

The “Maker” Movement: An Important Opportunity for Ham Radio *and* Rhode Island

Mike Cullen, K1NPT
Ham / Cyber / STEAM / SmarterRI Advocate

Is this a “Maker”?

Do You?

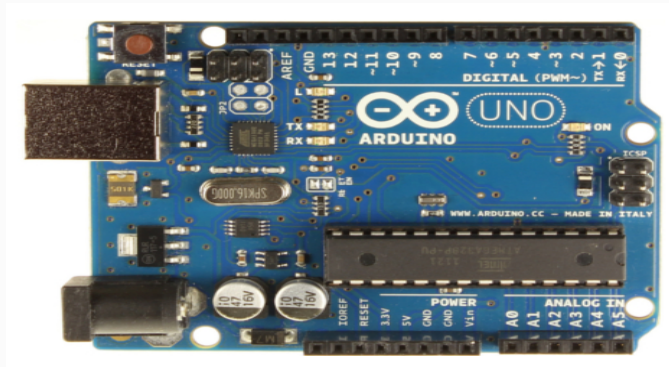
Solder?

Solder coax connectors?

Make kits?

Design/build antennas?

Do You?



Tinker with Software-defined
radios?

Play with Arduino
microcontrollers or
RaspberryPi computers?



Warning: You Are a “Maker”

The Maker Movement?

Definition

“The **maker movement** is a cultural trend that places value on an individual’s ability to be a creator of things as well as a consumer of things”

What is maker movement? - Definition from WhatIs.com. (2014, June 1). Retrieved September 13, 2015, from <http://searchmanufacturingerp.techtarget.com/definition/Maker-movement>

What do Makers Read?



Where do Makers Gather?

AS220 - Providence



Where do Makers Gather?



Who Says Girls Don't
Play With Tools?

A Manufacturing Incubator & Makerspace

Bristol Industrial Park, Building 21, Unit 112, 500 Wood Street, Bristol, RI 02809
Facebook.com/tinkerbristol - tinkerbristol@gmail.com

Where do
Makers Gather?



FabNewport
Dream. Design. Make.

Where do Makers Gather?



FabNewport
Dream. Design. Make.

- + Jamestown Art Center
- + Portsmouth Library
- + Middletown Library
- + Newport Library

Do
Makers Have
Events?



Do Makers Have Events?



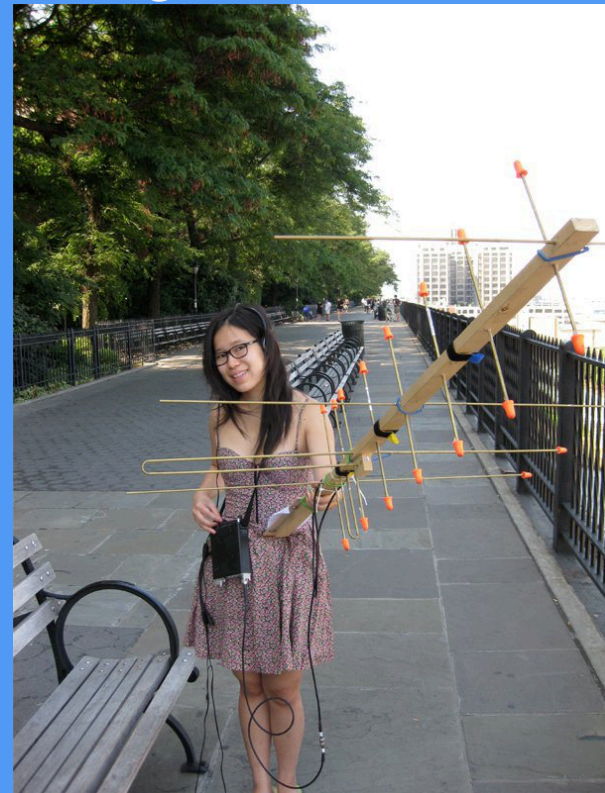
Ham-related Displays:

- SSTV
- Amateur TV
- TeleType - Model 15
- VHF/UHF - general repeater use
- Internet - online receivers, Echolink
- Broadband-Hamnet
- FM fox hunting
- High altitude balloon APRS
- Radio Control applications
- HF Packer kits
- NorCal QRP kits

Do Makers Have Events?



Famous Ham “Maker”
NYC Fashion Designer
Diana Eng, KC2UHB



Do Makers Have Events?

