

Agenda

Day 1 – Wednesday, August 17, 2016

8:00am **Breakfast, Introductions, and Announcements - Auditorium**

8:30am **Keynote Speaker: Sarah Tanis, post-doc MSU - Auditorium**

9:30am Michigan Environmental Education Curriculum Supplement Training Session Teasers (MEECS Facilitators) – Auditorium

10:00 **Michigan Environmental Education Curriculum Supplement: Climate Change** for Grades 7-9 - facilitator: Amanda Syers - **Auditorium**

MEECS Climate Science Unit provides teachers with a relatively compact overview of climate science, emphasizing data relative to Michigan and the Great Lakes. The lesson sequence begins with distinguishing between weather, climate, and climate variability. Students then gain a basic understanding of the natural mechanisms of climate change through exploration of the Earth's energy balance, the greenhouse effect, and the carbon cycle (sources and sinks). This is followed by a look at climate forcing and uncertainty, evidence of change, and climate models. Climate Science includes the following lessons: what is climate?; earth's energy balance; greenhouse effect, climate models, carbon cycle, climate forces and uncertainty, evidence of change. MEECS is a program of the Michigan Department of Environmental Quality

10:00 **Michigan Environmental Education Curriculum Supplement Ecosystems & Biodiversity** Grades 5-6 - facilitator: Patty Tolly – **Terrace Room**

MEECS Ecosystems & Biodiversity Unit uses a Michigan context to provide students with a solid foundation in understanding basic ecological principles, as well as the importance of biodiversity as it relates to Michigan's environment, economy, and society. Participants will actively learn outside about ecosystems function through lectures and taking lessons outside. Key concepts include: Habitat levels; biome, community, population, ecosystems, organisms. MEECS is a program of the Michigan Department of Environmental Quality

11:00am **Break**

11:15 Return to your MEECS training session

12:30pm **Lunch** at McCrary Dining Hall

1:30pm MEECS Climate Change for Grades 7-9 - **Auditorium**

Part 2: Climate Impacts on Michigan and the Great Lakes begins where Climate Science ends, with a review of the indicators of climate change, and then focuses on the potential impacts of

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changes in Michigan. Three lessons focus on the social science perspective and on the decisions which might confront citizens of Michigan in the future. The lessons are Climate Change Indicators; Plant and Animal Phenology; Ecosystem Relationships; Water balance in the Great Lakes; What Can I do?; Community Conversations and Climate Change in the News.

1:30pm MEECS Ecosystems & Biodiversity Grades 5-6 – **Terrace Room**

Biodiversity lessons include scientific investigation, data-based decision making and reviewing factors that threaten biodiversity.

2:30 - Groups go outside and practice lesson plan activities

3:15pm **Break**

3:30pm – Facilitators and participants share what they learned - **Auditorium**

4:00pm **Evaluation and Adjourn**



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Day 2 – Thursday, August 18, 2016

8:00am Breakfast, Introductions, Announcements - Auditorium

8:30am Plenary Speaker: ?Sarah Nelson – Auditorium

9:30am Concurrent Session Teasers - Auditorium

10:00am Concurrent Session 1 (2 hours Sessions)

A. Algae in the Classroom – Jake Nalley and Connie High – Algae just might be the answer to a number of the pressing sustainability concerns we face. Bringing algae into the classroom with this “drop in ready” kit offers students the opportunity to be phycologists! Students will cultivate their own algae, monitor its growth and discover the many reasons algae could be feed, food, fertilizer and fuel! Kits will be provided without charge by the Algae Foundation.

B. Cheryl and Marcia - Data Nuggets in the Classroom - Little Nuggets Can Do Great Things!

C. Agricultural Education at KBS – Chris Anderson – The Kellogg Biological Station has a world renowned Long Term Ecological Research site that focuses on agricultural practices. This agricultural backdrop is the foundation for the K-12 Partnership, and in this session teachers will have the opportunity to learn more about the educational tools available about the LTER site and educators will also help continue to develop more resources.

