



## **Environmental Education Class Abstracts–South Carolina**

### **YMCA Camp Greenville**

#### **Science and Communication Classes**

The Environmental Education classes offered at YMCA Camp Greenville have been evolving since our beginning in 1986. Our goal for the program is to use our natural setting to reinforce State Science Standards, and to instill a greater respect for the environment.

#### **Program Objectives:**

- Increase the student’s awareness of the environment and to nurture a relationship with the environment through interactive, discovery-based activities.
- Encourage a sense of personal discovery and responsibility for the environment.
- Foster cooperation and communication among peers.
- Meet State Science Standards for selected grade levels.

#### **Central Ecological Principles:**

- ECOLOGY is the study of the interrelationship between living things and their environment.
- An ECOSYSTEM includes all the living and non-living (soil, air, water, sun, etc) components of a certain environment. The Earth is an example of an ecosystem as well as a pond or forest.
- INTERDEPENDENCY refers to the need of all components in a community for each other for survival and how the loss of any part is detrimental to the system.
- ADAPTATION over time resulted in the diversity of organisms and continues today. Organisms’ adaptations help shape the physical and behavioral features of plants and animals.
- All of nature works in CYCLES, which consists of constant exchange of elements, between earth, air, water, plants and animals.

Many of the classes relate to one or more of the State Science Standard categories of Inquiry, Life Science, or Earth Science. If so, it is indicated to the right of the title of the class. Some classes focus more specifically on standards for specific grades, which can be found just below the title.

\$ = Activities with this symbol have an additional cost per participant and require scheduling in advance!



## Animal Adaptations

All Grades

Grade 3: 1.1; 1.2; 2.2; 2.3; 2.4 Grade 4: 2.1; 2.2 2.3; 2.4; 2.5 Grade 5: 2.4; 2.5

Grade 6: 3.2; 3.4; 3.5; 3.6; 3.7 Grade 7: 2.7 Grade 8: 2.1

- **Overview:** All animals need four essential things to survive: food, water, shelter, and air. Animals develop adaptations over time to help them meet these needs. Students will participate in activities and see animals in our Nature Center that will demonstrate these behavioral and physical adaptations.
- **Principles:**
  - Animal characteristics are genetic and/or behavioral adaptations to environmental conditions.
  - A habitat is where an animal gets its food, water and shelter and its niche is the role it plays in the community.
  - Mankind's impact can change the environment too quickly for the slow process of adaptation to adjust that could result in the premature extinction of organisms.
- **Vocabulary:** Herbivore, carnivore, omnivore, predator, prey, niche, habitat, impact, community, adaptation, camouflage, nocturnal, diurnal

## Appalachian Fair

All Grades

- **Overview:** This three-hour class strives to instill in students both an appreciation for their past and a sense of place in their present. Students will rotate through several stations of crafts and skills needed by Appalachian settlers. Some of these stations could be spinning, cooking, tool use, games, and candle-making.
- **Principles:**
  - Self sufficiency is a necessity as a pioneer of the Appalachian Mountains and see what creativity they possessed to accomplish tasks.
  - Hard work was required by all members of the family to accomplish daily work.
- **Vocabulary:** Self-sufficiency, interdependence, community, pioneer, drop spindle, wool cards, froe, maul, auger, Chandler, Johnny-cake, butter churn, lanolin, cards

## Bugs & Slugs

All Grades

Grade 3: 2.1; 2.3 Grade 6: 3.1; 3.2

- **Overview:** Students will learn the parts, habitats, food, and activities of spiders, ants, worms, honeybees, butterflies, and other organisms. They will observe these organisms at camp through our butterfly garden, observation beehive, ant farm, compost bin, and other creative resources.



- **Principles:**
  - Plants and insects are dependent upon each other for survival.
  - Many organisms undergo metamorphosis during their life cycle.
  - Physical adaptations of organisms allow them to respond to life's needs.
  - Many organisms have complex social interactions.
- **Vocabulary:** Arachnid, arthropod, metamorphosis, pheromones, ecosystem, exoskeleton, decomposer, life cycle, interdependency, pollination.

## Earth-Wise

All Grades

Grade 3: 3.7 Grade 5: 3.6 Grade 7: 4.6

- **Overview:** It is estimated that Americans throw out billions of tons of trash per day. Through discussions and activities focusing on natural resources and their uses, students consider how they contribute to the solid waste stream, then are encouraged to come up with efficient solutions. The students will learn about sustainable living, and ways to minimize human impact on the earth.
- **Principles:**
  - Earth has finite resources.
  - Cycles are the means by which resources are used in natural systems.
  - Landfills across the USA are reaching their capacity and some are filling which results in construction on new landfills.
  - The 4 R's (reduce, reuse, recycle, refuse) help decrease the misuse of natural resources including land for landfills.
- **Vocabulary:** natural resources, solid waste, landfill, biodegradable, decomposition, renewable and non-renewable resources. reduce, reuse, recycle, refuse, sustainable living, organic.

## Life and Death in the Forest

All Grades

Grade 3: 1.1; 1.2 Grade 5: 2.4; 2.5

- **Overview:** Students will experience the difficulty of survival in the forest first hand. The students will participate in a physically interactive role-play of the animal community in the forest. Students will be assigned roles and must survive in a highly modified tag game throughout our forest.
- **Principles:**



- Nature has a delicate balance and the balance ensures the survival of future generations.
  - Natural phenomenon and humans have a severe impact on the balance.
  - Survival is often based upon the luck of the draw and not always skill.
- **Vocabulary:** predator, prey, carnivore, herbivore, omnivore, carrying capacity, poaching, predator/prey relationship

## Living Waters

All Grades

Grade 3: 1.1; 2.1; 2.2; 2.3; 2.5 Grade 5: 1.1; 2.2 Grade 6: 3.4 Grade 7: 1.1; 4.1; 4.2

- **Overview:** A reservoir is an excellent ecosystem for students to learn about food webs and the role they play in an aquatic community. Students will gather and observe life from the reservoir and participate in activities and discussions that help them understand the interdependence of life in the aquatic community and mankind's impact on that community.
- **Principles:**
  - An aquatic ecosystem is made up of water, sun, air, detritus, substrate, plants and animals.
  - All living things in the reservoir are interconnected including the people.
  - Micro-habitats exist in the reservoir such as surface, bottom, deep water, and shore.
  - Aquatic plants and animals have specific adaptations to help them meet their needs in a specific micro-habitat.
- **Vocabulary:** community, interdependence, aquatic, food web, photosynthesis, micro-habitat, adaptation, cycle, nymph/larva, detritus, producer, consumer, decomposer.

## Making Tracks

3rd, 4th, 6th, and 7th Grade SC Science Standard II

All Grades

Grade 3: 1.1; 1.2 Grade 4: 1.1; 1.2 Grade 6: 1.2

- **Overview:** Animals leave evidence of their lives and habits throughout the forest. Students will learn to look for signs that animals leave such as scat, tracks, and bedding. They will learn to identify the animals that leave these marks, and will make an animal track identification book that includes the animal's gait patterns.
- **Principle:**
  - Observation is essential for a wildlife scientist and many inferences can be drawn from the evidence animals leave behind.
  - The forest is home to a diverse collection of animals and they have distinct characteristics that can be seen through careful observation.



- **Vocabulary:** qualitative and quantitative observations, inference, scat, tracks, bedding, gait pattern.

## Meet the Neighbors

All Grades

Grade 3: 1.1; 1.2; 2.1; 2.3; 2.4; 2.5 Grade 5: 2.2; 2.4; 2.5 Grade 6: 3.2; 3.4 Grade 7: 4.1; 4.3  
Grade 8: 2.7

- **Overview:** While hiking through the forest, students will study the forest ecosystem observing plants and animal neighbors abiding together. Activities focus on the living and non-living components of the forest and how these components are connected which helps illustrate the forest as a dynamic community.
- **Principles:**
  - A habitat is where an animal or plant gets its food, water and shelter and a niche is the role they play in the forest neighborhood.
  - All living things in the forest are interconnected through the food web.
  - Habitat destruction is the #1 problem for the animals and plants in the forest neighborhood.
  - Air, water, animals, plants, and soil are natural resources that are constantly recycling in the forest.
- **Vocabulary:** Community, producer, consumer, decomposer, photosynthesis, habitat, niche, food web

## Moving Mountains

All Grades

Grade 3: 3.1; 3.5; 3.6; 3.8 Grade 5: 3.1; 3.2; 3.3 Grade 8: 3.1; 3.4; 3.6; 3.7; 3.8

- **Overview:** Through activities and discussion, students will learn that while it appears that we are standing on solid rock, the surface of the Earth is always changing. The focus of this class is how the Appalachian Mountains were formed. On a hike down to Showerbath Falls, students will see geology in action in the form of weathering, erosion and our inactive fault line.
- **Principles:**
  - The Theory of Plate Tectonics explains the continents we currently see and explains Earth's dynamic past.
  - The surface of the Earth is constantly exposed to erosion and weathering.
  - Rocks are constantly being recycled.
- **Vocabulary:** Geology, Pangaea, rock cycle, erosion, weathering, magma, lava, plate tectonics, folding, subduction, metamorphic rock, igneous rock, sedimentary rock, core, mantle, crust.



