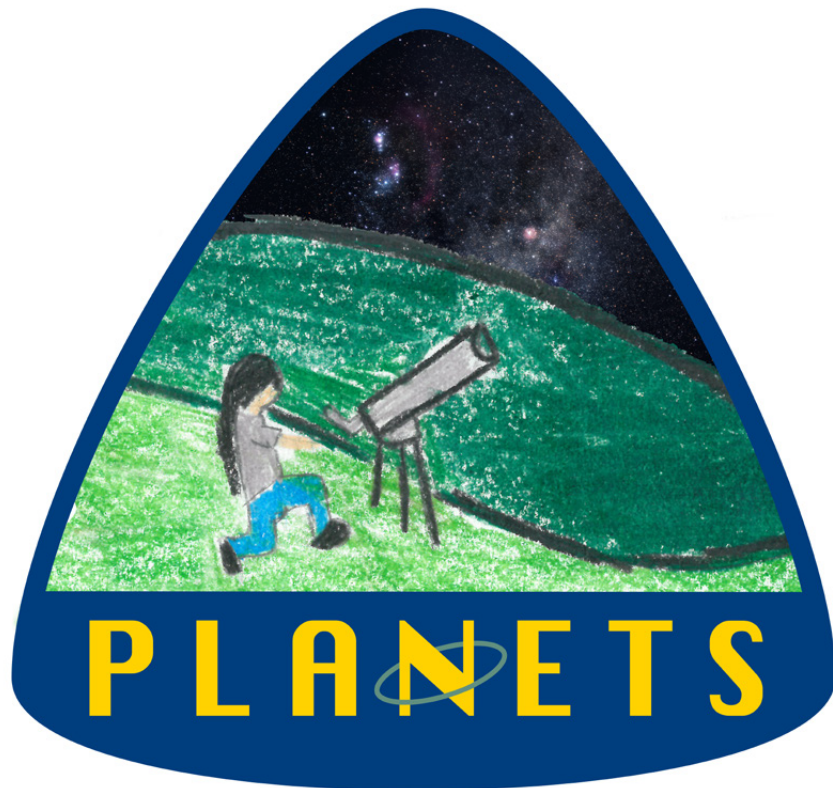


PLANETS: Space Science Curricular Materials for Out-of-School-Time Programs

Nadine G. Barlow, Associate Director, AZ Space Grant Consortium at Northern Arizona University



**Planetary Learning
that Advances the
Nexus of
Engineering,
Technology, and
Science**

PLANETS Goals

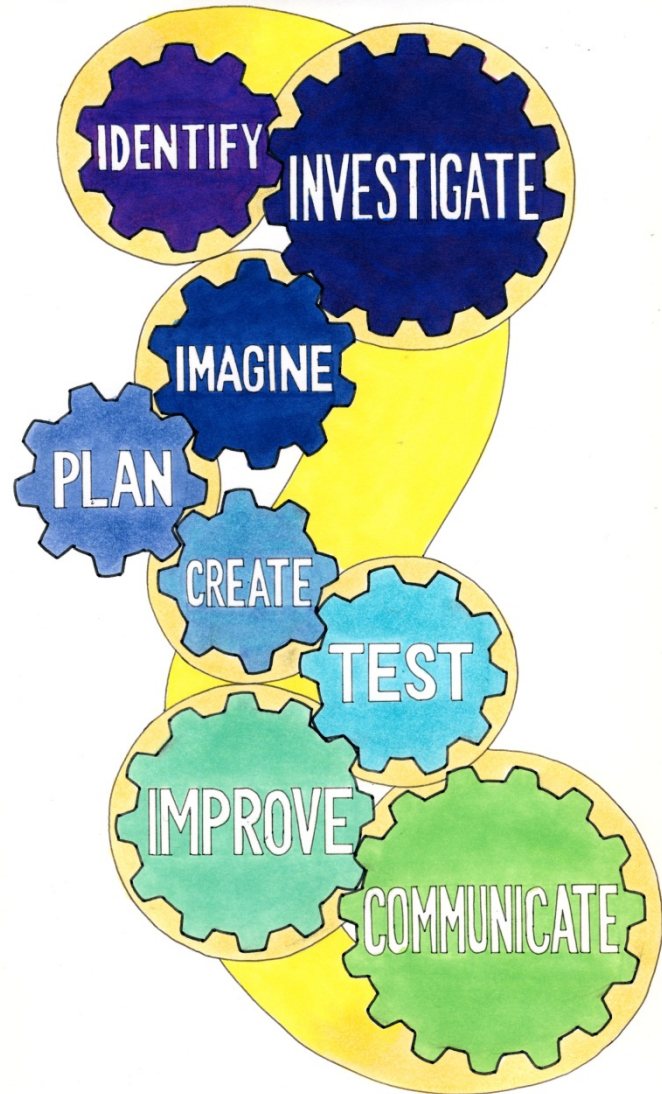
- Develop two *Engineering Everywhere* Units and one *Engineering Adventures* Unit
- Create professional development modules and resources for educators
- Research impact of products on students and educators
- Model an interdisciplinary partnership between planetary Subject Matter Experts (SMEs), OST curriculum developers, science and engineering PD experts, and OST networks



