



# Nature at School Pre-lesson Scales and Scutes

## Learning outcomes:

Join DNR educator Elizabeth Tillman from Hoffmaster State Park in Muskegon to learn about a few reptiles that call the dunes their home. We will answer the question, “What is a reptile?” and learn a few of their characteristics. Three species of snakes and turtles will be highlighted, with live examples to help your students understand the adaptations or “tools” that help these animals survive in such a harsh, ever-changing environment. This 30-minute presentation will meet the following learning outcomes:

- Compare and contrast reptile characteristics with those of amphibians and mammals.
- Describe adaptations that help snakes and turtles survive in the dunes.
- Learn how humans impact the survival of snakes and turtles.
- Describe the value of state parks and other public lands for reptiles and other wildlife.

## Background information:

Reptiles have a long history. They have been on earth since the age of the dinosaurs. While they still exist today, their declining populations are an indication that their long-term survival is at risk. Habitat loss, road mortality, the collection of reptiles as pets or for the commercial trade, and the increase in predators such as raccoons have all contributed to population decline.

Snakes and turtles fascinate people, but they are often misunderstood. Snakes in particular are feared by many. By learning about some of the species we find in Michigan, a few traits that these animals have in common with us, and the many ways in which they benefit humans, attitudes and empathy can be changed for the better. By learning about reptiles, students will be more aware of the ways in which we can help these creatures. The success of reptile conservation in Michigan depends on all of us.

## Resources:

- [Reptiles for Kids](#)
- [What are Natural Resources?](#)

## Suggested pre-activity:

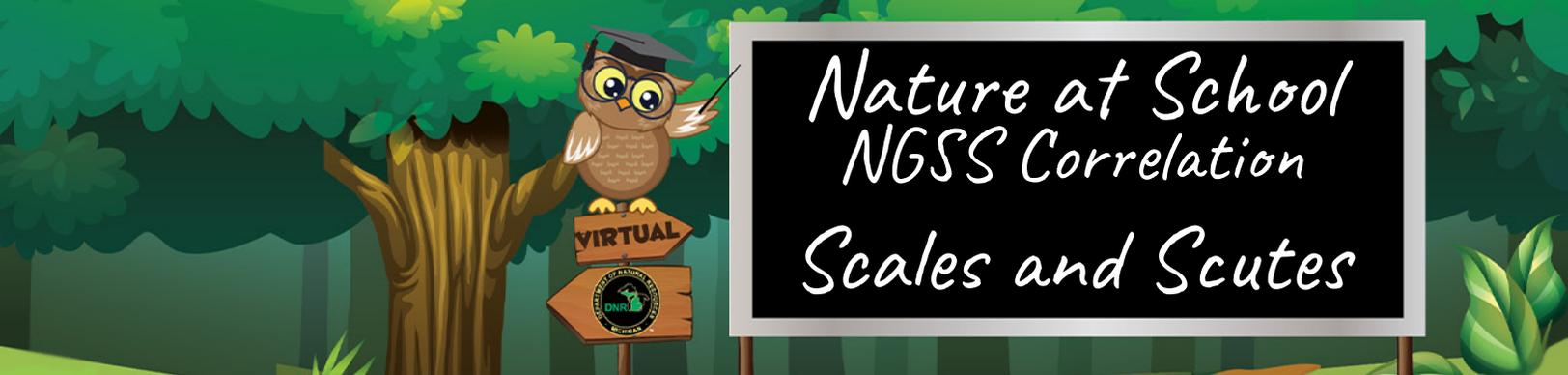
- [Reptile picture books](#)
- National Geographic Readers: “Turtles “ by Laura Marsh, ISBN #1426322933
- “Everything You Need to Know About Snakes” by John Woodward, ISBN #1465405462

## Directions for your DNR Nature at School virtual program:

1. You will receive a reminder email from SignUp Genius three days prior to your scheduled *DNR Nature at School* program. Please read and follow the directions, so we all can have a successful program.
2. At least one day prior to your lesson, send your instructor the link to your Zoom/Google Meet/Skype/Teams for your lesson time. Starting 10 minutes early with just your instructor is encouraged.

### Day of:

3. Make sure students have their sound muted and their cameras on to participate (with thumbs up, number on fingers).
4. If you use the chat feature, we encourage the students to ask their questions there, and the teacher can ask them at the end of the program.
5. See further directions in your SignUp Genius confirmation.



# Nature at School NGSS Correlation Scales and Scutes

Live from Hoffmaster State Park: Learn how impacts from habitats and humans affect the survival of snakes and turtles in Michigan's sand dunes.

## Guiding question/phenomenon:

What allows some species to survive in a dune environment, while others cannot?

### Science and Engineering Practice

#### Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in grades 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.

- Students will understand and be able to predict what adaptations allow an animal to survive in a dune environment, how humans impact that environment, and what solutions have allowed dunes to remain healthy.

### Disciplinary Core Idea

#### 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.

#### LS3.B: Variations 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.

- Students compare and contrast snake and turtle adaptations that allow for survival in the dune environment

### Cross-Cutting Concepts

#### Cause and Effect

Cause and effect relationships are routinely identified and used to explain change.

- Students will learn how animals impact the dunes, and how the dunes impacted their adaptations.

**Recommended grade band(s):** Lower elementary through upper elementary

All Nature At School virtual programs have been created to introduce students at any grade level to life and/or earth science core ideas, when used with pre and post lesson suggestions.

# Nature at School Post-lesson Scales and Scutes

## Activity wrap-up:

Michigan's 18 snake species and 10 turtle species are as diverse as the habitats that support them. Snakes and turtles have been negatively affected by changes humans have made to the natural landscape outside of protected spaces. Michigan state parks and other public lands are critical to conserving reptile habitats for their long-term survival in our state. Learning about reptile species, characteristics, adaptations, and the impacts that humans have may give us a greater understanding and appreciation for these special, but often misunderstood, animals. We all have a role to play in the conservation of snakes and turtles.

Michigan regulates the taking of native reptiles in several ways. Species listed as endangered or threatened are fully protected under the Endangered Species Act, while others are regulated under fish and wildlife statutes. The animals highlighted during this lesson are all legal captures under a scientific collector's permit registered with the Michigan DNR.

## Resources:

- [Fast Facts: Eastern Box Turtle](#)
- [All About Eastern Box Turtles](#)
- "Michigan Snakes, A Field Guide and Pocket Reference" by J. Alan Holman and James H. Harding, published by Michigan State University Extension, ISBN # 1-56525-004-4
- "Michigan Turtles and Lizards, A Field Guide and Pocket Reference" by James H. Harding and J. Alan Holman, published by Michigan State University Extension, ISBN # 0-808-14101-5
- "Snakes for Kids: A junior scientists guide to venom, scales and life in the wild" by Michael Starkey, ISBN #1647390427



## Connect to home:

Try these activities with your family:

- Visit your local nature center or zoo to learn more about reptiles in your area.
- Visit a local wetland and look for turtles basking in the sun.
- Check out the "[60 Second Snakes](#)" videos on the Michigan DNR YouTube channel for information about each of our native snake species.

## Connect with DNR content:

For a daily dose of nature, like [MiNatureDNR](#) on Facebook.

Visit the [DNR Nature at Home page](#) for educational video series, resources, lessons, virtual tours and more.