CURRICULUM GUIDE

Mission Statement

The Mission of McDowell Environmental Center is to connect people to the environment, teach respect for the Earth and its beings, and to promote a commitment to lifelong learning.

Program Objectives

- The students will increase awareness and understanding of the environment.
- The students will develop a sense of responsibility for the environment.
- The students will gain a better sense of cooperation and community.

Outdoor environmental education embraces teachable moments which happen regularly in an outdoor classroom. The MEC Instructors are professional educators with college degrees. Each instructor will have their own teaching style and choose activities for classes that best suit their personality. Your students will not stay with the same instructor for the entire time. Because of this, your student groups will not have an identical experience in every class. Instructors will cover the key terms and principles of each class, which are correlated to multi-state Courses of Study, as well as Next Generation Science Standards.

DAYTIME CLASSES

Science Classes:

DOWN TO EARTH

Themes: Energy; Connections, Cycles, and Systems; The Earth Provides; McDowell Stewards
Lesson Overview: Through observation and exploration of habitats at Camp McDowell, learners assess the impact of a reclaimed coal mine on the local ecosystem. Learners observe sedimentary rock types associated with coal formation, as well as the weathering and erosion processes that result in sedimentation. Learners close the class by discussing the need for the responsible use of natural resources.

Total Time: 3 hours
Hiking Distance: ~1.5 miles
Activity Level: Moderate hike; includes a ladder and stream crossings that are not universally accessible.
Learning Goals: By the end of this session, learners will be able to consider the geosphere in the following ways:

1. Identify that sandstone and coal are sedimentary rocks that tell the geologic history of our area, and observe the modern impact of weathering on those rocks.
2. Observe and describe the impact of coal mining on the geosphere and biosphere in the region.
3. Link commonly used materials to finite resources extracted from Earth and discuss the reasons for producing and conserving those resources (ESS3.A; ESS3.C)

Scientific Practices Highlighted: Analyzing and Interpreting Data, Constructing Explanations
Crosscutting Concepts Addressed: Scale, Proportion, and Quantity, Cause and Effect

MEET A TREE

Themes: Energy; Adaptations; Connections, Cycles, and Systems; The Earth Provides
Lesson Overview: Learners explore the relationship of Earth's four spheres to one of the forest's principal plants: the tree. Students discuss how energy cycles in trees, the structure and functions of trees in the forest ecosystem, and identify common Alabama tree species.

Total Time: 3 hours
Hiking Distance: ~.75 miles
Activity Level: Low to moderate; can be modified for all abilities
Learning Goals: By the end of this session, learners will be able to describe the value of Alabama trees to the forest

ecosystem in the following ways:

1. Tree species have unique physical characteristics that can be used to identify them, and all trees have specific parts that function together to transfer energy and nutrients, allowing the tree to grow.
2. Trees are an important component of forest ecosystems that impact and are impacted by the atmosphere, biosphere, geosphere, and hydrosphere.
3. Energy can be traced throughout the life cycle of a tree.

Scientific Practices Highlighted: Asking Questions, Developing and Using Models
Crosscutting Concepts Addressed: Energy and Matter, Structure and Function

VALUE OF A TREE

Themes: Adaptations; The Earth Provides; McDowell Stewards
Lesson Overview: Learners will explore the economic, ecologic, and recreational value of forest communities while hiking through a variety of types of forests at Camp McDowell. Learners will discuss and observe the impact of using forests as resources, and explore aspects of forestry management.

Total Time: 3 hours
Hiking Distance: 1 mile
Activity Level: Can be modified to meet some accessibility needs with notification
Learning Goals: At the end of this session, learners will be able to discuss the role of forests as resources, and how forest ecosystems are impacted by use in the following ways:

1. Forests are a renewable resource that are harvested for production of lumber and paper products, but different methods of harvesting impact forest health in different ways.
2. Forest ecosystems are always changing as a result of natural and human impacts, but healthy forests are characterized by high biodiversity and dominance of regionally important tree species. Some species have specific reproductive strategies that are interrupted by human interactions.
3. Forests are economically valuable beyond traditional harvesting, and sustainable forestry management considers economic, environmental, and recreational activities associated with forest resources.

