

Coles Trip Treasures Patch Program



Activities for Brownie, Junior, Cadette, Senior and Studio 2B Girl Scouts to explore the unique assets of Camp Coles Trip and how they relate to us and the Chesapeake Bay Watershed.



Girl Scouts

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SHARE
DOLLARS AT WORK

Purpose

This patch program is designed to be completed over the course of a weekend at Camp Coles Trip. Some activities can be completed at your campsite, while others are meant to be done at specific camp locations. After participating in this patch program, girls should be able to

- name three plants and three animals that inhabit Camp Coles Trip
- describe two key functions of wetlands and why wetlands are important for humans
- describe how their actions at camp and at home affect wetlands
- describe what an ecosystem is and what the ecosystem at Camp Coles Trip looks like now or looked like at some point in history

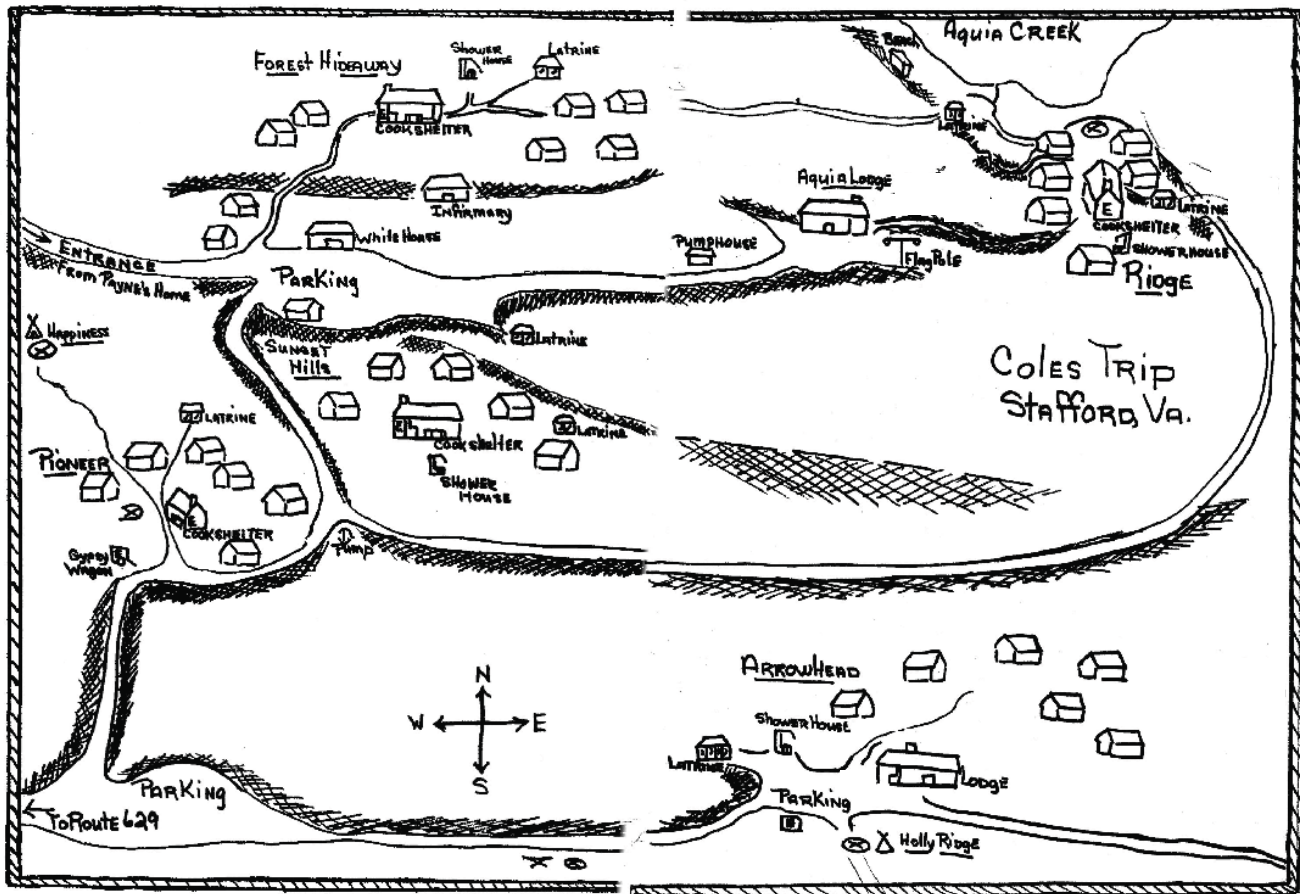
Program Links

Brownie Girl Scouts: Earth & Sky, Eco-Explorer, Watching Wildlife, Water Everywhere, Listening to the Past

Junior Girl Scouts: On My Way, Traveler, Local Lore, Earth Connections, Outdoor Fun, Water Fun, Wildlife, Your Outdoor Surroundings, Rocks Rock, Water Wonders

Teen Girl Scouts: All about Birds, Digging through the Past, Eco-Action, From Shore to Sea, Plant Life, Wildlife, Camping IPs, Makin' Waves Focus Book

All ages: Roots and Shoots Council's Own Try-It, badge and IP; Water Drop Patch



Compare this map of Camp Coles Trip in the 1970s to the one from 2006 on page 13.

Supply List

Most activity supplies are available in a storage shed near the wetlands boardwalk. Be courteous to the needs of your fellow campers when doing any of these activities: do not disturb other campers in their campsites, take only the patch program kit supplies you will need to complete your selected activities and discuss how to share supplies and locations equitably so everyone has a chance to fulfill the requirements.

Activity	Supplies Provided for 15 Girls	Supplies You Provide
Wetlands Metaphors	Laminated magazine photos, strainer, sponge, antacid, egg beater, coffee filter, cereal box, soap	None
Water at Camp	For each girl: cup, nylon, plastic tie, pencil, eyedropper; for everyone: food dye diluted in a cup	Soil to fill cup and 1 bucket of tap water
Migration Headache	18 rubber bases	None
Tide Observation	Board with paperclips on string, magnet, 4 dowel rods, long tape measure	Shoes that can get wet (optional)
Water Absorption	Stopwatch, 6 plastic drink bottles, 6 funnels, 6 6" rulers, 6 laminated percolation charts, 6 calculators, 6 coffee tins w/ bottom cut out, 7 dry erase markers	1 bucket filled with tap water for each team
At Home at Camp	Pencils, markers, clipboards	Paper for each team
Coles Trip Travel Agency	Pencils, markers for each girl	Paper for each girl
Shrinking Habitat	Green & blue construction paper, role nametags, 16 rope circles, 3-5 plastic tablecloths	Situpons, chairs, tables
Deadly Links	180 popsicle sticks (60 one size, 120 another size), 6 bandannas	Mess kit bag for each player
Camping Habits	Copy of training guide for Camping/Cookout	None
Service Projects	None	Work gloves, trash bags
Stair Comparison	For each team: tape measure, protractor, weighted string, clipboard, laminated observation sheet, dry erase marker	Paper
Coles Trip Role Play	Role play cards, situation sheet, topographic maps and transparencies with proposed nature center	None
Are You Me?	Laminated animal cards	None
Optional Animal Observation	Dip nets, binoculars, insect nets, field guides, ice cube trays, jars, hand lenses	Shoes that can get wet
Listening Activity	None	Notepad & pencil (optional)
Log Investigation	Field guides, hand lenses, bug boxes, index cards	Flashlights

Requirements

Brownie Girl Scouts: Do one activity from each of the four categories below.

Junior Girl Scouts: Do one activity from each category below, plus one additional activity from any category.

Cadette/Senior/Studio 2B Girl Scouts: Do one activity from each category below, plus two additional activities from any category.

Before beginning activities, please complete the “Before” evaluation on page 20. Complete the “After” questions upon completion of activities.

Wetland Functions & Importance

1. Discuss with girls the many functions of wetlands. The Wetland Metaphors to the right represent the different functions if your girls need help guessing.¹
2. Explore where our Water at Camp comes from by creating a model aquifer. This activity is described in the kit in the shed.
3. Play Migration Headache on page 8.
4. Do an experiment observing the tides (page 17) or water absorption for different soils (page 10).

Wetland Metaphors

sponge = absorbs excess water caused by runoff; retains moisture even after standing water dries up (sponge stays wet after it has absorbed a spill)

pillow/bed = resting place for migratory birds
egg beater = mixes nutrients and oxygen into the water

cradle = provides a nursery that shelters, protects and feeds young wildlife

strainer = strains silt and debris from water (keeps water supply clean)

coffee filter = filters smaller impurities from water (excess nutrients, toxins)

antacid = neutralizes toxic substances

cereal, rice, picture of garden = provides nutrient-rich foods for wildlife and humans

soap = helps cleanse the environment

picture of zoo = habitat for diverse wildlife

picture of resort or motel = resting or wintering place for migrating waterfowl

Ecosystems

1. *At Home at Camp* – Discuss with girls the many plants and animals that make their homes at Camp Coles Trip. In order for any plant or animal to make a place its home, the place must contain four things – food, water, shelter and space. Take some of the girls’ suggestions for animals that live at camp and identify specifically where at camp these animals might find the food, water, shelter and space they need. Have girls split into small groups, each selecting an animal (mosquito, raccoon, deer, etc.) and sketching the four habitat elements where they find them at camp.²

2. Have girls pretend to be travel agents with the Coles Trip Time Travel Agency. Each should design a travel brochure, poster, radio or TV commercial for a fictional vacation package during a time period in the

history of Camp Coles Trip. Girls can use whatever materials are appropriate and base their vacations on the history and photos of Camp Coles Trip provided in this patch program booklet. If you are doing this activity before or after your trip to camp, encourage girls to refer to encyclopedias, history books, the Internet, former Coles Trip campers or other sources to find out more about the history of the region around Camp Coles Trip.³

3. Play the Shrinking Habitat game (page 12) or the Deadly Links game (page 18).



Photo: GSCNC Archive (photographer unknown)

Camping in a platform tent at Camp Coles Trip.

Requirements

Actions at Home & at Camp Affect the Environment

1. Talk with the girls about the camping habits from your camp training that minimize impact on the campground (i.e. staying on paths, running dish water through leaves in a bag, making a fire just big enough for cooking, using only fallen wood, etc.).
2. Complete a service project at camp, such as trail maintenance, litter collection, wood stacking or scrubbing the lodges or boats. Contact the Camping Department for suggestions and guidelines prior to your visit.
3. Compare several staircases throughout camp. The different designs all have the same goal: get people down or up a hill while minimizing their impact on the hill. Together or as small groups, ask girls to observe the factors below. One group should also examine a steep hill that has a foot path instead of a staircase. After exploring these questions, girls should compare their stair and footpath observations, discussing which staircase design seems to do the best job of minimizing human impact on the hill.
 - a. Estimate the steepness of the hill. Older girls can use the protractor, weighted string and tape measure to gauge steepness accurately.
 - b. Do you walk on the hill itself or are you on a platform?
 - c. Are there plants on or near the stairs? Do areas with plants have more, less or about the same amount of erosion as bare areas?
 - d. Do you see evidence of erosion on the hill away from the stairs? Close to the stairs? Is there more, less or the same amount of erosion close to and far from the stairs?
 - e. Girls should sketch staircases, being sure to include plants and evidence of erosion so they can remember what each staircase looked like when they begin comparing them.
4. Participate in the Coles Trip Nature Center Role Play on page 14.

Native Plants & Animals

1. Play the “Are You Me?” matching game (page 16).
2. Choose an area of camp that is relatively distant from activity of other campers. Have girls sit quietly with their eyes closed to listen to the sounds and note what they hear. Can they identify specific environmental sounds or animals? After a length of time appropriate to the age group, have them share what they heard. Come back to the site later in the day or at night to repeat the activity and compare the sounds they heard. Are there different sounds at different times of day?⁴
3. Investigate how fungi, plants and animals convert a tree into soil. Find a fallen and rotting log near a path (or you can use a pile of leaves) and use the critter examination supplies to look closely at the many **decomposers**: organisms that digest dead or dying plants and animals and convert them to nutrient-rich soil. Remind girls to replace everything just as they found it upon arrival – do not tear apart the logs or pick plants or fungi. Use the guidelines for observing live animals on page 9 and be sure to return everything to its home. Ask girls:
 - a. How many kinds of creatures can you find on the log? How many kinds of plants?
 - b. What colors are most of the things on or under the log? Are there bright colors?
 - c. Look at the soil under the log. What is the soil made of? How does it feel?
 - d. Can you tell how these plants and animals are changing the log?
 - e. Describe insect holes, tunnels or other signs that creatures have been moving through the log.
 - f. What role does the log play in this natural community?⁵



The Boat House has safely stored canoes, sailboats, windsurfers and a chase boat since 1997.

