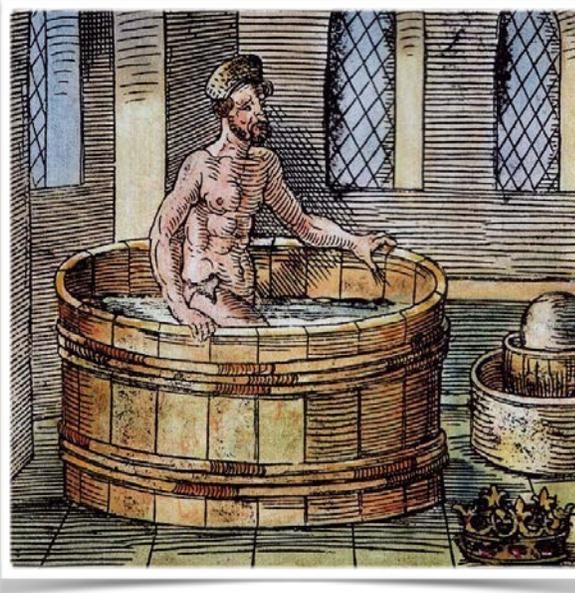


District 75 STEM Fair

The first annual District 75 STEM Fair will take place on June 10, 2015 at the American Museum of Natural History in the Davis Classrooms. Schools will be receiving ongoing correspondence and must call **212-769-5200** to register for the trip to AMNH.



Grow-to-Learn NYC is awarding mini grants of up to \$2,000 for school gardens. Applications are due Wednesday February 11th, 2015 for the spring cycle. This year Grow to Learn will be offering bonus points on applications from schools that attend workshops and networking events for school gardeners. Applications are scored on an 18 point scale, so bonus points can contribute significantly to an application's standing. Check out the events page and Mini-Grant announcement for more details! (www.growtolearn.org)



Why Eureka?

A Note from the Editor

Have you ever stepped into a bathtub full of water and noticed the water level rise? Or add ice cubes to your cup of soda and have your soda rise and spill out? While this might seem obvious to some people, to the ancient Greek scholar **Archimedes**, it was a discovery unlike any other. In fact, when Archimedes stepped into his bathtub and noticed that the water level rose - he suddenly understood that the amount of water displaced is equal to the volume of the body part submerged. He is said to have been so excited about this discovery that he shouted, "Eureka!" and ran through the streets of **Syracuse** naked!

So why Eureka?

The word "eureka" comes from Ancient Greece and means, "I have found it." Through this blogazine, a mash up of a blog and a

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magazine publication, I will attempt to find answers to pressing questions readers might have when it comes to everything and anything science and STEM education related.

Consider Eureka! as our forum for an open discussion, a place to share best practices, and communicate with other professionals in the field. But that's not the best part. What really makes Eureka! special is its focus on improving scientific literacy in *our* District.

Denis Fegan.

CALL FOR SUBMISSIONS

Eureka! is now welcoming submissions that make original empirical contributions that will move the field forward. Submissions may be focused on science education practice across formal education contexts as well as informal settings. Submissions typically focus on activities that use inquiry-based methodologies and hands-on investigations to support the development of student understanding of important scientific concepts.

If you are planning on using photographs, please make sure to use appropriate consent forms. (Consent forms can be found by visiting the District 75 Website > Click on "Information & Resources" > Click on "Video Forms and Resources" > Click on "District 75 Consent Form")

Please e-mail submissions to: dkogan@schools.nyc.gov



The foundation of a high-quality STEM program/curriculum is an excellent math and science curriculum that integrates literacy and other core areas as appropriate. In a high quality science program teachers use inquiry-based methodologies and hands-on investigations to support the development of student understanding of important scientific concepts. Students (and teachers) learn to see themselves as scientists and have adequate time and materials to conduct meaningful investigations. With a new focus on teacher team and teacher collaboration it is essential that some of that time will provide opportunities for interdisciplinary planning and discussion as well as opportunities for students to spend time out of their school buildings investigating the “outside” world and exploring the many science institutions and museums that we are fortunate to have in New York City. I wish all of NYC’s science teachers a very happy, productive, prosperous and healthy New Year!

