

AQUATIC ADVENTURES or POND

Aquatic Adventures: 3 hours, 3rd -6th grade; Moderate ¼ mile hike

Pond: 1.5 hours, 3rd -5th grade; Moderate ¼ mile hike

***Students should come prepared to get wet in these classes. Many students bring rain boots or water shoes for this activity.**

OVERVIEW: Students capture, observe and compare aquatic life from a pond and sometimes a stream as well. They review the water cycle, study adaptations, and examine the importance of freshwater ecosystems.

PRINCIPLES:

- Ponds and streams are unique habitats that are connected to the water cycle.
- Aquatic creatures are diverse, with specialized adaptations for feeding, breathing and moving.
- Aquatic organisms are interconnected.

KEY TERMS: water cycle, macro invertebrate, insect, adaptation, niche, larvae, nymph, detritus, habitat, food web, bio assessment

STREAM STUDIES

3 hours; 6th grade & up; Moderate/Strenuous ½ mile hike

***Students should come prepared to get wet in these classes. Many students bring rain boots or water shoes for this activity.**

OVERVIEW: Through biological sampling and chemical testing of a stream, students gain an understanding of water quality parameters, learn how to assess water quality and become aware of the impact that humans can have on waterways.

PRINCIPLES:

- Aquatic creatures have different tolerance levels to pollution based on their adaptations.
- The physical and chemical properties of a body of water determine what organisms can live there (tolerance).
- Human actions can alter the chemical and physical properties of a stream thus affecting its water quality.
- Each of us can monitor and improve water quality.

KEY TERMS: aquatic, adaptation, nymph, larvae, species, indicator species, pollution, tolerance, erosion, sediment, dissolved oxygen, pH, acid, base, turbidity, water molecule, watershed

MEET A TREE

3 hours; 3rd grade & up; Moderate 1 mile hike

OVERVIEW: Activities that focus on the structure, function and identification of trees help students see every tree as a unique living organism. The students hike through the forest, studying the interdependence of living and non-living components.

PRINCIPLES:

- A tree is composed of specific parts that function together to create a life-supporting system.
- Each tree species has unique physical characteristics that can be used to identify it.
- Air, water, animals, plants, and soil are interdependent components of the forest community.

KEY TERMS: community, photosynthesis, oxygen, decomposer, soil, heartwood, sapwood, xylem, phloem, bark, root, dichotomous key, opposite, alternate, biodiversity, forest ecology, transpiration, succession

VALUE OF A TREE

3 hours; 6th grade & up; Moderate 1 mile hike

OVERVIEW: Through a hike, discussions, and measurement activities, students explore human impact on forest ecosystems and how trees are valuable economically, ecologically, and recreationally.

PRINCIPLES:

- People value different uses of the forest.
- The science of forestry strives to develop and maintain forests for human and natural uses.
- Human use of the forests can have both positive and negative impacts.

KEY TERMS: value, habitat, forestry, natural resources, recreation, economic, ecological, board-feet, diameter at breast height, photosynthesis, conservation, dichotomous key

MYSTERIOUS MEDLEY

1.5 or 3 hours; All grade levels; Level of physical challenge varies with trail

OVERVIEW: Instructors choose a class topic of special interest to them and then design a lesson suited to the environs of McDowell. Students may visit a special landmark at Camp McDowell, discover the world of moss and lichens, take a sensory hike, or explore patterns in nature. This exciting option allows our professional educators to shine in their area of expertise. The class may also be designed around specific objectives provided by the teacher. Please be sure to make a note on your contract or speak with your program coordinator so that this magical class can be catered to meet your objectives.

CONNECTIONS

1.5 or 3 hours; All grade levels; Level of physical challenge varies with trail

OVERVIEW: This class, when chosen, is taught as the final experience at McDowell. It helps students make connections with the knowledge learned in each of their other classes and reinforces their understanding of ecological and conservation principles. Students review their experiences and make connections to real life. This is a culminating class taken by schools that spend 4 or 5 days at McDowell Environmental Center.

PRINCIPLES:

- All things are connected and humans impact those interrelationships.
- We are dependent on natural resources and must conserve them for future generations and the health

of the environment.

- By making sustainable choices in our lives, we can be stewards of the earth.

KEY TERMS: Varies depending on classes taken: community, natural resources, adaptations, niche, diversity, interrelationships, sustainable, habitat, connections, conservation, choices, impact

FOREST CONNECTIONS

3 hours; 4th grade & up; Moderate ½ mile hike

OVERVIEW: Visualize the connections among many biotic and abiotic components of the forest community. Students explore these connections through a hike, primary artifacts, interactive games, and discovery.

PRINCIPLES

- Forest communities contain both biotic and abiotic factors.
- Specific habitats require different adaptations for animals to survive.
- Organisms in a community are interconnected through many different relationships.

KEY TERMS: adaptation, habitat, niche, camouflage, community, biotic, abiotic, predator, prey, food chain, food web, producer, consumer, interconnections, symbiosis

FOREST CRITTERS

1.5 hours, 2nd - 4th grade; Moderate ½ mile hike

OVERVIEW: Students participate in activities that illustrate the importance of animal adaptations. Students hike and search for evidence of animals in their habitats, examine animal pelts and skulls, and discuss relationships within a forest.

PRINCIPLES:

- A habitat is where an animal obtains food, water, shelter and space.
- An adaptation is a physical or behavioral attribute that enables an animal to survive in a particular environment.
- Habitat destruction is the #1 problem for wildlife today.

KEY TERMS: adaptation, habitat, camouflage, niche, food chain, predator/prey, community, carnivore, herbivore, omnivore

CREEPY CRAWLIES

1.5 hours; 2nd - 5th grade; Easy walk

OVERVIEW: Students collect and study small creatures in their natural habitats. Through direct observation, students explore the adaptations and niches of the animals they find.

PRINCIPLES:

- Insects are the most common animals on earth and have many unique adaptations specific to their

niche.

- Many small creatures are beneficial to humans.
- These animals play invaluable roles in ecological processes such as decomposition, pollination, and the food web.

KEY TERMS: niche, adaptation, invertebrate, decomposer, pollinator, herbivore, predator, carnivore, head, thorax, abdomen, arthropod, habitat

NATURE HIKE

1.5 hours; All grade levels; Level of physical challenge varies with trail

ACTIVITIES: This class is a new favorite at McDowell! During this class, students have the opportunity to visit unique trails on a hike through the forest with one of our naturalist. This option allows students to learn interpretive skills such as identifying plants, insects and other animals and their tracks!

PRINCIPLES *may include:*

- Using a dichotomous key for plant and tree identification.
- Using a variety of field guides.
- Using loupes and nature journals.