3rd Grade Water Education Resource Guide

Standard aligned learning activities for 3rd grade to teach about water in Kansas

Kansas Association for Conservation and Environmental Education (KACEE)

www.kacee.org ***www.kansasgreenshools.org***

Stay Connected!

Funding for this resource was provided by the Kansas Water Office

Special thanks to the amazing and talented writing team who developed these resources:

- *Suzette Henderson, Park Elementary School*
- *Kiley Wackerly, Sunflower Elementary School*
- *Mackenzie Casey, Washburn Rural MIddle School*
- *Brian Gahagan, Chanute High School*

TABLE OF CONTENTS:

How to Use this Guide

Teaching about water in Kansas aligns with the Kansas College and Career Ready Standards for Science. This guide is designed *by* teachers *for* teachers to provide a comprehensive listing of existing activities which can be integrated into your teaching to support a stronger understanding of water in our state and in your area, while strengthening student achievement in science.

This guide has four main components:

- Listing of the Performance Expectations and Disciplinary Core Ideas for your grade level which connect to teaching about water in your community and in the state.
- Potential Anchoring Phenomenon for your teaching
- Table of activities from several different resources organized by performance expectations and with suggested modifications to more directly connect students to water in our communities
- A searchable spreadsheet which can be sorted and rearranged to best meet your needs and which includes the activity name and source, the connected performance expectations and/or disciplinary core ideas, suggested modifications, activity setting and length and additional curricular connections to language arts, math, social studies, civics, art, physical education and socio-emotional learning,

Some of the resources listed are available readily online, while others are obtained through professional learning with KACEE. If you would like to attend a professional development experience with KACEE, check out our schedule here or contact Ashlyn Kite-Hartwich at akite@kacee.org.

Performance Expectations

The following Performance Expectations for 3rd grade are aligned with teaching about water in your community:

3-ESS2 Earth's Systems

3-ESS2 Earth's Systems

Students who demonstrate understanding can:

3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]

3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.

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

Analyzing and Interpreting Data

Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.

- Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1)

Obtaining, Evaluating, and Communicating Information

Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.

- Obtain and combine information from books and other reliable media to explain phenomena. (3-ESS2-2)

Disciplinary Core Ideas

ESS2.D: Weather and Climate

- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1)
- Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2)

Crosscutting Concepts

Patterns

- Patterns of change can be used to make predictions. (3-ESS2-1),(3-ESS2-2)

Connections to other DCIs in third grade: N/A

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

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-ESS2-2)*

RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic. (3-ESS2-2)

W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-ESS2-2)

Mathematics –

MP.2 Reason abstractly and quantitatively. (3-ESS2-1),(3-ESS2-2)

MP.4 Model with mathematics. (3-ESS2-1),(3-ESS2-2)

MP.5 Use appropriate tools strategically. *(3-ESS2-1)*

3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. *(3-ESS2-1)*

3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in bar graphs. (3-ESS2-1)

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)*

3-5-ETS1 Engineering Design

3-5-ETS1 Engineering Design

Students who demonstrate understanding can:

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

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

Asking Questions and Defining Problems
Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.

- 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. (3-5-ETS1-1)

Planning and Carrying Out Investigations
Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

- 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. (3-5-ETS1-3)

Constructing Explanations and Designing Solutions
Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

- Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems

- 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. (3-5-ETS1-1)

ETS1.B: Developing Possible Solutions

- Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)
- At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)
- Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3)

ETS1.C: Optimizing the Design Solution

- Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)

Crosscutting Concepts

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

- People's needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1)
- Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)

Connections to 3-5-ETS1.A: Defining and Delimiting Engineering Problems include:
Fourth Grade: 4-PS3-4

Connections to 3-5-ETS1.B: Designing Solutions to Engineering Problems include:
Fourth Grade: 4-ESS3-2

Connections to 3-5-ETS1.C: Optimizing the Design Solution include:
Fourth Grade: 4-PS4-3

Articulation of DCIs across grade-bands: **K-2.ETS1.A** (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3); **K-2.ETS1.B** (3-5-ETS1-2); **K-2.ETS1.C** (3-5-ETS1-2),(3-5-ETS1-3); **MS.ETS1.A** (3-5-ETS1-1); **MS.ETS1.B** (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3); **MS.ETS1.C** (3-5-ETS1-2),(3-5-ETS1-3)

