

STEAM Newsletter

Ringwood Public Library

(973) 962-6256

STEAMing into Ringwood Public Library

Science

Technology

Engineering

Arts

Mathematics

What's happening this month at the library...

[See our full schedule here.](#)

Sphero Robots: April 5 at 4:00. Ages 8+

Gadget Gals: April 13 at 12:00. Ages 13+

Egg Math Matching: April 17 at 4:00. Ages 4-8

Earth Day Craft: April 22 at 3:00. Ages 3+

Tin Can Robots: April 23 at 2:30. Ages 8-13

Call the library to register!



Thanks to all who participated in *Ringwood 3D: A NJ Makers Day Event!*

We had about 700 people participate in our stations: painting, building, coding, folding, and viewing our new 3D printer in action!

Interesting facts about bunnies:

- There are over 45 breeds of rabbits.
- A *warren* is where a group of wild rabbits lives.
- Their front incisors (teeth) never stop growing.
- They use their droppings to mark their territory.



April 6-14 is National Robotics Week

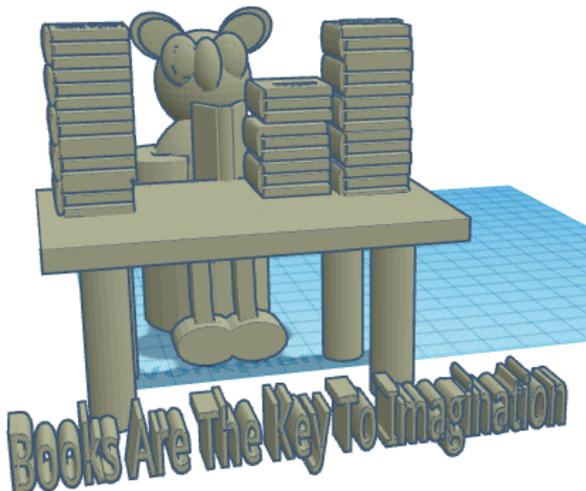
Check it out at <https://www.nationalroboticsweek.org/>

April 22 is Earth Day!

Go to scim.ag/TomrrowsEarth for articles about conservation and environmental science from the journal *Science*, including issues on food security, GMOs, climate change, clean water, and more.

Check out NOAA's [Marine Debris Program](#) website and download their 2019 Calendar!

Here is the winning 3D Design for our Makers Day 3D Printer Contest!



Congratulations to 9 year-old Alexis!

There's an app for that...

You can download apps to view Virtual Reality 3D images on your mobile phone from your iPhone App Store or Google Play Store.

Cardboard, Google Earth, KingTut, and Within are just a few that can get you started. Once downloaded, you can borrow our Cardboard Virtual Reality viewers at the front desk with an in-house check-out. *You must provide your own Smart Phone with downloaded apps!*

What side of the debate are you on?

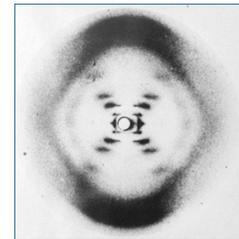
Some scientists and bioethicists around the world have called for a stop to human germline editing. With better genetic engineering available and after a Chinese scientist claimed to alter the genome of babies to make them resistant to HIV, there are ethical concerns over how far we will go: Will we alleviate human suffering and correct inherited diseases? Should we? Will we create mental and physical enhancements? Who will be allowed to use those enhanced genes?

Genetic research has improved agriculture and medicine: pest-prone crops, cancer, and chronic pain are some maladies that scientists have targeted. But, other researchers may be more interested in learning how to increase pain (military groups or terrorists) or how to create babies with high IQs and perfect physiques (entrepreneurs that would charge a lot of money to customers.)

To learn more about the technology that makes these genetic changes possible go to [Harvard's webpage about CRISPR](#).



Our DNA is made up of chromosomes, which hold our genetic code. The order of the nitrogen bases (Adenine, Guanine, Thymine, and Cytosine) found in a DNA molecule determine the genes. These bases pair up next each other, forming the rungs of what looks like a twisted ladder, known as the *Double Helix*. Although James Watson and Francis Crick are credited with discovering the molecular structure of DNA, the shape of the molecule was determined by this picture of a DNA molecule taken by Rosalind Franklin:



The combinations of the bases that line one side of the DNA helix form the code that tells our cells what proteins and enzymes to make, which in turn determines what our cells do. This code tells our bodies everything from the color of our hair and eyes, our natural amount of muscle mass, and the likelihood of having heart disease or cancer. When the chromosomes are used to make the proteins, the double helix unzips down the middle and the code is read and copied into a new format for protein production.



Words to know:

Conservation: Prevention of a wasteful use of a resource.

Genome: The complete set of genetic material of an organism.

Ethical: Morally good or correct.

Germline: The line of cells that will pass genetic material on to offspring.

GMOs: Abbreviation for *Genetically Modified Organisms*, commonly referring to genetically altered crops.

Helix: A spiral or curved form.

NOAA: National Oceanic and Atmospheric Administration.