Field Trip to the Sakonnet Greenway Trail

Directions to the Trail

The Sakonnet Greenway Trail is located on the east side of East Main Rd. in Portsmouth, between Sandy Point Ave and Union Street across from Oakland Farm Road. The entrance approaches fast and is tight, so be mindful after you pass Union Street (from the North) or Sandy Point Ave (from the South). On the web, at **Google.com** . . . type in Newport Polo Grounds, Portsmouth RI for a driving map.

Two big stone pillars mark the entrance of the Glen Farm Area with sports fields on each side. Continue down Linden Lane past the Brown Farm house (which is actually yellow), parking can be found in the open field on the left behind the stone wall. Look for the trail kiosk which marks the beginning of the Trail on the south side of Linden Lane. The Trail proceeds south from the kiosk along the stonewall.

Things to Remember

- Please use caution when crossing roads (e.g. Sandy Point Ave. and Bramans Lane)
- Hands on interactive learning is encouraged, but please take only photos and leave only footprints
- Silence is good when observing nature!

Things you may want to bring

- A drink
- Snacks for a break
- Note pads and writing utensils
- Binoculars and magnifying glass (if desired)
- Bug spray, sun screen and hat (recommended)
- Field guides of native species (if available)
- Additional clothing if weather is questionable
- First-Aid kit


You Are HERE
St. Mary's Pond
Linden Lane
The Glen
Leonard Brown House
Pennfield School
SANDY POINT AVE.
See Rules & Regs. panel for a closer look at open trails
Loop Trail
EAST MAIN ROAD
BRAMAN'S LANE
Sakonnet River
N
W
E
S
Newport National Golf Course
MITCHELL'S LANE
WAPPING ROAD
WYATT ROAD
Aquidneck Land Trust's
Sakonnet Greenway Trail
Approximate location of future section of the Sakonnet Greenway Trail
0 .25 .5 miles
Properties conserved by the Aquidneck Land Trust
Pedestrian and Equestrian Use
Pedestrian Use Only
Parking
The more clearly we can focus our attention on the wonders and the realities of the universe, the less taste we shall have for destruction.
–Rachel Carson

FOREST ECOLOGY

Grades 9-12:

GLEs/GSEs: (from *The Living Environment*)

- ☑ Benchmark 2 of 3— Flow of Matter and Energy

  By the end of the 12th grade all students will know that-- **The amount of life any environment can support is limited by the available energy, water, oxygen, and minerals,** and by the ability of ecosystems to recycle the residue of dead organic materials. **Human activities and technology can change the flow and reduce the fertility of the land.**
- ☑ Benchmark 2 of 3— Interdependence of Life

  By the end of 12th grade all students will know that-- Like many complex systems, **ecosystems tend to have cyclic fluctuations around a state of rough equilibrium.** In the long run, however, ecosystems always change when climate changes or when one or more new species appear as a result of migration or local evolution.
- ☑ Benchmark 3 of 3— Interdependence of Life

  By the end of 12th grade all students well know that-- Human beings are part of the earth's ecosystems. **Human activities can, inadvertently or deliberately, alter the equilibrium in ecosystems**.

Context for Lesson Plan:

- The purpose of this lesson is to provide students with direct experiential connections to their natural environment. Concerns about Nature Deficit Disorders (NDD)[1] and the No Child Left Inside (NCLI)[2] act both support the need for children and teenagers to explore, observe and interact with nature and wildlife. During a field trip to Sakonnet Greenway Trail, students will be able to see the many facets of our local natural habitat and engage in fun activities that stimulate intellect, memory, and observation skills.

Opportunities to Learn:

- **On the trail . . .** students will be hiking through natural environments, on properties that have been conserved by the Aquidneck Land Trust. The Aquidneck Land Trust is a (501)(c)(3) non-profit organization that works to preserve Aquidneck islands open spaces and natural character for the lasting benefit of our community. On the trail there are numerous areas where invasive species, meadow to forest succession, and natural and urban disturbances can be discussed as well as many places to talk about the natural history of the island. Students can enter discussion or debate as to how and why certain circumstances persist, why some forms of wildlife are

[1] Last Child in the Woods, by Richard Louv
[2] http://www.naaee.org/ee-advocacy

abundant and others aren't, and how living things are connected to their environment, including humans.

Objectives:

- For students to realize that the natural environment is a source of knowledge that is available at a local and global scale.
- Students will demonstrate an understanding that the environment goes through cyclic fluctuations, whose origins can be natural or anthropogenic by completing the vocabulary worksheet and food web worksheet.
- Students will gain a better understanding of the interconnectedness occurring in the environment through participating in the web of life activity worksheet.
- Students will strengthen observation skills by creating visuals and explaining the observations they made on the trail by completing the drawing worksheet.
- Students will be able to summarize, assess, provide examples of and discuss the how the Earth's natural resources can be found everywhere and how humans use/rely on them.

