



MIDDLE SCHOOL ENGINEERING SCIENCE LABS – Online Labs

Thursdays, September 17-December 17

No class October 15 or November 26

1:00pm-2:00pm

Ages 11-14

Students study different branches of engineering to understand scientific principles of the natural world, and use this knowledge to invent, design, and build machines and structures to artfully achieve practical goals. All lab costs are included in registration fee.

Location: Online

Full Series - \$220 OR \$20/lab

50% off sibling discount

LAB SCHEDULE:

ENGINEERING DESIGN

Thursday, September 17

1:00pm-2:00pm

Today, we review simple machines and how they make work easier, and design and build a complex machine created from a series of these simple devices.

AERONAUTICAL ENGINEERING

Thursday, September 24

1:00pm-2:00pm

We study the principles of aeronautical engineering that enable objects to fly, glide, and move through air, and we explore how to manipulate the variables that affect flight.

VEHICLE SAFETY ENGINEERING

Thursday, October 1

1:00pm-2:00pm

Students become vehicle safety engineers as they learn the physics behind collisions, and experiment to make vehicles safer by reducing impacts.

HEALTH AND SAFETY ENGINEERING

Thursday, October 8

1:00pm-2:00pm

This week, we solve health and safety problems as we engineer solutions to keep our homes and workplaces safe.



ALTERNATIVE ENERGY ENGINEERING

Thursday, October 22

1:00pm-2:00pm

We study alternative energy resources as we design and build wind-powered vehicles.

AERODYNAMICS ENGINEERING

Thursday, October 29

1:00pm-2:00pm

Students learn about and test aerodynamic features of dragsters as we engineer cars ready for racing.

STRUCTURAL ENGINEERING

Thursday, November 5

1:00pm-2:00pm

In lab today, we experiment with construction principles as we design and build structurally sound, free-standing PVC towers that can hold weight.

MECHANICAL ENGINEERING

Thursday, November 12

1:00pm-2:00pm

Students study mechanical engineering to learn the physics behind designing the loops and drops that make exciting and effective roller-coasters

ELECTRICAL ENGINEERING

Thursday, November 19

1:00pm-2:00pm

We investigate the basics of electrical engineering as we work with circuits and electrical components to understand how to build robots.

AEROSPACE ENGINEERING

Thursday, December 3

1:00pm-2:00pm

Today, we explore aerospace engineering as we build, repair and fly drones.

CIVIL ENGINEERING - DESIGN

Thursday, December 10

1:00pm-2:00pm

This week, we learn what goes into planning the layout of a city as students are challenged to design their own city, including adequate housing, protection, services and amenities.



CIVIL ENGINEERING - CONSTRUCTION

Thursday, December 17

1:00pm-2:00pm

Our civil engineers turn city planning designs into small city models to see how their ideas on paper are transformed into living spaces.

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