HOWARD B. OWENS SCIENCE CENTER

4th Grade

Ozobot Bit

Computer Science Engineering Robotics Program

Post- Visit Activity Resources

Winter/Spring 2020

Dear 4th Grade Visiting Classroom Teacher,

It is hoped that you and your students enjoyed your visit to the Howard B. Owens Science Center today for the 4th Grade "Ozobot Bit" Computer Science Engineering Program. Learning Computer Science programming skills are becoming increasingly important in the 21st Century workforce.

The three Post-Visit Activities enclosed in this packet are designed to help the students continue to apply and expand the concepts and skills introduced during their on-site program.

In the first activity, "*Scratch*", online activity developed by MIT, students' practice using the block-based coding skills introduced at the Science Center and expand their skills using additional coding functions such as sprites, numerous category blocks and Scratch has fun programming projects for the student to complete.

In the second activity, "*Adopt and Argo Float*" students have the opportunity to track and analyze real-world STEM ocean monitoring data collected by the Argo robots they learned about in the Pre-Visit Activities.

The third NASA activity "Mars ROVERS" allows students the opportunity to control a simulated Mars Rover to investigate the surface of Mars as well as view real Mars ROVER data.

Finally, the packet contains a Post Program Evaluation. Thank you for taking time to complete and return the form to Owens. Your feedback is important to us in planning program design as well as in providing important documentation of the benefits of having a science center to support and enhance classroom instruction.

The staff of the Owens Science Center looks forward to your feedback and next visit!

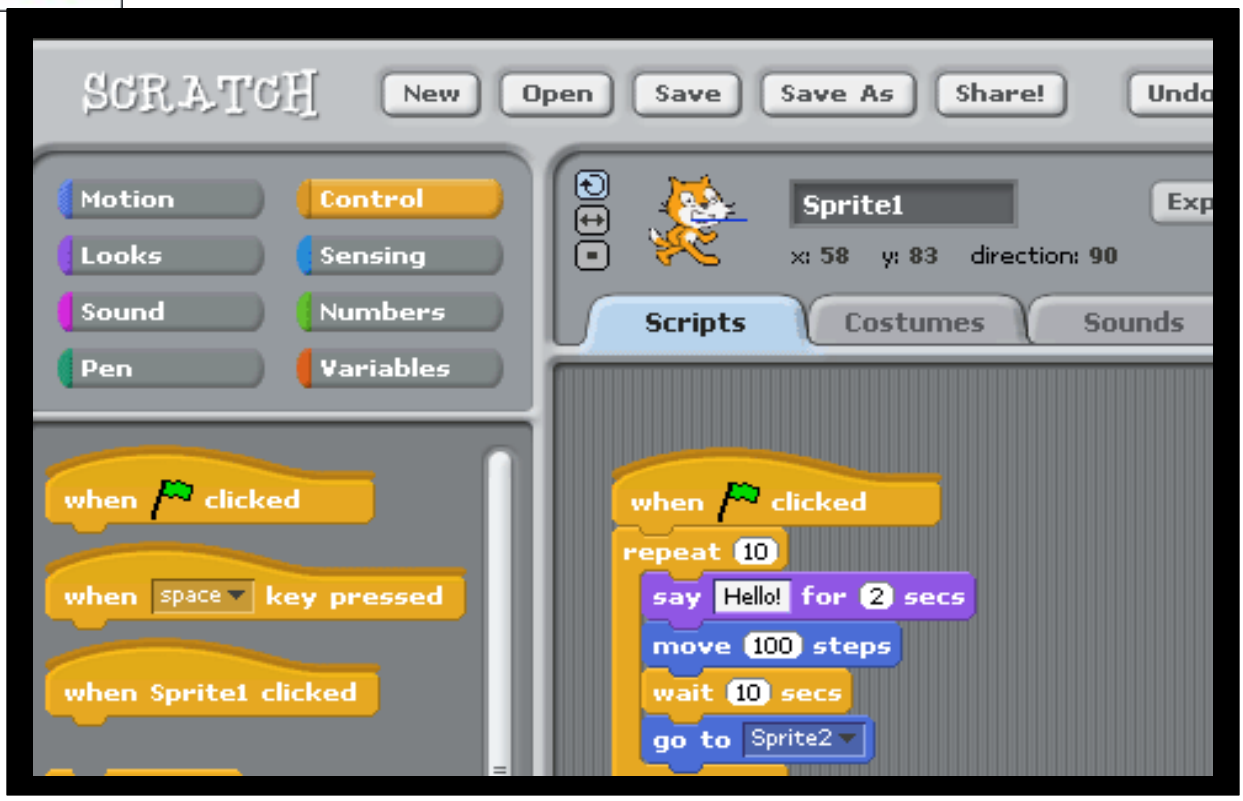
Sincerely,

Sallie M. Smith

Sallie M. Smith, Computer Science/Robotics Instructor
Howard B. Owens Science Center

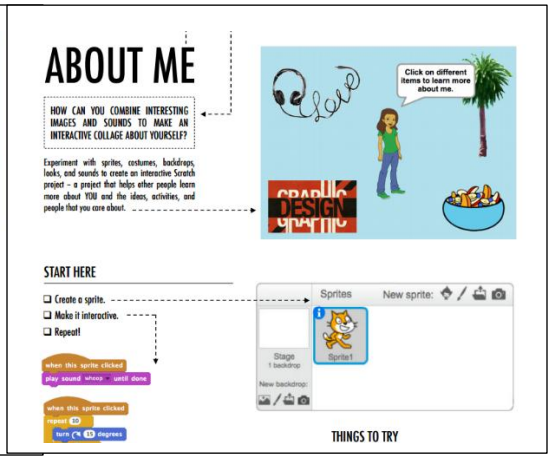
Post Visit Activity 1: Learning With "SCRATCH"

http://scratch.mit.edu



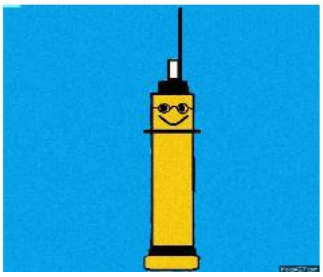
"*Scratch*" is block-based Educational Freeware programming language developed by MIT for students to learn computer programming skills in the context of creating their own stories, animations, games music and art projects. It is creative computing that is fine and helps provide students a foundation in computer science.

