



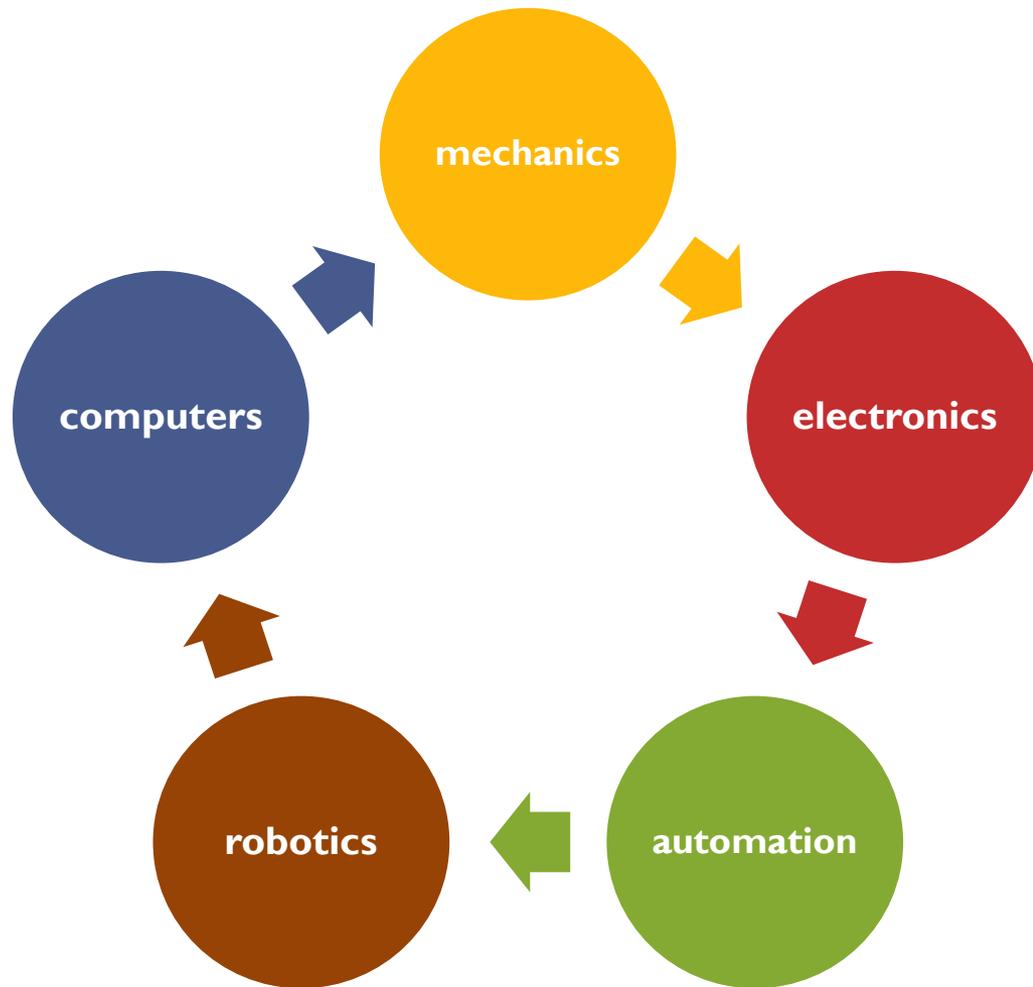
Applied Learning

Tift County Mechatronics

A partnership of the Tift County School System
and Moultrie Technical College



Mechatronics





Tift County Mechatronics

Goal I: provide an innovative STEM applied learning program for high school students to increase academic success and graduation rates



Tift County Mechatronics

Goal 2: provide STEM educational activities for students and their families to increase student success and increase awareness and engagement in STEM careers and educational opportunities



Tift County Mechatronics

**Goal 3: Promote Mechatronics as
an integral component of
Georgia Workforce Development**



Tift County Mechatronics

- Expansion of MTC RAMP
- Created curriculum and pathway in Mechatronics
- Fall 2012 start
- Three cohorts of students
- Enter as 10th grade student
- Target of 20 students per cohort



Tift County Mechatronics

- Students take one class of Mechatronics Pathway daily
- Dual enrollment: earn TSCG and school system credit
- Summer STEM camp
- Family STEM nights