Common Core State Standards Connections:

ELA/Literacy –

RI.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. *(3-5-ETS1-2)*
RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. *(3-5-ETS1-2)*
RI.5.9	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (3-5-ETS1-2)
W.5.7	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (3-5-ETS1-1),(3-5-ETS1-3)
W.5.8	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. *(3-5-ETS1-1),(3-5-ETS1-3)*
W.5.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. *(3-5-ETS1-1),(3-5-ETS1-3)*

Mathematics –

MP.2	Reason abstractly and quantitatively. *(3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)*
MP.4	Model with mathematics. *(3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)*
MP.5	Use appropriate tools strategically. *(3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)*
3-5.OA	Operations and Algebraic Thinking *(3-5-ETS1-1),(3-5-ETS1-2)*

3-LS1 From Molecules to Organisms: Structures and Processes

3-LS1 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]

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

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

- Develop models to describe phenomena. (3-LS1-1)

Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence

- Science findings are based on recognizing patterns. (3-LS1-1)

Disciplinary Core Ideas

LS1.B: Growth and Development of Organisms

- Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

Crosscutting Concepts

Patterns

- Patterns of change can be used to make predictions. (3-LS1-1)

Connections to other DCIs in third grade: N/A

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

Common Core State Standards Connections:

ELA/Literacy –

RI.3.7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). *(3-LS1-1)*

SL.3.5 Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details. *(3-LS1-1)*

Mathematics –

MP.4 Model with mathematics. *(3-LS1-1)*

3.NBT Number and Operations in Base Ten *(3-LS1-1)*

3.NF Number and Operations—Fractions *(3-LS1-1)*

3-LS3 Heredity: Inheritance and Variation of Traits

3-LS3 Heredity: Inheritance and Variation of Traits

Students who demonstrate understanding can:

3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]

3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.]

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

Analyzing and Interpreting Data

Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations.

When possible and feasible, digital tools should be used.

- Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1)

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

- Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2)

Disciplinary Core Ideas

LS3.A: Inheritance of Traits

- Many characteristics of organisms are inherited from their parents. (3-LS3-1)
- Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3-LS3-2)

LS3.B: Variation of Traits

- Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)
- The environment also affects the traits that an organism develops. (3-LS3-2)

Crosscutting Concepts

Patterns

- Similarities and differences in patterns can be used to sort and classify natural phenomena. (3-LS3-1)

Cause and Effect

- Cause and effect relationships are routinely identified and used to explain change. (3-LS3-2)

Connections to other DCIs in third grade: N/A

Articulation of DCIs across grade-levels: **1.LS3.A** (3-LS3-1); **1.LS3.B** (3-LS3-1); **MS.LS1.B** (3-LS3-2); **MS.LS3.A** (3-LS3-1); **MS.LS3.B** (3-LS3-1)

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-LS3-1),(3-LS3-2)

RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea. *(3-LS3-1),(3-LS3-2)*

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-LS3-1),*(3-LS3-2)*

W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. *(3-LS3-1),*(3-LS3-2)

SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. *(3-LS3-1),(3-LS3-2)*

Mathematics –

MP.2 Reason abstractly and quantitatively. *(3-LS3-1),(3-LS3-2)*

MP.4 Model with mathematics. *(3-LS3-1),(3-LS3-2)*

3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. *(3-LS3-1),(3-LS3-2)*

3-LS4 Biological Evolution: Unity and Diversity

3-LS4 Biological Evolution: Unity and Diversity

Students who demonstrate understanding can:

3-LS4-1. **Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.** [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.]

3-LS4-2. **Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.** [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.]

