

**Welcome to the
Virginia Department of Education's
2014 Spring Grantee Professional Development
Institute
March 18-19, 2014**

How STEM blossomed into S.T.R.E.A.M.



S.T.R.E.A.M. is a comprehensive program designed to meet the needs of the whole child using hands-on STEM practices, while adding recreation/redirection, engaging academics and art.



Out of School Time
keeping our youth safe and engaged



Daryle Rodgers, M.L.S., CPRP
Out of School Time Coordinator



Every Child, Every Day,
Whatever it Takes!

Overview

- How S.T.R.E.A.M. developed:
 - Students' Needs
 - Knowing Our Purpose
 - Program Purpose
 - What makes the R, E and the A so important
 - STEM Component
 - Recruiting in the community
- Key Components
- What made NASA and Virginia Air & Space Center want to help us sustain the program?
- Lets hear about your program
- Questions, Suggestions, Ideas

I. Students' Needs

Community assessments and parent feed back stated a need for:

- More afterschool/extended learning time programs and tutoring
- Additional recreational and physical activity opportunities
- Exposure to new hobbies interest etc....
- Exposure to positive role models
- More exposure to STEM at the Elementary School Level

II. Knowing Our Purpose



III. Program Purpose

To service students' needs, academically, physically and emotionally while fostering an interest in STEM.

Recreation

- Improved attention span
- Improved memory and learning
- Reduces stress
- Reduces the effects of attention-deficit hyperactivity disorder
- Delays cognitive decline in old age
- “Exercise produces more blood throughout the body and to the brain; which produces more oxygen and, therefore, better nourished brain tissue”.

(A Fit Body Means a Fit Mind *by Vanessa Richardson*)

- Exposes students’ to a variety of physical activities (rock climbing, Zumba)

Recreation



Students' participate in Zumba for Kids



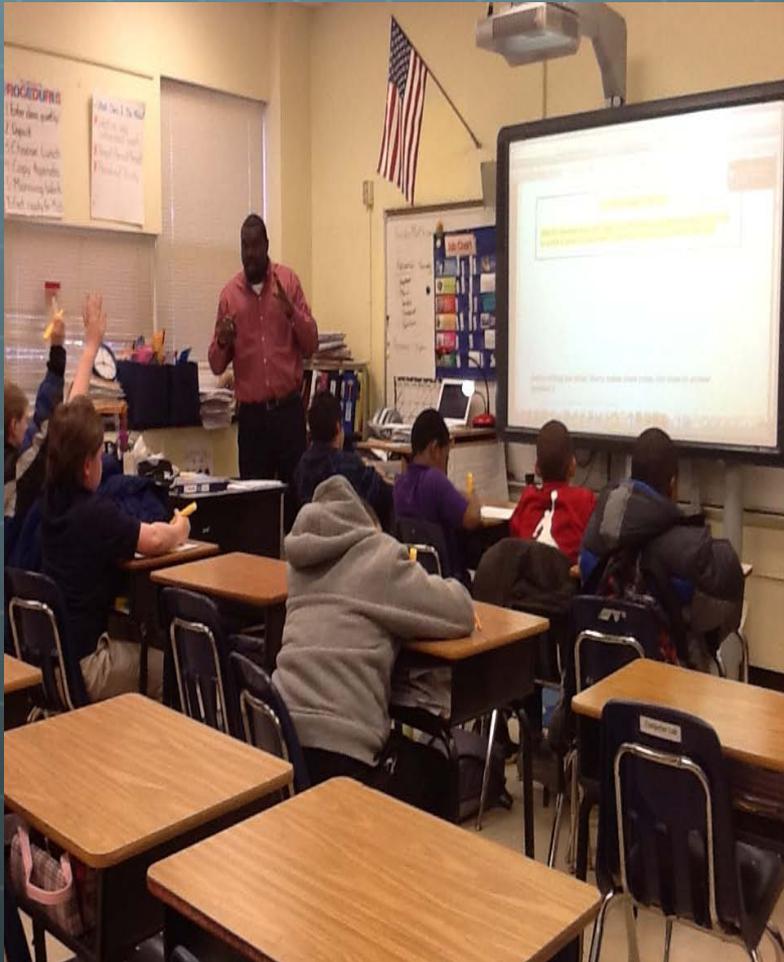
Students' attended the Norfolk Tides game

