



***xploration***  
*What will you discover?*

***STEM***  
***Traveling***  
***Enrichment Program***  
***&***  
***Classroom Workshops***

**General Inquiries:**

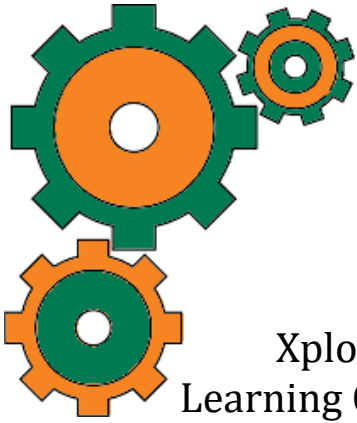
**(603) 882-9080 x2205**

**[xploration@nashuaalc.org](mailto:xploration@nashuaalc.org)**



**Learn. Grow. Thrive.**  
**[www.nashuaalc.org](http://www.nashuaalc.org)**





## Program Description

Xploration provides enrichments and workshops to all Adult Learning Center after school programs. This program is also available to schools during the school day across Southern NH. Xploration promotes fun enrichment that encourages students to design, create, and problem-solve using their critical thinking skills and team work. This unique program is led by an experienced STEM (Science, Technology, Engineering, and Math) instructor who engages students in learning that is hands-on, team-based, and grounded in scientific exploration. Watch students as they experience an “aha” moment that sparks interest and deep thought in a particular subject area.

Xploration offers developmentally appropriate activities with an emphasis on fun and interactive learning. All activities can be adapted to program and curriculum needs. Do you have an idea but don't see it on our program list? Xploration may be able to work with you and customize a workshop that fits your needs.

## How to Participate

We welcome and encourage schools to participate in this program during the school day. We invite you to view our website as our program continues to expand and update frequently. Find out more by visiting our website at [www.nashuaalc.org](http://www.nashuaalc.org) and following the “children” tab to the Xploration page.

Contact: Jeremy Griffus  
Xploration STEM Director  
[jgriffus@nashuaalc.org](mailto:jgriffus@nashuaalc.org)  
603-882-9080 Ext. 2205

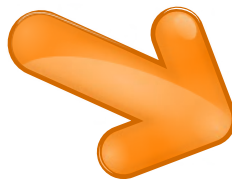
General Inquiries:  
[xploration@nashuaalc.org](mailto:xploration@nashuaalc.org)



## **Things to keep in mind when planning your Xploration visit!**

**1.**

**Most of the workshops include a presentation using a screen and projector. While we will provide both, please keep this in mind when choosing your space.**



**2.**

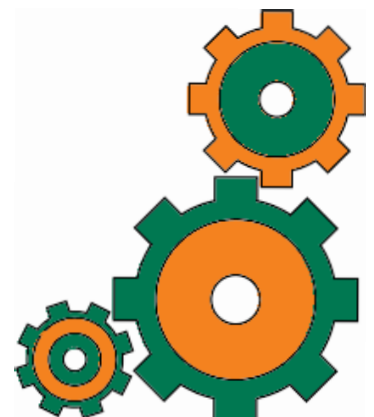
**If scheduling multiple workshops, please plan on having students move to one set location. Equipment set-up takes time and we want your students to get the most out of the visit!**

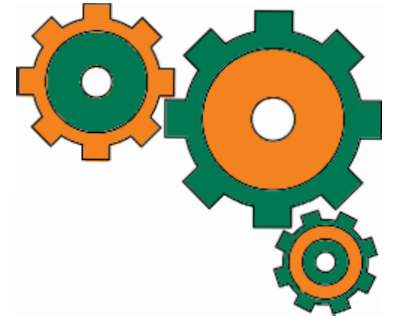
**3.**

**If scheduling multiple workshops on the same day, please allow for a 10- 15 minute transition time.**



**The length of most workshops can be customized. 1 hour workshops are recommended.**



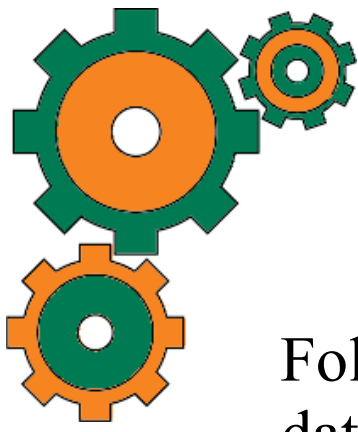


# About the Director

**Jeremy Griffus first joined the Adult Learning Center in 1998 as a student volunteer. His natural aptitude for working with children led to his hire and subsequent promotion to Summer Camp Site Director and again to Activities Coordinator for the Adventure Camp Program. For over a decade, Jeremy also worked during the day for the Hudson School District until leaving to develop and devote himself full-time to Xploration, the STEM Traveling Enrichment Program, an initiative of the Adult Learning Center.**



**Jeremy is passionate about teaching STEM enrichment courses to elementary and middle school students. His gift for encouraging young minds to explore all possibilities, using hands-on activities, shines through all of Jeremy's workshops. Always on the cutting edge, Jeremy continues his own professional development by attending workshops and events throughout the United States to bring the most innovative experiences to his students. In 2018 Jeremy received his NASA Endeavor STEM teaching certificate for graduate-level work online through Columbia University. The NASA Endeavor curriculum further enhanced Jeremy's ability to bring STEM workshops into the classroom and compliment the learning already taking place in all the school districts.**



# Where to Find Us

Follow us on social media to stay up to date on our school visits, special events and other Xploration activities. Give us a follow, you might see yourself featured on our page!



