

Explore the Petersburg National Battlefield

What plants and animals make their home at Petersburg National Battlefield?

Pre Lesson:

1. Discover Nature
2. Meet a Tree

On Site Exploration:

1. Explore the Petersburg National Battlefield

Post Lesson

1. Meet an Animal
2. Set the Scene
3. Nature Up Close and Personal





Lesson 1

PRE-VISIT

Meets National Science Education Program Standard B:

The program of study in science for all students should be developmentally appropriate, interesting, and relevant to students' lives ; emphasize student understanding through inquiry; and be connected with other school subjects.

Meets National Science Education Standards:

LIFE SCIENCE Grade K-4

- Characteristics of organisms
- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Petersburg Nature Poster
- List of Animals found on the poster
- Pre/Post Questionnaire
- Copy of Discovery Sheet for each student or pair of students.

DISCOVER NATURE AT PETERSBURG NATIONAL BATTLEFIELD

Background

As part of the National Park Service, a component of Petersburg National Battlefield's mission is to preserve the natural resources present in the park. These natural resources include the park's waterways, wetlands, vegetation, and wildlife. The location of the park's Eastern Front, forming a pocket of undeveloped land amongst urban development, makes the park's natural resources mission that much more important. Many visitors come to the battlefield to use the miles of trails that bisect the park. Virginia's high rate of population growth, especially in suburban areas, will undoubtedly continue to make the presence of Petersburg National Battlefield's park setting even more valuable to many of the visitors that frequent the battlefield.

Theme:

There are many different types of living organisms. Students need opportunities to investigate and categorize a variety of organisms.

Key Understandings:

- Populations of plants live at Petersburg national Battlefield.
- Populations of animals live at Petersburg national Battlefield.

- Populations of birds live at Petersburg national Battlefield.
- Recognize the various ecosystems that exist within Petersburg National Battlefield

Lesson Description

In this lesson students will try to determine if an item on their list is a plant, animal, or bird by matching its name with the picture and recording its name in the proper column on the Student Sheet (*see Lesson Appendix*). Teams will vie to see who can record the most correct answers in the time allotted.

Lesson Introduction

Have students complete the pre-questionnaire before beginning the lesson. The pre and post questionnaire are the same and will allow you to measure your students' learning gains during this lesson. Show students the Petersburg National Battlefield Nature poster after they complete the pre-questionnaire. Ask students to point out and name any plant, animal or bird they recognize on the poster.



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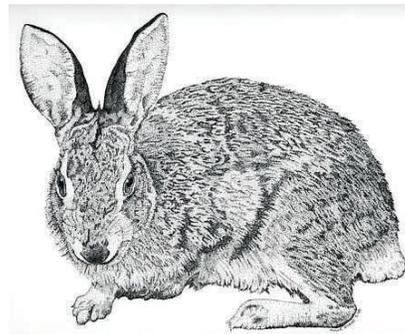
- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Petersburg Nature Poster
- List of Animals found on the poster
- Pre/Post Questionnaire
- Copy of Discovery Sheet for each student or pair of students.

Lesson Procedure

1. Decide ahead of time whether you will have students work in pairs or groups. Pairs work well for this activity.
2. Decide ahead of time if you will have each student, each pair, or Student Sheet (see Lesson Appendix) and make the correct amount of copies.
3. Prepare a poster and list for each pair or group ahead of time.
4. Introduce the lesson (see above).
5. Tell students they will try to determine if the numbered items on their list name a plant, an animal or a bird at Petersburg National Battlefield .
6. Tell students they can look at the picture to help them decide (and if you have the color poster hang it up in the room for students to refer).
7. Tell them that their job is to record the names in the correct column on their student sheet. (If they are working in pairs or groups every student in the group must have the names recorded before any person in the group is done (if each student is completing a worksheet)).
8. Depending on the time you wish to allot to this lesson;
 - a. Allow students time to record all names in the correct columns on the student sheet;
 - b. Set a time limit and make it a contest –which pair or group can record the most names correctly – and give a prize. If they are working in groups, be sure to say that each member of the team must play an equal part in the activity or the team is disqualified.





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9. To correct student work, highlight the numbered list with three colors – one for each category. When grading student work, simply write the number of correct responses at the top of each column on the Student Sheet.

Even though students have the answers on the poster they often record at least some of the items in the wrong column or they don't get them all recorded.

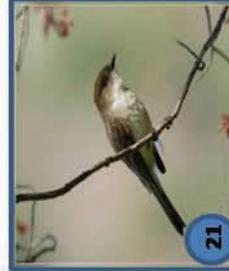
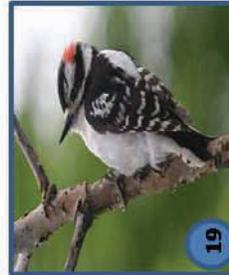
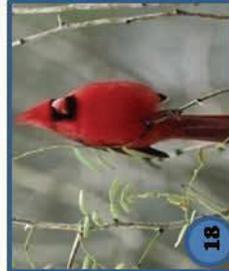
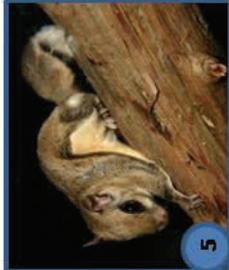
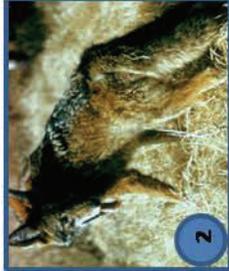
10. Have students complete the post-questionnaire on their own and turn it in.

Extension: Collect the student posters and materials. Call out the names on the list and have students tell whether it is a plant, animal, or bird. To make the game more difficult use the scientific name (allow students to use the poster).

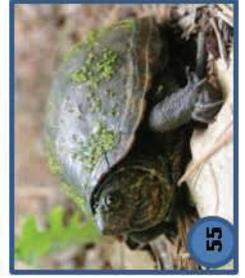
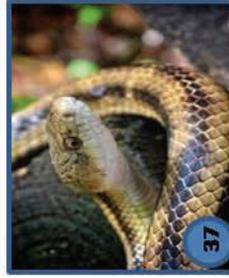
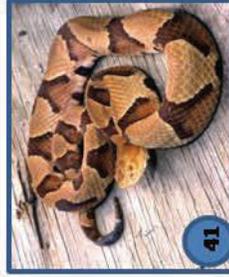
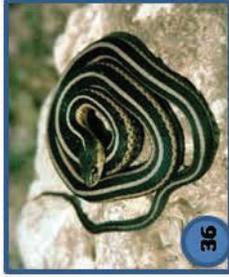
Extension: Ask students to make a list of questions to answer about the plants, animals or features they learned about in this activity.