11:00am Break (Auditorium)

12:15pm Group photo behind the Manor House

12:30pm Lunch at McCrary Dining Hall

1:30 Concurrent session 2 (1 Hour Sessions)

A. Classroom Management Strategies – Nanette Clatterbuck - Classroom management is a challenging task. How can teachers manage a classroom of students with differing abilities and attentiveness? This session aims to offer techniques and skills that will aid teachers in managing highly functional classes that meet a range of student needs.



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B. Asking a testable question – Misty Klotz and Heather Kittredge –Discover Pacific Education Institute's guide on Field Investigations: Using Outdoor Environments to Foster Students Learning of the Scientific Practices Join Misty and new K12 Fellow Heather Kittredge to create your own field investigation question.

C. Michigan's Most Unwanted – Dustin Kincaid - How do we identify invasive species, and why do we care? In this lesson, students learn to make and use dichotomous keys to identify common invasive species. Students will gain an appreciation for why invasive species are important through a series of discussions, videos, and keying activities. A graphing activity will allow students to make graphs, interpret data from graphs, and draw conclusions based on data.

2:30 Concurrent session 3 (1 hour sessions)

A. The GLOBE Observer App - Citizen Science in partnership with NASA, Todd Ellis, Western Michigan University, Assistant Professor, Mallinson Institute for Science Education and Department of Geography

In this session, we will explore using the GLOBE Observer App, a new citizen science app produced by NASA in conjunction with the GLOBE Program (<http://www.globe.gov>). The app lets you take cloud observations anytime using your smartphone when NASA Satellites are overhead, and then later sends you images of what the clouds you saw look like from space. All the observations are then available as part of the GLOBE program for use in student research.

B. TBD: [Carbon Time - It's Time For Some Carbon, y'all! \(To Be Confirmed\)](#)

C. What lives in the schoolyard? – Kara Haas and Renee Bayer – Michigan Science Standard focused investigations for K-5 that help students find design and carry out investigations and gather data to answer to the driving question, “what lives in my schoolyard?”

3:30pm Break & Snacks – Auditorium

4:00pm Evaluation and Adjourn



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Day 3 – Friday, August 19, 2016

8:00am Breakfast, Introductions, and Announcements - Auditorium

8:30am Plenary Speaker: Phyllis Higman, Invasive Species Outreach, Michigan Natural Features Inventory – Auditorium

9:30am Concurrent Session Teasers - Auditorium

10:00am Concurrent Session 1

A. TBD

B. **Papermaking with Invasive Plant – Jane Kramer** – Jane Kramer is a local artist who specializes in photographing extremely rare native plant species and then prints these photos on paper made from invasive species biomass. Teachers will be presented with the art of making paper from plant biomass while highlighting the importance of fostering native plant diversity.

C. **Remington - Zooniverse! (Setting up a camera at lunch break on Thursday)**

11:00am Break (Auditorium)

11:15-12:15 Concurrent Session 2 OR RET share-a-thon

A. **Torrey Wenger and Marty Buehler: Summer Presentations from KBS Research Experience for Teachers (RETs)** – K-12 Partner teachers will present on their summer research experiences. Two educators worked with Dr. Doug Schemske to develop a freezing assay for *Arabidopsis* sp.,

B. **Jennifer Boyle, Shaun Davis, Jodie McManus** - Prairie Life Ain't Easy, When It Never Rains. Jen Lau RET's

12:30pm Lunch* at McCrary Dining Hall

1:30 Off-site Learning Opportunities – 1 hour each

A. **Birding 101 - At the Bird Sanctuary** – Misty Klotz - Participants will go to the Bird Sanctuary to learn how to use binoculars for looking closer at birds. A journaling activity will be practiced that helps turn the focus on the structure and function of beaks and feet in waterfowl and bird of prey species.

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- B. **Pond Labs and Greenhouse Tours – Sara Garnett** – The KBS Pond Labs have contributed a lot of amazing research that has advanced the field of ecology. This session will focus on introducing teachers to the Pond Lab and will cover past and current research at the site.

3:30pm Break & Snacks - Auditorium

3:45pm What's next for the KBS K-12 Partnership?

4:00pm Evaluation and Adjourn



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