

STEAM Newsletter

Ringwood Public Library

(973) 962-6256

STEAMing into Ringwood Public Library

Science

Technology

Engineering

Arts

Mathematics

What's coming up at the library...

Comic Drawing Club on Oct. 2

Anime on Oct. 5

NASA Solar System Ambassador on Oct. 5

Halloween Pumpkin Painting on Oct. 8

*Rockets! Ages 8+. Oct. 9 *School Holiday Program!**

Gadget Gals: Teen girls ages 13 + only! Oct .12

**See our full
schedule here.
Call the library to
register or email
[caldwell@ringwood
library.org](mailto:caldwell@ringwoodlibrary.org)**

How do I dispose of these old batteries and devices?!



It can be harmful to the environment or downright dangerous to throw batteries, or devices with batteries, in the trash.

It's generally safe to throw out single-use alkaline batteries, but you should look into ways to dispose of or recycle rechargeable, button cell, and lithium batteries.

Found out more at <https://www.batterysolutions.com/news/dispose-old-batteries-right-way/>

When it's time to get rid of an old smart phone, tablet, laptop, headphone set, or camera, check out <https://www.call2recycle.org/> to locate safe places to dispose of these devices that contain lithium-ion batteries.

Find out items that can be recycled at Ringwood Recycling Center [here](#). It's important to note which items can be comingled and which cannot. For example, plastic bags cannot be recycled with plastic bottles.

Another excellent resource to find out more about local waste management is <http://www.passaiccountynj.org/government/departments/health/recycling.php>. This website includes Hazardous Waste Drop-off locations and dates.

Science-to-go Kits: Play to learn!

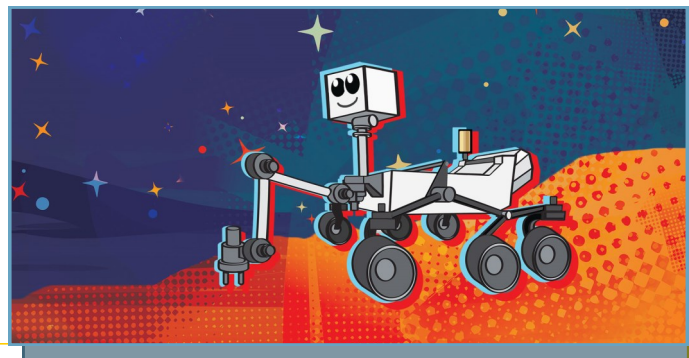
Ringwood Library now has educational kits available for checkout to Ringwood residents. Choose from Snap Circuits Jr., Circuit Maze Game, Optics Creator Set, Simple Machines, and K'NEX. Find information about them in our STEAM area.

Place a hold on any of them [here](#).



Name the 2020 Mars Rover!

U.S. students in grades K-12 are invited to name NASA's newest Mars Rover. Go to <https://mars.nasa.gov/mars2020/participate/name-the-rover/> to enter the contest. Adults can sign up to judge the contest, too! Entries are due by Nov 1.



There's an app for that...

Recycle Coach helps you keep up with when it's time to put your recycling out.

What3Words gives you an easy way to share your location. Every 3m x 3m square in the world has been assigned 3 words. The app has even been used to find lost hikers. See the BBC story about it [here](#).

Available on Apple App Store and Google Play.

3D Printing in the News

The company *Relativity Space* builds rockets with 3D metal printing technology. The rockets are less expensive to build and are presumably stronger because they only require 1,000 moving parts, instead of the average 100,000 parts. Tim Ellis is the man behind the technology. He built and coded the 20 foot 3D printer for the company. Read more about him and the *35 Innovators Under 35* in the Jul/Aug issue of *MIT Technology Review*, available at the library.

Learn more about 3D printing at Ringwood Library [here](#).

Do the math:

How many fewer moving parts does one of Relativity Space's rockets have than that of an average rocket?

How many times greater are the number of parts on the average rocket than on a Relativity Space rocket?

Answers on our [STEAM webpage](#).



What makes the leaves change color?

Leaves contain the green pigment, chlorophyll, as well as other pigments. Chlorophyll is found in chloroplasts, which are involved in **photosynthesis**. Sunlight is made up of all the colors of the rainbow. As sunlight hits the pigment in the leaves, the colors of light are either absorbed or reflected. The reflected light is what we see. So, in summer, we see green light being reflected from chlorophyll. As daylight shortens in Autumn, the plant stops producing chlorophyll because the amount of energy produced by photosynthesis isn't enough to grow the leaves. Then, the leaves change colors, as the sunlight reflects just the yellow, orange, and red pigments remaining in the leaves.

Photosynthesis: The process of making chemical energy (sugar) from sunlight.

Try it at home:

Ink in pens and markers often times are not pure pigment. Pigments in an ink can be separated in a process called paper chromatography.

Chromatography separates types of **molecules** in a substance by their weight. Smaller molecules move more quickly through a material, such as paper, than larger molecules.

The ink in black marker can be separated into many different colors. Try it at <https://scienceprojectlab.com/paper-chromatography-experiment.html>.



Molecule: The smallest particle of an element or compound that retains the properties of that element or compound