

A K–12 Nature-Based Learning Progression

Rocky Mountain National Park Family Camp • Summer 2026

Curated and Inspired by STEAM in the
PARK Educators and families at Rocky Mountain
National Park Family Camp



About This Resource

The ideas shared throughout this document were generated during a collaborative brainstorming session with educators participating in **STEAM in the PARK at Rocky Mountain National Park Family Camp**, hosted by **Expeditions in Education**.

Representing a wide range of grade levels, content areas, and educational settings, these educators gathered to explore a simple but powerful question:

How can nature become a meaningful part of learning at every grade level?

The result was a collection of authentic ideas, experiences, projects, and possibilities designed to connect students with the natural world while supporting academic standards, social-emotional learning, environmental stewardship, civic engagement, creativity, and community involvement.

These ideas reflect the collective wisdom, creativity, and passion of classroom teachers, specialists, administrators, informal educators, outdoor educators, and their families who spent five days learning alongside one another at Rocky Mountain National Park Family Camp. While the concepts have been organized by grade level and connected to relevant Next Generation Science Standards (NGSS), they remain true to the original brainstorming process and are intended to inspire adaptation, expansion, and local implementation.

1. Mountain Watch

Essential Question

How does a mountain change when we take time to notice?

Grade Levels

K–8 (adaptable through high school)

Time

45–60 minutes initially

10-minute observations each day

NGSS

- K-LS1-1
- 2-LS4-1
- 3-LS3-2
- 4-ESS2-1
- MS-ESS2-6

Families Will

- Choose one landscape to observe throughout the week.
- Sketch it.
- Record weather.
- Record wildlife.
- Notice shadows and changing light.
- Write one "I Notice" and one "I Wonder" each day.

STEAM Connections

- Science
- Nature journaling
- Geography
- Art
- Data collection

Take Home

Continue observing one place near home once a month.

2. Secret Lives of Trees

Essential Question

Who depends on a single tree?

Grades

K–8

Time

60–75 minutes

NGSS

- K-ESS3-1
- 2-LS4-1
- 3-LS4-3
- 5-LS2-1
- MS-LS2-2

Families Will

Adopt one tree and investigate:

- insects
- bark
- smell
- cones
- moss
- shade
- roots
- evidence of animals

Create a "Tree Biography."

STEAM Connections

- Ecology
- Observation
- Writing
- Drawing
- Classification

3. Meadow Detectives

Essential Question

What stories are hidden in a meadow?

Grades

1–8

Time

75 minutes

NGSS

- 2-LS4-1
- 3-LS4-4
- 4-LS1-1
- 5-LS2-1
- MS-LS2-3

Families Will Search For

- Pollinators
- Seeds
- Animal homes
- Tracks
- Scat
- Wildflowers
- Feathers
- Food sources

Everything is photographed or sketched rather than collected.

STEAM

- Ecology
- Photography
- Sketching
- Evidence
- Biodiversity

4. Nature's Engineering Lab

Essential Question

What can engineers learn from nature?

Grades

3–8

Time

90 minutes

NGSS

- 3-5-ETS1-1
- 3-5-ETS1-2
- 3-5-ETS1-3
- MS-ETS1-1

Families Design

Choose one challenge.

- Build a bridge
- Build a marmot shelter
- Build a windbreak
- Build a wildlife crossing
- Build a seed dispersal device

Only dead and down materials may be used.

Families improve their design after testing.

STEAM

- Engineering
 - Iteration
 - Physics
 - Design Thinking
-

5. Wild Kitchens

Essential Question

Where does every meal begin?

Grades

K–8

Time

45–60 minutes

NGSS

- K-LS1-1
- 2-LS2-1
- 5-LS2-1
- MS-LS2-3

Families Trace

Today's lunch backward.

Sun

↓

Plants

↓

Animals

↓

People

↓

Camp meal

Then compare their meal to an elk's.

Create giant food web cards.

6. Rocky Mountain Soundtrack

Essential Question

What happens when we really listen?

Grades

K–12

Time

45 minutes

NGSS

- 1-LS1-1
- 4-ESS2-2
- MS-LS2-1

Families Record

- Wind
- Water
- Birds
- People
- Trees
- Insects
- Silence

Then create a "sound map."

7. If I Were an Elk

Essential Question

How do animals survive change?

Grades

2–8

Time

60 minutes

NGSS

- 3-LS4-3
- 4-LS1-1
- MS-LS2-2

Families receive adaptation scenarios

Examples:

- Deep snow
- Drought
- Busy roads
- Wolves nearby
- Calf season
- Fire

Families act out how elk respond.

