

## Science Store Education Outreach Programs

The Science Store has many educational programs that we can bring to your school through our Education Outreach Program. Most of our lessons involve hands-on experiences and each is designed to be educational and fun at the same time. Although we provide an age range for each lesson, we modify the lessons to be age appropriate for your particular class.

Some of our lessons are excellent for afterschool programs where children can learn more about science or engineering.

<b>NATURE OF SCIENCE</b>		
<b>Class Description</b>	<b>Grade Range</b>	<b>Sunshine State Standards</b>
<b>The Five Senses: Smell and Touch</b>	K-2	SC.K.N.1.2, SC.K.N.1.5, SC.K.L.14.1, SC.1.N.1.2, SC.2.N.1.1
Scientists rely on their senses to explore the world around them. In this lesson students study smell and touch and practice identifying items by their smell and feel.		
<b>The Five Senses: Observation Skills</b>	K-2	SC.K.N.1.2, SC.K.N.1.5, SC.K.L.14.1, SC.1.N.1.2, SC.1.E.5.3, SC.2.N.1.1
Scientists rely on their sense of sight to observe the world around them. Students learn about and practice fine tuning their observation skills.		
<b>Graphing: Bar, Line, and Pie Graphs</b>	5-12	SC.5.N.1.1, SC.6.N.1.1, SC.7.N.1.1, SC.8.N.1.1
Students learn about graphs and practice graphing scientific data using three different types of graphs.		
<b>How to do a Science Fair Presentation Board</b>	5-12	SC.5.N.1.1, SC.6.N.1.1, SC.7.N.1.1, SC.8.N.1.1
Students learn how to set up a science fair board. They will find out what judges are looking for and learn how to present their scientific research in an easy to read and understandable way.		
<b>Mastermind: Logical Thinking</b>	5-12	SC.5.N.1.1, SC.6.N.1.1, SC.7.N.1.1, SC.8.N.1.1

Students learn how to use deductive reasoning to solve problems using the popular game Mastermind.		
<b>Metric Measurement 1: Length</b>	3-5	SC.3.P.8.3, SC.4.P.8.1, SC.5.P.8.1
All scientists and most countries use the metric system for measurement. Students learn about millimeters, centimeters, meters and kilometers, and then practice measuring items in millimeters, centimeters and meters.		
<b>Metric Measurement 2: Volume and Weight</b>	3-5	SC.3.P.8.2, SC.4.P.8.1, SC.5.1.2.1
All scientists and most countries use the metric system for measurement. Students learn about milliliters and liters and how to correctly use graduated cylinders to measure volumes. They also learn about grams and kilograms and practice using an electronic scale.		
<b>Metric Measurement 3: Temperature</b>	3-5	SC.3.P.8.1, SC.4.P.8.1, SC.5.1.2.1
This class explains what temperature is, how to measure temperature in degrees Centigrade, and the relationship between Centigrade and Fahrenheit.		
<b>Scientific Classification: Sorting by Features</b>	K-3	SC.K.P.8.1, SC.1.P.8.1, SC.3.L.15.1, SC.3.L.15.2
Students learn that organisms can be classified into one or more groups based on physical characteristics. This lesson gives students the opportunity to look at and discuss different classification schemes.		
<b>Understanding the Scientific Method</b>	3-12	SC.3.N.1.1, SC.3.N.1.4, SC.4.N.1.1, SC.4.N.1.3, SC.4.N.1.7, SC.5.N.1.1, SC.6.N.1.1, SC.7.N.1.1, SC.8.N.1.1
Learn about the Scientific Method by analyzing magic tricks.		
<b>LIFE SCIENCE</b>		
<b>Class Description</b>	<b>Grade Range</b>	<b>Sunshine State Standards</b>
<b>Acne: Facts and Myths</b>	6-12	
Acne is an important topic for most middle and high school students. There are many questions about its' causes and treatment. This class can help bring acne issues into the open, discuss what is currently known about acne, and dispel myths about it.		
<b>Edible Animal Cell</b>	4-8	SC.6.L.14.2, SC.6.L.14.3, SC.6.L.14.4
Students create a model of an animal cell using a cookie and cookie decorations. They also learn about the structure and function of the numerous organelles found in animal cells.		