History of Camp Coles Trip

Before People Came

When you look around at the fossils at Camp Coles Trip, you may find evidence of sharks, crocodiles, fish, mollusks, small mammals and other coastal animals – creatures that lived here 55-60 million years ago. The mixture of land and sea creatures tells us that the area was underwater and close to land, with rivers carrying and burying the remains of coastal land plants and animals. Geologists suspect that the coast used to be about where I-95 is today. The presence of crocodiles tells scientists that the weather here used to be warm, like Florida. The abundance of mollusk shells and occasional cemented beds indicate sediment was deposited slowly here. Over time, this sediment was compressed and eventually formed the sandstone found at camp.



Mattox Commercial Photography/Debra Blaha

You can see Aquia Sandstone at 15th Street and Constitution Avenue, NW, where the Capitol Gateposts and Gatehouse now stand.

Early Settlements in Stafford County

When the Earth cooled about two million years ago, much of the world's water became locked in ice caps and glaciers, lowering the sea level and turning this area into a river valley where mastodon, mammoth and other now-extinct species roamed. Humans traveled to the area to hunt this big game. Then about 10,000 years ago, the temperature rose and water began to fill the river valley, forming what we know today as the Chesapeake Bay. People turned from hunting and gathering their food to farming between 1,100 and 3,000 years ago. With farms to take care of, people began to establish permanent settlements along the waterfront. The Chesapeake Bay and the rivers that fed it provided transportation, rich soil for farming, fish, oysters, game and waterfowl.

When European settlers came to this area, there were perhaps as many as 100,000 people living in the Chesapeake Bay watershed area. Europeans encountered three separate tribes in the northern neck

of Virginia – the Dogue (also known as the Taux or Moyumpse), the Patawomeke and the Piscataway. These people grew maize (an ancestor of today's corn), beans and other vegetables.

In the 1640s Giles Brent built the first settlement in the area at Brent Point, just across Aquia Creek from camp. When Camp Coles Trip opened in 1955, you could still see the house built by Mr. Brent's brother across the creek. The good relationship Mr. Brent had with local Native Americans provided the settlers with food and helped the small town of Aquia prosper and grow. By the 1650s, Brent had been joined by hundreds of settlers. The main crop was tobacco, but Aquia entrepreneurs also exported sandstone, which was used to build the Capitol building and the White House in Washington, D.C.

During the Civil War, the Confederate Army built fortifications along the Potomac River to fire upon Union ships trying to supply Washington, D.C. The remains of one of these fortifications, Fort McLean, were still visible when Camp Coles Trip opened. The Union eventually broke the blockade, rebuilt the Aquia to Richmond railroad the Confederates had destroyed and used it to carry supplies as they fought in Virginia.

Camp Coles Trip

The Fairfax County Council of Girl Scouts purchased 229 acres on Aquia Creek in December 1954 and chose the name "Camp Coles Trip" for their newest resident camp. Camp opened on July 3, 1955 and welcomed 150 girls and 10 counselors. From 1956 to 1957, a winterized lodge, a primitive unit called Pioneer and three other units were added. Arrowhead Lodge was added in 1962. Resident campers in these early years had to pitch their own tents, cook their food and carry water to their units from just a few pumps.

When the Fairfax County Council expanded to include the City of Falls Church and Quantico Marine Corps School in 1958, they changed their name to the Northern Virginia Girl Scout Council. It was this council that joined with four other local councils on January 8, 1963 to form the Girl Scout Council of the Nation's Capital

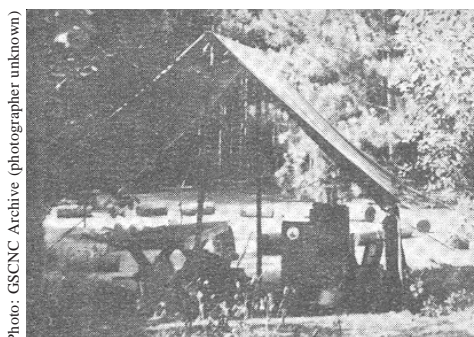


Photo: GSCNC Archive (photographer unknown)
Girls have pitched tents at Camp Coles Trip for more than 50 years.

(GSCNC). GSCNC kept Camp Coles Trip and began renovations in 1966, replacing and adding tents and tent platforms in Ridge and Forest Hideaway to accommodate more girls, adding latrines at three units and routing water to Pioneer so girls no longer had to carry water from Arrowhead. Throughout the 1960s, Camp Coles Trip was a resident camp where girls enjoyed sailing, canoeing and the occasional luau.

If you look at the map on page 2 from the 1970s, you will notice that there was a dining hall and the Ridge tent site at the waterfront. When camp opened, there was a wide sandy beach at the waterfront, but that had slowly eroded away, eventually getting too close to the waterfront camp sites. In 1981, the council stopped offering resident camp at Camp Coles Trip as they developed a plan to control waterfront erosion. By 1986 the erosion control projects were completed.

In the early 1990s GSCNC made major renovations at Camp Coles Trip. The council added three camping units on the Arrowhead side of camp, docks at the waterfront, an access road, winterized lodges, a boathouse and a 151-step stairway from the Aquia side of camp to the waterfront. GSCNC also renovated Aquia Lodge and the shower house, made units at each camp handicapped accessible, renovated and

rearranged the White House unit and converted Forest Hideaway from platform tents to glen shelters. With all these changes, girls were able to resume resident camp in the summer of 1995. Starting in 1997, a special week of camp was reserved for Camp CEO, an annual camp where teen girls camp with local business leaders to learn from their experiences.

Another round of renovations is underway as this history is written (see map on page 13). Construction has been completed to expand Ross (Aquia) Lodge, build a wetland boardwalk and renovate Arrowhead Lodge. There are plans to add a multipurpose center, a new glen shelter unit and a primitive tent site to the Arrowhead side of camp and a new troop lodge to the Aquia side of camp. Though some things stay the same (people have been directed to turn at the fish sign since at least 1974), camp is always changing.

