

Overview of Environmental/Outdoor Ed:

The Jameson Camp Environmental and Outdoor Education courses immerse students in authentic, hands on learning environments that spark imagination and heighten interest in learning. The course's inquiry-based approach introduces students to STEM topics such as ecological footprints, ecosystems, energy, weather patterns, geology, and much more by allowing students to participate in interactive activities and explore real world examples through Jameson Camp facilities. Students have the opportunity to explore Jameson Camp's natural environments and become scientists as they observe, navigate, collect data, and participate in facilitated discussions tailored to their experience and the environment surrounding them.

The natural environment of Jameson Camp in the midst of urban Indianapolis provides unique outdoor experiences for the youth of our city and presents opportunities to discuss what it means to be good stewards of the earth. Exposure to nature invokes personal connections for learners and authentic learning environments present information in impactful and meaningful ways. Students have the opportunity to touch, feel, see, and explore concepts rather than only hear about them in the classroom. Courses are tailored for individual grade levels and aligned with Indiana state standards so that each nature experience complements learning occurring in their classroom.

Nature Curriculum Summaries:

Farm2Forest Material:

Ecological Footprint Experience teaches students about ecological footprints and they are able to explore the footprint of Jameson Camp. Students then calculate the size of their own footprint and begin to create classroom procedures to reduce the size of their school's footprint.

Ecosystems Creation Experiences teaches students that all organisms have jobs, habits, or niches in an ecosystem. Students find and identify organism's roles at camp and will be able to solve problems in model ecosystems.

In the *Plant Succession Experience* students become scientists to help Dr. Arbor determine if turning Jameson Camp land once used for farming back into a forest will improve the conditions of the land. Students collect quantitative data, explore conservation, identify plants, evaluate changes in the environment, use a scientific notebook to record data, and determine if relationships between plants are competitive or mutually beneficial.

After exploring the Bernoulli principle through hands on activities in the classroom students visit Jameson Creek to explore this physics principle at work in nature. Water travel, rock sediment, and water pressure are discussed and students explain their reasoning according to the Bernoulli principle. Flight application can be used as an extension.

Native Tree Identification Experience allows students to collect leaves from around the property and use a dichotomous key to identify trees. Students preserve the leaves and create a display board providing relevant information.

The Energy of the Forest Experience has students explore the energy cycle with a focus on starting with solar energy. Students use a model to demonstrate the energy cycle, compare and contrast environments, and draw conclusions about energy in an environment. At camp, students explore locations looking for producers, consumers, and possibly predators. Plant identification and energy flow are discussed.

In the *Farm2Forest Creek Experience* students help an ongoing exploration of the White Lick Creek by students of Chapel Glen Elementary. Students will test creek conditions and collect information about levels of dissolved oxygen and transparency in the creek. Dichotomous keys are used to identify fish that students will catch in the creek. Collecting quantitative data, using a scientific notebook, discussing observations, identifying potential contaminants to ground and surface water, and describing specific relationships between organisms are all key aspects of this experience.

STEM Classes: Students will explore STEM concepts through creating towers, water rockets, puff mobiles, Rube Goldberg machines, Lego kits and sand volcanoes. Constellation exploration and shape hunts also take place.

Water Ecology: Students learn about aquatic habitats in an ecosystem, the importance of the water cycle, and water conservation and pollution through Pictionary, relays, migration games, water Olympics, stream exploration, and the creation of Enviroscaapes.

Weather or Not?: Students explore many aspects of the weather through interactive activities, scientific exploration, experiments, and some lecture. Topics include weather and climate as a whole, wind, the water cycle, extreme weather, clouds, and predicting weather using the weather station. Students will make dew and frost, make an anemometer, learn about pressure, create a cloud in a bottle, and explore many other aspects through interactive activities.

Geology Rocks: Students will become archeologists and paleontologists and go through a simulated process of what they do when they find artifacts and fossils. Geology discussions and the exploration of rocks and minerals will also occur.

Go Green: Recycling, composting, and alternative energy are explored through games, relays, construction of personal compost containers, cooking with solar energy, and building water and wind powered devices. Conservation and organism decomposition are also highlighted.

Math in Nature: Mathematical Adventure Race. Students will race around camp in an interactive mathematical race in which teams are required to explore camps facilities and nature using mathematical vocabulary and problem solving. Adventure Races are differentiated for each grade level.

Forest Exploration: Students use a dichotomous key to identify trees and discuss characteristics and the importance of trees. Dr. Seuss's The Lorax is used to spark conversation about resources we get from trees, over-consumption, the importance of conservation and recycling, and who/what is affected by the loss of forests. A solo hike allows students to spend time alone in the forest with their own personal

thoughts and opportunities to explore the forest. Scavenger hunts, identification through senses, and habitat hikes will be led by Jameson Camp staff as well. Students will also explore transects and the Farm2Forest project.

Animal Adaptations: Students learn how animals adapt to their environment to improve their chances of survival. Through programming, students look at factors affecting wildlife populations including camouflage, predator/prey relations, and other adaptations contributing to survival. Students also partake in a Nature Trail that exposes students to articles such as owl pellets, animal skins and skulls, tracks, and nests in order to foster discussion on how animals adapt and promote inquiry learning. Students participate in games and activities, in which they become Nature Detectives, pretend to be predators and prey, and even get to create their own creatures with unique adaptations.

Animal Survival: Students discuss what a habitat is and why animals have different types of habitats due to their adaptations before constructing their own debris shelters in the woods. Population fluctuations are explored through interactive games involving limiting factors such as disease, predators, weather, pollution, habitat destructions, etc. Student deer must collect student resources in order to survive or risk dying and becoming a resource themselves. The effect of herbicides and pesticides on animal populations, food chains, and environmental impacts are explored in a similar manner. Students discuss their awareness of pesticides, reasons for using them, consequences, and alternatives. Students also explore the web of life and discover how everything they discussed that day is interwoven through a hands-on yarn activity. Throughout various activities the group graphs population/resource data to discuss capacity limitations. In more advanced groups students calculate pounds of food that they collect to determine if they have survived.

Outdoor Living Skills: Students determine essential items necessary for survival, build their own fires, and learn orienteering skills through the use of a compass. With a team, students will navigate the woods using their orienteering skills through an interactive scavenger hunt.

Evening classes: Night hike allows students to explore night time animals and their special adaptations such as night vision, echolocation, sensitive hearing, and bioluminescence. Students will test their own night vision, practice echolocation, and get to experience electricity through lifesavers to mimic bioluminescence. Astronomy and constellations are also explored.

Annis Nature Center: Students explore live animals, physical attributes of rocks and minerals using senses and microscopes, and the outside prairie, pond, and turtle habitat. Students learn about plants in the garden and have an opportunity to plant their own garden. Students learn about trash, compost, and recycling and how they can be better stewards of the environment.