3-LS4-3. **Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.** [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]

3-LS4-4. **Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*** [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]

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

Analyzing and Interpreting Data
Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.
- Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)

Constructing Explanations and Designing Solutions
Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.
- Use evidence (e.g., observations, patterns) to construct an explanation. (3-LS4-2)

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. (3-LS4-3)
- 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-LS4-4)

Disciplinary Core Ideas

LS2.C: Ecosystem Dynamics, Functioning, and Resilience
- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. *(secondary to 3-LS4-4)*

LS4.A: Evidence of Common Ancestry and Diversity
- Some kinds of plants and animals that once lived on Earth are no longer found anywhere. *(Note: moved from K-2)* (3-LS4-1)
- Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1)

LS4.B: Natural Selection
- Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)

LS4.C: Adaptation
- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

LS4.D: Biodiversity and Humans
- Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

Crosscutting Concepts

Cause and Effect
- Cause and effect relationships are routinely identified and used to explain change. (3-LS4-2),(3-LS4-3)

Scale, Proportion, and Quantity
- Observable phenomena exist from very short to very long time periods. (3-LS4-1)

Systems and System Models
- A system can be described in terms of its components and their interactions. (3-LS4-4)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology
- Knowledge of relevant scientific concepts and research findings is important in engineering. (3-LS4-4)

Connections to Nature of Science

Scientific Knowledge Assumes an Order and Consistency in Natural Systems
- Science assumes consistent patterns in natural systems. (3-LS4-1)

Connections to other DCIs in third grade: **3.LS4.C** (3-LS4-2); **3.ESS2.D** (3-LS4-3); **3.ESS3.B** (3-LS4-4)

Articulation of DCIs across grade-levels: **K.ESS3.A** (3-LS4-3)(3-LS4-4); **K.ETS1.A** (3-LS4-4); **1.LS3.A** (3-LS4-2); **2.LS2.A** (3-LS4-3),(3-LS4-4); **2.LS4.D** (3-LS4-3),(3-LS4-4); **4.ESS1.C** (3-LS4-1); **4.ESS3.B** (3-LS4-4); **4.ETS1.A** (3-LS4-4); **MS.LS2.A** (3-LS4-1),(3-LS4-2),(3-LS4-3),(3-LS4-4); **MS.LS2.C** (3-LS4-4); **MS.LS3.B** (3-LS4-2); **MS.LS4.A** (3-LS4-1); **MS.LS4.B** (3-LS4-2),(3-LS4-3); **MS.LS4.C** (3-LS4-3),(3-LS4-4); **MS.ESS1.C** (3-LS4-1),(3-LS4-3),(3-LS4-4); **MS.ESS2.B** (3-LS4-1); **MS.ESS3.C** (3-LS4-4)

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-LS4-1),(3-LS4-2),(3-LS4-3) (3-LS4-4)*

RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea. *(3-LS4-1),(3-LS4-2),(3-LS4-3),(3LS4-4)*

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-LS4-1),(3-LS4-2),(3-LS4-3),(3-LS4-4)*

W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. *(3-LS4-1),*(3-LS4-3),*(3-LS4-4)*

W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. *(3-LS4-1),*(3-LS4-2),*(3-LS4-3),(3-LS4-4)*

W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-LS4-1)

SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. *(3-LS4-2),(3-LS4-3),(3-LS4-4)*

Mathematics –

Performance Expectation: 3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

Performance Expectation: 3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.

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

Performance Expectation: 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

Performance Expectation: 3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Performance Expectation: 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Performance Expectation: 3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Performance Expectation: 3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.

Performance Expectation: 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Performance Expectation: 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*

Disciplinary Core Ideas:

ESS2.D: Weather and Climate Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1)

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)

ETS1.A: Defining and Delimiting Engineering Problems 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. (3-5-ETS1-1)

ETS1.B: Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)

ETS1.C: Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)

LS1.B: Growth and Development of Organisms Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.
(3-LS1-1)

LS3.A: Inheritance of Traits Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3-LS3-2)

LS3.B: Variation of Traits The environment also affects the traits that an organism develops. (3-LS3-2)

LS2.C: Ecosystem Dynamics, Functioning, and Resilience When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)

LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

LS4.D Biodiversity and Humans Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

Additional Water Resources:

Kansas WRAPS website
Ogallala Aquifer Education Activities from the Kansas Geological Survey

Potential Kansas Specific Anchoring Phenomena for 3rd Grade

- What causes changes in growth and distribution of plants in the schoolyard? Observe the plants on your school ground and note any changes or differences you see. What additional data might you collect to better understand potential explanations for these changes?
- With all the different species of wildlife we have in our region, why are some insects and animals not found on the school grounds?