Redirection

- 1 on 1 mentoring with Hampton Foster Grandparent
- Local college students were used as mentors
- High school students volunteered as mentors

In addition to mentoring volunteers also assisted with field trips, snack/lunch time, and recreational activities.

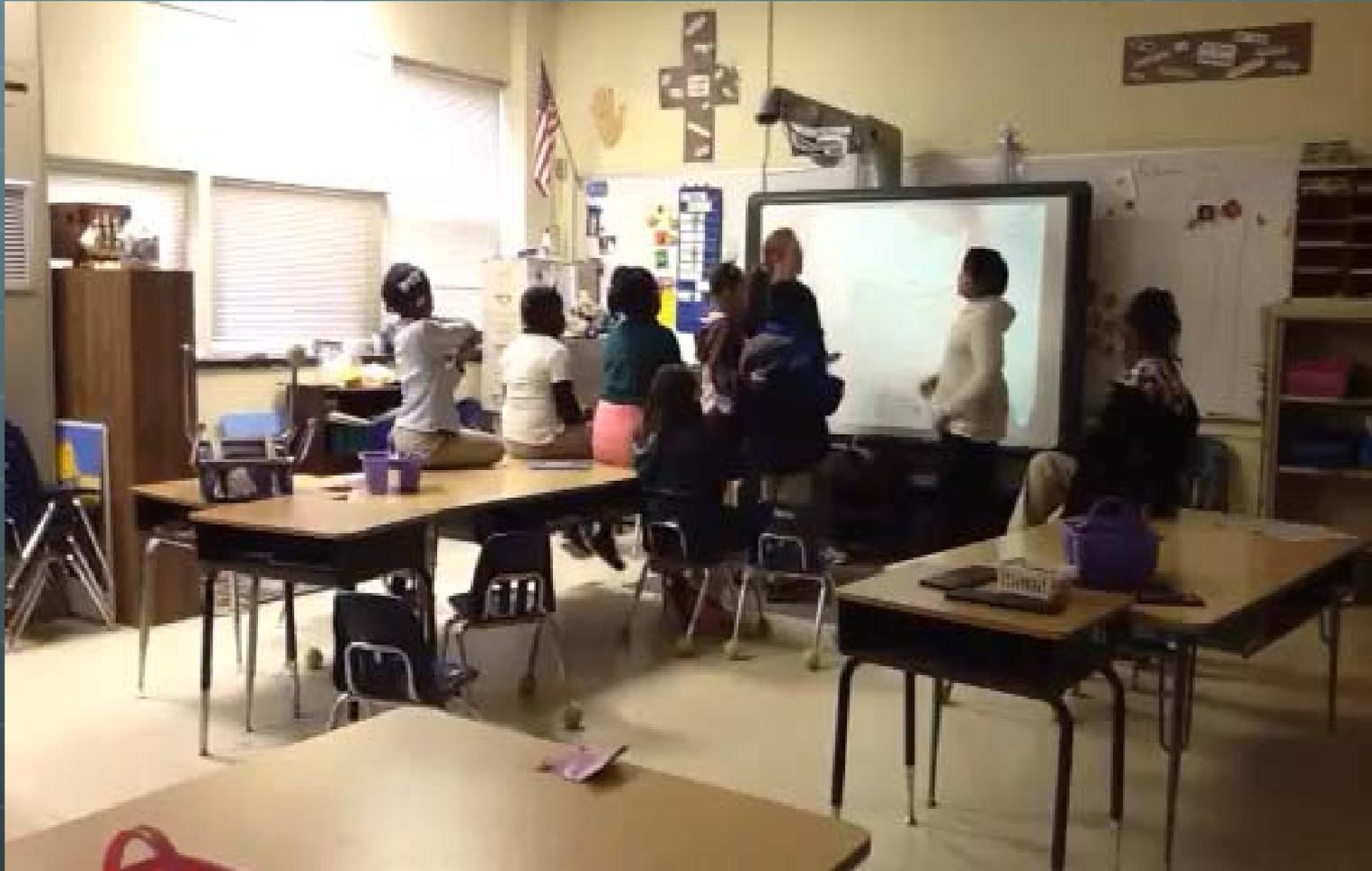
Redirection



Engaging Academics

We looked at Student Performance By Questions (SPBQ's) of students' in our programs design and hands on small group intense technology driven lessons in Language Arts and Math one day a week. This reinforced weaker academic skills in a small group setting in addition to their summer school learning.

Engaging Academic Remediation



Arts

- Exposure to a variety of instruments and music
- Exposure to dance
- Technical drawing and STEM design