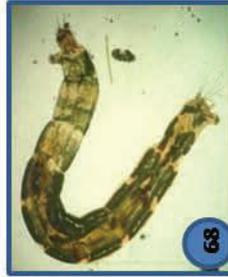
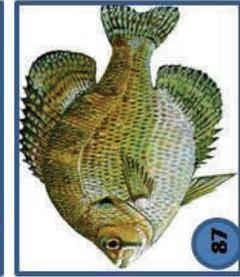
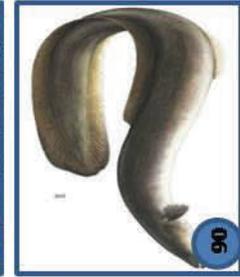
Petersburg National Battlefield Nature Poster



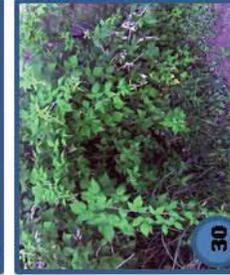
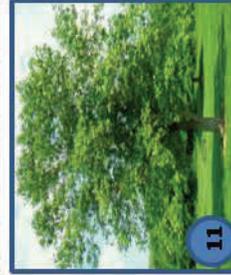
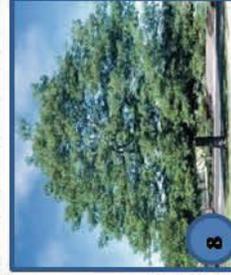
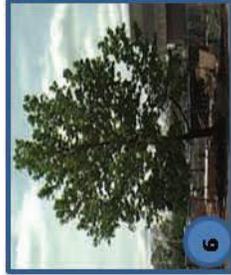
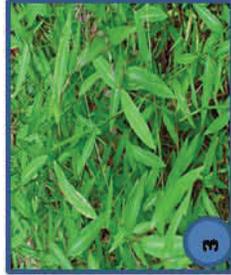
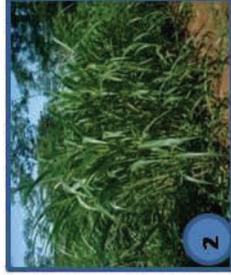
Petersburg National Battlefield Nature Poster



Petersburg National Battlefield Nature Poster



Petersburg National Battlefield Nature Poster



Nature Poster Key

Petersburg National Battlefield Nature Poster			
Number	Common Name	Number	Common Name
1	Beaver	31	American Bullfrog
2	Coyote	32	Amphiuma
3	Bobcat	33	Atlantic Coast Slimy Salamander
4	Eastern Cottontail	34	Fence Lizard
5	Flying Squirrel	35	Brimley's Chorus Frog
6	Grey Fox	36	Eastern Garter Snake
7	Grey Squirrel	37	Eastern rat Snake
8	Grey Fox	38	Eastern Worm Snake
9	Red Fox	39	Eastern Box Turtle
10	Groundhog	40	Eastern Narrow Mouth Tree Frog
11	Opossum	41	Northern Brown Snake
12	Raccoon	42	Five Lined Skink
13	Shrew	43	Fowlers Toad
14	Skunk	44	Gilled Snail
15	White Tail Deer	45	Lesser Siren
16	American Goldfinch	46	Physid Snail
17	Bald Eagle	47	Northern Copperhead
18	Cardinal	48	Northern Spring Pepper
19	Downy Woodpecker	49	Marbled Salamander
20	Caspian Tern	50	Pinewood Street Frog
21	Eastern Phoebe	51	Spade Footed Toad
22	Great Horned Owl	52	Spotted Salamander
23	Merlin	53	Spotted Turtle
24	Osprey	54	American Toad
25	Pileated Woodpecker	55	Mud Turtle
26	Red Tailed Hawk	56	Red Spotted Newt
27	Red Bellied Woodpecker	57	Leopard Frog
28	Tern	58	Ampmea
29	Ruby Throated Hummingbird	59	Upland Church Frog
30	Blue Jay	60	Northern Red Bellied Turtle
		61	Alder Fly
		62	Aquatic Worm
		63	Black Fly
		64	Blue Dragonfly
		65	Caddis fly
		66	Damselfly
		67	Dobson Fly
		68	Midge Larva
		69	Fish Fly
		70	Mayfly
		71	Pond Crayfish
		72	Rife Beetle
		73	Stone Fly
		74	Tumbler
		75	Winter Crane Fly
		76	Blue Gil
		77	Bowfin
		78	Chain Pickerel
		79	Large Mouth Bass
		80	Rosey Dance
		81	Eastern Blacknose Dance
		82	Blue Spotted Sunfish
		83	Central Mud minnow
		84	Mosquito Fish
		85	PirPerch
		86	Black Crappie
		87	LBF Flyer
		88	Creek Chub
		89	American Brook Lamprey
		90	American Eel

Nature Poster Key-Trees/Plants

Petersburg National Battlefield Nature Poster	
Number	Name
1	Mimosa
2	Johnsons Grass
3	Japanese Stiltgrass
4	Loblolly Pine
5	Sweet Gum
6	Sweet Gum
7	Tree of Heaven
8	White Oak
9	White Oak Leaves
10	Yellow Poplar
11	Yellow Poplar
12	American Elm
13	Blueberry
14	Black Gum Tree
15	Tulip Tree
16	Marsh Fern
17	Poison Ivy
18	St John's Wort
19	Poison Oak
20	Purple Mulberry
21	Huckleberry
22	Goldenrod
23	Pickeral Weed
24	Water Lily
25	Sumac
26	Black Eyed Susan
27	Impatiens
28	Queen Anne
29	Cat Tail
30	Blackberry

Name _____ Partners Name _____

Discover Nature at Petersburg National Battlefield - Student Sheet
Make a list of the plants, animals, and features using the poster provided.

PLANTS	ANIMALS	FEATURES

PRE-POST QUESTIONNAIRE-UNIT 1 Lesson 1

NAME _____

1. Name 4 animals you can find at Petersburg National Battlefield (use specific names, NOT Fish, Bird, etc.)

A. _____

B. _____

C. _____

D. _____

2. Name 2 trees you can find at Petersburg National Battlefield (use specific names)

A. _____

B. _____

3. Name 2 plants (not trees) that you can find at Petersburg National Battlefield (use specific names)

A. _____

B. _____

4. Name two of the landscape features visible at Petersburg National Battlefield

A. _____

B. _____

5. Ask two questions about Petersburg National Battlefield that you would like answered.

A. _____

B. _____



Lesson 2 PRE-VISIT

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LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Poster of Discover Nature at Petersburg National Battlefield
- Black/white copy of this poster – 1 for each pair or group of students
- List of animals found on this poster – 1 for each pair or group of students
- Pre/Post Questionnaire
- Copy of Discover Nature student sheet for each student or pair of students

MEET A TREE

Background:

All living things are divided into groups. Each individual in a group has similar characteristics. Trees are divided into two groups – deciduous and coniferous. Deciduous trees have broad leaves that turn color and drop off for the winter. Their seeds grow inside fruits, nuts, pods or berries. Coniferous trees have needle-like leaves that stay green all year long. Their seeds grow inside cones. Trees at Petersburg national Battlefield are mostly Yellow Poplar, Sweet Gum, White Oak, and Loblolly Pine. This lesson will give students practice identifying both coniferous and deciduous trees.

