

# WHOSE NATIVE LAND DO YOU TEACH ON?

In the chat box, please tell us whose ancestral lands you teach on.

Not sure? Check out the App: Native Lands





# LEVEL UP THE LAB

*3 Strategies To Take Your Student Research To The Next Level*

# 3 LEVEL UP STRATEGIES

1. Collaborating with professional research laboratories. (Universities & Industry)
2. Developing student research programs at a research station.
3. Increasing your student's and your research experience in the summer through NSF Research Grants (RAHSS & RET).

# TODAY'S 3 OBJECTIVES

1. Identify lab(s) in your community to collaborate with and provide template request letter.
2. Identify a research station near you.
3. Explore RET / RAHSS opportunities for you and your students to consider in the future.

# TUCSON HIGH MAGNET SCHOOL





# TUCSON HIGH MAGNET SCHOOL

1. Demographics: ~3,000 students
  - >85% = Underrepresented and underserved ethnicities and races.
  - >55% = Free & Reduced Lunch
  - 69% Latinx
  - 9% African American
  - 4% Multi-racial
  - 4% Native American



# WE ARE THE BRIDGE

STUDENT  
WORLD &  
CULTURE



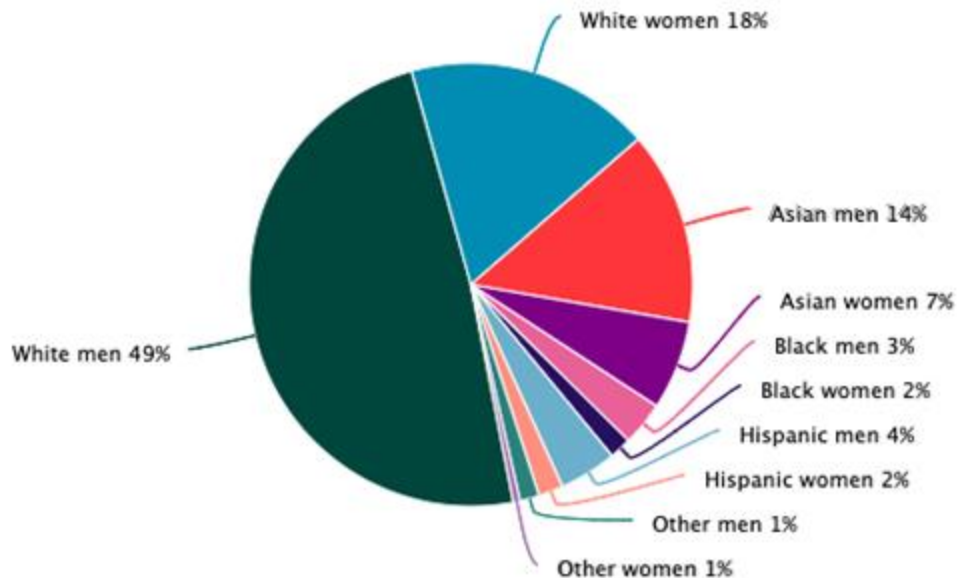
SCIENTIST  
WORLD &  
CULTURE



# WHY ADVOCATE?

## 2015 NSF DATA: SCIENCE & ENGINEERING OCCUPATION BY RACE & ETHNICITY

<https://www.nsf.gov/statistics/2017/nsf17310/digest/occupation/overall.cfm>



NOTES: Hispanic may be any race. Other includes American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, and multiple race.



