1-10-2022

Innovative Practicum Experiences for Elementary Science in Collaboration with Community Partners

Donald J. Burgess
Western Washington University, don.burgess@wwu.edu

Debi Hanuscin
Western Washington University, debi.hanuscin@wwu.edu

Innovative Practicum Experiences for Elementary Science in Collaboration with Community Partners

Debi Hanuscin & Don Burgess

Science, Math, & Technology Education

Practicum Model At-A-Glance

Science Methods + Science Practicum taken in consecutive quarters (10 weeks) with same instructor

24 students per course

Class meets 3 days/week (5 hours)

During the methods course, prospective teachers participate in a field trip with a community partner. They then collaborate on developing NGSS-aligned 5E lessons for the classroom to complement the field trip experience.

Our community partner connects us with local participating classrooms in which the lessons will be piloted the following quarter 's practicum.

Prospective teachers implement the lessons in pairs, teaching 2 sessions/week depending on classroom teachers' schedules. (Range of 8-16 hours of instructional time).

Prospective teachers gather feedback from students and teachers and analyze assessment data to make improvements to the lessons.

Prospective teachers present the finished curriculum to the community partners for final review and dissemination.

2018-2019 Forest School full-day field trip for 3rd Graders

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.

WWU preservice teachers created a series of pre- and post-field trip lessons for use in the classroom. Students examine how different stakeholders define a 'forest' and how forest habitats support a diversity of life. They bring back what they learn about local forest species to consider how they are uniquely adapted to the forest environment.

Students presented the completed unit at the NSTA Area conference in Seattle. The lessons were being utilized by teachers throughout the region until Forest School was put on hiatus during the pandemic.

2019-2020 Mega Zapper Museum Visit for 4th Graders

4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by light, heat, sound, and electric currents.

WWU preservice teachers designed a unit that incorporated science and engineering to help students explore circuits as systems. The culminating experience included designing their own electrical device for their choice of client and creating a 'shark tank' style pitch to communicate their design to the class.

Students presented their work at the NSTA Engage Spring Virtual Conference, and published an article in *Connected Science Learning*. The lessons are freely available through the museum and are being utilized in the local school district.

2021-2022 Students for Salmon Field Trip Program for grades 3-5

5-ESS3-1.Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

WWU preservice teachers revised the curriculum materials developed by the Nooksack Salmon Enhancement Association to reflect the NGSS. They focused on creating a coherent science storyline and making connections to the local community.

Students and NSEA staff presented the curriculum at the 2022 Washington Science Teachers Association conference. The lessons are freely available through NSEA and are already being utilized by several school districts, including Bellingham and Spokane.

AFFORDANCES

- Expands science learning beyond the classroom setting
- Awareness of resources to support continued science learning
- Authentic engagement with curriculum materials and resources
- Authentic collaboration with/in grade level teams
- Awareness of the value of students' feedback on instruction
- Engagement with professional organizations
- Provides an authentic rationale for clear and detailed lesson plan writing
- Engagement in a full cycle of planning-teaching-reflecting on instruction
- Win-Win-Win partnership with district and informal partners
- Ease of identifying placements in which students can teach science

CHALLENGES

- Students are not seeing science being taught/modeled for them (*could also be an affordance, if instruction wasn't a good model)
- Coordinating course schedule and teachers' classroom schedules
  - Lessons are not taught on consecutive days
  - Students may not get to teach all lessons in the unit because of scheduling
- Limited to one grade level and one science content area
- Absences create a cascade of issues for collaborators

NEXT STEPS

We have 2 sections of practicum offered EACH quarter.

Subsequent groups are using these curricula in their teaching OR are focusing on adapting other resources (*It's Debatable, STEM Roadmap*) to implement in local schools.