Scientific Practices Highlighted: Obtaining, Evaluating, and Communicating Information, Constructing Explanations
Crosscutting Concepts Addressed: Energy and Matter, Structure and Function

AQUATIC ADVENTURES

Themes: Adaptations; Connections, Cycles, and Systems; McDowell Stewards
Lesson Overview: Learners will predict how different characteristics of freshwater environments impact the types of organisms found in the environment, observe adaptations specific to those aquatic environments, and identify macroinvertebrates. ***Students should come prepared to get wet in this class. Students must wear appropriate closed toed shoes such as old shoes or rain boots.***

Total Time: 1.5 or 3 hours
Hiking Distance: Highly variable; ranges from vehicle transportation to site, small, steep hike to stream bed, or .5 to .75 mile hike.
Activity Level: Varies with site(s) selected by instructor. Accommodations for all abilities available, but requires notice.
Learning Goals: By the end of this session, learners will be able to conduct an experiment on a freshwater environments using observation of, abundance of, and or diversity of macroinvertebrates. They will gain skills in the following areas:

1. Making observations of and characterizing unfamiliar organisms.
2. Considering how changing conditions in freshwater environments (naturally or human-induced) can change the composition of aquatic life in that environment.
3. Constructing a reasonable hypothesis about macroinvertebrates and their aquatic habitats, testing it, and discussing the results.

Scientific Practices Highlighted: Planning and Carrying Out Investigations

Crosscutting Concepts Addressed: Structure and Function, Patterns

STREAM STUDIES

Themes: Adaptations; Connections, Cycles, and Systems; McDowell Stewards
Lesson Overview: Learners will assess the water quality of a stream using chemical testing and bioassessments, and discuss the human and natural impacts to stream quality. Learners will relate the stream to local and regional watersheds, and discuss how changes to individual streams can impact water quality in the watershed. ***Students should come prepared to get wet in this class. Students must wear appropriate closed toed shoes such as old shoes or rain boots.***
Total Time: 3 hours
Hiking Distance: .5 - 1 mile
Activity Level: Moderate with a short, steep hike up a stream; not easily modified for all abilities
Learning Goals: By the end of this session, learners will be able to discuss the relationship among biodiversity, water chemistry, and watershed health in the following ways:

1. Stream health is a combination of natural (biologic, geologic, atmospheric, and hydrologic) and human induced (pollution, diversion) factors.
2. Stream health can be monitored using biotic and abiotic assessments.
3. Stream health is an important component of watershed health, and watershed health can be strongly impacted by regional land use choices.

Scientific Practices Highlighted: Asking Questions, Planning and Carrying Out Investigations
Crosscutting Concepts Addressed: Cause and Effect, Systems and System Models

ROCK QUERY

Themes: Energy; Connections, Cycles, and Systems; The Earth Provides
Lesson Overview: Learners will hike into a sandstone canyon to better understand how rocks form and engage with rock samples to discern the relationship between sedimentary, igneous, and metamorphic rocks. Learners will observe and consider the impact of the geosphere on local ecosystems, and, in turn, the role the hydrosphere, atmosphere, and biosphere play in shaping the geosphere.

Total Time: 3 hours
Hiking Distance: ~ 1.5 miles
Activity Level: Moderate to strenuous hike; includes a ladder and stream crossings that are not universally accessible.
Learning Goals: At the end of this lesson, learners will be able to think critically about the geosphere in the following ways:

1. Rocks have unique properties based upon their origin. They can cycle between igneous, sedimentary, and metamorphic as a result of processes like weathering, transport, and mountain building.
2. The geosphere is one of Earth's major systems that shapes and is shaped by all of Earth's other systems (biosphere, hydrosphere, atmosphere), revealing changes over time.
3. Different rock types are found throughout Alabama and allow us to predict places to mine for resources.

Scientific Practices Highlighted: Developing and Using Models, Obtaining, Evaluating, and Communicating Information
Crosscutting Concepts Addressed: Stability and Change, Scale, Proportion, and Quantity

FOREST CONNECTIONS

Themes: Energy; Adaptations; Connections, Cycles, and Systems; The Earth Provides; McDowell Stewards
Lesson Overview: Students will hike through the forest observing the connections between Earth's spheres. Particular focus on specific adaptations and connections among plants and animals in the biosphere. Students will play games to better understand the reason for typical adaptations expressed by forest organisms.

