Northwest Earth and Space Sciences Pipeline

NASA Space Grant Consortia: Washington, Oregon, Montana
The Problem:

• It has been a frustration that we have not had the mandate to work more closely with K-12 where we know the STEM pipeline is very leaky.
Infrastructure:

• Space Grant Consortium in Each State focused on Undergraduate STEM education

• Space Grants have *Great Educational Networks – Higher Ed, K-12, Informal Ed*

• An important success story is the collaboration with Northwest Indian College in setting up their rocket program

  https://youtu.be/PG-G2Vm_z-k

(first tribal supersonic rocket which is now in the Smithsonian – Flown at First Nations Rocketry Competition : Wisconsin Space Grant)
The Solution: Use the Fabulous Space Grant Network to Plug the Leaky Pipeline

- April 2015 we were able to submit a proposal to the NASA Science Mission Directorate to Education Cooperative Agreement to bring NASA STEM to Middle School and High Schools in the Northwest
- Funding Received in Late 2015
- Focused on Underrepresented and Underserved Communities

For the First Time able to establish a Complete Pipeline for Underrepresented and Underserved Students Interested in STEM.
Important Methodology

• We have spent a lot of time talking to the Individual Tribal Educational Councils

• Need to prove that the effort is going to be sustained and sensitive to tribal culture and sovereignty.
STEM Pipeline

Middle School → High School → College

• Day Site Visits (At no cost to the school)
  • Rocketry/Archery Show Case (archery puts rockets into the tribal perspective)
  • Walk the Solar System and see the different NASA missions
  • Robotics – try robotic exploration
  • Subject Specialist
  • Video Conferencing
NW STEM Pipeline

- **Middle School Camps**
  - Oregon Museum of Science & Industry, Montana State University, Central Washington Univ, University of Washington, Everett Community College
  - Expand offerings across the region available upon request and availability

- **High School**
  - Launching Sophomore and Juniors **Aerospace Scholars Program** – Online course with summer residency
  - Red tail Hawks **Flying Instruction**
  - Rocket and possible other technologies

- **Teachers**
  - On Going Professional Development Workshops
  - Lessons plans and resources should be transferable to other districts
Regional Competitions:

• High Altitude Balloon Eclipse Viewing
  ▶ In Collaboration with the Warm Springs Ventures have a Tribal Regional Event and Competition including flying a high-altitude balloon to observe the Aug 21, 2017 Solar Eclipse from the edge of Space launched from Warm Springs.
  ▶ MS and HS Student teams build payloads to be attached to a balloon system – NESSP provides logistical and technical support + funding to get student teams to Warm Springs.
Regional Competitions:

- Northwest Regional Native American Rocketry Competition for Middle and High School Students – Oct 14-15, 2017 Colville WA
  - NESSP Provides Initial Training of Team
  - NESSP Provides initial Funding for Building Start
  - NESSP Provides support to get to the Competition
  - Tribal Events associated with the Competition
SPACE Ambassadors (Students Pursuing Academic & Celestial Exploration)

- Volunteer Group – self governed by the students
- Culturally sensitive to Underserved & Underrepresented Communities
  - Poverty, obesity, gangs, isolation, drugs etc
- Work with Middle School and High School Students in Outreach and Camp Activities
- Give back to the Community but ALSO Learn WHY their Higher Educational Activities are SOOO Important
- Our Experience is helping us create a Diversity course at UW
Develop STEM in Respect Way to Underserved and Underrepresented Communities

For Students: Generate Excitement & A Sense of Accomplishment

Phablets are available.

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