Arts

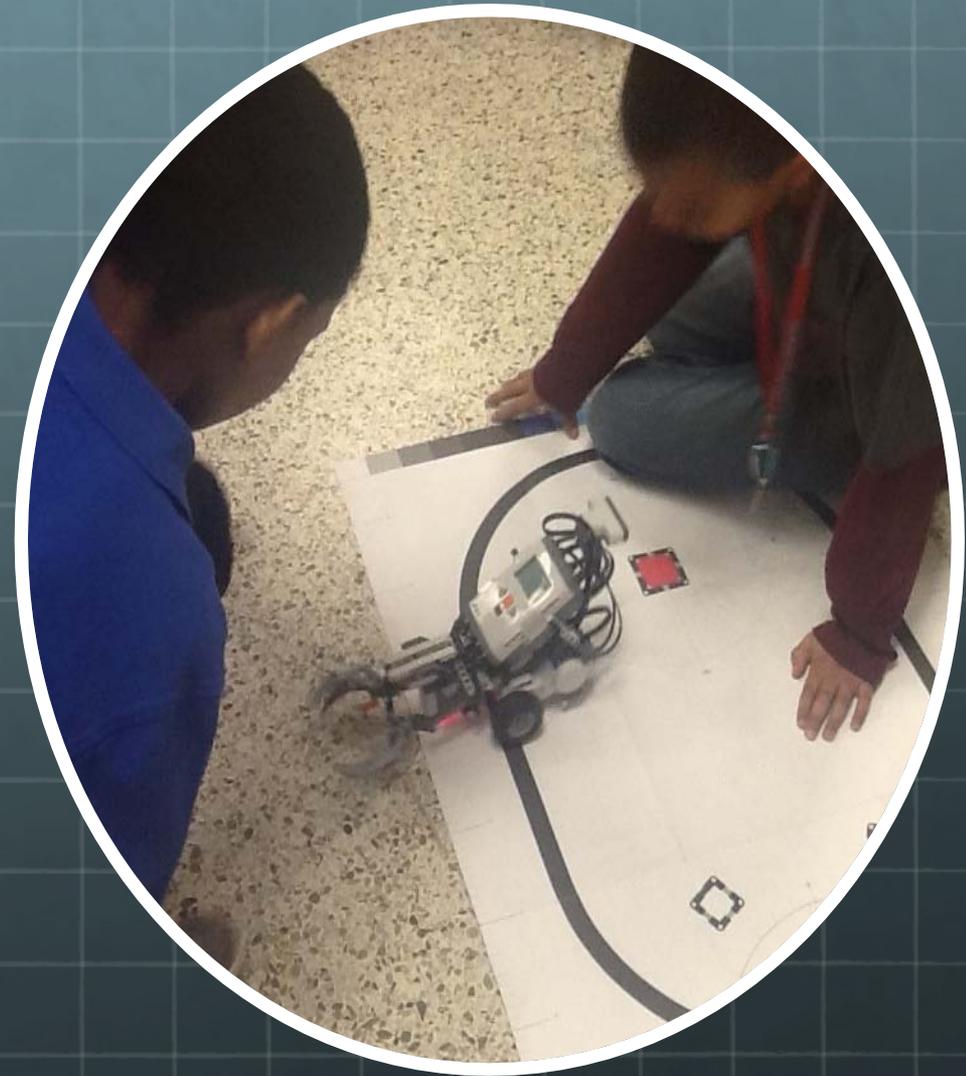


Students' imitating the sounds of Force and Motion using drum techniques

STEM COMPONENT

Teachers are trained to teach
students' to use the
Technology Design Loop

Resource: Children's
Engineering Educators



STEM in Action



IV. Recruiting in the Community

Identify community services that can help with the purpose and identity of your program.

Community Partnerships

- Youth Education and Family Services
- Virginia Air and Space Museum
- NASA
- Virginia Cooperative Extension 4-H
- Norfolk Tides
- Hampton Foster Grandparent
- Langley Federal Credit Union
- Peninsula Community Foundation of Virginia
- PTA Council
- Alternative, Inc.
- Hampton Parks and Recreation



V. Key Components

- Fused Training
 - NASA and Virginia Air and Space Center trained staff on the STEM design loop and implementation of STEM lessons (*Key step we planned out the weekly themes before the training*)
- Family Engagement
 - Held two family registration nights (School and Community Center) where parents had to be present to register student for program

Program Snap Shot

S.T.R.E.A.M. Weekly Sol Based Theme/Lesson

Week	Sol	Lesson
Week 1:	Sol 3.6, 4.8, 5.6 Earth's Environment	Children's Engineering p. 186 Exploring Animal Environments-Design an animal/scenic background or Count Down to Fall by Fran Hawk Design a habitat for an animal that hibernates.
Week 2:	SOL 5.2 Force/Motion/Energy/Sound	Children's Engineering p. 300 Design and build a musical instrument that makes at least 3 pitches.
