they were boiled.	Develop and/or use models to describe and/or predict phenomena. (MOD-E4)
Developing and Using Models	9	In this lesson, students work in pairs and then as a class to develop a model showing how the solar still works.	Develop and/or use models to describe and/or predict phenomena. (MOD-E4)
Developing and Using Models	3	Students collaborate to develop a model of their filter design.	Develop a diagram or simple physical prototype to convey a proposed object, tool, or process. (MOD-E5)
Planning and Carrying Out Investigations	3	In this lesson, students design an investigation plan to test their filter design, considering how to ensure a fair test, and then conduct an initial filter test. Students continue to use this practice in Lesson 4.	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (INV-E1)

Planning and Carrying Out Investigations	4	In this lesson, students conduct their filter investigation collaboratively and produce data to serve as the basis for evidence for iteratively redesigning their filters using fair tests.	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (INV-E1)
Planning and Carrying Out Investigations	11	In this lesson, students plan and conduct an investigation to add a substance to their water samples.	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (INV-E1)
Planning and Carrying Out Investigations	2	In this lesson, students make observations about the properties of water samples.	Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (INV-E3)
Planning and Carrying Out Investigations	6	Students make observations and measurements of their water samples to produce data that will help them identify the types of matter that are present in the samples.	Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (INV-E3)
Planning and Carrying Out Investigations	4	In this lesson, students propose changes to their filter design and predict how this will change the cause-and-effect relationships.	Make predictions about what would happen if a variable changes. (INV-E4)
Planning and Carrying Out Investigations	4	In this lesson, students compare their redesigned filter to their original filter. This builds on prior experiences in third and fourth grades of designing solutions and using the Engineering Design Process.	Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success. (INV-E5)

Planning and Carrying Out Investigations	14	Students test their different water solutions against the criteria and constraints developed by the class. These criteria and constraints are the measure for successful water solutions. The focus of this lesson is creating the design of the investigation, not conducting the investigation.	Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success. (INV-E5)
Analyzing and Interpreting Data	7	Students analyze the data that Jarret and his cousins collected about a water sample and use it to construct an explanation for which materials caused Jarret's skin irritation.	Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation. (DATA-E2)
Analyzing and Interpreting Data	8	Students analyze and interpret data for their water sample before and after it is boiled.	Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation. (DATA-E2)
Analyzing and Interpreting Data	9	In this lesson, students analyze the observational and weight data from the solar still to figure out where the clear water in the jar came from.	Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation. (DATA-E2)
Analyzing and Interpreting Data	12	Students analyze the weights of the water samples by adding the weight of the water sample and the weight of the substance added, comparing the sum to the total weight of the water sample after the substance was added.	Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation. (DATA-E2)
Using Mathematics and Computational Thinking	9	In this lesson, students measure the weight of the solar still before and after its use to use the data as evidence to determine if the solar still would work for their water samples.	Describe, measure, estimate, and/or graph quantities such as area, volume, weight, and time to address scientific and engineering questions and problems. (MATH-E3)
Constructing Explanations and Designing	15	Students use evidence from a text to construct an explanation of how the water in a turtle's tank changed after adding a substance.	Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or

Solutions			design a solution to a problem. (CEDS-E2)
Constructing Explanations and Designing Solutions	13	Students use what they have figured out about ways to remove unhealthy materials from water to design a solution to a new water problem.	Apply scientific ideas to solve design problems. (CEDS-E4)
Constructing Explanations and Designing Solutions	14	Students have an opportunity to practice this element when they gather and combine information from their previous notes and class charts to then make a design solution or combination of solutions for their community water problem.	Apply scientific ideas to solve design problems. (CEDS-E4)
Constructing Explanations and Designing Solutions	14	Students have an opportunity to practice this element when they generate and compare solutions for the communities in the Community Water Problems book, using the book and peer feedback.	Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. (CEDS-E5)
Obtaining, Evaluating, and Communicating Information	10	Students obtain information by reading chapters of a book and an informational table to explain authentic design solutions to water problems. They then communicate that information to peers who read different book chapters and consider different water samples.	Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (INFO-E4)
Obtaining, Evaluating, and Communicating Information	14	Students have an opportunity to practice this element when they gather and combine information from peer feedback, the Community Water Problems book, their previous notes, and class charts to then make a design solution or combination of solutions.	Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (INFO-E4)

Developing and Using Crosscutting Concepts (by Lesson)

