



**2021-2022**

# ANNUAL REPORT

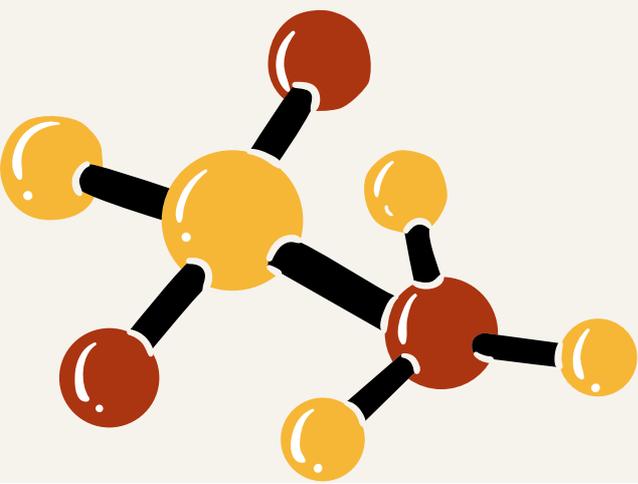


**SCIENCE IN OUR COMMUNITY PRESENTS**

# Table of Contents



<b>3</b>	<b>Mission and Vision Statement</b>
<b>4-6</b>	<b>This years events description</b>
<b>7</b>	<b>Volunteers Data</b>
<b>8</b>	<b>Participants Data</b>
<b>9-11</b>	<b>Titles of Lectures and Activities</b>
<b>12-14</b>	<b>List of K-12 Schools that participated</b>
<b>15</b>	<b>List of Higher Education and Day care programs that participated</b>
<b>16</b>	<b>Staff and Team Members</b>
<b>17</b>	<b>Next Steps</b>
<b>18</b>	<b>Acknowledgements</b>





## **MISSION STATEMENT:**

The Stan State Science in Our Community Outreach Program is dedicated to science education and public engagement. This program, supported by volunteer efforts of Stan State students, faculty and staff, provides STEM activities to educationally and economically disadvantaged students in the campus's service area.



## **VISION STATEMENTS:**

The Science in Our Community STEM Outreach Program seeks to:

- encourage the community to visit the local campus;
- encourage students to be engaged in the STEM subjects (Science, Technology, Engineering, and Mathematics);
- encourage local students to attend Stan State, consider a STEM major, especially those populations underrepresented in the STEM Community (i.e. Hispanics and women);
- allow Stan State students to teach the community about science and its importance in society today;
- promote Science as lifelong learning for all citizens.

# STEM Ambassador

THE STEM AMBASSADOR PROGRAM IS A SUBSTANTIAL VOLUNTEER PROGRAM FOR UNDERGRADUATE STUDENTS IN STEM AND NON-STEM DISCIPLINES. THIS PROGRAM PROVIDES STAN STATE STUDENTS THE OPPORTUNITY TO DEVELOP LEADERSHIP AND TEAMWORK SKILLS AND THE ABILITY TO SHARE THEIR KNOWLEDGE OF SCIENCE GAINED IN THE CLASSROOMS WITH A K-12 AUDIENCE. INTERNSHIPS ARE ALSO AVAILABLE IF STUDENTS DESIRE TO EARN CREDIT FOR THEIR PARTICIPATION. IN ADDITION, STEM AMBASSADORS LEAD CLASSROOM ACTIVITIES FOR THE JUNIOR SCIENTIST AND SOLAR SUITCASE PROGRAM AND TAKE THE LEAD IN PREPARING AND CONDUCTING SCIENCE SATURDAY AND SCIENCE DAY ACTIVITIES.

## Science Day

**IN PERSON:** THE OPEN-HOUSE ENVIRONMENT WILL FEATURE ACTIVITIES FROM 10 A.M. TO 2 P.M. IN THE NARAGHI HALL OF SCIENCE, THE SCIENCE 1 BUILDING, THE GREENHOUSE, AND THE SUSTAINABLE GARDEN. THERE WILL ALSO BE TOURS OF THE TRANS-CALIFORNIA PATHWAY, AN OUTDOOR ARBORETUM FEATURING PLANT COMMUNITIES NATIVE TO A TRANSECT OF CALIFORNIA FROM THE CENTRAL VALLEY TO THE HIGH SIERRA. WITH MORE THAN 40 ACTIVITIES AVAILABLE, STUDENTS AND THEIR FAMILIES WILL RECEIVE A "PASSPORT TO SCIENCE" BOOKLET TO TRACK THEIR ACTIVITIES THROUGHOUT THE DAY.