	Time Period	Student Cohort 1 N=20	Student Cohort 2 N=20	Student Cohort 3 N=20	Support Services and Programs for Students Throughout Period
PROJECT TIMELINE	January 2012-May 2012	Recruitment of 9 th grade students			<ul style="list-style-type: none"> -Student recruitment and assessment -Dual enrollment opportunities with MTC -Career counseling -Academic counseling -Field trips to local industry -Family STEM learning events -SKILLS USA state and national participation and competitions -VEX Robotics competitions -TSA (Technology Student Association) competitions -Assistance with post-secondary applications and job searches
	Summer 2012 STEM Camp	1 week			
	August 2012 – December 2012	MCTX 1011 MCTX 1012			
	January 2013 – May 2013	MCTX 1013 MCTX 1014			
	Summer 2013 STEM camp	1 week			
	August 2013 – December 2013	IDSY 1110	MCTX 1011 MCTX 1012		
	January 2014 – May 2014	AUMF 1120	MCTX 1013 MCTX 1014		
	Summer 2014 STEM camp	1 week	1 week	1 week	
	August 2014 – December 2014	IDSY 1160 ELCR 2140	IDSY 1110	MCTX 1011 MCTX 1012	
	January 2015 – May 2015	ELCR 2150 AUMF 1150 ----- Apprenticeship	AUMF 1120	MCTX 1013 MCTX 1014	
STUDENT OUTCOMES		Students in cohort 1 in May 2014 will have ↓	Students in cohort 2 in May 2014 will be ↓	Students in cohort 2 in May 2014 will be ↓	Support services lead to ↓
		3 Technical Certificates of Credit (TCC) from MTC, career ready work certificates, and on track to earn HS Diploma from TCBOE <i>Can continue with post-secondary education or enter workforce.</i>	On track to complete High School and will have earned two TCC	On track to complete High School and will have earned one TCC	<ul style="list-style-type: none"> --On-time academic progress --Improvement in social/emotional attitudes and skills --Improvement in academic achievement --Increased knowledge of STEM careers --Increased likelihood of post-secondary education
	<i>Number students served each year</i>	20	40	60	<i>60 students plus 60 family members</i>

Course Number	Title	TCSG Certificate Earned with Completion of Coursework	TCSG Credit Hours	Student Contact Hours
MCTX 1011	Basic Mechatronics Fundamentals Level 1	Basic Mechatronics Technician Certificate	3	81
MCTX 1012	Basic Mechatronics Fundamentals Level 2		3	84
MCTX 1013	Basic Mechatronics Fundamentals Level 3		3	75
MCTX 1014	Basic Mechatronics Fundamentals Level 4		3	72
IDSY 1110	Industrial Motor Controls I	Mechatronics Technician Certificate	5	135
AUMF 1120	Programmable Controllers		5	150
IDSY 1160	Mechanical Laws and Principles	Mechatronics Specialist Certificate	4	90
ELCR 2140	Mechanical Devices		2	45
ELCR 2150	Fluid Power		2	45
AUMF 1150	Introduction to Robotics		3	75

Mechatronics connects the classroom to real world

State of the art equipment

Field trips

Summer STEM camp

Visits from industry representatives

High expectations and standards

Teamwork

knowledge
learned in school

applied
experiential

real world
purpose

Applied learning includes...

Problem solving

Critical thinking

Communication skills

Accessing / applying information

Self management

Teamwork

Examples of Applied Learning

Schools typically ask for grant funds to purchase computers and technology for students.

Mechatronics used grant funds to purchase computer components. 11th grade students assembled the computers, set up servers and wireless network....they applied their knowledge of computers for the benefit of the program.

Students conduct a repair clinic for students, faculty and the community.....