Total Time: 1.5 or 3 hours
Hiking Distance: ~.75 mile
Activity Level: Can be modified for universal accessibility with notification
Learning Goals: At the end of this session, learners will be able to relate the biosphere at Camp McDowell to other spheres in the following ways:

1. Articulate ways in which organisms in the forest are connected to one another through specific adaptations, integrated food webs, and by exploiting specific niches.
2. Link the non-living habitat (atmosphere, geosphere, hydrosphere) to the biosphere.
3. Understand that removing something - living or not - from the habitat can have major consequences for that area.
4. Insects display a wide variety of adaptations tailored to their environment, are vital to the health of ecosystems, and have changed over time to suit specific roles within that environment.

Scientific Practices Highlighted: Constructing Explanations, Planning and Carrying Out Investigations
Crosscutting Concepts Addressed: Structure and Function, Systems and System Models

Recreation and Humanities Classes:

NATIVE AMERICANS & THE EARTH

Themes: Community; Connections, Cycles, and Systems; The Earth Provides; McDowell Stewards
Lesson Overview: Learners will engage with Native American artifacts, visit a reconstruction of a typical Mississipian Era village, and participate in activities and games to learn respect for natural resources and different cultures.

Total Time: 3 hours
Hiking Distance: .75 mile
Activity Level: Low to moderate; can be modified for alternate abilities, however some experiences require hiking a short but strenuous hill.
Learning Goals: By the end of this session, learners will be able to discuss the relationship between humans and the natural environment through the lens of Alabama's indigenous people in the following ways:

1. Describe the cultural differences between people of European descent and American Indians, and explain the reason for those differences in the past and today.
2. Explain how American Indian culture changed over time because of changing reliance on natural resources and environmental changes.
3. List and locate on a map the four major tribes of American Indians that lived in Alabama before European settlers, and describe how they were impacted by one another through trade.

Scientific Practices Highlighted: Constructing Explanations
Crosscutting Concepts Addressed: Stability and Change, Cause and Effect

AUTHORS & EXPLORERS

Themes: Community; Connections, Cycles, and Systems; McDowell Stewards
Lesson Overview: Learners will connect with and be inspired by natural features by exploring McDowell's woods and journaling their experiences. Learners will be prompted with sensory awareness and observation activities to record and share their experiences using sketches, poetry, and word art. Learners will gain knowledge about the scientific and artistic value of journaling and articulate written expression by relating their experiences to those of famous authors and naturalists.

Total Time: 3 hours
Hiking Distance: varied, .5 to .75 mile
Activity Level: Can be modified for universal accessibility with notification
Learning Goals: At the end of this session, learners will be able to use natural landscapes as inspiration for the following:

1. View and describe the world from different perspectives, including the perspective of a natural object, and consider how perspective impacts understanding of the world.
2. Details and analogies improve descriptive writing and help the author convey information to the reader.
3. Relating their experience to the ways authors, explorers, and scientists use sketching and writing in journals as tools to improve their trade.

Scientific Practices Highlighted: Developing and Using Models
Crosscutting Concepts Addressed: Patterns, Scale, Proportion, and Quantity

CONNECTIONS

Themes: Community; Connections, Cycles, and Systems; McDowell Stewards
Lesson Overview: Learners reinforce their understanding of connections between Earth's spheres, human stewardship, and principles of conservation. Learners connect their experiences at McDowell with their lives, and consider ways to share their knowledge when they return home.

Total Time: 1.5 or 3 hours
Hiking Distance: Varies
Activity Level: Low; Can be modified for all abilities
Learning Goals: By the end of this session, learners will be able to relate the classes they have taken to one another and to their own lives in the following ways:

1. All Earth's spheres are intricately connected to one another.
2. Humans play an important role in the health of all ecosystems, and we are stewards of our environment.
3. Small changes in our personal behaviors can have a major impact on the environment.

