K-12 STEM Programs in Pinellas County
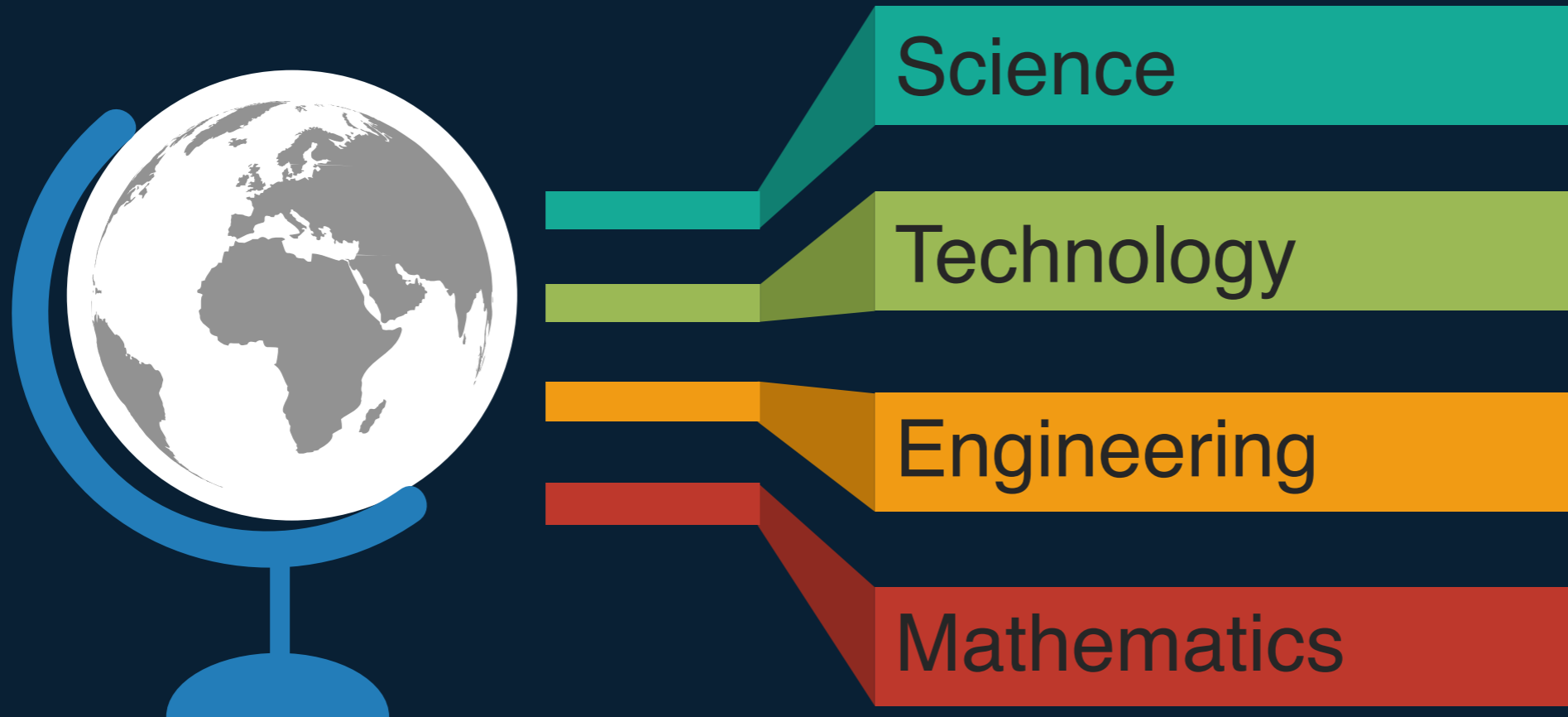
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What is STEM?

Science

Technology

Engineering

Mathematics

"These skills are considered core technological underpinnings of an advanced society" NSF

Why is STEM education important?

Teaches Problem Solving
It allows people to work effectively and efficiently to help solve the world's problems.

Creates a Knowledge Economy
Information is power and STEM is considered to be a form of global currency.

Closes Achievement Gap
Provides learning opportunities regardless of gender, race/ethnicity and socioeconomic status.

Fills a World-Wide Employment Gap
Current statistics indicate a lack of employees who have skills in computer programming, engineering and problem-solving.

Modified Content from: Richard Feller, Andrea Greenwall, Colorado State University presentation, 2010.