History Resources

Bourdon, Grimsley, Heim & Weems (updated February 2006). *Late Palaeocene Sharks & Rays of the Chesapeake Bay Region*. Retrieved 5/1/06. www.elasmo.com/frameMe.html?file=paleo/index.html&menu=bin/menu_fauna-alt.html

Mountford, Kent (updated 09/21/99). "In the Beginning" *A Capsule History of the Chesapeake Bay*. Retrieved 5/1/06. www.chesapeakebay.net/info/hist1.cfm

Sprouse, Edith Moore. "History of Camp Coles Trip" from GSCNC Archive.

(updated 1/4/2005). "Aquia Creek Sandstone" *Geology Field Notes: National Mall and Memorials, Washington D.C.* Retrieved 5/1/06. www2.nature.nps.gov/geology/parks/nama

"Middle Woodland 500 B.C.–A.D. 900" *First People: The Early Indians of Virginia*. Retrieved 5/1/06. www.dhr.virginia.gov/arch_NET/timeline/middle_wood.htm

"Native Americans and Europeans" *Historic Fort Belvoir*. Retrieved 5/1/06. www.belvoir.army.mil/history.asp?id=Native

Stafford County Tricentennial, August 1-8, 1964, from the Souvenir Program. Retrieved 5/1/06. www.rootsweb.com/~vastaffo/tricent.htm

Thanks also to the GSCNC History and Archives Committee for allowing the author to use archival collections of photographs and documents.

Migration Headache Game

Appropriate for: Junior/Teen Girl Scouts

Objectives: Girls will 1) list factors affecting habitats and populations of migrating water birds, 2) describe the effects of habitat loss and degradation on populations of migrating water birds and 3) infer the importance of suitable habitat for migrating water birds.

Materials: Large playing area; one base per girl plus three extra bases

Background: Migratory birds depend on having two or more suitable habitats: a northern habitat where they nest and raise their young; a southern habitat where they find food in the winter and resting and feeding habitats (known as stopovers) because they travel hundreds or thousands of miles between nesting and wintering grounds. Changes in even one of the wintering, stopover or nesting habitats can affect the survival of migrating water birds. This activity demonstrates how changes in these three habitats might affect water bird populations.



Wood Ducks migrate to the southeastern U.S. in winter.

Setup

1. At the Field of Dreams, place bases in three parallel rows 20 – 30 feet apart. Each row should have one base for every three girls. Designate one of the end rows as the “wintering habitat,” the other end as the “nesting habitat” and the row in the middle as “stopover habitat.”
2. Explain to the girls that they are water birds and will migrate between these areas at your signal. At the end of each migration, the girls will have to have one foot on a base in order to “survive.” Only three water birds can occupy a base at one time. If they cannot find a habitat with space, they “die” and move to the sidelines temporarily.
3. If you would like, you can chart the number of live birds at each point of the migration to record how population size changes in each round or in response to changes in the habitats. Be sure to note when habitat changes occur.

Play

1. Begin the activity with all the girls at the nesting habitat. When you say, “Start your migration,” girls slowly make their way to the stopover habitat, moving their arms like birds in flight, and land on a base. Explain that most water birds need stopover habitats to rest and eat before continuing their migration.
2. Announce “Continue to the wintering habitat” for the girls to complete their journey to the end of the field.
3. Before the girls migrate back “North” to the nesting habitat, remove one base from the stopover habitat, explaining that a developer received a permit to drain a wetland and build a mall. Instruct the birds to migrate to the stopover habitat. Girls who do not find available habitat “die” and should stand on the sideline. Tell the girls that these birds died as a result of habitat loss. Remind the girls that when the birds return to the nesting habitat there may be space for new birds to be born. If there is space, any girls on the sidelines may re-enter the game as hatchlings.
4. Continue the migrations, inserting one of the habitat scenarios below periodically. Girls may also suggest their own scenarios.
 - a. A marsh is dredged to build a marina. Remove one stopover habitat.
 - b. A landowner agrees to re-flood fields after harvesting, increasing wetland acreage for wintering birds. Add one wintering habitat.
 - c. Increased numbers of mink and raccoons (nest predators) reduces the value of a marsh nesting area. Remove one nesting habitat.
 - d. Converting bottomland hardwood forests to cropland reduces wintering habitat. Remove one wintering habitat.

- e. New legislation restricts motorboat traffic on several lakes and marshes, reducing human disturbance to wildlife. Add one stopover habitat.
 - f. Years of sufficient rain and snow replenish the water supply, increasing the food supply. Add one nesting habitat.
5. After the activity, ask the girls to identify factors that caused water bird populations to decline or increase. Which factors were human-caused? Which were natural? What were the short- and long-term effects of the decline or increase? How are human communities affected by these changes to the habitats?⁶



Photo credit: Shari Bedker

Though ducks migrate South, girls enjoy winter programs like this Criminal Science Investigations Weekend at Coles Trip.

Guidelines for Observing Animals

Leave No Trace Principles¹³

- Plan ahead and prepare
- Travel and camp on durable surfaces
- Dispose of waste properly
- Leave what you find
- Minimize campfire impacts
- Respect wildlife
- Be considerate of other visitors

Basic guidelines for observing insects, spiders and other arthropods:

- Don't touch any creatures you don't know – many insects sting, bite or release poisonous chemicals to defend themselves.
- Keep a safe distance—4-6 feet from solitary stinging insects, at least 20 feet from stinging insect homes.
- Know the endangered creatures and dangerous creatures for your area (Black Widow spiders, hornets, endangered Tiger Beetles, etc.) so that you can avoid them.
- Invertebrates can feel pain and can suffocate if left in containers without air holes. Be gentle and ensure they have enough air to breathe if you catch them for closer observation.
- Wash your hands after handling any invertebrates.
- Return invertebrates to their homes and leave their homes as you found them.

Remember to follow Safety-Wise guidelines for wading and for observing animals.

Basic guidelines for amphibians, reptiles, mammals and birds:

- Never approach an animal too closely. Each species has different tolerance levels for interaction with humans. In areas where hunting is allowed, animals tend to be much less tolerant than areas that are free of hunting. For a closer view, use binoculars, spotting scopes or telephoto lenses.
- As you watch animals, look for signs of agitation, aggressive behavior, warning calls or distraction techniques. If you see such signs, you are too close, so back away slowly and quietly. Always keep a low profile.
- If you come upon a young animal or eggs, whatever you do — **DO NOT TOUCH THEM!** The parent may reject the baby if it smells human odors on its young or in the nest.
- Never feed or bait wildlife to lure them closer. Many species can be dangerous if surprised, fed or controlled, not to mention the fact that some species carry deadly diseases such as hanta virus, rabies or bubonic plague.