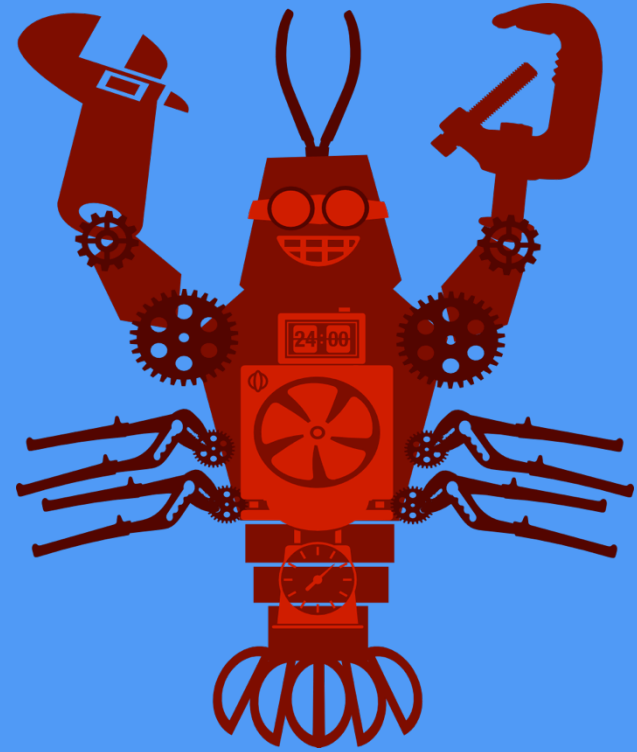


Stephanie Santoso, right, the White House's Office of Science and Technology Policy senior advisor for making, works with Chris Nielsen, the CEO of CNP Integrations, a Fall River based web development company, during the Rhode Island Hackathon held in Middletown Saturday. Photo: Michael Derr

RI Hackathon
June 2015
Building the “MakerMap”

Do Makers Have Events?

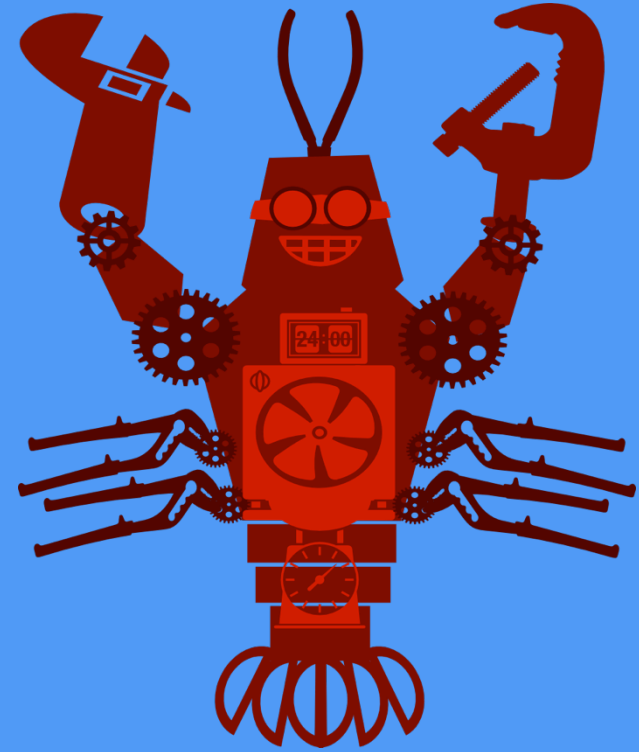
Now Calling Local Makers
Free to Exhibit
Free to Attend



East Bay Maker Faire
Saturday, October 17
(Yes, JOTA day)

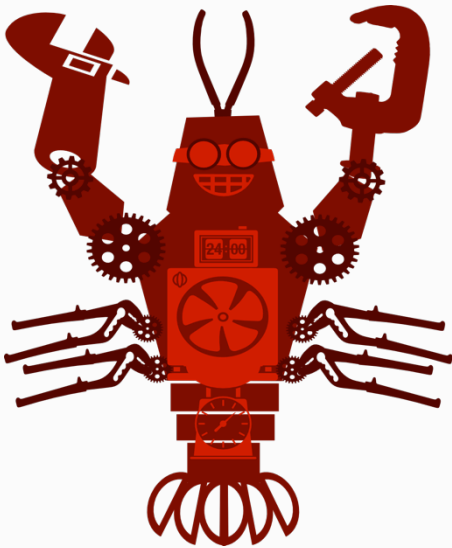
Do Makers Have Events?