Pinellas County STEM Academy Frameworks
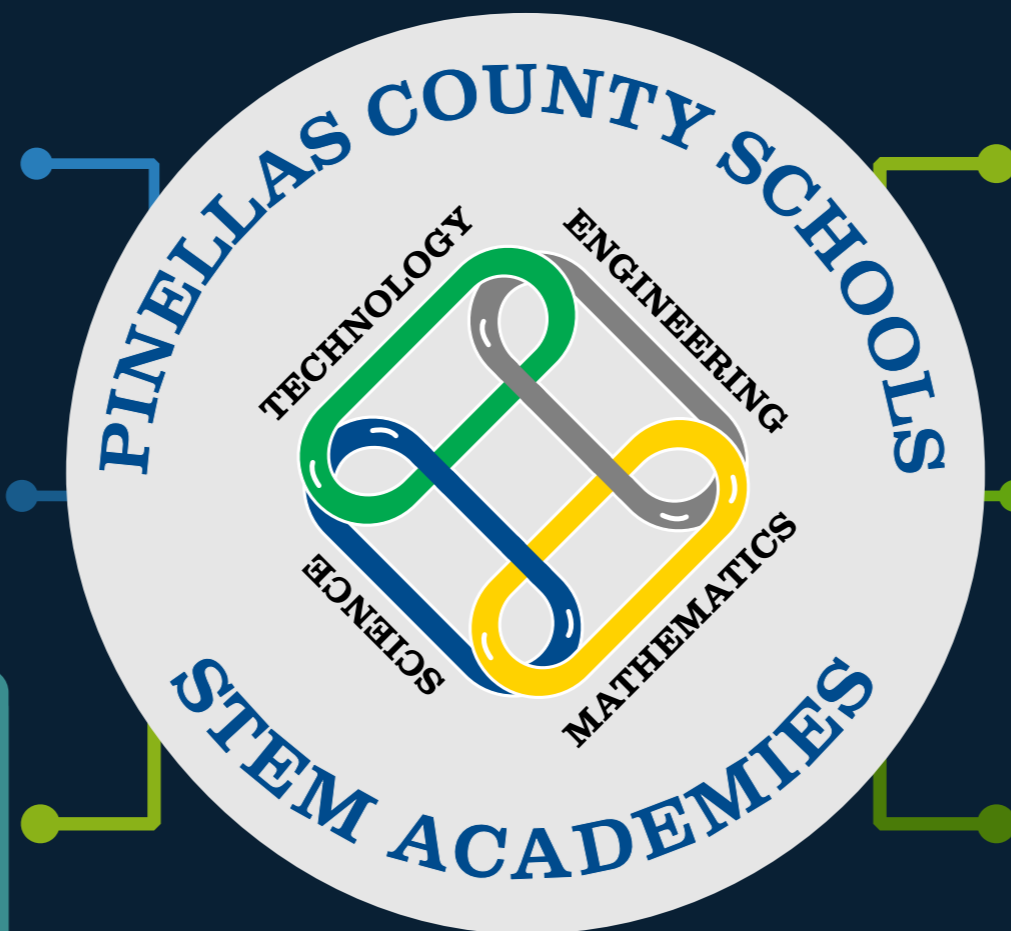
What is a STEM Academy?

Each after school STEM Academy meets for 60 minutes, once per week for 26 weeks.

Who can participate?

Any Pinellas County public school student in second through twelfth grade.

Why join?

This is a FREE program that supports students in becoming academically and socially competitive with 21st Century Skills. They promote problems based learning and interdisciplinary instruction.

Student Selection

Any student who is interested submits an application. Applications are divided by gender and then through random lottery the teacher picks 10 females and 10 males.

Student Experience

Hands-on building, use of the Engineering Design model, physics, robotics, building prototypes, collaboration with peers and business planning.

Additional STEM Experiences

STEM Family Nights
STEM Summer Camps
Guest Speakers
STEM Expo

PINELLAS COUNTY SCHOOLS

STEM ACADEMIES

TECHNOLOGY
ENGINEERING
SCIENCE
MATHEMATICS

Research on PCS STEM Academies

Students who participate in a Pinellas County after school STEM Academy are…

2 times more likely to pass the math state assessment

4 times more likely to pass the science state assessment

My K-12 STEM Academy Timeline

Phase One

- Conducting research
- Needs assessment
- Develop curriculum framework
- Create pilot program
- Hire and train educators