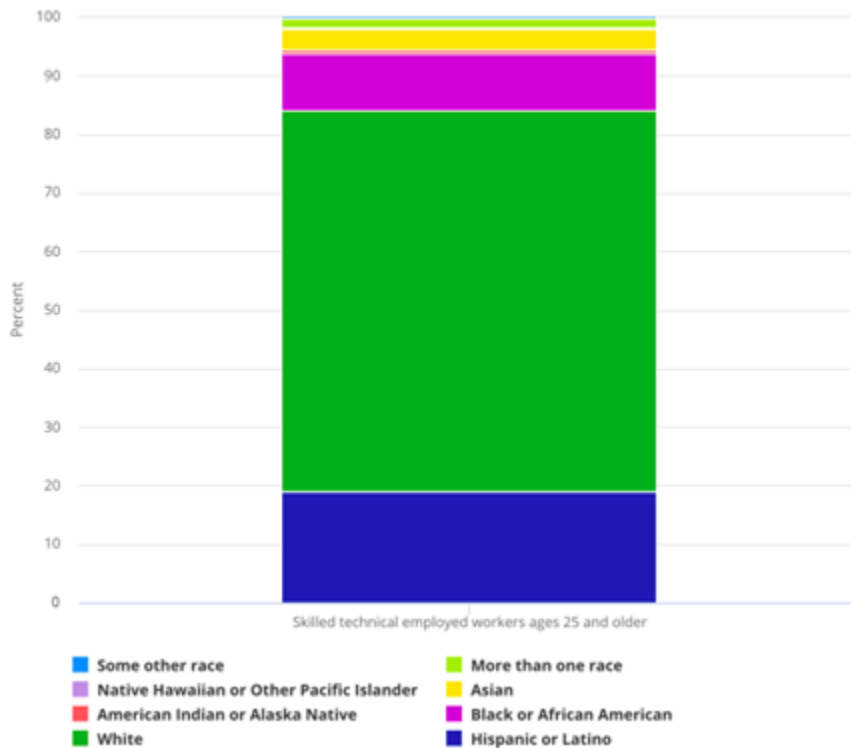


# WHY ADVOCATE?

National Center for Science and Engineering Statistics | NSF 21-321

Figure 41

Skilled technical employed workers ages 25 and older, by race and ethnicity: 2019



**2019 NSF DATA:  
STEM TECHNICAL  
WORKERS BY  
RACE & ETHNICITY**

[https://nces.nsf.gov/pubs/nsf21321/  
report/occupation#science-and-  
engineering-occupations](https://nces.nsf.gov/pubs/nsf21321/report/occupation#science-and-engineering-occupations)

# WHY ADVOCATE?



## Science and Engineering Doctorates



### 2015 NSF Data:

<2% of PhDs were awarded to black scientists in ecology and evolution related fields.

<https://www.nsf.gov/statistics/2017/nsf17306/report/who-earns-a-us-doctorate>



# NSF Grants: 'Broader Impacts'

*"Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to the project. NSF values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the U.S.; use of science and technology to inform public policy; and enhanced infrastructure for research and education. These examples of societally relevant outcomes should not be considered either comprehensive or prescriptive. Proposers may include appropriate outcomes not covered by these examples."*

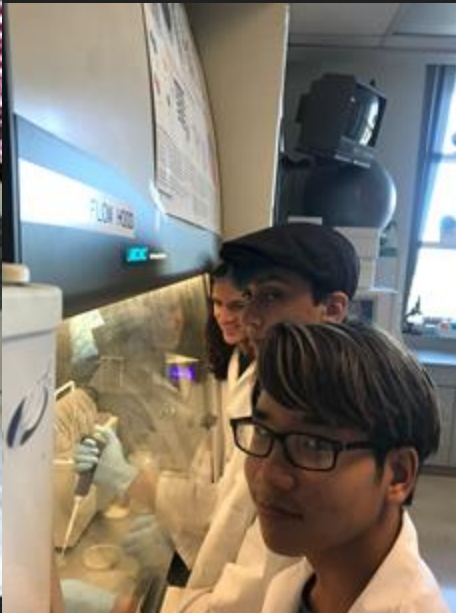
# 1. LAB COLLABORATIONS



- 36 Labs
- 10 Departments
- 3 Industry Partners
- 7 NSF grants
- > 120 students matched with mentors



# 1. LAB COLLABS



# 1. LAB COLLABS

## 3 FLAVORS of LAB COLLABS

1. Students working in a research laboratory.
2. Students working with a mentor at your school.
3. Students working virtually with scientist anywhere in the





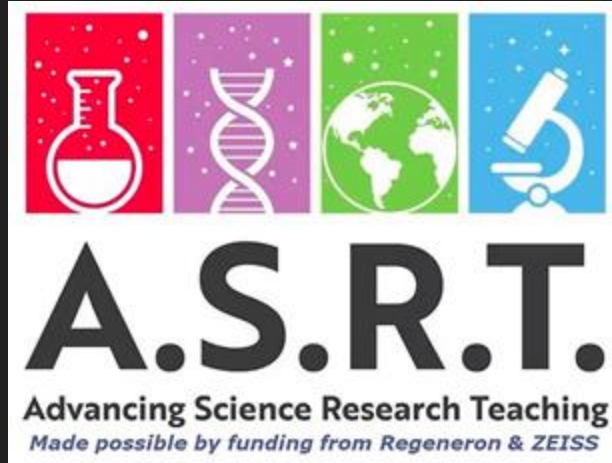
# 1. LAB COLLABS

- Don't be shy!
- Flex your Advocacy.
- Sell the opportunity!
- Mentor benefits include: grant funding, science communication & community connectedness.
- Seek Undergrads, Grad Students & Postdocs
- Many scientists WANT outreach opportunities.