Crosscutting Concept	Lesson	How Students Use This Crosscutting Concept	Element of This Concept Used in This Lesson
Cause and Effect	1	Students develop an initial model that explains what is causing the water samples to be the healthiest and the least healthy water samples.	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)
Cause and Effect	2	Students investigate the properties of water samples to identify different materials. If present, the material causes certain things to be observed, indicating a relationship between the observed property of the water and material.	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)
Cause and Effect	3	Students predict the cause-and-effect relationship between elements of their filter design (cause) and the water sample (effect).	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)
Cause and Effect	4	Students identify or predict how parts of their filter design cause, or could cause, specific effects.	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)
Cause and Effect	10	Students read about and discuss how scientists and engineers apply various treatment methods to achieve specific effects on water.	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)
Cause and Effect	11	In this lesson, students make and revisit predictions about the cause-effect relationships of adding a substance to their water samples.	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)
Cause and Effect	14	Students use evidence from their cause-and-effect testing of their water samples to design a solution to a community water problem.	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)

Cause and Effect	15	Students construct an evidence-based explanation that connects each piece of evidence to ideas via cause-and-effect relationships.	Cause and effect relationships are routinely identified, tested, and used to explain change. (CE-E1)
Scale, Proportion, and Quantity	6	Students determine that vinegar, iron, baking soda, and chlorine are present in some of the water samples even though their particles are too small to be seen.	Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods. (SPQ-E1)
Scale, Proportion, and Quantity	13	Students consider the differences in scale between the water samples in the classroom and the community problems they read about, and figure out whether a solution at one scale would be appropriate at the other scale.	Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods. (SPQ-E1)
Scale, Proportion, and Quantity	3	Students identify in their investigation plan the units they will use to measure how much of the matter is removed by the filter.	Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (SPQ-E2)
Scale, Proportion, and Quantity	4	Students measure the weight (and optionally: volume) of their water sample using a scale in grams to describe how the water sample changed before and after filtering.	Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (SPQ-E2)
Scale, Proportion, and Quantity	7	Students make sense of what a change in weight before and after filtering tells you about the matter in the water.	Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (SPQ-E2)
Scale, Proportion, and Quantity	8	Students work with weight data for their water samples that was measured in standard units (grams).	Standard units are used to measure and describe physical quantities such as weight, time, temperature,

			and volume. (SPQ-E2)
Scale, Proportion, and Quantity	9	In this lesson, students measure the weight of the solar still using standard units (kilograms/grams).	Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (SPQ-E2)
Scale, Proportion, and Quantity	12	Students use the weight of the water samples that they measured in Lesson 11 to describe that, even though a change in some properties occurred in the samples, the total weight of the water samples and the added substances stayed the same.	Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (SPQ-E2)
Systems and System Models	9	In this lesson, students compare the solar still's weight before and after the process of making water healthier to show that the total weight of the substances does not change (or changes minimally).	A system can be described in terms of its components and their interactions. (SYS-E2)
Energy and Matter	5	In this lesson, students make sense of the idea of matter being made of particles. They develop models that show that water can look clear but still have particles of a different kind of matter in it. Students figured out that matter is made of particles that are too small to be seen in <i>Unit 5.1: How does a nurse log help other things live and grow?</i>. They figured out that gas particles can take up space even though they cannot be seen, when investigating where plants get the matter they need to grow. In this lesson, students use this knowledge of particles to deepen their understanding of how particles can also be present in water even though they cannot be seen.	Matter is made of particles. (EM-E1)
Energy and Matter	8	Students develop a model to show what happens to water and the particles of matter that make the water unhealthy as it is boiled.	Matter is made of particles. (EM-E1)
Energy and Matter	9	In this lesson, students build models to explain how the solar still works, focusing on what happens to the particles of matter in the food dye/water mixture.	Matter is made of particles. (EM-E1)
Energy and Matter	3	Students identify that the materials in the water sample are matter and that they can measure how much matter their filter takes out of the water by weighing the sample before and after filtering. Students are not yet focused on conservation of matter; this will be addressed in Lessons 8 and 9.	Matter flows and cycles can be tracked in terms of the weight of the substances before and after a process occurs. The total weight of

			the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems. (EM-E2)
Energy and Matter	9	In this lesson, students identified the heat from the sun in the solar still as evidence of energy transfer.	Energy can be transferred in various ways and between objects. (EM-E3)

Developing and Using Disciplinary Core Ideas (by Lesson)

Disciplinary Core Idea	Lesson	What Students Do to Figure Out This Idea	Element of This Idea Used in This Lesson
ETS1.A Defining Engineering Problems	1	Students share initial ideas about possible solutions to a problem by drafting ideas for how to make the unhealthy water sample healthy again.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (ETS1.A-E1). In PEs: 3-5-ETS1-1, secondary to 4-PS3-4
ETS1.A Defining Engineering Problems	3	Students figure out, by discussing and reading about the engineering design process, that their filter design plans need to meet success criteria and are limited by constraints. They will more fully address the comparing solutions part of this element in Lesson 4.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (ETS1.A-E1).

