



Proposal: S.T.E.M. PROS STEM Family Night

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www.thestempros.com



Program Overview:

S.T.E.M. PROS offers an interactive, hands-on **STEM Family Night** that brings exciting science, technology, engineering, and math experiences directly to your school. Designed specifically for private schools, our stations reinforce classroom learning while engaging families and the local community in a night of discovery. With over 8 years of experience working with 140+ schools, we've perfected a format that's educational, fun, and stress-free for schools to host.

Key Benefits:

- **Expertly Designed Stations:** All activities are created by expert K-12 STEM educators and are aligned with state standards.
- **No Hassle for Schools:** We take care of setup, teardown, and all logistics—no need for buses, transportation, or extra planning.
- **Custom Tailored:** Each station is tailored to reinforce your school's curriculum, ensuring students gain valuable experiences that enhance classroom learning.
- **Family and Community Engagement:** This event creates a unique opportunity for parents and families to see the value of STEM education, making it an excellent showcase for your school.

Key Information:

- **Duration:**
 - 1-hour Professional Development for Teachers (prior to the event)
 - 1.5-hour Setup
 - 1.5-hour to 2.5-hour Program
 - 1-hour Teardown
- **Cost:**
 - \$1100 (Discounted to \$900 if a teacher from your school has attended a S.T.E.M. PROS Professional Development course)



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What's Included:

- A **15-minute introductory demonstration** (if requested) kicks off the event with a large-scale STEM demo. (*Suggested for schools with a stage or large common area*)
- A **custom teacher packet** with key content, questions, and talking points for each station.
- **Professional Development** for teachers and training for volunteers to ensure a smooth event.
- A **custom "passport"** for students to navigate the stations, earning stamps as they complete activities. Completed passports can be exchanged for extra credit or a prize at your school's discretion.
- Use of all equipment, transportation, setup, and teardown.

Audience:

This event is designed for families and children of all ages. Stations can be adjusted to meet the needs of K-12 students, making the event accessible and engaging for everyone.

Stations and Activities:

S.T.E.M. PROS will set up **6-10 stations**, each featuring interactive, hands-on STEM activities. Students will use their **"passport"** to explore each station, collecting stamps as they go. Once they complete the passport, they turn it in for a take-home activity.

Here's a selection of our most popular stations:

1 Light, Lasers, and Lenses

Explore the magic of the electromagnetic spectrum with lasers, lenses, and prisms. This station requires a darkened room for full effect. *Reflection, refraction, absorption, color, spectroscopy, electromagnetic spectrum, waves, energy (S.T.E.M. PROS facilitated)*

2 The Power of Air Pressure

Experience the force of air pressure by inflating a giant balloon with just one breath, testing suction cups, using air pressure to knock over a stack of cups, and exploring a vacuum jar. Students will see Newton's laws in action and learn how atmospheric pressure works. *Newton's laws, mass, weight, forces (2 volunteers)*

3 The Science of Sound

Students will "see" their voices through vibrational energy and learn about sound waves, frequency, and pitch. This station combines music and science for a sensory-rich experience. *Frequency, energy, pitch, waves, energy transfer, energy transformation (2 volunteers)*



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4 Forces and Motion

Discover the secrets of inertia, angular momentum, and rotational forces with gyroscopes and bicycle wheels. Students will understand the physics behind the fast spins of ballerinas. *Inertia, momentum, angular momentum, Newton's laws, Law of Conservation of Energy, mass, forces (1-2 volunteers)*

5 Gravity Well

Do heavier objects fall faster? In this station, students will experiment with gravity by conducting drop tests and using a gravity well to visualize orbits and star formation. *Orbit/revolution, rotation, mass, weight, volume, density, solar system, experiment, observation, air resistance (2 volunteers)*



6 Hot Wheels Speedometry

Students select two toy cars to measuring the mass and length of each. They'll try to predict which car will travel faster and farther, then use an infrared photogate timer to measure their speed. *Mass, speed, length, distance, friction, potential vs. kinetic energy. (1-2 volunteers)*

7 Boat Race Engineering Challenge

Students design and build a sailboat from everyday materials, testing it for speed, buoyancy, and ability to carry a load. This station teaches the principles of buoyancy and displacement. *Buoyancy, displacement, aerodynamics, friction, mass, balance, forces (1 volunteer)*



8 Specimen Spotlight!

Examine insects, arachnids, sea creatures and plants up close using magnifying glasses and microscopes. Students will learn about their unique structures and their role in ecosystems. *Insect, arachnid, mandibles, antennae, segment, head, thorax, abdomen, wings, legs, cephalothorax, pedipalps, exoskeleton, stinger (2 volunteers)*