Now Calling Local Makers
Free to Exhibit
Free to Attend



Newport's
Florence Gray Center
Noon-6PM

Do Makers Have Events?



I'd like to represent
Newport County Radio Club:

- Soldering
- 2M FM chat with JOTA
- JOTA "DX" with EchoLink
- Space station ARISS info
- Promote license classes

Making?
Hackathons?

Important to Rhode Island?



Guest MINDSETTER Mike Cullen: State Leaders Need STEAM Power

Friday, January 23, 2015

Guest MINDSETTER Mike Cullen



Email to a friend



Saving & Building Great RI Jobs: State Leaders Should Use STEAM Power

In 1973, the Navy's fleet was abruptly yanked out of Newport. This unexpected action left economic devastation in its wake. We lost; Virginia won. Fast-forward, forty two years later, history may repeat itself. If we continue to produce low numbers of students not proficient in math and science, then we face a significant economic risk...not a decade from now, but tomorrow!

State leaders take note. If decisive, demonstrable action isn't taken, then we may be heading into another crisis with the Navy where we lose again to Virginia. But, this time there could be thousands of Rhode Island careers and billions of dollars of lost salaries and small-business contracts. To immunize ourselves from the next federal base realignment (BRAC) -- which could start as early as 2017 -- General Assembly leaders should be powering-up "STEAM."



Quonset Point, home of Electric Boat

- Thousands of solid RI jobs are at risk
- Built on science, technology, engineering, math (STEM)
- Worth \$ billions over the next 30 years
- We take them for granted

Yes! Rhode Island has a big problem!

Rhode Island

The governor and leadership team is keen to build and attract strong jobs in **“advanced industries”**

These jobs require higher than average science, technology, engineering, and math (STEM) skills

Context

RI has had no formal STEM focus

STEM is “scary” to teachers

In RI, STEM is delayed until high school

Brookings Institution is looking at this

Problem

RI teachers are “high tenure”

Teachers are detached from the commercial and gov’t sectors needing STEM skills

A tsunami of STEM retirements - E-B, NUWC

Solution

Building a K-12 Rhode Island STEM talent pipeline by stimulating a “lifelong learning” interest with parents and students.

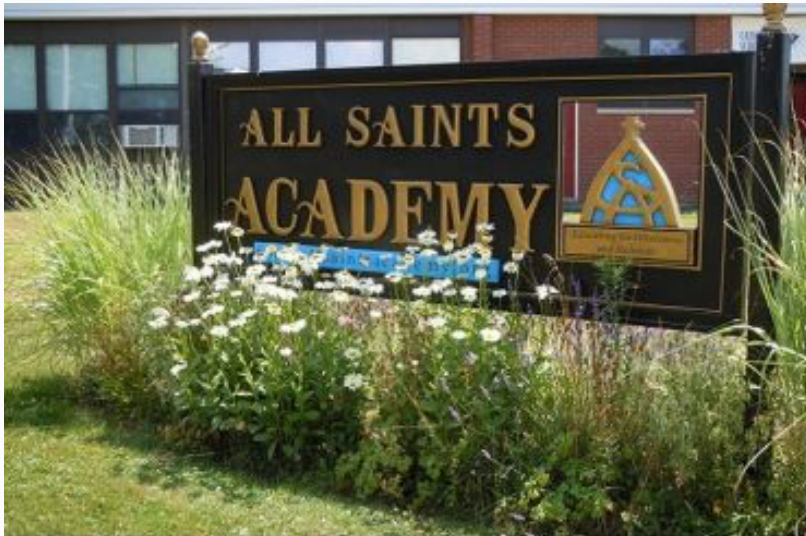
Make STEM relevant and interesting at early grades

My View:

Ham radio is a powerful, multi-faceted STEM “hook.”

So is CyberPatriot, the national youth cyber defense competition

But Where to Start?



