

School Outreach

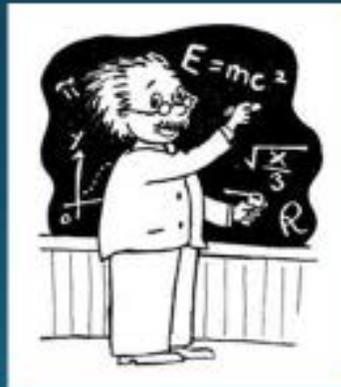
Zender Environmental Health and Research Group

How to connect
information to youth in
school for human and
environmental health

Planning School Outreach

You Are the Expert for Your Community

- No one knows more about your program than you
- Don't have to know everything to be the expert
 - You wear many hats

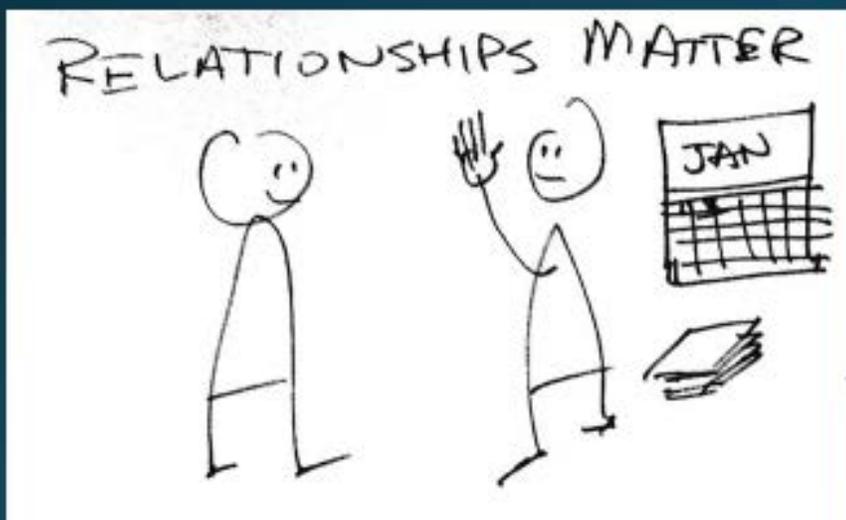


This Photo by Unknown Author is licensed under [CC BY-NC](#)

- You are not alone

Build Relationships by Helping Make Connections

- Schools – principals, all teachers, students and staff
- Good working relationships means the entire Community will benefit



This Photo by Unknown Author is licensed under [CC BY-NC-ND](#).



This Photo by Unknown Author is licensed under [CC BY-SA-NC](#).

Timeline

Start date – *When are you going to start working on this? Who are your partners? What are teachers teaching and when?*

Start early – give yourself plenty of time to plan; find out what blocks/themes teachers are teaching and when, ask for donations, etc

Milestones w/ Dates – *Set some mini-goals with dates that will help you meet your objective.*

Meet with people you will need to work with, teachers/principals.
Have time to make lesson plans and assessment materials.
Select a time to conduct lesson(s)
Conduct lesson

Completion date – *When do you expect to be done?*

Follow up
Evaluation
Reporting

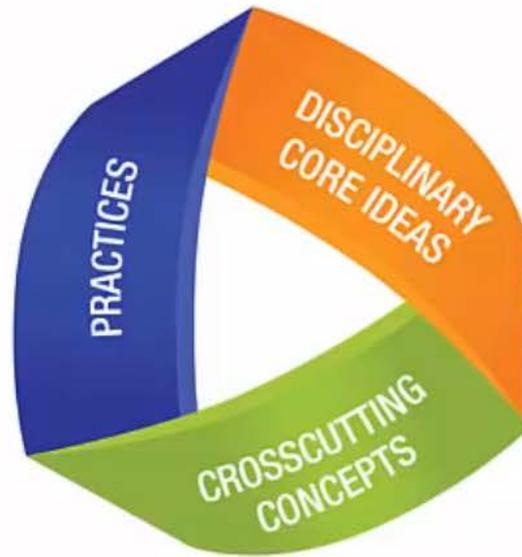


How to Read the Standards

<https://youtu.be/Q6eoRnrwL-A>

Three Dimensions

describe behaviors
scientists and
engineers engage in



describe core ideas in the
science disciplines

describe concepts linking the
different domains of science

The Four Domains



Physical Science (PS)



