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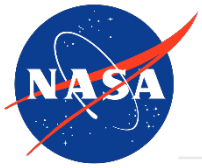

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Evolution of Nanomachines In Geospheres and Microbial Ancestors

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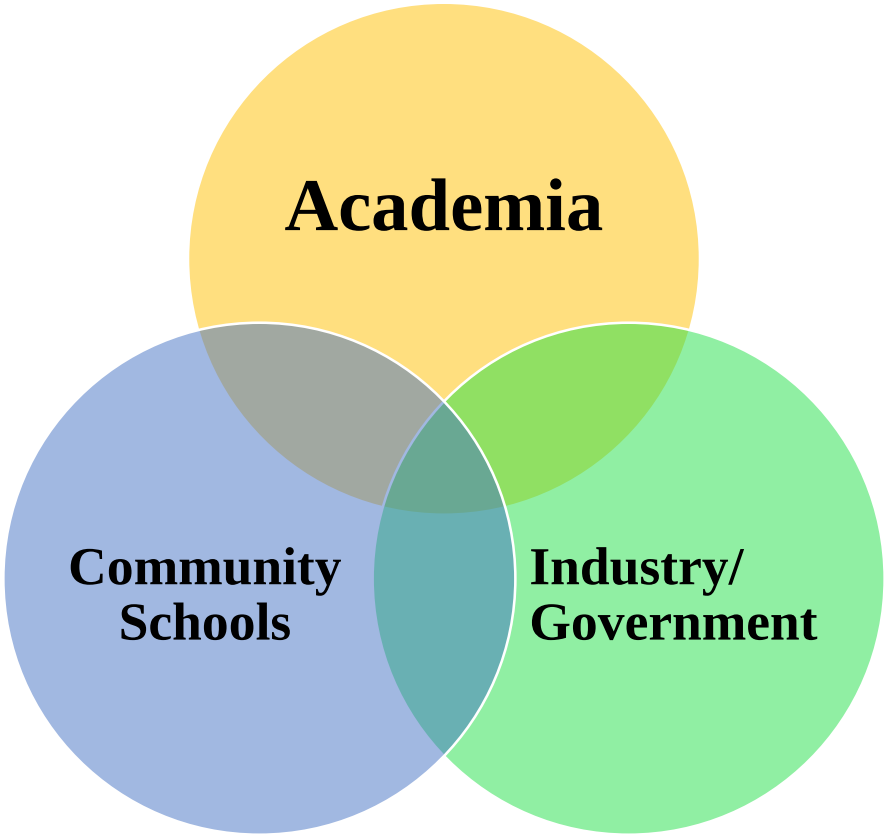
Engaging Urban K-12 Children in Complex Science Topics