8. Sky Keepers

Essential Question

Why have people always looked up?

Grades

K–12

Time

Night program

NGSS

- 1-ESS1-1
- 5-ESS1-2
- MS-ESS1-1

Observe

- Moon
- Constellations
- Satellites
- Milky Way
- Changing light

Families create their own constellation story.

9. Living Campground

Essential Question

How is a campground an ecosystem?

Grades

K–8

Time

60 minutes

NGSS

- K-ESS3-3
- 2-LS4-1
- 5-LS2-1
- MS-LS2-5

Investigate

- Bear boxes
- Fire rings
- Tent pads
- Trees
- Water
- Animals
- People
- Leave No Trace

Families discover that campgrounds are carefully designed habitats where humans and wildlife coexist.

10. Our Family Nature Legacy

Essential Question

What will we carry home?

Grades

All ages

Time

45 minutes

NGSS

Connections across all Life Science and Engineering Practices

Families create

- One family promise
- One new outdoor tradition
- One stewardship goal
- One place to explore next
- One postcard to their future selves

Finish with a Family Legacy Circle.

11. Pika Pantry Challenge

Essential Question

How do small animals prepare for big seasonal changes?

Grade Levels

K–8

Time

60–75 minutes

NGSS Connections

- K-LS1-1: Use observations to describe patterns of what plants and animals need to survive.
- 2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.
- 3-LS3-2: Use evidence to explain how the environment can influence traits.
- 3-LS4-3: Construct an argument about how habitat affects an organism’s ability to survive.
- MS-LS2-1: Analyze how resource availability affects organisms and populations.

Family Immersion

Families learn how American pikas gather grasses, wildflowers, and other vegetation during summer and create “hay piles” to help them survive the winter.

Each family receives a pika habitat area and a collection of reusable food cards. They must gather enough food while responding to changing conditions such as:

- Early snowfall
- Drought
- Fewer wildflowers
- Competition from another pika
- A predator nearby
- Warmer temperatures

Families calculate how much food they collected and determine whether their pika has enough stored for winter.

STEAM Connections

- Animal behavior
- Seasonal change
- Resource availability
- Mathematics
- Data collection

- Decision-making

Family Reflection

What resources does your family gather or prepare before a busy season?

Take-Home Connection

Create a seasonal preparedness list for a family hike, camping trip or winter weather event.

12. Follow the Snowmelt

Essential Question

Where does mountain water go?

Grade Levels

1–8

Time

60–90 minutes

NGSS Connections

- 2-ESS2-2: Develop a model representing the shapes and kinds of land and bodies of water.
- 4-ESS2-1: Make observations or measurements to provide evidence of weathering and erosion.
- 5-ESS2-1: Develop a model showing how Earth's systems interact.
- 5-ESS2-2: Describe and graph the distribution of Earth's water.
- MS-ESS2-4: Develop a model describing the cycling of water through Earth's systems.

Family Immersion

Families become drops of snowmelt beginning high in the Rocky Mountains. They travel through stations representing:

- Snowfield
- Alpine tundra
- Mountain stream
- Wet meadow

- Lake
- River
- Plant roots
- Animal bodies
- Atmosphere

At each station, families receive a water journey card that determines where their drop travels next.

They then create a large illustrated map showing how snowmelt connects mountain ecosystems with communities far beyond the park.

STEAM Connections

Watersheds, water cycles, geography, mapping, modeling and systems thinking.

Family Challenge

Build a small model watershed using sand, soil, rocks or reusable materials. Slowly pour water onto the highest point and observe its path.

Family Reflection

How can something that happens high on a mountain affect people living many miles away?

13. Mountain Weather Detectives

Essential Question

Why can mountain weather change so quickly?

Grade Levels

2–8

Time

60 minutes, with optional observations throughout the day

NGSS Connections

- K-ESS2-1: Use and share observations of local weather conditions.
- 3-ESS2-1: Represent data in tables and graphs to describe typical weather conditions.

- 3-ESS3-1: Make a claim about the value of a weather-related design solution.
- 4-ESS3-2: Generate and compare solutions that reduce the effects of natural Earth processes.
- MS-ESS2-5: Collect data to show how air movement and conditions interact to produce weather changes.

Family Immersion

Families establish a temporary weather station and collect observations such as:

- Cloud cover
- Wind direction
- Wind speed
- Temperature
- Precipitation
- Changes in light
- Evidence of an approaching storm

Families create a weather forecast for the next hour and explain the evidence supporting their prediction.

They then receive a hiking scenario and decide whether to continue, turn around, find shelter or change their plans.