Vince Bertram's article, "STEM or STEAM? We're Missing the Point" (2014) mentions that STEM education is one of the most talked about subjects in our country today — and for good reason. From our K-12 system and post-secondary institutions to business, industry and government, most everyone is focused on — or at least has something to say about — STEM education as a key solution to improve educational performance and solve the persistent workforce development problems that plague our nation.

But what exactly is STEM education? It's much more than science, technology, engineering and math, which are usually taught as discrete subjects with math down one hallway in the school and science down another. Rather, STEM is the applied, integrated approach to those subjects.

It is about using math and science to solve real-world challenges and problems. This applied, project-based way of teaching and learning allows students to understand and appreciate the relevancy of their work to the world around them. Arguably, STEM is at the core of everything.

I'm often asked why science, technology, engineering and math are the only words used to create the acronym and when we will change STEM to STEAM, STREAM or STEMM — incorporating art, reading or music into the acronym. If that is the debate, we are clearly missing the point. It's not about adding to the acronym, but instead adding to the relevancy of learning. It's about showing students how technical concepts relate to real-world situations and providing them with hands-on projects and problems that help them apply concepts in a new context. It's about nurturing students' curiosity and helping them develop creativity, problem solving and critical thinking skills. STEM isn't simply the subjects in the acronym. It's an engaging and exciting way of teaching and learning.

Look no further than the materials and technology artists use: computers and graphics, paint, a canvas. Computer scientists develop the graphics technology, chemists work to ensure the right chemical composition to create vibrant colors, and engineers design a stronger canvas that absorbs the right amount of paint. Furthermore, the same creativity that inspires beautiful works of art is the same creativity that has led to some of the world's highest-performing, usable and visually appealing inventions. For instance, the Corvette Stingray, the 2014 North American Car of the Year, is an engineering marvel and one of the top-performing automobiles on the market. But, it's also aesthetically appealing. The same could be said for your new light-weight running shoes, your single-serving coffee maker, or the acoustically designed facilities for your community's symphony orchestra. These are all examples of engineering and the arts working together, and they all resulted from the same design process engineers use to build the world's most advanced fighter jets, develop new energy solutions, and create targeted therapies for chronic diseases.

STEM can be found in virtually every discipline and in every product. STEM is not exclusive to the subjects of science, engineering, technology or math. We must continue engaging students in the STEM disciplines and encouraging them to combine technical knowledge and skills with the creativity that leads to innovative ideas — ideas that give the arts new technologies, music new instruments, farmers new machines, and our businesses a competitive advantage. Unless we continue building the STEM pipeline, each profession suffers.



ROBOTICS!