Table of Standard Aligned Activities for 3rd Grade

This table is arranged by Performance Expectations

Learning Activities	**Performance Expectations**	**Disciplinary Core Ideas**	**Notes (Specific connections to KS including adaptations, additional resources, etc.):**
Project WET: Water Crossings	3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	ETS1.A: Defining and Delimiting Engineering Problems • 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. (3-5-ETS1-1) ETS1.B: Developing Possible Solutions • Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) ETS1.C: Optimizing the Design Solution • Different solutions need to be tested in order to determine which of them best	Recommended adaptations from Project WET: Engineering Process: Have students construct a bridge to go over a river or stream. What materials and design do you think would be the best to avoid collapse in case of a flood?

		solves the problem, given the criteria and the constraints. (3-5-ETS1-3)	
Project WET: Hitting the Mark	3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	ETS1.B: Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) ETS1.B: Developing Possible Solutions Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) ETS1.C: Optimizing the Design Solution • Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)	Recommended adaptations from Project WET: Engineering Process: Students will construct a way to dam up a river to prevent flooding downstream. Construct a model and conduct trials to see if their model is successful and record data. Working with peers, students will communicate possible solutions. Dam in a Box video
National Geographic: Create a Weather Map	3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	ESS2.D: Weather and Climate Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.	National Geographic Record the weather conditions in your area for a month. Create a pictograph to display the information. What do you notice? Complete one each month. Do you see a pattern?

PBS Kansas - Investigating Seasonal Temperature and Precipitation Variations	3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	ESS2.D: Weather and Climate Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next	PBS Lesson Plan Kansas Climate Records Monthly Precipitation Maps Precipitation Daily Totals Monthly Precipitation Map by county
PBS Kansas - Rain Collection Engineering Design	3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	ESS2.D: Weather and Climate Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.	PBS Lesson Plan
Project Aquatic WILD Sockeye Scents	3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	LS1.B: Growth and Development of Organisms Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.	What migrating animals do you see in your area? Why do they stop there? Geese Migration in Kansas Ambling Armadillos

Project Aquatic WILD Turtle Hurdles	3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. 3-LS2-1. Construct an argument that some animals form groups that help members survive. 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	LS1.B: Growth and Development of Organisms Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	What's Happening to the Turkeys Kansas Small Game Status Report Birds Disappearing from Kansas

Project Aquatic WILD Fashion Fish	3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. 3-LS2-1. Construct an argument that some animals form groups that help members survive. 3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.	LS1.B: Growth and Development of Organisms Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.	Types of fish found in Kansas A Pocket Guide to Kansas Stream Fishes Fish Pocket Guide Native Fish Species of Kansas
Project Aquatic Wild Water Plant Art	3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot	LS1.B: Growth and Development of Organisms Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.	Take a walk around your school or neighborhood. Collect a sample of plants that are growing around a water source. Research to see if they are plants native to Kansas. Determine their importance in the ecosystem in that area. Create a picture of the ecosystem and use the plants as decoration.

	survive at all.		
Project WET: On Track with Hydration	3-LS3-2: Use evidence to support the explanation that traits can be influenced by the environment.	LS3.A: Inheritance of Traits Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment (3-LS3-2).	Recommended adaptations from Project WET: Why Do We Drink Water? Test out the effects of water on plants. Get 3 of the exact same plants and distribute the water differently for each plant for a week. Make sure that they are received the same amount of light and that there are no other changes between the 3 plants. What do you notice? What happens if you continue this process?

Project Aquatic WILD Fishy Who's Who	3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.		