**VIRTUAL:** THE EVENT IS WEEK-LONG IN WHICH PREK-12 CLASSROOMS CAN JOIN TO PARTICIPATE IN 30 TO 60 MINUTES STEM ACTIVITIES. SOME ACTIVITIES ARE IN DEMONSTRATION FORMAT, WHERE THE STUDENTS LEARN THE TOPIC AND SEE AN EXPERIMENT PERFORMED BY THE ACTIVITY LEADER. ANOTHER FORMAT INCLUDES LEARNING CONCEPTS AND THEN APPLYING THOSE CONCEPTS IN A HANDS-ON ACTIVITY THAT THE STUDENTS CAN FOLLOW ALONG WITH THE PRESENTER AS SCIENCE IN OUR COMMUNITY PROVIDES THE MATERIAL IN ADVANCE. THE FACULTY, STAFF, AND STEM AMBASSADORS ARE THE ONES WHO LED THESE ACTIVITIES.

## School Fairs

STEM AMBASSADORS AND OTHER STUDENT VOLUNTEERS TAKE TWO OR MORE STEM INTERACTIVE ACTIVITIES TO THE SCHOOL SITE. THEY WORK WITH THE K-12 STUDENTS AND THE COMMUNITY MEMBERS ON THESE ACTIVITIES WHILE ANSWERING THEIR QUESTIONS ABOUT THE SCIENCE CONCEPTS.

# Junior Scientist

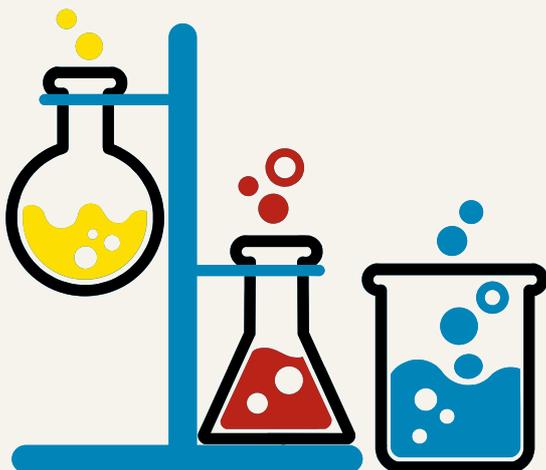
**IN PERSON:** THE JUNIOR SCIENTIST PROGRAM PROVIDES 4TH-GRADE STUDENTS WITH STEM CURRICULUM ENRICHMENT FOR THE LOCAL SCHOOLS FROM THE TURLOCK UNIFIED SCHOOL DISTRICT. STUDENTS ACCOMPANIED BY TEACHERS AND PARENTS VISIT STANISLAUS STATE TO PARTICIPATE IN THREE-HOUR-LONG SCIENCE LESSONS FREE OF COST. THESE SCIENCE ACTIVITIES REINFORCE THE IN-CLASS CURRICULUM AND PROVIDE A HANDS-ON APPROACH TO LOCALIZED ISSUES AND PROBLEMS. THE PROGRAM ALIGNS WITH THE NEXT GENERATION SCIENCE STANDARDS (NGSS). THIS PAST YEAR, STUDENTS FROM CUNNINGHAM ELEMENTARY, WAKEFIELD ELEMENTARY, AND OSBORN ELEMENTARY SCHOOLS CAME TO THE STAN STATE CAMPUS FOR SATURDAY ACTIVITIES OF STEM ENRICHMENT.

**VIRTUAL:** THE PROGRAM WORKS VIRTUALLY WITH CUNNINGHAM ELEMENTARY, WAKEFIELD ELEMENTARY, AND OSBORN ELEMENTARY. IN WHICH STEM AMBASSADOR TAKES THE LEAD ON ONE-HOUR SCIENCE LESSONS FREE OF COST. WE ALSO PROVIDE THE SCHOOLS WITH MATERIAL ALLOWING STUDENTS HANDS-ON EXPERIENCE. WHILE DOING THIS, WE CONTINUE TO ALIGN THE IN-CLASS CURRICULUM.

## Science Saturday

**IN PERSON:** THE SCIENCE SATURDAY INVOLVES THREE HOURS OF EXPLORING ONE SCIENCE DISCIPLINE WITH TWO TO THREE ACTIVITIES FOCUSED ON THAT DISCIPLINE. THE FACULTY, STAFF, AND STEM AMBASSADORS LEAD THESE ACTIVITIES.

