Dr. Julie Urban, Evolutionary Biologist

North Carolina Museum of Natural Science

Podcast length: 15:47

THE walking classroom
walk. listen. learn.

LESSON PLAN

SYNOPSIS

The Walking Classroom's Laura Fenn talks with Dr. Julie Urban, an Evolutionary Biologist and Assistant Director of the Genomics and Microbiology Lab at the North Carolina Museum of Natural Science. Dr. Urban shares about her work as an evolutionary biologist, her work with plant hoppers, and how it's never too late to find a new passion.

VOCABULARY

Review key vocabulary (included definitions are limited to the context of today's podcast)

- **symbioses:** (noun) a helpful interaction between two different organisms living together
- **evolutionary biologist:** (noun) a scientist who studies where species originally came from and traces their family history over time
- **pathogen:** (noun) a bacterium, virus or other microorganism that can cause disease

QUESTIONS FOR THOUGHT & DISCUSSION

1. Dr. Urban traces the history of plant hopper insects using DNA and differences in body structure. What might you do to learn about and trace your own family history? How would learning about the history of a species better help you understand the organism today?
2. Dr. Urban suggested getting some hands on experience with a hobby and/or interest to really understand what you like and don't like. What are some benefits of actually trying something before simply deciding you do or don't like it?
3. Dr. Urban clarified the difference between being in a lab and being in the field. She said "the field" means being in the natural environment with whatever your are studying. What are some pros and cons of studying something in lab? What are some pros and cons of studying something in the field?

BOOK SUGGESTIONS

Consider reading aloud or making some of these titles available to students to reinforce and extend some of the concepts covered in today's podcast.

How to Clean a Hippopotamus: A Look at Unusual Animal Partnerships by Robin Page

Readers will learn about animal symbiosis in a wonderful presentation filled with amazing pictures by Steve Jenkins.

***Genetics: Breaking the Code of Your DNA* by Carla Mooney**

This is the perfect book to introduce students to the world of genetics. They will learn about the structure of DNA, genetic inheritance, and new discoveries that are being made.

***Double Helix: The Quest to Uncover the Structure of DNA* by Glen Phelan**

This books covers the history of genetics starting with Gregor Mendel and moving on to the discoveries of Watson and Crick.

EXTENSION ACTIVITIES

The following activities are ways to build on and extend some of the topics discussed in the podcast. We strongly encourage you to always preview videos prior to showing them to your students.

DNA: The Book of You **http://bit.ly/1GaOcfC**

Video from TED-Ed (4:28)

Did you know the human body is made up of more cells than stars in the Milky Way Galaxy? This video explains the instruction manual for these cells: DNA.

Bird Beak Physique **http://bit.ly/1dPpyKX**

Lesson Plan from Duquesne University

This fun lesson helps students better understand natural selection, adaptations, favorable traits and divergent evolution as they examine how different types of bird beaks are ideal for different environments.

Animal Adaptations: Snowshoe Hare/Cottontail Rabbit **http://bit.ly/1D4gzMx**

Lesson Plan from the Utah Education Network

This fun lesson allows students to see why animals' coloration and other adaptations vary depending on their environment.