

Southern Lee Environmental Science Club

March 14, 2017

Issue 12

PAPER BATTERIES: The Field of Papertronics

Engineers at Binghamton State University in New York have invented a paper battery that runs on bacteria. This is a new advance in the field of Paper Electronics, also called Papertronics. While most batteries use chemicals to create the electricity, this new invention uses bacteria as its power source since microbes produce electricity when they digest food. This would eliminate toxins used in ordinary electronics and would be more efficient since a microbial fuel cell battery would not run out of power as long as the bacteria have enough to eat. With bacteria all around, this would be unlikely. The engineers printed an electricity conducting material on one side of the paper for the anode and sprayed silver on the bottom of the paper for the cathode. The two sides were separated by paper and wax. The paper layer contains the bacteria and adding water or sugar causes bacteria to eat which releases electrons so that when a device connects to the anode and cathode, electrons power it. So far, the devices can only emit small amounts of battery power, but scientists believe this invention could be useful in dangerous places like a warzone or for small sensors in medicinal uses. <https://www.sciencenewsforstudents.org/article/germs-power-new-paper-batteries>

ART CONTEST IS UNDERWAY!

Brochures and Collection boxes were delivered to SanLee, West, East, Bragg Street, Lee Christian and Grace Christian Schools. If you know any middle school students or teachers, encourage them to participate in our contest! The rules and brochures are on the website.



**ENVIRONMENTALEE MEETING-
MARCH 28, 2017 at 7:00 p.m.
MT. CALVARY BAPTIST CHURCH
1713 Colon Road**

SAVE THE CHEETAHS



The world's fastest land animal, the cheetah, is disappearing! A recent study published in *Proceedings of the National Academy of Sciences* found that the number of cheetahs is rapidly declining with only 7100 remaining worldwide. These beautiful animals are being over-hunted for trade as pets and for the illegal sale of their parts. They are also quickly losing their natural habitats in Africa and Iran and are difficult to keep safe due to their carnivorous nature and wandering lifestyle. Scientists are urging that the cheetah be ungraded to "Endangered" on the IUCN Red List of Endangered Species and that larger preserves be created to preserve this animal species.

<https://www.sciencedaily.creleases/2016/12/161226211232.htm>

*One touch of
nature makes
the whole
world kin.
William
Shakespeare*

UPCOMING PROJECTS

1. Middle School Art Contest
2. PTO Thrift Store Planting Project
3. Spring Trash Pickup Day– pick a date!
4. Elementary School Worksheets
5. April 22 Earth Day Planting Ideas
6. Submit newsletter articles or ideas

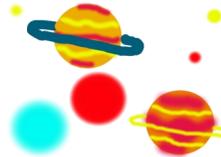


Recycle Bins Are Installed! Visit our project at the tennis courts, stadium and football practice field.

PAY YOUR \$5.00 DUES. SENIORS MUST HAVE PAID DUES TO RECEIVE GRADUATION CORDS. LAST DAY TO PAY IS: APRIL 11, 2017.

IN WILDERNESS IS THE PRESERVATION OF THE WORLD. HENRY DAVID THOREAU

SEVEN EARTH-SIZED PLANETS DISCOVERED



Astrophysicists from Chile and Belgium identified seven Earth-sized planets that orbit around the central star TRAPPIST-1. The star TRAPPIST-1 is twelve times less massive than our Sun and about the size of Jupiter. TRAPPIST-1 is located 40 light years away from earth (235 trillion miles) within the constellation Aquarius. Astrophysicists discovered the planets by studying the repeated shadows that were cast in transit and the transit signals allows the orbital periods of the planets to be measured. From those measurements, sizes of the planets were calculated. The planets are believed to be rocky and sunlight is believed to reach at least three of the planets. NASA's Spitzer Space Telescope and the Hubble Telescope continue to be used to see if there is liquid water on the planets and to see if the planets are habitable. In 2018, NASA plans to use the new James Webb Space Telescope to investigate TRAPPIST-1's "chemical footprints" of oxygen, ozone, methane and water (such as are in an atmosphere). Life or habitable planets may indeed be out there! <http://www.trappist.one/>; <https://www.nasa.gov/press-release/nasa-telescope-reveals-largest-batch-of-earth-size-habitable-zone-planets-around>