Scientific Practices Highlighted: Obtaining, Evaluating, and Communicating Information
Crosscutting Concepts Addressed: System and System Models

NATURE HIKE

Themes: Can be varied to match any theme.
Lesson Overview: Learners hike through the forest on a favorite trail of their instructor's choosing. On the trail, open exploration and inquiry are highly encouraged and learners can practice their observation and interpretive skills on plants, animals, insects, and tracks! May include the use of field guides, dichotomous keys, hand lenses, and nature journals.

Total Time: 1.5 or 3 hours
Hiking Distance: varied, usually .75 mile
Activity Level: Can be modified for universal accessibility with notification
Learning Goals: Vary based on chosen theme, but are integrated with those from other classes chosen by instructor. Each experience is unique and tailored to the interest of the field group.

Scientific Practices Highlighted: varied
Crosscutting Concepts Addressed: varied

MYSTERIOUS MEDLEY

Themes: Can be varied to match any theme.
Lesson Overview: Learners get a unique opportunity to experience Camp McDowell like no other group. Instructors build a class tailored to their interests and expertise and correlated to the chosen theme. Learners will explore a topic with their instructor, and experience the excitement of natural investigation and inquiry. The combination of the skillset of the instructor, the passion they bring toward the subject, and the opportunity for open inquiry and investigation result in a one-of-a-kind experience that creates future naturalists.

Total Time: 1.5 or 3 hours
Hiking Distance: Varied
Activity Level: Can be modified for universal accessibility with notification

Learning Goals: Vary based on chosen theme, but are integrated with those from other classes chosen by instructor. Each experience is unique and tailored to the interest of the field group.

Scientific Practices Highlighted: Varied
Crosscutting Concepts Addressed: Varied

TRAIL OF DISCOVERY

Themes: Can be varied to match any theme.
Lesson Overview: Learners have an immersive, full day experience in nature. Aspects of MEC courses on forest ecology, geology, and Native American cultures, as well as those selected by the teacher, are highlighted on a full day hike. Learners practice appropriate behavior in the woods, enjoy a picnic lunch, and, because of the full day nature of the course, have opportunities to engage more fully with chosen concepts. ***A packed lunch will be provided. All participants need to bring a backpack, 2 water bottles, and comfortable hiking shoes.***

Total Time: Full day (morning and afternoon class session, lunch enjoyed in the field)
Hiking Distance: ~3 miles
Activity Level: Moderate to strenuous; experience cannot be adapted for all abilities, but modifications can be made to accommodate some different abilities.
Learning Goals:
Learning goals are dependent, in part, on the content choices of the teacher and other courses taken during the learners' trip. In addition to science content, learners can expect to become more independent in nature in the following ways:

1. Recognizing the behaviors necessary for thriving long-term in an outdoor situation and the ways humans can protect the environment around them.

Scientific Practices Highlighted: Planning and Carrying Out Investigations
Crosscutting Concepts Addressed: Systems and System Models, Energy and Matter, Patterns

Skills-Based Classes:

CANOEING

Themes: Energy; Community; Connections, Cycles, and Systems; McDowell Stewards
Lesson Overview: Learners canoe on a placid canyon stream among 80-foot bluffs and cascading waterfalls. Participants practice communication skills and consider the relationship between Newton's Second and Third Laws to their canoe travel. ***Students should be prepared to get wet during this activity. Canoeing is not recommended in cold months! In cases of extreme weather, high wind or high water, please choose an alternate activity for your group.***

Total Time: 1.5 hours
Hiking Distance: Minimal hiking, but includes steep staircase
Activity Level: Moderate; cannot be modified for alternate abilities
Learning Goals, All Grades: By the end of this session learners will:

1. Learn how to communicate with one another to support travel on a stream.
2. Relate the speed of their canoe to Newton's 2nd Law: Force = Mass * Acceleration.
3. Relate the success of their paddling efforts to Newton's 3rd Law: Every action has an equal and opposite reaction.
4. Learn vocabulary and care for canoeing equipment.