Project WILD - What Bear Goes Where?	3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. LS3.B: Variation of Traits Different organisms vary in how they look and function because they have different inherited information. The environment also affects the traits that an organism develops.	Look at pictures of three different species of fish and discuss their similarities and differences. Connect this lesson with Fishy Who's Who from Aquatic WILD.
Project Aquatic WILD Edge of Home	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	Take a walk around your school or neighborhood. Locate Ecotones. Draw a map and label the two ecosystems that are creating the Ecotone.
Project Aquatic WILD Kelp Help	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	What do you know about blue-green algae? This is a common algae found in Kansas water sources. What causes it to increase? Blue Green Algae in Kansas Ponds and Lakes

Project WILD - Habitat Circles	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	What are the aquatic ecosystems in your areas? What would happen if one of those disappeared?
Project WILD - Limiting Factors: How Many Bears?	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	What are some common wildlife in your area? What would happen to them if their water source was gone? What would this affect their habitat?
Project WILD - Map That Habitat	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. ● Students d	Visit a local pond or stream. Research common wildlife in that area. Create a map of the habitat for each animal. What do you notice?

Project Aquatic WILD Got Water?	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	LS2.C: Ecosystem Dynamics, Functioning, and Resilience When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	What happens to the wildlife when their water source is gone? Drought Dries Up Kansas Wetlands How do you think wildlife is affected by flooding? Massive Flooding in the Midwest What are some solutions you could come up with to help with the water situation of each instance? Kansas Climate Center

Project Aquatic Wild - Designing a Habitat	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	LS2.C: Ecosystem Dynamics, Functioning, and Resilience When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.	Visit your local zoo

Project Aquatic WILD Aquatic Roots	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. LS2.C: Ecosystem Dynamics, Functioning, and Resilience When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.	Locate several types of aquatic plants and animals in your area. Research to see if they are native to Kansas. If not, how did they get here?
Project Aquatic WILD Blue Ribbon Niche	3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	LS4.C: Adaptation For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. LS4.D: Biodiversity and Humans Populations live in a variety of habitats, and change in those habitats affects the organisms living there	Look at a map of your city. What type of plants and animals would live in the area? Maps of Cities in Kansas

Project Aquatic Wild Dragonfly Pond	3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	LS2.C: Ecosystem Dynamics, Functioning, and Resilience When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die	Look at maps of the different years of your town. What do you notice? Have the natural habitats of animals been affected? Has there been a change in the water source?
Project WILD - Forest in a Jar	3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	LS2.C: Ecosystem Dynamics, Functioning, and Resilience When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.	Explore your school grounds, where do plants seem to be growing well, where do plants not grow as well. What do you think might explain the difference?

Project Aquatic WILD Silt: A Dirty Word	3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	LS2.C: Ecosystem Dynamics, Functioning, and Resilience When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. ETS1.C: Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.	What would happen if the amount of silt increases in a pond or stream? What are some ways you could prevent this from happening? Create a diagram or model to show your ideas. USGS WaterWatch Map
Project Learning Tree: Web of Life	3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*	LS4.D Biodiversity and Humans Populations live in a variety of habitats, and change in those habitats affects the organisms living there.	Look at the aquatic wildlife in your area. What would happen if one of the species disappeared? How would that affect the food chain or web of life?

Project Learning Tree Every Drop Counts	3–5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	ETS1.A: Defining and Delimiting Engineering Problems 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.B: Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.	How can you save water? Design a water system that will deliver water without harming the environment.

Project WET: Molecules in Motion	4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, heat, light and electric current.	PS3.A: Definitions of Energy Energy can be moved from place to place by moving objects or through sound, light, or electric currents. (4-PS3-2), (4-PS3-3) PS3.B: Conservation of Energy and Energy Transfer Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced. (4-PS3-2), (4-PS3-3)	Recommended adaptations from Project WET: Walk around inside the school, where do you see evidence of water in the 3 states of matter. Walk outside of the school, where do you see evidence of water in the 3 states of matter? Think about the seasons in Kansas, when would you most likely see an example of water in the 3 states of matter?