Harvard University uses Scratch as an Introductory Computer Science Course and develop a Scratch "Creative Computing Learning Guide" for students to follow at home or school with fun step-by-step creative computing projects. The guide may be downloaded as a PDF using the Owens Ozobot Post Visit Link or directly from: **http://scratched.gse.harvard.edu/guide/files/CreativeComputing20140820_LearnerWorkbook.pdf**



Post-Visit Activity 2:

Adopt an Argo Float



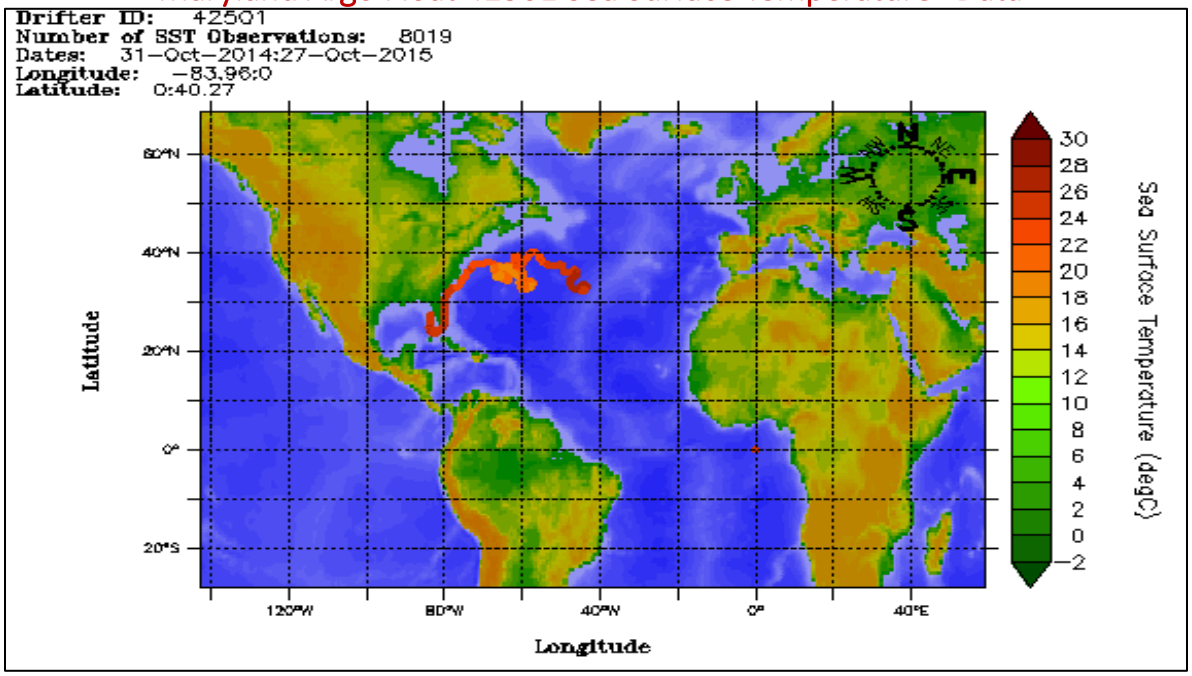
http://argofloats.wikispaces.com/Adopt+an+Argo+Float

Involving PGCPS Students in Real-World STEM

During the program at the Science Center, the visiting students were introduced to NOAA's robotic "Argo Floats". The Argo Floats are good examples of how engineers help advance science.

NOAA has an "Adopt an Argo Float" program that allows classes to adopt a specific Argo Float so that students may track and access the temperature, salinity and drifting current data collected to visually see using color code maps and monitor the ocean providing students an opportunity to conduct their own real-world monitoring science study.

Maryland Argo Float 42501 Sea Surface Temperature Data



Q. What was the Argo Float Sea Surface Temperature (SST) for GPS location (38 ^{o} N and -76 ^{o} W) _____ ?

Post-Visit Activity 3: "Robotic Explorers on Mars"

http://mars.nasa.gov/multimedia/interactives/billionpixel/?image=PIA1691

During the Ozobot program, students heard about how NASA planetary scientists and engineers worked together to build exploration Robotic ROVER Geologists to explore the surface of Mars searching for evidence of water, life and resources.

NASA's Jet Propulsion Center has and Education website sharing the ROVERS Expedition on Mars which allows students the opportunity to view real exploration images taken from Mar's Curiosity ROVER. The students not only get to explore the real planet Mars they get to select what interests them by clicking on "Landing Sites", "Rocks", " Science Laser Site" menu tabs.

Each image has captioned text to help viewers understand what they are viewing. For example, in science caption in the image below provides information of how a rock shaped like a bird was formed by wind-erosion.

NASA's Billion-Pixel Mars Curiosity ROVER Viewer