# 1. LAB COLLAB TOOLS

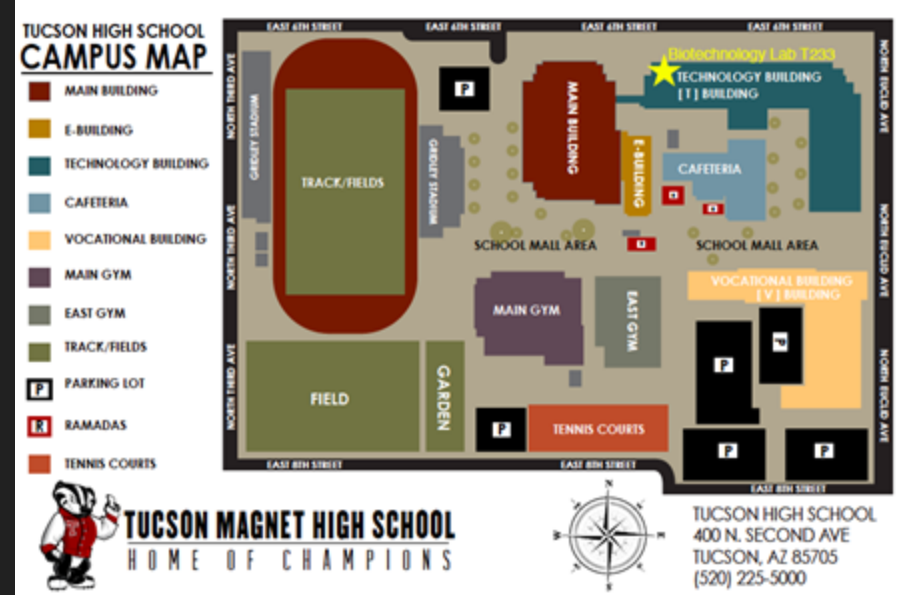
- [Template Letter](#)



- Advancing Science Research Teaching  
<https://www.asrtprogram.com/home>

# 1. LAB COLLAB TIPS

- Schedule in-person (if possible) meeting with mentor and student
- Use CAMPUS MAP
- Use your Advocate \$tipend to compensate your time.
- Discuss expectations and timelines with mentor & student(s).
- Timelines: experimentation, data, data analysis, project completion.



# 1. LAB HURDLES



Youth Safety

**#1. WORKING WITH MINORS:** Some colleges, universities and industry partners may have strict rules and regulations regarding working with students under 18.

- Search for relevant office and schedule appointment with director to discuss your collaboration.

# 1. LAB HURDLES

## #2. FORMS:

### FORM 1C: AFTER experimentation

#### Regulated Research Institutional/Industrial Setting Form (1C)

This form must be completed AFTER experimentation by the adult supervising the student research conducted in a regulated research institution, industrial setting or any work site other than home, school or field.

### FORM 2: BEFORE experimentation

#### Qualified Scientist Form (2)

May be required for research involving human participants, vertebrate animals, potentially hazardous biological agents, and hazardous substances and devices. Must be completed and signed before the start of student experimentation.

# 1. LAB COLLAB +

- Collaborations Snowball.
- Start small and watch it grow!
- Grants grow from student mentorships.





# WHAT LABS COULD WORK FOR YOU?

- What local Universities, Colleges or Industry Research Partners could you reach out to?

## 2. RESEARCH STATIONS

Introducing students to research stations and research scientists has been the most powerful and transformative experience I have provided for my students in my 12 years of teaching.