Christine Bean, Janice McDonnell, Dr. Kenneth McGuinness, **R. Alesha Vega**

Partnership Model for Working with Urban Youth & their Families



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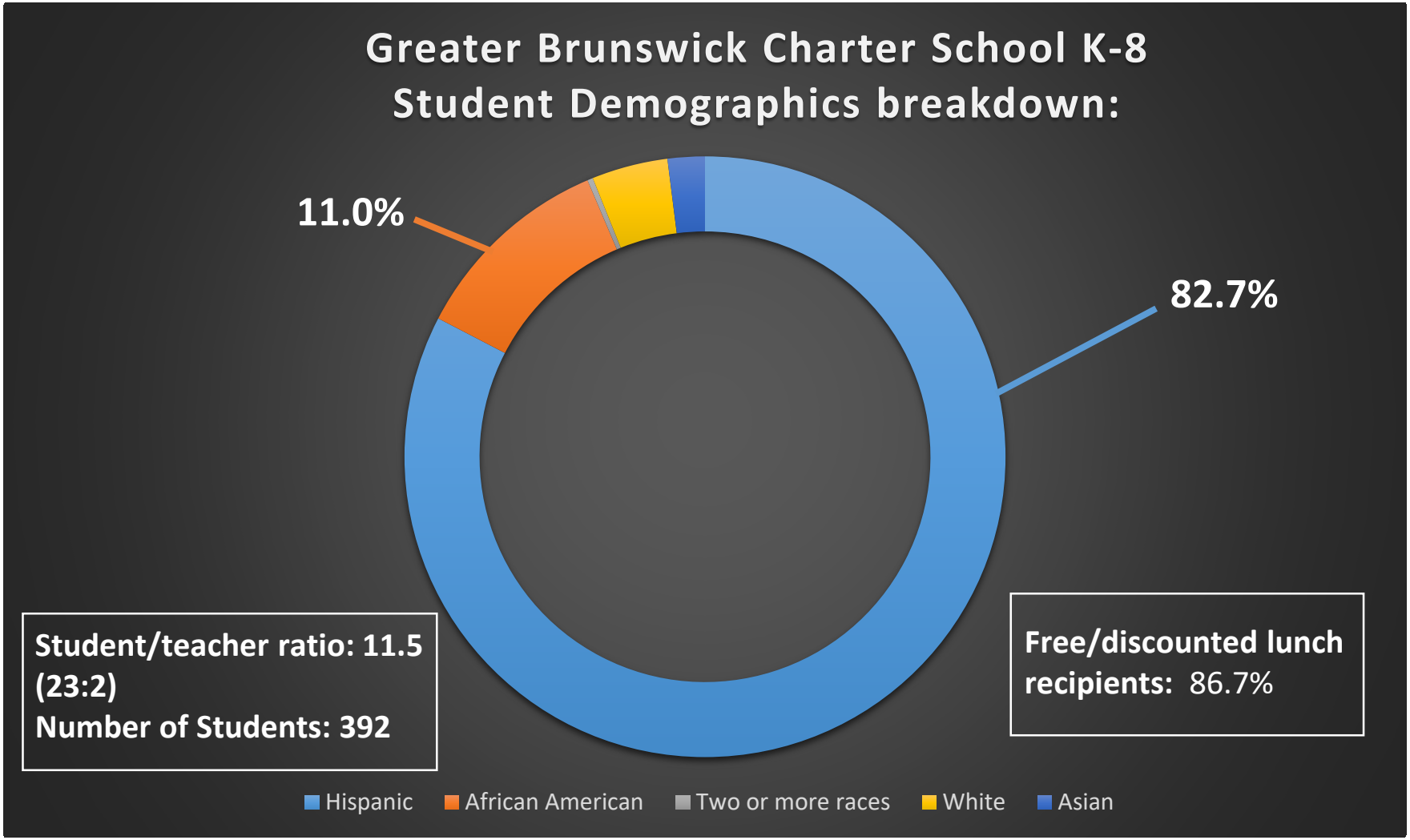
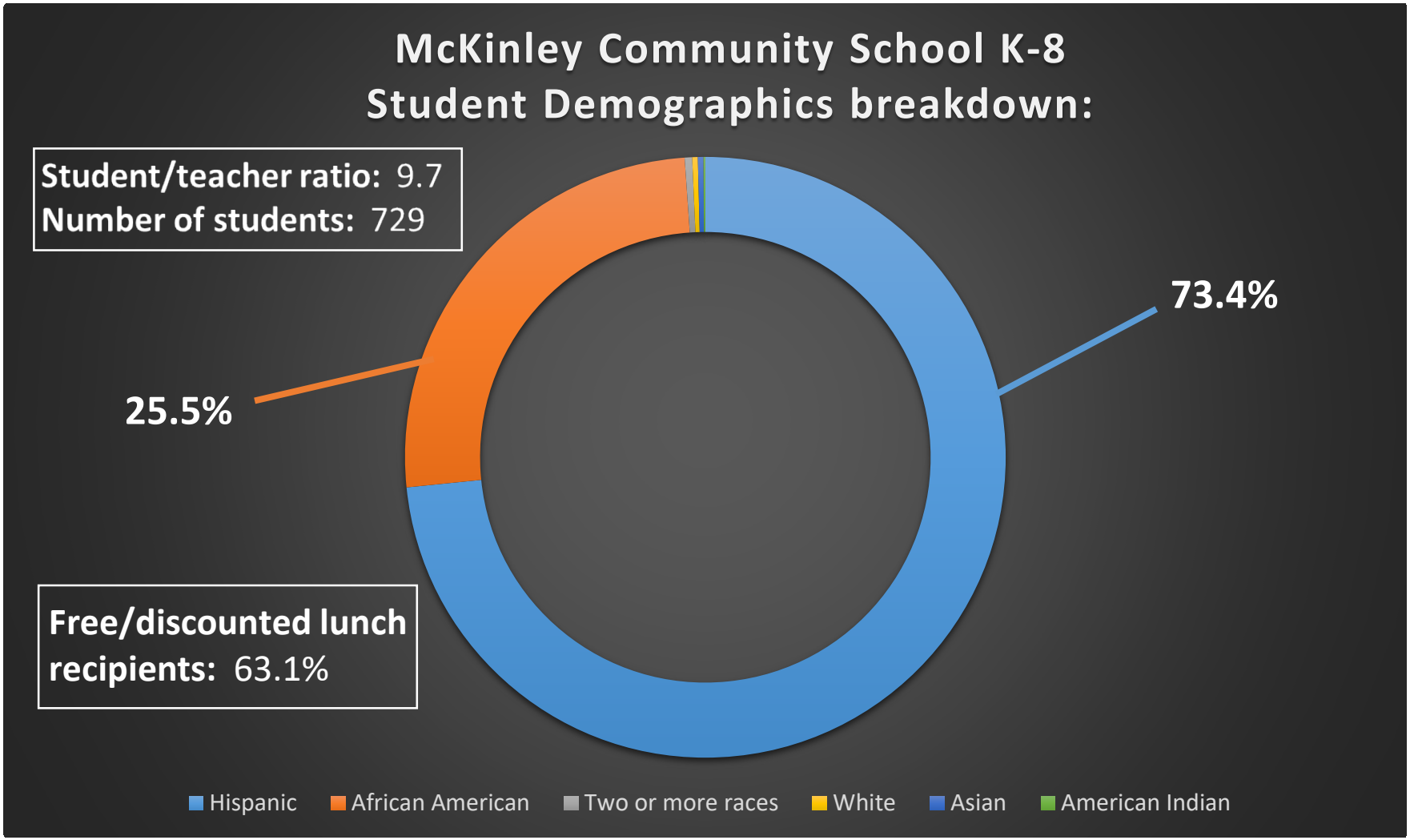
Cooperative Extension/Rutgers University's School of Environmental and Biological Sciences (SEBS)/4-H STEM