			In PEs: 3-5-ETS1-1, secondary to 4-PS3-4
ETS1.A Defining Engineering Problems	4	Building on Lesson 3 in which students engaged with the first part of this element, students figure out that they can compare different filter designs in terms of criteria and constraints to determine which design best solves the problem of unhealthy materials in the water.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (ETS1.A-E1). In PEs: 3-5-ETS1-1, secondary to 4-PS3-4
ETS1.A Defining Engineering Problems	9	Students apply what they have figured out about design constraints as they consider if the solar still would work as a solution to help make their water samples healthier.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (ETS1.A-E1).

			In PEs: 3-5-ETS1-1, secondary to 4-PS3-4
ETS1.A Defining Engineering Problems	10	Using what they have previously figured out about criteria and constraints, students apply this information to identify the criteria and constraints of the design solutions for the water problems the different scientists/engineers worked on.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (ETS1.A-E1). In PEs: 3-5-ETS1-1, secondary to 4-PS3-4
ETS1.A Defining Engineering Problems	13	Students identify community water problems and design solutions to those water problems, considering the criteria and constraints.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (ETS1.A-E1).

			In PEs: 3-5-ETS1-1, secondary to 4-PS3-4
ETS1.A Defining Engineering Problems	14	Students figure out that their design plans need to meet criteria and are limited by constraints. Students figure out that they can compare different solutions in terms of criteria and constraints to determine which best solves the community water problem.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (ETS1.A-E1). In PEs: 3-5-ETS1-1, secondary to 4-PS3-4
ETS1.B Developing Possible Solutions	4	Students figure out that focused testing of their filters allows them to identify challenges and how to improve the design.	Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (ETS1.B-E2) In PE: 3-5-ETS1-3
ETS1.B Developing Possible Solutions	14	Students figure out that peer feedback and research of their solution to a community water problem allows them to identify challenges and ways to improve the design.	Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (ETS1.B-E2)

			In PE: 3-5-ETS1-3
ETS1.C Optimizing the Design Solution	4	Students figure out that their original and redesigned filters need to be tested to determine which one best meets the criteria and constraints for the design problem.	Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (ETS1.B-E1) In PEs: 3-5-ETS1-3, secondary to 4-PS4-3
ETS1.C Optimizing the Design Solution	14	Students figure out that their original and redesigned solutions need to be tested to figure out which best meets the criteria and constraints for the community water problem.	Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (ETS1.B-E1) In PEs: 3-5-ETS1-3, secondary to 4-PS4-3
PS1.A Structure and Properties of Matter	1	Students share initial ideas about matter being subdivided into particles that are too small to see by classifying water samples as healthy and unhealthy, based on what the students can and cannot see.	Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (PS1.A-E1)

			In PE: 5-PS1-1
PS1.A Structure and Properties of Matter	5	By reading articles about matter in water and its impacts on living things, students figure out that even though chlorine and bacteria cannot be seen, we know particles of them exist in the water because one type of water had an odor, particles were detected with test strips, and the water was making plants, humans, and other animals unhealthy.	Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (PS1.A-E1) In PE: 5-PS1-1
PS1.A Structure and Properties of Matter	6	Students figure out that chlorine, iron, baking soda, and vinegar particles are present in the water samples, even when the particles cannot be seen, by detecting them with test strips and magnets. In doing so, students build on the idea developed in the previous lesson that matter is made of particles that are too small to be seen.	Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (PS1.A-E1) In PE: 5-PS1-1

PS1.A Structure and Properties of Matter	8	Students figure out that matter does not vanish even when it changes form, by observing and working with data on the weight of the boiled water.	The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (PS1.A-E2) In PE: 5-PS1-2
PS1.A Structure and Properties of Matter	2	Students figure out a variety of properties that can be used to identify materials in water samples through observations and measurements.	Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (PS1.A-E3) In PE: 5-PS1-3
PS1.A Structure and Properties of Matter	3	Students build on their understanding of this element from previous lessons as they determine success criteria for their filter designs, and how measuring the properties could be one criterion to know how the water has changed before and after filtering.	Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (PS1.A-E3) In PE: 5-PS1-3

PS1.A Structure and Properties of Matter	7	Students figure out that measurements of a variety of properties can be used to identify materials by analyzing data around properties and identifying the material that caused Jarret's skin irritation.	Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (PS1.A-E3) In PE: 5-PS1-3
PS1.A Structure and Properties of Matter	9	Students apply what they have figured out about properties as they explain how the solar still works to separate particles of materials that have different properties.	Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (PS1.A-E3) In PE: 5-PS1-3
PS1.B Chemical Reactions	11	Students figure out that a new substance is formed when they mix a substance into their water samples and then measure how the properties change.	When two or more different substances are mixed, a new substance with different properties may be formed. (PS1.B-E1) In PE: 5-PS1-4

