Sit Spot Investigations

Our Distance Learning Story

This learning sequence, “Sit Spot Investigations” arose from our work over the last 3-4 years to have students do more science learning outdoors within the local environment. Restoring a creek that runs through part of our campus, creating bird habitat, and conducting Bioblitzes are three big-picture examples that have connected, engaged, and empowered our students. The next step - how to have students conduct on-going nature journaling and field investigations- was proving more difficult to get off the ground. Simply put, the logistics of managing 30, fourth graders to focus quietly in Sit Spots around the school campus takes time, practice, and as much support as possible to achieve the high quality science learning we are after. We poked at these goals by establishing sacred, nature study periods every Wednesday, but getting to student-generated field studies looked doubtful once again this year. Enter the Covid 19 Virus and Distance Learning!

Amidst many remote learning challenges, we decided to ask our students to engage in science through nature journaling and field study work at home. We saw several positives for this: students would get outside and away from technology for a bit, they would become more familiar and knowledgeable about the natural environment around their homes, and they would engage in scientific practices via the prompts and guidance we gave them. Long story short, we were pleasantly surprised at how well the approximately 8-week process unfolded with minimal planning and many instructional constraints. We accomplished the goals of getting most of the students outside to observe the natural environment around their homes and to design and carry out inquiry-based investigations that required deeper scientific dives into the ecosystems of their Sit Spot areas. Their Sit Spot project presentations (slideshows, iMovies, posters, etc.) were a big hit with both teachers and students!

After this experience, we were fired up to build on and refine this initial foray into nature journaling that culminates in a student-generated field study. The result is this iteration of a learning sequence where we have curated and sometimes adapted many of our favorite resources. These resources include lessons from an organization called BEETLES and the Academy of Sciences, curriculum from Cornell Ornithology Lab called, “Investigating Evidence”, and the book, How to Teach Nature Journaling by John Muir Laws and Emilie Lygren. All of these resources can be downloaded free of charge.

The learning sequence itself is divided into three main parts. The first part consists of a formative assessment survey and prerequisite skills that students need to learn and practice to support successful nature journaling. The second part of the learning sequence consists of nature journaling activities. The third part contains lessons that lead students through the process of designing and carrying out their own investigations in their Sit Spots, culminating in presentations and a post-assessment survey.

We look forward to using this learning sequence with our next group of fourth graders, firmly believing that getting students outside will not only develop their knowledge and connection to the natural world right around them, but will cultivate a love and strong need to preserve and protect it for us all. We invite you to join us in the next iteration!

Kirsten Franklin
Kerry Santia
Fourth grade teachers (and sisters)
McNear School, Petaluma City Schools

Rationale: Much research has been done on the benefits of outdoor learning. The following quotes are taken from the article, "Outdoor Education Research Summary":

School performance increases when children learn outdoors

A number of studies have documented increased school performance through outdoor education. Research has documented increased standardized test scores, enhanced attitude about school, improved in-school behavior, improved attendance and overall enhanced student achievement when students learn in and about nature. In addition, outdoor education effectively employs a greater range of children's intelligences. Many researchers contribute the increase in performance to increased relevance and hands-on experience of learning outdoors.

Learning outdoors is healthy

Learning outdoors is active and increases students' physical, mental and social health. Some studies have even shown follow-up (e.g., non-school) physical activity increases with outdoor learning. Access to nature has also been shown to decrease the symptoms of ADHD. Outdoor learning and access to nature also decrease stress levels of students and teachers.

Learning outdoors supports child development

Children greatly benefit developmentally from being outdoors. Outdoor education and play support emotional, behavioral and intellectual development. Studies have shown that students who learn outdoors develop: a sense of self, independence, confidence, creativity, decision-making and problem-solving skills, empathy towards others, motor skills, self-discipline and initiative.

Teaching and learning outdoors is fun

Often, the outdoors provides a change of pace from the classroom, which students and teachers enjoy. Studies have shown increased student enthusiasm for learning outdoors.

Learning outdoors helps develop a sense of place and civic attitudes and behaviors

Outdoor experiences help students increase their understanding of their natural and human communities which leads to a sense of place. Through connection to place, students develop stronger environmental attitudes and civic behaviors. Outdoors learning experiences are the foundation of raising the next generation of active citizens who take care of their natural and human communities.

Outdoor education engages families and the community

Outdoor learning connects families and the community to the school. Outdoor classrooms provide natural entry points for families and community members to get involved with student learning. The relationships developed through outdoor learning lead to greater parental and community involvement in and support for the school.