Theme:

There are many different types of living organisms. Students need opportunities to investigate and categorize a variety of organisms.

Key understandings:

- Deciduous trees have broad leaves with seeds that grow inside fruits, nuts, pods, or berries.
- Coniferous trees have needle-like leaves with seeds that grow inside cones.
- Trees can be identified by their leaves, seeds, and bark.
- Trees are producers.

Lesson Description:

In this lesson students will investigate and identify deciduous and coniferous trees in an area designated by the teacher. They will collect a leaf, a seed, and a bark rubbing. Students will then write a guide for their tree. This guide will become the 'label' for their museum contribution. After the guides are complete, students will place their guide into a classroom museum exhibition.

Lesson introduction:

Have students complete the pre-questionnaire before beginning the lesson. The pre and post questionnaire are the same and will allow you to measure your students' learning gains during this lesson.

Ask students if they have ever been to a museum. Give a few students the chance to tell about an interesting exhibit they saw in a museum. (If students cannot give examples of exhibits or you want to give them a visual for the activity refer to the lesson bibliography for examples).

Lesson procedure:

1. Decide if students will work individually, in pairs, or in groups.
2. Decide where students will examine trees.



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MATERIALS

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- Pre/Post Questionnaire
- Copy of Discover Nature student sheet for each student or pair of students

Tip: Use the school's grounds if enough variety in trees is located there. Another suggestion is to take a walk through the neighborhood or visit a local park. Students could also bring examples from home as part of a homework assignment.

3. If you are in the school-yard or have pre-determined the local area students will be collecting from – number the trees you want students to collect samples from using tape (duck tape or masking tape). Number enough trees so that every pair or group of students can examine one tree. This will guarantee variety for the final museum exhibition.

Tip: Make sure you have both deciduous and coniferous trees in your collection area.

4. Assign a pair or group of students to study an individual tree by its number.

Tip: Making a map of the area will save you time and also enhance students' map-reading skills.

5. Session 1: Introduce the lesson (see above).

6. Tell students they are going to be collecting specimens from trees in (name of the collection area). Each group of students will have one tree they are going to examine.

Tip: If you have cameras available; instead of collecting specimens students can

photograph the tree parts needed to complete their museum exhibit.

7. Tell students they will need to bring back one leaf (stem attached), one seed (if available) and a bark rubbing – per group.

Tip: It will be helpful to have students complete a bark rubbing on a previous day or to demonstrate how it should be done. (see lesson appendix)

8. Tell them that these artifacts will become part of their museum exhibit so they should collect them carefully and take care not to harm the tree in the collection process.

9. Before they take their specimen (leaf and/or seed) from the tree they will need to draw a sketch of the branch showing how the leaf (needle) is attached to the tree. (see example)
Note: This sometimes helps in identification.

If it is a conifer tree they will need to take the bundle that is attached to the stem and not just one needle in order to identify the tree.

10. Allow students sufficient time to collect specimens, do a bark rubbing and draw their tree.

Tip: Groups that finish early can collect from another tree or sketch the site around their tree (is it grassy, wooded, or bushy and so on).



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MATERIALS

- Poster of Discover Nature at Petersburg National Battlefield
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- Copy of Discover Nature student sheet for each student or pair of students
-

11. Decide where students will keep their artifacts until the next session.

Tip: Large Ziploc bags with group #'s on them work well for storage.

12. Session 2: Decide how you will have students display their artifacts.

Suggested display techniques: a shoebox tipped on its side, a 3-sided display board, poster board, cardboard, or simple set it up on a counter, table or desk in the classroom.

13. In addition to their display students will need a 'label' that describes their collection. To complete the 'label' students will need to research their tree to discover its name and some information about it. Have students complete the Meet a Tree Student Worksheet using either the Internet or tree identification books (see lesson appendix for suggested resources).

14. After completing their research, students will use the information to make a decorative 'label' for their display either on the computer or by hand. (see museum label worksheet)

15. Display the completed projects in the classroom or in an area of the school or community so that others may learn from your students' work.

16. Have students complete the post-questionnaire on their own and turn it in.
Extension: Have students who complete their museum exhibit work on another exhibit about a tree or other plant they find interesting either on the school grounds or in the community.

Extension: Allow students to investigate a tree or plant that lives in another environment (arctic, desert, rainforest etc.) and then develop an exhibit or poster to share their information.

Extension: Have students make a seed collection that compares seed sizes to tree or fruit size.



**UNIT 1, LESSON 2 – MEET A TREE
PRE-POST QUESTIONNAIRE**

NAME: _____

1. Deciduous trees have _____.
2. Coniferous trees have _____ and _____.
3. This part of the tree makes new plants (reproduces):
 - a. Roots
 - b. Seeds
 - c. Leaves
 - d. Flowers
 - e. Fruit
4. Name three parts of a tree that help you identify the tree's name:
 - a. _____
 - b. _____
 - c. _____
5. In the food web trees and other plants are called _____, that means they _____.

Bark Rubbing Directions

1. Tape or have your partner hold a piece of paper firmly next to the bark of your tree specimen.
2. Place a crayon (with the wrapper off) on its side and rub the crayon gently over the paper until you see the bark outline begin to appear.
3. Rub only in one direction to get the best result. Pick up the crayon instead of rubbing it back and forth. Once you have a good imprint of the bark – quit rubbing.
4. If you are not happy with your first rubbing or you would like to do another rubbing, use a second piece of paper and repeat using directions above.

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MEET A TREE
Student Worksheet, page 2

NAME: _____ PARTNER NAME(S): _____

Assigned Tree Number: _____

2. Place this piece of paper on the bark of the tree, and then follow the directions for making a bark rubbing.

Bark color: _____ Bark Texture: _____ (smooth, rough, ?)

