



## ***DETROIT AREA PRE-COLLEGE ENGINEERING PROGRAM***

***SUCCESSFUL OUT-OF-SCHOOL STEM LEARNING  
NATIONAL RESEARCH COUNCIL  
BOARD ON SCIENCE EDUCATION  
WORKSHOP  
JUNE 3-4, 2014***

# DAPCEP

- *The Detroit Area Pre-College Engineering Program (DAPCEP) was established in 1976 as a Michigan non-profit (501©3) Organization*



## MISSION

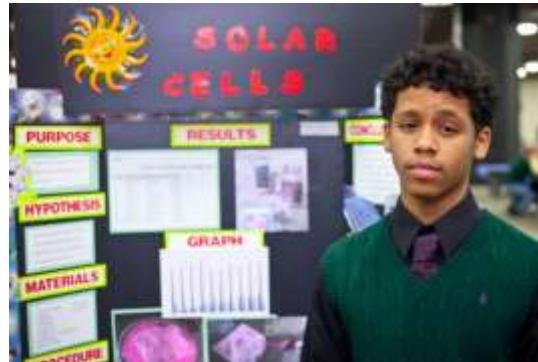
- *To increase the number of historically underrepresented students who are motivated and prepared academically to pursue degrees leading to careers in Science, Technology, Engineering, Mathematics and Medicine (STEMM) related fields through K-12 supplemental educational programming.*

## GOAL

- All students will have a fundamental understanding of STEMM fields

Videos: [www.vimeo.com/dapcep](http://www.vimeo.com/dapcep)

# OUR PROGRAMMING



1. **Saturday Series:** Courses are offered to youth in grades 4-12 on Saturdays during Fall and Spring semesters. These courses focus on quantitative subjects such as mathematics, computer science, engineering, physics and chemistry.
2. **Summer Channel:** Whether living on campus for two to four weeks in Summer Residency, or commuting Monday through Friday for Commuter Camp, we place emphasis on exposing youth to cutting edge technology and the rigors of college life.
3. **DAPCEP In-School Curriculum (DISC):** Also known as, "DAPCEP In-School Program," DISC focuses on advanced STEMM and project-based learning.
4. **K-3 "Little Engineer That Could":** Science, mathematics and pre-engineering three-year program for children and their parents. The focus is introducing children to STEMM concepts and simultaneously teaching parents how to build an education-friendly learning environment at home.
5. **Explorers (Pre-k-3):** Using Interactive Board technology, we teach Astronomy, Biology, Creativity, Earth Science, Economics, Mathematics, Natural Science, Speech, and Technology.

# PROGRAM IMPACT

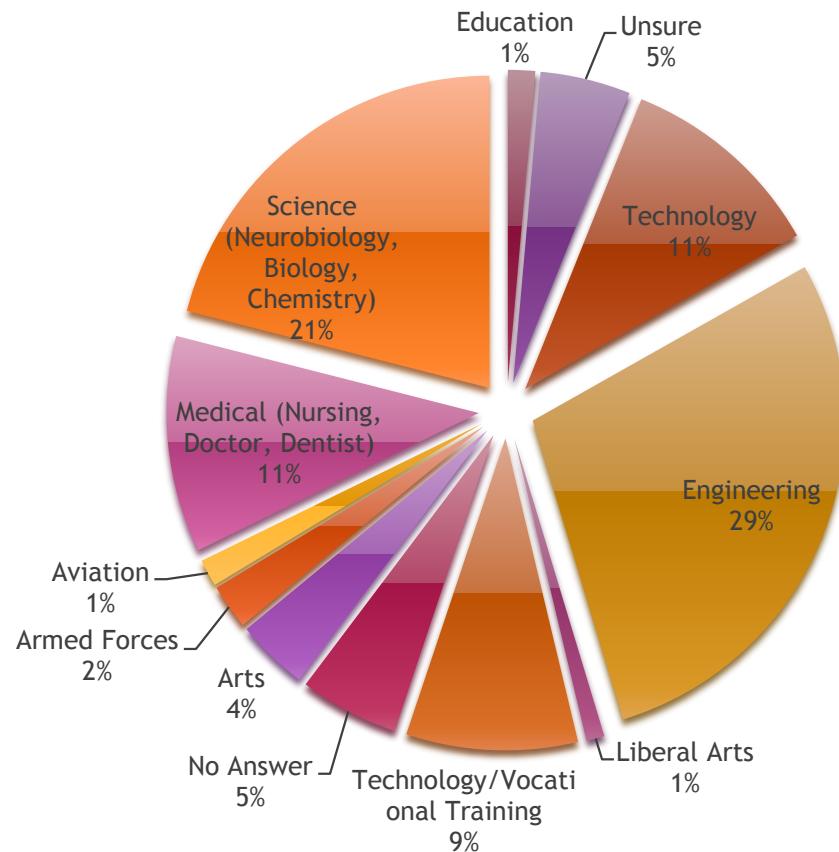
- ◎ Engineers and Technical Professionals are not created overnight
  - We provide students valuable exposure to STEMM fields in a format that is exciting, relevant and challenging. Without DAPCEP, many of the students would not have access to these opportunities.
- ◎ Exposure to Michigan Corporations & Technical Career fields
  - Dow Corning developed DAPCEP course to expose students to business practices
  - Marathon Oil developed a scholarship/internship program for DAPCEP students attending Michigan Tech
  - Nissan North America developed DAPCEP program designed to expose students to product development process used in the development of automobiles
- ◎ Conduit for student exposure to Michigan Universities & STEMM fields
  - Campus Exposure , Interaction with University Admissions, Identification of Scholarships