LinkedIn: Xploration



Instagram: xploration\_alc



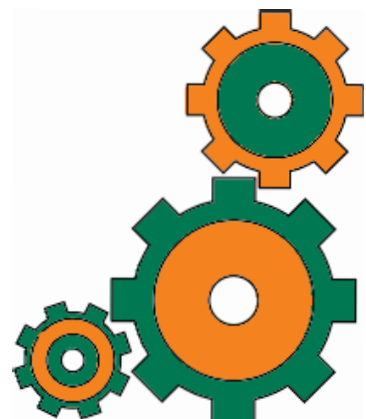
X, formerly Twitter: XplorationAlc



Facebook: XplorationALC



Tiktok: xploration\_alc



# Table of Contents

<b>1</b>	<b>Paper Air Rockets</b>
<b>2</b>	<b>Water Rockets</b>
<b>3</b>	<b>Wind Tunnels</b>
<b>4</b>	<b>Wind Vortex</b>
<b>5</b>	<b>Sound Waves</b>
<b>6</b>	<b>Watersheds and Landforms</b>
<b>7</b>	<b>Shake and Quake</b>
<b>8</b>	<b>Balloon Hovercrafts</b>
<b>9</b>	<b>Helicopter Flight</b>
<b>10</b>	<b>Super Structures</b>
<b>11</b>	<b>Farmer's Bridge</b>
<b>12</b>	<b>Crash Test</b>
<b>13</b>	<b>Super Coasters</b>
<b>14</b>	<b>Bubble Adventures</b>
<b>15</b>	<b>Boo Bubbles</b>
<b>16</b>	<b>Elephant's Toothpaste</b>
<b>17</b>	<b>Slime Science</b>
<b>18</b>	<b>Soda Geysers</b>
<b>19</b>	<b>Plasma Science</b>
<b>20</b>	<b>LittleBits and Circuits</b>
<b>21</b>	<b>Lights and Lasers</b>
<b>22</b>	<b>Coding with Sphero</b>
<b>23</b>	<b>Family STEM Nights</b>
<b>24</b>	<b>Pricing</b>
<b>25</b>	<b>Where to find funding for STEM activities</b>



# Paper Air Rockets

## Suggested Location:

A room with long tables such as a cafeteria or a classroom. A room for launching with high ceilings is preferred, however, the launcher can be adjusted for launching down a hallway. If the weather is cooperative, outdoors is a great launching location.

## Suggested Amount of Time: 1 Hour per workshop.

Length can be customized.

If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.



## Description:

This engaging lesson will have students become engineers and design their own rocket made of paper and a foam nose cone. We start by having a discussion about rocket design and what they feel will make a good rocket. Do you want a pointy or flat cone? How big will your fins be? How many fins will you have? Construction begins as students choose materials and bring their creative ideas to life. Now it's time to launch! Review and discussion wrap up the activity and, of course, students can take home their rocket.

## Learning Outcomes:

Students will have a basic understanding of forces and motion, aeronautics, gravity, air resistance, air pressure, trajectory, acceleration, momentum and the engineering and design process.



# Water Rockets

## Suggested Location:

Rocket construction should take place in a cafeteria or a room with tables to be used for workspace. Launching must take place outside.

## Suggested Amount of Time:

2 days @ 1 hour each day.  
Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

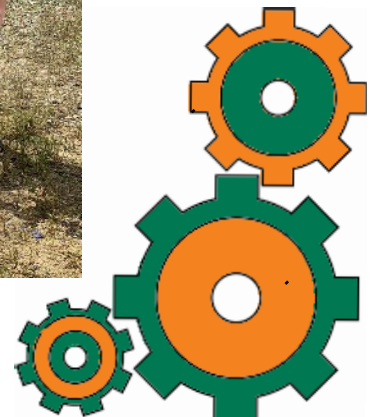
## Description:

Day 1: Students will participate in a discussion with the instructor about what they think a rocket looks like. What are the fins? Why do rockets have fins? Why is the top pointy? What makes a rocket fly? Students then take those ideas and try to implement them as they construct their own personal rocket while working within an imaginary budget.

Day 2: Launch day! Students will decide how much water they would like to use in their rocket. They will also decide how much PSI they'd like to pump into their rocket before launching. Does more or less water increase the height? Does a higher PSI have an affect your rocket? With the instructor's assistance, the rocket is attached to the launcher. Spectators and others waiting their turn stand at a safe distance and observe the results of each design while maybe getting a little splash here and there. The activity wraps with review and discussion.

## Learning Outcomes:

Students will have a basic understanding of forces and motion, aeronautics, gravity, air resistance, air pressure, trajectory, acceleration, momentum and the engineering and design process.