MEET A TREE
Student Worksheet, page 3

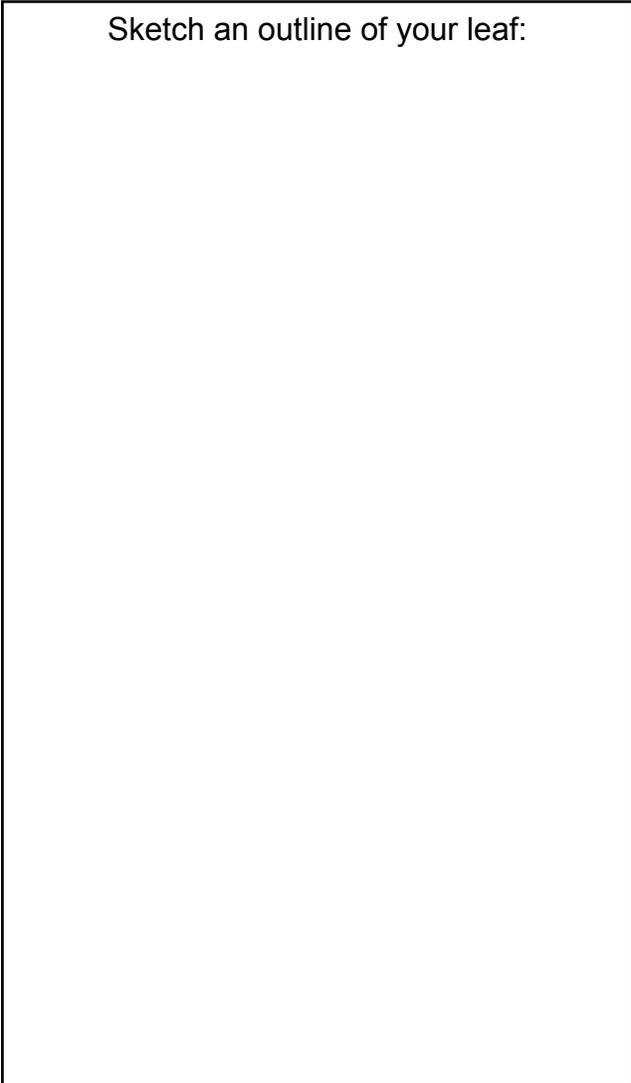
NAME: _____ PARTNER NAME(S): _____
Assigned Tree Number: _____

3. Collect one leaf from a branch of your tree.

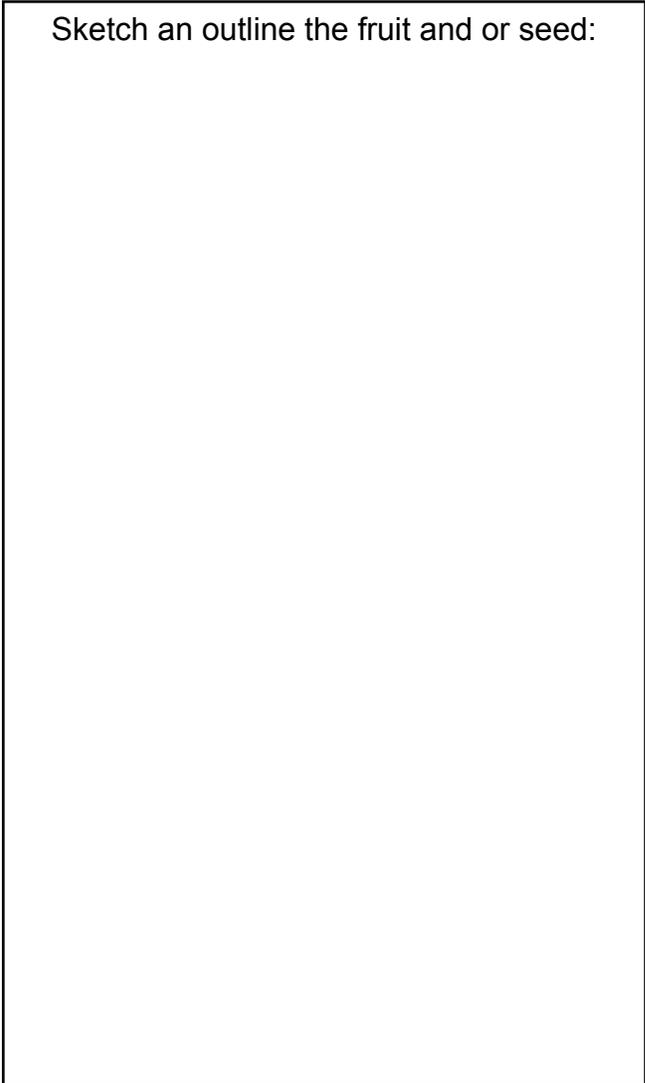
Make sure you carefully remove the leaf including the stem and note how the leaf is attached. Is it a single leaf; is it a group of leaves attached together to the main branch? If it is a leaf shaped like a needle, make sure you remove the entire bundle and not just one needle, unless it is attached alone.

4. Collect one fruit (seed container) from your tree.

Sketch an outline of your leaf:



Sketch an outline the fruit and or seed:



MEET A TREE
Student Worksheet, page 4

NAME: _____ PARTNER NAME(S): _____

Assigned Tree Number: _____

Now that you are back in the classroom with your tree artifacts it is time to find out exactly what type of tree you have been investigating. Your teacher will tell you whether you are going to use the computer or tree identification books to try and find out what type of tree you have. List the information you find here:

1. My tree is (circle one): **Deciduous** (broadleaf) **Coniferous** (cone-bearing)

2. The common name for my tree is: _____
(Optional) The scientific name for my tree is: _____

3. Using your observations and your research, describe the leaves of your tree in 3-5 sentences.

4. Using your observations and your research, describe the bark of your tree in 3-5 sentences.

MEET A TREE
Student Worksheet, page 5

5. Using your observations and your research, describe the fruit (seeds) of your tree in 1-3 sentences.

Additional information that will help us understand more about your tree:

6. Where does your tree grow best (habitat, state, region)?

7. How tall does your tree grow? _____

8. Uses for your tree:

9. Other interesting facts about your tree:

Now that your research is done it is time to complete your museum 'label'. A label at a museum organizes the type of information you have collected and puts it into an attractive format for others to view. The label should be easy to read, attractive and use illustrations. See the example your teacher has made for you.