**VIRTUAL:** IT INVOLVES ONE TO THREE HOURS OF EXPLORING ONE SCIENCE DISCIPLINE VIRTUALLY THROUGH ZOOM. THIS ACTIVITY ALSO ALLOWS PARTICIPANTS TO FOLLOW THE ACTIVITIES ALONG WITH THE PRESENTERS.



# Solar Suitcase

**IN PERSON:** UNDERTAKEN IN PARTNERSHIP WITH THE WE SHARE SOLAR PROGRAM. THE SOLAR SUITCASE PROGRAM HELPS MIDDLE SCHOOL STUDENTS DEVELOP THEIR SOLAR SYSTEMS AND ENHANCES THE LEARNING OF GREEN ENERGY SOURCES. THEN DEPLOYED, THE STUDENT-BUILT SYSTEMS TO AREAS LACKING ELECTRICAL UTILITIES, GENERALLY SCHOOLS AND REFUGEE CAMPS. ALSO, MIDDLE SCHOOL STUDENTS LEARN THE GLOBAL ASPECT OF ENERGY ACCESS AND THE SOCIAL ISSUES ACCOMPANYING THIS SUBJECT. A GROUP OF STUDENT VOLUNTEERS LEADS THIS ACTIVITY BY GOING ONTO THE SCHOOL SITE TO WORK WITH THE STUDENTS ON THIS PROJECT. WE HAVE PREVIOUSLY WORKED WITH DUTCHER MIDDLE SCHOOL AND TURLOCK JUNIOR HIGH SCHOOL.

**VIRTUAL:** SOLAR SUITCASE PROGRAMS CONTINUE WITH THE PARTNERSHIP OF THE WE SHARE SOLAR PROGRAM. IN THE VIRTUAL FORMAT, ONE STEM AMBASSADOR TAKES THE LEAD IN DOING MULTIPLE SESSIONS WITH THE MIDDLE SCHOOL STUDENTS. THESE LESSONS GO FROM CONCEPT TO BUILDING THE SOLAR SUITCASE AND THEIR SOLAR SUITCASE SYSTEM. SCIENCE IN OUR COMMUNITY PROVIDES THE SCHOOL WITH MATERIALS FOR EACH SESSION, SO THE STUDENTS CAN FOLLOW ALONG AND DO HANDS-ON ACTIVITIES. WE WORKED WITH DUTCHER MIDDLE SCHOOL FOR OUR FIRST VIRTUAL SOLAR SUITCASE IN THE PAST YEAR.

# Lesson Planning Workshop

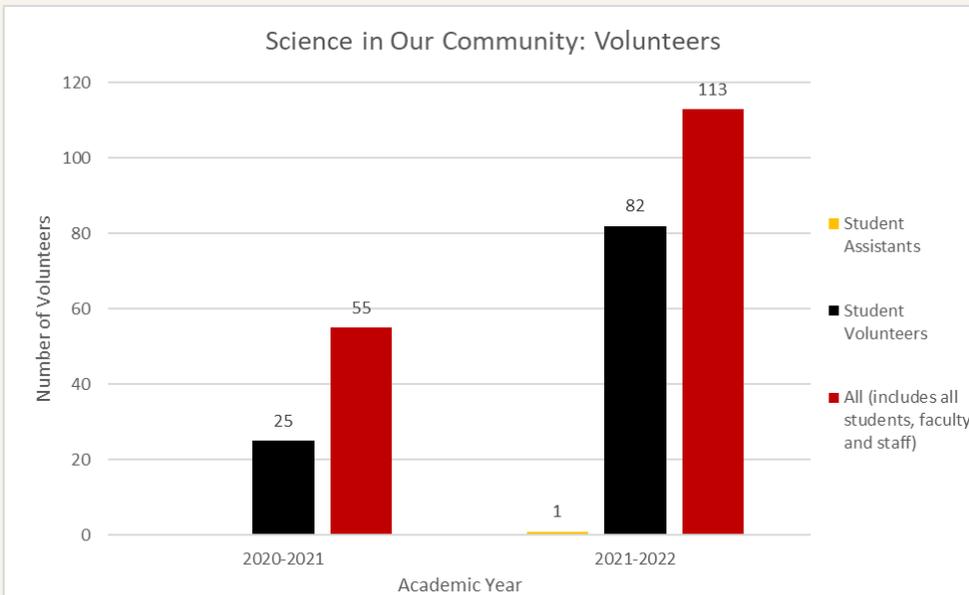
**IN PERSON:** LESSON PLANNING WORKSHOPS ARE THREE-HOUR-LONG WORKSHOPS THAT FOCUS ON STEM EDUCATION. THE WORKSHOP GIVES STAN STATE STUDENTS INTERESTED IN PURSUING A CAREER IN TEACHING SCIENCE SUBJECTS THE OPPORTUNITY TO FAMILIARIZE THEMSELVES WITH CURRENT STATE TEACHING STANDARDS AND HOW TO ENGAGE K-12 STUDENTS EFFECTIVELY AND EFFICIENTLY AT DIFFERENT GRADE LEVELS. IN ADDITION, PARTICIPATING STUDENTS RECEIVE HELPFUL TOOLS SUCH AS LESSON PLANNING TEMPLATES AND HOW TO NAVIGATE THE NCSS (NEXT GENERATION SCIENCE STANDARDS) WEBSITE, WHICH THEY CAN OPTIMIZE WHEN WORKING WITH STUDENTS IN THE CLASSROOM.