# Wind Tunnels

**Suggested Location:** A classroom or open area with tables for student workspace.

**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

**Description:** This enrichment is an innovative approach to learning the effects of moving air on different objects. Students will be presented with a series of challenges using simple materials and testing the flight effects inside one of Xploration's vertical wind tunnels. Can you create an object that will fly out of the tunnel? Can you invent a way for that object to stay hovering in the tunnel? Can you design an object that will spin or fly in an unusual way? Students will have the opportunity to share their designs and discuss the results of the test flights.

**Learning Outcomes:** Students will have a basic understanding of forces and motion, air resistance, drag and explore the engineering and design process.



# Wind Vortex

## Suggested Location:

This workshop can be conducted in a classroom however it's suggested that the students have room to spread out such as a cafeteria or gymnasium.

**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

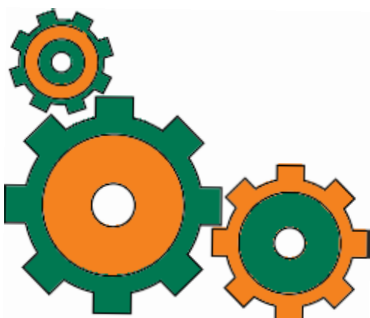
"What is a vortex?" Most will make a reference to a video game, black hole or a tornado which are all acceptable answers. What are the similarities? How can we harness this energy? Students create their own "Wind Vortex Generator" and test the vortex theory by attempting to knock down cups using their vortex generator. How far away can you stand and still knock down cups? What makes your vortex generator successful or not? The instructor then "super sizes" the vortex generator and demonstrates how powerful this source can be. To prove that a vortex is actually being created, the instructor adds fog. Students marvel as giant smoke rings travel across the room and knock down cups. Feel the power! After review and discussion, students can take home their mini vortex generator.

## Learning Outcomes:

Students will have a basic understanding of what a vortex is, fluid dynamics, air displacement, toroidal vortex, harnessing wind energy and the engineering and design process.



**Allergy Warning:**  
Latex balloons used  
for this lesson.





# Sound Waves



**Suggested Location:** A classroom or open area with tables for student workspace.

**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

**Description:** Did you hear that sound? Students will explore what sound actually is as they are introduced to the concept of vibrations through a variety of hands on experiments and demonstrations. Students will even create their own sound making device to take home and continue the experimentations.

**Learning Outcomes:** Students will have a basic understanding of sound waves and what allows us to hear sound. We will expand even further by having students explore pitch while attempting to visualize the sound waves.



# Watersheds & Landforms

## Suggested Location:

This workshop can be conducted in a classroom however it's suggested that the students have room to spread out such as a cafeteria or gymnasium.

**Suggested Amount of Time:** 1 Hour per workshop.  
Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Why go to the museum for interactive exhibits, when the exhibits can come to your school? The Shaping Watersheds workshop brings a 3D interactive augmented reality sandbox and two additional 3D surface water pollution tables. The classroom is divided into three separate areas and students will take turns at each station. Students will see first hand how water flows from higher elevations to lower elevations, how water can pick up pollutants, how we effect the watersheds daily and how we all live in a watershed.

## Learning Outcomes:

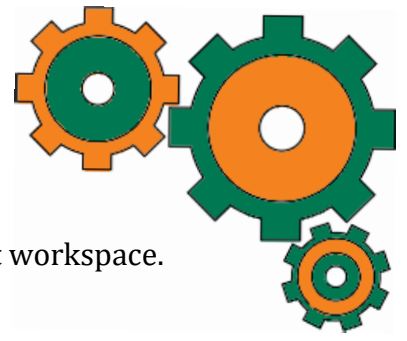
Students will have a basic understanding of landforms, basic hydrology, watersheds, topography, tributaries, water cycle and water conservation.

Sponsored by:  
 **PENNICHUCK®**  
WATER SERVICE CORPORATION





# Shake and Quake



**Suggested Location:** A classroom or open area with tables for student workspace.

**Suggested Amount of Time:** 1 Hour per workshop.

Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

While we in the New England area do not experience many earthquakes, it is an important topic included in elementary curriculum. Following a brief overview of earthquakes and how earthquakes happen, students become engineers and must build a tower that withstands an earthquake. With Xploration's earthquake simulation tables, this becomes an exciting way to discuss shifting of tectonic plates.

## Learning Outcomes:

Students will have a basic understanding of tectonic plates, faults, major geographical events, and the engineering and design process.



# Balloon Hovercrafts

## Suggested Location:

Introduction, demonstration and building should take place at desks or tables. A smooth tiled floor is needed for large hovercraft demonstration. Mini hovercraft testing can be done easily in the back of a classroom or hallway. Smooth floors are a must.

**Suggested Amount of Time:** 1 hour per workshop. Length can be customized.  
If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Students participate in a discussion with the instructor about hovercrafts. Have you ever seen one? How do you think it works? How are they beneficial to us? Next, the instructor provides a fun demonstration with a homemade hovercraft as students observe how air is pushed out from underneath to create the air cushion which causes the craft to “hover”. Students then apply those concepts while making their own hovercraft using a balloon, bottle cap and CD. Once the hovercrafts are built, students marvel as they race down the hall pushed by a fan! So simple but so much fun! The activity ends with review and discussion. Students can take home their mini balloon hovercraft.

