The St. Louis American
NEWSPAPER IN EDUCATION

The St. Louis American's award winning NIE program provides newspapers and resources to more than 8,000 teachers and students each week throughout the school year, at no charge.

Questions or comments? Contact Cathy Sewell
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STEM
science, technology, engineering, and math

CLASSROOM SPOTLIGHT

Jennings High School science teacher Marty Warren shows students Jimmy McFan, Mia Holmes, Jordan Thompson and Branden Woodruff how to do an entomological experiment, an extension of a STEM lesson found using the newspaper. *Photo by Wiley Price/ St. Louis American.*

Teachers, if you are using the St. Louis American's NIE program and would like to nominate your class for a Classroom Spotlight, please email: nie@stlamerican.com.

SCIENCE CORNER
Bacteria Are Everywhere!

Bacteria are everywhere! They are the smallest living organism on Earth and they are made of only one cell. That cell is surrounded by a cell wall to protect it. Some bacteria have hairs called pili, and some bacteria have long threads called flagella. Bacteria are divided into three groups, depending on their shape. Cocci bacteria are round, bacilli bacteria are straight, and spiral bacteria have a corkscrew shape. Bacteria live in colonies and can reproduce very quickly, about once every 20 minutes.

Some bacteria cause disease, like tuberculosis, tooth decay, salmonella, E. coli, cholera, and many more. However, bacteria can also be helpful. An example of helpful bacteria is the bacteria found in yogurt and cheese. This helps our stomach process food. Bacteria can also be used to create some types of medicine. To learn more interesting facts about bacteria, read the "Did You Know" section (below).

Learning Standards: I can read nonfiction text for main idea and supporting details.

SCIENCE INVESTIGATION
Create a Light Box!

Background Information:
In this experiment, you will learn about attributes of light.

Materials Needed:
• 4 Plastic Clean Bottles (such as 16-20 ounce water/soda bottles) • Water • Tape • Scissors • Large Cardboard Box • Food Coloring • Foil • Plastic Cups (to fit over bottles) • Note Book

Process:

1. Fill the bottles with water. Add food coloring to three of the bottles.
2. Trace the bottom of the bottles on the top of the box and cut 4 holes.
3. Put tin foil on the top of the box to help light reflect into the bottles.
4. Cut a hole in the side of the box to look inside.
5. Push the bottles into the 4 holes. The top of the bottle will still be above the top of the box. Cover the tops of the bottles with a cup.
6. Look through the side of the box and observe how the light looks as it moves through the different colors. Record your findings in the notebook.

Reflect: Which colors tend to absorb light? How do the light rays bend and expand as the sun shines? For more information, read about light refraction.

For A Light Refraction Video, Visit: http://www.dailymotion.com/video/x2rvd3j.

Learning Standards: I can follow sequential directions to complete an experiment. I can make deductions and draw conclusions.

MATH CONNECTION
You've Got Water Problems!

In today's biography, you learned about a method that helped make water safe to drink. Water is a liquid that is measured in ounces, cups, pints, etc. Use this chart to answer the following questions.

8 oz = 1 cup
2 cups = 1 pint
4 cups = 1 quart
8 cups = 1/2 gallon
16 cups = 1 gallon

1 Water is essential for good health. You should drink 8-10 cups of water per day. If you drank 8 cups of water, how many ounces of water did you drink?_____ How many pints of water did you drink? _____ How many quarts of water did you drink? _____ How many gallons of water did you drink? _____

2 Elizabeth bought a ½ gallon of lemonade for her birthday party. She has 5 guests. If each guest is given 1 cup of lemonade, how many cups of lemonade will be left? _____

3 Steven chose a gallon of milk at the store. If he uses 2 cups of milk for a recipe and drinks 2 cups of milk, how many quarts of milk does he have left? _____

