

INTERDEPENDENCE



*Ranger Led
Program*

THEME: Interactions

GRADE LEVEL: 5th grade

BEST TIME TO PLAN TRIP: Spring or Fall

UNIT RATIONALE

Great Smoky Mountains National Park is an excellent backdrop for students as they explore the natural world. The program is designed to introduce students to the interdependence between the climate and the biodiversity at Great Smoky Mountains National Park. Additionally, students will gain knowledge of how human activities can adversely affect the biodiversity within the park.

STATE EDUCATION STANDARDS - TENNESSEE (FIFTH GRADE)

SCIENCE

Embedded Inquiry

SPI 0507 Inq. 1 Select an investigation that could be used to answer a specific question.

Embedded Technology and Engineering

SPI 0507 T/E. 1 Select a tool, technology, or invention that was used to solve a human problem.

SPI 0507 T/E. 2 Recognize the connection between a scientific advance and the development of a new tool or technology.

Interdependence

SPI 0507.2.1 Describe the different types of nutritional relationships that exist among organisms.

SPI 0507.2.2 Distinguish among symbiotic, commensal, and parasitic relationships.

SPI 0507.2.3 Use information about the impact of human actions or natural disasters on the environment to support a simple hypothesis, make a prediction, or draw a conclusion.

Biodiversity and Change

SPI 0507.5.1 Identify physical and behavioral adaptations that enable animals such as amphibians, reptiles, birds, fish, and mammals to survive in a particular environment.

The Atmosphere

SPI 0507.8.2 Explain how the mountains affect weather and climate.





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PLANNING A SUCCESSFUL TRIP

INTERDEPENDENCE



SCHEDULE FOR A DAY OF ACTIVITIES IN GREAT SMOKY MOUNTAINS NATIONAL PARK

Morning:

- Arrive at Newfound Gap for restrooms
- Ranger leads group introduction
- In two groups, students participate in ranger-led activities
- Return to school

Planning a Successful Trip

- The location for this trip is at Newfound Gap. Newfound Gap is located 13 miles from the Sugarland Visitor Center. The drive can take up to an hour from Gatlinburg.
- Lunches need to be packed in a cooler separated by class. (If this changes a Ranger will call and let you know)
- There is no cost to use this site or for the program. The rangers will be waiting on your bus to pull into the Newfound Gap parking lot.
- Arrange to have a teacher or chaperone available for every 10 students.
- Safety is of the utmost importance, especially in a National Park. Be sure to read the safety information provided on the following page. You may wish to take the page with you on your trip or send it to your chaperones prior to the on-site experience.



SAFETY CONSIDERATIONS AND OTHER IMPORTANT INFORMATION



- Great Smoky Mountains National Park is a federally protected public use area. Please help the rangers keep all of the plants and animals protected in the park by not picking the plants or taking anything from the park.
- Please remind your students to wear appropriate footwear and clothing for this extended outdoor experience. Flip flops, slip-on shoes, or sandals are not appropriate for the program.
- Temperatures in some parts of the park can be 10-15 degrees colder than at your school. Long pants and layers are suggested for the program. Pants are the best precaution against cool temperatures, bee stings, ticks, and poison ivy.
- Within the park, cell phones are not always reliable. Rangers will follow the on-site agenda. If an unexpected problem occurs, rangers do carry park radios to make contact with the park dispatch office. For non-emergencies, call the Park Ranger dispatch at 865-436-1230 or contact a park employee.

Animals and Plants of Concern in the park

- All animals in the park are wild and their behaviors are unpredictable. Treat all animals with caution.
- Venomous snakes - Two species of venomous snakes live in the Smokies, the copperhead and timber rattlesnake. Students should be cautious where they place their hands and feet.
- Insects - Yellow jacket wasps are the insects of greatest concern. They build nests in the ground along trails and streams and are aggressive when disturbed. Stings cause local swelling and can lead to severe allergic reactions in sensitive individuals. Such persons should carry epinephrine kits.
- Poison Ivy - Poison ivy is a three-leaved plant which can grow on the ground as well as on “hairy” vines up trees. To avoid chances of an allergic reaction wear long pants, stay on trails, and avoid direct contact with vegetation. If contact occurs or is a concern, wash affected parts in cold soapy water immediately.
- It is extremely helpful to rangers leading the program for students to wear clearly labeled name tags with first names only.
- Pets are not allowed on most park trails. Please do not bring them on the field trip.
- For more information about the park (Things to Know Before You Come) please visit the park’s website: <http://www.nps.gov/grsm/planyourvisit/things2know.htm>



PRE-SITE ACTIVITY

VOCABULARY REVIEW



Grade Level: Fifth

Subject Area: Science

Activity time: Determined
by the teacher

Setting: Classroom

Skills: Defining; Writing

Vocabulary: Air quality;
Commensalism; Data
Collection methods;
Interdependent; Mutualism;
Parasite; Parasitism; Symbiosis;
Variable

Objectives: Students will learn the definition of terms that will be important for the class field trip.

Materials:

- Vocabulary list provided at left

Background:

The included vocabulary terms will be emphasized while visiting the park. It would be beneficial for students to have knowledge of the terms before arriving on site.