**VIRTUAL:** LESSON PLANNING WORKSHOP CONTINUES TO FOCUS ON STEM EDUCATION AND PROVIDES TOOLS SUCH AS TEMPLATES AND NAVIGATION TOOLS FOR NEXT GENERATION SCIENCE STANDARDS. IN THIS FORMAT, THE WORKSHOPS ARE AN HOUR LONG, WHERE THE PRESENTER CONNECTS WITH THE PARTICIPANTS THROUGH ZOOM.

# Volunteers Data

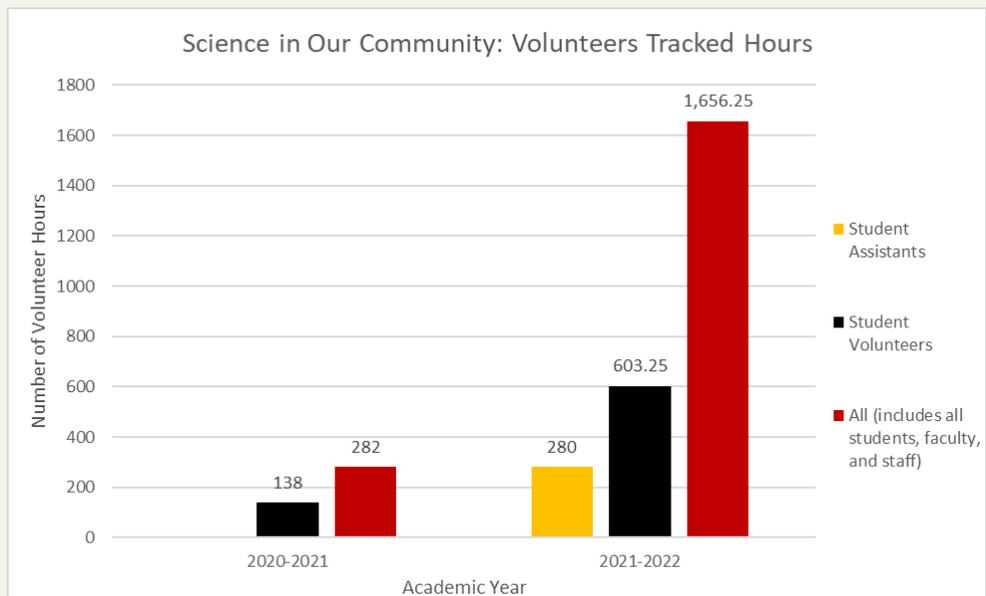
**DUE TO THE ONGOING PANDEMIC, STARTING THE ACADEMIC YEAR OF 2020-2021, ALL THE SCIENCE IN OUR COMMUNITY ACTIVITIES WERE PRESENTED IN THE VIRTUAL MANNER, SUCH AS ZOOM, THE SCIENCE IN OUR COMMUNITY WEBPAGE, AND OUR SIOC YOUTUBE CHANNEL. THIS ENSURED THAT WE WERE FOLLOWING THE GUIDELINES OF CENTER OF DISEASE CONTROL AND PREVENTION (CDC) AND ENSURE SAFETY OF THE STUDENTS, FACULTY, STAFF VOLUNTEERS, AND THE COMMUNITY MEMBERS.**

