Grades 7 - 8

Half and Full-day Field Trip Options

Overview

Middle school is a fabulous time to start delving into the scientific process. Reinforce the concepts you cover in your classroom with a field trip to a world-famous scientific field station! Our full-day field trips include a hike, a visit to our long-term ecology experiments, and a hands-on science investigation. Students have the chance to participate in all aspects of the scientific inquiry process, from observations and questions to data collection and analysis. Our half-day field trips focus on getting outside and making observations, providing a strong foundation for you to engage in scientific inquiry back in your own classroom.

Half-day (2 hour) and full-day (4 hour) programs are available

Want to learn more? Curious about other programs?

Visit cedarcreek.umn.edu/ed

Contact Caitlin Potter:
caitlin@umn.edu, 612-301-2602

Cedar Creek
Ecosystem Science Reserve
University of Minnesota

Half-day program options:

Biomes of Minnesota hike and one research area visit.

In a 2 hour half-day program, your group will learn about Minnesota's biomes and visit one of our long-term research experiments.

All half-day visits require your bus to stay onsite to drive to the research areas.

Biomes of Minnesota (Included in ALL half-day field trips)

Season: year-round

The Cedar Bog Lake trail is a unique experience that lets students walk through representations of all three biomes present in Minnesota before emerging at the shores of Cedar Bog Lake. Deciduous forest, tallgrass prairie and boreal coniferous forest, as well as swamps and a lake – they all contribute to make this a "Walk Across Minnesota!" Students discuss the natural and scientific history of Minnesota and Cedar Creek, and observe and document the biotic and abiotic components that structure our local ecosystems through drawing and writing. Total distance is ~1 mile.

Select from the research visit options below:

Big Biodiversity

Dr. Dave Tilman's Big Biodiversity experiment is known worldwide for its insights into the way prairie plant communities function and its role in helping scientists, policy makers, and the general public understand and appreciate biodiversity. Explore this enormous experiment using a guided scavenger hunt that encourages students to figure out Dr. Tilman's main results on their own. We'll leave with an appreciation for biodiversity and science that's hard to replicate anywhere else!

Forests and Biodiversity (FAB)

The Forests and Biodiversity (FAB) experiment is Cedar Creek's newest look into the importance of diversity for plant and animal communities. Depending on your interests, you will learn about the scientific process, practice using a dichotomous key to identify tree species, discuss the many ways scientists measure diversity, and/or explore a field with 40,000 trees planted by fellow students.

BioCON - global change experiment

Large-scale changes in carbon dioxide, temperature, rainfall, nitrogen levels and biodiversity are happening across the globe. Cedar Creek is home to one of the longest-running experiments in the world in investigate how these many varied factors impact plant community health, growth and resilience. Visit the BioCON experiment to learn about how plant communities are responding to a changing world, helping us deal with human impacts to natural systems, and more! We'll also discuss the scientific inquiry process, the engineering design process, and brainstorm additional questions and methods we could use to investigate the world we live in.

Oak Savana and Prescribed Burn experiment

Most people think of wildfires as something to be extinguished as quickly as possible. However, for some ecosystems like the oak savanna, fire is a critical part of a healthy environment. Cedar Creek is home to a prescribed burning experiment that has been running since 1964 and has taught us about the value of fire to plants and animals in these special ecosystems. Visit the savanna section of Cedar Creek's property and experience the dramatic difference between areas that are burned every year, burned occasionally, or never burned.

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Cedar Creek

Full-day program options:

You will go on the Biomes of Minnesota hike, learn about or visit a long-term research experiment, and conduct a hands-on investigation. Some full-day trips require your bus to stay onsite to drive to research areas.

Ecosystem Comparison

Season: April – November (**bus required**)

Students go on a hike to Cedar Bog Lake (see Biomes Hike above), discuss natural history, and make observations about changes that occur between at biome transition zones (light, temperature, soil, moisture, etc). They also visit the Big Biodiversity experiment (see description in Research Visit options above) to discuss the scientific inquiry process and the value of biodiversity for plant communities. Upon returning, they work in groups of 3-5 to develop hypothesis-driven questions and collect basic data on the abiotic and biotic factors in three ecosystems (prairie, forest and wetland). These questions and data allow them to investigate a basic ecological concept: how do the physical elements of an ecosystem influence the distribution of its living organisms? The day wraps up with groups graphing their data, interpreting their results, and collaboratively sharing insights into the interactions that structure ecosystems.

Trees and Transects

Season: April – November (**bus required**, maximum 50 students per day)

After an introduction and overview of abiotic and biotic ecosystem components, data collection techniques, the transect method and more, students go on a hike to Cedar Bog Lake (see Biomes Hike above). On their way out to the lake, we discuss natural and scientific history and make observations about the ecosystems we are walking through. On the last 135 meters of the hike, students transition into data collection mode! In small groups assigned to specific portions of the transect, students collect data on water depth, light availability, temperature and plant community composition. Back in the classroom, each group adds their data to a whole-class pictograph that shows how abiotic and biotic variables change on the transition from hardwood forest to deciduous swamp to lake. The day also include a visit to the Big Biodiversity experiment (see description in Research Visit options above) to discuss the scientific process and the value of studying ecosystems and plant communities.

