

STEM

Newsletter

Takoma Park Middle School

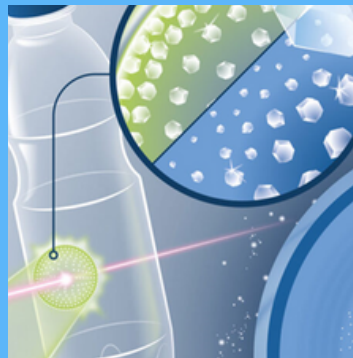
November Issue



Editor's Note

The first issue was a success!
As the editor, many compliments were received from teachers and students. I hope many of the students here had learned something new. This October there comes a new issue to help continue to share the interest and knowledge in STEM.
- Nathan Leitan -

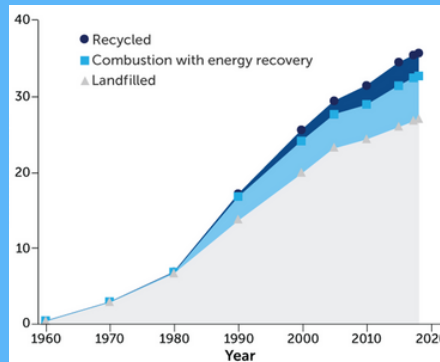
Laser light transformed plastic into tiny diamonds



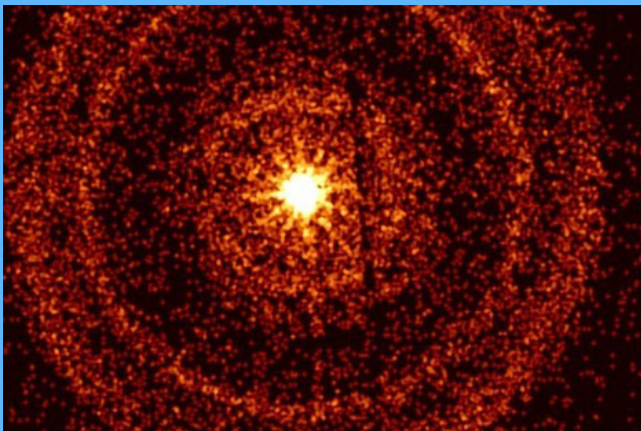
Did you ever think of that water bottle could be turned into when you recycle it? Clear plastic bottle can usually be remade into new water bottles. Some are finding ways to turn plastic bottles into clothing, carpets, pillows, and even clamshell packages. But scientists have discovered a new recycling technology that could keep more plastic out of landfills.

When a laser is focused on bits of PET plastic (One is the type used in soda bottles. That's called PET, short for polyethylene terephthalate), it heats the plastic and increases the pressure. This causes a very tiny diamond to form. The heat and pressure rearrange the structure of the Carbon atoms because plastics and diamonds are both formed from Carbon. What could the diamonds be used for? Well, that's what researchers are still working on. For now, it's another forward step for recycling.

Learn more about the diamonds bit.ly/3xVMmF9 and learn more about recycling plastic bit.ly/3BjpcsQ



Record breaking gamma ray burst detected by multiple telescopes, "Most powerful explosion ever"



On October 9, ground-based and multiple space telescopes witnessed one of the brightest explosions in space when it reached Earth; The burst may be one of the most powerful ever recorded by telescopes. Gamma-ray bursts, or GRBs, are the most powerful class of explosions in the universe, according to NASA. Scientists have dubbed this one GRB 221009A, and telescopes around the world continue to observe its aftermath. Researchers think this is a once-in-a-century opportunity to address some of the most fundamental questions regarding these explosions, from the formation of black holes to tests of dark matter models.

Learn more: <http://bit.ly/3TY7LpR>

Club Spotlight: Rubik's Cube & Chess Club

Rubik's Cube and Chess Club is a laid-back, social club for students who are interested in puzzles, logic, and competition. Students of all skill levels are welcome! Don't know how to solve a cube or play chess yet? We'll teach you! Want to get faster at cubing or better at chess? Students learn and discuss new algorithms, strategies, and speed techniques to get better at cubing and chess. TPMS also competes in a county-wide cubing competition at the end of the year! If you want an after-school club for intellectual pursuit in a low-stakes environment, this is the club for you!

- Mr.Moses-
Sign up:

Think Tank

New robots can kill weeds by zapping them with electricity

The robots — named Tom, Dick and Harry have been given a mission: to find and zap weeds with electricity before planting seeds in the cleared soil. These robots were developed by Small Robot Company to rid land of unwanted weeds with minimal use of chemicals and heavy machinery. The company has been working on its autonomous weed killers' mission since 2017. In April 2022, they launched Tom, its first commercial robot which is now operational on three UK farms.

The company says that Robot Tom can scan 49 acres a day, collecting data which is then used by Dick, a "crop-care" robot, to zap weeds. Then it's robot Harry's turn to plant seeds in the weed-free soil. However, the other robots Dick and Harry are still in the prototype stage, undergoing testing.



According to the company officials, once the full system is up and running, farmers could reduce costs by 40 percent and chemical usage by up to 95 percent. According to the UN Food and Agriculture Organization six million metric tons of pesticides were traded globally in 2018, which is approximately \$38 billion can be saved with the use of robotic technology. "Our system allows farmers to wean their depleted, damaged soils off a diet of chemicals," says Ben Scott-Robinson, Small Robot's co-founder and CEO. Learn more: <http://bit.ly/3fnWHDw>

STEM opportunities:

3M Young Scientist Challenge

The annual 3M Young Scientist Challenge invites students in grades 5-8 to submit a 1-2 minute video describing a unique solution to an everyday problem for the chance to win \$25,000 and an exclusive 3M Mentorship. Ten finalists, up to 51 state merit winners, and four honorable mentions will be chosen for their passion for science, spirit of innovation and ingenuity, and effective communication skills.

Interested?- Learn more:

<https://www.youngscientistlab.com/challenge>

Young Scientist
Challenge

in partnership with:

