

# WCL STEAM Outreach Programs

WCL STEAM Outreach programs available to schools and homeschool groups in our service area. All supplies and equipment provided by WCL. Programs can also be held at the Colfax branch of WCL in the TEK Center.

## Coding and robotics:

### **Coding Camp 1: Light Sequencing with Arduino Uno**

During this 2 hour camp students will configure electronic circuit and write the code to complete 5 LED light sequencing experiments using C ++ language and Arduino Uno microcontroller.

Ages 12 and up, maximum class size 20, 2 hour class

### **Coding Camp 2: RedBot line patterning robot**

During this 2 hour camp students will write code to maneuver SparkFun RedBot through 5 line following experiments using SparkFun Redboard microcontroller.

Ages 12 and up, maximum class size 20, 2 hour class

### **Coding Camp 3: Arduino Sound projects**

During this 2 hour camp students write code to complete sound experiments using Arduino Uno.

Ages 12 and up, maximum class size 20, 2 hour class

### **Ozobot Bit**

Mini robots invade this class! Students draw color combination codes to command line following Ozobots. Students then advance to control robots through drag and drop coding in Blockly (Javascript). Once code is complete students flash code to robot and watch their program run.

Grades K-5, maximum class size 20, 1 & 2 hour draw and digital programs available, 5 week- 1 hour per week digital programs available to explore all 5 levels of Blockly coding.

### **Ozobot EVO**

This class explores robotics and coding just like in Ozobot Bit class but with robots that have more functionality, lights, sound, and proximity sensors.

Grades 6 and up, maximum class size 20, 1 & 2 hour draw and digital programs available, 5 week- 1 hour per week digital programs available to explore all 5 levels of Blockly coding.

### **Lego Mindstorms EV3**

Students design, build and program their own robotic Lego creations. Once build is complete students use drag and drop code to program robot movements to complete challenges, mazes and more.

Grades 4-12, maximum class size 16 (working in pairs), 2 hour program, Consecutive multi week programs available to explore advanced coding.

### **Micro:bit**

The micro:bit is a pocket-sized computer that will allow students to get creative with digital technology. Students will code using Microsoft MakeCode (Javascript) and/or Python Editor to create robots and musical instruments, control games and 25 LED light messages and more!

Grades 4-12, maximum class size 30. 2 hour program, consecutive multi week programs available.

## **Electronic Circuits:**

### **littleBits**

Magnetic electronic building blocks for creating inventions big and small. Create an ArtBot, a 3 wheeler, a windmill and so much more. Add recycled materials or Legos and the possibilities are endless.

Grades K-12, maximum class size 16 (working in pairs), 1 & 2 hour classes available

### **Snap Circuits**

Students build working electronic circuits with snap together components. This class covers all topics of electricity and electronics with real world applications and problem solving.

Grades K-12, maximum class size 20 (working in pairs), 1 & 2 hour classes available

## **Classic Toy Science:**

### **Hot Wheels Speedometry**

Hands on Hot Wheel fun while exploring the concepts of energy, force and motion. Students also learn scientific and engineering practices such as analyzing and interpreting data.

Grades K-12, maximum class size 20, 1 & 2 hour classes available

### **Slinky Science**

Students will use the classic Slinky toy for science activities that investigate Physics.

Grades K-12, maximum class size 2, 1 hour class available.

## **Fight and Aerodynamics:**

### **Edventures Fight and Aerodynamics**

Students investigate the history of flight, learn fundamental principles of physics and aerodynamics while creating hands-on models.

Grades 4 and up, maximum class size 30, complete curriculum 12 one hour lessons, stand alone or consecutive lessons available.

## **Architecture:**

### **Edventures BrickLab Famous Architecture**

Lego-like bricks used to create fundamental design elements like walls, arches, and post-and-intel techniques before building real world examples in miniature (Empire State Building, Eiffel Tower)

Grades 4 and up, maximum class size 30, complete curriculum 12 one hour lessons, stand alone or consecutive lessons available.

## **STEAM Challenges:**

Numerous STEAM challenges available that are holiday or seasonal themed, Halloween, Thanksgiving, Christmas, Valentine's Day, Fall, and Winter that contain one or more aspects of STEAM.

Book Pairing STEAM challenges available, STEAM challenges that are paired with picture book for lower elementary and chapter book for upper elementary.

STEAM Challenges are available to all grade levels, maximum class size 30, 1-2 hour class

The majority of STEAM Outreach programs (excluding Coding Camps) can be adapted to fit any grade level.

Call Nichole Kopp 509-397-4366 to schedule program.