Water Absorption Experiment

Appropriate for: Junior/Teen Girl Scouts

Objectives: Girls will 1) predict and test permeability of different types of soil and 2) relate permeability to makeup of the soil.

Materials: For each team of three girls: stopwatch, plastic drink bottle, funnel, ruler, laminated percolation chart, dry erase marker, calculator, coffee tin with the bottom cut out, clean bucket filled with tap water

Background information: Permeability is the rate at which water percolates (moves down) through the soil. In general, the slower the percolation rate, the less permeable the ground. Though soils contain many components (organic matter, pieces of rock and mineral deposits), the ratio of sand and clay is what usually determines permeability. Water typically percolates faster in soils that are mostly sand than in soils that are mostly clay. Sand particles are fairly large and irregularly shaped, so there are lots of large pore spaces between them for water to trickle through. Clay particles are finer and lie closer together, so there are smaller spaces for water to move through. In addition, wet clay particles realign, filling in the pore spaces even more. Soil that drains quickly is usually not wetland soil, although sandy soils near the water table are sometimes an exception.

The pore spaces in soil near the surface of the ground and several feet above the water table are usually occupied by air and some moisture. When water from precipitation or runoff percolates into the soil, air is forced out. Water occupies the pore spaces previously filled by air, reducing the oxygen supply in the soil. The longer the precipitation or runoff continues, the longer the period of low-oxygen conditions. Plants and animals living in the soil need oxygen, so those that live in wetlands, where low-oxygen conditions last for long periods of time, must have special adaptations for coping with reduced availability of oxygen.

Setup

1. Divide the girls into small groups and ask them to assign a “pourer,” timer” and “recorder.”
2. Distribute supplies to each team.
3. Divide test sites between the groups so that two groups together will have a complete set of results to share at the end of testing.

Experiment

1. Choose flat, level testing spots and clear away leaves, etc. Twist the can into the soil up to the 5cm line on the can. If the ground is hard, sink the can as far as possible or hold it firmly down on the surface. Do not bend the can.
2. Timekeeper begins timing as the pourer pours the tap water from one plastic bottle into the can. Recorder writes “5cm” on the chart under “Beginning Water Level.”
3. The pourer calls out when the water disappears so the timekeeper can stop the clock. The recorder notes the end time in seconds on the chart. The “Ending Water Level” is “0.” If the water in the can has not drained within 10 minutes, stop timing and measure the height of water in the can. The recorder should note the water level in centimeters and the finish time as 600 seconds.
4. Record the number of centimeters drained (beginning water level minus ending water level). Discuss specifically where the water went.
5. After each percolation test, dig under the cans with sticks to investigate the soil and discuss what you see.
6. Once finished observing the soil, return the test site to how it looked before the experiment, replacing dirt and leaves. Repeat the experiment once or twice nearby.
7. Move to the next site and switch jobs, performing the test as at the first site.
8. When you have completed this experiment at all the sites, compare your results and discuss some of your observations with another team.⁷

Percolation Chart

Site	Trial #	Beginning water level	Ending water level	# cm drained	Percolation time (in seconds)	Average perc. time	Average Perc. Rate	
							(# cm drained/perc. time)	cm/hr
Bare & compacted	1							
	2							
	3							
Grassy, not used	1							
	2							
	3							
Forest or garden	1							
	2							
	3							
Muddy (wetland)	1							
	2							
	3							
Gravel driveway	1							
	2							
	3							
Sandy	1							
	2							
	3							
Example		5 cm	0 cm	5 cm	15 sec.	Average of trials	20 cm/min	1200cm/hr

Shrinking Habitat Game

Appropriate for: Junior/Teen Girl Scouts

Objectives: Girls will 1) describe some effects of human land development on plants and animals previously living in an area, 2) evaluate the importance of suitable habitat for wildlife and 3) recognize that loss of habitat is a critical problem facing wildlife today.

Materials: For a group of 15 girls: role nametags, green and blue construction paper; 16 string circles; tables, chairs, situpons etc.; three to five tablecloths

Background information: Review with the girls the elements necessary for a habitat (food, water, shelter and space arranged suitably for a particular animal). After some discussion to make sure that the elements of habitat are clearly in mind, tell the girls that in this activity they will be simulating wildlife in its habitat. Make sure the girls are familiar with the terms herbivore = plant-eating animal, carnivore = meat-eating animal and omnivore = animal that eats both plants and animals.

Setup

1. Divide the girls into four groups: herbivores, carnivores, vegetation and land developers. Plan for three times as many herbivores as carnivores, with a small number of developers in proportion to the other two groups. The amount of vegetation may vary. In a troop of 15 girls there would be two developers, two carnivores, six herbivores and five trees or bushes. Suggest that each girl select a particular kind of Coles Trip plant or animal to role-play for the game.
2. Establish a large area – your campsite, the Field of Dreams or another open space – to simulate the wildlife habitat before development. The land developers stay on the sidelines observing the undeveloped land and its wildlife inhabitants or meet together nearby to make plans for development. They should consider where buildings and roads go.

Play

1. Provide each herbivore and carnivore with the resources listed below. Ask the herbivores to arrange the food, water and shelter – including the girls who are vegetation – in a space to represent their habitat. Once the herbivores have arranged their habitats, ask the carnivores to move into the area to establish their lairs and water sources, keeping an eye on the herbivores as possible food sources. Each carnivore’s territory is equal to the space used by three herbivores. This phase takes about 10 minutes, with developers planning while the herbivores and carnivores arrange their habitats.
2. Once all the animals have established their habitats, the developers enter the picture. The developers have seven minutes to construct their development, explaining their actions as they take them. They may use only the space equivalent to three tablecloths. The developers use tablecloths to represent their development. They may gently move or remove girls representing plants, shelters (represented by string circles), food and water.
3. Once they have constructed their development, engage all of the girls in a discussion of what happened. How did the developers change the habitats and what were some consequences? Would any animals die?

