National Standards Alignment for 79823 Wildlife Corridor Challenge

Next Generation Science Standards

Biological Evolution: Unity and Diversity

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.

Engineering Design

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.

Science and Engineering Practices: 2, 4, 5, 6

CCSS Mathematics

Numbers & Operations — Fractions

3.NF.A.1 Understand a fraction *1/b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by *a* parts of size *1/b*.

3.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. (a-d)

Measurement & Data

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 scaled bar graphs.

Standards for Mathmatical Practice: 1, 2, 4

CCSS English Language Arts

Reading: Informational Text

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).

Writing

W.1.1 Write opinion pieces on topics or texts, supporting a point of view with reasons.

Speaking & Listening

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.

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National Standards Alignment for 79825 Rainwater Runoff Design Challenge

Next Generation Science Standards

Matter and Its Interactions

5-PS1-3 Make observations and measurements to identify materials based on their properties.

Earth's Systems

5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

5-ESS2-2 Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

Earth and Human Activity

5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Engineering Design

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.

Science and Engineering Practices: 5, 6, 7

CCSS Mathematics

Numbers & Operations—Fractions

5.NF.B.3 Interpret a fraction as division of te numerator by the denominator *(a/b = a ÷ b)*. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.B.4a Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. Interpret the product *(a/b) x q* as *a* parts of a partition of *q* in *b* equal parts; equivalently, as the result of a sequence of operations *a x q ÷ b*.

Measurement & Data

5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Standards for Mathematical Practice: 1, 3

CCSS English Language Arts

Writing

W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

W.5.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.

Speaking & Listening

SL.5.3 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

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National Standards Alignment for 79824 Digital Relay Challenge

Next Generation Science Standards

Waves and their Applications in Technologies for Information Transfer

4-PS4-3 Generate and compare multiple solutions that use patterns to transfer information.

Earth's Systems

4-ESS2-2 Analyze and interpret data from maps to describe patterns of Earth's features.

Engineering Design

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.

Science and Engineering Practices: 4, 5, 6

CCSS Mathematics

Operations & Algebraic Thinking

4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

Number & Operations in Base Ten

4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.

4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.

4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.

Mathematical Practices: 1, 4, 6, 7

CCSS English Language Arts

Speaking & Listening

SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Writing

W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

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National Standards Alignment for Xxxx Xxxx

Next Generation Science Standards

4-PS3 Xxx

4-PS3-2 Xxx

Science and Engineering Practices

Xxxx

CCSS Mathematics

4.MD.A.2 Xxxx

CCSS Mathematical Practices

Xxxx

CCSS English Language Arts

SL.4.1 Xxxx

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National Standards Alignment for 79821 Shadow Box Theater Exploration

Next Generation Science Standards

Waves and Their Applications in Technologies for Information Transfer

1-PS4-2 Make observations to construct an evidencebased account that objects in darkness can be seen only when illuminated.

1-PS4-3 Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

Engineering Design

K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Science and Engineering Practices: 2, 3, 4

CCSS Mathematics

Measurement and Data

1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

Geometry

1.G.A.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

1.G.A.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Standards for Mathematical Practices: 1, 4

CCSS English Language Arts

Reading: Informational Text

RI.1.2 Describe the connection between two individuals, events, ideas, or pieces of information in a text.

Writing

W.1.1 Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.

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.)

Speaking & Listening

SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

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National Standards Alignment for 79820 Little Footprint Exploration

Next Generation Science Standards

Earth and Human Activity

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.

Engineering Design

K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Science Engineering Practices: 4, 6

CCSS Mathematics

Counting & Cardinality

K.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

K.CC.B. 5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

Measurement & Data

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

K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.

Geometry

K.G.B.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

Standards for Mathematical Practice: 1, 4

CCSS English Language Arts

Reading: Literature

RL.K.7 With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).

Writing

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).

Speaking & Listening

SL.K.1 Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

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National Standards Alignment for 79822 Seed Rescue Exploration

Next Generation Science Standards

Matter and Its Interactions

2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

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.

Ecosystems: Interactions, Energy, and Dynamics

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Engineering Design

K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can solved through the development of a new or improved object or tool.

K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Science and Engineering Practices: 2, 3, 6

CCSS Mathematics

Operations & Algebraic Thinking

2.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Numbers & Operations in Base Ten

2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.

Measurement & Data

2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.

Standards for Mathmatical Practices: 1, 2, 3

CCSS English Language Arts

Writing

W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

Speaking & Listening

SL.2.1 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

SL.2.1.B Build on others' talk in conversations by linking their comments to the remarks of others.

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National Standards Alignment for Xxxx Xxxx

Next Generation Science Standards

4-PS3 Xxx

4-PS3-2 Xxx

Science and Engineering Practices

Xxxx

CCSS Mathematics

4.MD.A.2 Xxxx

CCSS Mathematical Practices

Xxxx

CCSS English Language Arts

SL.4.1 Xxxx

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National Standards Alignment for Xxxx Xxxx

Next Generation Science Standards

4-PS3 Xxx

4-PS3-2 Xxx

Science and Engineering Practices

Xxxx

CCSS Mathematics

4.MD.A.2 Xxxx

CCSS Mathematical Practices

Xxxx

CCSS English Language Arts

SL.4.1 Xxxx

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National Standards Alignment for Xxxx Xxxx

Next Generation Science Standards

4-PS3 Xxx

4-PS3-2 Xxx

Science and Engineering Practices

Xxxx

CCSS Mathematics

4.MD.A.2 Xxxx

CCSS Mathematical Practices

Xxxx

CCSS English Language Arts

SL.4.1 Xxxx

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National Standards Alignment for Xxxx Xxxx

Next Generation Science Standards

4-PS3 Xxx

4-PS3-2 Xxx

Science and Engineering Practices

Xxxx

CCSS Mathematics

4.MD.A.2 Xxxx

CCSS Mathematical Practices

Xxxx

CCSS English Language Arts

SL.4.1 Xxxx

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National Standards Alignment for Xxxx Xxxx

Next Generation Science Standards

4-PS3 Xxx

4-PS3-2 Xxx

Science and Engineering Practices

Xxxx

CCSS Mathematics

4.MD.A.2 Xxxx

CCSS Mathematical Practices

Xxxx

CCSS English Language Arts

SL.4.1 Xxxx

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