Standards:

Multiple, cross curricular standards are addressed throughout the Sit Spot Investigation learning sequence. In fact, this learning sequence lends itself well to a STEAM model. Students are actively engaged in science like real scientists through wondering, investigating, questioning, data collecting and analyzing. Technology skills are developed through participation in Zoom lessons, the use of various applications on their iPads for research, data collection, and creating project presentations. Engineering skills are developed through the designing of the investigation. Art skills are addressed during scientific sketching instruction, and math skills are utilized in a variety of ways: data collection and analysis, graphing, measurement, and patterns.

English Language Arts are integrated throughout the learning sequence in numerous, context-embedded ways. Students read for research, they write in their journals, they engage in academic discourse about their observations, and they present their projects at the end of the sequence, to name just a few of the skills.

You can find more information on the specific standards covered in any of the curriculum resources we have used in this unit.

Resources used:

- Beetles
- California Academy of Sciences - Setting Up Your Science Notebooks
- John Muir Laws and Emilie Lygren - How to Teach Nature Journaling
- Investigating Evidence by Cornell Ornithology Lab
- Engaging and Managing Students in Outdoor Science- guide for teachers from Beetles
- Seek by iNaturalist app - useful iPad or smartphone app for identifying plants, birds, insects, etc.

What to prepare ahead of time:

- Read over the learning sequence and the referenced lessons from the various curriculum resources cited.
- Set up nature journals and portfolios (see supply list.)
    - Glue prompts into journal pages
- Do some nature journaling yourself!

Into Nature Journaling Activities

Part 1 (one session) This section does not have an accompanying slideshow to introduce the unit. The teacher should give directions in person over Zoom or in class.

1. Formative Assessment- students draw a picture of a scientist at work in their journals. (See folder with journal prompts.) Academy of Sciences
    a. Where is the scientist?
    b. What does the scientist look like?
    c. What is the scientist wearing?
    d. What is the scientist doing and what tools are being used?
    e. Is the scientist working alone or with others?
2. Pre-unit survey

Part 2 (one session)

1. Slideshow What Scientists Do
2. First observation and journal entry.

Part 3 (multiple sessions)

1. Introduction to Nature Journaling
   - Step 1- Page Format from How to Teach Nature Journaling, page 175
   - Step 2- Observations and Scientific drawings/sketchings
     1. I Notice, I Wonder, It Reminds Me Of… (Beetlesproject.org)
     2. Scientific Sketching Lesson Plan (Academy of Sciences)
        Introduction to Scientific Sketching
     3. 4 Practice Exercises for Scientific Sketching Lesson Plan (Academy of Sciences)
        Slideshow - adapted for Distance Learning
   - Step 3- Written Recordings
     1. Lesson-"Questioning Questions" from How to Teach Nature Journaling, page 103
     2. Lesson-"Follow Curiosity Chains" from How to Teach Nature Journaling, page 98

Through Nature Journaling Activities

Nature Journaling Activities (Multiple lessons/sessions included in the slideshow)
This slideshow includes 7 Nature Journal Prompts for students to complete in their Sit Spots at home or school. The prompts are adapted from How to Teach Nature Journaling with page numbers listed for each lesson. Teachers should read over lessons to get a more comprehensive picture of the objectives. Each prompt should be followed up with students sharing their journal entries either during Zoom Meetings or Class Meetings.

1. Find a Sit Spot and Sit Spot Mapping
2. Soundscape Mapping-How to Teach Nature Journaling, page 80
3. Comparisons- How to Teach Nature Journaling, page 44
4. Zoom in, Zoom Out-How to Teach Nature Journaling, page 47
5. Event Comic-How to Teach Nature Journaling, page 143
6. Hidden Figures -How to Teach Nature Journaling, page 206
7. Biodiversity Inventory- How to Teach Nature Journaling, page 212
8. Formative Assessment Check-in - teachers should make their own copies of this form.

Beyond- Sit Spot Investigation

Sit Spot Investigation slideshow

Part 1- Testable and Non-Testable Questions, slides 1-8
Part 2- Investigation Components- an student example, variables, hypotheses, data, and safety considerations, slides 9-14
Part 3- Plan, Set up, and Conduct Student Investigations, Google form that students fill out, slides 15-16.
Part 4- Preparing for the Presentations, How to create a Google slideshow, slides 17-28
Part 5- Student Post-surveys and congratulations on completing the unit! Slides 29-30

Journal Prompts #1- #10 can be copied on sticker paper and put into student Nature Journals before they are sent home for Distance Learning. Or on copy paper and glued in.

Supply list