Iphone, Ipad

X boxes, gaming systems

Disco ball

Calculators

Speakers

Communication skills

Class projects

Career fairs for young students

Competitions



Competitions

Self management

Teamwork

Public speaking

Problem solving



Leadership skills

Presentations to BOE,
visitors, and industry

Robotics Club

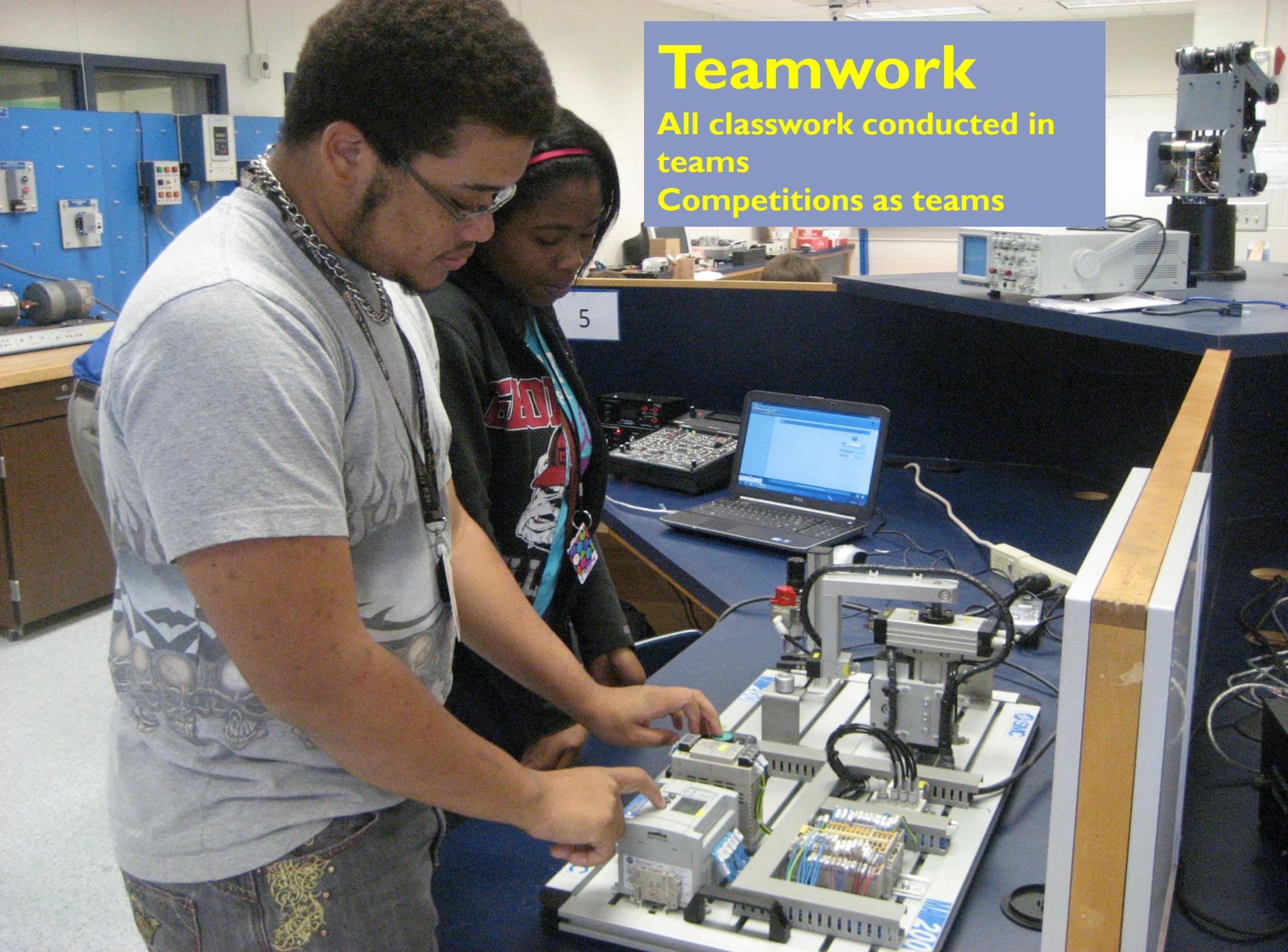
State officer

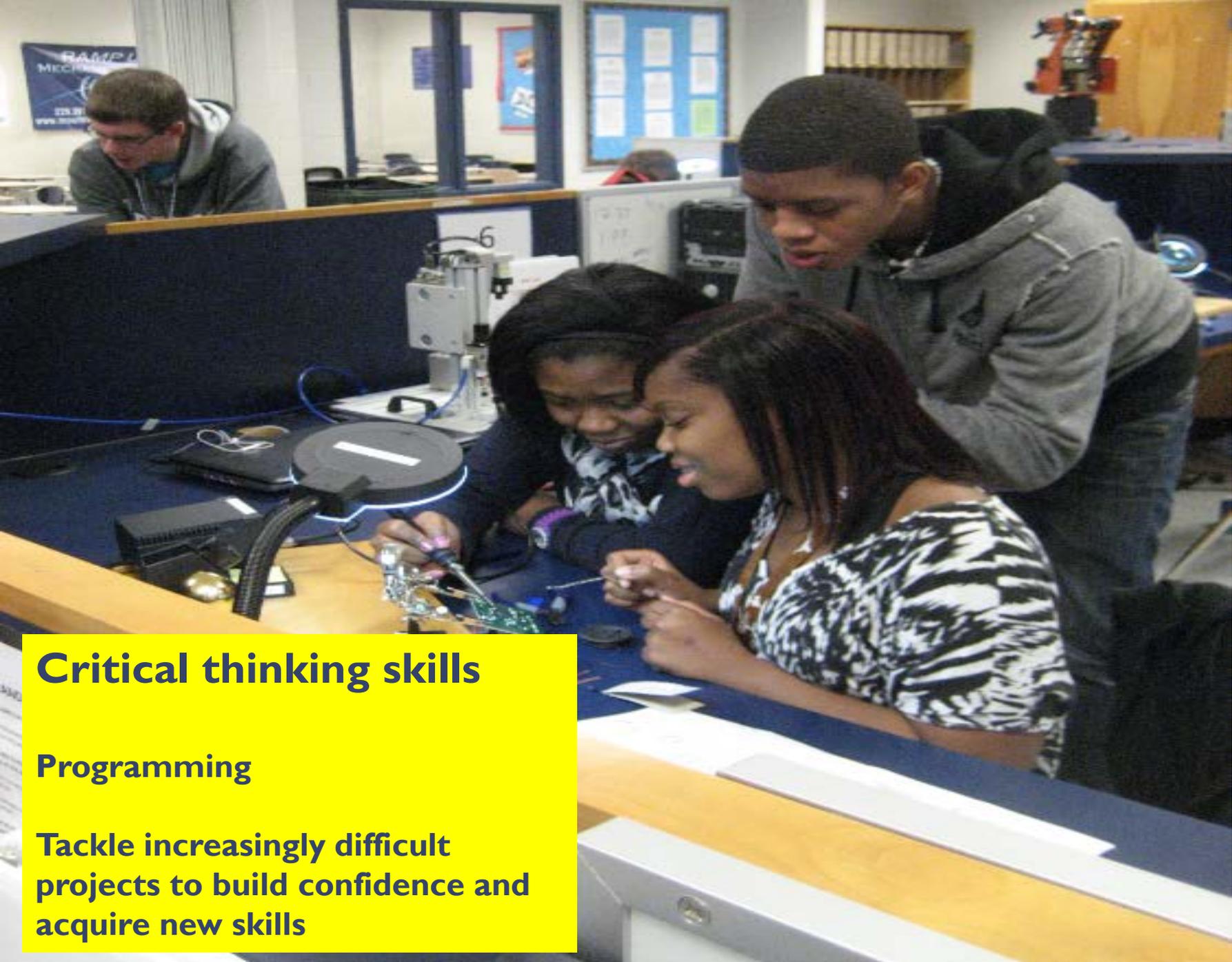


Teamwork

All classwork conducted in teams