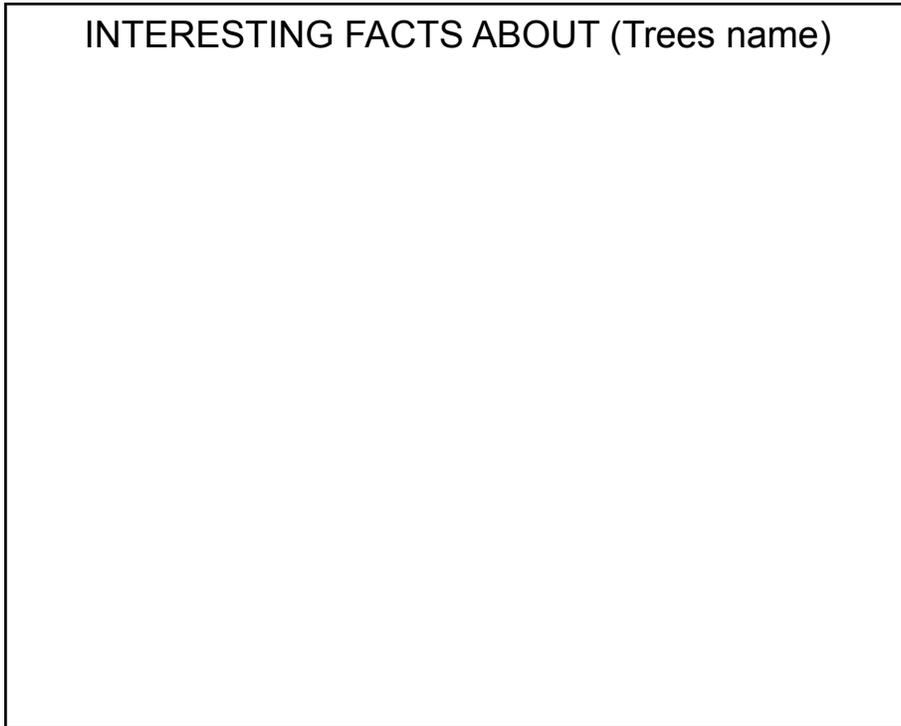
MUSEUM LABEL
Student Worksheet

NAME: _____

Use the information you have collected to design a museum label for the exhibition. Once your design is completed you will transfer it to another piece of paper adding color and drawings (unless you are completing this on the computer – then you will print out your final draft minus the directions).

TREE NAME HERE

INTERESTING FACTS ABOUT (Trees name)



Leaves

Write a description about the leaves on your tree.

Bark

Write a description of the bark on your tree.

Seeds

Write a description of the seeds on your tree.

Mountain Hemlock



INTERESTING FACTS

Mountain hemlocks are usually found in cold, snowy places.

They grow slowly, sometimes growing to 800 years old.

Mountain hemlock seeds are dispersed by the wind.

Their branches bend under the heavy snow pack, springing back into shape when the snow melts.



LEAVES

They are 1/2 to 1" in length, blunt, and blue-green in color.

The bark of the mountain hemlock is dark reddish-brown. It is cracked and grooved into narrow ridges.

Bark

The bark of the mountain hemlock is dark reddish-brown. It is cracked and grooved into narrow ridges.

FRUIT

Mountain hemlocks have cones. These cones contain the seeds that grow new trees. The cones are 1-3" long. They are a cylinder shape with a point at one end. The cones have rounded scales on the outside.

Teacher Resources

National Arbor Day Foundation – What Tree is That?

<http://www.arborday.org/trees/whattree/>

Identify trees by leaf, fruit or name. <http://www.oplin.org/tree/>

Tree Identification Characteristics or What Am I Supposed to Look At?

Glossary of tree parts <http://forestry.msu.edu/uptreeid/idchars.htm>



Lesson 3 ON SITE

Meets National Science Education Program Standard B:

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Meets National Science Education Standards:

LIFE SCIENCE Grade K-4

- Characteristics of organisms
- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Poster of Discover Nature at Petersburg National Battlefield
- Black/white copy of this poster – 1 for each pair or group of students
- List of animals found on this poster – 1 for each pair or group of students
- Pre/Post Questionnaire
- Copy of Discover Nature student sheet for each student or pair of students

EXPLORE PETERSBURG NATIONAL BATTLEFIELD:

Background Lesson

Petersburg National Battlefield plays host to a diverse number of inhabitants and ecosystems. Located between the Atlantic Coastal plain and the Piedmont region of Western Virginia, Petersburg National Battlefield's 2,659 acres varies from the wetlands of Hatcher's run at the Five Forks Battlefield to the combination of mixed hardwood/pine forests and open fields that encompass the park's Eastern Front. City Point, a 22 acre unit at the confluence of the Appomattox and James Rivers, provides yet another uniquely beautiful asset to Petersburg National Battlefield.

Overall, the park spreads out over four different localities; Prince George County, Dinwiddie County, the City of Hopewell, and the City of Petersburg.

As part of the National Park Service, a component of Petersburg National Battlefield's mission is to preserve the natural resources present in the park. These natural resources include the park's waterways, wetlands, vegetation, and wildlife. The location of the park's Eastern Front, forming a pocket of undeveloped land amongst urban development, makes the park's natural resources mission that much more important. is a complex ecosystem that is home to a

variety of plants and animals. These plants and animals must be able to survive and thrive in extreme conditions – drought, extreme cold, and heavy snowfall. Plants and animals that live here have developed adaptations that allow them to survive and take full advantage of their habitat.

Theme:

There are many different types of living organisms. Students need opportunities to investigate and categorize a variety of organisms. Key understandings:

- Populations of plants live at Petersburg National Battlefield.
- Populations of animals live at Petersburg National Battlefield.
- Organisms are part of the ecosystem at Petersburg National Battlefield and they rely on their physical environment to sustain life.

Lesson Description:

This Ranger-led walk will take you on a path through the Petersburg National Battlefield. This walk winds through the battlefield and includes a variety of trees and plants. Using their senses, students will listen and explore the forest with the Ranger.



ON SITE

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Meets National Science Education Standards:

LIFE SCIENCE Grade K-4

- Characteristics of organisms
- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Poster of Discover Nature at Petersburg National Battlefield
- Black/white copy of this poster – 1 for each pair or group of students
- List of animals found on this poster – 1 for each pair or group of students
- Pre/Post Questionnaire
- Copy of Discover Nature student sheet for each student or pair of students

Lesson introduction:

Have students complete the pre-questionnaire that applies to your learning focus before embarking on the Ranger-led walk. The pre and post questionnaire are the same and will allow you to measure your students' learning gains during this lesson.

Lesson procedure:

1. So students will get the most out of their time at the park, complete the pre-visit lesson(s).
2. When you talk to the Ranger pre-visit let them know particular focus areas or concepts that will enhance your students' learning experience. Ask for a summary of the information they will impart to your students during their exploration.
3. Set the tone for this experience at the park before you leave school. The Ranger is a specialist and will manage to teach your students more information than they could possibly get from weeks of book work. Their expertise is invaluable in answering students' questions. Pre-trip preparation forms the foundation for an enhanced learning experience.
4. Once you arrive at the park, form your students into groups suitable for your class size and the number of chaperones. (One adult for every four or five students is recommended).

5. Instruct chaperones in their duties (see logistics section) before the hike begins (either on the bus or at school before you leave).

Tip: This walk in the forest is structured to be an intensive learning experience for your students; melding class work with field work just as if the students were scientists. Many students (and parents) think field trip time is party time. Caution students (and parents) before you leave school on the goals and expectations for this exploration of the forest environment. Parents can play a key role in enhancing learning during this exploration once they understand their role in the experience.

