ADKINS ARBORETUM

Environmental Education Programs for Elementary Students

Pre-K: Wiggly Worms
Preschoolers will explore the wiggly world of worms and learn how worms help plants grow. Activities will include a worm race, a visit to the Funshine Garden, and a wiggly worm song. Students will help plant radish seeds and make a craft to take home. This program is aligned with MSDE science standard LS3A1a–d.

Kindergarten: Growing Up Green: Exploring the Life Cycles of Plants and Animals
In this exciting outdoor environmental education program, kindergarteners compare and contrast the life cycles of four plants and animals through hands-on investigation. Activities include using dip nets and buckets in the Arboretum's wetland to see what frogs look like at each stage of the life cycle, searching for caterpillars and eggs in the butterfly garden, and exploring the Arboretum's woodlands in a tree life cycle scavenger hunt. The program is aligned with MSDE science standards 3.C.1a, b; 3.F.1a, b, c.

First Grade: Nature Puzzlers: Putting Together the Pieces to Make a Whole
Second graders will investigate how the parts of a tree work together in a "build a tree" activity, use magnifying glasses to examine and categorize leaves, and investigate the impact of sunlight and the water cycle on plant growth and development. A leaf hunt through the Arboretum's woodlands is sure to delight! The program is aligned with MSDE science standards 2.D.2a; 3.A.1a; 3.B.1a, b; 3.B.2a, b, c, d.

Second Grade: Science is for the Birds!
Students will investigate how bird beaks have adapted for survival in different environments. They'll compare the life cycle of birds with that of other living organisms, including the plants that birds eat. This will lead to a seed dissection activity. Students will also look for birds in the Arboretum's meadow, wetland, and forest habitats and find examples of how birds meet their survival needs. The program is aligned with MSDE science standards 3.C.1a, c, d; 3.F.1a, b.

Third Grade: What's in the Water? An Investigation of Minute Life in the Wetland
Third graders will collect and examine minute life in the Arboretum's wetland. Students will use hand lenses and microscopes to assist their discoveries, sketch minute organisms, and explore the flow of matter and energy within the wetland food chain. The program is aligned with MSDE science standards 1.A.1d,e, f; 3.B.1a, b, c, d.

Fourth Grade: Untangling the Web of Life
Students will use hand lenses to classify leaves by their observable features and use their skills of observation on a leaf scavenger hunt. A game of Habitat Hoochikoo will emphasize how changes in an organism's habitat can be beneficial or harmful. Students will also have the opportunity to act out the water cycle through dramatic interpretation and explore interrelationships within food chains by creating an interactive web of life. The program is aligned with MSDE science standards 3.A.1a, b, d; 3.F.1a, b; 6.B.1.

Fifth Grade: Wetland Discovery
Students will explore animal and plant adaptations through wetland investigations. Stations will focus on how wetland plants are adapted to their watery environment, beaver bioengineering, microscopic wetland organisms, pollution, and the wetland web of life. Students will use scientific equipment, create nature sketches, participate in ecological games, and build beaver dams. The program is aligned with MSDE science standards 3.A.1a, b; 3.E.1a, b, c; 6.B.2b.

Environmental Education Programs for Middle and High School Students

Sixth Grade: Something in the Water
Using measurement skills and scientific equipment, students will create a model of the limited amount of water available for human use. Students will also study human impact on the water supply through a water cycle game. After brushing up on their knowledge of the scientific method, students will make hypotheses about the health of the water in the Arboretum's wetland, part of the Chesapeake Bay watershed. Students will test their hypotheses through water sampling and analyze the data they collect. This program is aligned with MSDE science standards 1.A.1, 1.B.1, 1.D.1, 6A.1–e, and 6B.1a–c.

Seventh Grade: Going with the Flow
Students will investigate the flow of matter and energy in relation to plants. Photosynthesis, food webs, and decomposition will be explored, as well as the role plants play in the carbon and nitrogen cycles. Human influence on these cycles will also be explored. Activities will include carbon cycle role playing, a nitrogen cycle game, and hands-on investigation of decomposition in a fallen tree. This program is aligned with MSDE science standards 3.E.1b–f and 6.A and 6.B.

Eighth Grade: The People Problem: Solutions for a Greener Tomorrow
Students will use the scientific method to investigate human impact on the environment through the lens of climate change, habitat loss, and water pollution. In this hands-on program, eighth graders will assess Arboretum habitats, observe how aquatic insects are adapted to cope with water tension, test for pH in the Blockston Branch, and study tree rings to make predictions about climate change. The program is aligned with MSDE science standards 3D1b,c; 4A1a; 4D2a, b and 6.B.1a, b.

High School Biology
A Field Study of Biotic Diversity
Students will compare the Arboretum's stream and wetland habitats to determine the effect of abiotic factors on biotic diversity. This hands-on program will include soil and water sampling, macroinvertebrate collection, food web diagramming, and the use of microscopes to study minute life. The program is aligned to MSDE core learning goals 3.5.1, 3.5.2, and 3.5.3.

High School Environmental Science
Into the Woods
This program explores how organisms are linked by the transfer of energy and matter in a forest investigation. Students will delve into photosynthesis by making transpiration bags, examine predator-prey relationships in a forest game, and learn about trophic levels by investigating a decaying log. On a woodland walk, students will discuss the relationship between humans and land resources while following the path of succession from meadow to hardwood. The program is aligned with MSDE core learning goals 6.2.1 and 6.2.2.

Advanced Biome Investigations for High School Classes

Data Collection and Sampling

High school and college groups may use the Arboretum's natural resources for real-world application of lessons and techniques learned and practiced in the classroom. In these teacher-led field experiences, students may:

- Conduct and analyze an ecological survey
- Study an Arboretum habitat
- Sample populations of aquatic invertebrates, water quality, and plant communities
- Observe and document species interactions
- Collect, organize, interpret, calculate, and communicate data

Permission is required prior to any collecting or sampling, and the Arboretum staff asks that students share their findings.