Life Science (LS)



Earth and Space Science (ESS)



Engineering, Technology, and Applications
of Science (ETS)

Performance Expectations

MS-PS4-2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

Science and
Engineering Practice

Develop and use a
model to describe
a phenomenon

Disciplinary Core Idea

Waves are reflected,
absorbed, or transmitted
differently through
different materials

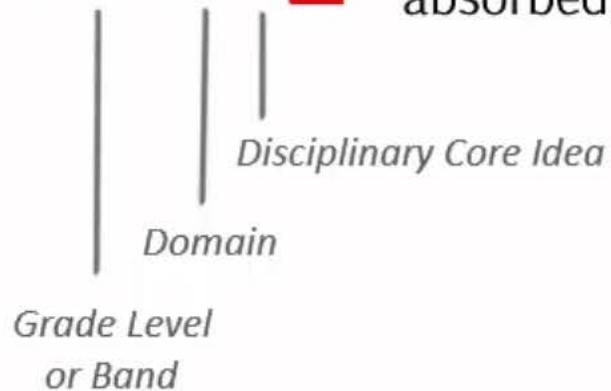
Crosscutting Concept

Various materials have
different structures and
functions

How are Performance Expectations Labeled?

MS-PS4-2

Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.



Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence

- Science knowledge is based upon logical and conceptual connections between evidence and explanations. (MS-PS4-1)

science and science has influenced advances in technology. (MS-PS4-3)

Connections to other DCIs in this grade-band: MS.LS1.D (MS-PS4-2)

Articulation across grade-bands: 4.PS3.A (MS-PS4-1); 4.PS3.B (MS-PS4-1); 4.PS4.A (MS-PS4-1); 4.PS4.B (MS-PS4-2); 4.PS4.C (MS-PS4-3); HS.PS4.A (MS-PS4-1),(MS-PS4-2),(MS-PS4-3); HS.PS4.B (MS-PS4-1),(MS-PS4-2); HS.PS4.C (MS-PS4-3); HS.ESS1.A (MS-PS4-2); HS.ESS2.A (MS-PS4-2); HS.ESS2.C (MS-PS4-2); HS.ESS2.D (MS-PS4-2)

Common Core State Standards Connections:

ELA/Literacy –

- RST.6-8.1** Cite specific textual evidence to support analysis of science and technical texts. (MS-PS4-3)
- RST.6-8.2** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. (MS-PS4-3)
- RST.6-8.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (MS-PS4-3)
- WHST.6-8.9** Draw evidence from informational texts to support analysis, reflection, and research. (MS-PS4-3)
- SL.8.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-PS4-1),(MS-PS4-2)

Mathematics –

- MP.2** Reason abstractly and quantitatively. (MS-PS4-1)
- MP.4** Model with mathematics. (MS-PS4-1)
- 6.RP.A.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. (MS-PS4-1)
- 6.RP.A.3** Use ratio and rate reasoning to solve real-world and mathematical problems. (MS-PS4-1)
- 7.RP.A.2** Recognize and represent proportional relationships between quantities. (MS-PS4-1)
- 8.F.A.3** Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. (MS-PS4-1)

K-ESS2 Earth's Systems

K-ESS2 Earth's Systems

Students who demonstrate understanding can:

K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. [Clarification Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.]