6. The Ranger will tell you how to form your class for the hike and where you will start. Make sure students have a restroom break and snack before embarking on the hike.

7. During the hike, support the efforts of the Ranger by managing student behavior on the trail and when the Ranger is speaking. Students can get very excited if this is their first trip into the Petersburg National Battlefield. The Ranger will depend on you to help make this the best possible learning experience for your students.

8. Encourage students to ask questions and feel free to stop the Ranger and ask them to explain something in more detail or to tie it more closely with material you



ON SITE

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- Characteristics of organisms
- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Poster of Discover Nature at Petersburg National Battlefield
- Black/white copy of this poster – 1 for each pair or group of students
- List of animals found on this poster – 1 for each pair or group of students
- Pre/Post Questionnaire
- Copy of Discover Nature student sheet for each student or pair of students

have pre-learned in the classroom. This walk is meant to be an interaction between the Petersburg National Battlefield ecosystem, the Ranger and students. Rangers expect that students will ask questions pertinent to the learning experience. It would be helpful if you head-off any questions you feel are drawing attention away from the focus of the exploration.

Tip: Rangers are available after the hike by email or phone to answer student questions once they are back in the classroom. See the Petersburg National Battlefield web pages for contact information.

9. Once the hike is over the Ranger can be helpful in directing you to the next planned activity for your group and answering any logistical questions you might have.

10. Complete the post-questionnaire after the hike to see how much your students have learned.



LESSON 3 – Explore Petersburg National Battlefield

PRE-POST QUESTIONNAIRE (Topic #1)

NAME: _____

1. Trees in Petersburg National Battlefield adapt to winter by:
 - a. Losing their leaves
 - b. Having flexible branches
 - c. Sleeping (becoming dormant) through the winter
 - d. Leaving the forest

2. Trees in Petersburg National Battlefield must be able to survive:
 - a. Drought-like (dry) conditions
 - b. Lack of sunlight in winter
 - c. Animals eating their bark
 - d. People walking in the forest

3. What happens to trees that fall in the forest at Petersburg National Battlefield?
 - a. They are cut up and removed from the forest to reduce fire danger
 - b. Nothing, they stay there until someone needs to move them out of the way
 - c. They rot rapidly and disappear into the ground
 - d. They rot very slowly

PRE-POST QUESTIONNAIRE (Topic #2)

1. Plants are:
 - a. Consumers
 - b. Decomposers
 - c. Scavengers
 - d. Producers

2. Name where you would find the seeds on a conifer tree:
 - a. Cones
 - b. Leaves
 - c. Pods
 - d. Flowers

3. Identify a conifer tree by the number of _____ in a bundle.

4. The job of the bark on a conifer tree is to:
 - a. Provide food to the tree
 - b. Protect the inside of the tree
 - c. Carry water to the leaves (needles)
 - d. Keep bugs from eating the tree

5. What is photosynthesis?
- a. The food that trees eat
 - b. It helps the tree grow taller
 - c. It is how trees change sunlight to food
 - d. It is the way trees get new leaves (needles)

6. Name two trees you can identify at Petersburg National Battlefield:

7. What is the difference between deciduous and coniferous trees?

PRE-POST QUESTIONNAIRE (Topic #3)

1. Lichen on trees in Petersburg National Battlefield indicates:

- a. The tree is dying
- b. The tree is healthy
- c. The snow level line
- d. The tree is supplying food for animals

2. Lichen on trees is a _____ relationship:

- a. Helpful
- b. Harmful
- c. No benefit to the tree
- d. Of benefit to both the tree and the lichen

3. A symbiotic relationship is when organisms

4. If there was no lichen on the Petersburg National Battlefield trees we would know that:

- a. There is air pollution (bio-indicator)
- b. Trees don't have enough water
- c. Animals have been eating the lichen
- d. It is too hot for lichen to grow

5. Lichen is made up of _____ and _____.

- a. Fungus and algae
- b. Bark and roots
- c. Algae and moss
- d. Fungus and roots

PRE-POST QUESTIONNAIRE (Topic #4)

1. A micro-hike takes you to look at the forest _____.
2. Organisms viewed on a micro-hike are called:
 - a. Producers
 - b. Consumers
 - c. Scavengers
 - d. Decomposers
3. The purpose of these organisms in the forest is to _____.
 - a. Recycle forest debris (waste)
 - b. Make food for animals
 - c. Keep the forest clean
 - d. Provide shade to tiny plants
4. Name two organisms you would find on a micro-hike:
_____ and _____
5. How do the organisms on your micro-hike help the forest?
 - a. Provide protection to the trees roots
 - b. Keep the soil moist
 - c. Replenish the soil with nutrients
 - d. Provide food to animals



Lesson 4

POST VISIT

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Meets National Science Education Standards:

LIFE SCIENCE Grade K-4

- Characteristics of organisms
- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Meet an Animal Student Sheet
- Completed Discover Nature at Petersburg National Battlefield Student Sheet from pre-visit lesson
- Animal field guides, books about animals, or access to field guides on the Internet.
- Meet an Animal Just the Facts Student Sheet
- Meet an Animal Research Student Sheet
- Field Guide Student Work Sheet
- Pre/Post Questionnaire

MEET AN ANIMAL

Background:

Your students have just returned from an on-site visit to Petersburg National Battlefield. While at Petersburg National Battlefield students may have seen animals that live on the battlefield forest. The Ranger discussed the characteristics that make these animals able to adapt and survive in this environment. This activity allows students to further familiarize themselves with the animals of Petersburg National Battlefield.

Theme:

All animals must be able to find food and shelter, grow and reproduce, to survive and thrive in their environment.

Key understandings:

- Populations of animals live at Petersburg National Battlefield.
- Animals can be classified according to similar characteristics.
- Organisms can be categorized according to their function in an ecosystem – producer, consumer, or decomposer.
- Food webs express the relationship between producers, consumers, and decomposers in an ecosystem.

Lesson Description:

In this lesson students will investigate an animal that lives at Petersburg National Battlefield and share their findings as a Field Guide entry for (Teacher's Name) Field Guide to Animals at Petersburg National Battlefield produced by their classmates.

Lesson introduction:

Have students complete the pre-questionnaire before beginning the lesson. The pre and post questionnaire are the same and will allow you to measure your students' learning gains during this lesson.

Day 1: After returning from your on-site Petersburg National Battlefield visit have students brainstorm (either in pairs, as a group, or with the whole class) a list of animals they heard the Ranger talk about. Ask students to classify these animals as a mammal, a bird, an insect or a fish. Then ask students to refer to the pre-visit activity list they made of animals at Petersburg National Battlefield. Ask them to add names from this list to their new list in the correct category. Depending on the time you have for this activity you can either; have them tell you what they came up with and record it on the overhead in the correct category, ask students to trade lists or meet with another group and compare their category lists, or collect the papers for review by the teacher.