**THUS, THE SCIENCE IN OUR COMMUNITY PROGRAM HAS BEEN CONDUCTED IN A VIRTUAL MANNER FOR THE PAST TWO YEARS.**



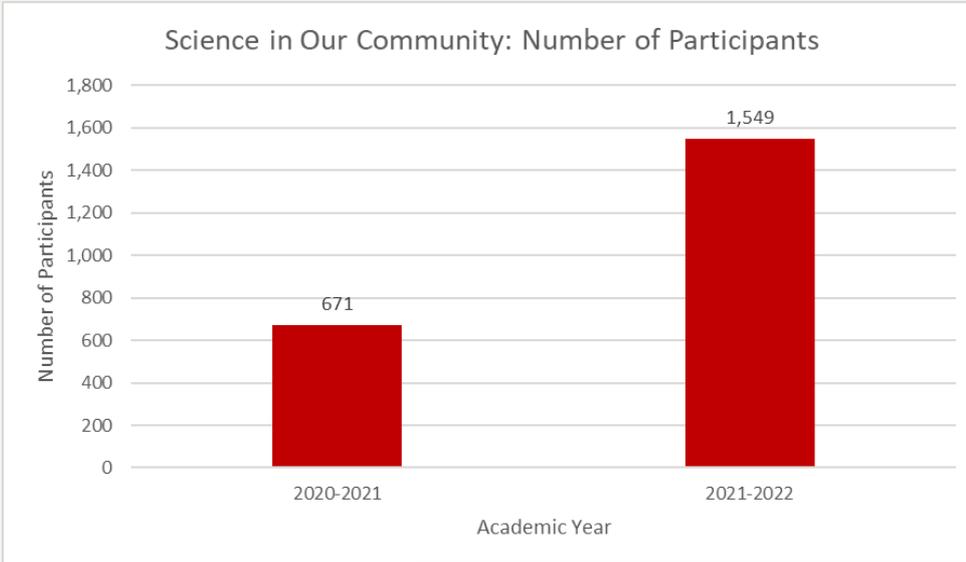
**FORM ACADEMIC YEAR 2020-2021 TO 2021-2022, SCIENCE IN OUR COMMUNITY HAD AN INCREASE OF MORE THAN 105% STAN STATE STUDENT VOLUNTEERS AND 30 COLLEGE OF SCIENCE'S PROFESSORS AND STAFF MEMBERS.**

**ALL OF THE VOLUNTEERS CONTRIBUTED MORE THAN 1,656 HOURS OF VOLUNTEER TIME, AN INCREASE OF OVER 487% FROM PREVIOUS YEAR. THESE VOLUNTEERS CONTRIBUTED ABOUT \$58,897 WORTH OF VOLUNTEER TIME\*\*.**

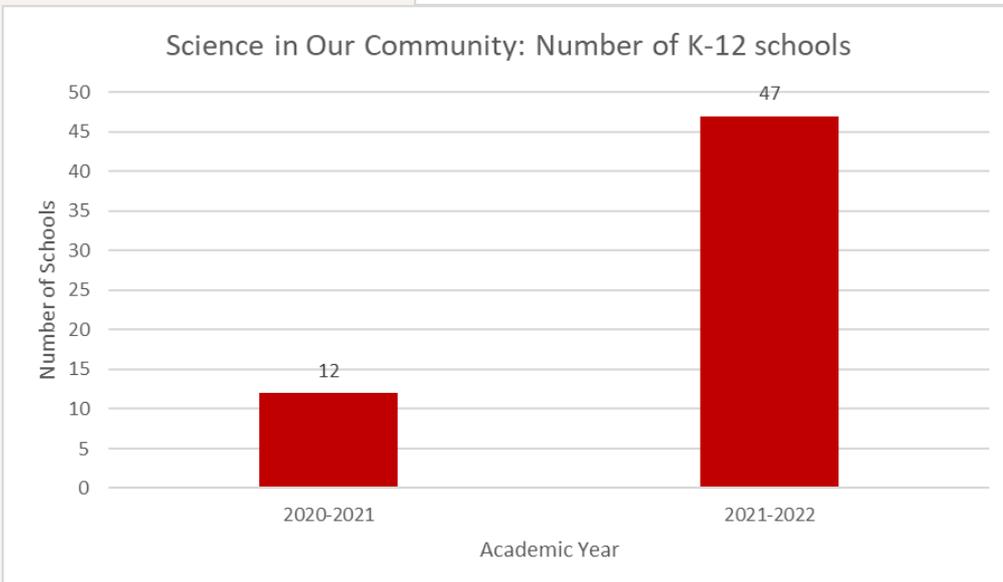
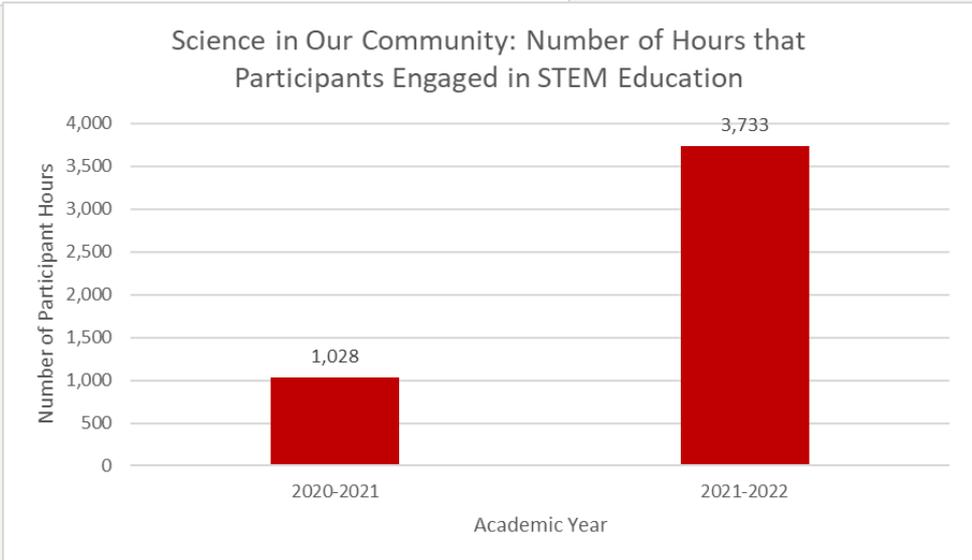