Week 3:	SOL 4.3 Electricity	SOL Review Circuits-Design a self-checking circuit to review learned material.
Week 4:	SOL 3.2 Simple Machines/Forces/Motion	<u>Newton and Me</u> by Lynne Mayer Push, pull, force and motion Design brief Rollercoaster Design brief 4 wheel car
Week 5:	SOL 3.8, 4.4, 5.5 Plant Life Cycle	<u>Deep in the Desert</u> by Rhonda Lucas Donald-Plant Adaptations Design a butterfly garden so that allows for observation of plant/animal life cycles
Week 6:	SOL 3.3 Matter – (Plasma) Solar Energy	Children's Engineering pg. 84 Design a solar cooker and design a way to cook something, evaporate/purify water.
Final Week 7:	Rube Goldberg Challenge-Teams	<u>Those Darn Squirrels</u> by Adam Rubin Design a Rube Goldberg machine that allows students to accomplish a task.

VI. What made NASA and Virginia Air and Space Center want to help us sustain the program?

- **Comprehensive approach to students' learning**
- **Focus on the importance of recreation component**
- **Redirection component**
- **Art component**
- **Family engagement opportunities**
- **Exposing STEM to students' at an earlier age**
- **Measurable data (Pre/Post assessments, parent surveys)**

NASA and Virginia Air & Space Center have continued to support HCS throughout the school year and expand past 21st Century.

**Lets hear about your
program.**



Out of School Time
keeping our youth safe and engaged

Daryle Rodgers, M.L.S., CPRP Out of
School Time Coordinator

drodgers@hampton.k12.va.us Office
(757) 727-2015



Out of School Time@HCSOST

Questions
Suggestions
Ideas