
STEM SEALS NORTH FLORIDA



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OBJECTIVE

Enhance

- * STEM awareness
- * STEM skills
- * STEM-belonging

for rural, middle school youth.

MOTIVATION

Underrepresentation of rural students in STEM

WORK TO:

Develop relationships between community college and K-12 educators on the region to strengthen the STEM pathway

Design high quality STEM enrichment activities for middle schoolers that build on and connect with local region

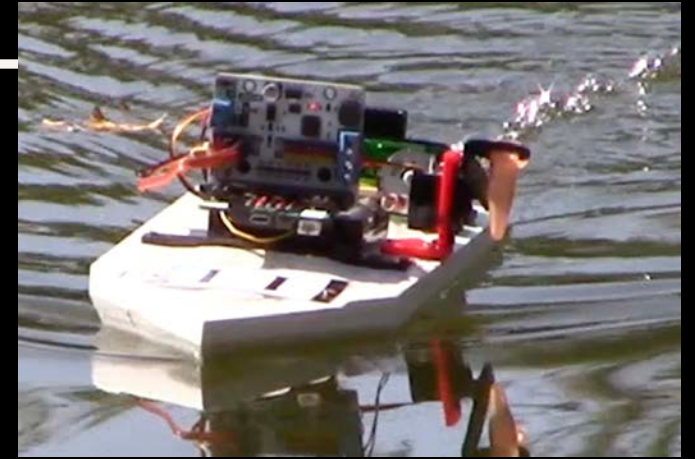
Involve K-12 educators as co-creators and facilitators

Research the effectiveness of activities

STEM "SEALS"

SEA

remote controlled and autonomously navigating boats



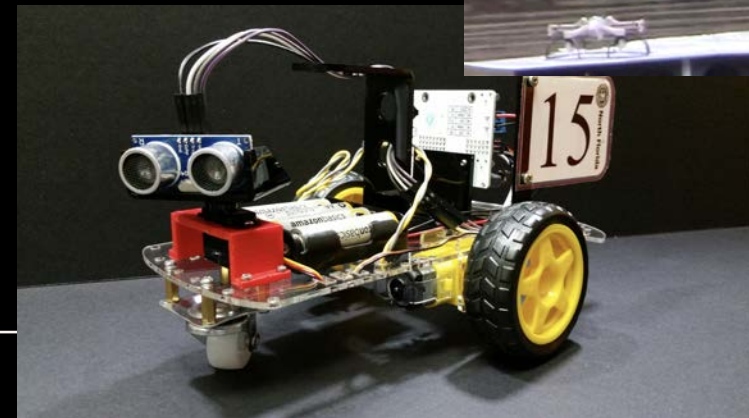
AIR

remote controlled drones & weather station



LAND

remote controlled and autonomously driving rovers



SUMMER INSTITUTE 2020

LAND: remote controlled and autonomously driving rovers



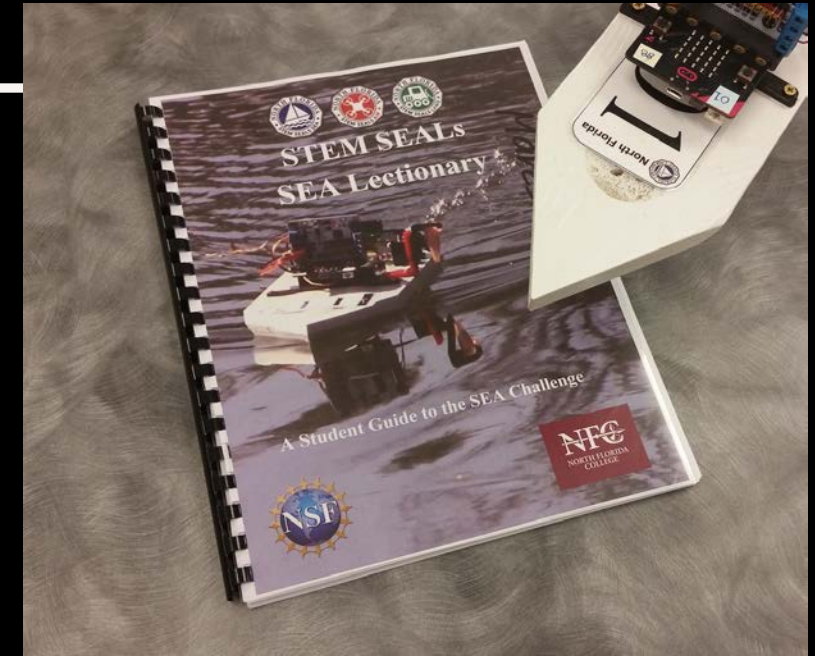
- * rover assembly
- * microbit coding (using MakeCode)
- * testing: mechanical, electrical, physical, code
- * practice (physical, obstacle avoidance, remote control)
- * competition (race, precision, creative, ...)



SUMMER INSTITUTE 2021

SEA: remote controlled and autonomously navigating boats

- * same microcomputer (micro:bit)
- * assembly, coding, testing, practice and competition
- * expanded physical science (force, weight, buoyancy)
- * practical goal: take a water sample in a lake and test it for water quality



HOW DO WE DO IT?

Build relationships with Middle School Teachers



- * college faculty are **NOT experts** in teaching middle schoolers!
 - * we are STEM experts, we provide our expertise
 - * design and build our own devices (but drones)
 - * with focus on simplicity and function, without compromising S T E M balance
-

Utilize and showcase local college resources: Advanced Manufacturing

- * 3D printing
- * laser cutting
- * milling
- * drilling
- * soldering

3D Printing

Laser
Cutting

