



LEGO® ENGINEERING LABS

Tuesdays, September 14 - December 14 (no class Oct 12, Nov 23; 12 weeks)

12:30pm-1:45pm

Ages 6-10

Students learn fundamental engineering principles related to force and motion, explore how simple machines and mechanisms reduce the effort needed to move objects, and design and construct structures and machines out of LEGO® to investigate how design affects functionality.

Instructor: Coral Vega, MEd

Location: Science Center (suite 5)

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

Early registration (10% off) through August 6

10% sibling discount beginning August 7

Register for full semester or individual labs.

LAB SCHEDULE:

LEGO® Bridges - Tuesday, September 14

Students learn about design and construction of bridges as they learn about tensile and compression forces acting on structures, and build a bridge that holds significant weight.

LEGO® Mazes - Tuesday, September 21

This week, students are challenged to design and build a three-dimensional marble maze with multiple layers and hidden obstacles.

LEGO® Machines: Wheels and Pulleys - Tuesday, September 28

We investigate how two simple machines, wheels and pulleys, reduce the amount of effort needed to move an object as we build a pulley system.

LEGO® Power Cranes - Tuesday, October 5

Students build a motorized crane out of LEGO®, complete lifting challenges, and design modifications to create a more efficient machine.

LEGO® Machines: Levers and Wedges - Tuesday, October 19

We investigate the physics of levers and wedges to design, construct and test simple LEGO® machines to create the best design to lift a heavy load.

LEGO® Chain Reactions - Tuesday, October 26

Students use their creativity and engineering skills to design and build a series of simple machines to create complex chain reactions.

LEGO® Machines: Inclined Planes and Screws - Tuesday, November 2

This week, we study how inclined planes reduce the effort needed to move a heavy load, and learn how a screw is a modification of an inclined plane.

LEGO® Mechanisms: Gears - Tuesday, November 9

Gears are modified wheels that efficiently transfer force and motion. We experiment with different gear combinations to determine the best system for the job.

LEGO® Power Cars - Tuesday, November 16

Students learn about gears and wheels as they build a motorized LEGO® car, and modify it to complete driving challenges involving different effects of gravity and other forces.

LEGO® Sweeper - Tuesday, November 30

We build and modify a sweeping machine which incorporates gears, wheels and pulleys to effectively clean up a dirty path.

LEGO® Dragster - Tuesday, December 7

This week, we build a dragster and launcher to test different wheel combinations for their effects on speed and distance on a vehicle.

LEGO® Dogbot - Tuesday, December 14

Students build a mechanical toy using levers, pulleys and gears to learn the basics and challenges of robot design.