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- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Meet an Animal Student Sheet
- Animal field guides, books about animals, or access to field guides on the Internet (see lesson appendix for resources)
- Meet an Animal Just the Facts Student Sheet
- Meet an Animal Research Student Sheet
- Field Guide Student Work Sheet
- Pre/Post Questionnaire

Lesson procedure:

1. Day 1: Copy the student sheet as needed for individuals, pairs, or groups of students.

2. Decide ahead of time if you will have each student, each pair, or

3. Decide how your students will find the information they will need to complete their field guide and have those resources ready for students to use. See resources for a list of books, websites and where to find the Petersburg National Battlefield nature Guide.

4. Introduce the lesson (see above).

Tip: Depending on the experience of your students you may want to review (or define) how to determine if an animal is a mammal, bird, insect or fish.

5. Day 2: Tell students that today they are going to learn a little more about the animals at Petersburg National Battlefield and choose one animal they would like to learn more about.

6. Students will need access to the field guide materials you chose for them to use during their investigation. It is a good idea to have students look up several animals on their list before they choose an animal to research. Many students will want to choose an animal they are already familiar with like an eagle or the ground squirrel.

7. Decide if students will research as individuals, pairs, or groups. Individuals or pairs work best for this activity but your decision may depend on the resources you have available.

8. If you decide to have students look at several animals before choosing one, use the Meet an Animal: Just the Facts Student Sheet to have them record a fact about several animals.

9. Depending on the time you wish to allot to this lesson; allow students time to record information about a set number of animals; or set a time limit and grade their results according to a pre-determined goal (minimum 3 etc). If they are working in groups, be sure to say that each member of the team must play an equal part in either finding or recording the information.

10. Next students will need to choose an animal to research. Again decide how you will group students to complete this activity. The class goal is to have a field guide that includes many animals. To divide the animals equitably, ask students to list their top three choices 1, 2, 3. Tell them you will try to give them their number 1 choice but they may wind up with number 2 or 3 depending on what other students choose.



POST VISIT

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LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Meet an Animal Student Sheet
- Animal field guides, books about animals, or access to field guides on the Internet (see lesson appendix for resources)
- Meet an Animal Just the Facts Student Sheet
- Meet an Animal Research Student Sheet
- Field Guide Student Work Sheet
- Pre/Post Questionnaire

Tip: If you will have students working with a partner for this activity do not tell them this ahead of time unless you want them to choose their animal based on what their friend is choosing. After you have their choices tell them that you will be partnering them up based

11. Assign an animal to students or student groups. Post this list in a prominent place in the classroom. Copy enough of the Meet an Animal Research Student Sheet to meet the needs of your class.

12. Allow students time to research and collect facts about their animal. Time needed varies based on students experience with research, students reading ability and students access to materials.

Tip: If your students have not used their research skills this year it would be a good idea to do one animal together first. Choose an animal that many students are interested in and copy enough of the same material so that students can read and find information with your guidance (modeling). One way to do this is to use an overhead copy of the text. Have various students read a line (or several lines) of text out loud. Stop students at information that is important to this lesson and have them highlight, using a marker, the same information you are highlighting on the overhead. Once you are done reading the information show stu-

dents the sheet they will be using to record their information and have them complete it with you using the highlighted sheet. Make sure you caution them to use their own words (don't plagiarize) and show them how to reword a sentence using synonyms.

13. Decide how students will present their information. Suggestions include:

a. Use a computer program like Microsoft Word (see lesson appendix for example) or Microsoft Publisher or other word processing program to make their completed field guide page.

b. Hand draw and write to make their completed field guide page on a piece of 8.5" x 11" paper.

c. Use the Research Sheet and add a picture (draw, copy or from the computer).

14. Once you decide how the finished product will look for your class, show students by modeling how to complete this assignment to your specifications. If you completed a Meet an Animal Research Student Sheet together, use that same animal to make an example for this portion of the assignment. The more information you give students about your expectations ahead of time the better their finished products will be.



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- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Meet an Animal Student Sheet
- Animal field guides, books about animals, or access to field guides on the Internet (see lesson appendix for resources)
- Meet an Animal Just the Facts Student Sheet
- Meet an Animal Research Student Sheet
- Field Guide Student Work Sheet
- Pre/Post Questionnaire

15. Collect and display the finished products as a class book – (Teacher's Name) Field Guide to Animals at Petersburg National Battlefield. To enhance learning organize the book using categories – mammals, birds, insects, fish etc. You can also organize the book by Producers,

Note: Most likely you will have all consumers, but it is interesting to see students discover this for themselves. You often get a 'light bulb effect' depending on students' experience (or lack of experience).

16. Have students complete the post-questionnaire on their own and turn it in. Extension: Use student's work as flash cards to review the concepts of producer, consumer, decomposer or mammals, birds etc. Hold the card up and ask students to call out as directed, or divide students into teams and have one team at a time identify the poster and receive points for correct responses with the highest point total winning.

Extension: Organize the completed field guide posters by mammal, bird, etc. and ask students to compare and contrast life cycles, food, homes and so on.

Extension: Use the posters on a bulletin board before binding them into a class book. Organize the posters as a visual example of the food web at Petersburg National Battlefield.



MEET AN ANIMAL

STUDENT SHEET

NAME: _____ PARTNER(S) NAME: _____

You have just returned from a visit to Petersburg National Battlefield. There the Ranger talked to you about the plants and animals that inhabit the park. With the group your teacher assigned you, try to list the names of as many animals as you can that live at the park. Use the animals' specific name and place it in the correct category below. If you are not sure of the correct category, place the name where you think it belongs.

MAMMAL	BIRD	INSECT	FISH	OTHER

MEET AN ANIMAL

JUST THE FACTS Student Sheet

NAME: _____ PARTNER(S) NAME(S): _____

Soon you will be choosing an animal to research. Before you choose, it is time to get the facts about a few animals you could meet at Petersburg National Battlefield. Write the NAME of your animal, what the animal EATS and one other interesting FACT you learned. Your teacher will tell you how many animals you need to investigate before

ANIMAL'S NAME	IT EATS	INTERESTING FACT: This animal...