Could the developers have done anything differently to change the consequences? What would be the effect of developing several scattered small areas instead of one large area, or vice versa? Was there a different location for the development that might have minimized negative consequences for wildlife? Were there positive consequences to the development? If so, what were they and how

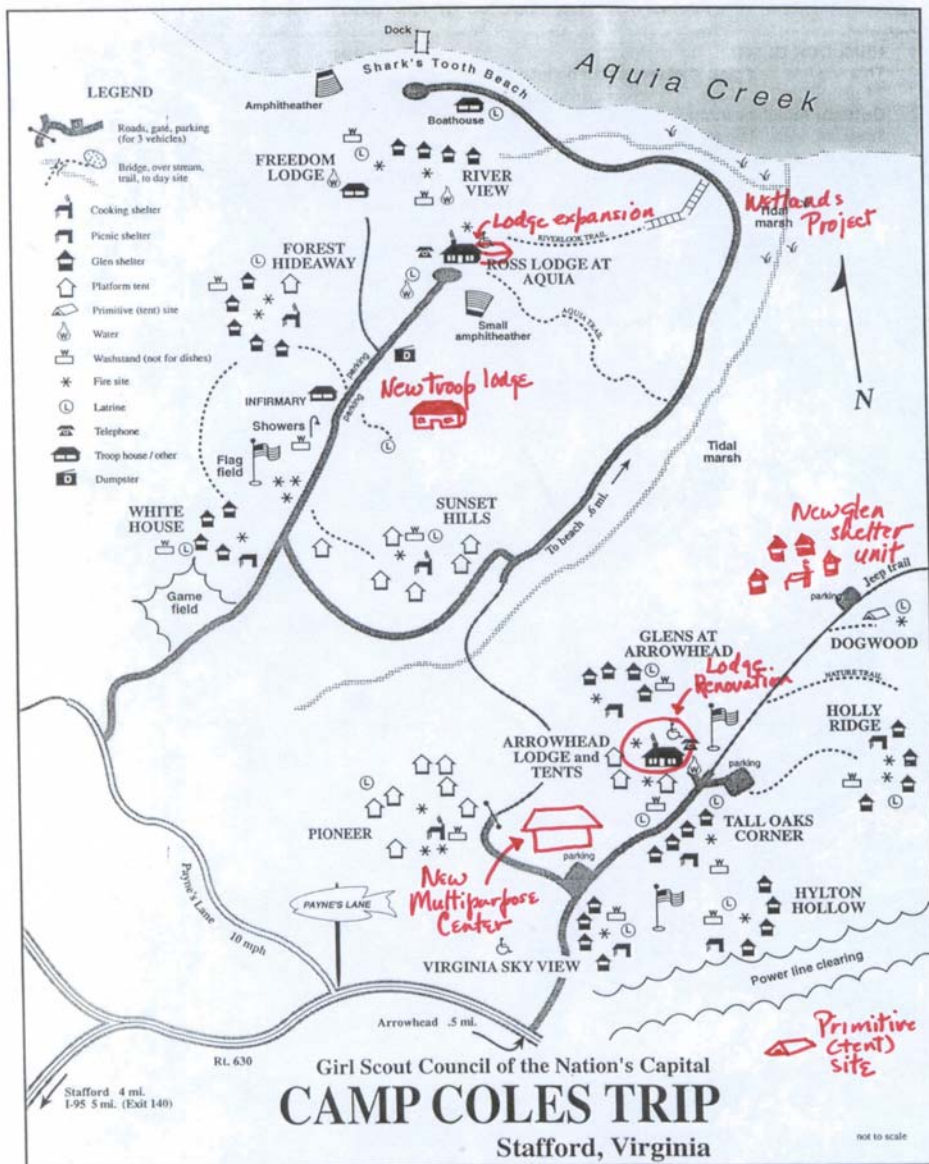
	Herbivore	Carnivore
Shelter	2 string circles	1 string circles
Food	3 green paper	3 herbivores
Water	1 blue paper	1 blue paper
Vegetation	Some	Some

were they achieved? Ask the girls to summarize some of the possible impacts on wildlife from human activities like land development. Ask the girls to summarize the importance of suitable habitat for wildlife.

Real Life Application: How is this activity similar to or different from real life? Are there places in your community where wildlife habitat has been lost to development? Are there places where wildlife habitat has been enhanced by human activity? What alternatives, if any, are there to development of natural areas? What are possible economic, social, ecological and aesthetic costs of these alternatives? If development does take place, what kinds of actions can minimize the negative consequences for wildlife, vegetation and the environment?⁸



Water is an important element of habitats.



This 2006 map of Camp Coles Trip shows existing sites and plans for new site construction.

Notice that the sites at the waterfront in the 1970s no longer exist and there are now lots more sites on the Arrowhead side of camp.

Coles Trip Nature Center Role Play

Appropriate for: Junior/Teen Girl Scouts

Objectives: Girls will 1) describe some of the concerns that arise with construction proposals and 2) debate the pros and cons of a construction proposal.

Materials: Role play cards (one per girl, reflecting variety of roles to play), laminated topographical maps and transparencies with proposed nature center

Background information:

When companies plan to build near or alter wetland areas, they must first apply to both state and federal governments for construction permits. Representatives of government agencies visit the proposed project site, determine where the wetland boundaries lie and assess the ecological functions and social and wildlife values of the wetland. Before each agency decides whether to issue a permit, the project will go out on public notice. If any individual requests it, a hearing will be held to discuss all relevant issues surrounding the project. At the hearing, the involved agencies testify, as do concerned citizens. Citizens' statements really matter and become part of the public record. Points brought out during the hearing will be used by the agencies in their decision-making.



A key campaign promise in former GSCNC President Donella Brockington's mock run for Commissioner of Aquia Creek at Camp CEO in 2004 was to remove seaweed clogging the creek.

Setup:

1. Read the construction proposal to the girls.
2. Randomly distribute role cards and ask girls to meet for five minutes in groups playing the same role. The girls with the same roles should discuss the following questions:
 - a. How will this project affect your group?
 - b. Would you vote for or against this project?
 - c. If against, what alterations or revisions would make it acceptable?

Play:

1. Split girls into two or more "public hearings" where each hearing has at least one representative from each role. An adult acts as a facilitator at each hearing, calling on representatives from each role to make a one- or two-minute presentation that expresses their concerns about or support for the project.
2. After each role has made a presentation, the facilitator moderates an open discussion of the proposal. Anyone in the hearing can participate and the goal is to debate the proposal and see if there is a solution acceptable to all interest groups.
3. After this discussion, all players should come together out of character to discuss some of the points of contention and suggestions for revisions from each forum.⁹

The proposal: To build a nature center on the Camp Coles Trip property, replacing the current Arrowhead Glens site. The Coles Trip Nature Center will be two stories tall, with nature exhibits on the lower floor and open rooms for day use on the upper floor. There will also be a treetop observation deck on the back of the nature center. The nature center will have flush toilets connected to a septic tank. The septic field will be covered with native wildflowers and shrubs.