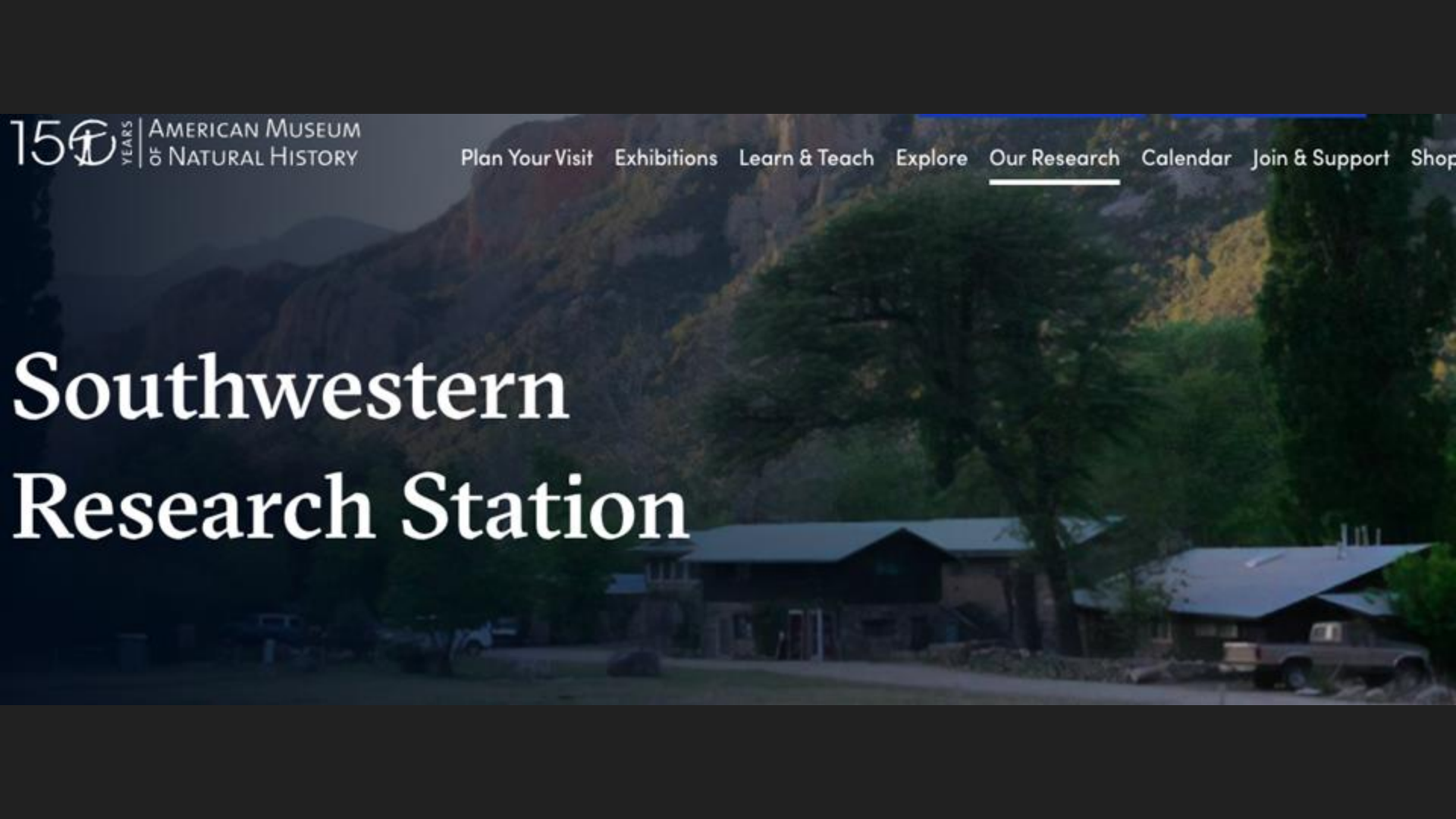
Many go on to pursue degrees and careers in STEM.

# SANITY



*Science & Nature in Tandem for Youth*

# Southwestern Research Station





# SANITY Founder: Dr. Margaret Wilch (aka The GOAT)



# SANITY PROGRAM

- 8 Day Summer Research Internship
- 1 Week @ Research Station, 1 day at school.
- Days 1-3 students attend field workshops with diversity of scientists.
- Days 4-7 student pairs complete independent research project and communicate findings at station.





# STUDENT COST: \$100

TOTAL COST:

\$420 (We pay \$320)

\$350 ROOM & BOARD

\$70 TRANSPORTATION (SSP \$)

-Subsidize with Tax Credit Donations

-If cost is prohibitive for underserved,  
we pay total cost as “scholarship”.



# TAX CREDIT FLYER

## SUPPORT **TUCSON HIGH** STUDENTS EXPLORE SKY ISLAND ECOLOGY



PLEASE HELP TUCSON HIGH STUDENTS PARTICIPATE IN OUR 13TH ANNUAL "SCIENCE AND NATURE IN TANDEM FOR YOUTH" (SANITY) – A PROGRAM WHERE STUDENTS EXPLORE NATURAL HISTORY, ECOLOGY, AND BIODIVERSITY WITH RENOWNED RESEARCH SCIENTISTS FROM ACROSS THE COUNTRY.

