

SCIENCE 3D

RATTLESNAKES

SCIENCE PERFORMANCE EXPECTATIONS AND DISCIPLINARY CORE IDEAS

In the Elementary School Mission (NGSS Grade 3), students will address the general topics below. For a complete list of NGSS standards covered in each segment of the Mission, continue reading after the general standards. *Note: Be sure to complete the **Mission Reader** and **Mission Research** before viewing the full **Mission Video**. Explore [How to Use Science 3D](#) to get suggestions on how to pace the mission and options for the order of activities. Math and Language Arts standards will be added shortly.*

- In the **Mission Reader**, *Rattlesnakes*, students will learn about rattlesnakes and their desert home while exploring weather and climate, life cycles of plants and animals, traits that help animals survive, and much more.
- During **Mission Research**, students will use their knowledge of plant and animal traits to match organisms to the environments they live in. Then, they will predict what would happen to an organism if its environment were to change.
- In the **Science Mission**, students will use evidence to support their ideas about how different traits help desert plants and animals survive. Then they will compare and contrast life cycles and use data to explore how weather affects rattlesnakes.
- In the **STEM Project**, students will use the engineering design process, and what they know about animal adaptations, to design solutions for staying cool and getting enough water in the desert. An additional activity provides students with an opportunity to construct, test, and improve their own designs for creating shade.
- Using the **Explore Your Backyard** activity, students will characterize the climate they live in, collect data on weather in their backyard, and describe how the climate and weather affect a local animal of their choice.

SCIENCE/ENGINEERING AND DESIGN DISCIPLINARY CORE IDEAS AND PERFORMANCE EXPECTATIONS

MISSION READER

3-LS4-1	Use evidence to support the explanation that traits can be influenced by the environment.
3-LS4-2	Construct an argument that some animals form groups that help members survive.
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.
LS4.B	Natural Selection.
3-LS-2-1	Construct an argument that some animals form groups that help members survive.
3-LS4-3	Construct an argument with evidence in a particular habitat some organism can survive well, some can survive less well, and some cannot survive at all.
LS4.C	Adaptation.
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 to make predictions.
ESS2.D	Weather and climate: climate describes a range of an area's typical conditions.

MISSION RESEARCH

3-LS4-1	Use evidence to support the explanation that traits can be influenced by the environment.
3-LS4-2	Construct an argument that some animals form groups that help members survive.
LS4.B	Natural Selection.
3-LS4-3	Construct an argument with evidence in a particular habitat some organism can survive well, some can survive less well, and some cannot survive at all.
LS4.C	Adaptation.

SCIENCE MISSION

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-LS-2-1	Construct an argument that some animals form groups that help members survive.
LS4.C	Adaptation.

STEM PROJECT

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.
ETS1.A	Defining and delimiting engineering problems.
ETS1.B	Developing possible solutions: communicating with peers about proposed solutions is important and can improve design.
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: tests are often designed to identify failure points to suggest where improvements are needed.
ETS1.C	Optimizing design solutions.
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.

EXPLORE YOUR BACKYARD

LS4.C	Adaptation.
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 to make predictions.
ESS2.D	Weather and climate: climate describes a range of an areas typical conditions.
3-ESS2-2	Obtain and combine information to describe climates in different regions of the world.

CROSS CUTTING CONCEPTS

Patterns: [All](#)

Cause and Effect: Mechanisms and Prediction: [Mission Reader](#), [Science Mission](#), [STEM Projects](#), [Explore Your Backyard](#)

Systems and system models: [Mission Reader](#), [Science Mission](#), [Explore Your Backyard](#)

Energy and matter: [Mission Reader](#)

Structure and function: [Mission Reader](#), [Mission Research](#), [Science Mission](#), [Explore Your Backyard](#)

Stability and Change: [Mission Reader](#), [Explore Your Backyard](#)

CONNECTION TO ENGINEERING, TECHNOLOGY AND APPLICATIONS OF SCIENCE

Interdependence of Science, Engineering and Technology: [Mission Reader](#), [STEM Projects](#)

Influence of Science, Engineering and Technology on Society and the Natural World: [Mission Reader](#), [STEM Projects](#)

SCIENCE AND ENGINEERING PRACTICES

Engage in argument from evidence: [Mission Reader](#), [Mission Research](#), [Science Mission](#), [Explore Your Backyard](#)

Planning and carrying out investigations: [Science Mission](#), [STEM Projects](#)

Constructing explanations and designing solutions: [STEM Projects](#), [Explore Your Backyard](#)

Developing and using models: [STEM Projects](#)

Obtaining, evaluating and communicating information: [All](#)

Analyzing and interpreting data: [Science Mission](#), [Explore Your Backyard](#)

CONNECTION TO NATURE OF SCIENCE

Scientific investigations use a variety of methods: [Mission Reader](#), [Science Mission](#)

Scientific knowledge is based on empirical evidence: [Mission Reader](#), [Science Mission](#)

Science is a way of knowing: [Mission Reader](#), [Science Mission](#), [STEM Projects](#)

Science addresses questions about the natural and material world: [All](#)

Science models, laws, mechanisms and theories explain natural phenomena: [Mission Reader](#), [STEM Projects](#)

Scientific knowledge assumes an order and consistency in natural systems: [Science Mission](#), [STEM Projects](#), [Explore Your Backyard](#)