OOB SCHOOLS

"2015 Conservation Commission Project"

Grade 4

PROJECT-BASED LEARNING (PBL)

Subjects:

ELA, Science, Social Studies, & Technology

Grade Level:

4

Driving Question:

How can we help the OOB Conservation Commission educate our community about biodiversity and conservation in the new Milliken Mills trail area?

Project Background:

Children tend to be interested in animals, plants, and nature in general, yet many lack opportunities to explore and learn about the natural world around them. The Old Orchard Beach Conservation Commission wants to partner with OOB schools to increase school and community use of local conservation areas, particularly the new trails and proposed children's area on the Milliken Mills Trail property. As part of the **Milliken Mills Conservation Project**, fourth graders will help educate the OOB community about the importance of biodiversity and conservation. We'll do this by investigating the Milliken Mills Trail and similar conservation areas; learning about animals and plants that may be found locally; and sharing what we learn through presentation formats such as physical and digital signs, posters, field guides, and a website for the new conservation area.

This project integrates science, reading, writing, and community involvement. Students will practice science skills by asking questions, investigating, observing, and explaining an organism's traits and life cycle. They will cultivate their informational literacy abilities by choosing a local plant or animal to research and write about, eventually packaging together text, visual supports, and audio-visual recordings that adhere to professional publication guidelines. To carry out the project, students will meet as a class with Conservation Commission members who will explain the project, help set goals for the work, and provide feedback midway and just prior to publication. Students will visit websites and read materials (maps, signs, articles, etc.) from other conservation areas, such as the Blueberry Plains (OOB) and Mt. Agamenticus (York). They will use materials from these areas and from a professional sign company's website as models for their products. They will choose an organism, conduct formal research, draft an informational presentation, seek feedback, revise, and publish their informational piece in one or more safe community venues (e.g., trail sign, kiosk, town hall, conservation commission website).

Students may extend their involvement by investigating and presenting on a Maine endangered species, local history, land use, or citizen science. They could also propose and design a feature for the children's education area, such as a story walk or natural playground. They will learn about these options through shared reading and discussion during reading class.

For more background on the need for this project, read *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* by Richard Louv, and/or watch this short video.

Content & Standards:

The **Conservation Commission** project reflects the following OOB K-12 Proficiency Standards for science, ELA and social studies. It teaches students the following content and skills and how to apply them in a real world scenario.

Common Core Standards:

ID	Category	Sub Category	Standard
W.4.2	Writing	Text Types & Purposes	Write informative/ explanatory texts to examine a topic and convey ideas and information clearly
W.4.4	Writing	Production & Distribution of Writing	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
W.4.5	Writing	Production & Distribution of Writing	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
W.4.6	Writing	Production & Distribution of Writing	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others.
W.4.7	Writing	Research to Build & Present Knowledge	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
W.4.8	Writing	Research to Build & Present Knowledge	Recall relevant information from experiences or gather relevant information from

			print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
SL.4.1	Speaking & Listening	Comprehension & Collaboration	Engage effectively in a range of collaborative discussions (one-on-one, in teams, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own ideas clearly.
SL.4.4	Speaking & Listening	Presentation of Knowledge & Ideas	Report on a topic… sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
SL.4.5	Speaking & Listening	Presentation of Knowledge & Ideas	Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
L.4.1	Language	Conventions of Standard English	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.4.2	Language	Conventions of Standard English	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.4.3	Language	Knowledge of Language	Use knowledge of language and its conventions when writing, speaking, reading, or listening.

Next Generation Science Standards (NGSS)

- Students can explain how the structures of organisms contribute to life's functions;
- Students understand how organisms grow, develop, and reproduce;
- Students understand how organisms obtain and use matter/energy and how matter/energy move through an ecosystem;
- Students understand how organisms interact with other organisms in the physical environment to obtain energy and matter.

This project reflects the following suggested objectives for grades 3-4 life science:
3-LS1-1. (Develop models to describe that) organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
3-LS2-1. (Construct an argument that) some animals form groups that help members survive.
3-LS3-2. (Use evidence to support the explanation that) traits can be influenced by the environment.
3-LS4-2. (Use evidence to construct an explanation for how the) variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
3-LS4-3. (Construct an argument with evidence that) in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*
4-LS1-1. (Construct an argument that) plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
4-LS1-2. (Use a model to describe that) animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

C3 (Community, College and Career Readiness)

This project reflects the following standards:

- Enhance the rigor of the social studies disciplines.
- **Build critical thinking, problem solving, and participatory skills to become engaged citizens.**
- Align academic programs to the Common Core State Standards (CCSS) for English Language Arts and Literacy in History/Social Studies.