# Number and hours of Participants Engaged in STEM Education

**SCIENCE IN OUR COMMUNITY SERVED MORE THAN 1,549 PARTICIPANTS IN OUR COMMUNITY, WHICH IS AN INCREASE OF MORE THAN 130% FROM THE PREVIOUS YEAR. THE NUMBER OF PARTICIPANTS REPRESENT MORE THAN 2% OF \*\*POPULATION IN TURLOCK IN 2022.**



**THE PARTICIPANTS RECEIVED MORE THAN 3,733 HOURS OF FREE HANDS-ON STEM INSTRUCTION. THIS IS AN INCREASE OF MORE THAN 263% HOURS OF FREE HANDS-ON STEM INSTRUCTION.**



**THE PROGRAM SERVED OVER 47 SCHOOLS IN OUR REGION.**

\*\*TURLOCK, CALIFORNIA POPULATION 2022 (DEMOGRAPHICS, MAPS, GRAPHS) (WORLDPOPULATIONREVIEW.COM)

# Titles of Lectures and Activities

1	<b>MAKE A MARKER MAN FLOAT</b>
2	<b>MOLECULES AND HOW THEY WORK: POLARITY AND DIFFERENT TYPES OF BONDING</b>
3	<b>FAST OR SLOW...CHEMISTRY MAKES IT GO!</b>
4	<b>ASTRONOMY NIGHT: MOON, VENUS, JUPITER, AND SATURN</b>
5	<b>BUILD A WIND POWERED CAR</b>
6	<b>HOW TO MAKE ROCK CANDY</b>
7	<b>BUILDING PROTEINS</b>
8	<b>EXPLORING BIOLOGY</b>
9	<b>ASTRONOMY NIGHT: MOON AND ORION NEBULA</b>
10	<b>FUN WITH SCIENCE NIGHT!: OZOBOTS</b>
11	<b>FUN WITH SCIENCE NIGHT!: COLORING PAGES</b>
12	<b>SOLAR SUITCASE: GLOBAL ENERGY/ACCESS</b>
13	<b>SOLAR SUITCASE: SOLAR 101</b>
14	<b>SOLAR SUITCASE: BASIC ELECTRICITY FOR SOLAR</b>
15	<b>SOLAR SUITCASE: SYSTEM WIRING</b>
16	<b>SOLAR SUITCASE: SYSTEM ASSEMBLY</b>
17	<b>SOLAR SUITCASE: DESIGN YOUR OWN SOLAR SYSTEM</b>
18	<b>SCIENCE DAY: BUG TO DYE FOR!</b>

