



## 2019-20 MIDDLE SCHOOL STUDENT PROGRAMS AT DNA LEARNING CENTER NYC AT CITY TECH

The DNA Learning Center is the world's first science museum devoted to genetics education for the public. It is an operating unit of the Cold Spring Harbor Laboratory, a world-renowned center for genetics research. Developed in close cooperation with the New York City Department of Education, DNALC NYC @ City Tech educators provide student enrichment in genetics and biotechnology through hands-on activities in a modern laboratory setting.

### SUGGESTED FOR GRADES 5 & 6

#### Baggie Cell Model (1 hour)

Learn about the structure and function of the cell and make a cell model.

#### DNA Models (1 hour)

Learn about the genetic code and make a 3-D model of the double helix. (\$4 materials fee per student)

#### Mendelian Inheritance (1 hour)

Use corn as a model to investigate the laws of inheritance.

#### DNA Extraction

(1 hour, grades 5, 6, & 7)

Extract DNA from plant cells using household ingredients.



### SUGGESTED FOR GRADES 6 & 7

#### Molecular Models and Bubbling Liver (1 hour)

Observe the metabolic enzyme catalase as it reacts with hydrogen peroxide and learn about the factors that affect enzyme activity.

#### Enzymatic Food Production (1 hour)

Use enzymes to make cheese and apple juice.

#### Better Milk for Cats (1 hour)

Build a bioreactor to convert regular milk into lactose free milk.

#### Gene Therapy (1 or 2 hours)

Genetically engineer "lactose intolerant" bacteria to become "lactose tolerant."

#### Bacteria and Antibiotics (1 hour)

Observe the effect of antibiotics on bacteria.

#### Antibiotic Resistant Bacteria (1 or 2 hours)

Genetically engineer bacteria to become antibiotic resistant.

#### Viral Infection (1 hour)

Infect bacteria with a virus and observe the result.

#### Glowing Genes (1 or 2 hours)

Genetically engineer bacteria with the GFP (Green Fluorescent Protein) gene for bioluminescence.

### SUGGESTED FOR GRADE 8

#### Glowing Genes (1 or 2 hours)

Genetically engineer bacteria with the GFP (Green Fluorescent Protein) gene for bioluminescence.

#### Protein Purification (2 hours)

Collect and purify green fluorescent protein from glowing bacteria.

#### DNA Fingerprint (2 hours)

Use gel electrophoresis to analyze and compare "evidence" DNA to "suspects."



Most middle school trips are **two hours** long, and cost **\$400 per class**. Scholarships are available for eligible schools.

For more information, or to make a reservation, contact:

**Mary Lamont at (516) 719-1296**