EDUCATION CENTER

FIELD TRIPS

NEXT GENERATION SCIENCE STANDARDS

ELEMENTARY SCHOOL

Adaptations & Habitats: We Go Together (K-5)

Prehensile tails, fake eyes, sticky toe pads, and cryptic camouflage are some of the unique adaptations that help animals survive in their environments. In this program, students will meet insects, arachnids, amphibians, and reptiles and learn how they adapt to the habitats where they live.
NGSS: LS1.A/B, LS4.B/C

Animal Movement: Slithering, Jumping, Crawling (K-2)

Some snakes crawl like caterpillars. Gargoyle geckos use their tails to grip into branches when they jump through trees. Get a look at some neat critters and learn the interesting ways that these animals move about their habitat.
NGSS: PS3.A, LS1.A, LS2.A

Endangered Species: Almost Gone, *Not* Forgotten (K-5)

Habitat destruction, poaching, air pollution, and climate change are several things affecting the animals on our planet. In this lesson, students will meet endangered animals and learn what conservation efforts are being made to support their survival.
NGSS: LS1.A/B, LS2.B/C, LS3.A, LS4.A/B/C

Food Webs: Who's Eating Whom? (K-5)

Explore the exciting world of food webs. Discover which animals at RREC will grow to be apex predators at the top of the food chain, and which unlikely animals get eaten. This program highlights the diversity of food chains in the animal kingdom.
NGSS: LS1.A/B/C, LS2.A/B, LS3.A/B, LS4.A/B/C

Habitats: There's No Place Like Home (K-5)

Temperatures in some areas of the desert can reach as high as 120F. Acacias are one of a handful of tree that are able to grow in prairies and grasslands. There's millions of plant and insect species living in rain forests that have yet to be discovered. Learn the various places that animals call home, and how they differ from ours.
NGSS: LS1.A/B, LS4.B/C

Jeepers Creepers: Millipedes, Spiders & Scorpions, Oh My! (K-2)

Get face to face with a tarantula. See what happens to a scorpion under a black light. Hear a giant cockroach hiss. Explore the many legs of a millipede, and more! Join the arthropods or RREC for a very creepy time.
NGSS: LS1.A/B, LS4.B/C

Life Cycles: Growing, Growing, Grown (2-5)

Leap into this lesson about life cycles. Discover important facts about these "cold-blooded" critters like their diet, habitat, and explore their life cycles. Students will get face to face with a large African Bullfrog and other amphibians and reptiles that reside at RREC.
NGSS: LS1.A/B, LS4.B/C

Native Wildlife to CT & MA: Backyard Friends (K-5)

Meet a venomous snake that's native to our area (in a safe container). Get introduced to a native amphibian with a unique color variation. Learn what to do if you find a turtle in the road. Students will also encounter animals that are endangered and how we can protect them by being good neighbors.
NGSS: LS1.A/B, LS4.B/C

Reptiles & Amphibians: From Scales to Tails & More! (K-5)

Stare into the eyes of a huge toad and observe a giant python. What makes a reptiles different from an amphibian? What characteristics make each unique? In this lesson, students will explore the wonderful world of reptiles and amphibians.
NGSS: LS1.A/B, LS4.B/C

Senses & Defenses: Survival of the Fittest (K-5)

Do you know which snake mimics the deadly coral snake? How about an animal, other than a snake, that uses venom as a means of defense? Just like humans, animals rely on their senses for survival. They also need special defenses to protect themselves from danger. In this lesson, students will see animals that have exceptional senses that are used for communication and defending themselves from predation.
NGSS: LS1.A/D, PS4.B

MIDDLE SCHOOL

Adaptations: In Order to Survive **(6-8)**

Mimicry, pseudo eyes, migration, and prehensile tails are some of the unique adaptations that help animals survive in their environments. Your students will meet live animals and view the adaptations that they have to support their survival. This class will touch on genetic variation, natural selection and evolution. NGSS: LS1.A/B, LS4.B/C