LEGO Education with WeDo and MINDSTORMS NXT at Public School 176X



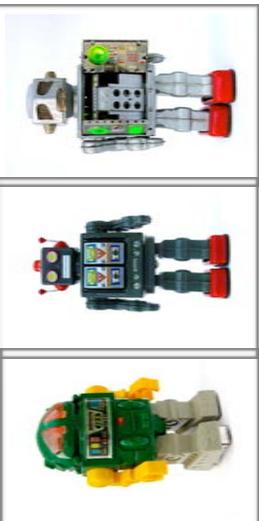
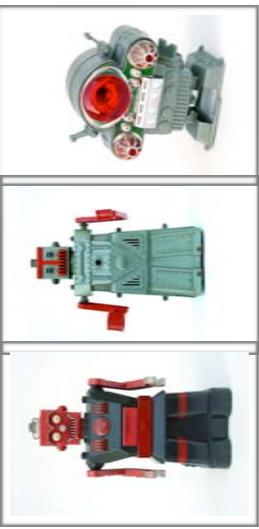
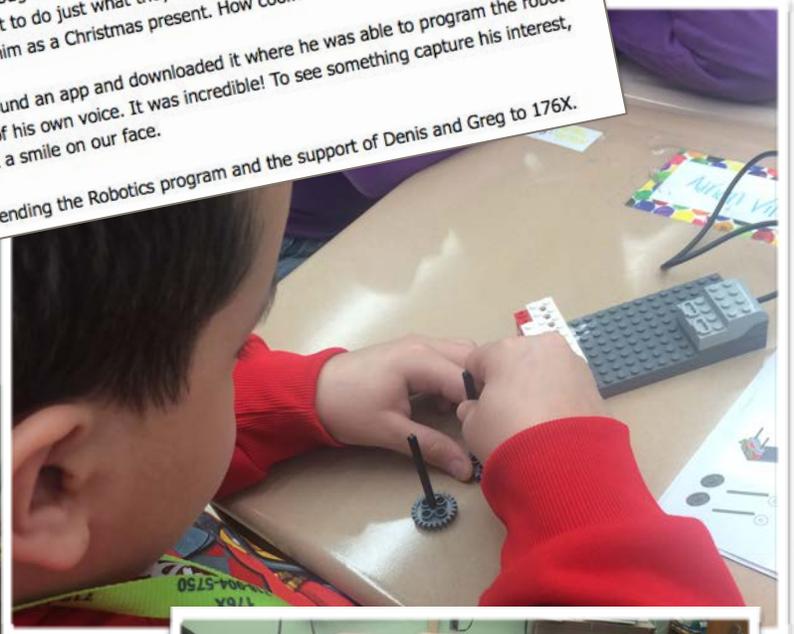
Subject: Lego good news...

Hi Leslie!

I hope you are well. I wanted to share some good news with you in regards to the Lego Robotics program. Mindstorms exploded here at 176x. Dennis, a student in our 12:1:1 class has shown a real interest in the program. He came to me the other day showing me a robot he and his 2 classmates made in his math class. The robot "Buddy" involved a pulley system and had wheels. They have been building "Buddy" for past 6 weeks. The wheels move a bucket up and down, a connection they made while using the Math in Focus program, specifically the unit on weights. They used the skills learned in math to gauge whether or not the robot was strong enough to pull the weighted bucket and how much weight the robot could lift. I was amazed at how they programmed this Robot to do just what they wanted. I shared this news with his mother, who was thrilled. She told me she bought Mindstorms for him as a Christmas present. How cool!!

Yesterday he came in with his own Kindle Fire. He found an app and downloaded it where he was able to program the robot wirelessly, via bluetooth and even through the use of his own voice. It was incredible! To see something capture his interest, while making connections to our math program put a smile on our face.

I wanted to share with you and to thank you for sending the Robotics program and the support of Denis and Greg to 176X.

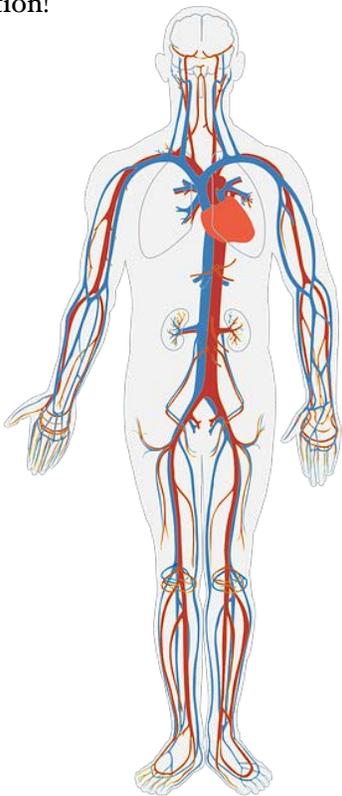


FROM THE STUDENT

“What is the cardiovascular system?” (371K)

The function of the cardiovascular system (also called circulatory system) is to transport blood to all of the tissues in your body. It consists of your heart, blood vessels (veins and arteries), and blood. It would not be wrong to imagine your heart as a pump and your arteries and veins as roadways through which blood is pumped to all areas of your body.