## Learning Outcomes:

Air pressure, friction, aerodynamics, forces and motion.



Allergy Warning:  
Latex balloons used  
for this lesson.





# Helicopter Flight

## Suggested Location:

This workshop can be run in a classroom, however it's suggested to have an open space such a cafeteria or gymnasium.

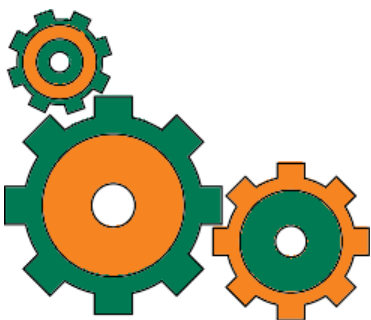
**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

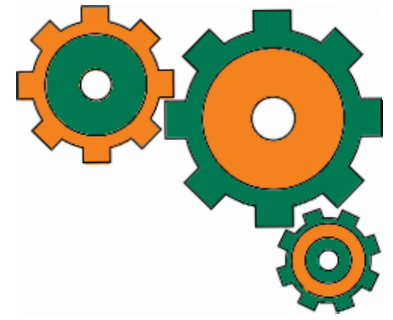
We have all seen them flying through the air in real life and on television, but do we understand how they work? An initial discussion comparing flying vessels brings the group to wonder why a helicopter is different. Students then create paper helicopters to help demonstrate what they have discovered through our discussion. Once the helicopters are built, they will toss them in the air and watch them spin to the ground. Students experiment with different types of paper and adding weight to the bottom of the helicopter to determine how their vessel will react. Finally, expanding on their personal observations, students will receive a plastic propeller spinning toy to experiment with and observe how they fly. The room soon fills up with flying objects! What a blast! Review and discussion follow the fun and students can take home their paper and toy helicopters.

## Learning Outcomes:

Basic aeronautics, gravity, air resistance, acceleration, momentum, forces and motion.



# Super Structures



## Suggested Location:

A large open area such as a cafeteria, gymnasium, or empty classroom works best.

**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Small and large buildings can be quite impressive. These structures are designed and built to withstand heavy loads of snow, strong winds and other natural elements. Students participate in a group discussion: What do we know about building shapes? What do we usually find under a building, in the middle of a building and on top of a building? After reviewing the engineering process (Ask, Imagine, Plan, Create and Improve), students will break into groups and build a structure with specifications based on grade level and dynamic of the group. The final test? The building must be able to survive a pretend hurricane produced by a leaf blower! The workshop ends with review and discussion.

## Learning Outcomes:

Center gravity, foundations, load bearing, structural support and integrity, intro to hurricanes.





# Farmer's Bridge

## Suggested Location:

A large open area such as a cafeteria, gymnasium, or empty classroom works best.

## Suggested Amount of Time:

1 Hour per workshop.  
Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

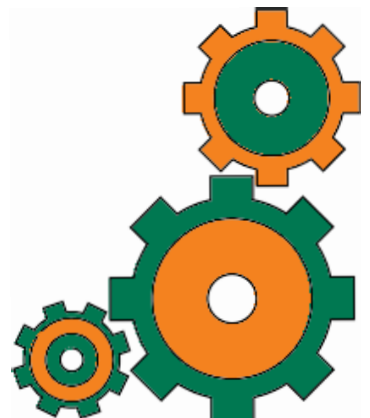


## Description:

For this workshop students can work in small groups or individually. The engineering design process is reviewed (Ask, Imagine, Plan, Create, and Improve). A story is told describing a setting and problem for the young engineers to solve. Using only the designated materials, students must build a bridge over a "river". The purpose of the bridge is to get farm equipment from the farm to the farm land on the other side of the river. The bridge must be strong enough to hold a toy tractor. The river is actively used by boaters, so the bridge must be high enough for boats to travel under it safely. A toy boat will be used to test this. Students will have an opportunity to test and improve their design before the final trial. This activity really gets the mind thinking and students share their thoughts in a review and discussion period to close out the workshop.

## Learning Outcomes:

Bridge types, span, weight distribution.



# Crash Test



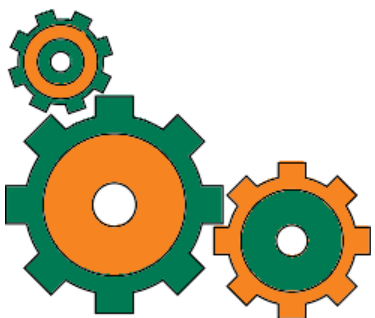
## Suggested Location:

This workshop can easily be adapted to most locations. (Classroom, gymnasium, hallway, cafeteria, etc.)  
Not suggested for outdoors.

**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

**Description:** What keeps you safe when you drive in a car? Following a short presentation, a discussion will take place about what keeps us safe in a vehicle. We will also discuss how safety has improved in vehicles over the years. These young engineers / scientists will follow the same steps that leading vehicle manufacturing professionals do. Students are divided into small groups to design and develop safety features for a model vehicle. When it's time to test those features, a "crash test dummy" equipped with a sensor will be seated in their vehicle. It will be sent on a test drive down a ramp for a crash. We will then make observations and improvements following the engineering and design process. The objective is to design safety features that will prevent life threatening injuries from occurring to your "crash test dummy".