Data source: National Center for Education Statistics, U.S. Dept of Education 2017



Data source: National Center for Education Statistics, U.S. Dept of Education 2017

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NASA Astrobiology Institute ENIGMA Team, Rutgers University

- Rutgers Scientists led project aligned with the astrobiology context of NASA missions
- Broader Impact component of ENIGMA
- Coalition of Rutgers Scientists, Student Volunteers, Professors and Staff

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Evolution of Nanomachines In Geospheres and Microbial Ancestors

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Industry Partners Opportunities and Challenges

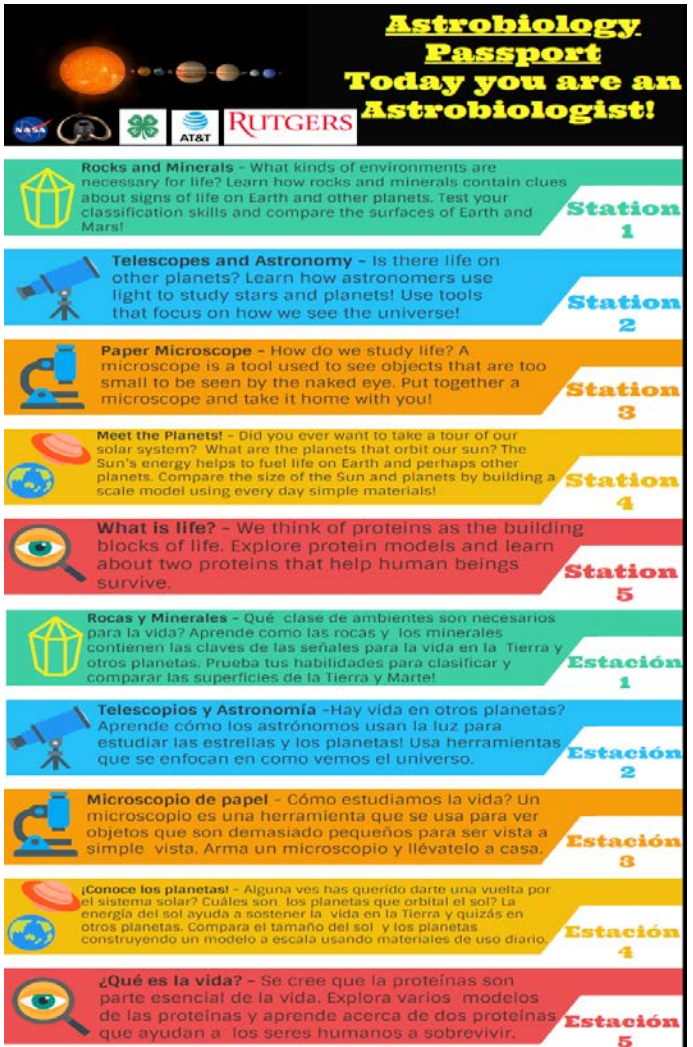
- An Unexpected partnership
- Participating with Industry Scientists
- Differences in outcomes
- Press & Visibility
- Timing
- Alignment of mission

Developing After-school Programs for Students and Families

- Planning Committee with Rutgers Scientists & Department of Youth Development Staff

- Meetings with NB public school system's Dean, Principals, Family Liaisons, teacher program leaders, and NB science supervisor

- Working with the local High School - student volunteers
(many who were bi-lingual)



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Developing After-school Programs for Students and Families

What is life? **Exploring proteins as the building blocks of life.**

How do we study life? **Building paper microscopes.**

Learning how rocks and minerals contain clues about signs of life on Earth and other planets.

Meet the Planets! **Comparing the size of the Sun and planets by building a scale model.**

Learning how light can be used to detect life on other planets.

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Developing After-school Programs for Students and Families cont..

Press work with Rutgers and outside Media (NJTV, NJ News 12)