Scientific Practices Highlighted: Developing and Using Models
Crosscutting Concepts Addressed: Cause and Effect, Energy and Matter

NAVIGATION - 1.5 hour option

Themes: Energy; Community
Lesson Overview: Learners will gain experience with a compass and learn how compasses work through demonstrations and kinesthetic activities using a compass. Learners apply their skills by completing an outdoor

compass course. ***Option recommended for younger learners***

Total Time: 1.5 hours
Hiking Distance: Minimal hiking; walking over mild terrain without a trail is included
Activity Level: Low; Can be modified for most abilities but may not include outdoor course
Learning Goals: At the end of this session, learners will be able to use a compass to:

1. Determine cardinal directions, read compass bearings and apply them properly.
2. Navigate an outdoor course using a compass.
3. Use a map and a compass to discern bearings properly.

Scientific Practices Highlighted: Obtaining, Evaluating, and Communicating Information, Developing and Using Models
Crosscutting Concepts Addressed: Patterns

NAVIGATION - 3 hour option

Themes: Community; McDowell Stewards
Lesson Overview: Learners learn how to read a topographic map and use a compass to navigate themselves in the backcountry woods of Camp McDowell. Learners practice group decision making and critical thinking to troubleshoot navigation issues when they arise. ***Option recommended for older learners***

Total Time: 3 hours
Hiking Distance: Strenuous 1.5 mile hike; walking over terrain without a trail is included
Activity Level: High; not easily modified for all abilities
Learning Goals: At the end of this session, learners will be able to use critical thinking skills and group decision making to:

1. Read and create topographic maps.
2. Use a compass and map to navigate off trail.
3. Describe the information contained in maps, the value of being able to interpret that information, and how maps are used for commercial and societal benefit.

Scientific Practices Highlighted: Engaging in Arguments from Evidence, Analyzing and Interpreting Evidence
Crosscutting Concepts Addressed: Patterns; Scale, Proportion, and Quantity

MEET A MAP

Themes: McDowell Stewards, Community
Lesson Overview: Learners practice their visual spatial skills creating and using a variety of maps, and work together to solve indoor and outdoor courses.

Total Time: 1.5 hours
Hiking Distance: Minimal hiking; walking over mild terrain without a trail is included
Activity Level: Low; can be universally accessible with prior notice but may omit outdoor portion of course.
Learning Goals: Upon completion of this session, participants will better understand mapping in the following ways:

1. Become familiar with using and interpreting the pieces of maps (e.g. scale, legend, contour intervals, rivers) using different scaled maps of Camp McDowell.
2. Create a map of an area at MEC.
3. Navigate a course to find locations specified on a map.
4. Gather spatial information about the distribution of resources in an area.

Scientific Practices Highlighted: Obtaining, Evaluating, and Communicating Information
Crosscutting Concepts Addressed: Patterns; Scale, Proportion, and Quantity

SURVIVAL SKILLS

Themes: Community; Adaptations; The Earth Provides; McDowell Stewards

Lesson Overview: Learners will practice planning for and executing wilderness, or backcountry, travel. Learners will practice working as a team and individually to successfully prepare for being lost in a backcountry scenario, and for overnight survival in an emergency situation.

Total Time: 1.5 or 3 hours
Hiking Distance: Varied; .75-1.5 miles
Activity Level: Varied; 3 hour class not easily modified for all abilities; 1.5 hour class can be modified for most
Learning Goals: By the end of this session, learners will be able to use creative thinking skills to meet their basic needs in the backcountry in the following ways:

1. Identify and address the immediate needs of a group in an emergency backcountry situation.
2. Successfully identify and use natural and commonly carried objects to address short- and long-term survival needs in the wilderness while practicing Leave No Trace principles.
3. Discuss the resources available in natural settings and relating them to the success of other cultures today and in the past.

Scientific Practices Highlighted: Defining Problems, Designing Solutions
Crosscutting Concepts Addressed: Patterns

Team Building Classes:

*TRUST SWING***

Themes: Community; Energy
Lesson Overview: Learners work together to lift one another with a certified pulley system on a giant swing. Learners place trust in their group and control the amount of risk with which they are comfortable by setting personal goals for how high they would like to be lifted. Students must be 5th grade or older to participate.
Acknowledgment of Risk Forms are REQUIRED
We charge an additional $10.00 equipment fee per field group for this activity.

