Cruces Creatives is a non-profit makerspace committed to fostering economic development, supporting the arts, protecting the environment, and advancing science and technology by connecting people with tools, training, and community to make practically anything.

In this report, you can learn how Cruces Creatives has pursued those missions in 2020. The report is organized into two main sections: 1) activity descriptions and 2) the 2020 Cruces Creatives budget.
CLASSES & EVENTS

From January 1 to March 14, 2020 (before events were paused for the pandemic), Cruces Creatives hosted 127 classes and events. Some highlights include:

- Model rocket building for kids, presented in partnership with Fellowship of Las Cruces-area Rocketry Enthusiasts (FLARE)

- 2020 Women’s Day Photo Project, in partnership with NMCO Media

- A five-workshop Photography Bootcamp, presented in partnership with the Doña Ana Photography Club

- Seed Shares, in collaboration with SeedShare Las Cruces

- First Friday Art Shows and All-Original Open Mics
This was a beginners' model rocket workshop for rockets that actually fly! The rocketeers of FLARE (The Fellowship of Las Cruces Area Rocketry Enthusiasts) recommend the workshop for youth eight years and up. Parents were welcome to join in. Each participant was able to build a model rocket and learn the principles of model rocket flight. The rocket kits for this workshop were sponsored by White Sands Federal Credit Union. All building supplies were provided.
International Women’s Day falls on March 8th, which is a day dedicated to honoring the achievements of women. As a company that celebrates diversity and equality, especially in the workplace, NMCO Media (a regular Cruces Creatives partner) wanted to help celebrate local women, specifically artists.

For Women’s day 2020, the NMCO team dreamed up a bright vivid desert-scape. With strategic hand-painted background, dramatic lighting, and modern composition, NMCO used the audiovisual room at Cruces Creatives to achieve a photo project that is alive with colorful Southwestern drama.
Photography Bootcamp

In a series of five photography classes, participants learned how to take great photos through discussions and exercises. Workshop content covered how cameras work and the multiple functions on a modern camera; lenses and their uses; composition, lighting, the “rules” of photography and when to break them; different photographic styles; and much more!

The boot camp series was open to the community, and anyone could attend for $5 per class.
PROGRAMS & SPECIAL COVID ACTIVITIES

Though the COVID pandemic closed Cruces Creatives, many of our programs continued. Additionally, we started several special COVID response efforts. A few of our highlights include:

- HAZLO Program
- The Velo Cruces Hub Community Bike Shop
- STEAM Team Kids Programming
- Public Heath Response with PPE Production
- Seeding Regenerative Agriculture Project
- Community Partners in Education
The Hazlo Program offers K-12 students in Dona Ana County the chance to work on projects they choose, with support from expert mentors, makerspace tools, and funding for supplies. Program highlights from before the pandemic program include the work of students from Las Montanas Charter High School to make a mental wellness room for their school, learning woodworking to make furniture and textiles to make pillows, weighted blankets, and furniture cushions, and the work of a middle school student to record her first album of original and cover songs in the Cruces Creatives audio room.
Since bicycle repair is classified as an essential service, makerspace partner Velo Cruces largely continued Hub programs through the pandemic, with PPE and social distancing requirements for safety.
The Cruces Creatives STEAM Team, made possible through the support of the New Mexico STEM Outreach Center, offers students hands-on learning experiences in science, technology, engineering, arts, and mathematics.

Before the pandemic, four classes of students were able to meet in person with STEAM Team instructors and makerspace tools, completing smaller projects including circuit tiles, light-up felt aliens (laser cut from student-created SVG files), stomp rockets, and rubber band cars. The smaller projects led into larger projects: for instance, in the interactive alebrije project, students used animals native to our area as inspiration for designing their own mythical creature, then they engineered an armature for a paper mâché sculpture, soldered their own LEDs, wired touch sensors, and then programmed their sculpture’s responses using a Makey Makey and Scratch, a coding program for youth.
When the pandemic hit, the STEAM Team transitioned to virtual programs and helped make sure students throughout the city could keep learning. Additionally, the STEAM Team instructors designed and distributed maker kits through the Las Cruces Public Schools, through the makerspace, and through community partners including Families and Youth, Inc., Boys & Girls Club, and La Casa de Familia to engage even more students who were learning from home.
To help keep our community safe during the pandemic, especially during the early stages when personal protective equipment (PPE) was in very short supply, Cruces Creatives dedicated its tools and creative community to making over 4,500 units of PPE—including face shields, fabric face masks, and ear savers—for medical personnel and front-line workers throughout Las Cruces. To ensure the efficacy of the PPE, designs were tested and approved by personnel at Memorial Medical Center. Over 70 community members volunteered their time and expertise to make this program successful.

In preparation for the reopening of schools, Cruces Creatives also made 3,366 face shield and scarf units for the Las Cruces Public Schools, using the laser cutter, textile equipment, and 3D printers at the makerspace.
Seeding Regenerative Agriculture Project

With generous support from the Santa Fe Community Foundation, the McCune Foundation, and the Thornburg Foundation, Cruces Creatives coordinates the Seeding Regenerative Agriculture project, which brings farmers, ranchers, and support organizations together to share knowledge and launch projects that make sustainable agriculture and regenerative agriculture (a type of sustainable agriculture focused on soil health) easier to practice. Since cooperative in-person work was paused by the pandemic, project attention turned to technology development, economic development, and on-field scientific research.
In response to requests from farmers and ranchers, Cruces Creatives developed working prototypes for several technologies, then shared the technologies with producers for field-testing and feedback. The developed technologies include:

- **Cloud-Connected Soil Temperature Sensors**
- **Seed Cleaners**
- **A Contour-Line Plow and Inoculation System for Beneficial Microbes**
- **Cloud-Connected Soil Temperature Sensors**
When revisions based on producer feedback are finished, Cruces Creatives will offer the plans for the technologies as open-source designs. For farmers and ranchers who are less interested in building the technologies from plans, Cruces Creatives will also offer fully-assembled technologies for sale.

The farmers and ranchers in the project also stayed hard at work on new business partnerships formed through the project, including initiatives for freeze-dried produce, direct beef and pork sales, and the pressing of orchard seconds (ugly fruit) into cider.

Also, in partnership with the New Mexico State University Sustainable Agriculture Science Center at Alcalde, the first on-field research project in the program has started at Pata Viva Farm, with the goal of studying how cover cropping and beneficial soil microbes affect indicators of soil health, plant productivity, and water use.
In cooperation with the Las Cruces Community Schools, The Stocker Foundation, and an Arizona-based educational nonprofit, CommunityShare, Cruces Creatives launched a new, free-to-use online platform to connect teachers and students with subject matter experts from the community, enlivening classrooms with real-world knowledge and project-based learning.

In response to the pandemic, Cruces Creatives and the other project partners developed and shared approaches to help teachers work remotely with community partners. This work bore its first results in spring 2021, through projects involving over 400 students.

This program is still growing. If you would like to be involved, learn more or sign up to volunteer at https://www.communityshare.us/las-cruces/.
**Additional Projects**

**Algae Growing Pond** - We were mentoring NMSU EE students to build pond controllers.

**Fence Pack** - Allows ranchers to fence difficult terrain.

**Housing for Datalogger in Orchard Fire Blight Treatment Study**

**Heat Controller for Precious Plastics Recycling**