9 Size of the Solar System

Students will truly understand the size of the Sun and planets compared to each other with a scale model of the Sun and planets. They will calculate their weight on other planets, and even the Sun! *Inner planets, outer planets, Sun, moon, weight, gravity (1-2 volunteers)*

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10 Static Electricity

A Van de Graaff generator will give students a “hair-raising” experience while they explore static electricity, lightning, conductors, insulators, and charges. *Conductors, insulators, attraction, repulsion, static electricity, lightning, closed circuit, open circuit (1 volunteer)*



11 Magnetism: Attraction and Repulsion

Explore the fascinating world of magnetism! Students will:

- **Test materials** to determine if they are attracted to magnets.
- **Visualize magnetic fields** using iron filings and magnets to understand the invisible forces of attraction and repulsion.
- **Race cars** by harnessing the power of magnetic attraction and repulsion, as students use magnets to push or pull their cars across the track.
- **Discover** the strength and reach of a magnet’s reach.

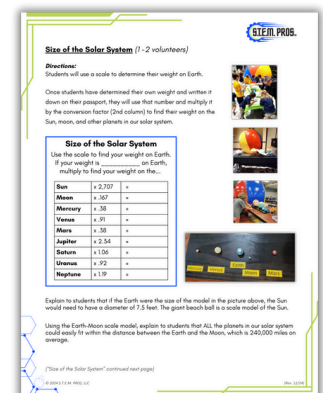
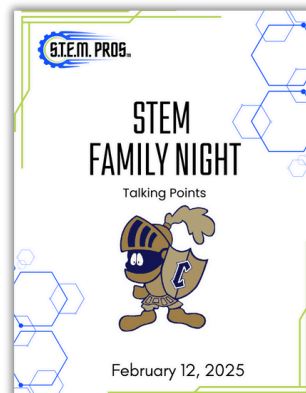
This station demonstrates concepts like magnetic poles, attraction vs. repulsion, and how magnets interact with different materials. *Attraction, repulsion, ferrous, magnetic, poles (1-2 volunteers)*

12 Straw Rocket Engineering Design Challenge

Students will build their own straw rockets and launch them using a **straw rocket launcher**. They will test their designs to see who can hit the target, while learning about force, motion, and aerodynamics. *Newton’s Laws, projectile motion, angles, energy, forces, accuracy, precision, aerodynamics, balance (1-2 volunteers)*

Maximizing Impact:

To ensure a smooth and impactful evening, we recommend scheduling a **1-hour professional development session** for participating teachers 1-4 weeks before the event. This allows teachers to familiarize themselves with the stations, improve learning outcomes, and learn student engagement strategies. Each teacher will receive a **content packet** with keywords, essential questions, and key concepts for each station, which can also be used in their classrooms.

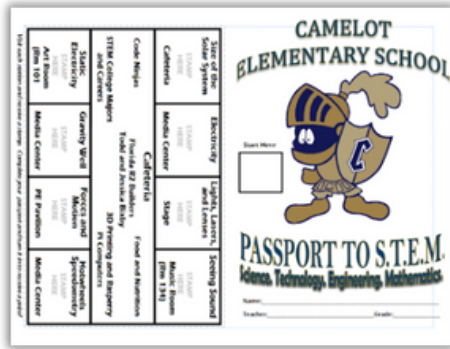




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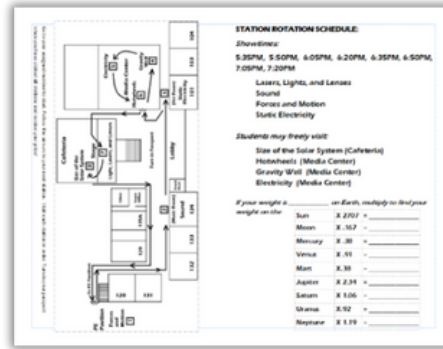
Sample Passport:

Each student will receive a passport with a custom map of your school and space to collect stamps at each station. The completed passports can be turned in for a grade and/or giveaway item.



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Take-Home STEM Projects:

To extend the impact of the event, students will receive take-home packets with simple, fun STEM activities which use household items. These projects serve as an incentive to visit and complete each station.

Next Steps:

We'd love to help you engage your community, support your classroom teachers, and showcase your school's commitment to STEM education. To schedule your **STEM Family Night** or if you have any questions, contact me directly:

Contact Information:

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