Total Time: 1.5 hours, Acknowledgement of Risk Form required
Activity Level: Strenuous mentally, physically low to moderate; accommodations can be made for some physical limitations as riding the trust swing involves minimal physical exertion.
Learning Goals: By the end of this session, learners will gain experience and skills in the following ways:

1. Trust is required in teamwork, and setting and achieving personal goals can result in self-confidence gains.
2. Using simple machines, like compound pulleys, changes the amount of energy required to move an object.
3. Learners will relate potential and kinetic energy concepts using the Trust Swing as a model.

*POWER POLE***

Themes: Community; Energy
Lesson Overview: Learners challenge themselves to climb a 25-foot telephone pole and jump for a bell suspended nearby. This activity provides the most significant mental and emotional challenge for learners. The group setting offers emotional support for each participant, who is also supported by a trained ropes course facilitator to ensure physical safety. Students must be 7th grade or older to participate in this activity.
Acknowledgment of Risk Forms are REQUIRED
We charge an additional $10.00 equipment fee per field group for this activity.

Total Time: 1.5 hours, Acknowledgement of Risk Form required
Activity Level: Very strenuous mentally, physically low to moderate; cannot be modified for universal accessibility
Learning Goals: By the end of this session, learners will gain experience and skills in the following ways:

1. Setting, working toward, and achieving personal goals takes confidence and support from their peers.
2. Gaining personal confidence requires taking (perceived) risks when success is not assured, and understanding that failure is an important part of growth.
3. Trusting in yourself, others, and safety systems are important components of personal growth.

*CLIMBING WALL***

Themes: Community; Energy
Lesson Overview: Striving to climb a 40-foot wall with hand and foot holds, learners experience rock climbing and feel the exhilaration of attempting a daunting feat. Encouraged by their peers and led by a trained ropes course instructor, learners set and achieve personal goals, confront fears, and gain self-confidence in a unique outdoor experience. Students must be 5th grade or older to participate in this activity.
Acknowledgment of Risk Forms are REQUIRED
We charge an additional $10.00 equipment fee per field group for this activity.

Total Time: 1.5 hours, Acknowledgement of Risk Form required
Activity Level: Strenuous physically and mentally; cannot be modified for universal accessibility
Learning Goals: By the end of this session, learners will gain experience and skills in the following ways:

1. Setting, working toward, and achieving personal goals takes confidence and support from their peers.
2. Gaining personal confidence requires taking risks when an outcome is not assured, and understanding that failure is an important part of growth and success.

TEAM ADVENTURE/TEAM CHALLENGE***

Team Adventure does not include low ropes elements, and therefore does not need Acknowledgement of Risk Forms.
In Team Challenge, Acknowledgement of Risk Forms are REQUIRED
Themes: Community
Lesson Overview: Learners will participate in a series of group problem solving activities that encourage cooperation, communication, and trust. Each class is tailored to the needs of the group and is a unique experience. The group is encouraged to review their experiences, link them to relevancy in their daily life, and extend these new ideas as they approach situations at home or in school. ***MEC facilitators will choose the activities based on the individual group's needs. Because of this, each student group will have a unique experience using different activities.***

Total Time: Team Adventure - 1.5 hours, no additional forms needed; Team Challenge - 3 hours, Acknowledgement of Risk Form required
Activity Level: Easy to strenuous; can be made universally accessible with notification
Learning Goals: By the end of this session, learners will be able to use the following skills to help them solve problems:

1. Active listening and sharing of ideas are important components of success in group work.
2. Working with others to solve problems highlights the variety of solutions a problem may have.
3. Problem-solving skills need to be honed with practice, and are valuable in all aspects of life.

NIGHT PROGRAMS

SONGS, SPARKS AND STORIES

Themes: Community
Lesson Overview: Learners experience an exciting evening of songs, skits, stories and games with our instructors. Connections to cultural entertainment before television and electricity are highlighted, as well as a sense of community and cultural preservation. The class takes place around a campfire and is ideal for all sized groups.

