Detailed Activity Descriptions

Brothers4Science

Brothers4Science (B4S) is a year-round out of school time program that combines science exploration with leadership development for sixth to eighth grade boys, with particular focus on a demographic vastly underrepresented in STEM: young men of color. B4S follows in the single-gender model of Sisters4Science, Project Exploration’s anchor program. B4S curriculum is co-created with the students, and includes visiting STEM professionals who work alongside the boys on hands-on STEM activities while sharing their personal journey and career path in STEM. The goals of B4S are to:

- Create a safe space for boys to explore science and develop leadership skills
- Introduce minority boys to the wide variety of roles played by minority men in science
- Improve boys’ overall attitudes about STEM by developing team-building, communication, and leadership skills

Each semester ends with the participants reflecting on lessons learned in the Reflection of Knowledge, a culminating event that showcases their experiences for the school community, friends, and family. The following NGSS standards will be covered:

<table>
<thead>
<tr>
<th>MS-PS2-1, 2, 4, 5 Motion and Stability: Forces and Interactions</th>
<th>MS-LS1-3, 8 From Molecules to Organisms: Structures and Processes</th>
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<tbody>
<tr>
<td>MS-PS3-3, 5 Energy</td>
<td>MS-ESS1-1, 2, 3, 4 Earth’s Place in the Universe</td>
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<tr>
<td>MS-PS4-2 Waves and their Applications in Technologies for Information Transfer</td>
<td>MS-ETS1-1, 2, 3, 4 Engineering Design</td>
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1. Linkages to Academic Learning
By helping students understand the link between what they learn in school and the outside world, Programs shall help participants become engaged in their learning and reinforce success in school and life/beyond. Respondents shall encourage increased school attendance, improved academic performance, and postsecondary planning.

2. Civic Engagement and Service Learning
The ongoing opportunity to engage in service-learning to benefit others or address community needs is an evidence-based strategy for developing youth leadership skills. Programs shall consider how to include a civic engagement component that allows participants to use the skills they have gained to contribute to their local communities or communities at large in order to learn the value of civic engagement.

3. Social-Emotional, Employability, and Life Skills
Social-emotional and “soft” skills (e.g. leadership, teamwork, communication, critical thinking, and decision making) are defined as critical to college and career success. Programming for older students may want to offer an expanded opportunity for students to discover and reinforce career interests. Programs shall include elements that promote social-emotional learning and college and career readiness in developmentally appropriate ways for students Pre-K-12.

4. Authentic Learning Environment
Authentic learning environments frame student learning in the context of the world around them, engage them in problem-solving and allow them to construct their own learning. Programs shall engage students in authentic tasks that are hands-on and have real-world application, including but not limited to the teaching of real-world competencies (e.g., social skills, self-management skills, and self-directed learning, and workplace values). Instructors of Programs shall teach using multiple methods including demonstration, modeling, project-based learning, and coaching. Programs shall include culminating projects and/or events that allow students to demonstrate and celebrate their learning.

5. Parent and Family Involvement
Programs engage parents/guardians/families so that they will be involved in students’ learning experiences.