

Freshmen Integrated Project: Science Portion (CP Biology and Life Science)

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The freshmen project involves visiting a local or national park and spending time hiking, observing wildlife, and becoming familiar with the natural and human history. The science portion of the Freshman Integrated Project will focus on the ecological aspects of the part and consists of three parts. *****This will be counted as a project grade in all science classes, which is approximately 10% of the overall class grade. *****

1. Observing the natural communities and ecosystems in selected park and identifying abiotic and biotic factors.
2. Collecting visual information about the park in the form of photographs taken by the individual, and including the scientific classification of each organism.
3. Exploring two human impacts that affect your specific park and the corresponding solutions for each.

Part 1: Ecosystem Identification

1. Identify in bullet point form - 3 biotic factors different from your photographs (types of animals, plants, fungi)
2. Identify in bullet point form - 3 abiotic factors specific to your ecosystem (amount of precipitation, average daylight in winter vs. summer, average temperature, etc...)
3. Identify main type of ecosystem that describes your park
 - a. Name of ecosystem and BRIEF description (no more than 3 sentences)
 - b. Describe 2 types of communities in your ecosystem – name of community and no more than 3 sentences describing each

Examples of possible communities or ecosystems you may encounter on your hike:

Riparian/ fresh water ecosystem: creek/ stream, grasses, many trees.

Wetlands: marsh habitat or estuary (where salt and freshwater meet).

Chaparral: a desert-like coastal community with shrubs and small trees.

Redwood/ conifers: redwoods, pines, cooler temperatures, little ground covering.

Meadow: pond, grasses, wet ground with wild flowers

Ocean/ coastal: marshes, beach/ sand, tide pools



4. Identify and explain 2 examples of symbiosis (commensalism, parasitism, and mutualism), 2-3 sentence descriptions.
5. Identify 2 predator/prey relationships, 2-3 sentences each. You may not actually see one, but look for evidence such as circling hawks, lizards in strike pose, big fat snake! You can also describe interactions that occur in your ecosystem even if you don't see the actual interaction.

Part 2: Photo Gallery - total 10 pictures

All photos need to have a time and date stamp. Photos from websites or park pamphlets will not be accepted. All photos must be original and taken by the student. All pictures must be appropriate for school (no pictures in swimsuits, shirtless, inappropriate gestures)

1. Photo with time and date stamp of student at site (park sign visible). Group photos are fine if you visit the park with friends. YOU must be in the picture.
2. Vegetation – minimum of 3 types
 - a. Examples: seaweed, algae, trees, flowers, brush, etc...
 - b. Include classification – Genus species (*Acacia dealbata*), common name – silver wattle acacia tree
3. Animal life – minimum of 3 types
 - a. Examples: insects, birds, small mammal, reptiles, evidence of animals such as scat, nests, footprints... road kill doesn't count!
 - b. Include classification - Genus species (*Canis lupus*), and common name (wolf)
4. 'Big picture' photos of community/ecosystems – 3 types
 - a. Identify type of community/ecosystem
 - b. **Briefly** describe the community or ecosystem – no more than 3 sentences!



Part 3: Human Impacts

1. Examine 2 different and **specific** environmental impacts that humans have had on your park. Refrain from simply using generalities such as "pollution". Research precise detrimental effects of humans on *your* specific park. For example, sewage leaks on beaches, building on or close to protected lands (land encroachment), trash, etc. Each impact should be a minimum of one paragraph.
2. Describe at least one possible solution for each of the environmental impacts. Must be specific for your park and your issues.
3. Example – this is a shortened version of what you should be looking for in the human impact section.
 - a. Park: Mount Shasta
 - i. Issue – damage to ecosystems from hikers walking off trails and cleaning up trash and fully extinguishing campfires
 - ii. Solution – limit number of hikers by requiring permits, fines for littering, going off trail, and fires left burning. Increase number of rangers and/or volunteers.



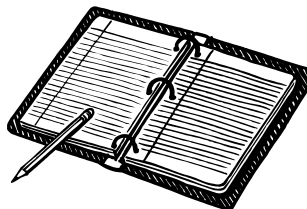
Finished Product

All three parts will be organized into a single project to be turned in to your science teacher on April 7, 2011 (A days) or April 8, 2011 (B days). LATE PROJECTS WILL NOT BE ACCEPTED – NO EXCEPTIONS! You may turn your project in early, but not late.

- Projects will be organized in a project folder (NOT a 3 ringed binder)
- Projects must be typed
- Projects must use color
- All writing must be original – no cutting and pasting.
- Parks may be visited with friends, however projects must be original – no duplicate projects may be turned in
- If the park is visited with a friend who is also doing the freshman project, you must include the names and classes (teachers and periods) your friends are in.

Projects will be organized using the following format:

1. Title page containing:
 - a. your name, your class
 - b. your period
 - c. the due date
 - d. the name and location of your park
 - e. the dates you visited and who you visited with
2. A table of contents listing all components and the corresponding page numbers.
3. The 3 different parts must be in the order given and must contain main headings (as provided above in the explanation).
 - a. Part 1 – all sections must be in the order given above and contain headings
 - b. Part 2 – photos must all be captioned and in order with heading
 - c. Part 3 – written in paragraph format
4. A conclusion page stating what you have learned from your experiences visiting the park
5. A reference sheet (properly formatted as you learned in English class – MLA format)



**** Signed sheet with selected park must be turned in by Friday 1/14/2011****

Freshmen Park Project – Science Student and Parent Acknowledgment Sheet

Student name: _____

Science teacher: _____ Period: _____

Park visiting: _____

I have read and understand all the requirements for the science portion of the freshmen integrated project. I am familiar with the rubric and how the project will be graded. I understand the project is due on January 13 (A days) – January 14 (B days) and that absolutely no late projects will be accepted for any reason. If I have any questions or concerns regarding the project I will contact the teacher at least one month before the project is due to resolve the issues with plenty of time for the project to be completed by the due date. I understand that if there are any changes to my plans for visiting a certain park, I will inform my teacher at least 3 weeks prior to the due date.

Student Signature: _____ Date: _____

Parents: Please sign that you have read the requirements and understand the responsibilities of your child in completing the project.

Parent name: _____

Parent Signature: _____ Date: _____