Risk-taking principal and staff

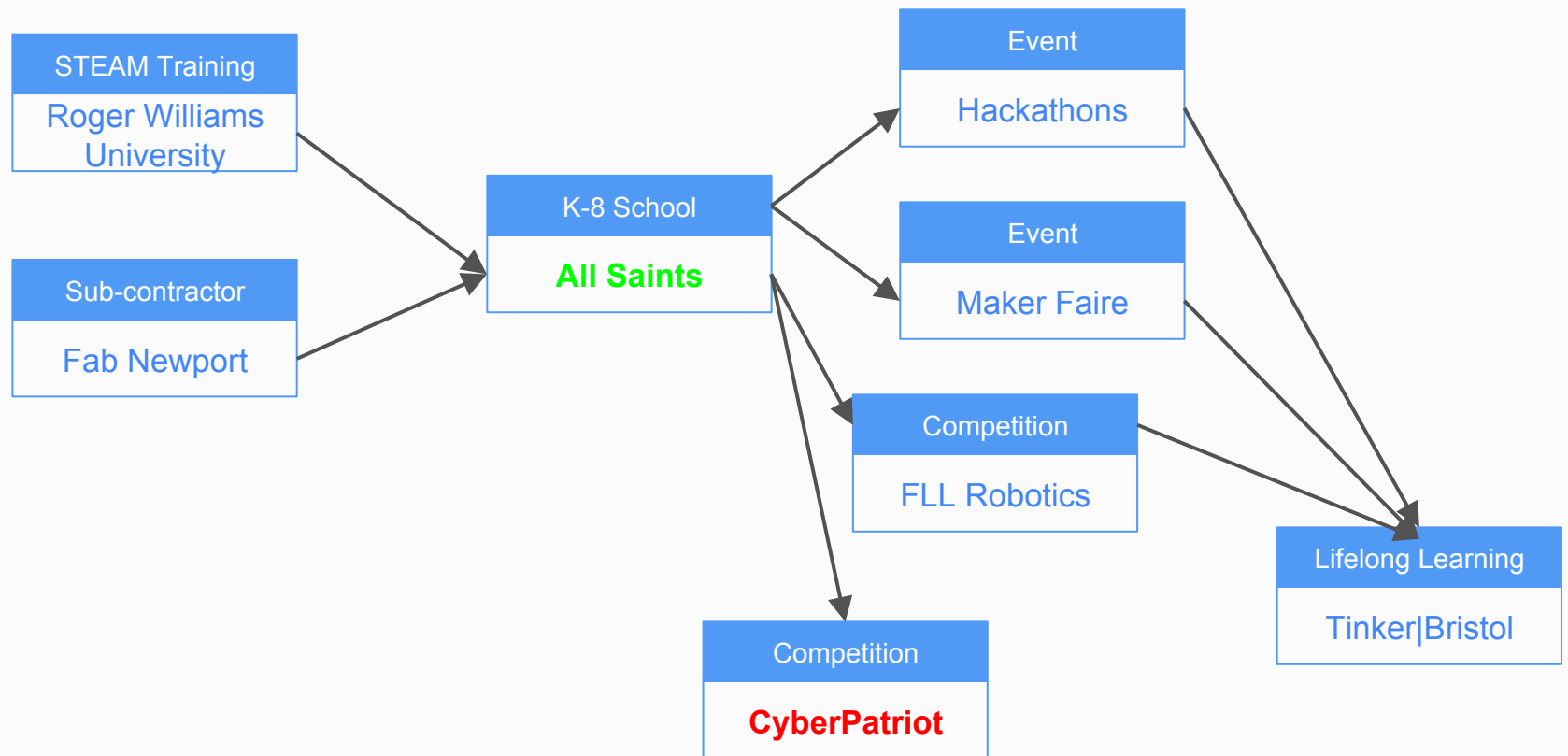
Embraced an “integrated STEAM” curriculum model

Low bureaucracy

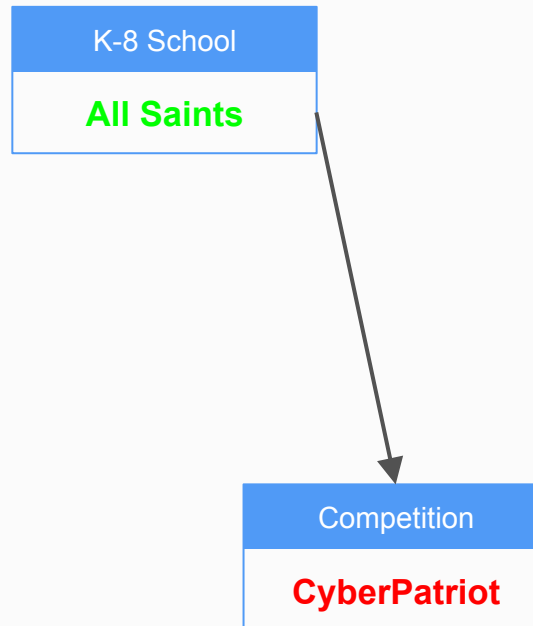
Sourcing tech teaching from Fab Newport

Open to outsiders

Example: Rhode Island Cyber “Ecosystem”



