Collaborating to Create Field Investigation Kits for Virtual Learning

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This session is highlighting some of the outcomes from a NOAA BWET grant for a project systemic through the school division K-12.
Our Mission: “To advance understanding of the natural world through education, outreach, and research.”

700 acres: wetlands, meadows, woodlands, succession fields, tree collections, gardens, open spaces
CCPS- 4 schools, rural, agricultural county. Had the ability to be very localized in our MWEE approach
Students engage in activities designed to develop environmental literacy (ELIT) knowledge, skills, and attitudes (KSA); these ELIT KSA’s will scaffold in complexity as students move through the grade levels.
What is a MWEE?

- Meaningful
- Watershed
- Educational
- Experience

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<th>Issue Definition</th>
<th>Outdoor Field Based Experience</th>
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<th>Synthesis &amp; Conclusions</th>
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Effective MWEE Partnerships

preK-12 Educators

Environmental Educators

Outcomes
Knowledge, Skills & Understanding
Curriculum Design
Instructional Strategies
Relevance & Rigor
Indoor & Outdoor Learning
# 1 thing that CCPS brings is an advocacy for their students as individuals and learners.

During time of virtual learning - CCPS teachers also provide information and some help with the digital resources they use (eg. Nearpod, edpuzzle, jamboard?)
Even with distancing, still creating relationships with students.
When building relationships, it’s important to consider what each member brings to the table. What strengths and intellectual resources do we have to buttress the other?

Especially with this multi-year project, some perspective of “another Blandy trip”, but this “year after year” familiarity builds a relationship = triggers learning responses = realization that a resource such as UVA / the VA State Arboretum in our backyard! VALUE!! Shift to multigenerational learning

To share in chat:
- note that the Blandy website will be updated by the new year
- Links associated with the project
  - https://blandy.virginia.edu/content/ed-programs-clarke-county-watershed-project
We were into year 3 of our project and had built relationships, partnerships, had a groove going and .... March 2020 happened.

How could we fulfill the commitments we had made to the grant project (NOAA), our partners, and our students?!
Blandy educators and CCPS teachers meeting to discuss
- how to bring field investigations to students
- teaching logistics
- technology logistics
- learning goals
- student needs...

Blandy and CCPS did what most of us did last year... adapt. It was a fairly involved process... The project leaders met to discuss broad ideas, then the teachers and EE met to devise plans for adapting the existing field and classroom experiences.
For each grade level/course we taught virtually, we devised the alterations to our existing lesson, revised the lessons’ materials (sometimes several times for on-site in person, on-site distanced, off-site at school and off-site at home learning), ordered materials, created kits and “what’s in the bag”, macro collection, and field investigation virtual tours and videos. These videos were used to help bring the field to the students. Very place-based, locally centered
Developed video content based on these meetings and teacher-defined learning needs

**How to Collect Macroinvertebrates**

**Virtual Tour videos**

**Sorting Macroinvertebrate**

Developed videos for teachers and students. From *How we collect macroinvertebrates* to *a macro ID and sort* for the students to meld with the water chemistry data they would conduct virtually or at school. Teacher perspective--provided a great resource for educators to connect freshwater topics to local streams.
THE INTERNET!
multiple screens (home computers, school computers, cell phones), technology, 
connectivity issues.
CCPS teachers handled logistics of setting up meetings, and connecting to content for 
student understanding
We still were able to conduct water chemistry tests successfully with all those 
hiccups!
Student analysis after the virtual field investigation. Analyzing water quality of our local streams.

Student analysis after the field investigation. Used in conjunction with water quality tests (DO, P, N, pH) and macroinvertebrate study
What is the driving question? Students will look at various abiotic water quality indicators and explore how they along with land use, habitat, and the riparian zone impact water quality and aquatic ecosystem health.
Clarke County Watersheds Student Journal

Clarke County Watersheds

Directions—Write the following questions in your notebook then use Watershed Maps (Google Slides) to answer the questions.

1. How many watersheds are in Virginia? 13
2. Which watershed is Clarke County located? POTOMAC
3. Clarke's watershed is part of a larger watershed, what is it? CHESAPEAKE BAY WATERSHED
4. What are the two main rivers of the Potomac Watershed? SHENANDOAH AND POTOMAC
5. What is the main river that flows through Clarke County? SHENANDOAH
6. List the minor watersheds in Clarke County. CROOKED RUN, BORDEN MARSH RUN, OPEQUON CREEK, SPOUT RUN, LONG MARSH RUN, RAVEN ROCKS RUN, MORGAN MILL, DRY MARSH RUN
7. Which minor watershed is Boyce located? SPOUT RUN
8. Which minor watershed is Berryville located? LONG MARSH RUN
9. List the four waterways in the Spout Run watershed. PAGE BROOK, ROSEVILLE RUN, WESTBROOK RUN, SPOUT RUN
10. List the 3 sub-watersheds in the Spout Run watershed. PAGE BROOK, ROSEVILLE RUN, SPOUT RUN
11. Which of these sub-watersheds have impaired streams? ALL OF THEM

Example of journal and answers
MWEE Projects from other grades
4th grade Trout in the Classroom was action project
Jam board, virtual learning kits that the resource teacher brought to some students with the meal bus!!
5th grade MWEE example—
Action project: develop a plan for how to clean up the waterway behind our school.
Planting a riparian buffer.
Stephanie is using the water quality kits for her IB students this year!
Independent studies.
More uses?
Ask participants how they see use of these resources? Homebound students, kids who are absent/unable to go on the trips, cancellations due to weather, what other ways? can they be used as an assessment?

Discussion

What are ways we can use these virtual resources now that we are back to in person learning?

For independent studies
For at-home students or those unable to attend a field trip
Field Investigations due to weather
As an assessment tool
Thank you!

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