# Titles of Lectures and Activities

19	<b>SCIENCE DAY: CELEBRATE EARTH MONTH</b>
20	<b>SCIENCE DAY: CHEMISTRY GOES POP!</b>
21	<b>SCIENCE DAY: HEALTHY LIFESTYLE</b>
22	<b>SCIENCE DAY: INTRODUCTION TO ARTIFICIAL INTELLIGENCE (A.I.)</b>
23	<b>SCIENCE DAY: NURSING SIMULATION LAB</b>
24	<b>SCIENCE DAY: PAPER TOWER</b>
25	<b>SCIENCE DAY: PRESSING PLANT SPECIMENS</b>
26	<b>SCIENCE DAY: SOLAR OBSERVATION</b>
27	<b>SCIENCE DAY: VOLCANO MAKING-CHEMICAL REACTIONS</b>
28	<b>SCIENCE DAY: EFFICIENT VISUALIZATION OF BIG DATA ANALYSIS USING SHINY APPLICATION</b>
29	<b>SCIENCE DAY: ARTIFICIAL INTELLIGENCE ROBOT PROGRAMMING WITH COZMO</b>
30	<b>SCIENCE DAY: HOW DRONES FLY</b>
31	<b>SCIENCE DAY: SENSORS AND DRONES</b>
32	<b>SCIENCE DAY: INTRODUCTION TO VIRTUAL REALITY</b>
33	<b>SCIENCE DAY: ORAL HEALTH AND HYGIENE</b>
34	<b>SCIENCE DAY: CHARACTER STRENGTHS AND AFFIRMATIONS</b>

# Titles of Lectures and Activities

35	SCIENCE DAY: PAPER BRIDGE CONSTRUCTION
36	SCIENCE DAY: MASTERMIND
37	SCIENCE DAY: SOUND WAVES AND MUSIC
38	SCIENCE DAY: KRYPTO! (CARD GAME)
39	SCIENCE DAY: 4 WAY COUNTDOWN-JR. VERSION
40	SCIENCE DAY: 4 WAY COUNTDOWN
41	SCIENCE DAY: HANG 10
42	SCIENCE DAY: MATCHSTICKS PUZZLES
43	SCIENCE DAY: PTC: TASTE TEST
44	HOW TO MAKE WATER WALK?
45	PROJECT 13: CELL-BAGGY LAB
46	PROJECT 13: ANIMAL LAB
47	PROJECT 13: SUSTAINABLE GARDEN TOUR

**36 activities of these 47 were recorded and are available on YouTube and the Science in Our Community Page**

## K-12 Schools that Participants Came From

1	<b>ASPIRE ARTS AND SCIENCE ACADEMY</b>
2	<b>BRET HARTE ELEMENTARY SCHOOL MODESTO</b>
3	<b>CARROLL FOWLER ELEMENTARY SCHOOL</b>
4	<b>CHRYSLER ELEMENTARY SCHOOL</b>
5	<b>CONNECTING WATERS CHARTER SCHOOL CENTRAL VALLEY</b>
6	<b>CREEKSIDE MIDDLE SCHOOL</b>
7	<b>CROWELL ELEMENTARY SCHOOL</b>
8	<b>CUNNINGHAM ELEMENTARY SCHOOL</b>
9	<b>DAN SAVAGE MIDDLE SCHOOL</b>
10	<b>DENNIS EARL ELEMENTARY SCHOOL</b>
11	<b>DUTCHER MIDDLE SCHOOL</b>
12	<b>EMPIRE OAKS ELEMENTARY SCHOOL</b>
13	<b>EVELYN HANSHAW MIDDLE SCHOOL</b>
14	<b>FRED C BEYER HIGH SCHOOL</b>
15	<b>GEORGE MCPARLAND SCHOOL</b>
16	<b>GRATTAN ELEMENTARY SCHOOL</b>
17	<b>HANSHAW MIDDLE SCHOOL</b>
18	<b>HICKMAN CHARTER SCHOOL</b>

## K-12 Schools that Participants Came From

19	HICKMAN ELEMENTARY SCHOOL
20	JAMES C ENOCH'S HIGH SCHOOL
21	JOHANSEN HIGH SCHOOL
22	JOHN MUIR ELEMENTARY SCHOOL
23	JULIEN ELEMENTARY SCHOOL
24	KEYES TO LEARNING CHARTER SCHOOL
25	KOLBE ACADEMY AND TRINITY PREP
26	LAS PALMAS ELEMENTARY SCHOOL
27	LUCAS ELEMENTARY DUAL LANGUAGE ACADEMY
28	MAE HENSLEY JUNIOR HIGH SCHOOL
29	MEDEIROS ELEMENTARY SCHOOL
30	OSBORN ELEMENTARY SCHOOL
31	PATRICIA KAY BEAVER ELEMENTARY SCHOOL
32	PITMAN HIGH SCHOOL
33	PRESCOTT JUNIOR HIGH SCHOOL
34	RIVERBANK LANGUAGE ACADEMY