DONATE YOUR TAX CREDIT DOLLARS BY VISITING

[HTTPS://AZ-TUCSON-TAXCREDITS.INTOUCHRECEPTING.COM](https://az-tucson-taxcredits.intouchrecepting.com)

- CHOOSE **RESEARCH TAX CREDIT** AS THE RECIPIENT
- INDICATE SANITY IN THE MEMO SECTION
- VISIT **OUR BLOG** & **THIS ARTICLE** TO LEARN MORE

*"IN THE END WE WILL CONSERVE ONLY WHAT WE LOVE, WE WILL LOVE ONLY WHAT WE UNDERSTAND, AND WE WILL UNDERSTAND ONLY WHAT WE ARE TAUGHT." -BABA DIOUM*

QUESTIONS? CONTACT MR. JONAS: [JEREMY.JONAS@TUSD1.ORG](mailto:JEREMY.JONAS@TUSD1.ORG)

# SANITY DEMOGRAPHICS

SANITY DEMOGRAPHICS = SCHOOL DEMOGRAPHICS

YOU MUST BE DELIBERATE ABOUT DEMOGRAPHIC RECRUITMENT.

OFFER MINORITY STUDENTS “SPECIAL INVITATION TO APPLY” & SCHOLARSHIP IF COST IS PROHIBITIVE





# SANITY BENEFITS

**Connect with nature**

**Exercise**

**Connect with real scientists**

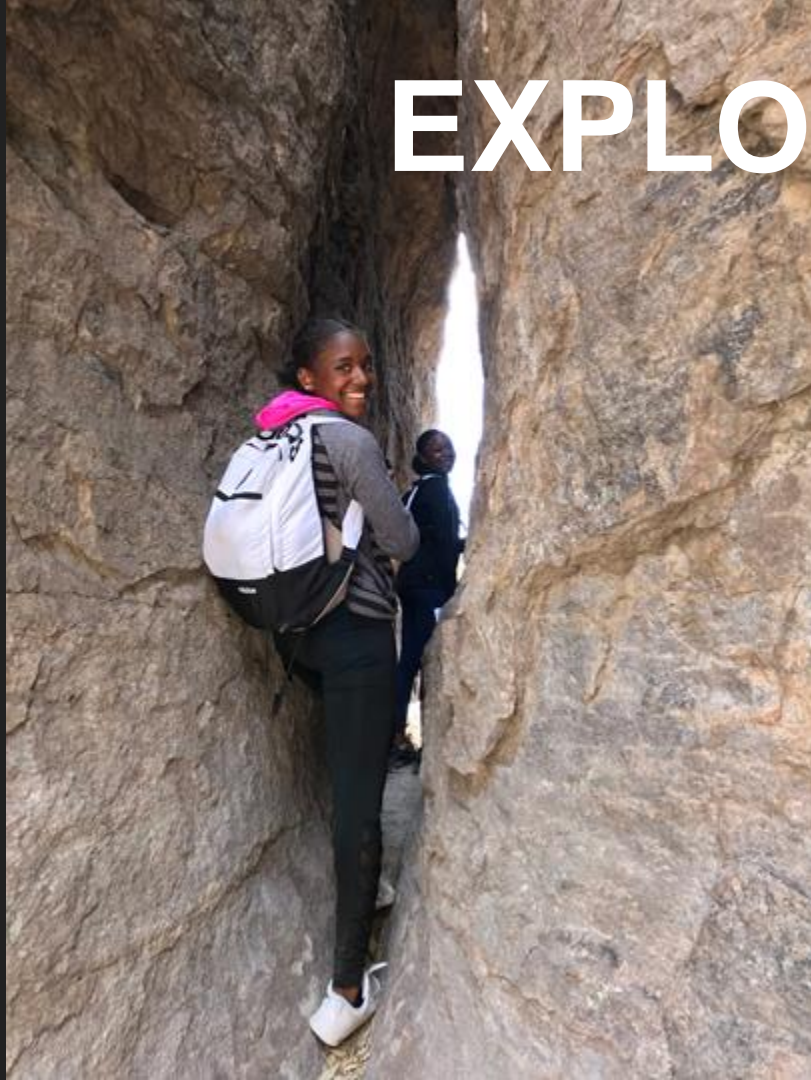
**Understand the connection between science and the environment**

