**Nat Geo Certification Lesson**

*Please Note: This lesson plan should be your own work and written in your own words with sources cited. You are encouraged to take inspiration from sources such as Nat Geo or Alliance resources, but you are expected to build upon them to create your own unique plan.*

**YOUR NAME: Dr. Patrick Blessinger**

**LESSON TITLE:** Developing geographic learning through ecological inquires of water ecosystems in New York City

**RECOMMENDED GRADES:** 6

**TIME NEEDED:** (a full day activity, includes travel time to and from site)

**Activity 1**: four hours; **Activity 2**: two hours

**OBJECTIVES:**

Students will: use field-based geographic inquiries to develop meaningful understanding of local ecological systems.

1. Lesson will be based on an extension of the New York Geographic Alliance Waterways NY Project (see <http://www.nygeographicalliance.org/chesapeake-project>) wherein students will learn about local (in New York City) water ecosystems by participating in the Waterfront Stewardship Program at Randall’s Island Park (see <https://randallsisland.org/>) in the Bronx, New York City
2. Students will be able to develop an understanding of how local ecosystems work by gaining real-world, first-hand experience by engaging in a field trip study of a local ecosystem
3. Students will be able to name and describe the process by which local ecosystem(s) work, focusing mainly on the relationship between the local geosphere and hydrosphere
4. Students will be able to name and describe the main wildlife (e.g., birds, primates, mammals, amphibians, fish) that inhabit the local ecosystem(s)
5. Students will be able to describe the links in the food chain/web for the local ecosystem(s)
6. Using the knowledge they have gained from learning objectives 1-4, students will be able to construct a map that accurately depicts the local ecosystem(s)

**MATERIALS:**

What materials will need to be gathered or prepared for this lesson?

Students will visit a local park, reserve, or similar outdoor venue where they can observe species in their natural habitat and how they interact within their ecosystem.

Students will take on the role of a scientist as they explore the ecosystem. Students will record their observations in a journal and make notes for questions. Students will also make drawings of the wildlife and he landforms they see.

**PREPARATION:**

What should be prepared in advance?

Teacher should review with students the basic knowledge of ecosystems. Students should bring a pencil and notebook/journal to record their findings.

**DIRECTIONS:**

How does the lesson work, step by step?

**Activity 1 (phase 2)**

1. Teacher prepares students by discussing what outdoor venue they will visit
2. Teacher reviews basic knowledge of ecosystems and wildlife habitats
3. **Map It Introduction.** Teacher reviews basic map models terminology and uses NatGeo’s MapMaker Interactive (see <http://mapmaker.nationalgeographic.org/>) to show students where they will be visiting and the names/descriptions of the waters systems, landforms, etc. that make up and surround the place they will visit and the NatGeo MapMaker Kits (<http://nationalgeographic.org/media/mapmaker-kits-101/>) to teach basic map making concepts.
4. Show students a NatGeo video on restoring water ecosystems (see <https://www.youtube.com/watch?v=bBFnld444iI> and <https://www.youtube.com/watch?v=RNz7nb4peTU>) and explain the importance of the human-environment relationship and the fragility and importance of water ecosystems.
5. Teacher explains the learning objectives that the students will be responsible for and how they are to fulfill each objective
6. **Get Outside.** Teacher (and chaperones) escorts students to the outdoor venue and supervisors their participation
7. **Care about the Planet Introduction.** Teacher or the local field guide experts (if available) will educate students on the specifics of the local ecosystem (i.e., how it works, names and descriptions of most important wildlife and plants and water systems) and why it is important to protect the planet we inhabit
8. Students take notes on what they learn and make drawings of their observations

**Activity 2 (phase 2)**

1. **Care about the Planet Revisited.** Students return to the classroom and teacher reviews and assesses what they have learned during the field trip and why it is important to protect the local ecosystems
2. **Map It Activity.** Students are given directions on how to construct a map of the ecosystem they visited
3. Students are given the necessary materials (e.g., construction paper, glue, color markers) and instructed to construct a model of the ecosystem they visited
4. Student maps should contain labels, a legend/scale, and should accurately depict/name the wildlife, plants, and water systems (e.g., marshes, ponds, lakes, streams, rivers, bays, sounds, oceans) they observed and based on information from their field journals.