Total Time: 1.5 hours
Hiking Distance: Negligible to up to ⅛ mile based on which fire location is chosen
Activity Level: Universally accessible

BIG SCREEN

Themes: Connections, Cycles, and Systems; The Earth Provides
Lesson Overview: Learners explore the night sky with help from science and past cultural observers. Learners participate in guided star-gazing highlighting seasonal celestial bodies, and guided activities on lunar phases and planet size and scale, and learn about celestial myths.

Total Time: 1.5 hours
Hiking Distance: Negligible; based on sky and instructor-chosen activities
Activity Level: Can be modified for universal accessibility with notification
Learning Goals: At the end of this session, learners will look up at the night sky and have a better understanding of:

1. The relationship among the Earth, moon, stars, and the patterns produced by their movements.
2. The composition and scale of our solar system.
3. The role of the night sky in human cultures.

Scientific Practices Highlighted: Developing and Using Models
Crosscutting Concepts Addressed: Patterns, Scale, Proportion, and Quantity

INVENTION CONVENTION

Themes: Community; Energy
Lesson Overview: During this indoor activity, learners build camaraderie, cooperation skills and group spirit. Working in small groups, learners attend a 'convention,' sharing ideas and using their imagination, creativity, ingenuity and teamwork to engineer solutions to problems, create sculptures or short skits, or build functioning machines. This class has a large selection of possible activities so each program is unique and based on the choice of the MEC instructors.

Total Time: 1.5 hours
Hiking Distance: N/A
Activity Level: Universally accessible
Learning Goals: By the end of this session, learners will be better equipped to do the following:

1. Work in small groups cooperatively, sharing ideas and designs in pursuit of a common goal.
2. Engineer and test a solution to a problem offered by MEC staff with minimal resources and maximum creativity.
3. Find inspiration from natural objects, unfamiliar words, sketches, and in other surprising places, and use that to consider the design of current or future technologies.

Scientific Practices Highlighted: Developing and Using Models; Planning and Carrying Out Investigations
Crosscutting Concepts Addressed: Cause and Effect; Patterns; Energy and Matter

RADICAL RAPTORS

Themes: Adaptations; McDowell Stewards
Lesson Overview: Learners engage with our bird educators, live birds of prey - like a hawk or owl - to learn about their adaptations, habitats, and ecological significance.

Total Time: 1.5 hours
Hiking Distance: N/A
Activity Level: Universally accessible
Learning Goals: By the end of this session, learners will be able to consider birds of prey in the following ways:

1. Describe the specialized traits of birds of prey and how each adaptation contributes to the success of the bird.
2. Relate adaptations to habitat and behaviors.
3. Consider the impact of humans on birds of prey indigenous to our region.

HOP, SLITHER & SLIDE

Themes: Adaptations
Lesson Overview: Learners confront and dispel fears of reptiles by meeting snakes, other reptiles and amphibians, and touching/feeding/engaging with them. Instructors handle live animals and discuss conservation and human impacts on reptile and amphibian communities. Incorporation of various kinesthetic learning activities are included to cement the differences between reptiles and amphibians.

Total Time: 1.5 hours
Hiking Distance: N/A
Activity Level: Universally accessible

McDOWELL WOODS

Themes: The Earth Provides, McDowell Stewards
Lesson Overview: Learners participate in a town hall-style role play to determine how best to use land acquired by Camp McDowell. Learners take on different stakeholder roles, such as Camp McDowell employees, coal miners, restaurateurs, scientists, and farmers, to come to a consensus on how best to use the land. Each stakeholder group will present their ideas for land use to the group, support their ideas with evidence, and will listen to other stakeholder groups with thoughtful respect to come to a solution that works best for everyone.

Total Time: 1.5 hours
Hiking Distance: N/A
Activity Level: Universally accessible

NIGHT HIKE

Themes: Adaptations
Lesson Overview: Learners explore the forest of Camp McDowell at night, using all of their senses to enhance the experience and compare it to their hikes during the day. As they explore their senses, they discuss adaptations unique to nocturnal animals that help them be successful in their environment. **We recommend that this class not be taken in May as sunset time does not correspond well with our evening class time.**

Total Time: 1.5 hours
Hiking Distance: N/A
Activity Level: Universally accessible