



## Grade 3-5 Outreaches

New York State P-12 Science Learning Standards are listed at the end of each program offering, where applicable

### Outreach Planetarium Shows

**STARLAB Portable Planetarium Programs** by Dudley Observatory at miSci in partnership with Capital Region BOCES.

#### **Andromeda to Zeus**

Greek mythology and seasonal constellations are showcased, while students predict the regular motion of celestial objects.

45 minutes, 30 people maximum (including chaperones)

#### **Calendar Constellations**

Why do the constellations visible in the night sky change during the year? The zodiac, or “circle of animals” was used as a calendar. Changes due to the earth’s daily rotation and its annual orbit around the sun will be examined and compared. 45 minutes, 30 people maximum (including chaperones)

#### **Custom Program**

We will work with you to design unique programs to meet your curriculum needs. 30 minutes, 30 people maximum (including chaperones)

#### **Earth and Sky**

The concepts of latitude and longitude are reinforced as students plot coordinates and observe the changing view of the sky from different places on earth.

45 minutes, 30 people maximum (including chaperones)

#### **It’s Only a Phase**

Students will observe and model the cyclic pattern of moon phases, and use moon maps to identify and discuss different types of features on the moon. Trip Tip: Pair with Just a Phase Hands-on Science Exploration.

45 minutes, 30 people maximum (including chaperones)

#### **Native American Constellations**

The role of star stories in different cultures is explored through story-telling. Students are introduced to the important role of the North Star and celestial movement.

45 minutes, 30 people maximum (including chaperones), Complements Common Core Engage NY Grade 4: Module 1

#### **Reasons for the Seasons**

Students observe and record changes in the sun’s apparent path through the sky through the year and understand why the tilt of the earth’s axis causes the seasons.

45 minutes, 30 people maximum (including chaperones)

#### **Seasonal Stargazers**

What are constellations and why do they change with the seasons? Students discover why the sun and other stars appear to move through the sky in predictable patterns, both daily and seasonally.

45 minutes, 30 people maximum (including chaperones)

## Outreach Planetarium Shows (continued)

### Star Clock

Our system of measuring time is based on the motion of the Earth in relation to the sun, moon, and stars. Students use observations of the Big Dipper and the North Star to tell both the time and season.

45 minutes, 30 people maximum (including chaperones)

## Hands-on Science Explorations

### Amazing Arthropods

Discover the creepy crawling phylum of arthropoda. While observing preserved specimens, discover which characteristics arthropods have in common and which ones differ to create classes such as insects, arachnids, and crustaceans.

45 minutes, 25 students maximum 3-LS1-1, 3-LS3-2, 3-LS4-2

### Crime Lab Science

Learn about forensic science and how evolving technology helps scientists, detectives, and other specialists discover the truth about today's criminal cases and mysterious crimes of the past.

45 minutes, 25 students maximum, Measurement & Data 3.MD

### Engineering Mission

Design and build a shock-absorbing system that will protect two marshmallow "astronauts" when they land. Test, evaluate, and redesign. This program is adapted from NASA's Design Squad. Trip Tip: Pair with Saturn the Ring World or IBEX: Search for the Edge of the Solar System Planetarium Show.

45 minutes, 25 students maximum 3-PS2-1, 3-PS2-2, 3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3

### Erie Canal

Discover the Erie Canal through a hands-on, inquiry-based learning experience that explores the science, technology, and history of innovation in our area. Investigate the Canal's economic importance to New York State and the technological advancements, such as hydraulic cement, that stemmed from its construction. Through experimentation explore Pascal's Law and how it was used to design canal lock systems.

45 minutes, 25 students maximum, 3-PS2-1, 5-ESS3-1

### Fun with Physics

Physics is everywhere, even when we play. Through interactive demonstrations, learn how a bicycle tire can turn you into a human gyroscope. Explore the laws of gravity and discover Bernoulli's Principle.