<b>Eukaryote Cells: Animal Cells</b>	6-10	SC.6.L.14.2, SC.6.L.14.3 , SC.6.L.14.4
Students learn about the structure of eukaryote cells, the various cell organelles and their functions, and cell replication.		
<b>Fingerprinting</b>	4-8	
Fingerprints are unique. In this class students learn about the characteristics of fingerprints, how to collect fingerprints, and how to compare them.		
<b>Genetics: Understanding DNA</b>	7-10	SC.7.L.16.1, SC.7.L.16.3
This lesson explains what DNA is, how it carries hereditary information, and how characteristics get transferred from parent to offspring.		
<b>Microscopes</b>	4-12	SC.4.E.6.5
This lesson teaches students about the various types of microscopes, the basic parts of a compound microscope, and how to use a compound microscope. Students will use the compound microscope to look at both prepared slides and pond water.		
<b>Nucleotides</b>	7-10	SC.7.L.16.1, SC.7.L.16.3
Nucleotides are part of RNA and DNA. This class describes nucleotides and allows students to build model nucleotides and link them together.		
<b>Population Biology</b>	6-10	SC.7.L.17.2, SC.7.L.17.3
In this class students discover exactly what a population is, how to describe populations, and what biotic and abiotic factors affect populations.		
<b>Prokaryote Cells: Bacteria</b>	6-10	SC.6.L.14.2, SC.6.L.14.3 , SC.6.L.14.4
Students learn what bacteria are, where they live, and what makes them different from animal cells.		
<b>RNA and Proteins</b>	7-10	SC.7.L.16.1, SC.7.L.16.3
Students learn how the information coded in DNA is replicated inside of cells and how it leads to the formation of unique individuals.		
<b>Squid Dissection</b>	5-12	
Students learn basic dissection techniques using scissors and dissecting probes as they explore the anatomy of a squid. No formaldehyde or other dangerous preservatives are used.		
<b>EARTH AND SPACE SCIENCE</b>		
<b>Class Description</b>	<b>Grade</b>	<b>Sunshine State Standards</b>

	<b>Range</b>	
<b>Fossils and Dino Dig</b>	K-3	
Students learn about fossils as they use hammers and chisels to uncover plastic dinosaur bones in a man-made "rock". They also learn about the tools and methods used by paleontologists in their search for ancient plants and animals.		
<b>Rocks</b>	2-8	SC.2.E.6.1, SC.2.E.6.2, SC.4.E.6.1, SC.4.E.6.2, SC.4.E.6.3, SC.7.E.6.2
This lesson explains metamorphic, sedimentary and igneous rocks and the processes that form them. We bring samples of each type for students to investigate.		
<b>The Solar System</b>	3-8	SC.3.E.5.2, SC.3.E.5.3, SC.4.E.5.3, SC.4.E.5.4, SC.5.E.5.2, SC.5.E.5.3, SC.6.E.7.9, SC.8.E.5.7
Students learn about the solar system - the sun, planets, moons, comets, and asteroids, determine Earth's position in the system, and compare and contrast common characteristics of both the inner planets and the outer gas giants.		
<b>The Universe</b>	5-12	SC.5.E.5.1, SC.8.E.5.1, SC.8.E.5.2, SC.8.E.5.3
Students locate our solar system in the Milky Way Galaxy and discover the vastness of the universe, including its billions of galaxies, stars, and black holes.		
<b>The Water Cycle</b>	5-8	SC.5.E.7.1, SC.5.E.7.2, SC.5.E.7.4, SC.6.E.7.2
Students examine the water cycle and all of its components including evaporation, condensation, precipitation, water sinks, and how it affects weather.		
<b>Weather</b>	4-8	SC.5.E.7.3, SC.6.E.7.3, SC.6.E.7.6
Students learn what causes weather and what instruments are used to measure and predict weather.		
<b>PHYSICAL SCIENCE</b>		
<b>Class Description</b>	<b>Grade Range</b>	<b>Sunshine State Standards</b>
<b>Atoms and Molecules</b>	3-10	SC.5.P.8.4, SC.6.L.14.1, SC.8.P.8.7
Atoms are basic units of matter. Students learn about atoms and how they join together to form molecules.		
<b>Alternate Energy: Solar Cells</b>	6-12	

