

**Workforce Development:
Best Practices and Innovative Solutions for Malheur County**

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Our Region



Total population
30,421

Rural population
48%

Net migration, 2010-2017
(per 1,000 population)
-13 Highest in the state

Population by race/ethnicity

White:	61.7%
Latino:	33.1%
African American:	0.9%
Asian:	1.6%
Am Indian/Alaska Native:	0.7%
Native Hawaiian/Pacific Islander:	0.1%
Multiracial:	1.8%
Other Race:	0.1%

Median income

Malheur	\$37,112	Ranks 34th
Oregon	\$56,119	

Source: Oregon By the Numbers 2019

Child Poverty

Malheur	Oregon
36.8% (Rank #2)	19%

Children experiencing poverty are:

- Less likely to be successful in school
- Have greater difficulty accessing the job market later in life

Poverty can limit a child's educational, social, and personal development due to more limited access to opportunities.

Source: Oregon By the Numbers 2019

Challenges

1. Limited opportunities
2. Frontier schools have limited staff size and resources
3. Declining Interest in Math & Science in the Middle School Years



Partners



Aviation Learning Center



School Districts of Malheur County

Ontario Municipal Airport

Vale Fire & Ambulance

University of Idaho Extension

Strengthen industry and Career Technical Education (CTE) partnerships that increase graduation rates with students who are prepared and on track to pursue college and career pathways

Hands-on, interactive industry field days

Main goals:

- Increase interest in STEM-related subjects and skills through hands-on, out-of-school experiences
- Connect to careers, pathways, & workforce



Serving the 7th graders of Malheur County



"This is an EXCEPTIONAL way to help kids connect to careers through hands-on sessions."

~L. Martinez

Connecting with Health Care Professionals



"The best part of the day was when the professionals told the students how important math skills are in the work they do. It reinforces what we keep telling them in the classroom."

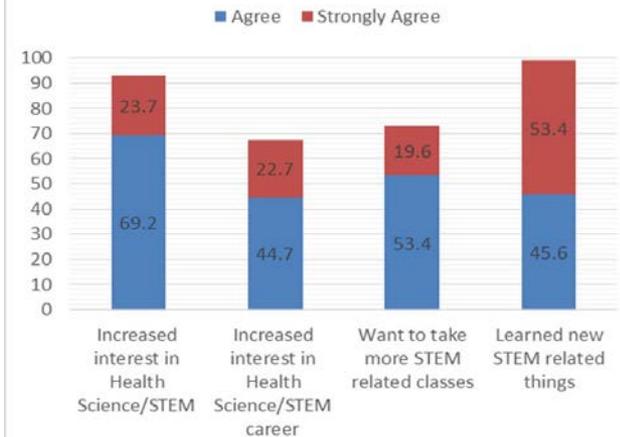
~R. Hunter



MY Aviation STEM Field Day Serving the 8th graders of Malheur County



"A person flying an airplane was something I only thought I could see on TV, it was never an option for me. After MY Aviation Field Day, I learned I can be anything I want to be, even if it's not a typical career. Aviation is not a fantasy, but a reality." ~Student



MY Health Science Day
received the
National Award for Workforce Development
from the National Association of Extension 4-H Agents



MY Aviation Field Day received the
**National Award for Excellence in Science,
Technology, Engineering
and Math Programing**
from the National Association of Extension 4-H Agents



These field days have been:

- Expanded to two-day events in order to serve more students
- Replicated in other counties
- Expanded through summer STEM camps



The collective impact of organizations working together is powerful and transformational.
~ Dr. Lindsey Shirley