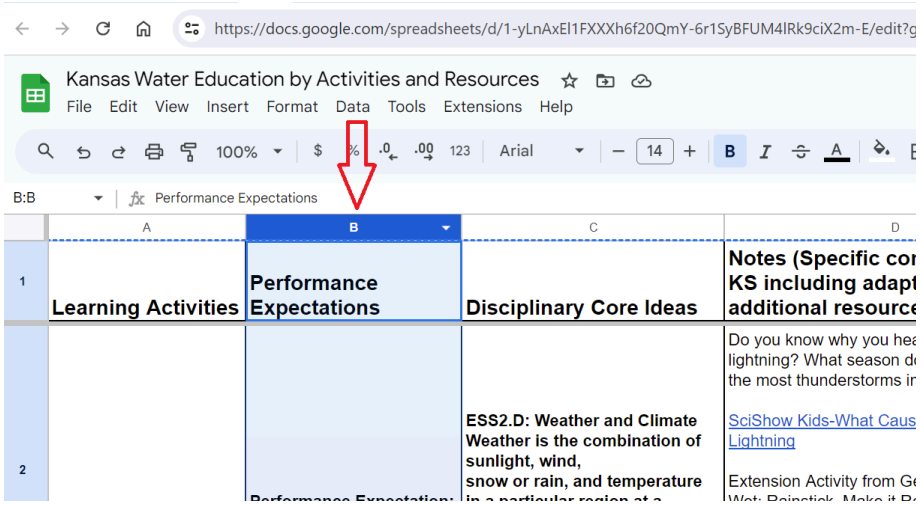
Project WET: The Thunderstorm	Performance Expectation: 3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. Performance Expectation: 3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.*	ESS2.D: Weather and Climate Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1) 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)	Recommended adaptations from Project WET: Possibly have the students research how many inches of rain on average they receive in their area. Possible resource from Kansas Climate Center. Monthly Precipitation Map by county.

Sortable Spreadsheet of Standard Aligned Activities

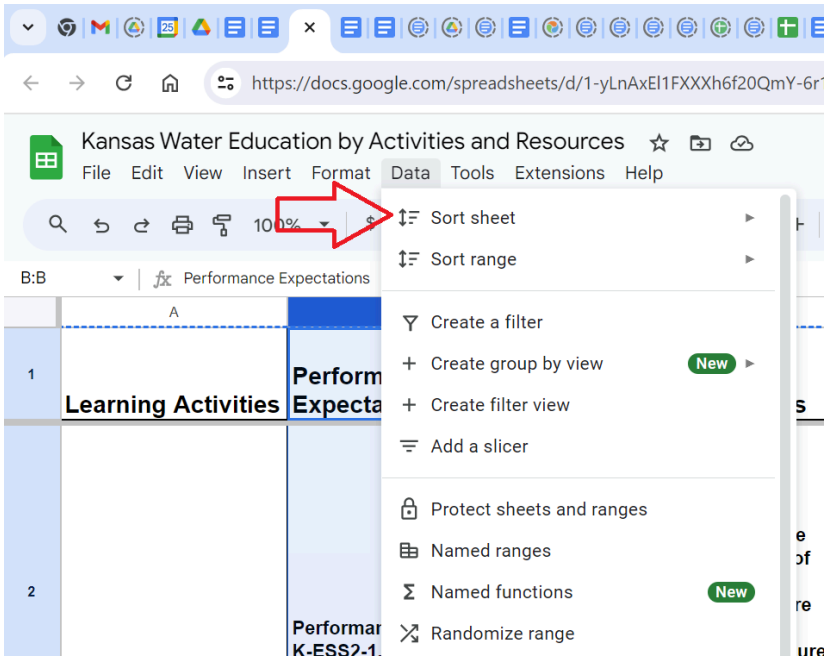
This spreadsheet can be sorted as it best meets your needs and includes additional information about instructional setting, length of activity and additional curricular connections for each activity.

To use this spreadsheet:

1. Make a copy of this spreadsheet for your use and save it.
2. Select the tab at the bottom of the spreadsheet for your grade level
3. Select a column you wish to sort by and click on that column



4. Go to the menu item “Data” and click “Sort Sheet”


https://docs.google.com/spreadsheets/d/1-yLnAxEl1FXXXh6f20QmY-6r
Kansas Water Education by Activities and Resources
File Edit View Insert Format Data Tools Extensions Help
100%
B:B
Performance Expectations
A
1
Learning Activities
Perform
Expecta
2
Performar
K-ESS2-1
Sort sheet
Sort range
Create a filter
Create group by view
New
Create filter view
Add a slicer
Protect sheets and ranges
Named ranges
Named functions
New
Randomize range