Instructional Procedures: (Lesson Format)

This lesson plan can begin with the attached vocabulary worksheet. Terms on the worksheet should be discussed in class based on the grade level and student ability before and after the field trip. Also, at the end of the field trip, previous knowledge of the outdoors and what it contains should be reviewed and talked about in relation to what was seen on the field trip.

Various activities can be conducted in any order based on the teachers' discretion and correlated to the above benchmarks in any manner.

<u>Web of Life Activity</u>:
Assign the class an index card of an animal, plant or other Biotic or Abiotic factor (song bird, squirrel, acorn, berry, earthworm, stream, tree, sunlight, ect.) to represent. Choose a student to be a keystone predator (top predator like a red tailed hawk) of the local ecosystem and have them stand in the center with a ball of yarn, with the other students in a circle around the student representing a keystone predator. Proceed next to have students that may represent a valuable resource to the student holding the yarn, pronounce what they are and they will then be passed the yarn ball to hold on to a part of the string if the connection is logical. Teachers should facilitate, via hand raising or calling out, proper passing of the yarn ball until either, the end of the yarn ball is reached or students can think of no further connections. Students may be holding more than one part of yarn at the end.

At the end ask a student representing a little bird or a berry from a bush to tug the part of yarn he/she is holding. *Did an ant or any other aspect of the ecosystem feel IT? For instance, is a berry really that important?* With all the connections of an ecosystem, every animal, plant or natural resource plays a valuable role. As you are dismantling the yarn have a conversation about what conditions would cause

different animals, plants, or other natural objects to disappear (development, pollution, resource exploitation, etc.).

Drawing Worksheet: This worksheet provides the students with the ability to develop their individual creativity and artistic ability. Each student should get a worksheet but they may work in groups to provide social comfort and successfully complete the task. After all students have completed the worksheet teachers can choose to let the students keep them or collect them and analyze later so that back in the class leaf shapes and characteristics can be discussed.

Food Web Worksheet: The food web worksheet can be an individual or group task. It serves to facilitate the discussion, brainstorming and understanding of how humans can inadvertently or deliberately alter the cyclic fluctuations of an ecosystems' equilibrium by removing too much (overexploiting) of a natural resource or organism. Teachers should assist students in developing the list of biotic factors that may be found on the trail.

Assessment:

Grading for this lesson will rely on teacher discretion, but all students should demonstrate a better understanding of The Living Environment as specified in the GSE's above. Worksheets can simply be given a √ or √+ for completion. A short summary of what the student learned or took an interest in from the field trip should be required once back in class as a means of evaluating grammar and English in the natural sciences.

Evaluation should be based on individual student's ability to understand and provide examples of: effects of human technology and activity on the natural environment as a whole, that ecosystems fluctuate around a rough state of equilibrium, and that humans can affect environmental systems inadvertently or deliberately as well as the connectedness of the natural environment and human existence on a scale of (1-4); (1) meaning the student lacks the ability to demonstrate an understanding of the benchmarks, (2) meaning the student has the cognitive ability to recognize the outlined benchmarks but lacks the ability to confer their knowledge onto paper, (3) meaning the student has shown the ability to recognize and translate examples outlined in the benchmarks or (4) the student has a very strong understanding of the living environment and can successfully complete all worksheets as specified in the directions.

Materials:

- Field guide or handout of commonly observed wildlife and plant species (if available)
- Big bundle of yarn, worksheets (included), pencils, pens, a note pad to document observances and take notes, binoculars, magnifying glass and a clip board if desired
- Snacks and water bottles for a break, and sun block, hats and insect repellant recommended

Suggestions for Teachers:

1.) Walking the trail, teachers should ask questions (at increments throughout the trail) in order to draw on the students observations and reinforce prior classroom knowledge so students can see connections between their observations on the trail and concepts like habitat, community, and ecosystem.

2.) At the end of the trail gather to ask questions about different observations noted as the trail was walked, and discuss as many topics and correlations as possible . . .

- ❑ During the walk did anybody notice the different habitats? And what ones were noted?
- ❑ Compile a cumulative class list of all the living and non-living aspects of the trail that may be present during any given cyclic state to bring back to the classroom.
- ❑ List some ways in which humans interact with the environment (compare and contrast)

Intended Outcomes:

Students should finish the day and have confidence in their ability to distinguish different habitats, the resources that those habitats provide for both plants and animals and some patterns and similarities that occur within those habitats. Students should increase their vocabulary and improve their ability to converse intelligently about environmental sciences as well as feel more comfortable and at ease when outdoors and surrounded by their natural environment.