**MODIFICATIONS:**

Suggest ways in which the lesson might be modified for specific student audiences, different abilities, etc.

Some students may focus more on the wildlife due to an interest in that area and other students may focus more on plants or on water systems due to an interest in those areas but all students should depict the major components of the ecosystem.

**EXTENSIONS:**

How might you extend this lesson to enhance the learning?

This lesson can be extended into other map making projects. This lesson can be used as a springboard to learn about other types of maps such as political maps, landform maps, etc.

**LEARNING FRAMEWORK:**

How does this lesson connect with the attitudes, skills, and knowledge areas of the Learning Framework?

Students are taught the importance of wildlife management, maintaining sustainable ecosystems, and preserving and protecting the environment for future generations. This lesson is designed around the three areas of the NatGeo Learning Framework:

**Attitudes**: By visiting a real ecosystem and observing and engaging with wildlife and plants and water system, students learn to take on the role of explorer and they learn to think like a scientist. Students also interact with real environmental conservationists and biologists who model for them what is means to be a scientist. They also learn to develop an attitude of responsibility and are taught to respect the environment and take care of our planet.

**Skills**: Students are guided through the ecosystem by professional scientists and they learn to develop their powers of observation through journaling and drawing what they observe. Students develop communication skills by learning how to construct a map model (using a variety of visual media) and of the ecosystem they engaged with and explaining their model to their classmates and teacher. Students work in teams to construct their model so they collaboration and problem solving.

**Knowledge**: Students acquire important foundational knowledge about the world we live in and how geographic systems work together. Getting student outside and interacting with their environment allows students to better understand their environment, where we have come from, and why we must protect the environment for future generations. In this ecosystem project, students learn the important of different species, how different systems interact and depend on each other and what the future may hold for the plant.

**VOCABULARY:**

What new vocabulary will students need to learn to complete this lesson?

Students will need to learn the major terms related to ecosystems, water cycles, food chains, and be able to correctly identify the major animals, plants, and water systems within the ecosystem.

**ASSESSMENT:**

How will students be assessed for this lesson?

Student map models will be assessed by comparing it with the actual map of the local ecosystem visited. Teacher will assess for accuracy and completeness of identification of animals, plants, and water systems. Teacher will assess the map models on the accuracy and completeness of the relationships of the animals, plants, and water systems.

**CAPSTONE VIDEO PROJECT (phase 3)**:

See video for portfolio exemplars of final products produced (**activity 2**): <https://www.youtube.com/watch?v=anQcUshvlvs&t=1s>

**RESOURCES:**

What outside materials did I use to support this lesson? Please include links.

My class visited Randall’s Island Park and participated in the Waterfront Stewardship Program – see <https://randallsisland.org/>

Specifically, my class participated in the Salt Marsh Exploration Course – see <https://randallsisland.org/content/uploads/2016/03/Randalls-Island-Waterfront-Stewardship-Program_Course-Descriptions_2014.pdf> and <https://randallsisland.org/content/uploads/2016/03/Randalls-Island-Waterfront-Stewardship-Program-Description_2014.pdf>

My students were given a lesson book (<https://randallsisland.org/content/uploads/2016/03/RIPA-Waterfront-Strewardship-Activities-Booklet-20141.pdf>) that they used, together with their journal, to learn about the ecosystem and to help them construct their ecosystem maps. This structured curriculum also engaged students in several learning activities to help them build their knowledge and skills.

Other resources used to help build map making skills and geographic knowledge:

<http://www.nygeographicalliance.org/>

<http://www.nygeographicalliance.org/resources>

<http://www.dec.ny.gov/lands/26561.html>

<http://www.dec.ny.gov/lands/48375.html>

[**https://nationalgeographiceducation.submittable.com/submit/62666/certification-phase-3-multimedia-reflection-form**](https://nationalgeographiceducation.submittable.com/submit/62666/certification-phase-3-multimedia-reflection-form)

[**http://nationalgeographic.org/education/programs/educator-certification/program-requirements**](http://nationalgeographic.org/education/programs/educator-certification/program-requirements)

**http://media.nationalgeographic.org/assets/file/Capstone\_Criteria.pdf**

<http://www.gcacs.org/>

http://www.gcacs.org/District/Class/146-Class-6-3