NORTHERN ARIZONA
UNIVERSITY
College of Engineering, Forestry & Natural Sciences
Center for Science Teaching and Learning



Engineering Everywhere



- Designed for 6th through 8th grade
- Available **free** for download – eie.org
- Engages youth in real world design challenges uniquely designed for out-of-school settings

Each Engineering Everywhere Unit:

- engages youths in grades 6-8 in the Engineering Design Process.
- Empower and challenge youths to think critically and creatively.
- Contains 8-9 activities, each about an hour long

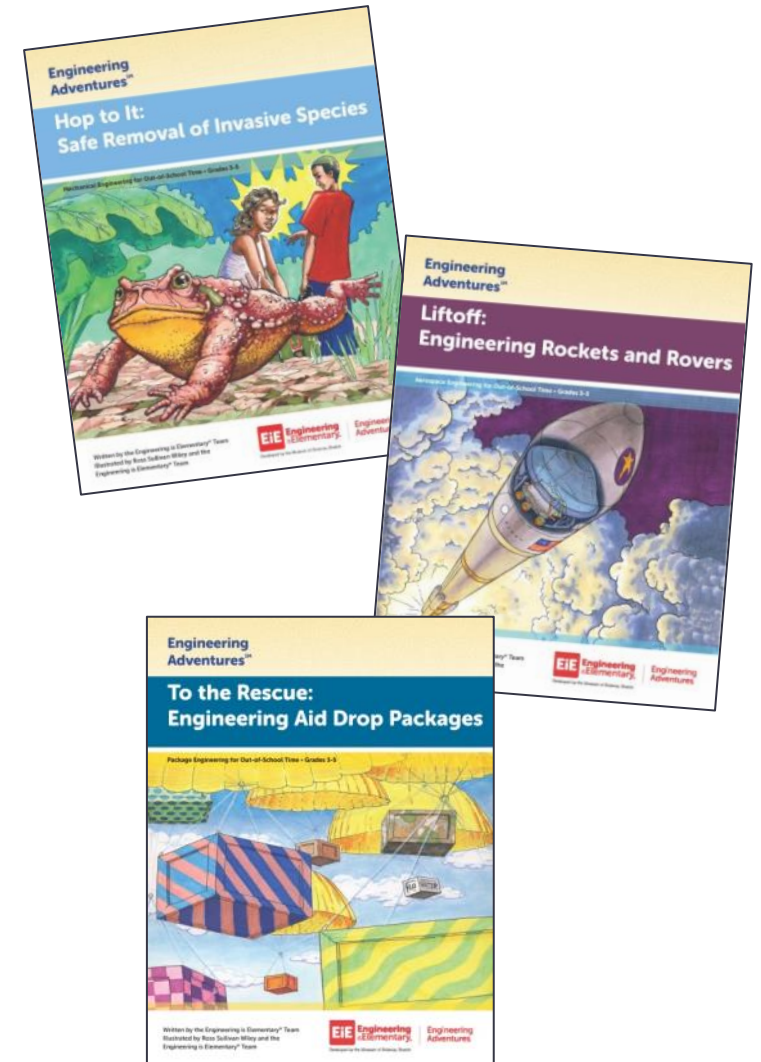


New PLANETS Units – Engineering Everywhere

- **Worlds Apart: Engineering Remote Sensing Devices**
 - Using geospatial engineering, youth will engineer remote sensing tools to gather and visualize information about a newly discovered moon for their clients at