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Bog Biology

Season: April - November (**bus required**, maximum 50 students per day)

What makes a bog a bog? Come explore the weird and wonderful world of bogs, swamps and marshes! The day will include a walk to Beckman Bog, a peat bog that is home to tamaracks, black spruce, carnivorous plants and other unusual plants. Students will spend time out on the boardwalk in our bog, looking closely at the plants that make their home there and doing some drawing and writing about what they see. We will also highlight the phenology research taking place at the bog, and how our particular bog has changed over the last few decades. Back in the classroom, students will investigate water quality in bogs and other aquatic environments by observing and classifying macroinvertebrates found in different water sources across the property. They will learn to use a basic macro index to quantify pollution levels in water.

Water Quality

Season: April - November (**bus required if going to Fish Lake**)

Students go on a hike to Cedar Bog Lake (see Biomes Hike above) or to Fish Lake to observe and think about the role water plays in ecosystems. All living things need water, from plants to animals to humans. How can we tell if our water is clean and our aquatic ecosystems are healthy? During and after our hike, with plenty of time for questions, observations and journaling, we will learn how scientists at Cedar Creek and elsewhere study water quality and get a chance to see some of their tools and sampling methods. Student groups will make hypotheses about which of three water sources at Cedar Creek is the healthiest (and figure out what 'healthiest' even means!) and then measure factors like dissolved oxygen, nutrient levels and pH to see how their hypotheses hold up to reality.

Scientific Sorting

Season: Year round (**bus required**)

How do scientists identify organisms they've never seen before? How do we sort and classify items we encounter out in the field? Students will spend the day learning about Carolus Linneaus and the importance of classification. They will go on a hike to Cedar Bog Lake (see Biomes Hike above), discuss the natural and scientific history of Cedar Creek, and make observations about similarities and differences between the ecosystems they pass through. On the way back, they will collect 1-2 small items from the trail. Back in the classroom, they will use their observational skills to sort them and come up with a basic classification scheme to sort their items as well as some 'surprise items' provided. The day will wrap up with a visit to the Forests and Biodiversity experiment to practice identifying trees using a professional dichotomous key!

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Entomology 101

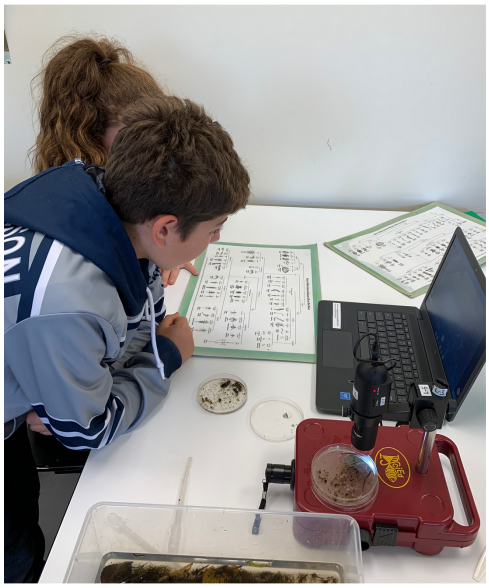
Season: June - October

Experience the wonderful world of insects! Students will put on their entomologist hats for the day as they explore the structures that allow particular species of insects to thrive in specific habitats. Your visit will include a nature walk with a focus on observing and documenting insects and their habitats, a chance to explore our world-famous insect collection and discuss the science of entomology, and a hands-on investigation to collect and examine live insects! We'll discuss the connection between structure and function and how it plays out in nature.

Wildlife Ecology

Season: Year round

How do scientists study wild animals, particularly the ones that are shy, scared or rare and thus hard to observe? Spend a day exploring and practicing field methods while learning about on-going research into wildlife at Cedar Creek. Your visit will include an introduction to the art and science of animal tracking including a nature hike and field investigation of wildlife track and sign, hands-on exposure to field methods currently in use at Cedar Creek (depending on group size and time of year, this will include radio telemetry - invented at Cedar Creek! - , camera traps, or both), and plenty of time examining our collection of pelts, bones and skulls. As available, you may also have the opportunity to go birding and learn about our red-headed woodpecker research project, view our seasonal bison herd and/or assist in insect surveys.



Fees

Full-day field trips are $330 for a "classroom" of approximately 30 students and at least one teacher/adult chaperone. Half-day programs are $210 per "classroom". These fees cover the cost of a trained naturalist to guide and teach your group throughout the day, and provide access for your group to areas of the property not open to the public.

If this cost is prohibitive for your school, please get in touch with Caitlin (caitlin@umn.edu) - we are happy to work with you to subsidize the cost of your visit!

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