Animal Behavior: Life Cycles **(6-8)**

Animals rely on food, light, water, and space in order to survive. This program will focus on how environmental and genetic factors influence growth and development. Your students will observe various ectothermic animals and discover how different conditions, such as color, size, and nesting habits may affect their reproductive rates and life cycles. Students will get face to face with a young alligator and other reptiles/amphibians that call RREC home.
NGSS: LS1.A/B, LS2.A/C, LS4.B/C

Endangered Species: Vanishing Wildlife **(6-8)**

Habitat destruction, poaching, air pollution, and climate change are some things changing ecosystems today. Once the physical and biological components of ecosystem are affected, changes in populations occur. In this class, students will meet endangered animals and learn what conservation efforts are being made to support their survival. Our actions today, can affect their tomorrow.
NGSS: LS1.A/B, LS2.B/C, LS3.A, LS4.A/B/C

Food Webs: Producer, Consumer, or Decomposer? **(6-8)**

In this session, students will analyze the world of food webs. Learn the importance of living and nonliving parts of an ecosystem and how every living thing is connected. View animals that will grow to be apex predators and unlucky animals that get eaten. This program highlights the diversity of food chains in the animal kingdom.
NGSS: LS1.A/B/C, LS2.A/B, LS3.A/B, LS4.B/C

Habitats: Biomes, Niches, Ecosystems **(6-8)**

What role does an animal's home play in their survival? In this virtual session, your students will learn what traits support successful survival and reproduction rates. They

will be able to explain how adaptations tie into an animal's habitat. Animals from different habitats from around the world will be viewed.
NGSS: LS1.A/B, LS4.B/C

Native Wildlife: In Your Own Backyard (6-8)

Get up close with a Northern Copperhead and learn the other venomous snake to call CT and MA home. Explore the characteristics of various turtle species and learn how genetic factors can play a role in color variations among species. This program features wildlife that can be observed in both states.
NGSS: LS1.A/B, LS4.B/C

Reptiles and Amphibians: Ectothermic Animals (6-8)

How do reptiles and amphibians differ? Who evolved first? Which group of animals has lived on earth longer and why? In this session, students will explore the wonderful world of reptiles and amphibians and the various adaptations that make each special and diverse.
NGSS: LS1.A/B, LS4.B/C

Senses and Defenses: Only the Strong Survive (6-8)

Do you know what snake mimics the deadly coral snake? How about an animal, other than a snake, that uses venom as a means of defense? Just like humans, animals rely on their senses for survival. They also need special defenses to protest themselves if they are in danger. In this program, your students will view live animals that have exceptional senses used to communicate and how their defenses evolved themselves from predation.
NGSS: LS1.A/D, PS4.B

HIGH SCHOOL

LS2-Ecosystems: Interaction, Energy, Dynamics (9-12)

LS2.A/B – Interdependence in Ecosystems/ Cycles of Matter

This program will highlight the natural balance of habitats and the mutual dependency of plant and animal species that sustain it. Living organisms adapt to their biotic environment to survive. Nutrients cycle from the abiotic environment to the biotic world constantly. We have a variety of amphibians, reptiles, and arthropods that can be represented in this class.

Possible topics & animals discussed: symbiotic relationships, predation, competition, disease, population density, food webs, and carrying capacity

- How reptiles and amphibians utilize their environment to thermo-regulate and hydro-regulate
- Burmese pythons rely on leaves and ground cover for camouflage
- Panther chameleons rely on trees as a form of shelter
- Red-footed tortoises rely on plants to meet their dietary needs
- White's tree frogs rely on leaves to deposit their eggs.

LS2.C/D – Ecosystem Dynamics, Functioning and Resilience/Biodiversity and Humans

In this session, we will take a brief look at the disruptions in the physical and biological components of an ecosystem. Students will analyze possible outcomes that may occur due to human activity or that may happen naturally to species in an environment. We have a variety of amphibians and reptiles that can be represented in this class.