NASA. The visuals they create will help their fellow engineers safely land a rover, gather geological information, and educate the public about the solar system.
- **Testing the Waters: Engineering Greywater Systems**
 - Using systems engineering, youth will engineer a system to produce a water sample that is as clean as possible. Both the water filters youth design and the order of tasks in the greywater system will be important.

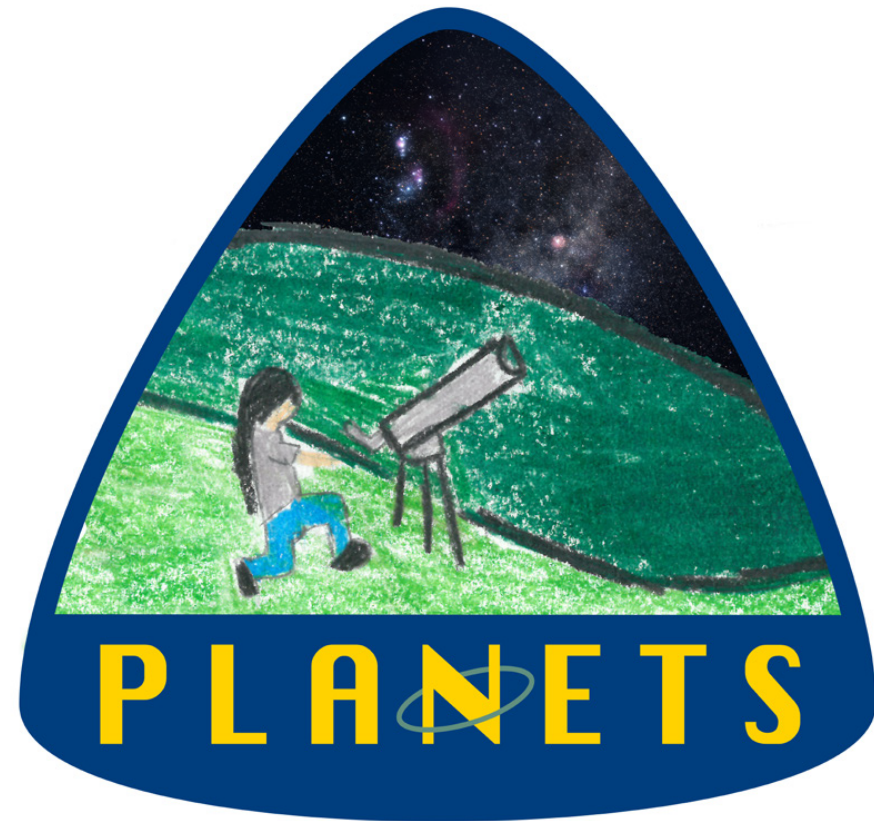
Each Engineering Adventures Unit:

- engages kids in grades 3-5 in the Engineering Design Process
- sets a multicultural and real-life context for the challenge
- gives kids the chance to work in groups and share their work
- contains 6-10 activities, each about 45 minutes long, with flexible scheduling options
- Units developed and available for **free** online – eie.org

