

Descriptions of Past Booths

Demonstrate 3D printing using a MakerBot 3D printer and SketchUp. Explain how to make models using SketchUp, and have the 3D printer running that evening. Provide printed examples for the students to touch.

Separate the food dyes (red & blue) in grape pop using a syringe filter, rubbing alcohol, and grape pop. The presenters will describe how this technology is used in the biomanufacturing industry and the students will do the actual separations into small cups.

Presenters will demo how code computer programs using Code.org, then have the students complete their own code through an interactive type coding game.

- Binary Representation of Numbers in Computers -

Students will act as bits. They will hold cards with the binary values of zero and one written on each side. Eight students will combine to form a byte. Each student will decide to be a one or a zero and the resulting number will be determined. Students will learn that a number as large as 255 can be represented using a sequence of eight bits.

The presenter will direct the activity and make the necessary additions on the white board.

Presenters will facilitate a balance activity that involves students standing on one leg, with eyes open, eyes closed, balancing while throwing a ball, standing on an uneven surface. Presenters will explain why it is harder to balance in certain circumstances than others. Presenters will be responsible for making sure students don't fall during the activity.

Smartphone digital microscopes!

Students will explore the microscopic world with their own smartphone or tablets. These cheap, easy to construct stands convert a smartphone into a microscope capable of 325x magnification. Presenters will demonstrate the use of the microscope and then students will be free to view the specimens and other items of interest.

Students without smartphones will be able to borrow one from a presenter.

Bubble-ology

Presenters will demonstrate how to create soap film bubbles by dipping models into a soap solution. Presenters will ask participants to predict what kind of bubble will occur when different models are used.

This is a wet-activity! Participants will dip a model into the solution (if they choose) and use a straw to blow air into a soap film bubble and see what kind of shape is created. Participants will need to dry their hands afterwards. See the picture from last year that is on your newsletter announcing the event!

1. Torque load cell and voltmeter

Students can test how strong they are! They will twist the torque load cell, which will output a number to be read by the voltmeter. They can then take this reading and using math, convert the output into a torque. Students can compare their outputs with their friends and see who is stronger!

2. Screaming Balloons

Students will place a hex nut inside a balloon and then blow the balloon up. When balloon is moved in a circular motion, the hex nut circles the balloon due to centripetal force. The flat edges of the nut will bounce/vibrate along the inside of the balloon, causing a screaming sound. (Fun for the students, not so much for the parents!)

Float My Clay Boat-Students work to design clay objects that will float in water and are challenged to design an object to hold as many pennies as possible.

The Role Models will talk to students about density concepts and challenge them to form and test their hypotheses about making the clay float.

We will be teaching students about grip strength and activities they can do to increase their grip strength. They will also learn about different muscles and nerves in their hands

We have three things we would like to do.

1. Show two lego robots competing. Presenters will set robots and describe what they do. Presenters will also show the computer program used.
2. Let students run our VEX (metal robot). They will have ball to pick up and move.
3. Students will film a short movement in front of a green screen and then using a program burn a DVD with a background they choose.

We have cut samples of 3 different kinds of rubber. The students will be stretching the rubber to see the differences in the compounds of the rubber samples.

Our plan is to have a machine tool simulator and computer monitor demonstrating solidworks and mastercam. Along with machined parts for viewing.

The Laser Optics Club will have various light based activities (lasers & optics) for the students to see and do. There will be laser light shows, alignment challenges, and other neat things to see and do.

Participants will mix chemicals causing a reaction with polymers to create a bouncy ball. Presenter will guide and hand out supplies. Students will pour, mix, and knead substance.

Play "Did you see that?" and find out about all the exciting careers you can have in laboratory science and meet public and environmental health scientists.

Dissect a virtual cadaver using CyberAnatomy then see real human body parts that have been preserved by plastination, a process that keeps specimens from decaying so that they can be touched and studied. Listen to your own heartbeat and learn about what's inside you.