Arteries carry oxygen-rich blood away from your heart to the rest of your body. **Veins** return the blood to the heart after the oxygen has been used up. Remember, your body needs oxygen in order to function!



For more information, visit http://www.pbslearningmedia.org/resource/tdco2.sci.life.stru.lp_circula/the-circul-system/

FROM THE TEACHER

“What are some measures of data collection?” (176X)

The most commonly used data collection measures in a classroom setting are: **Frequency**, **Rate**, **Duration**, **Accuracy**, and **Prompt Hierarchy**.

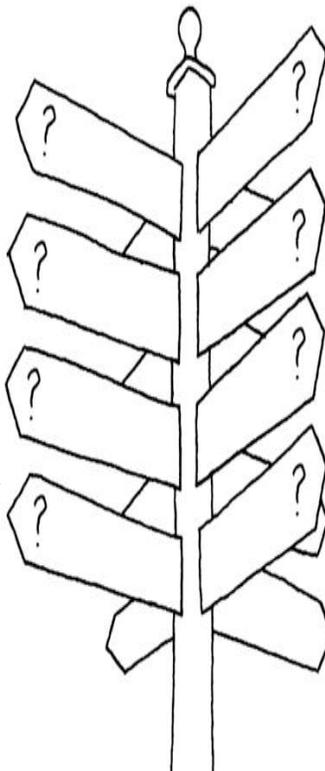
Frequency - the number of times a defined behavior occurs within an observation.

Rate - the number of times a behavior, goal, or objective occurs in a specified time frame. Rate gives a more accurate description of the actual number of times the behavior occurs per unit of time.

Duration - measures the amount of time that an event or behavior occurs from start to finish.

Accuracy - the number of correct out of the number provided, and it can be stated fractionally or with a percentage

Prompt Hierarchy - the measure of how many prompts and what types of prompt a student requires to complete a task. Remember, a student has to show consistent progress in the reduction of prompting needed to move to independence.



