KBS K-12 Partnership Spring Workshop 2016 – Preparing Tomorrow’s Scientists: Technology in the Classroom

Thursday, April 14, 2016

8:00am Break, Introductions, Announcements - Auditorium

8:30am Plenary Speaker: Dr. Brook Wilke, Farm Manager, Kellogg Biological Station. Innovative solutions for sustainable agriculture at KBS. – Auditorium

We will take a glimpse at the lessons learned from research at KBS relating to ecosystem services associated with crop and livestock agriculture, but primarily focus on management systems that optimize ecosystem services.

9:30am Concurrent Session Teasers - Auditorium

10:00am Concurrent Sessions 1

A. Smartphone microscope. (All grade levels) Jakob Nalley (KBS K-12 Fellow) Location: Stack 139

Jakob will demonstrate the smartphone microscope

B. Adventures in Avida-ED. (HS track) Louise Mead (MSU) Location: Terrace Room

A description of this

C. Ping Pong, Zombies, and Influenza: Let’s Build a Model! (MS/HS track) Anne-Marie Hoskinson (MSU) Location: Stack 140

The Next Generation Science Standards (NGSS) claim that K-12 students should be able to build models to make explanations and predictions of phenomena. This session is designed to give participants a taste of what scientific models are, what they do for our students, and how we can think about teaching this scientific practice. You’ll have a chance to build your own models and brainstorm with colleagues about the many possible applications of models across all the sciences.

11:00am Break (Auditorium) At this time, please sign up for carpool groups for afternoon sessions

11:15am Concurrent Sessions 2

A. 3D printing in the elementary classroom (Elementary track) Kim Sandefur (Comstock STEM) Location: Terrace Room
This session will provide an overview of how our school has integrated 3D printing into the curriculum to enhance lessons, beginning with Kindergarten and progressing from there.

B. **Adaptation to freezing temperatures in the model plant** *Arabidopsis* (MS/HS track) Doug Schemske (MSU)  **Location: Stack 139**

Plants that experience freezing temperatures typically possess physiological adaptations that enhance their freezing tolerance. Our work in Europe on the model plant *Arabidopsis* has identified the genetic basis of freezing tolerance and has also uncovered a surprising degree of geographic variation in this trait, which has stimulated new questions on how the costs and benefits of freezing tolerance might differ for past, present and future climates.

C. **Nature – there’s an App for that** (All grade levels) Michael Kuczynski and Sarah Garnett (KBS K-12 Fellows) **Location: Stack 140**

iPads and smartphones can be useful tools for science and teaching, but it can be difficult to identify how to use them most effectively. This session introduces several citizen science and naturalist apps and shows teachers how they can incorporate them in the classroom.

12:15pm **Lunch** at McCrary Dining Hall *(All elementary teachers join Kara at lunch to discuss Teaching Science Outdoors)*

1:15pm **Assemble with carpool group, to LTER**

1:30 **Outdoor sessions at LTER and Dairy** (groups will do both)

**Climate change and agriculture: how can we protect our soils?** Julie Doll (KBS LTER)

We will share Michigan climate data showing changes in temperatures, seasonality, and rainfall events, all which can affect soil health. Key principles related to soil health will be discussed. A rainfall simulator will be used to demonstrate how different management techniques can be used to protect soil health (reduce runoff and increase infiltration of water).

**KBS Dairy field trip** Misty Klotz (KBS)

We will talk about different types of pasture plants, their growth rates and the cows needs as we travel via a wagon ride to the dairy barn. At the barn we will talk about how some of the same technology that is in your smart phone also helps manage the farm.
3:30pm Break & Guacamole – Auditorium

3:30pm Free stuff and future plans for the Partnership - Auditorium

4:00pm Evaluation and Adjourn