

HANDS-ON STEM WORKSHOPS



The Lancaster Science Factory offers a variety of hands-on STEM programs that can be added to your field trip or brought to your group in the classroom, library, or almost anywhere!

CHOOSE YOUR TOPICS

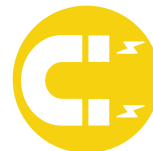
We have a wide variety of customizable workshops in topics like **engineering**, **chemistry**, **robotics**, and more. Look for these color-coded icons to help you choose a topic for you class!



Engineering



Robotics



Electricity



Motion



Math



Chemistry

All programs can be tiered for **any grade level K - 8**. Activities for each workshop may vary depending on grade level and the length of the program. The maximum class size is approximately 25 students unless otherwise noted.



SCIENCE FACTORY TO GO!

If you can't bring your group to the Science Factory, let us bring our hands-on STEM programs to you! See page 5 for full details on booking the **Science Factory To Go**.



ENGINEERING

Engineering: Wind Power

Students will use an assortment of tools and materials to actively engage in the engineering design process. They will be prompted to construct a sailcar or windmill to fulfill a specific design challenge.

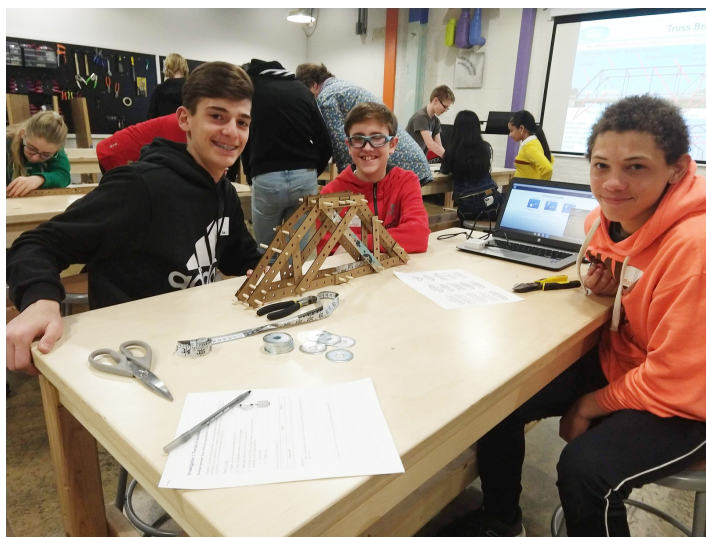
Engineering: 2D - 3D Thinking

Students are given a 2D blueprint and must use spatial reasoning to construct a 3D model from it using Keva planks. Activities are tiered based on grade level.



Engineering: Structures

Students will be presented with multiple design and building problems where they must think like an engineer to solve them. Challenges may include catapults, bridges, towers, and balancing nails. *(Ideal for grades 3rd - 8th)*



Environmental Engineering:

Students will examine how energy is transformed to generate electricity or explore real-world ways engineering can combat climate change. Activities include generating power with windmills, modeling green infrastructure, and generating renewable energy to produce hydrogen.



CHEMISTRY

Candy Molecules: Students learn about molecules like Oxygen (O_2) and chemical compounds like salt ($NaCl$) while building them out of candy and toothpicks.

Kitchen Chemistry: Students will explore chemical reactions using common, household ingredients. Things may get messy! Possible experiments include acid-base reactions, decomposition chemistry, pressure and gas, and chromatography.



MOTION

Newton's Laws of Motion: Students will learn about Newton's Laws of Motion and use them to perform dazzling feats! Activities will vary based on grade level and can include the tablecloth trick, remove the platform, egg drop devices, balloon races and many more.



ELECTRICITY

The Circuit Lab: Students learn about electricity and how energy flows while building and experimenting with a variety of circuits from simple to complex. Materials may include circuit boards, snap circuits, or paper circuits.



ROBOTICS

Intro to Robotics: Students will learn the basics of robotics and programming while interacting with Edison or Lego Mindstorm robots. Robotics programs can be tiered for any grade level.





MATH

Hands-on Math: We know that getting students excited about math can sometimes be challenging. The Lancaster Science Factory has 20 hands-on math exhibits that help students feel more confident about math topics.

Subjects include fractions, place value, volume, shapes, measurement, and more.

You can create a customized experience with activities that align with educational standards for each grade. The exhibits can be brought to your school for a half or full-day, or added to a field trip for one hour per 25 students.



Choose any 7 from the list below.

PRIMARY CONCEPTS K -2nd

Measurement, Geometry, Numbers & Operations,

- Geometric Shapes
- Money
- Place Value (up to 1 Million)
- Fractions
- Time
- Measurement
- Tiling

ELEMENTARY GEOMETRY 3rd - 6th

Geometry

- Geometric Shapes
- Volume: Cubes, Cylinders, Spheres
- Volume: Cubes
- Tangrams
- Tiling
- Pyramid Puzzle

ELEMENTARY CONCEPTS 3rd - 6th

Algebraic Concepts, Data, Measurement, Binary, Probability

- Probability
- Pi and Circumference
- Binary Numbers
- Magic Squares
- Hanoi Puzzle
- Pythagorean Theorem
- Fibonacci Sequence

See the full math exhibit guide and get FREE teacher resources for interactive math lessons at:

www.LancasterScienceFactory.org/sciencefactorytogo

HANDS-ON STEM WORKSHOPS

FIELD TRIP PROGRAM PRICING

Add an educational program to your visit to the Lancaster Science Factory!

25 minutes - \$75.00

45 minutes - \$135.00

60 minutes - \$175.00

Let us work with you to meet your student's needs. Longer and customized workshops are available by request!



TO BOOK YOUR FIELD TRIP:

Contact Kyle Walsh at 717-509-6363 x104 or kwash@tlsf.org

SCIENCE FACTORY TO-GO!

OFF-SITE PROGRAM PRICING



Let us bring our unique and engaging hands-on STEM programs to your school!

Choose any workshop on this menu for 60 minutes or longer: \$200 per hour of instruction with a maximum of 6 hours per day.

TO BOOK THE SCIENCE FACTORY TO GO:

Contact Brooke Pikolas at 717-509-6363 x107 or bpikolas@tlsf.org

We are currently traveling within 50 miles of the Lancaster Science Factory. This radius conveniently includes: Lancaster, York, Reading, Harrisburg, Carlisle, Pottstown, West Chester, Northern Maryland, and more!