45 minutes, 25 students maximum, 3-PS2-1, 3-PS2-2

### Innovation and Invention

Learn what it takes to be an inventor! Explore creative-thinking and the process of inventing through hands-on exploration. Discover real-life stories of amazing creations and look at Schenectady-based innovations and their impact on society.

45 minutes, 25 students maximum, 3-5-ETS1-1, 3-5-ETS1-2, Compliments Common Core Engage NY Grade 5: Module 2B

### Just A Phase

Discover answers to the questions of the Moon. Learn why our Moon is so bright, why it controls our tides here on Earth and what is happening to the Moon. Each student will walk their Moon through the phases as they discover what creates new, full, and waxing Moons. Trip Tip: Pair with a Star Lab Portable Planetarium Show.

45 minutes, 25 students maximum, 3-PS2-2, 5-ESS1-2

## Hands-on Science Explorations (continued)

### **Spectacular Spectroscopy**

Discover how light travels and creates the colors we see. Mix colored light to see what makes white light. Investigate how prisms can be used to manipulate light and produce rainbows. Experiment with gas samples and learn how they capture and release light waves.

45 minutes, 25 students maximum 4-PS4-1,

### **Optical Illusions**

Trick your eyes with a number of Optical Illusions and then discover scientifically what is happening with your eye and brain for this to occur. Learn about the parts of your eye and how it produces images for your brain to see. See how artists have used techniques to trick us for hundreds of years.

45 minutes, 25 students maximum, 4-PS4-2

### **Renewable Energy**

Use creativity skills to create a creature using everyday materials and littleBits modules.

45 minutes, 25 students maximum, 5-ESS3-1.

### **Science Solutions**

Science can be fun! In this program, students make their own bouncy, stretchy putty while learning about chemistry. Individuals mix different ratios of ingredients to make the best product.

45 minutes, 25 students maximum, MS-PS1-8

### **Techno Jungle**

Energy is everywhere, but what is energy? Where does it come from? Does it run out?

3-3-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3

### **The Magic of Electricity**

We all use it...but what IS it, and how does it work? Learn the basics of electricity through hands-on demonstrations, including the hair-raising Van de Graaf generator. Learn how electricity is generated, delivered to homes, and has changed our lives forever.

45 minutes, 25 students maximum, 4-PS3-4, 3-PS2-3, 3-PS2-3

## Interactive Science Demos

### **Dry Ice**

Explore the states of matter and sublimation with the fun and excitement of dry ice.

30 minutes, 30 students maximum, 4-PS3-2, 5-PS1-1, 5-PS1-2, 5-PS1-3

### **Electricity**

What is it? And how do we make more?

30 minutes, 30 students maximum, 3-PS2-3

### **Nanotechnology**

Explore the everyday applications of nanotechnology and find out just how small nano really is.

30 minutes, 30 students maximum

### **Physics**

Find out about the motion and the “why” behind its behavior.

30 minutes, 30 students maximum



**NEW!**

## **Sense and Censability Classes**

### **Sense and Censability Lesson 1: Money Matters**

Students will learn the difference between "needs" and "wants" and how to identify examples of each. Activities will demonstrate how to compare and prioritize needs and wants, and evaluate different choices when making personal and business purchases.

45 minutes, 25 students maximum, Number & Operations in Base Ten 3.NBT

### **Sense and Censability Lesson 2: Get Set for Goals**

Students will identify and develop ways to set short-term and long-term goals for saving, and develop an understanding of the importance of setting savings goals. Activities will help them to understand what might affect decisions to spend or save money, or give it away to a charity. Students will explore how and when to put aside earnings for future purchases, how to set short-term financial goals and become a financially responsible individual.

45 minutes, 25 students maximum, Number & Operations in Base Ten 3.NBT

### **Sense and Censability Lesson 3: Make a Plan**

Students will gain an understanding of the term "budget" and how to identify categories of a budget including income, expenses, and savings. Students will create a budget, apply budget skills to real world scenarios and be introduced to the concept of "pay yourself first."

45 minutes, 25 students maximum, Number & Operations in Base Ten 3.NBT, 3-3-ETS1-1, 3-5-ETS1-2