Procedure:

Terms can be reviewed by teacher in whatever format the teacher would prefer.



ON-SITE ACTIVITIES

PARK RANGER DIRECTED LESSONS



Grade Level: Fifth

Subject Area: Science

Activity time: 3 hours (including lunch break)

Class Size: Maximum of 50

Setting: Outdoors in the park

Skills: Charting; Collecting Information; Communicating; Comparing; Contrasting; Demonstrating; Identifying cause and effect; Measuring; Observing; Recording Data; Verifying

Vocabulary: Air quality; Commensalism; Data Collection methods; Interdependent; Mutualism; Parasite; Parasitism; Symbiosis; Variable

Objectives: Allow students the opportunity to see how symbiosis and weather have an effect on the environment.

Materials: all provided by park rangers

Background:

The following is a brief description of your on-site activities. These activities will be led by park staff, but please be familiar with them, as the classroom teacher may be asked to assist on-site.

Each sub-group will follow the park rangers to participate in the following activities:

Weather (45 minutes)

In this activity, students will be asked to take a close look at the weather and how the mountains affect the weather. Students will be asked to measure the wind speed, wind direction, and temperature. This information will be compared to information at other locations in the park. Students will also make use of topography maps and will learn basic compass skills.

Air Quality (15 minutes)

How does air quality affect this park? Students will learn how air quality affects this park and where the poor air quality comes from.

Trail section of the program (1 hour)

While on the hike students will be learning about the abundance of tree diversity by using a dichotomous key. Students will also learn about how some trees are under attack by non-native species.



POST-SITE ACTIVITY

EXPLORE YOUR NATIONAL PARKS



Grade Level: Fifth

Subject Area: Science

Activity time: 30 minutes

Setting: Indoors

Skills: Varying skills depending on activities selected

Vocabulary: Varying vocabulary depending on activities selected

Objectives: To teach students about the various aspects of the National Park Service.

Materials: internet access

Background:

The Great Smoky Mountains are world renowned for their diversity of plant and animal species. This great variety makes the park an exemplary outdoor laboratory for the study of relatively undisturbed native flora, fauna, physical environs, and processes of the Southern Appalachians. The park is the largest federally preserved and protected upland area east of the Mississippi River offering park visitors a refuge from the stresses of everyday life.

You and your students can learn more about this special place as well

as participate in on-line activities to further your knowledge of the National Park Service and other federally protected lands. Please check out the following web addresses:

Especially for Kids

To learn how to become a web ranger for the National Park Service, go to:

www.nps.gov/webrangers

To learn how to become a Junior Park Ranger at Great Smoky Mountains National Park or other parks, go to:

www.nps.gov/learn/juniorranger.htm

Especially for Teachers

For a comprehensive understanding of the background and development of the National Park Service, that is perfect for teachers and others those who need the maximum amount of accurate information in the minimum amount of time, go to:

<http://www.ParkTraining.org>

The U.S. Department of Education is pleased to announce the newly remodeled and updated Federal Resources for Education Excellence (FREE) website.

It now provides richer, more expansive resources to teachers and students alike. There are over 1,500 resources to take advantage of at FREE ranging from primary historical documents, lesson plans, science visualizations, math simulations and online challenges, paintings, photos, mapping tools, and more. This easily accessible information is provided by federal organizations and agencies such as the Library of Congress, National Archives, National Endowment for the Humanities (NEH), National

Gallery of Art, National Park Service, Smithsonian, National Science Foundation (NSF), and National Aeronautics and Space Administration (NASA). Go to: <http://www.free.ed.gov/>



PARENT/CHAPERONE LETTER



Greetings Parents/Chaperones:

Park rangers are pleased to be presenting an educational program to the students in Great Smoky Mountains National Park. In order to achieve the goals for a successful program, the park rangers will need your assistance in the following ways:

(These points will help to ensure that park rangers and teachers will be able effectively conduct the lessons and activities throughout the trip.)

- The program will be conducted outside and there will be some hiking throughout the trip. Prepare your student with appropriate footwear, long pants, layers, and rain gear.
- If your child is bringing a lunch from home, we recommend that students bring water to drink and a lunch with minimal packaging. Soft drinks are usually left unfinished by students, and remaining sugary drinks cannot be poured out on the ground. (Minimally packaged lunches lead to less trash being left behind or scattered by the wind. Additionally, this reduces the accumulated trash to be disposed).

If you are a chaperone attending the field trip:

- Please be an active part of the lessons. Keep up with the group and listen to the information being given in the case that you may be called upon to assist (handing out materials, sub-dividing groups etc.).
- Please do not hold conversations with other chaperones or use a cellular phone while the rangers are teaching the students.
- Refrain from smoking during the trip. If you must smoke, please alert a ranger or teacher and remove yourself from the group.
- Please be aware that the program will be conducted outside and that there will be some hiking throughout the trip. Prepare yourself with appropriate footwear, long pants, layers, and rain gear.
- We recommend that parents and students bring a small towel in their backpacks to sit on at lunch (there are no picnic tables at the program site).

Thank you for your needed assistance. We look forward to meeting you on the program!

Sincerely,

The Education Staff at Great Smoky Mountains National Park

