

Next Generation Science Standard Activity: Making the Most of Your Outdoor Space

Where Does Your Garden Grow?

Next Generation Science Standards Model Activity

Introduction

This activity has been developed for adult learners to simulate use of the Next Generation Science Standards (NGSS). This example has been tailored to fit the goals of this Workshop but is only one of the many ways 3-D Learning can be used.

Instructions Overview and Objectives

Workshop attendees will be broken into 5 different School groups (A-E). Each School group will have five different participants who are working to identify outdoor spaces, design/use curriculum to meet NGSS standards, maintain the spaces for aesthetic and educational needs, and meet district and city policies. A Summary of each participants' role is outlined below on color coded sheets. Each attendee will be provided with a copy of a School Map to help orient you to the site and make decisions about what spaces could be used as outdoor learning sites.

Order of Operations

Using the color coded instructional sheets, participants will gather into their individual groups and meet for 10 minutes to discuss challenges related to their specific perspective as they attempt to evaluate school grounds and plan for outdoor education. Then the participants will return to their School Group to integrate all ideas and plan locations and curriculum that best meets NGSS standards.

- (Green Sheet) Teacher: A teacher responsible for delivering the legislated NGSS curriculum in a creative, inspiring manner. Aware of the needs of the students, materials provided by the district¹ and interested in integrating learning in an outdoor environment.
- (Blue Sheet) PTO Parent: A parent who volunteers to assist teachers and kids with the outdoor learning spaces. PTO Parent works with the Teacher, but may also be the custodian of the outdoor space throughout the year, when school is not in session. Management of the outdoor space may include maintenance/preparation or communication with Principal and/or the Facilities Manager for continued future use.
- (White Sheet) Assistant Facilities Manager: A staff member who works for the school district and oversees management of the exterior landscapes for safety, to meet state and city codes, and aesthetics. This person is on-site before an outdoor space is utilized, and must be reassured that the site can be maintained within budget constraints long-term. This person must consider costs and longevity of structures associated with use of the outdoor space.
- (Pink Sheet) School Principal: A person responsible for managing the safety and welfare of the students, manages faculty, staff, and volunteers. Understands the needs of the school and the budgeting process, while at the same time works to meet curriculum requirements. This person must consider those with students disabilities and safety of students while using outdoor spaces.
- (Yellow Sheet) Student: A person who will be learning in an outdoor environment. Must have safe access, clear educational objectives, and fun!

Links

<https://www.fossweb.com/delegate/ssi-wdf-ucm-webContent/groups/public/@guestmktgfoss/documents/document/mdax/mzk2/~edisp/d567152.pdf?MappedFolderRedirect>

¹ <http://www.projectwet.org/>
<http://www.projectwild.org/growingupwild/lowa.htm>

Teacher

Outdoor spaces are places where students can access many types of STEM skills. You are an outdoorsy person and understand the basics of ecology. You have been doing on-line research about the value of taking kids out in nature to combat Nature Deficit Disorder and are very excited to integrate what you see with the new Next Generation Science Standards into your classroom. You will be teaching at a new school and would like to incorporate the use of an outdoor space into your science curriculum.

1. Meet with other Teachers and discuss challenges of identifying outdoor learning spaces, developing curricula, working with administrators and facilities managers. What kinds of things would you need to consider as you evaluate the school grounds? Consider your role as an educator, what would make teaching in an outdoor environment “better” for you and your students?

For example:

- A parent has donated a small weather station with a thermometer, rain gauge, and anemometer to daily measure weather conditions. It even wirelessly can send the data to a computer. You would love to use this in your classroom.

You may want to consider:

- What characteristics would you use to identify which outdoor spaces could be used?
- What characteristics would you use to identify how the curriculum could be adapted for your spaces?
- Based on your perspective as a teacher, what other considerations can you come up with?

Notes from Discussion with Teacher Group

2. Now return to your Home School Group and work together to identify the best outdoor classroom sites, how the curriculum can be deployed and any other concerns or ideas - based on what the Teachers identified as important.

Notes from Discussion with School Group

Links

http://www.projectwild.org/growingupwild/AisforAnt_Handwriting_All.pdf

<http://www.tandfonline.com/doi/abs/10.3200/JOEE.38.3.15-32> Schoolyard -Enhanced Learning: Using the outdoors as an Instructional Tool, K-8 by Herbert W. Broda. Copyright 2007 Stenhouse Publishers

PTO Parent:

As a PTO parent, you are anxious to help the teachers with use of the outdoor space during the school year, but concerned about managing the space throughout the school year/summer. One of the greatest challenges of being a volunteer is how to make sure the space will be useable to all teachers in the school. However, curricula is deployed, the management and organization of the outdoor space needs to be such that it meets the dual needs of being part of the general landscape and a learning space. What facets of managing and protecting this space would impact your communication with the Teacher and Principal?