2013-2014
Year 1   K-8 Model

Phase Two

- Acquire business partners to help expansion
- Implement formative assessments
- Add STEM Academy summer camps
- Implement STEM Family Nights

2014-2015
Year 2   K-8 Model

Phase Three

- Continue with business partners
- Get involved in robotic competitions
- Hire support for department
- Add Saturday STEM Academies
- Add primary STEM Academies (1-2)

2015-2016

Year 3   K-12 Model

2016-2017

Year 4 K-12 Model

Phase Three Con't

- Continue with business partners
- Increase the # of STEM Academies
- Develop various teacher training models
- Add Career, Technical, Adult Education

Robotics within the PCS STEM Academy Framework

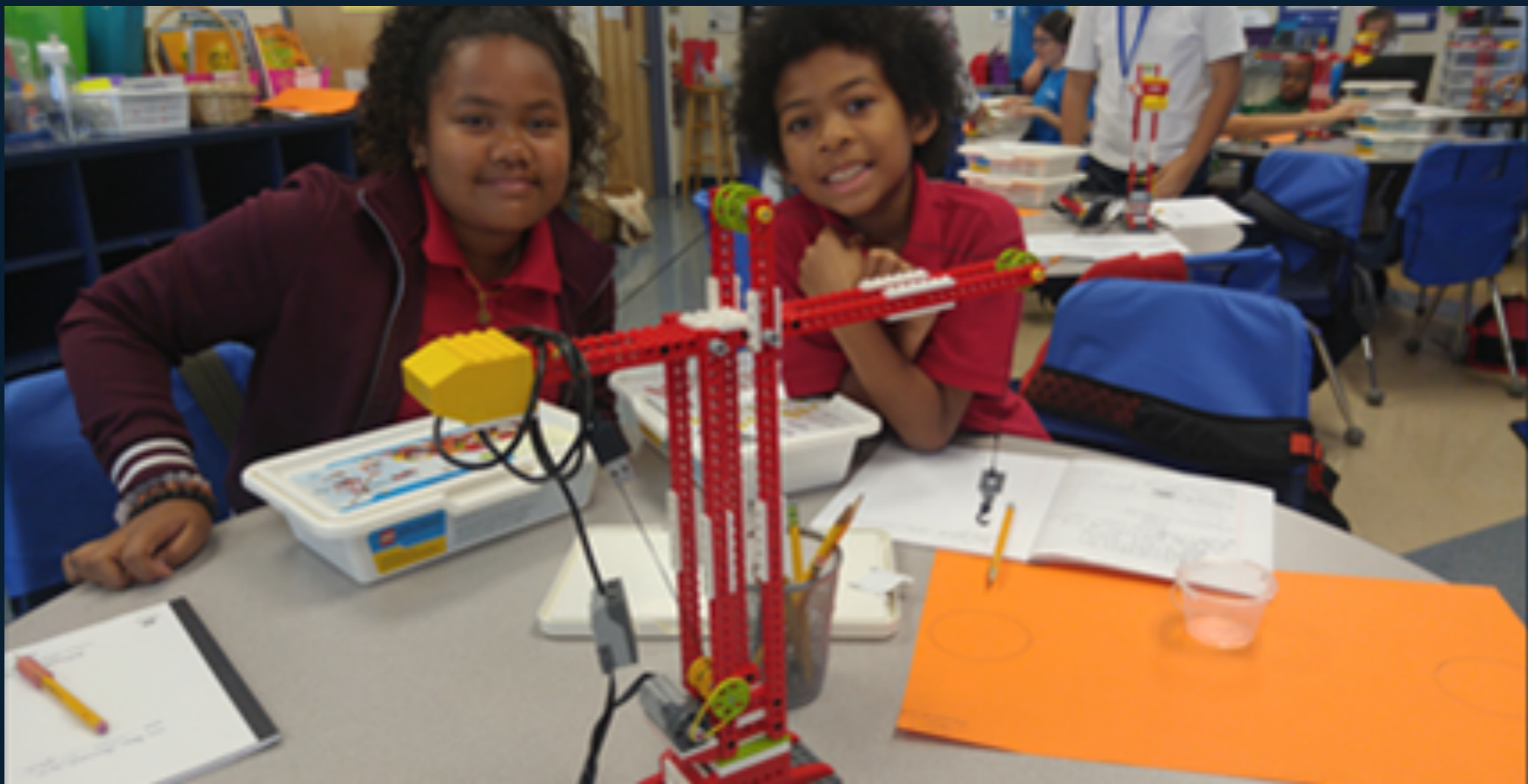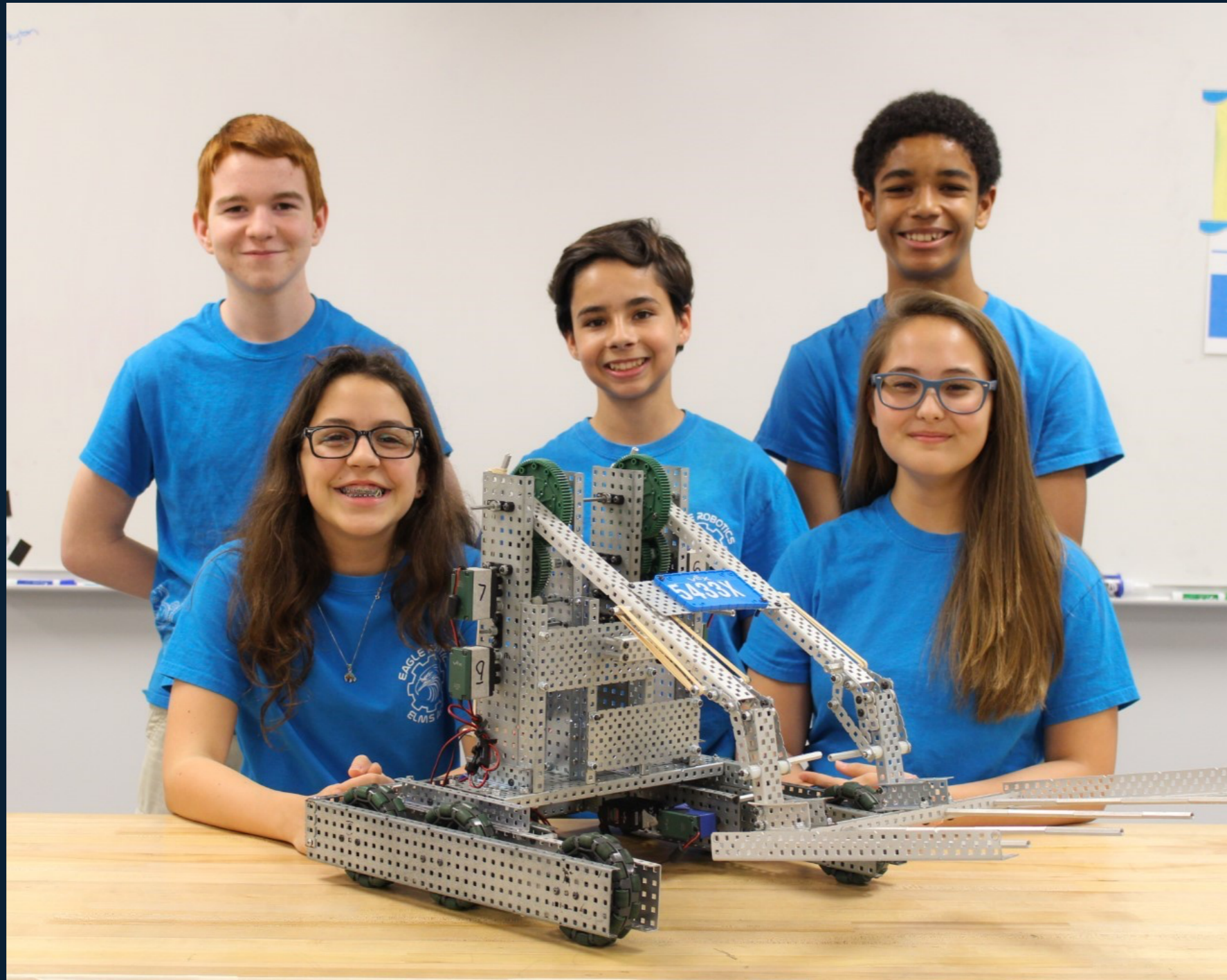|	
Grades 2-3	Make Wonder Dot and Dash
Grades 4-5	Lego WeDo
Grades 6-8	Lego EV3
Grades 9-12	VEX

Grade Span 2nd-3rd

Grade Span 4th-5th

Grade Span 9th-12th

What can a STEM Academy Look and Sound Like?

STEM Academy YouTube Channel

"Science Rocks Pinellas-Season 2
Episode 5-A Look at STEM Academies
https://youtu.be/3-XeGFJ7XvA

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