“Empowering Youth to Change Our World Through Science.”
Who we are & What we do

KAYSC Youth:
- 105 Middle School
- 62 High School
- 25 Interns/Young Adults

Youth Development & Leadership
Informal STEAM Education
Work Skills/Workforce Preparedness
Program Pathway

Middle School Program
7 St. Paul school sites

Four Content Tracks:
- Bio Sciences/Public Health
- Engineering/Design
- Digital Media/Technology
- Environmental Justice/Sustainability

High School Program

Paid Youth Crews
- Climate Change
- Frogtown
- Bits 2 Bytes
- Teen Tech
- Space

Leadership Track
- Leadership Team
- Ethnography Crew
- Cell Lab
- STEAM

Community & Career Connections
- Internships & PD
- Alumni Relations/Engagement
- Museum Access

College & Career access programming
Program Goals

CONTENT
- STEM terminology
- STEM tools & skills

COMMUNITY
- Unique service learning model
- Learning in the community
- Making change in their communities

CAREERS
- College & Career pathways
- Building professional networks
Bits 2 Bites – A 3-Year ITEST Strategies Project

Youth Applying STEM Content and Computational Thinking to Learn about Nutrition and Advocate for Food Justice

Primary Audience
- Middle School Unit – 105 volunteers, 30-50 hrs/yr
- 2 High School Programs – following the KAYSC’s Leadership Approach – 24 youth staff, 400 hrs/yr
- Internships - 4-6 paid internships, 600 hrs/year

Secondary Audience
- Outreach Participants – 400 youth

STEM Content
- Level 1: Tools designed to help learners build comfort and confidence
  - Scratch, Scratch Sensor Boards and LEGO® WeDos (input/output boards that allow Scratch to connect to sensor and motors in the physical world); the MIT App Inventor for Android mobile devices;
- Level 2: Tools used by both learners and STEM professionals
  - Arduino microcontrollers and Mod Kit (a graphical programming environment for Arduino);
- Level 3: Tools used by STEM professionals
  - Text-based programming languages including Processing (Java-based), Wiring, openFrameworks (C++), and the Android mobile device software development kit; general media tools for documentation and dissemination, e.g. audio and video editing software;
- Youth will create programs that draw upon existing code and libraries in order to quantify a specific problem (AP Computational Thinking practice 4. Analyzing problems and artifacts). They will also learn how to create interactive tools and data visualizations to communicate their findings. (AP Computational Thinking practice 5. Communicating).
## Acknowledging Challenges
Targeting communities underrepresented in STEM

- Transportation Limitations
- Lack of STEM Connection/Investment
  - youth - history
  - parents/family
  - support networks
  - community
- Sustained Participation (long-term engagement)
- Cultural diversity & discomfort
- Museum Participation
### KAYSC Strategies for Addressing Challenges
**Targeting communities underrepresented in STEM**

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<th>Community Building/Alignment</th>
<th>Empowerment/Leadership Development</th>
<th>Intentional Pathway</th>
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<tr>
<td>Team/Community Building: youth retreats</td>
<td>Youth Voice/Choice: individualized opportunities, leadership focus/framework</td>
<td>Opportunities for long term exposure and advancement.</td>
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<td>Parent/Family Alignment: parent advisory, orientations, conferences, communication</td>
<td>Social Justice/Solutions: service learning framework,</td>
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<td>Celebrating Youth Talent &amp; Achievements: Community Event series, dinners/picnics</td>
<td>Leadership Framework: earned opps to lead/advance</td>
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<td>Staff Alignment: staff culture reflects program values</td>
<td>Support Networks: mentor, college &amp; career</td>
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<td>Representation: Program leadership (staff/volunteers) reflects racial/cultural diversity of youth</td>
<td>Ongoing PD/trainings: (content &amp; community)</td>
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