GSCNC

Fern Comstock came to GSCNC two years ago so she could share her love of nature with girls. She proposed constructing this nature center to showcase the natural wonders at camp and increase day-use space. A local architectural firm used her program ideas to create the proposed nature center design.

Concerns:

- Provide nature exhibits to increase appreciation & awareness
- Increase camp day-use
- Create adequate space to store activity supplies

Girl Scout Leader

Chen Hao is co-leader of a troop of 12 Junior Girl Scouts in Dumfries, Virginia. One of her responsibilities is to find a free troop meeting place. She has not had much luck finding a space that is safe and versatile for troop activities. Her troop enjoys Camp Coles Trip.

Concerns:

- Provide a safe place for girls to meet
- Camp at a site close to where her troop lives
- Keep costs for meeting site and camping low so troop can afford activities

Soil Conservation Service

Sandy Ortiz is on the Virginia Soil and Water Conservation Board. She works most often on construction projects along the coast. She helps identify soil types and proper construction techniques for each kind of soil.

Concerns:

- Control erosion during construction
- Stabilize the sandy soil upon which the nature center will be built

City Council Member

Raquel E. Perez has served on Stafford City Council for the past four years. She is up for re-election in the fall. Councilwoman Perez, a strong advocate for education, supports partnerships between schools and community organizations.

Concerns:

- Provide afterschool activities for Stafford students
- Ensure that the nature center will cause minimal damage to the environment

Waterman

Ostra Fisher followed in her father's footsteps and became an waterwoman more than 25 years ago. When oysters are not in season, she supplements her income by taking tourists fishing.

Concerns:

- Balance amount of sediment and nutrients in water to allow oysters to feed
- Prevent pollution carried by runoff from collecting in oysters
- Maintain water clarity so tourists can spot fish
- Receive compensation if her family has to find new places to harvest oysters

Audubon Society

Jatrice Tanager enjoys watching bald eagles fishing along Aquia Creek. Each year, she organizes a migratory bird event where residents can learn about the birds who migrate through their area and how to help them on their journey.

Concerns:

- Minimize disturbance from construction on bird nesting and feeding patterns
- Ensure that future generations can bird-watch in this area
- Minimize disturbance from increased human presence at nature center

Waste Management

Monique Johns owns a waste management company that services Fauquier and Prince William counties. Her company installs and maintains septic tanks and pit toilets for residential and commercial sites. Ms. Johns wants to expand her business into Stafford County.

Concerns:

- Ensure that human waste does not leak into nearby waterways
- Manage septic system as nature center use climbs
- Secure a waste management contract for Camp Coles Trip

Are You Me?

Appropriate for: Daisy/Brownie/Junior Girl Scouts

Objective: Girls will recognize various stages of aquatic animals and match them with corresponding adult stages.

Materials: laminated master sheet, one set of 20 pairs of animal identification cards

Materials for optional animal observation: dip nets, binoculars, insect nets, field guides, trays, hand lenses and jars

Background information: Discuss with girls how sometimes a person can look very different when they are young compared to when they are older. In this exercise, girls match young forms of animals with their adult forms.

Setup

Divide girls into two groups. Designate one group as “adults” and the other as “young animals.” Give each girl a card from the corresponding set of adult and young animal cards. Make sure there is a corresponding match, adult and juvenile, for each card given. Instruct the girls to look for their matches by pairing the appropriate adult and juvenile forms.

Play

1. When all the students have made their choices, let the group ensure that the matches are correct. The leader may show girls the matched images on the laminated master sheet.
2. Have all the girls examine the correctly matched pairs. Look for similarities and differences in how aquatic animals grow and change. Also discuss whether the habitat requirements might be different between the adult and juvenile animals of the same species (for example, the dragonfly nymph must live in water, but the adult can fly around dry areas).¹⁰



If girls are interested in observing some of these different life stages, they can use a set of dip nets, binoculars, insect nets, field guides, trays and jars provided in the kit to capture, observe and release critters. Refer to the “Guidelines for Observing Animals” on page 9.



PATTI SMITH PHOTO



Jan Verhage

Girls who attend programs at camp, like the 1988 October Odyssey (left), might someday return to camp to mentor girls, like the women in the photo on the right, who participated in Camp CEO at Camp Coles Trip.

Tide Observation Experiment

Activity

1. Review *Safety-Wise* guidelines for wading, beach and water activities with the girls prior to visiting the beach. In addition,
 - a. Remain within eyesight of the leader and stay out of the water
 - b. Do not walk on logs or other structures projecting into the water
 - c. Be aware of where the tide is currently and whether it is going out or coming in



Girls sailing on Aquia Creek need to know about tides.

2. Go to the water line at the beach and have girls drive a dowel securely into the sand at the waterline to help observe changes that occur during your time at the beach.
 - a. Ebb tide – outgoing tide: Measure the bared beach from the high tide mark (line of debris left from the receding tide) down to the water line.
 - b. Flood tide – incoming tide: Measure the depth of water from the sand to the water level on the dowel at the start of your beach visit and again at the end (or come back later in the day). Water shoes are advisable as you might get wet retrieving the dowel. You can also stick a series of dowels into the sand at one foot intervals to see how quickly the water travels up the beach.
3. Tide comparison – At the same time, have a group of girls place a dowel in the marsh and at the beach. Have the girls check the dowels throughout the day to see how the water levels changed due to the tide. Does the water in the marsh rise and fall in the same way as the water on the beach?¹¹

Appropriate for: Junior/Teen Girl Scouts

Objectives: Girls will 1) recognize an effect of lunar gravitational pull (tides), 2) explain the tidal patterns of two high and two low tides and 3) observe tidal movement and how tides affect the shore.

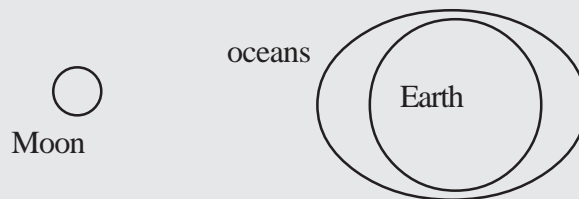
Materials: board with paperclips on a string, magnet, dowel rods, tape measure, water shoes

Background

Gravity is a force that acts on both objects involved – the Earth pulls the moon toward it and the moon pulls the Earth toward it. It is the attracting forces of the moon and, to some extent, the sun that create our tides. Although the sun is much larger than the moon (27 million times larger), its greater distance reduces the sun's influence to less than 50% of the moon's influence on tides.