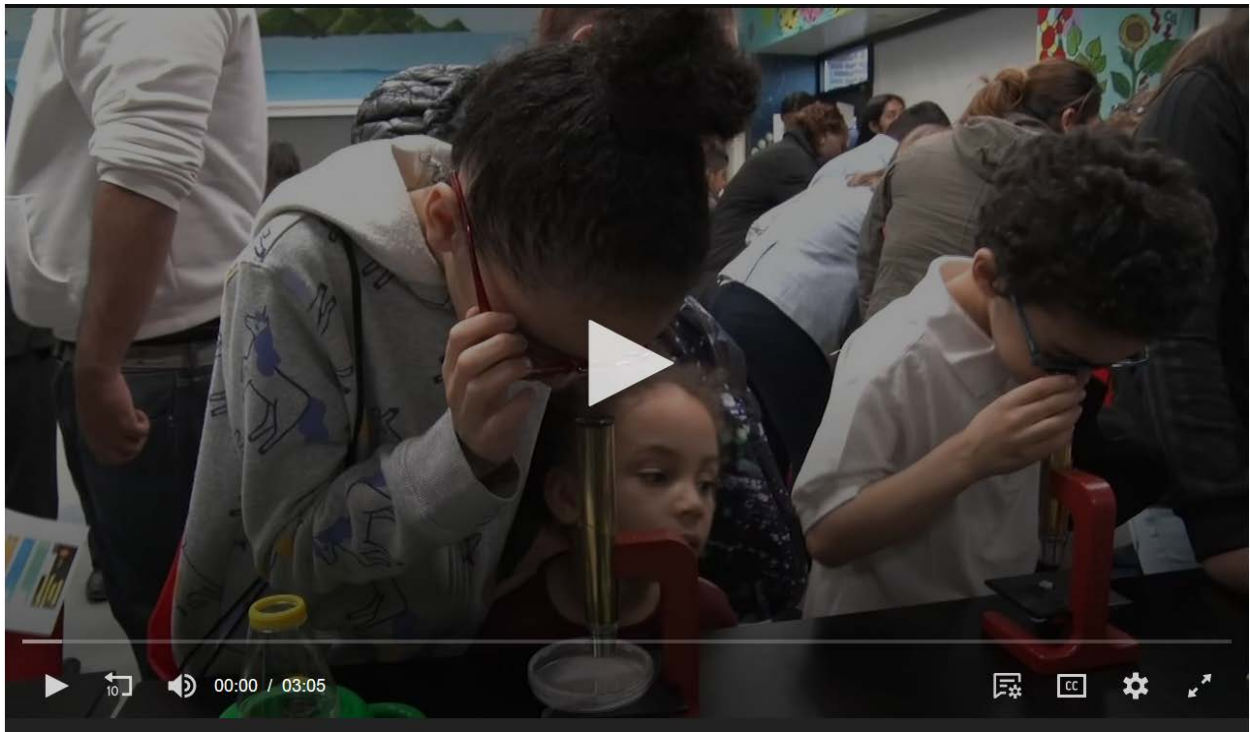
WATCH TOPICS ABOUT CONTACT SEARCH

NJTV NEWS

SCIENCE & TECHNOLOGY

Students learn about researching life on other planets

BY **Briana Vannozzi**, Correspondent | May 14, 2019, 4PM EST



Exit surveys to help develop strategies for increasing involvement

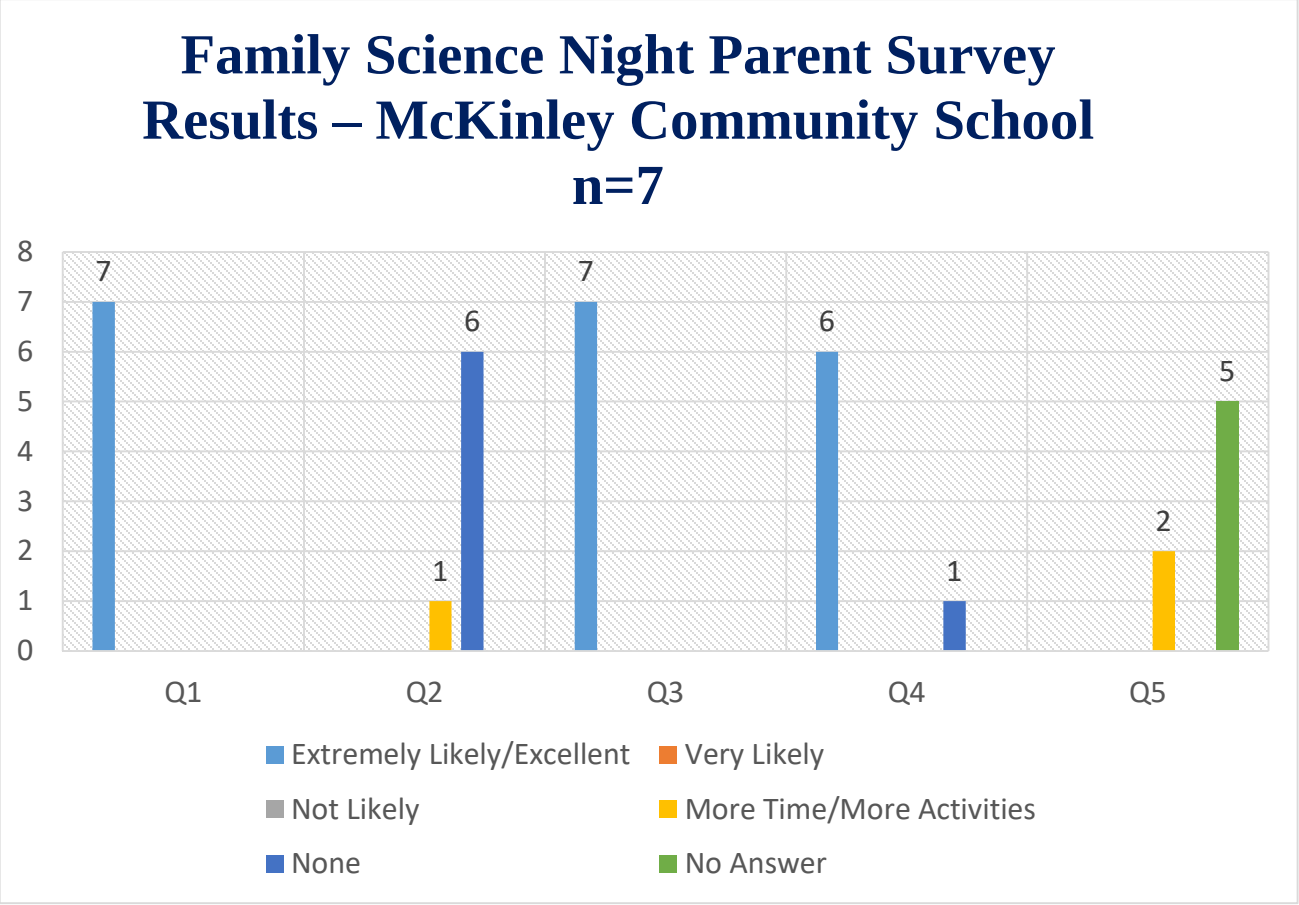
Q1 - What did you think of this event?