## Secrets of the Mountains

All Grades

Grade 4: 1.2

- **Overview:** Students will learn basic orienteering skills and use them to guide the group on a hike through the woods.
- **Principles:**
  - Learn the parts of the compass.
  - Learn to lead a group as well as follow.
  - Learn to solve problems as a small group.
  - Reinforce mathematics concepts regarding degrees.
- **Vocabulary:** degrees, magnetic north, bearing, paces, cardinal directions.

## Star Lab \$

All Grades

Grade 4: 3.1; 3.2; 3.3; 3.6 Grade 8: 4.1; 4.6

- **Overview:** Students will get a close-up view of the night sky in our 16-foot diameter planetarium. The Star Lab will show how our perspective of the universe is affected by the earth's rotation and orbit. Students will learn about constellations and Greek Mythology, as well as facts about planets in our solar system.
- **Principles:**
  - Our view of the night sky changes throughout the nighttime due to the earth's rotation.
  - The constellations that are visible at any time of the year is due to where the earth is located in its orbit around the sun.
  - The zodiac is a collection of constellations located along the elliptical line.
- **Vocabulary:** Axis, rotation, Polaris, constellation, circumpolar, elliptic, galaxy, orbit, Milky Way, Solar System, mythology

## Tales of the Mountains

All Grades

- **Overview:** In this creative writing class, the mountain backdrop becomes the subject and inspiration for each individual's creativity and expression.
- **Principles:**
  - Self expression through descriptive writing is rewarding.
  - Expansion of ideas and impressions through the use of descriptive and action words in your own style.
  - There is a need for sitting back and appreciating quiet moments in nature.



- **Vocabulary:** prose, poetry, style, perspective, style, descriptive, subject

## Tremendous Trees

All Grades

Grade 3: 1.1; 1.2 Grade 4: 2.1 Grade 6: 1.3; 2.1; 2.3; 2.4; 2.7; 2.9

- **Overview:** Students will focus on the structure, function and identification of trees in the southern Appalachian mountains.
- **Principles:**
  - Trees are important to the forest and people.
  - Each tree has unique characteristics of leaves, bark, twigs, and shape that help in identification.
- **Vocabulary:** deciduous, evergreen, conifer, simple leaf, compound leaf, heartwood, cambium, xylem, phloem, bark, root, taproot, habitat, diversity, photosynthesis, carbon dioxide, oxygen, community, dichotomous tree key.

## Watershed Wonders

All Grades

Grade 4: 4.1 Grade 6: 4.2 Grade 7: 4.5

- **Overview:** Life as we know it would not exist without water. Through discussions and activities, students will learn the importance of water as a resource and how it is being improperly managed, depleted and contaminated.
- **Principles:**
  - Water is recycled in the three phases (gas, liquid and solid) of the water cycle.
  - Water is not uniformly distributed on the Earth and is not available for human use.
  - Water treatment plants are places "dirty" water is sent to be "cleaned".
  - Clean water is a finite resource and must be conserved and managed wisely.
- **Vocabulary:** cycle, evaporation, condensation, precipitation, transpiration, ground water, run-off, point and non-point source pollution, sedimentation, polar ice, freshwater, salt water, filter.

## Which Way

6th grade and above

- **Overview:** Map and compass skills are the focus of the advanced orienteering class. Students determine bearings and distances while completing an orienteering course through camp.
- **Principle:**



- Review or learn the parts of the compass and orienteering using a map.
  - Promote mathematic and geometry skills.
  - Accomplishing an orienteering course as a group requires teamwork and communication.
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- **Vocabulary:** bearings, angles, direction, paces, magnetic north, scale, cardinal directions.