MY Summer STEM Camps



**FRONTIER
STEM
HUB**
SCIENCE TECHNOLOGY ENGINEERING MATH

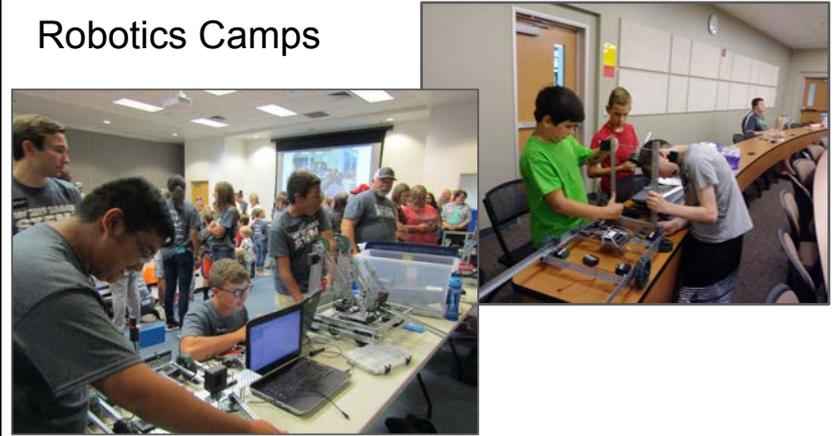


**Oregon State
University**

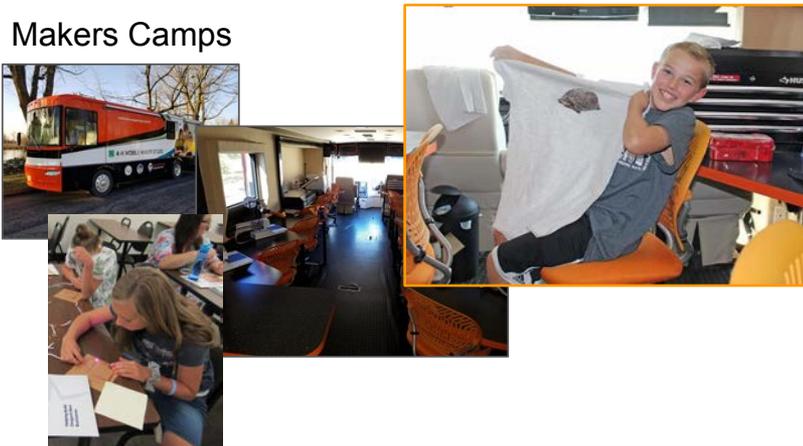
Aerospace Career Exploration (ACE) Academy



Robotics Camps



Makers Camps



Family and Community Engagement



Chief Science Officers (CSOs) International Leadership Program



CSOs are 6th to 12th grade student who demonstrate interest in STEM, innovation and advocacy and are selected by their peers to represent their schools.

The Chief Science Officers™ (CSO) Program encourages student voice by placing youth in the center of STEM experiences, career exploration events and community conversations.

What are the goals of CSOs?

- Create a pipeline of diverse STEM leaders
- Enhance communication and collaboration between CSOs
- Increase student voice in STEM conversations
- Enrich student STEM culture and STEM career awareness and connections



Next Steps

Development and implementation of:

1. Mobile makerspaces to serve frontier school districts
2. Student internships through Malheur Works

Outcomes:

- 21st Century & Professional Skills
- Growth mindset

Resulting in a workforce ready population



Malheur Works

Questions



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Malheur Youth (MY) Health Science Day: *Inspiring Future Health Professionals*

Malheur County seventh grade youth attend an educational program to increase their knowledge in science, technology, engineering, and math, as it relates to careers in health science.

The Situation

Current statistics show the educational system needs to improve the number of youth who pursue careers and academics in science, technology, engineering, and mathematics (STEM) in order to remain competitive in the global marketplace (NRC, 2010). The 2010 *Rising Above the Gathering Storm Revisited* report, indicates that our future economy and the creation of jobs will be directly tied to innovation derived from advances in science and engineering. “While only four percent of the nation's work force is composed of scientists and engineers, this group disproportionately creates jobs for the other 96 percent” (NRC, 2010 p.2-3).

To address this need, it is critical to engage youth in both formal and non-formal education. Current research states: non-formal, or out of school instructional opportunities, help make STEM concepts more real to youth and provide a mix of engaging and interesting activities to enrich STEM instruction (Hoachlander & Yanofsky, 2011).



Treasure Valley Community College's Professor Weber teaches real-world mathematics to youth participants.

Our Response

Frontier STEM Hub-Malheur ESD, Oregon State University Extension, and Eastern Oregon Career Technical Education (CTE) Program partnered with Treasure Valley Community College, Saint Alphonsus Medical Center, and

the school districts of Malheur County to engage over 300 seventh grade youth in an educational field day that centered on health science related STEM careers. The program was possible due to funding and in-kind support from multiple resources. Research indicates that in order for out-of-school time instruction to be effective, programs should be student-centered, employ cooperative learning strategies, and foster skills and attitudes towards STEM through “authentic, hands-on activities” (Hussar, Schwartz, Boiselle, & Noam, 2008, p.8). The overall goal of the program was to increase the students’ knowledge, awareness, and aspirations toward STEM-related careers.