K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1) <p>Engaging in Argument from Evidence Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).</p> <ul style="list-style-type: none"> Construct an argument with evidence to support a claim. (K-ESS2-2) <p style="text-align: center;">-----</p> <p style="text-align: center;"><i>Connections to Nature of Science</i></p> <p>Science Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Scientists look for patterns and order when making observations about the world. (K-ESS2-1) 	<p>ESS2.D: Weather and Climate</p> <ul style="list-style-type: none"> Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1) <p>ESS2.E: Biogeology</p> <ul style="list-style-type: none"> Plants and animals can change their environment. (K-ESS2-2) <p>ESS3.C: Human Impacts on Earth Systems</p> <ul style="list-style-type: none"> Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (<i>secondary to K-ESS2-2</i>) 	<p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1) <p>Systems and System Models</p> <ul style="list-style-type: none"> Systems in the natural and designed world have parts that work together. (K-ESS2-2)

Connections to other DCIs in kindergarten: N/A

Articulation of DCIs across grade-levels: **2.ESS2.A** (K-ESS2-1); **3.ESS2.D** (K-ESS2-1); **4.ESS2.A** (K-ESS2-1); **4.ESS2.E** (K-ESS2-2); **5.ESS2.A** (K-ESS2-2)

Common Core State Standards Connections:

ELA/Literacy –

RI.K.1 With prompting and support, ask and answer questions about key details in a text. (K-ESS2-2)

W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2)

W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2-2)

W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1)

Mathematics –

MP.2 Reason abstractly and quantitatively. (K-ESS2-1)

MP.4 Model with mathematics. (K-ESS2-1)

K.CC.A Know number names and the count sequence. (K-ESS2-1)

K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1)

K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1)

K-ESS3 Earth and Human Activity

K-ESS3 Earth and Human Activity

Students who demonstrate understanding can:

- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.** [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]
- K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.*** [Clarification Statement: Emphasis is on local forms of severe weather.]
- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.*** [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Asking Questions and Defining Problems Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.</p> <ul style="list-style-type: none"> ▪ Ask questions based on observations to find more information about the designed world. (K-ESS3-2) <p>Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> ▪ Use a model to represent relationships in the natural world. (K-ESS3-1) <p>Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> ▪ Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2) ▪ Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3) 	<p>ESS3.A: Natural Resources</p> <ul style="list-style-type: none"> ▪ Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1) <p>ESS3.B: Natural Hazards</p> <ul style="list-style-type: none"> ▪ Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2) <p>ESS3.C: Human Impacts on Earth Systems</p> <ul style="list-style-type: none"> ▪ Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3) <p>ETS1.A: Defining and Delimiting an Engineering Problem</p> <ul style="list-style-type: none"> ▪ Asking questions, making observations, and gathering information are helpful in thinking about problems. (<i>secondary to K-ESS3-2</i>) <p>ETS1.B: Developing Possible Solutions</p> <ul style="list-style-type: none"> ▪ Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (<i>secondary to K-ESS3-3</i>) 	<p>Cause and Effect</p> <ul style="list-style-type: none"> ▪ Events have causes that generate observable patterns. (K-ESS3-2),(K-ESS3-3) <p>Systems and System Models</p> <ul style="list-style-type: none"> ▪ Systems in the natural and designed world have parts that work together. (K-ESS3-1) <p style="text-align: center;">-----</p> <p style="text-align: center;"><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p>Interdependence of Science, Engineering, and Technology</p> <ul style="list-style-type: none"> ▪ People encounter questions about the natural world every day. (K-ESS3-2) <p>Influence of Engineering, Technology, and Science on Society and the Natural World</p> <ul style="list-style-type: none"> ▪ People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3-2)

Connections to other DCIs in kindergarten: **K.ETS1.A** (K-ESS3-2),(K-ESS3-3)

Articulation of DCIs across grade-levels: **1.LS1.A** (K-ESS3-1); **2.ESS1.C** (K-ESS3-2); **2.ETS1.B** (K-ESS3-3); **3.ESS3.B** (K-ESS3-2); **4.ESS3.A** (K-ESS3-3); **4.ESS3.B** (K-ESS3-2); **5.LS2.A** (K-ESS3-1); **5.ESS2.A** (K-ESS3-1); **5.ESS3.C** (K-ESS3-3)

