



MA Space Grant Consortium

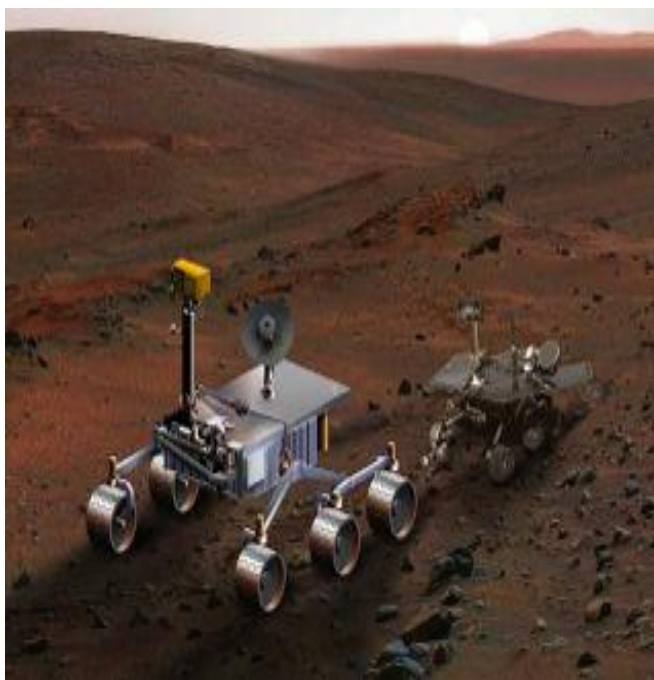
Northeast Regional Collaborative
Robotics Workshop for Educators

1. Evaluation of Regional Collaboration.
2. How should Space Grant operate in the pre-college space?

NASA Workshop for Educators

July 22-26, 2013

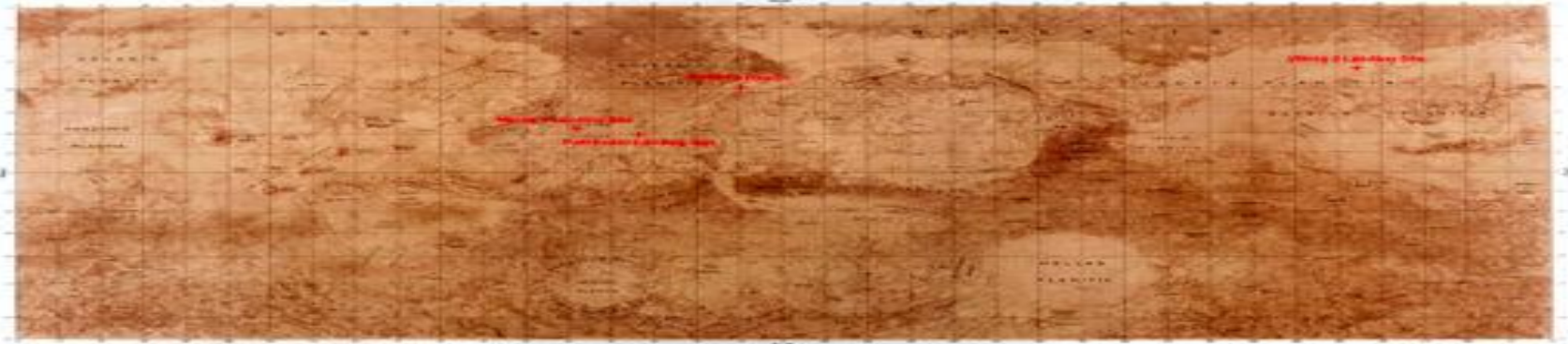
- Robotics workshop
- Conducted by
The Center for Engineering Education,
Tufts University



Objectives:

1. Build a NXT rover
2. Learn to program
Mindstorms/Labview
 - To use various sensors.
 - To test and modify design.

Challenge example: Mapping Mars



NASA wants to examine four sites on Mars.
Program your rover to reach all four in
order.

100 % Regional Participation

#. of teachers

Connecticut	2
Massachusetts:	
Cambridge School System	6
Maine	2
New Hampshire	2
New York	3
Rhode Island	2
Vermont	1



Shereen at
Demonstration School
Kampala, Uganda



Cyrus at
Aga Khan School
Arusha, Tanzania

Feedback from teachers

Connecticut

- All of the activities were very **useful to learn programming** and many had a science theme in which **math and science concepts could be explored.**
- This was an excellent workshop, It also gave me **the opportunity to collaborate with other colleagues from different states.**

General gender differences noticed by teachers in LEGO design teams

- Girls do not like direct competition.

They do better competing against a standard.

- Girls tend to plan ahead of boys.

They formulate the design and then collect pieces from the bin as opposed to boys who will take interesting pieces and then attempt to design.

Maine

- I have **learned** a lot about the NXT lego kits and **programming**- all very cool and applicable and fabulous for our kids to use.
- I **will use this with my students in Pre-Algebra** ... ratios, balancing equations, programming logic , ...

New Hampshire

- Before this workshop, I had **never seen the Lego robots or used the NXT Mindstorms.** Now I feel much more **confident**
- Thanks to this program I feel ready to **implement engineering** with my students. My school has had an NXT for a few years and it has been sitting on a shelf, unused.. Thanks to this workshop I will be using NXT Engineering with my 8th graders.

• New York

- I thought it was very informative and I learned a great deal about both **building and programming** the NXT Robots.
- For me the workshop was extremely useful. I knew next to nothing and have been learning with the kids, but **my knowledge was very limited**. This workshop REALLY helped me. I've been **hesitant to use it further due to my lack of knowledge**. I feel much more capable of expanding my program. Thank you NASA!
- What I learned will definitely add to my current teaching because I am much more **comfortable in programming**. **My curriculum will be enhanced**. This is a hands-on program, which students love and which, I believe, they gain a much better understanding of the entire scientific process. **It also integrates the NYS Common Core Standards**.

Rhode Island

- **If I could get these units for my classroom, I would absolutely add/integrate robotics into my curriculum.** The workshop has given me some ideas for alternate assessments for labs as well as lab groupings.
- I was a self-taught robotics teacher and this workshop gave me the skills to **improve upon what I already knew.**

Vermont

- I will be **able to use** what I learned during the school year in our Robotics Club and **in my physics classes.**

Cambridge STEM Roundtable, March 2013

City of Cambridge

The White House

Black Innovation and Competitiveness
Initiative.

“To address the disparity between excellence in higher education in Cambridge and the city’s public schools.”

Thank you again for supporting us to attend the robotics workshop. It was a very **helpful start**. I promised you an email update about where we are, and where we are going.

This is **all new to us**, so we may not end up where I describe, but this is our current thinking.

This year, teachers who attended the workshop will **pilot** the use of Lego Mindstorms as an **engineering design challenge** and as a context for an embedded **assessment** of what students have learned **in physics**, at two of our schools.

Our hope is to **grow this pilot into a district-wide curriculum** that all students will participate in 2014-15.

It would be great to think about how we might work together!

- Dan Monahan, Cambridge Public School District

1. Evaluation of Regional
Collaboration.

**2. How should Space Grant
operate in the pre-college space?**

International Assessment in Math and Science

United States ranking:

25th in Math

17th in Science

Build a Rover for Rough Terrain