NEW YORK'S STATEWIDE STRATEGIC PLAN FOR SCIENCE AND P - 12 SCIENCE LEARNING STANDARDS

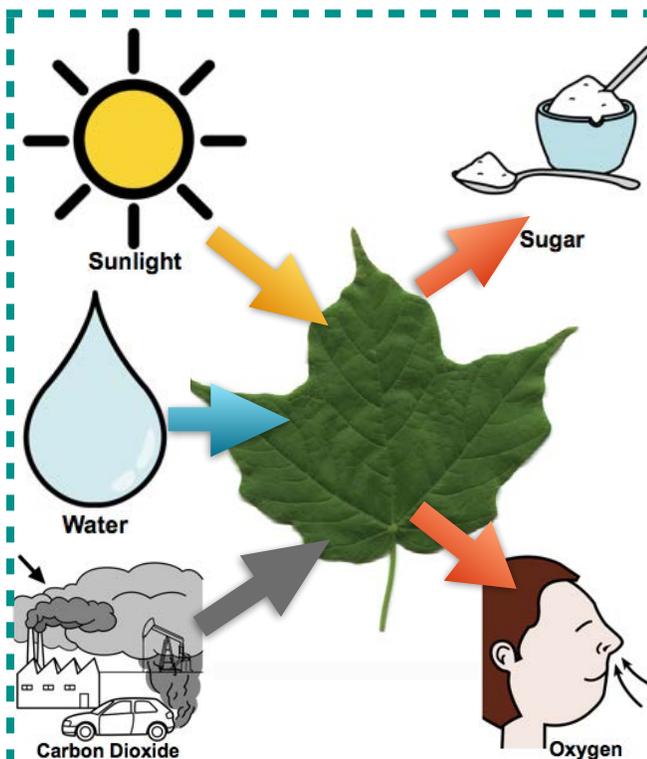
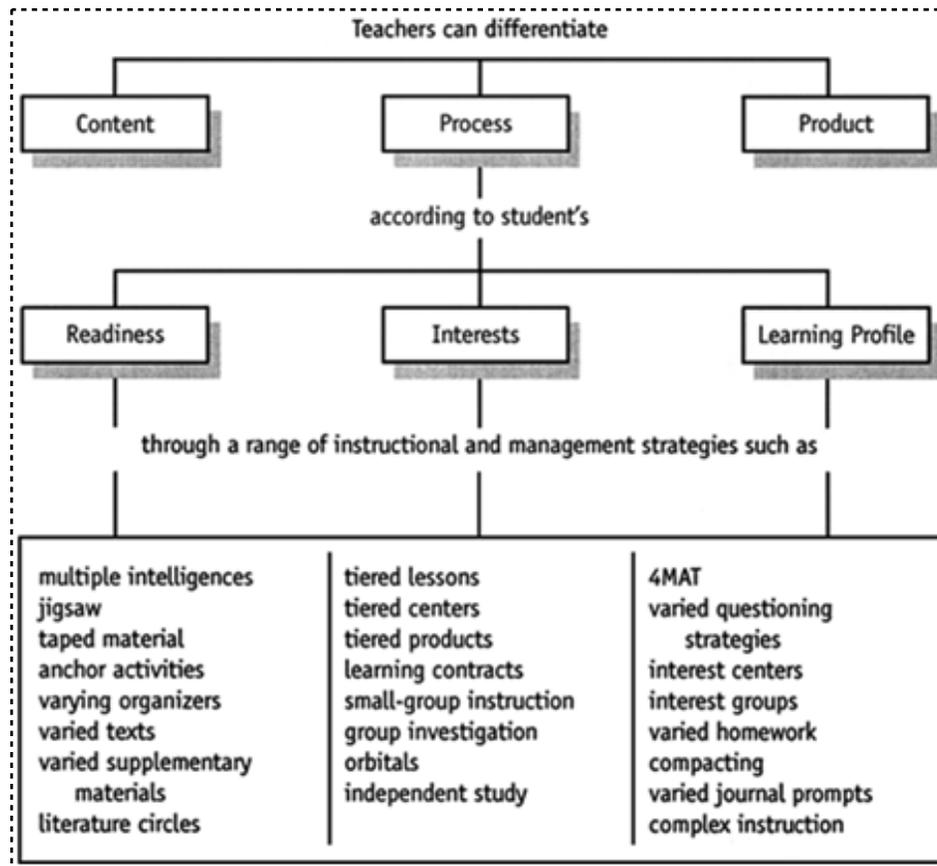
A draft Statewide Strategic Plan for Science has been collaboratively developed by the New York State Education Department, members of the Science Content Advisory Panel, the Statewide Leadership Team (Science), and representatives of the NYS Science Education Consortium to guide a comprehensive approach toward improving P-12 science education statewide, while specifically addressing a mission and vision that incorporate six critical components simultaneously - Standards, Curriculum, Professional Development to Enhance Instruction, Assessment, Materials and Resource Support, and Administrative and Community Support.

During its October 2014 meeting, the New York State Board of Regents directed Department staff to post the Statewide Strategic Plan for Science for public review and comment. The Regents item related to the Statewide Strategic Plan for Science may be accessed online at <http://www.regents.nysed.gov/meetings/2014/October2014/1014p12d1.pdf>.

Please review the Statewide Strategic Plan for Science by visiting <http://www.p12.nysed.gov/ciai/mst/sci/docs/Strat-Plan-for-Public-Comment.pdf>.

TOP SECRET

QUICKGUIDES



The Photosynthesis Equation



What is it?

- Plants use energy from the sun to convert carbon dioxide and water into oxygen and sugars
- Plants use some of the sugar for food. The cells break down the sugar molecules to release the energy they contain

Where does it happen?

- In chloroplasts. Some sugar molecules are converted into other compounds like cellulose. Other sugar molecules may be stored for later use
- When you eat food made by plants, like carrots or potatoes you are eating the plant's stored energy

Which organisms use it?

- Plants (land or water) and phytoplankton
- What do we call organisms that make their own food?
- Producers or "autotrophs"