Students learn about photovoltaic cells: how they work and how can they be used to provide power.		
<b>Alternate Energy: Solar Ovens</b>	3-12	SC.3.E.6.1
Students learn about different types of energy. In this class each student builds a solar oven out of a pizza box and discovers the advantages and disadvantages of solar energy over fossil fuels.		
<b>Alternate Energy: Wind Generators</b>	6-12	
Students build simple wind generators and make measurements of their voltage and current under varying wind conditions.		
<b>Chemical and Physical Changes</b>	4-8	SC.4.P.9.1, SC.5.P.9.1, SC.8.P.9.2, SC.8.P.9.3
Students investigate the differences between chemical and physical changes in matter using hands-on experiments.		
<b>Egg Drop Challenge</b>	6-12	
Students design and build a container that will protect a raw egg during a 20-foot fall. They then drop the eggs to test their design.		
<b>Electricity: Use and Safety</b>	2-5	SC.2.P.10.1
This lesson teaches young children the basics of electricity and how to be safe around electricity.		
<b>Electricity: Volts, Amps, and Ohms</b>	5-12	SC.5.P.11.1, SC.5.P.11.2
Volts, Amps and Ohms are all named after scientists. Students learn about these scientists, what electricity is, and how to use a digital voltmeter to measure volts, amps and ohms.		
<b>Electricity: Understanding Electricity Use and Conservation</b>	7-12	
Students learn how to determine electrical energy usage, how to read electric bills, and how to reduce energy usage.		
<b>Flight: Airplanes, Helicopters, and Gravity</b>	K-4	SC.K.E.5.1, SC.1.E.5.2, SC.1.P.13.1, SC.2.P.13.3, SC.3.E.5.4
Learn about the various forces on airplanes and how those forces interact with gravity using the award-winning Nakamura Lock paper airplane.		
<b>Force and Motion</b>	4-12	SC.4.P.12.1, SC.4.P.12.2, SC.5.P.13.1, SC.5.P.13.2, SC.6.P.12.1, SC.6.P.13.1, SC.6.P.13.2, SC.6.P.13.3
Students learn about Newton's Laws, what force is, and how forces affect the motion of objects.		
<b>Forms of Energy</b>	3-8	SC.3.P.10.1, SC.3.P.10.2, SC.4.P.10.1, SC.4.P.10.2, SC.5.P.10.1, SC.5.P.10.2, SC.6.P.11.1, SC.7.P.11.2, SC.7.P.11.3
Energy can neither be created nor destroyed! Students learn about the various forms of energy, including kinetic and potential energy.		

<b>Heat and Temperature</b>	4-8	SC.4.P.11.1, SC.4.P.11.2, SC.7.P.11.4
Heat and temperature are two different things. Students learn what each is and how scientists measure temperature.		
<b>Magnets</b>	2-4	SC.2.P.8.1, SC.2.P.13.2, SC.4.P.8.2, SC.4.P.8.4
Magnets are used in many common items from compasses to electric motors. Students learn how magnets work and how to make an electro-magnet.		
<b>Mixtures and Compounds</b>	5-7	SC.5.P.8.3, SC.8.P.8.9
Mixtures, compounds, elements, and substances are discussed and explained in this lesson.		
<b>Light 1: The Electromagnetic Spectrum</b>	6-8	SC.7.P.10.1, SC.8.E.5.11
Students learn about the electromagnetic spectrum, how light carries energy, and how light makes color.		
<b>Light 2: Mirrors and Lenses</b>	3-8	SC.3.P.10.3, SC.3.P.10.4, SC.7.P.10.2
Why is your face backwards when you look in a mirror? Why does your image look distorted in a funhouse mirror? Students learn about this and how light is reflected, refracted, and absorbed.		
<b>Pendulums</b>	4-8	
Students learn exactly what a pendulum is and how it works while performing experiments that demonstrate the characteristics of pendulums.		
<b>Periodic Table</b>	6-12	SC.8.P.8.5, SC.8.P.8.6
Why are elements arranged the way they are in the periodic table? Students learn about elements and the periodic table.		
<b>Properties of Matter</b>	5-8	
This lesson is all about matter, its' characteristics and why matter, matters!		
<b>Simple Machines</b>	5-8	
Even simple items like fingernail clippers are composed of several simple machines. Students learn about the various types of simple machines, practice identifying them, and make some of their own.		
<b>States of Matter: Solids, Liquids, and Gases</b>	3-8	SC.3.P.9.1, SC.4.P.8.2, SC.5.P.8.1, SC.7.P.11.1
Scientists currently classify 7 states of matter, some occur naturally around us and others do not. This lesson teaches students about solids, liquids, and gases and introduces them to the other less commonly known states.		
<b>Toy Car Challenge</b>	6-12	
Students design and build their own toy car using scrap materials, electric motors, wheels and whatever else they can think of. They then test their design in a toy car challenge.		

## ENGINEERING AND ELECTRONICS

Class Description	Grade Range	Sunshine State Standards
<b>Electronics 1</b>	5-12	
<b>Electronics 2</b>	5-12	
<b>Electronics 3</b>	5-12	
<b>Flight: Build an Ornithopter</b>	5-12	
An Ornithopter is a machine that flies like a bird. In this class each student will build an ornithopter and discover the forces that affect flight.		
<b>Projectile Motion: Build a Catapult</b>	5-12	
Students build their own educational catapult in this lesson. This catapult has been designed by The Science Store and has adjustable parts so that it can be used to study projectile motion.		