

KBS K-12 Partnership Workshop March 21, 2013

Our theme for this workshop is Native Plants and Ecosystem Services

Below you'll find our agenda for the day as well as details on our concurrent sessions. Please rsvp to Sara at parrsar1@msu.edu if you plan to attend. We look forward to seeing you!

Agenda

8AM Breakfast, Announcements, and Introductions

8:30AM Speaker: Dave Warners, Calvin College (Auditorium) "Enriching Education through Watershed Engagement: Plaster Creek Stewards and Calvin College"

9:30AM Concurrent Session Teasers

9:45 Concurrent Session 1

MS/HS: Human Energy Systems (Hannah Miller, Andy Anderson, and Jenny Dauer)

- Project GREEN Session (GK-12 Fellows)
- BEST plots Session (GK-12 Fellows)
- BoxCar2D Session (GK-12 Fellows)

11:15AM Plenary: Joe Krajcik, Next Generation Science Standards Update

12:15PM Lunch

1:15PM Concurrent Session 2

MS/HS: Food Safety, Microbes, and Biosensors (Lisa Wininger and Sara Syswerda)

- Project GREEN Session (GK-12 Fellows)

- BEST plots Session (GK-12 Fellows)
- BoxCar2D Session (GK-12 Fellows)

2:45PM BEST Plot Update

3:00PM District Planning and Evaluation (Auditorium)

4PM Adjourn and Teacher Advisory Committee Meeting

Concurrent Session Abstracts

Food Safety, Microbes, and Biosensors (Lisa Wininger and Sara Syswerda)

First you hear that horse could be in your meatballs...but what else could be in there? We're going to be talking about the microbes in foods that cause illness, and how the food safety inspectors try to keep the food supply safe. We try to detect microbial contaminants in a series of food products, and talk about some new technology that will help make detecting the microbes faster and easier. This session is strategically timed in the afternoon to make you think about how risky your entire lunch may have been. :)

Darwin builds better cars: lessons evolving online vehicles (Anne Royer, Liz Schultheis, Sara Garnett)

Teachers will explore how the basic principles of evolution can be used to produce a better vehicle using web-based software. The program, BoxCar2D, allows the user to observe evolution in action with cars in a virtual environment and design vehicles to move over a variety of 2-dimensional landscapes. Evolution of random populations can be observed, or a hand-designed car can be combined with a population of randomly generated vehicles to evolve further. The program utilizes the basic principles of biological evolution: mutation, reproduction with recombination, and selection (moving faster and farther = higher fitness).

MS/HS: Human Energy Systems (Hannah Miller, Andy Anderson, Jenny Dauer)

Do you need tools to teach about climate change in your science classroom? Join us for a workshop in two parts. First, we will do an activity called "Extreme Makeover: Lifestyle Edition." This activity is from a larger unit that uses the Keeling Curve to help students make connections between human energy use and carbon emissions. Second, we will have a short discussion about obstacles and challenges to teaching about climate change in middle and high schools.

Project GREEN: Big Roots for Big Problems (Jake Nalley, Michael Kuczynki, Tyler Bassett, Dustin Kincaid)

As the late great Biggie Smalls once said, “Mo Money Mo Problems.” But when it comes to plants, allocating large amounts of resources to establishing large root systems can result in “Mo Roots Less Problems,” or alternately, “I’ve Got 99 Problems But A Root Ain’t One.” [1]. For our session we are going to be discussing the many environmental services that plants offer. We will examine the benefits of native v. exotic plants, and perennials v. annuals through investigating differences in allocation to roots. The session will include a good mix of demonstration, data collection, and dastardly competition. A number of plants have been growing in clear “soil” so that we can get an up-close look at how root systems are established in the soil, and compare the different plant types. A soil erosion demonstration is also expected. Teachers will get to make their own roots and compete to see who had the best root system to prevent erosion. A few lucky participating teachers will also receive a surprise gift, thanks to the funding provided by Project GREEN!

[1] Jay-Z “99 Problems”. Black Album. 2003

The BEST session: Using real data in the classroom (Cara Krieg, Sara Garnett, Alycia Reynolds-Lackey)

Can we grow fuel and save our flowers and butterflies, too? In this lesson, we will address “big questions” from BEST plots using the data students collected in the past two years. We developed a fun and engaging game to help us generate hypotheses/predictions and four Data Nuggets worksheets to practice graphing and drawing evidence-based conclusions. Teachers can immediately use these materials in the classroom to help teach some of the Next Generation Standards.

Participant List

Email Sara Syswerda (parrsar1@msu.edu) if you would like to be added to this list.

Comstock: Janette Kiino, Laurie Anderson, Mary Grintals, Canaan Groff, Shirley Gilland, Stacie VanZandt, Emmy Kimmer,

Delton-Kellogg: Connie High, Clint Waller, Dale Grimes, Todd Shipley

Galesburg-Augusta: Mary Sutter, Terri Blake

Gobles: Becky Drayton

Gull Lake: Michelle Mahar, Beth Rhodes, Jennifer Boyle, Kim Clancy, Ashley Carroll

Harper Creek: Sue Swaton, Amy Smith, Erik Crooks, Alissa Renner, Meredith Hawkins

Hastings: Jilly Withey, Marty Buehler, Jamie Dixon

Kalamazoo Area Math Science Center: Cheryl Hach, Chris Chopp

Lawton: Dennis VanWeelden

Lenawee Intermediate School District: Toby West, Leslie Coates

Martin: Rob Robrahn

Olivet: Terri Morton, Charles Buciencki, Marie Toburen, Cheryl Worden, Mike Boehmer, Russ Stolberg

Parchment: Jodie McManus

Plainwell: Lisa Wininger, Maggie McGregor, Marty Green, Noel Muselin, Jackie Warners

Thornapple-Kellogg: Shaun Davis, Jamie Bowman, Martha LaVoie

Vicksburg: Liz Ratashak (+ intern), Lisa Harbour, Dave Nette

Visitors: Dave Warners (Calvin College), Jonathon Schramm (Goshen College)

KBS/MSU: Tom Getty, Andy Anderson, Sara Syswerda, Sarah Bodbyl Roels, Jennifer Doherty, Elizabeth Schultheis, Tomomi Suwa, Michael Kuczynski, Tyler Bassett, Cara Krieg, Dustin Kincaid, Jake Nalley, Sara Garnett, Alycia Reynolds, Joe Krajcik, Hannah Miller

WMU Evaluation Staff: Bob Ruhf +1