# PROGRAM IMPACT - CLASS OF 2014 SURVEY

- ◎ DAPCEP participants graduating in 2014
- ◎ 100% will graduate from High School or receive a GED
- ◎ 82% Plan to enter a STEMM field

DAPCEP Class of 2014 Career Interests



# OUR STUDENTS

- ⦿ 55% City of Detroit Residents
- ⦿ 50% Female
- ⦿ 50% Public Schools
- ⦿ 30% Charter Schools
- ⦿ 30% Free/Reduced Lunch Eligible
- ⦿ 22% English Language Learners
- ⦿ 29,877 Students impacted from 2007-2013

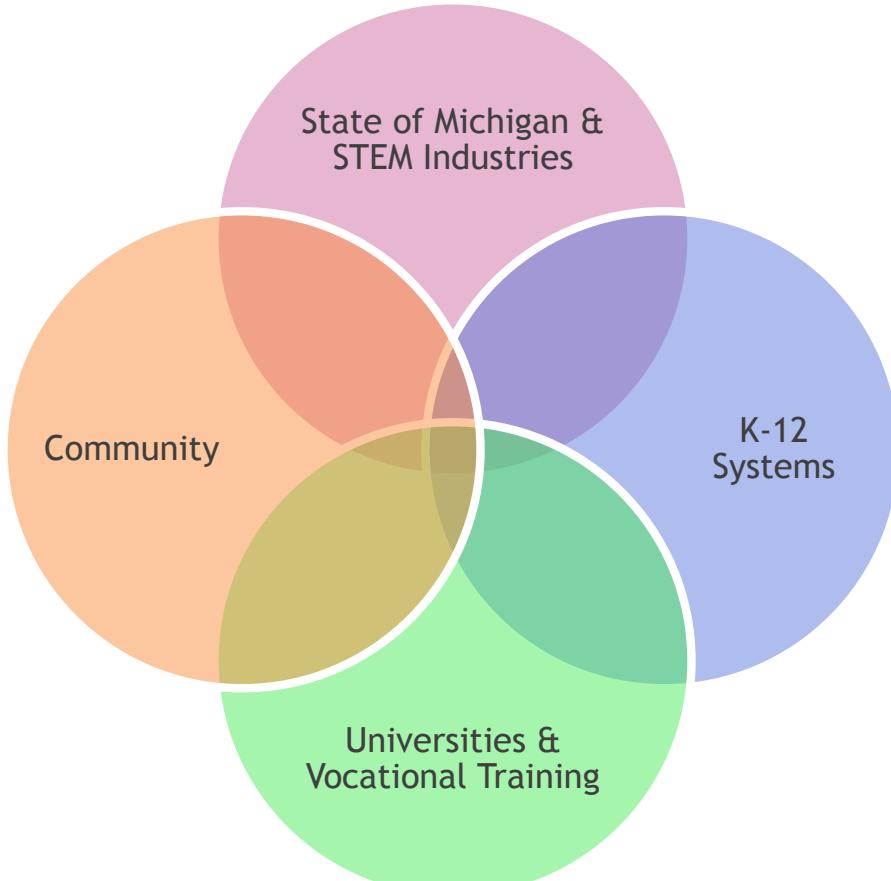


# OUR PARENTS

- ⦿ Advocates for their children's education (ALL)
- ⦿ Drivers for Participation:
  - Child is high achiever in K-12 school system
  - Child needs an intervention in STEM subjects
  - College / Career Exposure
- ⦿ Many participated in DAPCEP growing up (Middle Class)
- ⦿ Social status associated with their child participating in DAPCEP programs (Middle Class)
- ⦿ Grandparents advocates for education and/or involved with raising of grandchildren
- ⦿ Increasing participation from Latino Community