**Learning Outcomes:** Acceleration, momentum, forces and motion, automobile safety.





# Super Coasters

**Suggested Location:** A large room such as a cafeteria or gymnasium.

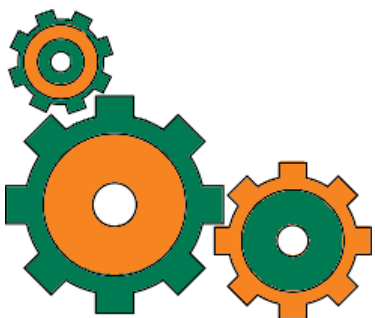
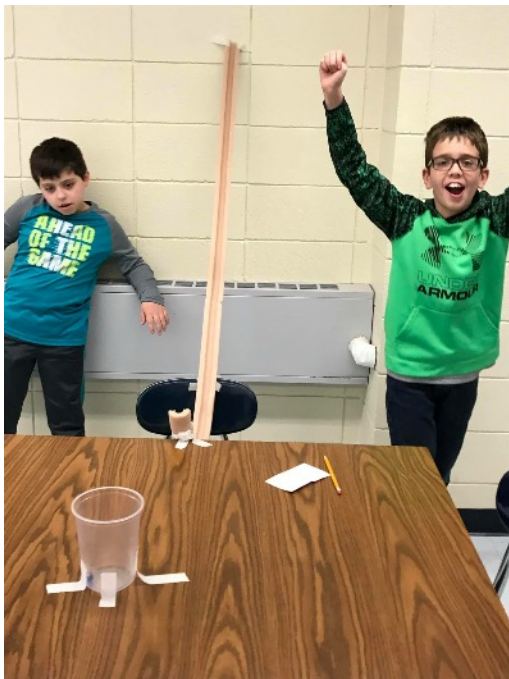
**Suggested Amount of Time:** 1-1½ hours per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Students become real engineers during this enrichment activity. Using foam tracking and marbles, they are challenged to make a ski jump, an upside down loop and ultimately a “super coaster”. Students soon learn different tricks to send their marble through this “super coaster”. After each challenge, we will discuss what works and what is not working. This sharing of ideas affords the students the opportunity to learn from each other.

## Learning Outcomes:

Forces and motion, gravity, velocity, trajectory.



# Bubble Adventures

## Suggested Location:

A large open area such as a cafeteria, gymnasium, or empty classroom works best. Activity #3 must be done outdoors.

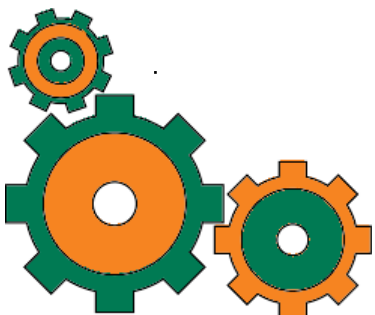
**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Bubbles are so simple. We have all played with them at some point in our lives. Have you ever thought about the science behind what makes a bubble possible? How does it work? Why are some bubbles different than others? Students will participate in three different activities which explore and test the science behind bubbles. #1: Using small bubble wands, how many actions can you observe from the "Bubble Challenge Chart"? #2: Using materials provided, make your own bubble wand and test it. How is your wand different from the others? #3 If an outdoor area is available, students will take turns using a "large bubble wand" to make giant bubbles. The workshop culminates in review and discussion. Students can take home their homemade bubble wand.

## Learning Outcomes:

Elasticity, surface tension, basic chemistry, Engineering basics, light refraction.





# Boo Bubbles

## Suggested Location:

A room with long tables such as a cafeteria or a classroom. Access to hot water is required (does not have to be in the same room).

**Suggested Amount of Time:** 1 hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

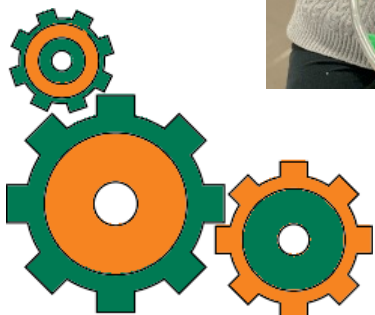
This enrichment includes two experiments and two demonstrations involving dry ice. Students learn what dry ice is and how it is affected by rapid warming. While this process is happening in front of them, they'll be "wowed" when they see the fog roll off the tables. In the first experiment, students will attempt to control the released carbon dioxide "fog" by capturing it in the form of bubbles. Can you catch a bubble in your hand? In the second experiment, students form a hypothesis. What will happen if we release the carbon dioxide in the bubble solution? Tons of fun! The workshop ends with review and discussion.

## Learning Outcomes:

States of matter, understanding Carbon Dioxide, surface tension, water vapor.

### Dry Ice Safety

- Safety rules will always be reviewed and enforced
- Only the instructor will handle dry ice
- Dry ice is non toxic



# Elephant's Toothpaste

## Suggested Location:

A room with long tables such as a cafeteria or a classroom.

