2018 Learning Pathway Details

Stretch Your Legs for Science! Engaging Youth in School (and Out) with Citizen Science

Cornell Lab of Ornithology

Meeting science practice standards goes hand-in-hand with student investigations and citizen science. Through these activities, youth truly become scientists: they record their own questions generated by the observations they make, collect their own data, get access to huge online datasets that they can query, and draw their own evidence-based conclusions. These are great ways to meet science standards, especially those related to developing science process skills. In this interactive and hands-on session, we'll share how you can motivate your students with schoolyard/outdoor projects and real data as well as give you plenty of ideas and free resources to get started! This pathway takes you outside and puts you in the action—you're sure to make some discoveries! While we'll chat generally about citizen science, we'll focus on eBird and see what birds we can find and count in Colorado Springs. As you get some fresh air and contribute to citizen science, you'll find that you're better prepared to use your schoolyard or local park (no matter where it is!) to deepen local connections, teach content, and develop science skills, inspired by any of the many citizen science projects that might be of interest to you and your students!

Block 1:

Citizen science is a partnership between the public and professional scientists that can answer questions that scientists alone couldn't answer—it's crowd-sourced science! At the Cornell Lab, we welcome everyone to gather data about the kinds, numbers, and behaviors of birds that they see which helps us conserve birds. This aspect of "helping scientists" is extremely motivating for kids, especially girls and underserved youth. In this block, we'll give you the background you need about citizen science, basic information and hands-on activities to help build bird identification skills, and context for using these projects with diverse students in classrooms and during out of school time.

Block 2:

Let's go outside! What will we see? Bring your smart phones or tablet and discover how you can use mobile devices to capture student's attention and support them in participating in citizen science. In this block, we'll focus on free apps such as Merlin Bird ID and eBird Mobile that help even the most beginning naturalists confidently identify birds in the field and submit data. By the end of the block—you will be a citizen scientist and discover that even in urban habitats, there are many species to be observed and counted.

Block 3:

Participating in citizen-science projects provides an accessible context for student science investigations. We will share techniques and resources that support students in asking and answering their own questions by conducting experiments and observational studies based on their citizen science observations. In this block, we'll dig into the "I Wonder" Board, discover types of scientific questions and ways to answer them, and work in small groups to develop our own questions to explore. We'll examine how these kinds of activities build science practices and meet the SciGirls Seven, seven research-based strategies for engaging girls and all learners, especially underserved youth.

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Block 4:
It's time to make our own discoveries and collaborate with peers! Dig into citizen science databases, research one or more questions that are tickling your brain, and head outside to do your own mini-inquiry. Draw evidence-based conclusions, run your ideas by other participants, illustrate what you've learned through graphs, and share what you've discovered.

Block 5:
Birds are everywhere and they easily capture young people's attention and provide a great way to teach content too. Habitat…food webs…adaptations…diversity…life cycles...human impacts. We'll share some of our favorite hands-on activities and resources that connect to key science content areas to citizen science. We'll also encourage you to make an implementation plan for what you've learned in this pathway. You will leave with a bird feeder, binoculars, lesson plans, and be ready to take it all back to your program. Taken together, these resources will help you meet NGSS and CCSS Standards as well as environmental education and healthy living initiatives.