# NEEDS OF OUR CUSTOMERS & PARTNERS

- Needs of Michigan & STEMM Industries:
  - Job Ready Workforce with STEMM foundation
  - Can solve problems & create



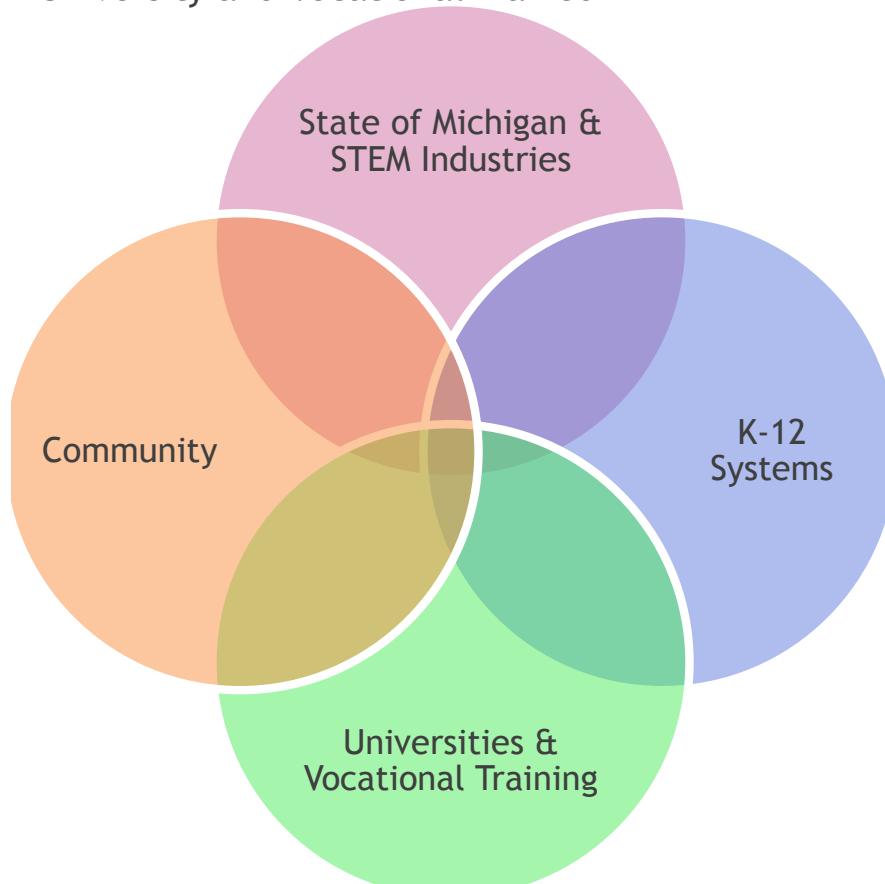
- Needs of Universities & Vocational Training
  - Qualified students for programs/majors
  - Less remediation before major courses
  - Interested in STEMM

- Needs of K-12 Systems:
  - Engineering curriculum content
  - Solutions to urban education crisis
  - College/career ready graduates
  - Alignment with National Standards
  - Early Childhood curriculum
  - Remediation/Intervention methods

# PERCEPTIONS OF OUR CUSTOMERS & PARTNERS

- Job Pipeline to meet current and future demand for a skilled workforce
- University and Vocational Trained

- Give kids opportunity to be successful
- Good programming for K-12 students
- Low Costs or FREE!!
- Help prepare for life beyond high school
- Competitive for Scholarships



- Competitive and Prepared Kids to attend Michigan Universities Schools with minimal remediation
- Kids capable of passing testing for vocational training

- Complement school curricula
- Improve standardize test scores
- Remediation/ Intervention methods

## BARRIERS FOR PARTICIPATION - TRANSPORTATION



- Lack of reliable public transportation (No rail, Poor Bus Reliability, 1 out of 3 residents does NOT have a car)
- Created program specific bus routes to ease transportation challenges

## **BARRIERS TO PARTICIPATION - MARKETING OF PROGRAMS TO UNDERSERVED COMMUNITIES**

- All parents regardless of socio-economics, urban/suburban, race, creed or culture want the best for their children
- Understand the communication pathways within cultural sub-groups and communities
  - Newspaper Advertisement vs. Billboards on a Bus
  - Radio vs. Internet Marketing
  - Social Media vs. Email Blasts

## **BARRIERS TO PARTICIPATION - PARENT ENGAGEMENT**

- Include meaningful and informative activities for parents in youth programming
- Parents have to feel that children are in a safe and caring environment
- Location is critical
- Program's social credibility important
- Advocacy of programming by community leadership

# THANK YOU!!!



[WWW.DAPCEP.ORG](http://WWW.DAPCEP.ORG)

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