As the moon travels around the Earth, it lifts the oceans directly below it, creating a high tide. You can use a magnet and the paperclips on the string to model how the moon's gravity (magnet) attracts the ocean water (paperclips) toward it. The action of the moon is even more noticeable when the sun and moon combine forces.

Most tidal waters have two high and two low tides every day. One high tide is when the moon is directly overhead, pulling the water toward it. The other high tide is when the moon is on exactly the opposite side of Earth – the water is able to flow away from the moon because the moon is not there pulling it (see diagram below). Tide timing and height changes daily because it takes the moon 24 hours and 50 minutes to rotate around the Earth. In addition, the moon's path around the Earth varies over a month's time.



Deadly Links Game

Appropriate for: Junior/Teen Girl Scouts

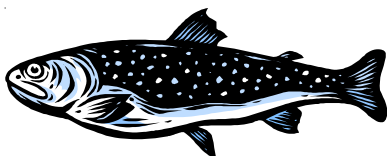
Objectives: Girls will 1) give examples of ways in which pesticides enter food chains and 2) describe possible consequences of pesticides entering food chains.

Materials: large open space; one bag for each girl; two sizes of craft sticks, 15 pieces per girl in the proportions of 2:1 small:large; bandannas for “fish” to wear

Background: Establish with the girls a working definition of “food chains.” A food chain is a sequence or “chain” of living things in a community, based on one member of the community eating the member below it and so forth. For example, mosquito larvae eat microscopic plants and animals, fish eat mosquitoes, and eagles eat fish.

Setup

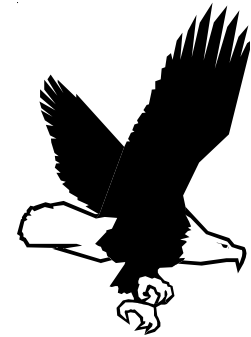
1. Divide the girls into three groups: approximately three times as many fish as eagles and three times as many mosquitoes as fish. In a troop of 15, there would be one eagle, three fish and eleven mosquito larvae. Hand each player a small bag or other container to represent its stomach. Have each fish tie a bandanna around her arm as identification.



2. Hide the craft stick “food” at random throughout a large open space while the girls are not looking. Be sure to count how many you put out so you can ensure they are all found later.

Play

1. Eagles and fish sit quietly on the sidelines, while the mosquitoes are allowed to enter the area to collect food into their stomachs (the bags). At the end of 30 seconds, tell the mosquitoes to stop collecting food.
2. Now the eagles sit on the sidelines to watch as the fish are allowed to hunt the mosquitoes — 15 seconds for a small area to 60 seconds on a large playing field. Each fish should have time to catch one or more mosquitoes. Any mosquito tagged by a fish is “eaten” and must give her food to the fish and then sit on the sidelines.
3. The next time period (from 15 to 60 seconds) is for the eagles to hunt food. The fish still hunt for mosquitoes, mosquitoes hunt the craft sticks and the eagles hunt fish. If an eagle catches a fish, the eagle gets the fish’s food and the fish goes to the sidelines. An eagle cannot capture a fish while the fish is “eating” a mosquito. At the end of the designated time period, ask all the girls to come together in a circle, bringing their food bags with them.
4. Ask the girls who have been eaten to identify what animal they are and what animal ate them. Next, ask any animals still alive to count the number of small food pieces and the number of large food pieces they have in their food sacks. Complete the chart at the bottom of this page.
5. Inform the girls that there is a pesticide (chemical used to intentionally kill an animal) in their habitat. The pesticide was sprayed into the ponds where the mosquitoes live to reduce the number of mosquitoes and prevent them from spreading diseases. The large craft sticks represent the pesticide. Any uneaten mosquitoes with large craft sticks in their stomachs are killed by pesticide. Any fish with large craft sticks as more than half of their food supply are also dead. The one eagle with the highest number of large craft sticks will not die at this time; however, it



	# alive	# small food	# large food
Mosquito larvae			
Fish			
Eagle			

has accumulated so much of the pesticide in its body that it will not be able to reproduce at nesting time. The other eagles are not visibly affected at this time.

Talk with the girls about what they just experienced in the activity. How did the food chain seem to work and how can toxic substances enter the food chain. The girls may be able to give other examples of food chains or animals that would be affected by pesticide. Ask girls to predict what would happen if the proportion of pesticide to healthy food changed so that there is less pesticide in the environment. Try the activity again to test their hypotheses.¹²



Photo: GSCNC Archive (photographer unknown)

Where does your dirty dish water go and how will it affect the waterways?

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11. (Santos, John G. *And This Our Life: Outdoor Activities at Nature's Classroom*. "Tides." 1981: 294-296.)
12. *Project WILD: K-12 Activity Guide*. "Deadly Links." 1992: 270-273.
13. "Leave No Trace Principles" *Leave No Trace Center for Outdoor Ethics*. Retrieved 8/14/06. www.lnt.org/programs/lnt7/index.html



Looking at the kinds of animals living in a stream is one way to tell how healthy it is.

Coles Trip Treasures Patch Evaluation

BEFORE you start working on the Coles Trip Treasures Patch Program, please complete the following items with the girls.

Program level (circle one): D B J C S Teen

Name three plants and three animals that inhabit Camp Coles Trip.

Describe one key function of wetlands and why wetlands are important for humans.

Describe how your actions at camp and at home affect wetlands.

Describe an ecosystem represented at Camp Coles Trip.

You can mail this evaluation with your patch order, leave it at the shop when you purchase patches or mail it to the address below.

GSCNC, Program Dept.
4301 Connecticut Ave, NW
Washington, DC 20008

AFTER you have completed activities for the Coles Trip Treasures Patch Program, please complete the following items with the girls.

How long did it take to complete the program? Were you able to complete the requirements during your stay at camp?

Name three plants and three animals that inhabit Camp Coles Trip.

Describe one key function of wetlands and why wetlands are important for humans.

Describe how your actions at camp and at home affect wetlands.

Describe an ecosystem represented at Camp Coles Trip.

What did the girls like best about doing the patch program and why?

What did they enjoy least and why?

Use another sheet to describe your service project if you did one.