International Society of Technology in Education (ISTE) Technology Student Standards

1. Creativity and innovation
Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
a. Apply existing knowledge to generate new ideas, products, or processes
b. Create original works as a means of personal or group expression
c. Use models and simulations to explore complex systems and issues

2. Communication and collaboration
Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats
c. Develop cultural understanding and global awareness by engaging with learners of other cultures
d. Contribute to project teams to produce original works or solve problems

3. Research and information fluency
Students apply digital tools to gather, evaluate, and use information.
a. Plan strategies to guide inquiry
b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
c. Evaluate and select information sources and digital tools based on the appropriateness to

specific tasks

4. Critical thinking, problem solving, and decision making
Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using
appropriate digital tools and resources.

a. Identify and define authentic problems and significant questions for investigation
b. Plan and manage activities to develop a solution or complete a project
d. Use multiple processes and diverse perspectives to explore alternative solutions

5. *Digital Citizenship*
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

a. Advocate and practice safe, legal, and responsible use of information and technology.
b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
c. Demonstrate personal responsibility for lifelong learning
d. Exhibit leadership for digital citizenship

6. *Technology operations and concepts*
Students demonstrate a sound understanding of technology concepts, systems, and operations.

a. Understand and use technology systems
b. Select and use applications effectively and productively
c. Troubleshoot systems and applications
d. Transfer current knowledge to learning of new technologies

Sequence of Project:

Project Launch:

1. Kimbark Smith comes to Loranger to talk about new conservation land and trail and how they want the kids to help.
2. Introduce driving question: *How can we help the OOB Conservation Commission educate our community about biodiversity and conservation in the new Milliken Mills trail area?*
2. Rationale - What is biodiversity? What is conservation? Why are they important?
   - What is biodiversity? What is conservation?
   - Biodiversity Research Institute
3. Informational text read-aloud: Milliken Mills Forestry Plan
   - Features of informational text
   - Ask questions, "What do we need to know? How will this document help us set and reach goals?"
4. Information-gathering "trail walks" via Mrs. Nye's videos of Milliken Mills area (undeveloped trails) and Mt. Agamenticus (developed trails) Students make "need to know list" with teachers.
5. Students take interest survey and teams are created based on "need to know" list.
6. Team expectations are created & contracts signed.

Scaffolding & Managing the Project:

7. Students introduced to creativity and innovation rubric.
7. Mini-lesson on curating information digitally - teams create plan & share!
7. Visit Mt. Agamenticus website and find models for our projects, e.g., history, natural resources, plants, trail safety. Then groups dig deeper and take notes for their group work.
8. Teachers create a Resources document by task area (e.g., sign co website, Story Walk, trail bridge designs, kiosk models....we can show these to class as mini-lessons, and groups will dig deeper based on their needs)
9. Students identify and take roles within their teams (general work roles and special roles so everyone is busy all the time, not waiting to do a task :-) E.g., web manager will have research tasks, too)
10. Website design lessons for building our website
11. TBT based on team developments...
12.

Charlie Milliken's History of the land presentation
KB, Karen, John Bird, & members of OOB Conservation Commission come to class to reflect & give feedback.
Student teams who finish work & revise with experts work start building website with Mr. C

(Note- Experts to come in for each team to give whole class lessons followed by work with individual teams.)

Assessing & Showcasing Student Work:

Kiosk, Signage, bridges, etc. - more coming as students devise the plan!

Mini-Lesson Ideas (to organize!)

****Ideas Below..... Organize thoughts and order of events.*
(Purple indicates finished.)
Students introduced to the Maine Animal project
Show video of the walking trails and children's areas for students to see.
Show Mt. Agamenticus website
Show examples of trail signs from other areas. (Ex., Blueberry Plains, Mt. Agamenticus)
Show this Saco Heath video from the Nature Conservancy and visit on Trail Finder
Show sign website of David Arthur for comparing with our info text goals
Show Mrs. Nye's American chestnut video
Check points with Conservation Commission - Kimbark to come in and review work/suggest revisions 3 week & 6 week benchmarks!
~~Biodiversity GHO with Beth~~

Materials:

- iPads, Macbooks, & iMacs,
- Student Accounts:
    - Google Apps for Education (Classroom & Drive Suite of Tools)
    - Kid Blog
    - Weebly
    - Explain Everything
    - Student self-selected apps
    - Canva

Drafting/Brainstorming Ideas:

PBL Outline Example

- Conservation Commission member working on history signs
- DPW working on how signs are made.
- Mark Koenigs (engineer) could talk about kiosks (trail info booths)
- Minecraft to recreate trail
- 3D model of picnic area (Jesse)
    - 3D model of the animals on display somewhere?
- We need copy of CC plan of trail map
- Build website for CC linked to OOB town website.
    - Team could meet with town web developer
- Each child will research a Maine animal project and have freedom to choose presentation
- Extend into website, field guide, signs, could do plants, make a video for website, design proposal for children's area
- Pitch ideas midpoint to CC for reflection and revision
- Write story for our own storyboards?
- Apply for grant to showcase student work?

1. Place where we can go to "do"
2. Build conservation commission website to town website.
3. Dog pound side of road - kid friendly trail and picnic area
4. Create signage