Q2 - What did you like least about the event?

Q3 - How likely are you to come to another Family Science Night?

Q4 - How likely would you be to recommend this event to others?

Q5 - What can we do to make the Family Science Night better for your family?



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Translating complex concepts of Astrobiology research into relatable educational products for teens

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Impacts of Parental Involvement for Children's Academic Success

- Engaging Students, Faculty, and Communities in New and Different Ways
- Innovative Collaborations with Minority Serving Institutions
- Challenging Societal Issues and Facing Human Crises

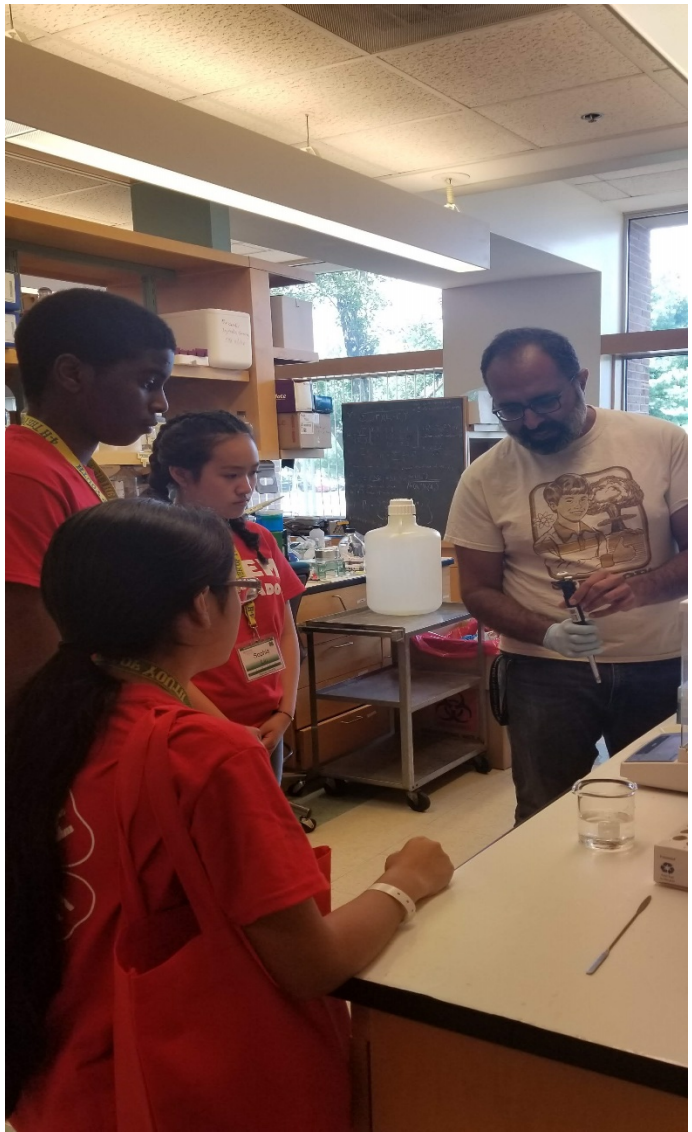
1. Van Voorhis, F. L. Interactive homework in middle school: Effects on family involvement and science achievement. *J. Educ. Res.* **96,** 323–338 (2003).
2. Eccles, J. S. & Harold, R. D. Parent-school involvement during the early adolescent years. *Teach. Coll. Rec.* **94,** 568–587 (1993).
3. Yoder, J. R. & Lopez, A. Parent's Perceptions of Involvement in Children's Education: Findings from a Qualitative Study of Public Housing Residents. *Child Adolesc. Soc. Work J.* **30,** 415–433 (2013).