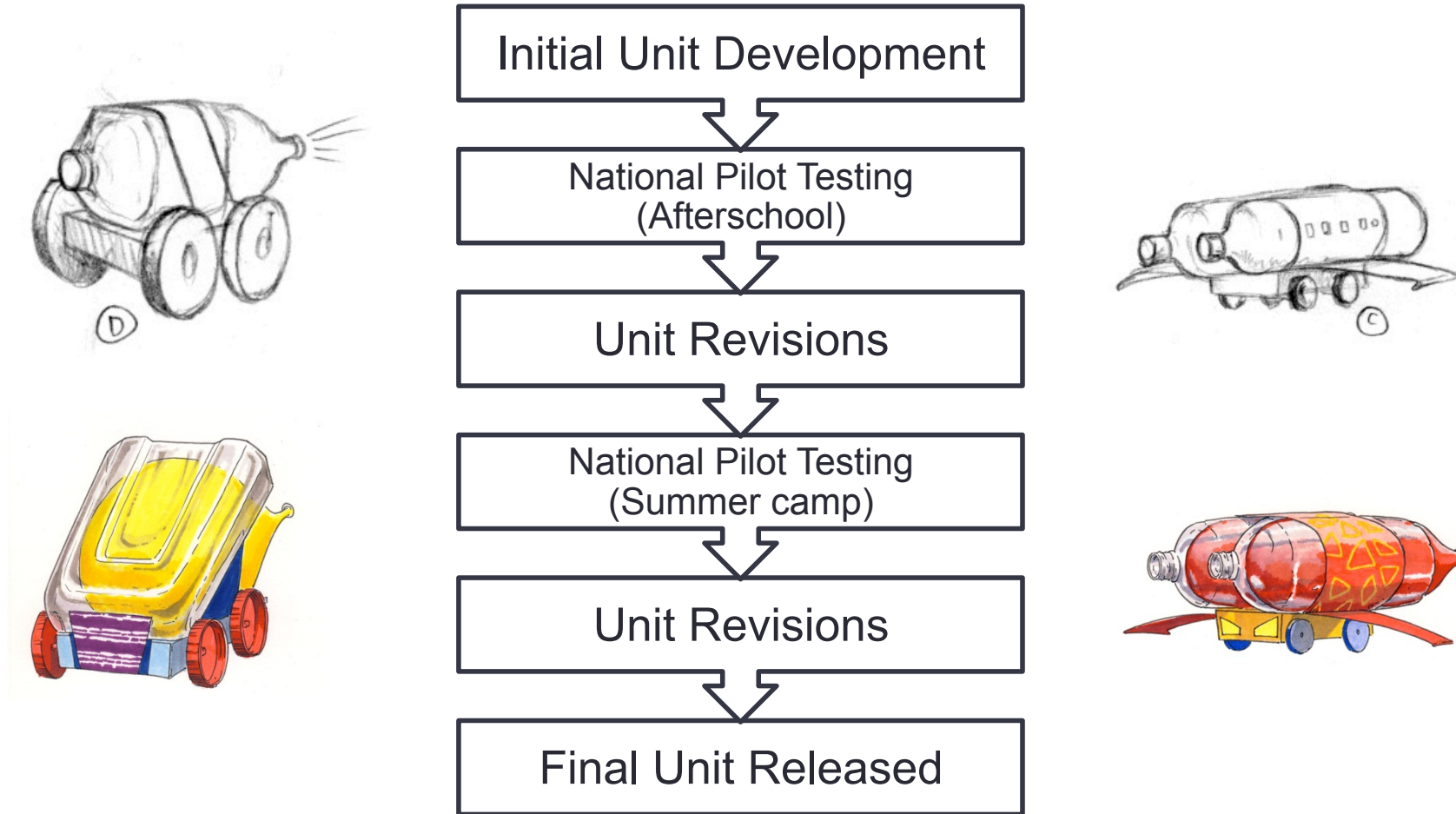


New PLANETS Unit

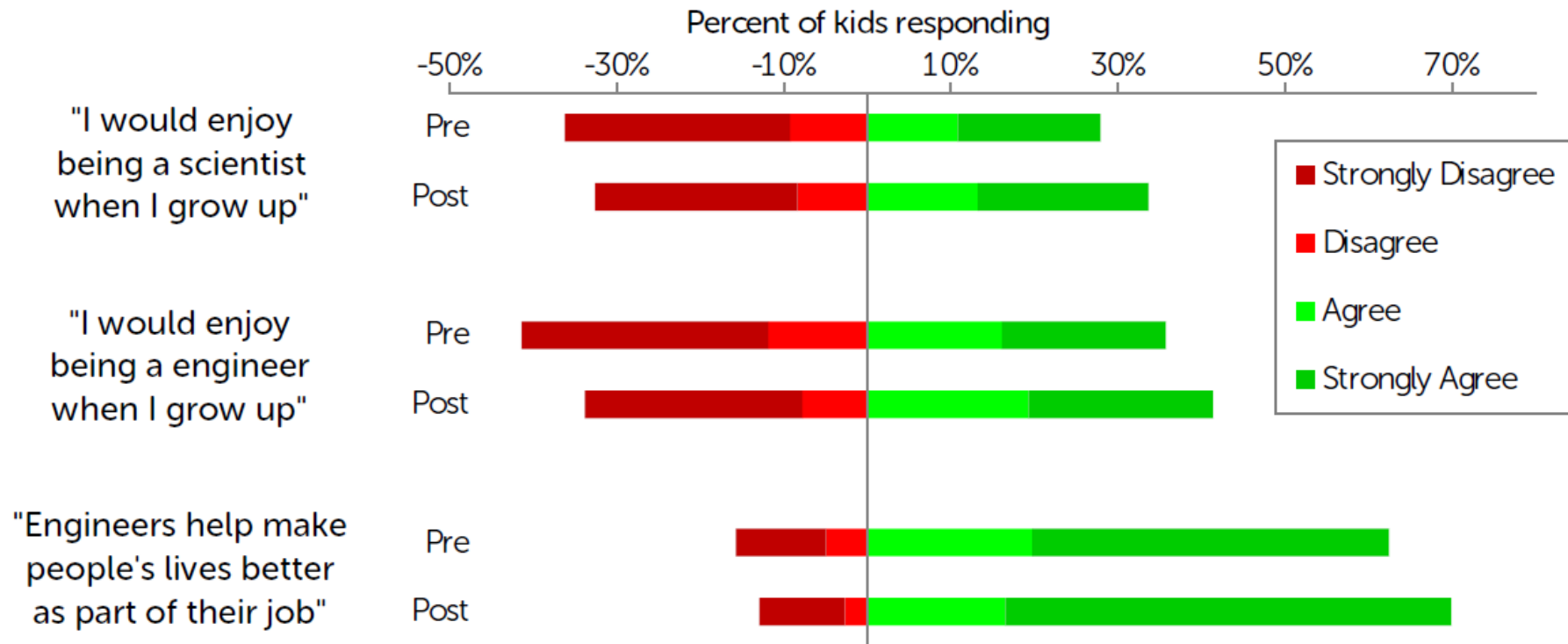
- To be developed
- Volcanic studies



Curriculum Development Process



Kids' Attitudes About Engineering



Needs Assessment for Professional Development

1. What are perceived needs of (OST) educators in order to implement meaningful and high quality STEM instruction?
 2. What we can do to make educational experiences more accessible, acceptable and useful to (OST) educators and program coordinators?
- PLEASE share the needs assessment survey link with your networks:
<http://bit.ly/2cJbgz4>
 - Respondents will be eligible to win a Engineering is Elementary guide of their choice.

For more information

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