## Team Building and Adventure Education

Adventure Education refers to the use of challenging and safe activities to purposefully build up individuals and groups. Often times, the activity will be exciting and invite the participant to venture “outside their comfort zone” to maximize the learning power of the event. Team problem solving is a large part of these experiences, the aim of which is to improve communication skills, develop leader / follower abilities, and to practice goal setting and planning techniques. It is highly recommended that Group Dynamics be taken in conjunction with any of these classes.

**Program Objectives:**

- Increase the student’s level of self-esteem.
- Development of skills and interests one may not have realized they had before.
- Foster cooperation and communication between peers.

<b>Archery</b>	<b>ALL GRADES</b>
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- **Overview:** Participants will learn the basics of archery. This is a recreational class that challenges participants to shoot at targets ranging in distance.
  
- **Principles:**
  - Setting personal goals.
  - Basic archery skills.
  - Parts of the bow and arrow
  
- **Vocabulary:** Knock, draw, recurve bow, compound bow, arrow rest

<b>Bouldering Room</b>	<b>All Grades</b>
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- **Overview:** Essentially, bouldering is like rock climbing, but done horizontally rather than vertically. The indoor bouldering room allows participants to climb sideways along the walls no higher than 8 – 10 feet. Students will learn and practice the unique techniques that bouldering utilizes and apply them to a handful of games and challenges. This is a great



class for those who have never been rock climbing or for experienced climbers who want something new!

- **Principles:**
  - To take on a challenging activity in a safe environment, gain confidence, and experience a sense of accomplishment.
  - Be supportive of others through their challenges.
  - Problem solve on an individual and small team basis. Learn how to plan ahead
  - Apply trial and error strategy to accomplish goals
  
- **Vocabulary:** Spotting, sequencing, holds, moves, encouragement, trust

### Canoeing \$

All Grades

- **Overview:** Students canoe in pairs or groups of three on Lake Sudie. Canoeing is a great activity for demonstrating the need for teamwork. Lifeguards will monitor and all participants wear personal floatation devices. This activity is only offered in April, May, and September.
  
- **Principles:**
  - Learn and follow basic water safety rules
  - Learn about the parts and functions of the equipment, and the name and function of the parts of the equipment
  - Learn and practice basic strokes
  
- **Vocabulary:** bow, stern, thwart, gunwale, keel, blade, shaft, t-grip, back stroke, forward stroke, draw, personal floatation device (PFD)

### Climbing Experience \$

5th grade and above only

- **Overview:** Our climbing room offers a variety of challenges from beginner to advanced. With the guidance and support of our trained staff and the group, participants have the opportunity to try several climbs. Similar to our high ropes course, these climbs will allow participants to challenge themselves at their own level. After the group completes their climbing session, the students will be able to discuss their experience and relate it to everyday life.
  
- **Principles:**
  - To take a risk in a safe but challenging environment and to confront fears, gain confidence and a sense of accomplishment
  - Trust of others and oneself and being a part of a group



- Encouraging others
- **Vocabulary:** harness, belay, helmet, carabineer, holds, spotting, dynamic belay, success, risk, trust, encouragement.

## Cooperative Challenges

All Grades

- **Overview:** Participants work in small groups on activities such as the Egg Drop where they are asked to build a structure capable of surviving a fall from various heights. Groups are encouraged to make sure each member participates in both the construction and demonstration. Other activities may include Tinker Toy Towers and Catapult among others.
- **Principles:**
  - Promote teamwork by working together and collaborating on a joint effort
  - Learn to listen and utilize others ideas and comments
  - Creativity can go a long way
- **Vocabulary:** cooperation, initiative, communication, collaboration, creativity, compromise

## Group Dynamics

All Grades

- **Overview:** Through a series of non-prop and prop activities of increasing difficulty and challenge, students are encouraged to cooperate with one another, to draw on inner resources, and to use the assets brought to the group by each individual. Group discussions and processing of the events help students see how lessons learned in the activities apply to everyday life.
- **Principles:**
  - How you work with your group to solve a problem is as important as solving the problem.
  - There can be more than one solution to a problem.
  - We can trust and rely on the others in our group.
  - Problem-solving and leadership skills like brainstorming, compromise and experimenting are best learned through practice.
- **Vocabulary:** problem-solving, cooperation, communication, consensus, brainstorming, compromise, decision-making, trust, listening

## High Ropes \$

6th grade and above only

- **Overview:** High Ropes is a series of elements built with cables and ropes 20–30 feet up on telephone poles in our forest setting. Our indoor course (in case of rain) is suspended



from the rafters and beams of our gymnasium. The emotional support of the group coupled with the security of the safety precautions encourages the participant to challenge themselves at their own level. After the group completes the course, our facilitators will lead group discussion regarding the value of the ropes course in their own lives.