## K-12 Schools that Participants Came From

<b>35</b>	<b>SINAI ACADEMY YESHIVAH HIGH SCHOOL</b>
<b>36</b>	<b>SONOMA ELEMENTARY SCHOOL</b>
<b>37</b>	<b>ST. STANISLAUS CATHOLIC SCHOOL</b>
<b>38</b>	<b>TURLOCK JUNIOR HIGH SCHOOL</b>
<b>39</b>	<b>VIRGINIA PARKS ELEMENTARY SCHOOL</b>
<b>40</b>	<b>W VERNE MCKINNEY ELEMENTARY SCHOOL</b>
<b>41</b>	<b>WAKEFIELD ELEMENTARY SCHOOL</b>
<b>42</b>	<b>WALNUT ELEMENTARY EDUCATION CENTER</b>
<b>43</b>	<b>WALNUT GROVE ELEMENTARY SCHOOL</b>
<b>44</b>	<b>WALTER M BROWN ELEMENTARY SCHOOL</b>
<b>45</b>	<b>WHITMORE CHARTER HIGH SCHOOL</b>
<b>46</b>	<b>WILSON ELEMENTARY SCHOOL</b>
<b>47</b>	<b>YOLO MIDDLE SCHOOL</b>

## Other Institutes that Participants Came From

<b>1</b>	<b>UNIVERSITY OF CALIFORNIA, MERCED</b>
<b>2</b>	<b>SAN JOSE STATE UNIVERSITY</b>
<b>3</b>	<b>SAN JOSE CITY COLLEGE</b>
<b>4</b>	<b>CALIFORNIA STATE UNIVERSITY, STANISLAUS</b>

## Day Care Program that Participants Came From

<b>1</b>	<b>CALIFORNIA STATE UNIVERSITY, STANISLAUS-CHILD DEVELOPMENT CENTER</b>
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# Staff & Team Members

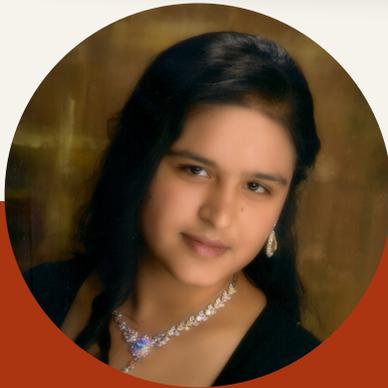
THE AWESOME PEOPLE BEHIND THIS PROGRAM



**DR. MARK GROBNER**  
Science in Our Community,  
Faculty Director



**JULIE FOX**  
Office of Service Learning,  
Director



**SUNPREET KAUR**  
STEM and Internship  
Outreach Coordinator



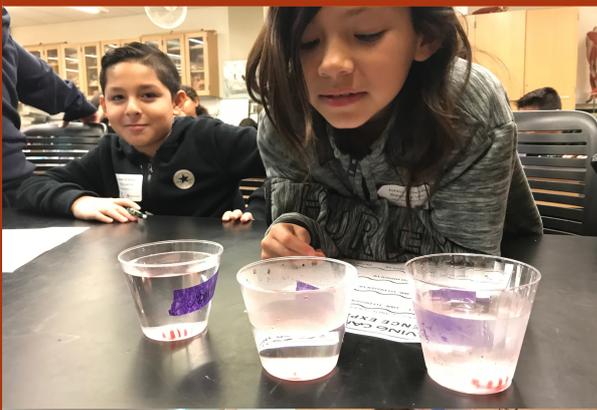
**CHELSEA FLORES**  
AmeriCorps CSU STEM  
VISTA



**BREANNA MCINTYRE**  
Administrative Analyst

# Next Steps

**In 2022-2023, the Science in Our Community program will continue to offer programs such as Junior Scientist, Science Saturday, Science Day, and more. The program will also work with the Safety & Risk management office to bring some events back in person while also continuing in a virtual capacity. Lastly, the program will focus more on grants to support the program to continue providing the students and community with these opportunities.**



## Junior Scientist & Science Saturday

**The Junior Scientist program we will continue to offer in a virtual format for the fall semester. At the same time, we will work towards bringing Science Saturdays in person.**



## Science Day

**Work with Safety & Risk, Events, Facilities, and other offices to determine how to bring Science Day back in person.**



## Grants

**We will work with the Steering Committee Members and other faculty members to find grants that align with the Science in Our Community program.**

# Acknowledgements

Listed below are names of those who supported the Science in Our Community throughout this past year in making these events possible:

- Science in Our Community Steering Committee Members
- Teacher Recruitment and Retention Program
- Dr. Mark Grobner
- Dr. Oddmund Myhre
- Alfredo Vargas
- Student Volunteer- Mahnoor Raza
- STEM Ambassadors and Stan State Student Volunteers
- Stan State Science Faculty Volunteers
- Other Stan State Staff members
- Stan State Student STEM Clubs

**We thank everyone for their continued support to the Science in Our Community Program.**