Competitions as teams





Critical thinking skills

Programming

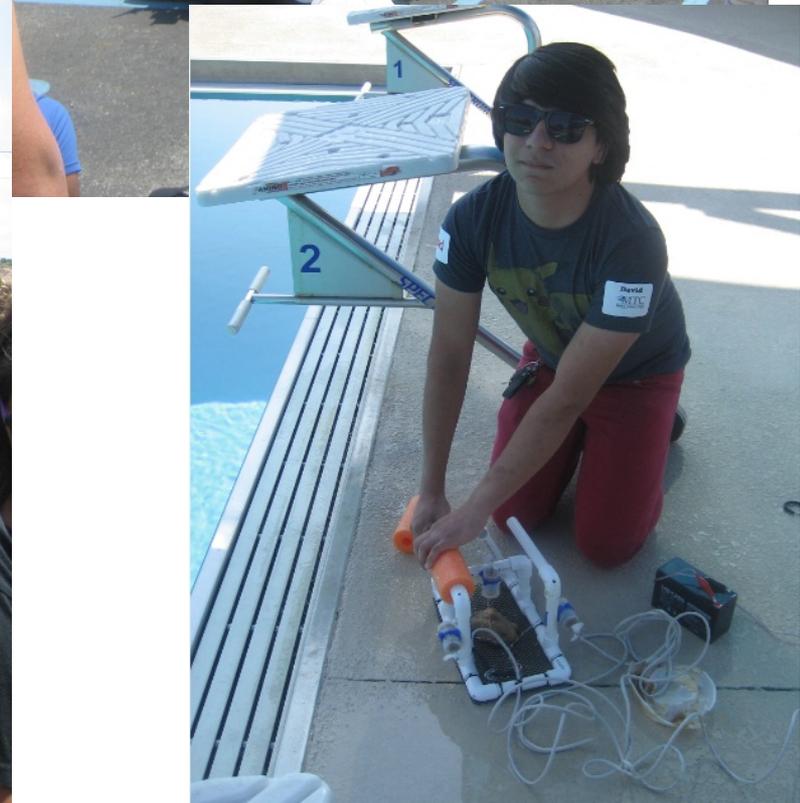
Tackle increasingly difficult projects to build confidence and acquire new skills

Summer STEM Camp

Connect students to real
world application of
Mechatronics

Instill interest in STEM
careers

Visit industry, museums



A photograph showing three young men in a classroom or workshop setting. They are gathered around a table, focused on a robot built from metal beams and gears. The robot is positioned on a red mat on the floor. One student in a grey shirt is leaning over, adjusting the robot. Another student in a blue and white striped shirt stands next to him, and a third student in a plaid shirt stands behind them, observing. On the table, there is a computer monitor, a toolbox, and various electronic components. The scene is brightly lit, and the students appear to be engaged in a hands-on learning activity.