Common Core State Standards Connections:

ELA/Literacy –

- RI.K.1** With prompting and support, ask and answer questions about key details in a text. (K-ESS3-2)
- W.K.2** Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (*K-ESS3-3*)
- SL.K.3** Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-ESS3-2)
- SL.K.5** Add drawings or other visual displays to descriptions as desired to provide additional detail. (*K-ESS3-1*)

Mathematics –

- MP.2** Reason abstractly and quantitatively. (*K-ESS3-1*)
- MP.4** Model with mathematics. (*K-ESS3-1*),(*K-ESS3-2*)
- K.CC** Counting and Cardinality (*K-ESS3-1*),(*K-ESS3-2*)

1-LS1 From Molecules to Organisms: Structures and Processes

1-LS1 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.]

1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

[Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1) <p>Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2) <p>-----</p> <p style="text-align: center;"><i>Connections to Nature of Science</i></p> <p>-----</p> <p>Scientific Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Scientists look for patterns and order when making observations about the world. (1-LS1-2) 	<p>LS1.A: Structure and Function</p> <ul style="list-style-type: none"> All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1) <p>LS1.B: Growth and Development of Organisms</p> <ul style="list-style-type: none"> Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2) <p>LS1.D: Information Processing</p> <ul style="list-style-type: none"> Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1) 	<p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2) <p>Structure and Function</p> <ul style="list-style-type: none"> The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1) <p>-----</p> <p style="text-align: center;"><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p>-----</p> <p>Influence of Engineering, Technology, and Science on Society and the Natural World</p> <ul style="list-style-type: none"> Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (1-LS1-1)

Connections to other DCIs in first grade: N/A

Articulation of DCIs across grade-levels: **K.ETS1.A** (1-LS1-1); **3.LS2.D** (1-LS1-2); **4.LS1.A** (1-LS1-1); **4.LS1.D** (1-LS1-1); **4.ETS1.A** (1-LS1-1)

Common Core State Standards Connections:

ELA/Literacy –

RI.1.1 Ask and answer questions about key details in a text. (1-LS1-2)

RI.1.2 Identify the main topic and retell key details of a text. (1-LS1-2)

RI.1.10 With prompting and support, read informational texts appropriately complex for grade. (1-LS1-2)

W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-LS1-1)

Mathematics –

1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. (1-LS1-2)

1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. (1-LS1-2)

1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2)

1.NBT.C.6 Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), 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. (1-LS1-2)

2-PS1 Matter and its Interactions

2-PS1 Matter and its Interactions
<p>Students who demonstrate understanding can:</p> <p>2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. [Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.]</p> <p>2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.* [Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.] [Assessment Boundary: Assessment of quantitative measurements is limited to length.]</p> <p>2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. [Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.]</p> <p>2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. [Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf, and heating paper.]</p>

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-PS1-1) <p>Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> Analyze data from tests of an object or tool to determine if it works as intended. (2-PS1-2) <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (2-PS1-3) <p>Engaging in Argument from Evidence Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).</p> <ul style="list-style-type: none"> Construct an argument with evidence to support a claim. (2-PS1-4) <p style="text-align: center;">-----</p> <p style="text-align: center;"><i>Connections to Nature of Science</i></p> <p style="text-align: center;">-----</p> <p>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</p> <ul style="list-style-type: none"> Scientists search for cause and effect relationships to explain natural events. (2-PS1-4) 	<p>PS1.A: Structure and Properties of Matter</p> <ul style="list-style-type: none"> Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1) Different properties are suited to different purposes. (2-PS1-2),(2-PS1-3) A great variety of objects can be built up from a small set of pieces. (2-PS1-3) <p>PS1.B: Chemical Reactions</p> <ul style="list-style-type: none"> Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4) 	<p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural and human designed world can be observed. (2-PS1-1) <p>Cause and Effect</p> <ul style="list-style-type: none"> Events have causes that generate observable patterns. (2-PS1-4) Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2) <p>Energy and Matter</p> <ul style="list-style-type: none"> Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3) <p style="text-align: center;">-----</p> <p style="text-align: center;"><i>Connections to Engineering, Technology, and Applications of Science</i></p> <p style="text-align: center;">-----</p> <p>Influence of Engineering, Technology, and Science on Society and the Natural World</p> <ul style="list-style-type: none"> Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (2-PS1-2)