**Empower students to ask questions and be curious about the world around them**

**Understand the fundamentals science, of asking questions and of developing ways to answer questions**



# EXPLORATION





# WONDER





# COLLABORATION

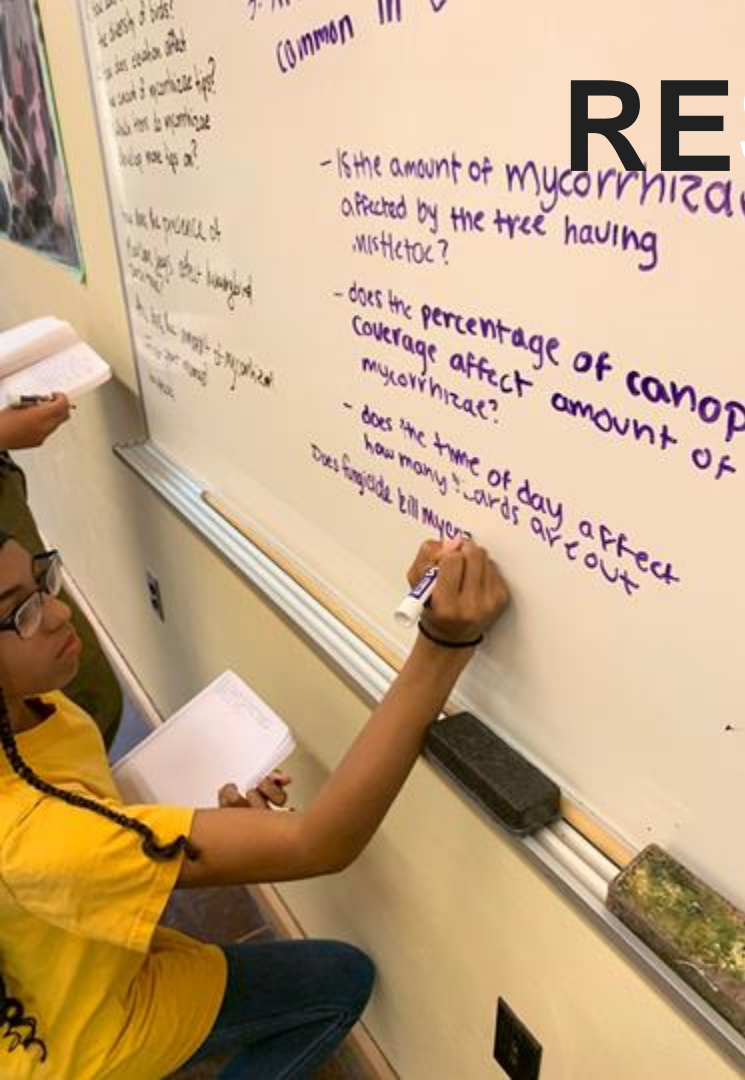


# DISCOVERY





# RESEARCH





# RUNNING THE SCIENCE GAME





# COMMUNITY



# 2. RESEARCH STATIONS

1. Let's find your closest 'local' research station!
2. Who can you rope in to help you develop a program?

<https://obfst.memberclicks.net/station-map>





# 3. RETs



1. Available for Biological Sciences, Engineering and Computer Science
2. \$PAID\$: Stipends range from \$5K-\$8K
3. Positions are not always easy to find - so ask University Research Groups!
4. Research Assistantships for High School Students (RAHSS)

# 3. RET @ RMBL: *Rocky Mountain Biological Laboratory*



# 3. RET @ RMBL:

*Rocky Mountain Biological Laboratory*



## Research:

Our team's research focuses on how plant-pollinator interactions, plant population dynamics, and the timing of biological events respond to climate change.



# 3. RET @ RMBL: *Rocky Mountain Biological Laboratory*



# 3. RET @ RMBL: *Rocky Mountain Biological Laboratory*





# 3. RET @ RMBL: *Rocky Mountain Biological Laboratory*



# 3. RETs



LET'S FIND AN RET FOR YOU!

<https://pathsup.org/workforce-development/k-12/ret/>

# QUESTIONS?

[jeremy.jonas@tusd1.org](mailto:jeremy.jonas@tusd1.org)

A close-up portrait of a man with curly brown hair and a beard, smiling broadly. He is wearing a blue and white plaid shirt. The background is a dark, neutral color.

AUGUST

A close-up portrait of the same man with curly brown hair and a beard, looking shocked or surprised. His eyes are wide open, and his mouth is open in an 'O' shape. He is wearing the same blue and white plaid shirt. The background is a dark, neutral color.

DECEMBER