Example: Rhode Island Cyber



CyberPatriot - All Saints STEAM Academy



- Two rookie teams
- 8 students total
- 18 hours of competition



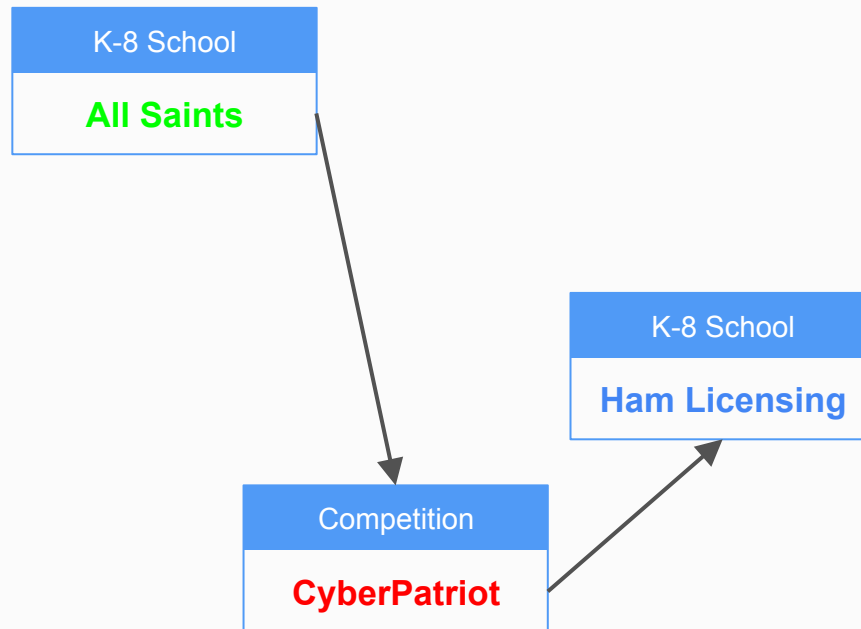
CyberPatriot - All Saints STEAM Academy



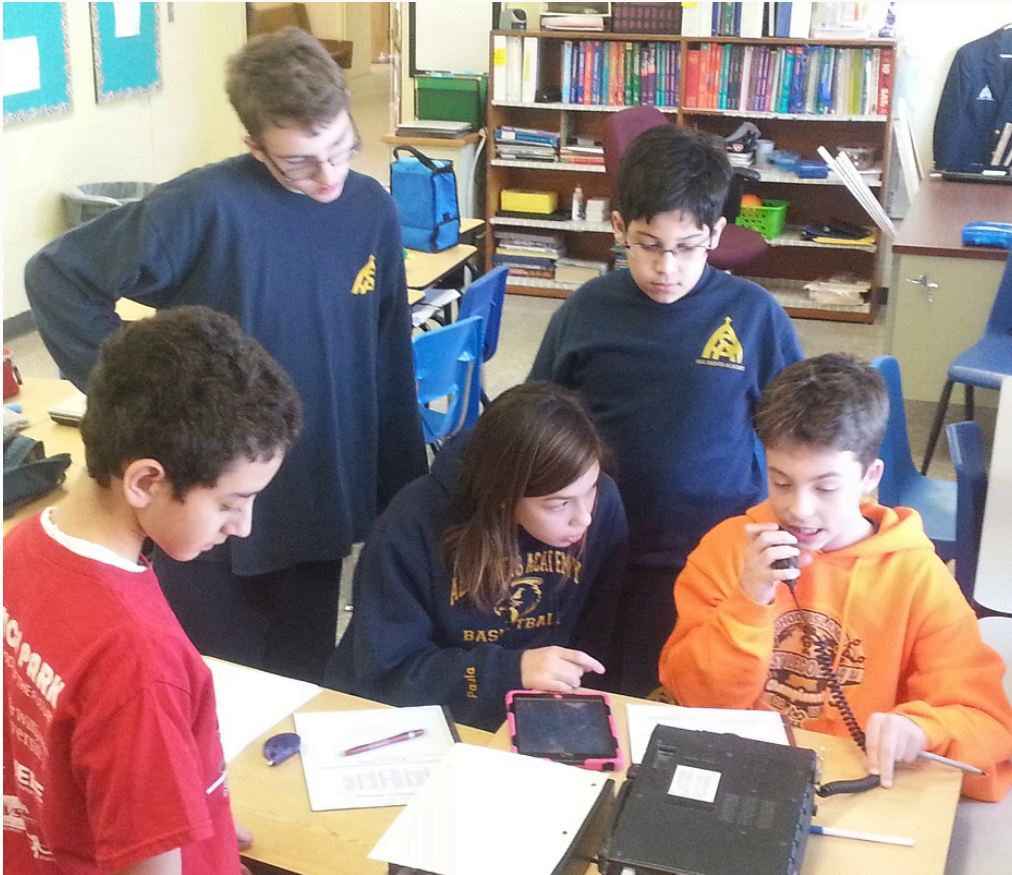
- Place 1st and 2nd in RI
- Place 25th and 35th in US
- Rookie teams
- This year - 100% growth!
 - 15 students
 - a good mix