Name: _____ **Vocabulary Work Sheet** Date: _____

Directions

1.) Fill in each of the blanks with the proper word from the word box below.

ecosystem	**community**	**species**
population	**ecology**	**biotic factor**
abiotic	**environment**	**carrying capacity**

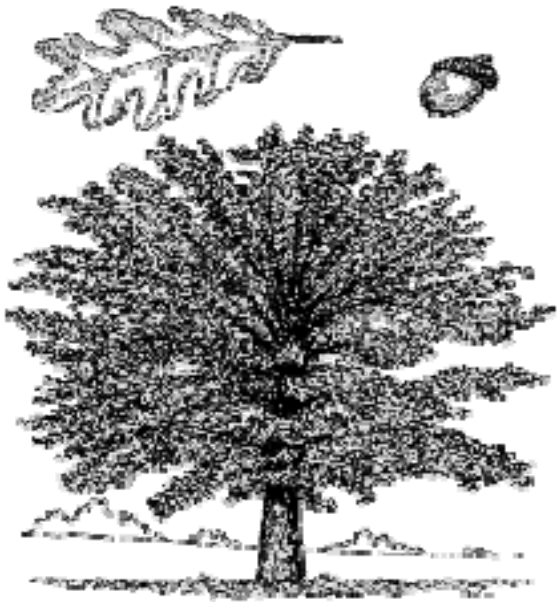
1.) A population of more than one species that interact with each other and their environment in an area is a _____.
2.) A specific species that inter-breed and live in the same place at the same time is called a _____.
3.) A _____ includes living organisms and the non-living environment of an area functioning together as a unit.
4.) The _____ environment consists of all non-living things.
5.) All of the external Abiotic and Biotic surroundings of a particular area is referred to as the _____.
6.) A _____ is of or pertaining to living organisms.
7.) The word _____ refers to the study of interactions of living organisms with each other and their environment.
8.) The number of individuals or biomass of a species that an ecosystem can support is referred to as the _____.
9.) A group of organisms that have similar characteristics and reproduce together are called a _____.

<u>Bonus Question:</u>

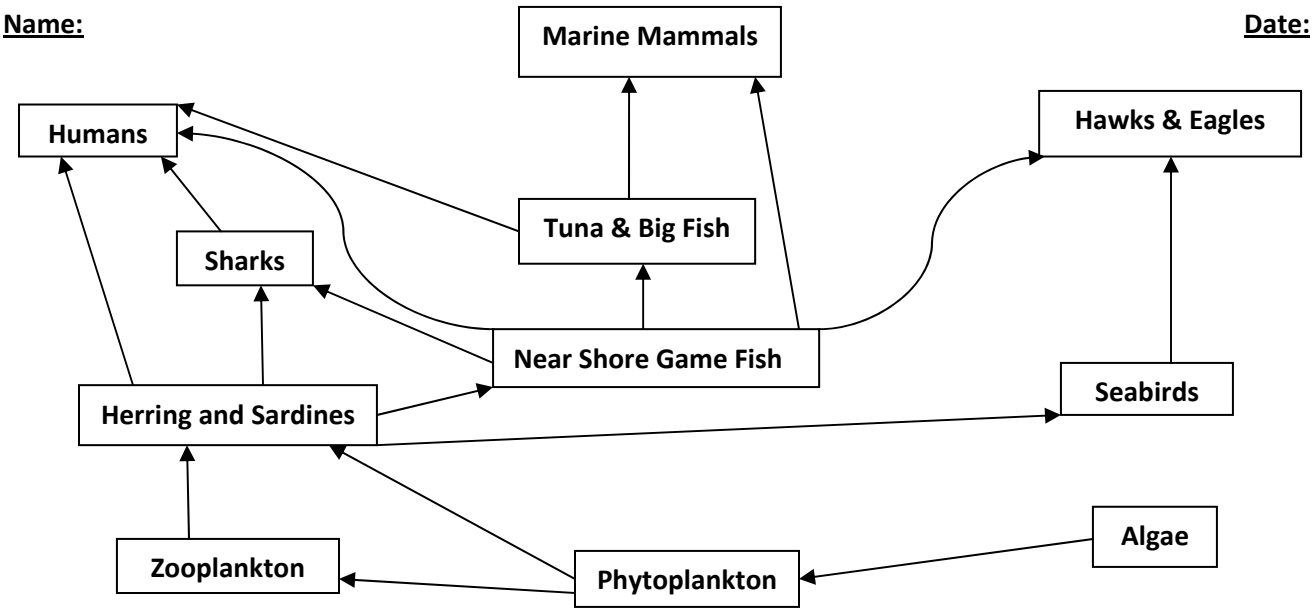
List some factors that are involved with the cyclic fluctuations of ecosystems:

Name: _____ **Date**: _____

Directions: Along the trail there are many different resources. Find, name and draw a few examples described below.

example**:** **Oak Tree** 	Name and Draw the nut of an Oak tree: _____
A resource for a Rabbit: _____	A Resource for a hawk: _____

Name: **Date:**



Directions: Construct a terrestrial food web that reflects the complexity of the natural environment. Include all living organisms from underground to the canopy of the forest above. Start by completing the list to the left of all the biotic factors that may be found on the trail, and then construct a web similar to the above aquatic food web showing resource connections.

After building your web, defend the connections you decided on with your knowledge of ecology and species interaction. Then discuss variables/situations that could cause cyclic fluctuations within the ecosystem as a class, human consumption and overexploitation being one of them.

Biotic Factors

-
- Med sized birds
-
-
- Deer
-
-
- Plants & Shrubs
-
-
- Detritus
-

Bonus

-
-
-