## Suggested Amount of Time:

1 Hour per workshop. Length can be customized.

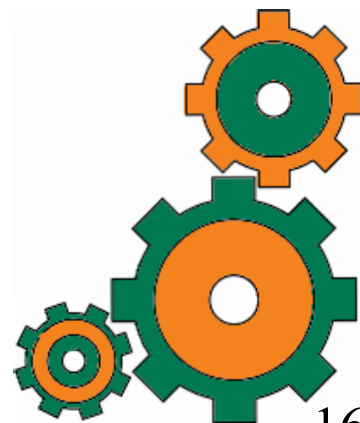
If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Students first discuss what they know about chemical reactions. We then examine what Hydrogen Peroxide is and compare it ( $\text{H}_2\text{O}_2$ ) to water ( $\text{H}_2\text{O}$ ). Now it is time to separate that extra oxygen molecule by adding a catalyst. The extra oxygen is captured in soap suds which has a fun reaction and oozes out of the bottle. Following their experiments, the instructor will take this experiment to the next level and demonstrate the same procedure but with more powerful materials. It's quite a show!

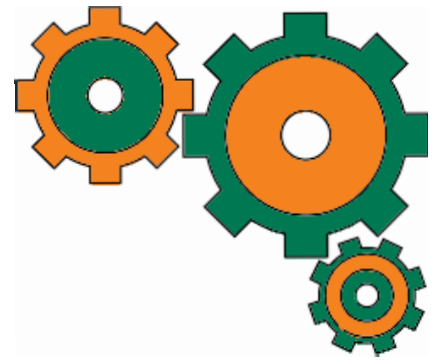
## Learning Outcomes:

Chemistry basics,  $\text{H}_2\text{O}$  vs.  $\text{H}_2\text{O}_2$ , decomposition using catalyst, exothermic reactions.





# Slime Science



## Suggested Location:

A room with tables or desks such as a cafeteria or a classroom.

**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Ooey Gooley fun! Following a brief presentation, and a couple demonstrations, students begin making their own slime. Starting with a polymer, students will add different elements that could change the viscosity, color and texture of their slime. Is it liquid? Is it solid? Neither, it's a non-newtonian fluid. Students test and experiment with their slime as we wrap up.

## Learning Outcomes:

States of matter, chemistry basics, polymer, linking molecules



# Soda Geysers

## Suggested Location:

Outdoors on a grassy area. This can be done on pavement, however it's suggested that you have a hose available for cleanup.

**Suggested Amount of Time:** 1 Hour per workshop.  
Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

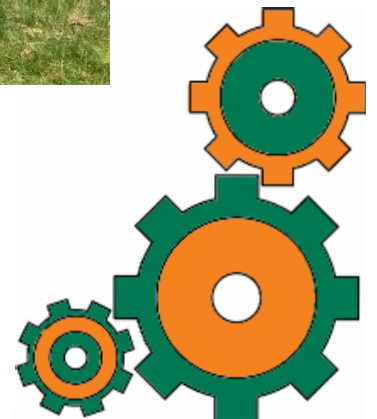


## Description:

Get ready, get set, get messy! The days of mixing baking soda and vinegar are over once you try an eruption like this one. Rather than a chemical reaction, the students learn about and observe a physical reaction. Water molecules strongly attract each other, linking together to form a tight mesh around each bubble of carbon dioxide gas in the soda. When the students pull the string which releases several Mentos Mints into a 2 liter bottle, the crowd goes wild. This activity concludes with review and discussion of what was learned and observed.

## Learning Outcomes:

Physical reactions vs. chemical reactions, properties of Carbon Dioxide, nucleation points.







## Suggested Location:

This workshop should be run in a room where students can be split into 6 groups (6 working tables). A room with windows that can be opened for ventilation and standard electrical outlets are required.

## Suggested Amount of Time:

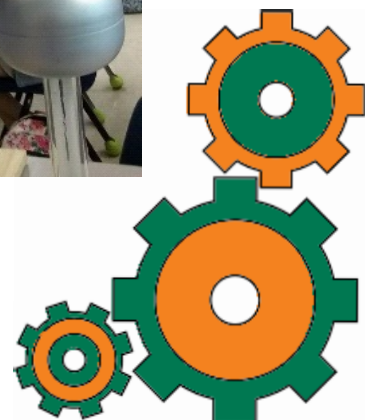
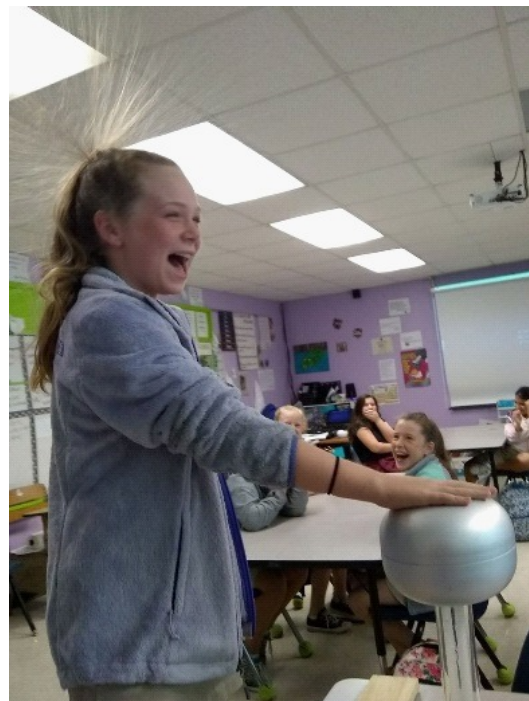
1 Hour per workshop.  
Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

Let's bring plasma into your classroom! It doesn't sound possible does it? With Xploration's specialized equipment we will bring several experiments to your classroom all aligned with your curriculum needs. Students will be actively participating in experiments while the instructor is explaining what's happening. Watch how positively charged electrons make objects fly, positively charge your hair, make lights turn on without using batteries, create sparks and so much more. All these hands on experiments give students experiences to be remembered. We will end the workshop with a custom indoor lightning show using our own Tesla Coil.