PS1.B Chemical Reactions	12	Students figure out that, even though a change in properties occurred in most of the water samples, the total weight of the substances did not change after calculating the weight of the water sample plus the substance added and comparing it to the total weight after the substance was added.	When two or more different substances are mixed, a new substance with different properties may be formed. (PS1.B-E1) In PE: 5-PS1-4
PS1.B Chemical Reactions	15	Students apply their understanding about substances and mixtures when explaining how the properties of the water in a turtle's tank changes after adding a treatment.	When two or more different substances are mixed, a new substance with different properties may be formed. (PS1.B-E1) In PE: 5-PS1-4
PS1.B Chemical Reactions	8	Students figure out that even when boiled, the total weight of the water samples does not change (or changes very minimally) when the lid is on.	No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (PS1.B-E2) In PE: 5-PS1-2
PS1.B Chemical Reactions	9	Students figured out that the weight of the solar still did not change (or changed very minimally) by analyzing the weight of the solar still before and after it sat under a heat source for at least 2 days.	No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (PS1.B-E2) In PE: 5-PS1-2

UNIT CONNECTIONS TO THE COMMON CORE STANDARDS

UNIT 5.2: HOW CAN WE MAKE WATER HEALTHY FOR ALL LIVING THINGS?

Building Toward English Language Arts Standards

In the OpenSciEd Elementary program, students use ELA/literacy to support them in making sense of their science work. Visit the Unit Overview for more information about the connections to these standards.

Texts intended for use in interactive read alouds are approximately two grade levels above the CCSS range for text complexity, and texts intended for scaffolded independent reading are within the CCSS text complexity range for that grade level.

We have noted in the table below the standards that are connected to lessons in two ways:

* = This standard is explicitly used and named in the lesson with specific support for teachers.

✓ = This standard is embedded in the work of the unit so frequently that it is not explicitly named in the lessons.

Reading: Informational Text	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15
CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.								*					*		
CCSS.ELA-LITERACY.RI.5.2 Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.					*		*						*		
CCSS-ELA-LITERACY.RI.5.3 Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.			✓	✓	✓	✓	✓	✓		✓			✓		✓
CCSS-ELA-LITERACY.RI.5.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.			✓	✓	✓	✓	✓	✓		✓			✓		✓
CCSS-ELA-LITERACY.RI.5.5 Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.			*												
CCSS-ELA-LITERACY.RI.5.6 Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.			*		*					*					

Writing	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15
CCSS-ELA-LITERACY.W.5.2C Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).															*
CCSS-ELA-LITERACY.W.5.2D Use precise language and domain-specific vocabulary to inform about or explain the topic.					*										*
CCSS-ELA-LITERACY.W.5.5 With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.														*	
CCSS-ELA-LITERACY.W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.				*											
Speaking and Listening	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15
CCSS-ELA-LITERACY.SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacherled) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCSS-ELA-LITERACY.SL.5.1A Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCSS-ELA-LITERACY.SL.5.1B Follow agreed-upon rules for discussions and carry out assigned roles.	*		*												
CCSS-ELA-LITERACY.SL.5.1C Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCSS-ELA-LITERACY.SL.5.1D Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCSS-ELA-LITERACY.SL.5.2 Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally								*					*		
CCSS-ELA-LITERACY.SL.5.3 Summarize the points a											*				

speaker makes and explain how each claim is supported by reasons and evidence.															
CCSS-ELA-LITERACY.SL.5.4 Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.											*				

Language	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15
CCSS-ELA-LITERACY.L.5.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.														*	
CCSS-ELA-LITERACY.L.5.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CCSS-ELA-LITERACY.L.5.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.										*					
CCSS-ELA-LITERACY.L.5.6 Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

UNIT CONNECTIONS TO THE COMMON CORE STANDARDS

UNIT 5.2: HOW CAN WE MAKE WATER HEALTHY FOR ALL LIVING THINGS?

Building Toward Mathematics Standards

In the OpenSciEd Elementary program, students use mathematics to support them in making sense of their science work. We have noted in the table below the standards that are supported within lessons in this unit. You may find opportunities to expose students to more math standards than those we have noted in any given lesson, but we have provided this table as a starting point for your instructional planning.

* = This standard is explicitly used and named in the lesson with specific support for teachers.

Standards for Mathematical Practice	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15
CCSS-MATH-Practice.MP2 Reason abstractly and quantitatively.			*	*		*					*	*			
CCSS-MATH-Practice.MP3 Construct viable arguments and critique the reasoning of others.						*		*							
CCSS-MATH-Practice.MP6 Attend to precision.											*	*			

Number and Operations in Base Ten	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15
CCSS-MATH-5.NBT.A.4 Use place value understanding to round decimals to any place.												*			
CCSS-MATH-5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.			*	*								*			