

## **Technology and Leadership**

**Digital Photography:** Students will learn the basics of photography: holding a camera, parts of the camera, signing a camera in and out, uploading photos, and aperture value. Your photography will focus on the external environment around you, and you will be required to take, edit, and show your portraits to the class. Example assignments include: water photos, holiday photos, seasonal photos, and facial photos.

### **Special Topics in Photography**

Are you passionate about photography and interested in taking your skills to the next level? Working on an area of your choice you will create personal challenge goals and receive support as you pursue them. From portraits, to sport photography, your photos will improve as you experiment and learn.

### **Communication Technology Leadership**

Working together with a partner class, you will learn to take abstract ideas and showcase them. You will create unique products that promote the class' learning, including movies, publications, and a variety of other creative communications.

### **Programming**

Do you like computers? Do you like video game? If so, come and learn the basics of coding using the Python programming language. We will explore programming concepts by creating and modifying our own text-based computer games.

### **Robotics: Faster, Higher, Stronger**

Compete in the second Bearspaw Robo-olympics. Design and create robots that are faster, can climb higher, and pull harder than your opponents to take home gold. Students will use Lego Mindstorm robotics kits to program robots capable of thinking for themselves. Object avoidance, line following, homing in on sound, and other unique abilities will be used to solve complex robotics challenges.

## **Makerspace Mania**

We will create a Makerspace where you will explore, invent, build and test using different, yet related, technologies. You will cycle through eight different stations, designed using the following four different technologies:

1. MakeyMakey - (<http://makeymakey.com/>). A Banana Piano!! - Turn everyday objects into touchpads and combine them with the Internet. You will invent creative ways for real things to interact with the digital world while thinking about which kind interaction best suits the task.
2. LittleBits - (<http://littlebits.cc/>) "littleBits are tiny circuit-boards with specific functions that to snap together with magnets. Each bit has a specific function (light, sound, sensors, buttons, thresholds, pulse, motors, etc), and modules snap to make larger circuits. littleBits will allow you to explore the concepts of quick designing, prototyping, implementing and testing.
3. Raspberry PI - (<http://www.raspberrypi.org>) You will learn about the basic hardware that goes into a computer by learning how to load an operating system (open source 'Raspbian'). Then connect the computer to peripherals such as keyboards, monitors, power source, and wifi.
4. 3D Printing - (<http://store.makerbot.com/replicator-mini>) You will design 3D objects in a variety of ways to create a real world item specifically designed to utilize this technology.