4 How many ounces of fluid are in one pint? _____

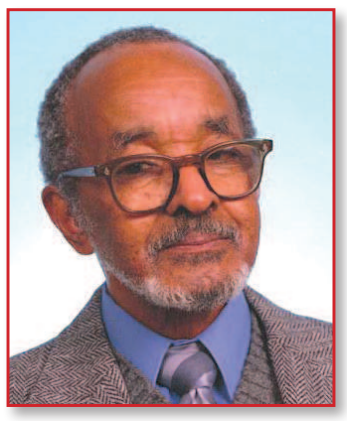
5 If you have a 16-ounce sports drink, how many pints do you have? _____

Learning Standards: I can use addition, subtraction, multiplication, and division to solve a word problem. I can covert units of liquid measurement.

DID YOU KNOW?

- A dollar bill has 3,000 types of bacteria.
- There is an average of 4 pounds of bacteria in a human body.
- Researchers have found 1,458 new types of bacteria in belly buttons.
- New bacteria grow on a kitchen sponge every 20 minutes.
- Computer keyboards can carry as much as 200 TIMES more bacteria than a toilet seat.

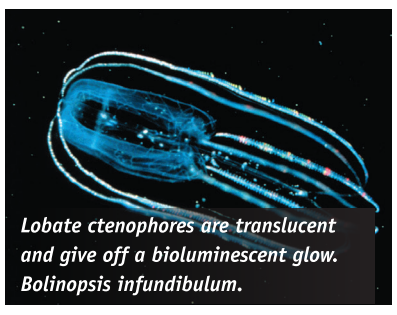
SCIENCE STARS
African -American Inventor and Engineer Emmett Chappelle



Emmett W. Chappelle was born in Phoenix, Arizona, on October 24, 1925. He grew up on a small farm and helped his family raise cotton and take care of cows. In 1942, Chappelle graduated from Phoenix Union Colored High School. After graduation, he was drafted into the army. He was able to take some engineering courses when he was assigned to the Army Specialized Training Program. Later, he was sent to Italy with the All-Black 92nd Infantry Division. Upon his return to the US, Chappelle earned his associate's degree from Phoenix College, then used his GI Bill of Rights to receive his bachelor's degree in biology from the University of California, in 1950.

From 1950 to 1953, Chappelle worked as an instructor at Meharry Medical College in Nashville, Tennessee, where he also conducted research. The University of Washington offered him an opportunity to continue his research with them while he earned a master's degree in biology.

Chappelle was an eager student and he continued taking graduate classes at Stanford University. From there, Chappelle went to Baltimore to join the Research Institute for Advanced Studies. He worked on creating a safe oxygen supply for astronauts. He also worked for Hazelton Laboratories and joined NASA's Goddard Space Flight Center. His research focused on the study of luminescence (light without heat). He used chemicals from fireflies as part of his method of detecting life on Mars. This method of using light created by living organisms is called bioluminescence. Chappelle used this method to detect bacteria in water.



Lobate ctenophores are translucent and give off a bioluminescent glow. Bolinopsis infundibulum.

In 2001, Chappelle retired from NASA. He has fourteen patents, and has written more than 35 scientific publications. He has been honored as one of the top 100 African-American scientists and engineers, has received an Exceptional Scientific Achievement Medal from NASA, and was inducted into the National Inventors Hall of Fame, in 2007.

Learning Standards: I can read a biography about a person who has made contributions in the fields of science, technology, engineering, and math.

MAP CORNER

Enjoy these activities that help you get to know your St. Louis American newspaper.

Activity One — Numbers in the newspaper can be written a variety of ways. Can you find an example of a numeral, a number written as a word, a decimal, a percentage, a fraction, a roman numeral? Can you find an example of a metric number? Explain how the numbers were used in the newspaper.

Activity Two — Circle 12 words in the newspaper that begin with a capital letter. Discuss why each word begins with a capital letter. Then, identify which of those words are proper nouns. Divide the proper nouns into categories of person, place, thing, or idea.

Learning Standards: I can use the newspaper to locate information. I can identify the purpose of capitalization and classify information.

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