## Learning Outcomes:

States of matter, electricity, plasma, properties of heat, light and sound.



# LittleBits & Circuits

## Suggested Location:

This workshop can take place pretty much anywhere. It's best to separate the groups a bit, but this can easily be accomplished in a classroom.

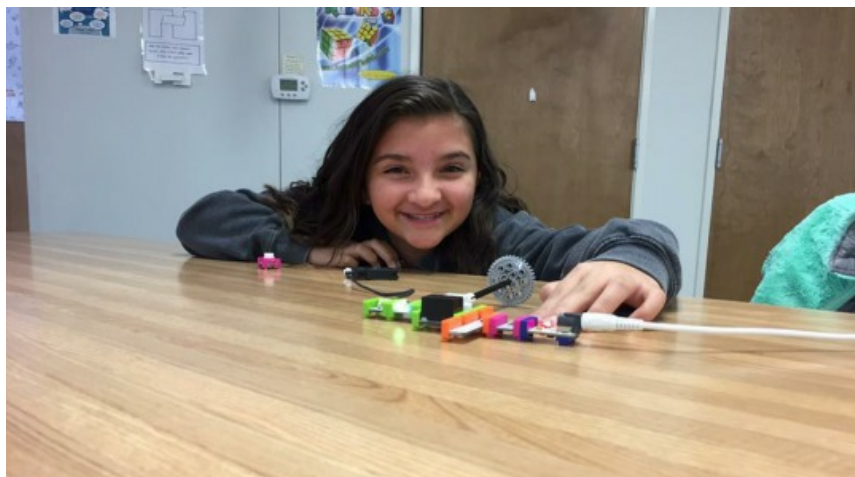
**Suggested Amount of Time:** 1 Hour per workshop.  
Length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

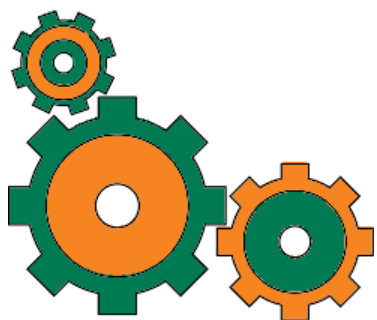
littleBits are fun interactive circuit connectors. Each bit has its own function such as power, input, output and extension. Students are guided through a series of design challenges using these bits. Can you make a flashlight? Can you make an alarm go off when a box is opened? Can you move this object using only littleBits? Watch how students become truly engaged while collaborating and problem solving using critical thinking skills. This activity takes learning about electricity to the next level by integrating technology that students use every day. Review and discussion wrap up the workshop.

## Learning Outcomes:

Parallel circuits, series circuits, basic robotic functions, basic circuit programming, electricity.



littleBits™  
ELECTRONICS





# Lights & Lasers

Sponsored by:

**BAE SYSTEMS**

INSPIRED WORK

## Suggested Location:

A classroom or open area with tables for student workspace with the ability to make the room dark. The laser show can be done in the classroom setting or as an assembly. Contact for details.



## Suggested Amount of Time:

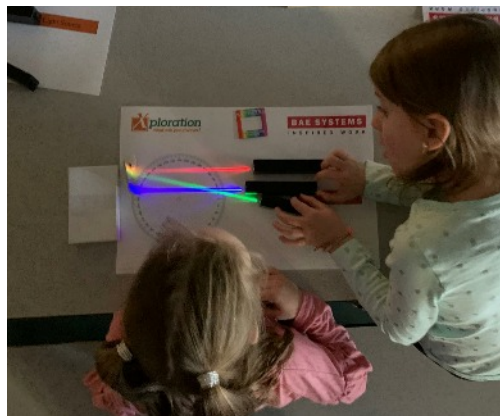
1 - 1 1/2 hours per workshop (including laser show). If planning the laser show separately, the hands on workshop is approximately 1 hour but the length can be customized. If scheduling multiple workshops on the same day, please allow for a 10-15 minute transition time.

## Description:

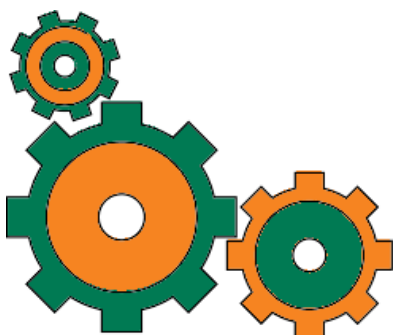
The instructor begins the workshop with a series of challenges for students using 3 light sources (Red, Green, Blue). Casting beams of light over a surface, can you use a mirror and reflect the light in a certain direction? Using a trapezoid, concave and convex lenses, can you refract the light causing the beams to bend? Next, students experience mixing the colored light. How many different colors can you make? How is mixing colored light different than mixing paint colors? Several demonstrations take place using Xploration's own laser machine. Now comes the laser light show which reinforces what the students just learned.

