2021 Workshop Descriptions

Since 1990, Western Engineering Outreach (formerly Discovery Western) has been promoting science, technology, engineering and mathematics (STEM) programs to young people and we are excited to share our 2021-2022 in-school workshop schedule. Each workshop is linked to the Ontario curriculum expectations and offers your class the opportunity to experience STEM in a new and engaging way.

Workshops for 2021 are offered October 13 to December 17.

Elementary

Understanding Life Systems

Creature Creation (Grades K-4)
Students will design and construct a unique creature using principles of adaption for survival in specific environments and ecosystems.

NEW Remarkable Respiratory (Grade 6)

Have you ever thought about how you breathe? In times of crisis, ventilators do it for us. While investigating the respiratory system, students will build a lung model and design a way to simulate a ventilator's mechanical breathing.

DNA Detectives (Grade 8)
Students will extract DNA from plant cells through chemical processes and explore the structure and importance of cells.

Understanding Structures and Mechanisms

Simple Machines (Grade 2)
What makes things move, is used daily, and improves our everyday life? Students will answer these questions and more as they explore the building blocks of engineering. Participants will investigate simple machines as they create their own mini-car.

Super Structures (Grades 3, 5 and 7) *in-person only

Welcome to Civil Engineering 101! Students will learn about basic civil engineering principles by designing and building bridges to withstand an applied load. They will even build a life-size truss bridge that they can actually cross.

Chain Reactions (Grades 3, 5 and 8)

Students will design, build and test a Rube Goldberg Machine using simple machines.

Pneumatically Hydraulic (Grade 5 and 8)

Students will learn the difference between pneumatic and hydraulic systems and construct a mechanical system of their own.

Understanding Matter and Energy

Polymer Party (Grade K - 2)

Get ready to use your scientific experimentation skills to investigate changes of state and matter. Identify properties of solids, liquids, and gases while making your own polymer creations.

FUNdamentals of Flight (Grades 3 and 6)

Prepare for takeoff as students soar to new horizons. This workshop explores the principles of flight and provides the students with the opportunity to build and launch their own flying feat.

Understanding Earth and Space Systems

NEW Oh the Places You'll Grow (Grades 2 and 3)

Students will investigate the relationships between air, water and soil required for successful plant growth as they design and build their own hydroponic system.

Extreme Roller Coasters (Grade 5)

Students will design, build and test model roller coasters while applying laws of physics and principles of design.

Whirling Windmills (Grades 5 and 7)

What is renewable and non-renewable energy? How can wind create energy? In teams, students will explore the conservation of energy and resources by designing and building a windmill that can withstand high winds and use the force of the wind to lift an object. It will blow you away! Note: When taught in a Grade 7 class, this workshop also covers curriculum connections in understanding structures and mechanisms.

NEW The Moon's Tide (Grade 6)

Students will demonstrate their understanding of the systems in which Earth plays a part of and explain how the various phases of the Moon impact the gravitational pull on Earth and a civil engineer's structural design.

NEW You Rock, Don't Ever Change (Grade 4)

It's time to dig! While understanding the various layers of rock, students will design and build their own hand drill in order to retrieve a sample for analysis.

Cross-Curricular

Marker (All Grades) *in-person only

The maker movement is taking the classroom by storm and this workshop offers a taste of what you can do in your classroom. Students will use a variety of technology and their imaginations to complete a variety of mini-challenges and design projects. The type of technology used will vary depending on the age of the group.

Coding 101 (All Grades)

Students will discover their inner coder with this crash course in programming. Depending on the age of the group the programming language taught will vary.

Grade K-2

- Cubetto Maps *in-person only
- Scratch Jr Find My Friend
- *NEW* Binary Beads and Ozobots

Grade 3-5

- Dash Bowling *in-person only
- Scratch Hide and Seek
- *NEW* Ozobot Drawing

Grade 6-8

- Micro:bit Rock Paper Scissors
- *NEW* Scratch Pong

Maker and Coding 101 (All Grades) - Full Day *in-person only

Not able to decide between our Maker and Coding 101 workshops? This full-day workshop combines the best of both workshops for a great day of exploration.

LEGO Robolab (All Grades) - Full Day *in-person only

Make a robot come to life! Students will have an opportunity to work in teams to design, build and program a LEGO® robot to compete in challenges and games.

Creative Circuitry (Grades 4-8) - Full Day *in-person only

Let electrical engineering lead the way as you illuminate your surroundings. Students will investigate the characteristics and properties of light and electricity by building their own LED Lantern.

High school

Cross Curricular

Pitch Black (Grades 9-10)

Pitch Black is an engaging hands-on activity that encourages students to consider an impactful career in engineering. Students will be asked to work in teams to use a breadboard, resistors, and LEDS to build an electric circuit from a schematic diagram, which represents a community in a blackout. The students will act as the engineers who have been called to use their knowledge of electricity to troubleshoot the circuit and restore power to the community.

NEW HTML Resumes (Grades 10)

During this workshop students will learn the various skills required to write a resume - but not just any resume. Using HTML and CSS students will code their own resume website to showcase their abilities to adapt to our ever-changing technological society.

NEW Assistive Technologies Part 1 (Grade 10 and 11)

In this design challenge, students explore user experience design and accessible engineering by building their own assistive technology model for someone with a Traumatic Brain Injury. This workshop can stand alone from Assistive Technologies: Part 2

NEW Assistive Technologies Part 2 (Grade 10 and 11)

How is technology and engineering used in healthcare? In the optional second part to this workshop, students are taught how to model their assistive technologies (designed in the first part of this workshop) on the Tinkercad software and compete to win their 3D-printed design.

Booking Information

Each workshop is designed for a maximum of 30 students and runs for 1.5 to 2 hours, unless otherwise noted. Depending on school location an additional travel fee may apply. For additional information on curriculum connections, activity descriptions and for access to our workshop request form, please visit the Workshops sections on www.eng.uwo.ca/outreach

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Thanks for discovering with us!