

# Free Teacher Workshops

Presented by Bio-Rad Laboratories

Step-by-Step, Hands-on Experience

CHICAGO, IL | McCormick Place

July 21–23

Friday, July 22

Room W475a	Title	Description
8:00–9:00 AM	<b>Track the Mysterious Spread of a Novel Disease Using Electrophoresis</b>	Outbreak! A new viral disease is spreading rapidly, but how? Analyze patient DNA samples to determine who was infected and figure out how it spreads. In this workshop, you will walk through a customizable scenario for the classroom in which students use epidemiological techniques to figure out the transmission mode of a novel disease. You will also analyze DNA agarose gel electrophoresis to determine the infection status of a large set of patients. Additionally, you will see how this adaptable public health and epidemiological puzzle is an excellent tool for teaching viral disease biology.
10:40–11:40 AM	<b>Cut, Paste, Confirm: Real CRISPR Gene Editing and PCR Genotyping</b>	Dig into CRISPR, a revolutionary technology in gene therapy. Learn about a classroom CRISPR lab activity with robust controls and a free paper model. In this workshop, you will learn about a lab activity in which students do real CRISPR gene editing and confirm the chromosomal edit with PCR. You will also receive and practice using a free paper model to teach the function of Cas9, a key protein in CRISPR technology. Additionally, you will hear about the latest in CRISPR technology including current efforts in gene therapy.
1:00–2:00 PM	<b>The Plight of the Bumble Bee: Genetic Biodiversity of Bees</b>	Save native bees! First step, catalog native bee biodiversity. Try out a classroom activity where students use genetic analysis to identify native bee species. In this workshop, you will find out about a classroom activity in which students learn to identify bee species using entomological tools and genetic methods. You will also hear the story of the discovery of <i>Bombus incognitus</i> , a recently discovered “look alike” bee native to Colorado. Additionally, you will learn about how DNA barcoding can be used to identify species that cannot be identified by visual or geographical information.
2:20–3:20 PM	<b>Cut, Paste, Confirm: Real CRISPR Gene Editing and PCR Genotyping</b>	Dig into CRISPR, a revolutionary technology in gene therapy. Learn about a classroom CRISPR lab activity with robust controls and a free paper model. In this workshop, you will learn about a lab activity in which students do real CRISPR gene editing and confirm the chromosomal edit with PCR. You will also receive and practice using a free paper model to teach the function of Cas9, a key protein in CRISPR technology. Additionally, you will hear about the latest in CRISPR technology including current efforts in gene therapy.
3:40–4:40 PM	<b>Algae Blooms and Algae Beads: Agriculture, Ecology, and Economy</b>	See how you can teach both photosynthesis and cellular respiration with algae beads in a hands-on lab using the real-world context of algae blooms. In this workshop, you will learn how to work with algae beads, a fast and easy-to-use model organism. You will also walk through how students can measure and learn about both photosynthesis and cellular respiration in the same hands-on lab. Additionally, you will see how students can develop scientific explanations of algae blooms and the dead zone in the Gulf of Mexico using their learned knowledge about photosynthesis and cellular respiration.

Come visit us at **Booth 522**

Can't make a session? Download the FREE presentations: [bio-rad.com/explorerworkshops](https://bio-rad.com/explorerworkshops)