Challenges & Opportunities

- Communication lines
- Funding/Resources
- Sustain current after-school programs (Buy-in from participating schools)
- Future Opportunities for Engagement

Where do we go from here?

- Astrobiology After School programs for grades 4th-8th
- Program Sustainability and Involvement
- Follow Up Case Study



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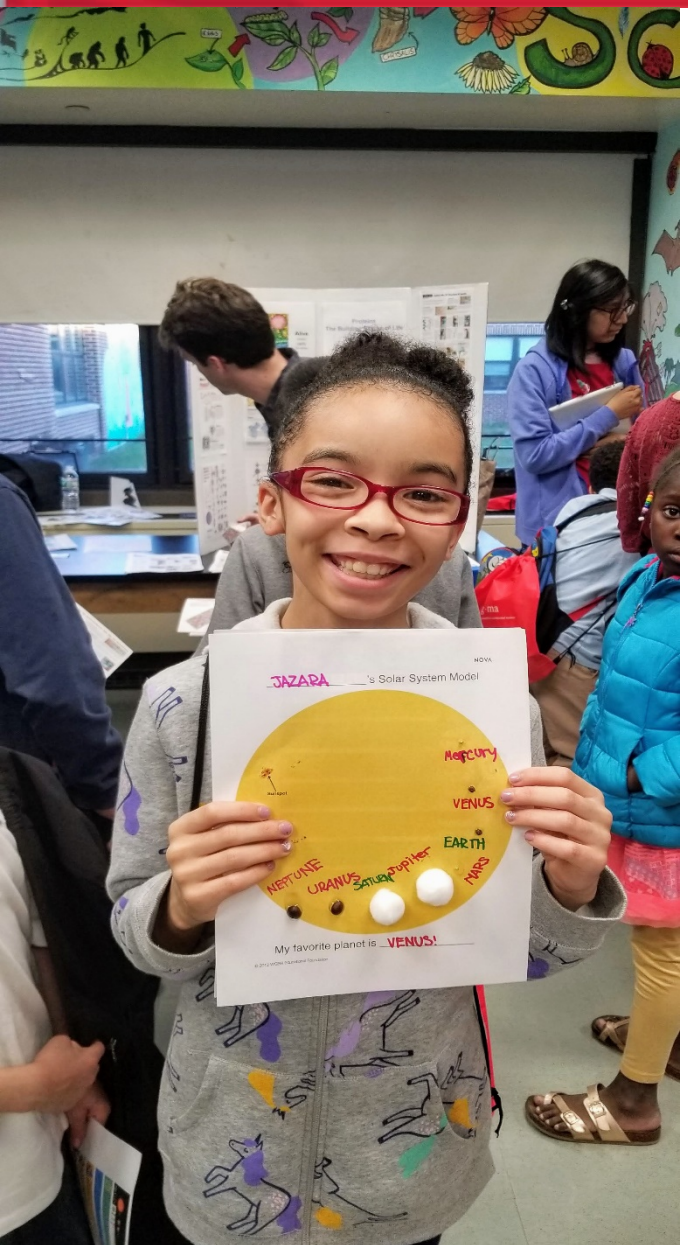

Thank you for attending!

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