



All of our  
**S.T.E.M.**  
 Lessons Follow  
 State-Level  
**Curriculum  
 Standards**

# STEM

## EDUCATIONAL FIELD TRIPS!

**ATTENTION: MIDDLE SCHOOL EDUCATORS**  
 CHOOSE FROM **12 DIFFERENT** STEM LESSONS THAT MATCH  
 WHAT YOU ARE TEACHING IN YOUR CLASS CURRICULUM!

### A TRULY UNIQUE EDUCATION EXPERIENCE!

When participating in one of our STEM Field Trip adventures, students will learn **Science, Technology, Engineering & Math** can be found in everyday experiences, even in **FUN EXPERIENCES** like **ROLLER SKATING!**



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### PLUS FUN AND SAFE PHYSICAL FITNESS!

A 3 hour Field Trip consisting of 1 hour of  
**STEM Education** and 2 hours of  
**Physical Fitness** through Roller Skating!

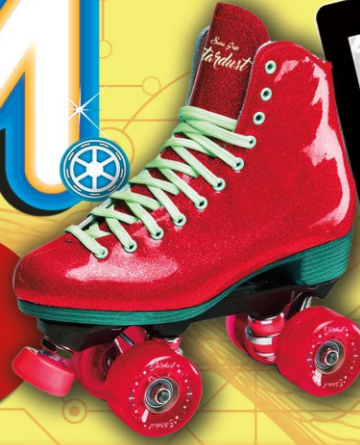
Over 2,000,000 students participated in our STEM program nationwide, in more than 125 locations!

5315 S. Saginaw Rd., Grand Blanc, 48507  
 810 694-4533 \* [www.Rollhaven.com](http://www.Rollhaven.com)



# STEM

## EDUCATIONAL FIELD TRIPS!



We offer 12 Unique Activity-Based STEM Lessons that match what you are teaching in the classroom!

### LESSON 1: THE SCIENCE OF ROLLER SKATING

Students will learn about the parts of a roller skate/inline skate and how each part functions to make the skate. They will discuss how surfaces in the rink are made of different materials and how that affects the skate in motion. Students will have a chance to showcase their creativity and design a new feature for a skate.

Topics Like: Geometry, Friction, Reverse Engineering, Design

### LESSON 2: MOTION & SKATE DESIGN

Students will get an introduction into the physics of roller skating by discussing the four parameters of motion. Students will answer an open-ended question by inventing their own skate design.

Topics Like: Motion, Physics, Design

### LESSON 3: MUSIC, MATH & ROLLER SKATING

Students will learn how to count using the beats of the music played in a roller rink and will learn how the type of music affects the speed of the skater. Students will also learn how to control the speed of skaters using the beat of the music.

Topics Like: Sound Waves, Beats per Minute, Frequency

### LESSON 4: SUPER SOUND! ACOUSTICS & RINK DESIGN

Students will explore how sound waves look and how they travel through different mediums. They will discuss sounds that relate to the roller skating rink including the differentiation in speaker pitch and tones.

Topics Like: Sound Waves, Doppler Effect, Sound System Design

### LESSON 5: SCIENCE OF LIGHTING

Students will learn about the speed of light and how light travels. Students will learn the exciting effects of light with the use of reflection and refraction.

Topics Like: Electromagnetic Spectrum, The Speed of Light, Light Waves

### LESSON 6: HEART, HEALTH & FITNESS

Students will learn about the functions of the cardiovascular system and about leading a healthy lifestyle. They will make predictions and then calculate their average heart rate through physical activity.

Topics Like: Cardiovascular System, Heart Health, Importance of Exercise

### LESSON 7: FORMULAS, FRACTIONS & FUN

Students will learn how math concepts can be found all over the skating rink. Students will measure, compare, and average the speed of several skaters, discover how engineers use geometry in the rink, and how statistics relates to roller skating.

Topics Like: Averages, Geometry, Statistics

### LESSON 8: NEWTON ON ROLLER SKATES

Students will learn that each one of Newton's Three Laws of Motion are present in the skating rink. They will experiment with force and mass and discuss the importance of physics and roller skating.

Topics Like: Physics, Laws of Motion, Inertia

### LESSON 9: THE SCIENCE BEHIND ROLLER AND ICE HOCKEY

Students will learn how STEM plays a very large part in sports, specifically roller and ice hockey. They will learn how three different kinds of motion can make a difference in the outcome of the game. Students will also talk probability and construct a catapult.

Topics like: Physics, Probability, Angular, Projectile and Linear Motion

### LESSON 10: ARCADE STEM

Students will learn about reaction time, what it has to do with arcade games and how to improve it. Students will also learn about probability through discussion of arcade games in our facility.

Topics like: Reaction Time, Probability and Engineering Through Game Design

### LESSON 11: PHYSICS OF ARTISTIC ROLLER SKATING

Students will learn how science, math, and the arts blend together in artistic roller skating. They will study the physics behind jumps and spins, and how the skater uses music, dance, and precision to create art. Students will participate in an interactive lab on projectile motion.

Topics Like: Angular Momentum, Center of Mass, Projective Motion

### LESSON 12: CELLS ON WHEELS: EXPLORING THE CELL MODEL

**New!** Students will embark on an imaginative journey to understand the workings of the human cell by comparing it to something similar and fun: a roller skating rink! Through this creative analogy, students gain a clearer and more relatable understanding of cellular functions and the inner working of the roller skating rink.

Topics like: Cell organelle identification, diverse functions organelles perform, and the basic fundamentals of operating a roller rink.



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810 694-4533

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