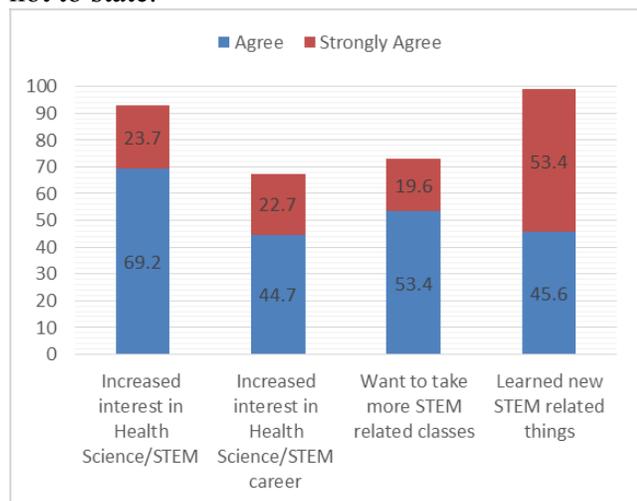
Malheur Youth Health Science Day presented youth with a wide range of health science career related options, to inspire them to discover their interests and passions, and empower them to choose the education pathway that can lead to success in high school, college, and their chosen career. To achieve this goal, students spent the day interacting with industry and community health professionals, college faculty, and nursing students, as they engaged in six hands-on sessions introducing them to STEM as it relates to health science. Educational sessions included such topics as career and college pathways, nutrition and health, basic medical care, real-life math using IV drip, Hands Only CPR, innovative technology using zSpace and Google Expedition, and panel presentations from health industry professionals. In addition to the sessions youth participants had the opportunity to engage one-on-one with college recruiters from various colleges.

Program Outcomes

Eighty-seven percent of the students who participated in the program completed a post-evaluation. As a result of the program, students reported in their evaluations a significant increase in interest and aspirations related to Health Science/STEM as displayed in the chart below.

Frequencies of participants “**Agreeing**” or “**Strongly Agreeing**” with Interest and Aspiration Items (N = 296)

Gender: Boys=49.3%, Girls 46.3%, 4.4% prefer not to state.



An educator reported, “The Health Science day was such a wonderful experience for the 7th graders! They were RAVING about what a great field trip it was. A lot of them said, ‘This is the best field trip I’ve ever been on.’ All of the volunteers and I, felt that it was a highly engaging and educational experience! Also, at the beginning of the day, when they were asked to raise their hand if they would like to go to college, I think about half of mine raised their hands. At one of our last sessions, they were asked that again, and every single student raised their hand. I can’t say enough what a beneficial day this was.”

Future

In addition to continued STEM school enrichment and out-of-school time programs, the Frontier STEM Hub-Malheur ESD, Oregon

State University Extension, and Eastern Oregon Career Technical Education (CTE) program will continue to partner with Poverty to Prosperity Regional Achievement Collaborative (RAC), Eastern Oregon Early Learning Hub, industry agencies, and schools in Malheur County. Together, we will develop more field days for youth and professional development for educators that focus on STEM related content and careers.

For More Information

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Community Partners

- Eastern Oregon Career Technical Education (CTE) Program
- Treasure Valley Community College
- Saint Alphonsus Medical Center
- School Districts of Malheur County
- Malheur County STEM Hub Advisory Board
- Oregon Department of Education-STEM Beyond School

Sources:

Hussar, K., Schwartz, S., Bioselle, E., & Noam, G. (2008). *Toward a systematic evidence-base for science in out-of-school time.* Retrieved from: <http://www.pearweb.org/research/pdfs/Assessment%20of%20Science%20in%20OST.pdf>

National Career Technical Education Initiative.

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National Research Council. (2010). *Rising above the gathering storm, revisited: Rapidly approaching Category 5.* Washington, DC: The National Academies Press.

Malheur Youth (MY) Aviation Field Day: *Explore the Journey of STEM*

Malheur County sixth grade youth attend an educational program to increase their knowledge in science, technology, engineering, and math, as it relates to careers in aviation.

The Situation

Current statistics show that traditional teaching methods are no longer satisfying the needs required by students to pursue careers in the fields of science, technology, engineering, and mathematics, also known as STEM careers. The solution to this problem may lie in the inclusion of inquiry-based or experiential learning. Learning through experience allows students to create questions themselves, leading to problems which may surface, and develop critical thinking skills to come up with a solution (Skelton, Seekers, Dormondy, & Hodgett, 2012). The traditional “Here is your problem, and this is how you find the solution” approach is no longer satisfactory for these students. In addition, the world’s largest aerospace company, Boeing has recently noted that over the next twenty years more than two million jobs will open in the aviation industry (Boeing, 2016).

To fill these positions, as explained by pilot Rich Stowell, experiential learning is extremely important to, “[Inspire] the next generation of skilled professionals for the aerospace industry using STEM-based programs” (Stowell, 2017).



Life Flight professionals share about careers related to their industry with youth participants.

Our Response

Thanks to the generous support of industry partners and the school districts of Malheur County, approximately 400 sixth-grade students were invited to spend the day at both Treasure Valley Community College (TVCC) and the Ontario Municipal Airport, hosted by Frazier Aviation, to investigate the various careers associated with aviation.