Possible topics & animals discussed: biodiversity, population density, resilience, anthropogenic changes, habitat destruction, hunting, poaching, invasive species, urbanization, pollution, and climate change.

- Painted turtle that has been run over by a lawnmower
- You alligator sold in pet trade
- Red eared slider invading waterways in CT and MA
- Burmese python invasion in the FL everglades
- Eastern box turtle, wood turtle, Eastern rat snake, and Copperhead snake are endangered in CT and MA

LS3-Heredity: Inheritance and Variation of Traits (9-12)

LS3.A/B – Structure/Function/Inheritance and Variation of Traits

Some animals like the Desert tortoise, have changed very little over the past 200 million years. Others, like Florida's native green lizards, evolved rapidly in just 15 years to adapt to an environmental shift due to the invasive brown lizard. Certain genetic variations give animals a camouflaged appearance to blend in with their environment. For example, the Catalpa Sphinx moth uses its textured wings to blend in with tree bark. This class will discuss the genetic combinations and variations that exist within the world of reptiles and amphibians.

Possible topics & animals discussed: genetic variation, albinism, melanistic, gene mutation, genetic factors, environmental factors, and natural selection.

- Green frog (blue morph; occurs about 1-4%)
- Albino and melanistic red-eared sliders, albino Burmese python and eastern diamondback rattlesnake
- King snake (banded and high yellow morph aka Banana King)
- Geographic variations in poison dart frogs
- The temperature dependence of developmental rates in some reptiles; reversal in some amphibians

LS3-Biological Evolution: Unity and Diversity (9-12)

LS4.A/B – Evidence of Common Ancestry/Diversity/Natural Selection

We know that environments change over time and natural selection acts on the genetic diversity in species. Individuals with superior traits for the new environment will have more offspring. After many generations in this new environment, the current population may not look like their ancestors because natural selection has changed them – they have evolved – to survive in their new environment.

Possible topics & animals discussed: natural selection, survival rates, genetic variation, gene mutation, genetic factors, inheritance traits, evolution, environmental factors, and population growth

- The distribution of green and gray tree frogs (adaptation through camouflage)
- Rat snake populations in different locales of eastern North America
- European legless lizard evolution
- Differences in gecko species (eyelids and toe pads)
- Python vestigial limbs (ancient limbs from their ancestors)

LS4.C – Adaptations

Natural selection leads to adaptations, which are tied into survival within their habitats. This class will discuss the complex adaptations in reptiles and amphibians including thermoregulation, egg laying, diet, protection, prey catching, and excretion.

Possible topics & animals discussed: anatomical, behavioral, and physiological adaptations, differential survival, extinction, natural selection, survival rates, genetic variation, gene mutation, genetic factors, evolution, inheritable traits, environmental factors, and population growth

- Chameleons use tongue projection, camouflage, prehensile tails, and zygodactyl feet
- Alligator snapping turtles and young copperheads have tongues that resemble worms to lure prey
- Snakes have various ways of catching and subduing prey, including constriction and venom
- Pancake tortoises have physiological advantages to life in the desert
- Mossy frogs use cryptic camouflage to survive in their environment

LS4.D – Biodiversity and Humans

Human activities are causing key changes in biological communities globally. These changes are harming biodiversity and ecosystem function. Ecosystem function is important for sustaining plant and animal communities and ensuring the longevity of human populations. After this session, your students will be able to make predictions about future biodiversity changes.

Possible topics & animals discussed: biodiversity, overpopulation, overexploitation, population density, habitat destruction, hunting, poaching, invasive species, urbanization, pollution, and climate change

- Crocodilians, snakes, turtles shells used globally for textile, food, or ‘medicinal’ purposes Rattlesnake round-up
- Read-eared slider and Burmese python invasive species
- Eastern box turtle, wood turtle, Eastern rat snake, and copperhead snakes are endangered in CT and MA
- Wetland species and climate change/pollution/habitat destruction