1. Meet with the other PTO Parents and discuss the challenges of insuring these spaces meet the dual nature of being both landscapes and classrooms. For example:
 - Your child's teacher wants to purchase and hang a bird feeder where it will be visible from the classroom so students can do a species diversity survey. The teacher has asked the PTO for funding to purchase the feeder, the seed, binoculars, field guides to identify birds. How can you help?
 - Your child's teacher wants to take the kids off campus to a near-by park, while within walking distance how can you help?Some things you may want to consider:
 - Consider how to best assist teachers, interact with landscaping companies or facilities managers so as not to disrupt the aesthetic of the landscape but provide for the curriculum.
 - Based on your perspective as a parent, what other considerations did your group consider?

Notes from your Discussion with other Parents

2. Now return to your School Group and work together to identify the best outdoor classroom sites, how the curriculum can be deployed and any other concerns or ideas - based on what the Parents identified as important.

Notes from Discussion with School Group**Links**

<https://blog.ed.gov/2012/12/a-new-framework-improving-family-engagement/>
<http://www.fossweb.com/module-summary?dDocName=D2169317>

Assistant Exterior Facilities Manager

You oversee management of over 400 total acres for your district. All schools have landscaped areas that your department must maintain safely for students, be appealing to the public, meet city and state regulations and protect infrastructure. You are also interested in providing a learning space for students and working with teachers.

1. Meet with other Facilities Managers and discuss challenges to meeting both your responsibilities to the district and helping teachers meet their curriculum.

For example:

- What if teachers want to dig a hole to find some worms, do they know where the fiber optic cable is buried?
- What if teachers want to use weeds in the landscape to teach biodiversity and or show what happens when you use chemicals to manage vegetation?

Some things you may want to consider:

- How will the infrastructure be maintained long-term for both beauty and to help teachers meet curriculum?
- How can you both meet your budget and continue to protect infrastructure
- Based on your perspective as an exterior site manager, what other considerations can you envision?

Notes from Discussion with Facilities Managers

2. Now return to your Home School Group and work together to identify the best outdoor classroom sites and how the districts needs can be met based on what the Facilities Managers identified as important.

Notes from Discussion with School Group

Links

https://kapost-files-prod.s3.amazonaws.com/published/56f1a805f0420a13b700004b/2016-iowa-state-of-our-schools.pdf?kui=KKsWKOHzLBgHUYzdgupr_w

School Principal

You have just been hired as the principal for a new school in the district. You are very excited because there are teachers and parents who have already identified themselves as leaders of an outdoor learning space. Your job is to make sure that the programming and students involved in the outdoor meet State educational standards, safety standards of your district, and are accessible to all types of students.

1. Meet with other Principals and discuss challenges to allowing teachers to use the schools' outdoor areas as learning spaces.

For example:

Some things you may want to consider:

- Accessibility for disabled students?
- Based on your perspective as the school principal, what other considerations can you envision?

Notes from Discussion with the Principals Group

2. Now return to your Home School Group and work together to identify the best outdoor classroom sites and how the your schools needs can be met based on what the Principals identified as important.

Notes from Discussion with your School Group

Links

<http://www.tandfonline.com/doi/abs/10.1080/09500790508668328>

Student

You are a student who attends a school in the district. You are about to graduate and have spent the last 12 years enjoying the outdoor curricula developed by the teachers in your district. You were asked to join this group to share your ideas of what methods you liked and what methods you thought could have been improved. You are interested in urban ecology and wished your school had a small pollinator garden to provide habitat for pollinators and measure biodiversity near your school.

For example: Your class wanted to design, plant, maintain this small pollinator garden to attract monarch butterflies and provide information to Monarch Watch. You would also like to set up a blog to highlight what kinds of animals visit your garden.

1. Meet with other students and discuss challenges and adventure of learning in an outdoor space.
Some things you may want to consider:
 - Based on your perspective as a student, what other considerations can you envision?
 - What do teachers, principals, parents, and facilities managers need to know about these spaces?

Notes from Discussion with other students.

2. Now return to your School Group and work together to identify the best outdoor classroom sites and how student needs can be met based on what the other students identified as important.

Notes from Discussion with School Group

Links

http://digitalpromise.org/wp-content/uploads/2016/02/mc_tnc_outdoorclassroom.pdf