Connections to other DCIs in second grade: N/A
Articulation of DCIs across grade-levels: **4.ESS2.A** (2-PS1-3); **5.PS1.A** (2-PS1-1),(2-PS1-2),(2-PS1-3); **5.PS1.B** (2-PS1-4); **5.LS2.A** (2-PS1-3)

<p><i>Common Core State Standards Connections:</i></p> <p><i>ELA/Literacy –</i></p> <p>RI.2.1 Ask and answer such questions as <i>who, what, where, when, why, and how</i> to demonstrate understanding of key details in a text. (2-PS1-4)</p> <p>RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4)</p> <p>RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2),(2-PS1-4)</p> <p>W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., <i>because, and, also</i>) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4)</p> <p>W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1),(2-PS1-2),(2-PS1-3)</p> <p>W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1),(2-PS1-2),(2-PS1-3)</p> <p><i>Mathematics –</i></p> <p>MP.2 Reason abstractly and quantitatively. (2-PS1-2)</p> <p>MP.4 Model with mathematics. (2-PS1-1),(2-PS1-2)</p> <p>MP.5 Use appropriate tools strategically. (2-PS1-2)</p> <p>2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1),(2-PS1-2)</p>	
--	--

3-ESS3 Earth and Human Activity

3-ESS3 Earth and Human Activity

Students who demonstrate understanding can:

3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.*

[Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-ESS3-1)

Disciplinary Core Ideas

ESS3.B: Natural Hazards

- A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1) *(Note: This Disciplinary Core Idea is also addressed by 4-ESS3-2.)*

Crosscutting Concepts

Cause and Effect

- Cause and effect relationships are routinely identified, tested, and used to explain change. (3-ESS3-1)

Connections to Engineering, Technology, and Applications of Science

Influence of Engineering, Technology, and Science on Society and the Natural World

- Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). (3-ESS3-1)

Connections to Nature of Science

Science is a Human Endeavor

- Science affects everyday life. (3-ESS3-1)

Connections to other DCIs in third grade: N/A

*Articulation of DCIs across grade-levels: **K.ESS3.B** (3-ESS3-1); **K.ETS1.A** (3-ESS3-1); **4.ESS3.B** (3-ESS3-1); **4.ETS1.A** (3-ESS3-1); **MS.ESS3.B** (3-ESS3-1)*

Common Core State Standards Connections:

ELA/Literacy –

W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-ESS3-1)

W.3.7 Conduct short research projects that build knowledge about a topic. (3-ESS3-1)

Mathematics –

MP.2 Reason abstractly and quantitatively. (3-ESS3-1)

MP.4 Model with mathematics. (3-ESS3-1)

3-LS2 Ecosystems: Interactions, Energy, and Dynamics

3-LS2 Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

3-LS2-1. Construct an argument that some animals form groups that help members survive.

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*.

Science and Engineering Practices

Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Construct an argument with evidence, data, and/or a model. (3-LS2-1)

Disciplinary Core Ideas

LS2.D: Social Interactions and Group Behavior

- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (*Note: Moved from K–2*). (3-LS2-1)

Crosscutting Concepts

Cause and Effect

- Cause and effect relationships are routinely identified and used to explain change. (3-LS2-1)

Connections to other DCIs in third grade: N/A

Articulation of DCIs across grade-levels: **1.LS1.B** (3-LS2-1); **MS.LS2.A** (3-LS2-1)

Common Core State Standards Connections:

ELA/Literacy –

RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS2-1)

RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS2-1)

W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-LS2-1)

Mathematics –

MP.4 Model with mathematics. (3-LS2-1)

3.NBT Number and Operations in Base Ten (3-LS2-1)

Lesson Plans are language teachers know and are familiar with

- Determine Audience/Age
- Determine when you want to offer by speaking with teachers and principals
- Keep it simple
- Connect to GLEs and/or NGSS

Instructional Lesson Plan	
Content Area(s)/Course/Grade:	Unit:
Lesson Topic:	Date:
Teacher:	School:
Indicator(s)/Sub-Outcome(s)/Expectation(s):	
Student Outcome(s):	
Context for Learning	
Instructional Delivery	
Opening Activities/Motivation:	
Procedures:	
Assessment/Evaluation (Formative/Summative)	
Closure:	

Instructional Lesson Plan: Separation Activity Identify Hazardous Materials for Health

Content Area(s)/Course/Grade: 3 rd Grade Science, History, AK History and Health	Unit: Work with teacher to determine when this lesson would best fit/support their course schedule
Lesson Topic: Identify household hazardous materials and understand where they are safely disposed	Date: before winter break - work with teacher/principal for specific dates and times. Can be conducted any time of year, work with teacher
Teacher: Me? Community Environmental Health Coord?	School: ASD?

Indicator(s)/Sub-Outcome(s)/Expectation(s):

Students will identify household hazardous waste materials and demonstrate understanding of where to dispose of them safely. This lesson will address the following units:

Science, [3]SA1.2(L) - Develop understanding the processes of science require integrity, logical reasoning, skepticism, openness, communication and peer review by asking questions, observing, predicting, describing, measuring, classifying, generalizing, inferring and communicating.

Students will observe and describe through their own world to answer simple questions

History, [3]HC.3(L) - apply thinking skills, including classifying, interpreting, analyzing, summarizing, synthesizing, and evaluating to understand the historical record and use perspective to solve problems, make decisions and understand other traditions

AK History, AH.PPE 5- Demonstrate understanding of interactions between people and their physical environment by comparing the differing perspectives between rural and urban areas

Skills for Healthy Life, [3]A.2(L) - Demonstrate understanding on how the human body is affected by behaviors related to eating habits, physical fitness, personal hygiene, harmful substances, safety and environmental conditions

Student Outcome(s): Students will demonstrate understanding of household hazardous waste materials, where they should go for safe disposal and who to talk to when they don't know

ALASKA STANDARDS

FIFTH EDITION

CONTENT AND PERFORMANCE
STANDARDS
FOR ALASKA STUDENTS

Revised June 2019



Alaska Department of Education & Early Development

ARTWORK BY
JESSICA MADOUF

<https://education.alaska.gov/standards>

All ASD standards and
GLEs

<https://education.alaska.gov/akstandards/standards/ContentStandards.pdf?v=1>

ASD Content and
Performance Standards for AK
Students

SKILLS FOR A HEALTHY LIFE



A

A student should be able to acquire a core knowledge related to well-being.



A student who meets the content standard should:

- 1) understand that a person's well-being is the integration of health knowledge, attitudes, and behaviors;
- 2) understand how the human body is affected by behaviors related to eating habits, physical fitness, personal hygiene, harmful substances, safety, and environmental conditions;
- 3) understand and identify the causes, preventions, and treatments for diseases, disorders, injuries, and addictions;
- 4) recognize patterns of abuse directed at self or others and understand how to break these patterns;
- 5) use knowledge and skills to promote the well-being of the family;
- 6) use knowledge and skills related to physical fitness, consumer health, independent living, and career choices to contribute to well-being;
- 7) understand the physical and behavioral characteristics of human sexual development and maturity; and
- 8) understand the ongoing life changes throughout the life span and healthful responses to these changes.

B

A student should be able to demonstrate responsibility for the student's well-being.