STEAM Connections

Meteorology, measurement, graphing, forecasting, safety and evidence-based decision-making.

Engineering Challenge

Design a lightweight emergency shelter for a small toy hiker. Test whether it protects the hiker from wind and simulated rain.

Family Reflection

Why is changing a plan sometimes the smartest and safest decision?

14. Tracks, Trails and Wildlife Tales

Essential Question

How can we learn about animals without seeing them?

Grade Levels

K–8

Time

60–75 minutes

NGSS Connections

- K-LS1-1: Observe patterns in what animals need to survive.
- 1-LS1-2: Read texts and use media to identify patterns in the behavior of parents and offspring.
- 2-LS4-1: Observe and compare the diversity of life in habitats.
- 3-LS4-2: Use evidence to explain how variations may provide advantages for survival.
- 4-LS1-1: Construct an argument that animal structures support survival and behavior.
- MS-LS2-2: Construct an explanation predicting patterns of interactions among organisms.

Family Immersion

Families search for signs that animals have been nearby without disturbing wildlife.

Possible evidence includes:

- Tracks
- Scat
- Fur
- Feathers
- Burrows
- Nibbled plants
- Rubbed bark
- Trails through grass
- Sounds
- Scratches or markings

Families select one piece of evidence and create a possible wildlife story explaining:

- Which animal may have left it
- What the animal was doing
- Where it may have traveled
- What it needed from the habitat
- What evidence supports the family's explanation

STEAM Connections

- Wildlife biology
- Observation
- Measurement
- Storytelling
- Inference
- Evidence

Hands-On Challenge

Use reusable track stamps or molds to create a mystery trail. Another family studies the trail and explains what may have happened.

Family Reflection

What is the difference between an observation and an inference?

15. Alpine Survival Design Challenge

Essential Question

How do living things survive above the tree line?

Grade Levels

3–8

Time

75–90 minutes

NGSS Connections

- 3-LS4-3: Construct an argument about how habitat affects survival.
- 3-LS4-4: Make a claim about a solution to a problem caused by environmental change.
- 4-LS1-1: Explain how internal and external structures support survival.

- 3-5-ETS1-1: Define a design problem with criteria and constraints.
- 3-5-ETS1-2: Compare possible solutions to a problem.
- 3-5-ETS1-3: Plan and carry out fair tests to improve a model.
- MS-ETS1-1: Define criteria and constraints for a successful design solution.

Family Immersion

Families investigate the challenges faced by plants and animals living in the alpine tundra:

- Strong winds
- Cold temperatures
- Thin soils
- Short growing seasons
- Intense sunlight
- Limited shelter
- Rapid weather changes

Each family chooses an alpine organism or invents one inspired by real adaptations. They design a model showing how it survives.

Possible features include:

- Low-growing shape
- Thick fur
- Small ears
- Wide feet
- Flexible stems
- Waxy leaves
- Camouflage
- Underground shelter
- Seasonal migration

Families test their models with wind, cold-air or water simulations and improve their designs.

STEAM Connections

- Adaptations
- Biomimicry
- Engineering
- Design
- Testing
- Environmental science

Family Reflection

Which adaptation was most important, and what evidence from your test supports that conclusion?

Stewardship Connection

Families discuss why alpine tundra is especially vulnerable to footsteps and commit to staying on established trails.

Final Reflection

The ideas contained in this resource remind us that meaningful learning does not always begin with a textbook. Sometimes it begins with a question, a walk outside, a conversation, a community project, a sound in the marsh, a seed planted in a garden, or a moment of wonder. Nature provides an endless classroom. These educators demonstrated that when students are given opportunities to observe, investigate, create, serve, and connect, learning becomes deeper, more relevant, and more memorable.

May these ideas inspire educators everywhere to help students learn not only about the world around them, but also about their place within it.

At its heart, the Framework of Nature is built on a simple belief:

Every child deserves opportunities to wonder.

From wonder comes curiosity.

From curiosity comes understanding.

From understanding comes stewardship.

And from stewardship comes the possibility of leaving a lasting legacy.

[Find all of our Ideas & Immersions files here.](#)

STEAM in the PARK

Curated from a collaborative brainstorming session by STEAM in the PARK educators and families during the [2026 Rocky Mountain National Park Family Camp adventure](#), an initiative hosted by Expeditions in Education.

steaminthepark.net

expeditionsineducation.org

Copyright 2026 - Expeditions in Education gives you permission to use our materials as-is. Logos and names from the documents must remain. Please provide credit and link back to our website when using our resources.