Oregon State University Extension-STEM Beyond School, Frontier STEM Hub-Malheur ESD, Frazier Aviation, and the Eastern Oregon Career Technical

Education Program (CTE), partnered with TVCC, University of Idaho Extension, and industry professionals to provide a six hour, out-of-school Aviation Field Day. The youth of Malheur County explored various Aviation STEM-related careers through an inquiry-based approach. Research has shown that using a hands-on approach is vital to promoting student engagement in a scientific investigation (Skelton, Seekers, Dormondy, & Hodgett, 2012). The overall goal of the program was to increase the students’ knowledge, awareness, and aspirations towards Aviation STEM-related careers.

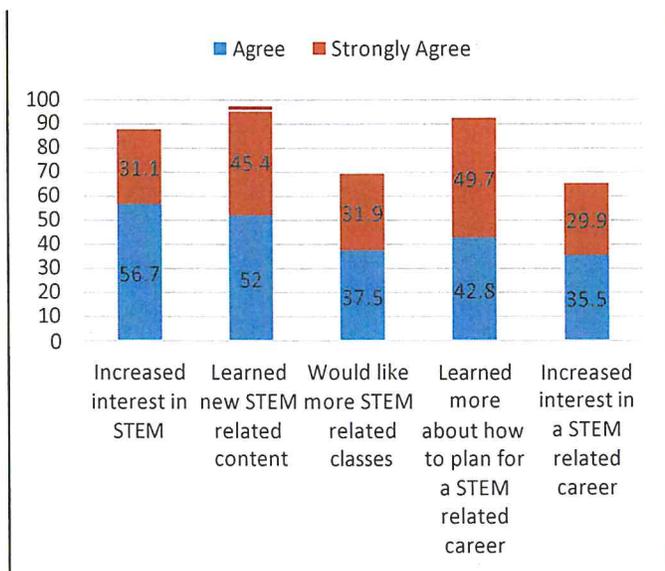
As noted by the OSU STEM Beyond School intern, Paiten Tensen, “Malheur Youth STEM Aviation Field Day allowed the youth of Malheur County to create a closer connection with the aviators in the sky who seemed so far away.” The students were encouraged to engage in conversation with those in the aviation industry and learn more about the various STEM careers in aviation, beyond being a pilot. While half of the students were at the Ontario Municipal Airport, the other half were at Treasure Valley Community College investigating their options for career and college, learning about robotics, and applying their knowledge in an engineering challenge to build a model rocket. Halfway through the day, the students switched locations and were invited to explore and make connections for the rest of the day at the event’s other location. Sessions including Mission Aviation, Life Flight, looking at the life of a commercial pilot through a virtual reality headset, learning about the principles of flight, and speaking with the Young Eagles took place at the airport, while a campus tour, presentations on college and career, and lessons in circuitry, robotics, and aviation engineering took place at TVCC.

The event provided the students with a tremendous opportunity to develop connections with aviators from all around the area. Tommy Frazier, owner and operator of Frazier Aviation Fixed Based Operations, points out, “This type of educational program is extremely needed in order to expose youth to the STEM-career opportunities aviation provides. The program was extremely well thought out, organized, and executed.”

Program Outcomes

Seventy-seven percent of the students who participated in the program completed a post-evaluation. As a result of the program, students reported in their evaluations a significant increase in interest and aspirations related to aviation/STEM as displayed in the chart below.

Frequencies of participants “Agreeing” or “Strongly Agreeing” with interest and aspiration items (N=307).



A student reported, “I learned a lot about aviation I had not known before. I had never thought of aviation as something that I could potentially do some day, it was only a dream for me, never a reality. A person flying in airplanes was something that I could only ever see on TV, never an option for me. After Aviation Field Day, I learned that I can be whatever I want to be, even if it is not a typical career. Aviation is not a fantasy, but a reality”. A teacher also exclaimed, “All of the presenters at the airport and college were fabulous. I just wanted to thank all the private citizens who worked so hard for our students. This was truly an educational experience for our students that they will long remember.”

Future

In addition to continued STEM school enrichment and out-of-school time programs, Oregon State University Extension, the Frontier STEM Hub-Malheur ESD, and Eastern Oregon CTE program will continue to partner with Frazier Aviation and aviation industry partners,

as well as the school districts of Malheur County. Together, we will continue to provide field days for youth and professional development that focus on STEM related content and careers.

For More Information

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Community Partners

- Frazier Aviation
- University of Idaho Extension-Montessa Young, Extension Educator
- Eastern Oregon CTE
- Malheur ESD-Chris Paulsen, College Advisor
- Treasure Valley Community College
- Frontier STEM Hub Advisory Board
- Oregon Department of Education-STEM Beyond School
- Mission Aviation
- Experimental Aircraft Association-Young Eagles
- Life Flight
- Pilots: Don Dressen, John Freeberg, Sheri “Sharki” Kontra
- Ace Academy- Rich Stowell
- Idaho Division of Aeronautics
- Vale High School VEX Robotics Team
- School Districts of Malheur County

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Stowell, Rich (2017). *Ace Academy Final Report*.