A student who meets the content standard should:

- 1) demonstrate an ability to make responsible decisions by discriminating among risks and by identifying consequences;
- 2) demonstrate a variety of communication skills that contribute to well-being;
- 3) assess the effects of culture, heritage, and traditions on personal well-being;
- 4) develop an awareness of how personal life roles are affected by and contribute to the well-being of families, communities, and cultures;
- 5) evaluate what is viewed, read, and heard for its effect on personal well-being; and
- 6) understand how personal relationships, including those with family, friends, and co-workers, impact personal well-being.

SKILLS FOR A HEALTHY LIFE

C

A student should understand how well-being is affected by relationships with others.

A student who meets the content standard should:

- 1) resolve conflicts responsibly;
- 2) communicate effectively within relationships;
- 3) evaluate how similarities and differences among individuals contribute to relationships;
- 4) understand how respect for the rights of self and others contributes to relationships;
- 5) understand how attitude and behavior affect the well-being of self and others; and
- 6) assess the effects of culture, heritage, and traditions on well-being.

D

A student should be able to contribute to the well-being of families and communities.

A student who meets the content standard should:

- 1) make responsible decisions as a member of a family or community;
- 2) take responsible actions to create safe and healthy environments;
- 3) describe how public policy affects the well-being of families and communities;
- 4) identify and evaluate the roles and influences of public and private organizations that contribute to the well-being of communities;
- 5) describe how volunteer service at all ages can enhance community well-being; and
- 6) use various methods of communication to promote community well-being.

How Our Brains are Wired to Learn

- **Physical**- Hands-on, movement
- **Visual**- Eyes, Pictures, reading
- **Aural**- Sound, music
- **Verbal**- Words, listen

Photo credit to ANHC website



The Cone of Learning

sparkinsight.com

*I see and I forget.
I hear and I remember.
I do and I understand.*
— Confucius



How Our Brains are Wired to Learn

- The more senses involved, the deeper the learning to understanding
- Repeat, Repeat, Repeat
- Have FUN



Support Materials

CREATE YOUR OWN WORD PUZZLES, CROSSWORDS, BINGO, ETC!

<https://wordmint.com/puzzles>

<https://bingobaker.com/>

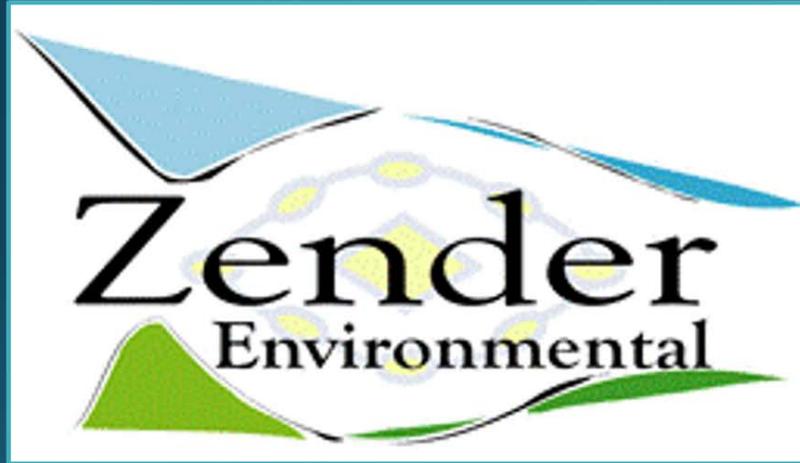
Jeopardy Game

<http://www.zendergroup.org/jeopardy.html>

Thank You

Basics of Building Curriculum to Enhance Your Program for All Ages

Anchorage AK



Zender Environmental Health and Research Group

April McCoy, MS – areed@zendergroup.org, www.zendergroup.org, 907-717-4754

**For FREE One-on-One Technical Assistance
in Creating Your Own Lesson Plan, Solid Waste Mgmt and Planning,
QAPP, Water Quality, Backhaul Events and Education**