- **Principles:**
  - Take a risk in a safe but challenging environment and confront fear, gain confidence and a sense of accomplishment.
  - Trust others and oneself and take part of the group support system.
  - Individual vs. group goals
- **Vocabulary:** harness, belay, helmet, carabineers, static belay, dynamic belay, success, risk, trust.

## Rainbow Falls

6th grade and above only

- **Overview:** Although the 150-foot, free-falling waterfall is spectacular, the highlight of the activity is the sense of accomplishment in completing the challenging hike and the teamwork that develops during it. Students maneuver through steep terrain using one another for support. People's impact on the environment is sharply contrasted against the wild beauty of the forest. This activity can reinforce some concepts learned in Environmental Education classes and Group Dynamics. This is a challenging hike for people in good condition, even though it is only 2 miles round trip.
- **Principles:**
  - Challenged physically and mentally
  - A sense of accomplishment and how to trust and rely on others
- **Vocabulary:** switchbacks, pacing, elevation change, glad I brought my camera, are we there yet?

## Rock Climbing \$

6th grade and above only

- **Overview:** Using a natural rock face on our property, students will participate in a secure yet challenging climb. Facilitators will help establish goals and encourage the students to meet those goals ultimately working towards gaining confidence and self-assurance in a natural setting. This activity is only available to smaller groups because of logistics.
- **Principles:**
  - To take a risk in a safe but challenging environment and to confront fears, gain confidence and a sense of accomplishment



- Trust of others and oneself and being apart of a group
- Encouraging others
  
- **Vocabulary:** harness, belay, helmet, carabineer, holds, spotting, dynamic belay, success, risk, trust, encouragement.

## Wilderness Skills

All Grades

- **Overview:** This subtle team building session will teach students about basic survival skills to meet the basic human needs of food, water, and shelter. Students will learn basic survival techniques and collaborate to construct a natural shelter and a fire. They will also learn how to camp with minimal impact to the environment through Leave No Trace ethics.
  
- **Principles:**
  - Learn that survival is a cooperative effort and working together makes it much easier
  - Learn how to camp in the outdoors while leaving little trace that you were there
  - Learn to build a natural shelter and fire using available materials
  
- **Vocabulary:** tinder, kindling, fuel, lean-to, low impact camping, survival



## Evening Programs

The evening programs are designed to be educational and a fun way to end the day together as a group. The activities often involve everyone including chaperones and staff.

<b>Dutch Auction</b>	All Grades
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A fast-paced extravaganza, this activity utilizes the class groups to build team camaraderie and spirit by working through various tasks. Students are encouraged to use imagination and ingenuity to create stories, sculptures, skits, songs and more.

<b>Fire on the Mountain</b>	4th and 5th grade only
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This is an evening of pioneer entertainment similar to what families or children would do 150 years ago. Everyone will be involved. Songs, stories, and games are based on ones sung, told and played in the past or are recent variations in the same spirit. Musical contributions to the program are staff dependent

<b>Night Hike</b>	All Grades
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During a walk through the night without a flashlight, students learn to use their senses in a nocturnal setting. Topics like night vision, nocturnal wildlife, and comfort with the darkness are discussed during this activity. Depending on the weather, the camp's telescope can be set up. THIS HIKE DOES NOT GO TO THE CHAPEL. Please think about daylight savings time when selecting this program.

<b>Sights and Sounds</b>	All Grades
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This outdoor activity takes a leisurely stroll to Symmes Chapel (Pretty Place) located on the edge of Cleveland Cliff. Students will have a chance to look at the sights, sing songs, and listen to stories while enjoying the breathtaking view.

<b>Square Dance \$</b>	All Grades
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Students learn basic dance patterns and calls while listening to traditional and modern music selections. This activity is designed to get all the children actively involved in learning a new dance, getting to know each other better and break down many barriers. There is fun for all during this very popular activity. This activity is dependent upon the availability of the square dance caller.

<b>Stars, Sparks and Stories</b>	All Grades
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This is a rousing evening of songs, skits, and stories with students, chaperones, teachers, and camp instructors working together to entertain the group in front of a camp fire. This is typically an indoor activity but there are fire sites both indoors and outdoors depending upon weather and availability. Music contributions to this program are staff dependent.