Family Night

Family activities led by students
Engage families as partners



Family Night

Builds confidence in students
Parents love seeing students share
knowledge



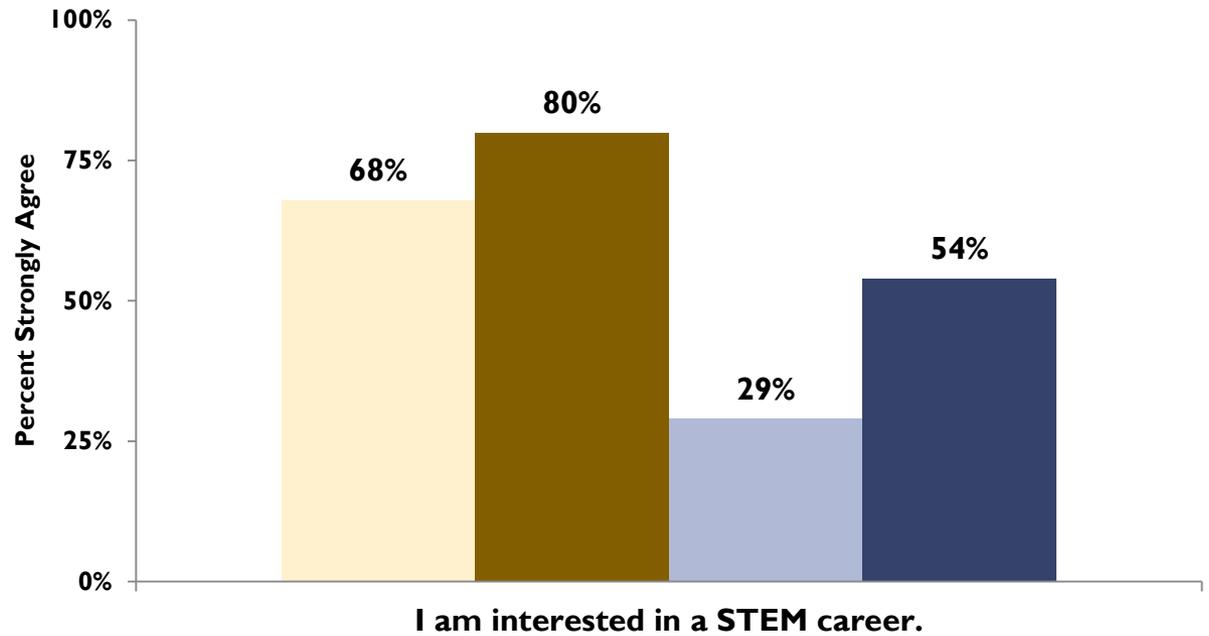
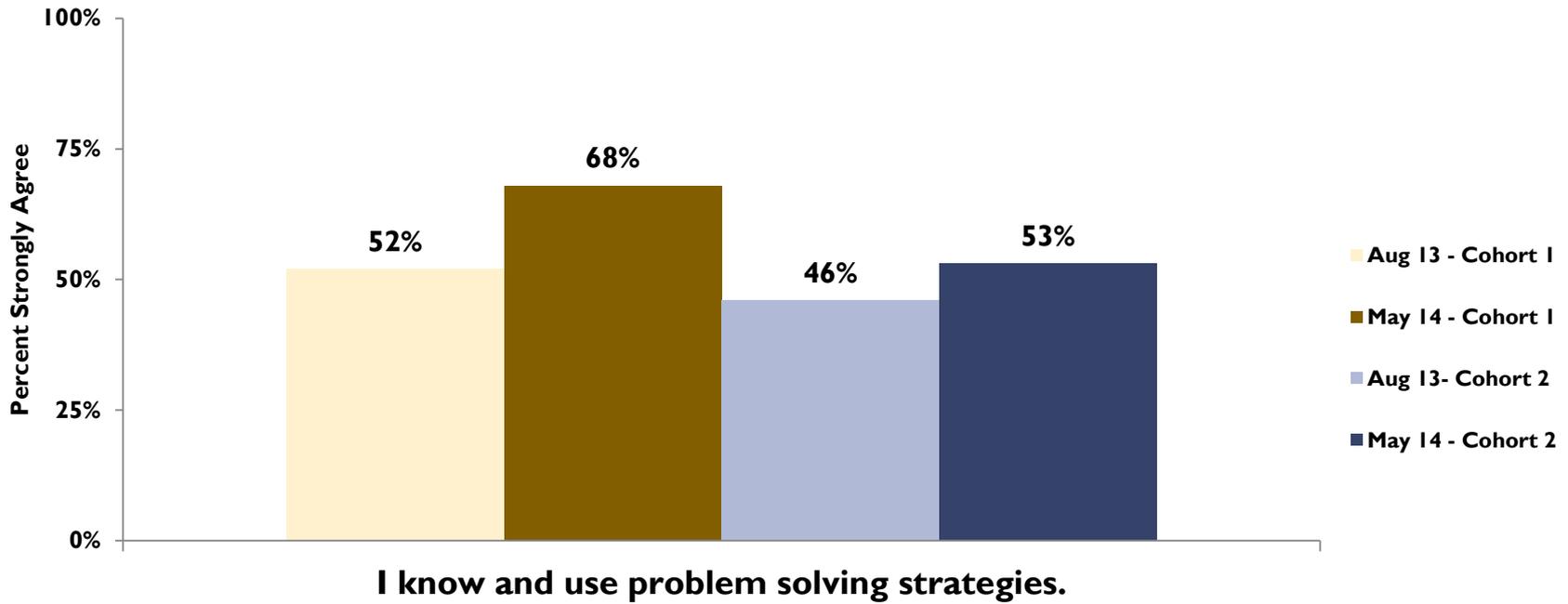
Results

- 66 students in two cohorts (165% of expected)
- 48% economically disadvantaged
- All participants on track for graduation
- Placed 4th and 12th in nation
- Positive publicity locally, regionally, nationally
- 86% of students received dual enrollment credits



Measuring Outcomes

- Clearly defined objectives
- External evaluator with STEM experience
- Evaluation timeline
- Interim measures for continuous improvement
- Qualitative and quantitative



For More Information

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Evaluation

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