

UTILIZING TECHNOLOGY WITH NATURE-BASED LEARNING IN THE ELEMENTARY  
SCHOOL CLASSROOM

by

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## Summary of Project Description

In order to further explore the research question, *How can nature-based learning and technology be combined to enrich learning experiences in elementary school classrooms?* I created a website consisting of ideas and lesson plans for teachers to implement in their own classrooms that intertwine both technology and nature-based learning. This website is geared towards teachers working with students in elementary school. While other grades can utilize these ideas, I began my focus mainly on first grade Minnesota State Standards in Science, English Language Arts and Mathematics subjects, however I will continue to update the website with future lesson plans for other elementary school grades.

The intended setting for this website project is for any teachers to have access to it in an elementary school that supports both indoor and outdoor learning. It is a resource used for teachers in schools that have access to outdoor nature and outdoor learning or have the willingness to allow students to utilize this website and tools on field trips to outdoor nature centers or on their own school grounds. It can be used in science, math and literacy classrooms and be able to incorporate into different subjects across elementary schools. The intended audience is elementary school students and this specific website provides activities for math, science, reading and writing. Students need access to tablets and have the ability to venture outdoors at least once a month or be able to bring different nature materials into their classroom. This website is intended to be used by teachers in the classroom as well as outdoors in nature.

This website has different lesson plans that incorporate MN State Standards in several subjects. The website incorporates several different lessons instead of weekly or a whole unit as I feel it is more realistic for all teachers to be able to use this curriculum in different public schools

across the state and tie into the MN State Standards. It is available so teachers can find different lessons on different subjects for their curriculum throughout the year. It includes lesson plans for Science, English Language Arts and Math. I categorized the lesson plans for specific units in the subjects and they can be intertwined between those subjects. All activities have the materials needed and provide the MN State Standards for the specific lesson. All activities incorporate using technology as well as outdoor learning in nature.

My website was created using a website builder called Weebly. It has an “about” section (See APPENDIX A), which describes my project and describes the purpose of my work. Another section “Research” (See APPENDIX B) includes various quotes from research findings for explaining the benefits of using nature-based learning and technology together. It also lists different sources that have been found throughout research done during the literature review. Next, there is a number of lesson plans with objectives related to English Language Arts, Science and Mathematics Common Core Standards (See APPENDIX C). These website pages provide step-by-step instructions with an overview of the lesson materials, content standards and any various PDF or materials that may be provided, if needed (SEE APPENDIX D).

These lessons include various modes of use of technology as well as nature-based learning. They include activities done with tablets, journaling, nature-walks and observations. This website provides lesson plans that can be implemented flexibility throughout the school year depending on the units. The lessons are made to incorporate the different seasons of Minnesota and will build off of key skills throughout the school year. The lessons can be modified and changed for specific units or grades. The hope is that students have more access to

nature-based learning while utilizing technology and gain benefits from both learning outdoors and learning from using technology.

Building a website to help other teachers is a crucial part of teaching and ensuring that students are learning to the best of their ability. Whenever creating a website, many factors have to be considered including current best practices, state standards, learning targets, and your target audience. I created a website that focuses on different activities and lesson plans. This website helps to highlight research I have done and be a useful and user-friendly resource for teachers.

Website Link: <https://naturebasedlearningandtechnology.weebly.com>

## APPENDIX A

### About section

# Nature-Based Learning and Technology

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## About Nature-Based Learning and Technology...

It is a passion of mine for students to be able to incorporate technology as well as be able to express learning through the outdoors and I feel that the two topics can mirror one another. In the interest of finding out more information regarding students using technology in nature, I decided to research the following question: ***How can nature-based learning and technology be combined to enrich learning experiences in elementary school classrooms?***

I decided that the best way to share my research is to create this website where students and teachers can use the information and lesson plans in their classrooms that will intertwine both technology and outdoor nature-based learning experiences. This website incorporates different lesson plan ideas for 1st grade students in subjects of science, mathematics and reading and writing. All lesson plans tie to different MN State Standards but can be modified to fit your own classroom.

## APPENDIX B

### Research and quotes section

# Nature-Based Learning and Technology

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## Research found on utilizing Nature-Based Learning and Technology

*Parents are able to be connected to their students' lives at school and have quick access to their child's teachers with the use of apps such as SeeSaw and Schoology. Students are also able to record their own voices which helps with speech and language difficulties, allowing students to hear and record their voice (Dunn & Sweeney, 2018)*

*According to a 2018 study done by Hougham, Nutter, and Graham, outdoor lesson planning did not detract from students' learning experiences and helped to increase students' confidence and interest in digital tool uses.*

*Today's 8 to 18-year-olds spend an average of seven hours and 38 minutes per day on entertainment media such as TV, video games, computers and cellphones, leaving little time for nature exploration or much else (Holloway & Mahan, 2012)*

*Nature walks can be observed within the school boundaries, the playground, trees or plants outdoors, as well as even the cracks in the sidewalks*

### Sources:

Holloway, P., & Mahan, C. (2012). Enhance Nature Exploration with Technology. *Science Scope*, 35(9), 23-28. Retrieved from <http://www.jstor.org.ezproxy.hamline.edu:2048/stable/43184737>

Hougham, R. J., Nutter, M., & Graham, C. (2018). Bridging Natural and Digital Domains: Attitudes, Confidence, and Interest in Using Technology to Learn Outdoors. *Journal of Experiential Education*, 41(2), 154-169. <https://doi-org.ezproxy.hamline.edu/10.1177/1053825917751203>

Dunn, J. & Sweeney, T. (2018), Writing and iPads in the early years: Perspectives from within the classroom. *Br J Educ Technol*, 49: 859-869. doi:[10.1111/bjet.12621](https://doi.org/10.1111/bjet.12621)

Louv, R. (2009). Do Our Kids Have Nature-Deficit Disorder? *Educational Leadership*, 67(4), 24-30. Retrieved from: Ebsco Database

## APPENDIX C

### Common Core Standards

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### **Introducing Biomes:**

Students will be able to describe a biome. They will create biome boxes for a specific animal with partners. They will gather their materials outside for their natural habitats. Students will research their animals and biomes on the application PebbleGo. They will make sure that their animal's habitat materials they find outdoors match the habitat on PebbleGo.

#### Materials Needed:

iPad, natural materials from outside (rocks, sand, twigs, etc.) PPT,

#### MN State Standards:

#### **1.4.1.1 Characteristics & Behaviors**

Describe and sort animals into groups in many ways, according to their physical characteristics and behaviors.

#### **1.4.2.1 Animal Needs**

Recognize that animals need space, water, food, shelter and air.

#### **1.4.2.1.2 Habitat & Needs**

Describe ways in which an animal's habitat provides for its basic needs.

## Patterns in Nature

Students will bring their iPads outside with them and find pictures of different shapes they find in nature. They will then upload the photos of the pictures to Seesaw and title the photo with what shape they found. They will present to the class the different shapes they found outdoors.

#### Materials Needed:

iPad

#### MN State Standards:

#### **1.3.1.1 Characteristics of Shapes**

Describe characteristics of two- and three-dimensional objects, such as triangles, squares, rectangles, circles, rectangular prisms, cylinders, cones and spheres.

## APPENDIX D

Lesson plan materials, PPTs and PDFs

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biome\_project.pptx  
[Download File](#)

#### Learning Target - Day 1

I can describe a  
biome.



leaf\_man\_writing\_project.pptx  
[Download File](#)

#### Learning Target - Day 1

I can create a Leaf Man using  
leaves from outside.

I can write a story about my  
own Leaf Man using:

characters

setting

Transition Words: First, Then,  
Next