Example: Rhode Island Cyber + linkage to Ham Radio

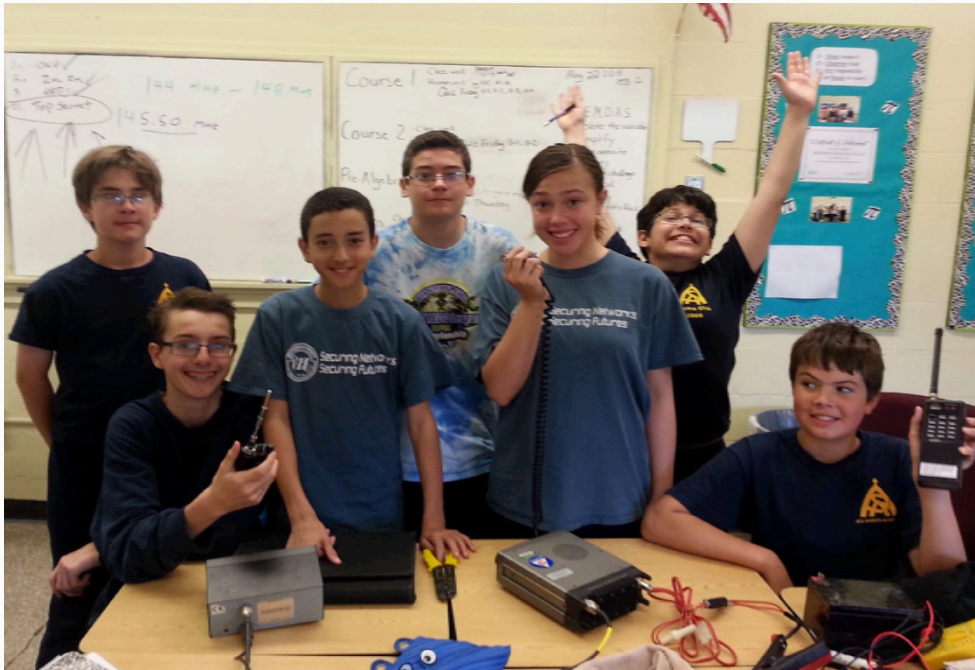


Ham Radio - All Saints STEAM Academy



- School Club Roundup
 - February 2015
 - 30+ students watched
 - 8 operators
 - 10 hours over 4 days
 - 32 states; 9 countries

Ham Radio - All Saints STEAM Academy



- Tech Licensing Instruction
 - Rob KB1ZZU, Mike K1NPT
 - March - May 2015
 - 8 students
 - Mac, Xavier, Paula, RJ, Kevin
- School Club Call - N1ASA

Ham Radio - All Saints STEAM Academy



- Amateur Radio aboard the International Space Station
 - Mar - work with teachers
 - Apr - submit education plan
 - May - plan accepted
 - Jul - submit tech plan
 - Aug - plan accepted
 - Sep - awaiting scheduling

Ham Radio - All Saints STEAM Academy



- Space-related curriculum is being rolled-out
 - weather forecasting
 - recent Soyuz launch and docking
 - trash in space

Ham Radio - All Saints STEAM Academy



- In the near-term ...
 - we listened to an ISS school chat with an Indiana STEM school
 - getting the roof ready



But Where to Grow?

Monsignor Clarke School (K-8)
Wakefield, RI



Risk-taking principal

Keen on launching
CyberPatriot and ham radio

Exploring an “integrated
STEAM” curriculum model

Ham Radio and You

- Talk up the 21st Century relevancy
- Participate in the “Maker Movement”
- Volunteer in a classroom
- Offer to bring School Club Roundup to a school in October and/or February

Thank You