

## Innovation Abounds: Manchester CREATES Marks a Successful First Year



Dear Friends,

This summer, middle and high school students from greater Manchester engaged in dynamic, hands-on projects that included transforming cell phones into microscopes, uncovering antibiotics in the soil and animating stuffed animals to respond to external stimuli.

A total of 38 students registered. At the same time, seven Manchester School District educators delved into advanced concepts in regenerative medicine and biofabrication.

These innovative programs—Manchester Tech Camp for students and the Manchester Tech for Teachers Institute for educators—are key components of the Manchester CREATES workforce development initiative, launched last year. Building on similar programs offered on the UNH Durham campus, they are intended to enhance STEM literacy and develop career pathways in New Hampshire's rapidly growing bioscience sector.

I am deeply grateful to the students, educators and industry partners who helped make this inaugural year such a success. Their enthusiasm has paved the way for future growth, and we look forward to expanding these programs in the years ahead, inspiring even more students and educators to explore the biosciences and forge lasting connections within the field.

Sincerely,

Shannon McCracken-Barber  
Project Director, Manchester CREATES



## Manchester Tech Camp 2024 Programs

### Bioinformatics

Students learned to analyze biological data using cutting-edge tools and software, then applied these skills in a wet lab with experiments that bridged the digital and physical realms of biology.

### Bioprinting

Students investigated how this emerging technology can be used to create tissues, study cell behavior and address a range of health conditions through hands-on activities.

### DIY Leeuwenhoek Microscopes

By transforming their smartphones into a powerful microscope, students were able to observe everyday objects in an entirely new way.

### Perceptive Plushies

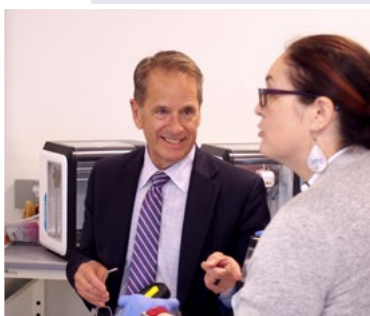
Students created and programmed their own biosensors using Raspberry Pi technology. They then applied these skills to animate stuffed animals they created.

### Searching for Novel Antibiotics

Acting as a microbiologist, students engaged in the search for new antibiotics and conducted hands-on experiments to study microorganisms and their potential to combat resistant bacteria.

### TechSplorers

Students engaged in daily STEAM challenges designed for curious middle schoolers. From engineering projects and coding experiments to creative arts and hands-on science, each day offered new opportunities to learn and have fun.



## Education Commissioner Tours Programs

Highlighting the significance of STEM education in New Hampshire and its vital contribution to the thriving biotech economy, the state's Education Commissioner Frank Edelblut toured the Manchester programs this summer.



STEM educators who attended the Manchester Tech for Teachers Institute, pictured with program leaders.

## Manchester Tech for Teachers Institute Launches with Seven Educators

The inaugural Manchester Tech for Teachers Institute welcomed seven middle and high school STEM teachers from the Manchester region.

Over the course of two weeks, this group worked closely with UNH faculty, graduate students and experts from the bioscience industry to learn about regenerative medicine and biofabrication, as well as education specialists to explore topics related to project-based learning. By the end of the session, each had designed a classroom project that they will implement during the 2024-25 school year.



Open to individuals and teams, the Manchester Tech for Teachers Institute provides participants with a \$1,500 award, CEUs, classroom supplies and ongoing UNH support.

“ I just want to thank you for an awesome two weeks. You’ve taught me so much and I’m excited to bring it back into my classroom.”

- Teacher participant

For more information, please contact Shannon McCracken-Barber at [shannon.mccrackenbarber@unh.edu](mailto:shannon.mccrackenbarber@unh.edu).

## Participants

**John Coppens**  
Manchester Memorial High School

**Katherine Hall**  
Manchester High School Central

**Mary Hartigan**  
Hillside Middle School

**Andrew Morin**  
Manchester High School West

**Sophia Sheehan**  
Manchester High School West

**Cassie Thomas**  
Manchester Memorial High School

**Sonja Witkowski**  
Manchester Memorial High School

