

# TEACHING ANTS

about ANTS

Connections to  
*A Framework  
for K-12 Science  
Education*<sup>1</sup>

Ants come in many sizes, shapes, colors and species. Although ants can spoil our picnics or become unwelcome visitors inside our homes, most ants are actually beneficial to us. Ants are also important to many other organisms. For these reasons and many more, ants present an amazing opportunity for students to explore life science, specifically how organisms live, grow, interact with environments, and reproduce.

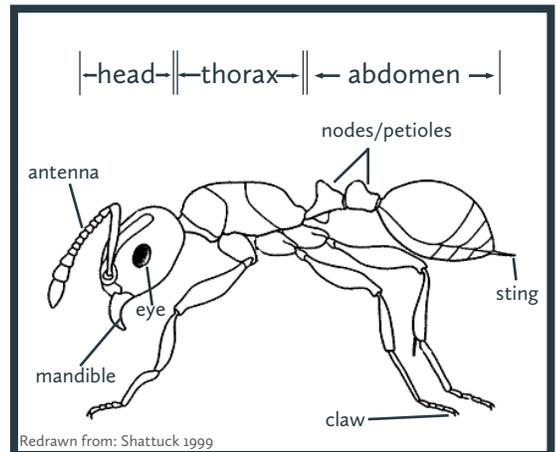
Here are a few ideas for aligning your curriculum with core disciplinary ideas from *A Framework for K-12 Science Education*, the foundation of the *Next Generation Science Standards*, through a study of ants:

## LS1.A: Structure and Function

As a result of different physical structures, the functions and behaviors of ants vary across species. For example, some tree nesting species are long and cylindrical to accommodate living in hollow twigs (elongate twig ant, big-eyed arboreal ant), while some ground nesting species have extreme jaws (mandibles) to capture prey (the trap-jaw ant, Emma's bowed-jaw ant).

### Essential Questions

- What are the external structures (body parts) of an ant? How does the body structure differ across species?
- How does the shape of external structures relate to its function?



## LS2.A: Interdependent Relationships in Ecosystems

Ants have a variety of diets and live from the tops of trees to beneath our feet. Some species of ants are important for helping plants thrive and reproduce, while other ants prey on the eggs and larvae of bothersome household insects.

### Essential Questions

- How do ants help or hurt other organisms?
- How do different ant species interact with living and nonliving components of their environments?

## LS2.C: Ecosystem Dynamics, Functioning and Resilience

The environmental and ecological impacts of ants are important to many organisms. Entire ecosystems can be affected when ant populations change. Ant populations can change as a result of natural events (i.e. movement promoted by hurricanes) and human activities (i.e. accidental introduction into new areas).

### Essential Questions

- What role do ants play in ecosystems?
- How could changes in ant populations affect an ecosystem?

## LS4.D: Biodiversity and Humans

Biodiversity, the multiplicity of genes, species, and ecosystems in the natural world, includes 90 plus ant species of the Florida Keys. Ants impact humans by aerating soil, dispersing seeds and eating eggs and larvae of household pests. Humans have impacted ants by introducing ant species to new areas and disrupting native habitats.

### Essential Questions

- Describe the biodiversity of ants in the Florida Keys. How are the species similar and different?
- How do ants help humans and how are humans affecting the biodiversity of ants?



Harvesting Ant (*Monomorium kilianii*)

from Expeditions at The Field Museum © Alex Wild [www.alexanderwild.com](http://www.alexanderwild.com)

<sup>1</sup>National Research Council (2011). *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. Committee on a Conceptual Framework for New K-12 Science Education Standards. Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academy Press.

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FOR FLORIDA  
EDUCATORS

## RESOURCES FROM THE FIELD MUSEUM

Investigating ants? The Field Museum of Natural History in Chicago is here to help! Visit a few of these online resources to explore ants in your classroom.

- **Ant Blog** Ask a team of Field Museum ant experts questions about ants and learn about ants from all over the world. | [antweb.org/antblog/](http://antweb.org/antblog/) |

- **Ant Web** View images and data for the 90+ species of ants found in the Florida Keys and the 200+ species of ants in Florida. Ask and answer your own research questions about the anatomy and biodiversity of ants found in this region. | [antweb.org/illinois.jsp](http://antweb.org/illinois.jsp) or [antweb.org/floridakeys.jsp](http://antweb.org/floridakeys.jsp) |

- **DNA Discovery Center** Visit this website to explore basic and complex questions about the molecule that connects all life on Earth: DNA. | [archive.fieldmuseum.org/dna](http://archive.fieldmuseum.org/dna) |

- **Evolving Planet** Explore this site to experience 4 million years of life on Earth; investigate biodiversity, structure and function, evolution and the role of insects in micro- and macroevolution. | [archive.fieldmuseum.org/evolvingplanet](http://archive.fieldmuseum.org/evolvingplanet) |

- **Expeditions at The Field Museum** Visit this website to learn about The Field Museum's expedition to Australia and discover how scientists use ant DNA to answer questions about climate change. | [expeditions.fieldmuseum.org/Australian-ants](http://expeditions.fieldmuseum.org/Australian-ants) |

- **Field Revealed: Turtle Ants** Watch this video to learn about the adaptations of turtle ants, an ant species that use their dish-like heads to prevent intruders from entering their nests. | [fieldmuseum.org/explore/multimedia/video-turtle-ants](http://fieldmuseum.org/explore/multimedia/video-turtle-ants) |

- **Moreau Lab** Get to know Field Museum scientist Dr. Corrie Moreau, her research and ant activities on her lab's website. View publications and data sets straight from Corrie's Ant Lab. | [moreaulab.org](http://moreaulab.org) |

- **Romance of Ants** Get your ant questions answered by a Field Museum scientist, view a gallery of ant images and videos, and learn ant facts. | [romanceofants.ning.com](http://romanceofants.ning.com) |

- **School of Ants** (citizen science project) Participate in real science by studying ants in urban areas, specifically around schools and homes. Learn how to create your own sampling kit, collect ant samples and send your samples to a lab for identification. | [schoolofants.org](http://schoolofants.org) |

- **Underground Adventure** Ants help create healthy soil by digging tunnels. Explore the world of soil, a rich habitat for ants underground. This site provides downloadable resources for students, lessons for teachers, and more. | [archive.fieldmuseum.org/undergroundadventure](http://archive.fieldmuseum.org/undergroundadventure) |



Turtle Ant (*Cephalotes varians*) pinned specimens from Field Revealed: Turtle Ants