MEET AN ANIMAL RESEARCH
STUDENT SHEET

NAME: _____ PARTNER(S) NAME(S): _____

1. Animal Name: _____

2. This animal is a/an (circle one): **mammal**, **bird**, **insect**, **fish**, **other**:

3. This animal eats:

4. It is a (circle one): **producer** (produces its own food), **consumer** (eats plants or other animals), **decomposer** (feeds on and breaks down organic matter)

5. They make their home in (type of habitat)

6. Their home looks like or is a (type): _____

7. Give a brief description of this animal (2 or 3 sentences):

8. Write a couple of interesting facts about your animal that will add to our understanding

Add a picture of your animal:

Tell where you found your information:

**EXAMPLE: MEET AN ANIMAL RESEARCH
STUDENT SHEET**

NAME: _____ PARTNER(S) NAME(S): _____

1. Animal Name: Golden-Mantled Ground Squirrel
2. This animal is a/an (circle one): **mammal**, **bird**, **insect**, **fish**, **other**:
3. This animal eats: leaves, fruits, flowers, and fungi
4. It is a (circle one): **producer** (produces its own food), **consumer** (eats plants or other animals), **decomposer** (feeds on and breaks down organic matter)
5. They make their home in (type of habitat) alpine forest and meadows
6. Their home looks like or is a (type): dens, underground burrows and they live alone
7. Give a brief description of this animal (2 or 3 sentences): They look like chipmunks. They are bigger than chipmunks. They have a white stripe running down their back. They do not have a stripe on their face.
8. Write a couple of interesting facts about your animal that will add to our understanding: It has 1 to 5 babies each year born in late May. They live about 4 years. Other animals that like to eat them are owls, hawks, coyotes, foxes and bobcats.

http://www.mnh2.si.edu/education/mna/image_info.cfm?species_id=345
[http://www.enature.com/fieldguides/detail.asp?
allSpecies=y&searchText=golden-mantled%20ground%
20squirrel&curGroupID=5&lgfromWhere=&curPageNum=2](http://www.enature.com/fieldguides/detail.asp?allSpecies=y&searchText=golden-mantled%20ground%20squirrel&curGroupID=5&lgfromWhere=&curPageNum=2)

FIELD GUIDE OF ANIMALS AT PETERSBURG NATIONAL BATTLE-FIELD

STUDENT SHEET

NAME: _____ PARTNER(S) NAME(S): _____

Write the animals name in big, colorful letters:

Copy or draw a picture of your animal here:

Write a short paragraph that includes all the information on your research sheet. Make sure you use your own words and organize the information to make sense to the reader.

Add a map or other pictures (food, home) that makes your page more interesting.

**LESSON 4 – MEET AN ANIMAL
PRE-POST QUESTIONNAIRE**

STUDENT NAME: _____

1. Animals are grouped by their characteristics. Name three groups of animals that live at Petersburg National Battlefield:

a. _____

b. _____

c. _____

2. Tell what a food web is in 2-3 sentences, include in your definition what happens if something is missing from the web:

3. Name one animal at Petersburg National battlefield:

a. Tell about its home: _____

b. Tell about what it eats: _____

c. Tell what it looks like: _____

4. Draw a simple food chain or food web that includes the animal you named in #3:



POST VISIT

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Meets National Science Education Standards:

LIFE SCIENCE Grade K-4

- Characteristics of organisms
- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Lined notebook paper)
- 9x18" white construction paper
- 1 piece of white poster board

NATURE – UP CLOSE AND PERSONAL:

Background:

Your students have just returned from an on-site visit to Petersburg National Battlefield. They are beginning to recognize that species depend on one another and on the environment in which they live to survive. Organisms are linked to one another and to their physical setting. They must adapt to survive

Theme:

Plants and animals are linked to one another by their physical setting. The growth and survival of organisms in a particular environment is dependent on physical conditions (food, space, water, shelter and so on).

Key understandings:

- Populations of animals live at Petersburg National Battlefield.
- Animals can be classified according to similar characteristics.
- Organisms can be categorized according to their function in an ecosystem – producer, consumer, or decomposer.

Lesson Description:

In this lesson students will write an acrostic (*see Lesson Appendix for an example*) about a plant, an animal, or their environment after collecting information (researching).

Lesson introduction:

Day 1: After your return from Petersburg National Battlefield have students brainstorm words or phrases that pertain to the information they received on their hike. You can have students do this individually, in pairs, in groups, or as a whole class.

Lesson procedure:

1. Pre-choose a word (at least 8-10 letters) that the whole class can do together. It should be a word that they already have a lot of information or knowledge about. Share this word with the class. This will become the example or model for reference when students complete their own acrostic.
2. Place students in groups of four. Tell them they are going to see how many descriptive words or phrases they can come up with for the word you selected. Pass out one sheet of paper to each group.
3. Tell students that this activity is silent. They will pass the paper from person to person. When they receive the paper they will write a descriptive word or phrase on the paper for the class word. If they can't think of anything to write they pass it to the next person. Spelling does not count but they should be able to read the word or phrase they wrote.
4. Set a time limit (5-10 minutes) and GO!



POST-VISIT

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- Characteristics of organisms
- Life cycles of organisms
- Organisms and Environments

LIFE SCIENCE Grade 5-8

- Structure and function in living systems
- Populations and ecosystems

MATERIALS

- Meet an Animal Student Sheet
- Animal field guides, books about animals, or access to field guides on the Internet (see lesson appendix for resources)
- Meet an Animal Just the Facts Student Sheet
- Meet an Animal Research Student Sheet
- Field Guide Student Work Sheet
- Pre/Post Questionnaire

5. Next tell students you will list their ideas on the overhead. Do this in roundtable format. They can tell you one item on their paper each time you call on their group. They must listen to what the other groups are saying and check it off if they have the same idea on their paper.

6. Go around to each group and list the idea on the overhead. You can give the group with the last idea recorded a typical classroom reward.

7. Introduce the idea of an acrostic if your students have not had experience with acrostics. Use the example in the Lesson Appendix if it is not the same word you are going to use as a model.

8. Tell students that next they are going to develop an acrostic for the class word. Each group will be assigned one letter and they must come up with a phrase for that letter that begins with the letter. Take one of the letters and an idea you listed to give them an example. The phrase must describe the word that makes up the acrostic.

9. Next, assign each group one letter of the word and give them time to come up with their phrase.

10. While they are working, list the class word on posterboard vertically leaving enough room to write in their phrases. As groups get done they should bring their

phrase up to you for approval and recording.

11. As each group gets done tell them each person must decide on their own word from the brainstorm list for which they will write an acrostic.

12. Once students choose their word they should follow the same procedure they practiced as a class: brainstorm words or phrases, fit the words or phrases to the acrostic (rough-draft), get teacher approval, and make a final draft on white paper in pencil first. When the pencil final is done have them check with the teacher before outlining what they wrote with markers.

13. Give students time to complete their acrostic.

14. Post the complete acrostics on a bulletin board or bind them into a class book.

Extension: Students can illustrate their acrostic by drawing and coloring a picture of their word or illustrating the paper their project is on.

Deer are herbivores and eat plants in the forest. In the winter they eat roots and twigs



Every year male deer grow new antlers.

Even though we didn't see deer on our forest hike we saw deer scat and deer prints in the dirt of the path.

Recognize deer prints by their heart- shape