## Learning Outcomes:

Light reflection, light refraction, light waves, mixing light colors, and persistence of vision.

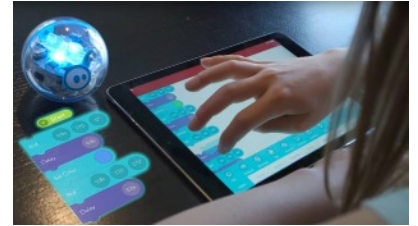


## Outdoor Laser Show Option





# Coding with Sphero



## Suggested Location:

A classroom or open area with plenty of floor space. Depending on the number of students, there could be as many of 12 small areas located on the floor where students will be working.

**Suggested Amount of Time:** 1 Hour per workshop. Length can be customized. If scheduling multiple workshops on the same day, please discuss transition times with Jeremy. Additional charging time may be required depending on the size of groups.

## Description:

Following a quick introduction to coding and how it's used, the students dive right into it. Learning to code can be fun but most importantly, it prepares the students for the world we live in today. Students work in small groups equipped with a tablet and a Sphero robotic ball while trying to complete coding challenges. Using block programming, can you robot follow a path, push an object, hit a target and light up different colors?

## Learning Outcomes:

Coding, understanding technology, angles, velocity (specific Common Core Math Standards can be met if desired.)



Sponsored by:

**BAE SYSTEMS**

INSPIRED WORK



# Family STEM Nights

## Suggested Location:

Access to large open areas is essential. A combination of gymnasium, cafeteria and hallways are best.

## Suggested Amount of Time: 2 - 3 hours total

## Description:

Xploration has put together a package of activities and entertainment for a fun family STEM night right in your school. This could be formatted as a school fund raiser or just a fun night for your school community. This event has the ability to be customized.

## Structure:

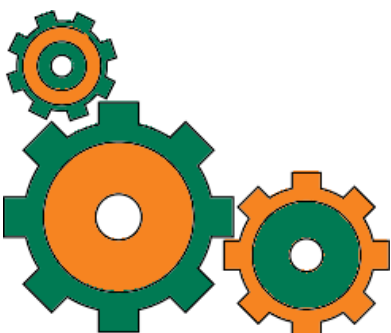
**Start of event** - (30 minutes) Families arrive and gather in the cafeteria. Serving pizza is a great idea to start the event.

**STEM Activities** - (1 hour) Xploration provides 5 different hands-on STEM activities. School volunteers help ensure STEM stations run smoothly. Families will spend an hour visiting all 5 stations.

**Demonstrations** - (30 minutes) Families gather in the cafeteria. A laser show and indoor lightning show is the finale of the event.



**Price** - Only \$600





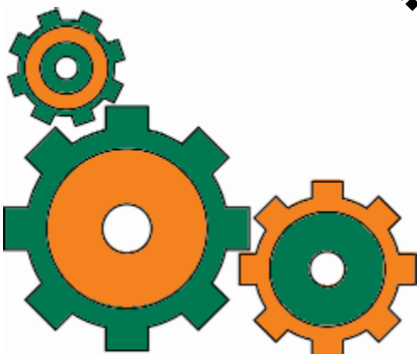
# Classroom Workshop Pricing

All classroom STEM workshops are designed to be 1 hour long for each session. The timing can be customized if needed to enhance the student experience or adapt to the school schedule. All materials are included.

- The first classroom workshop per day = \$250
- Each additional workshop during the same day (same activity) = \$125
- Travel charge: Distance calculated from our 4 Lake Street Nashua, NH office. Fees will be charged for each day of travel.
  - ❖ \$20 fee will be applied for locations 20-30 miles away
  - ❖ \$40 fee will be applied for locations 31-50 miles away
  - ❖ Distances greater than 50 miles from our office will require specialized pricing. Contact Jeremy for details.

## Did you know?

- We offer custom experiences! We bring your ideas to life.
  - ❖ Family STEM nights
  - ❖ Fund raising events
  - ❖ STEM camp management
  - ❖ Repeat school visits / Consultations







## Where to Find Funding for STEM Activities in Your Classroom

Paying for enrichment opportunities for your classroom can be a struggle.

Here are some ideas for educators to try to locate funds for these and other programs for your students.



Contact your school's Parent Teacher Organization or PTA

DonorsChoose.org is a United States-based 501 nonprofit organization that allows individuals to donate directly to public school classroom projects.



**DonorsChoose.org**

*Support a classroom. Build a future.*



The Nashua Education Foundation offers grants to Nashua public school teachers to support enrichment projects not typically covered by public funds. For more information go to their website at [www.nefoundation.org](http://www.nefoundation.org)

The Brian S. McCarthy Memorial Foundation provides grants to Nashua schools who are interested in bringing Xploration STEM enrichment to students. [www.bsmmemorial.com](http://www.bsmmemorial.com)

