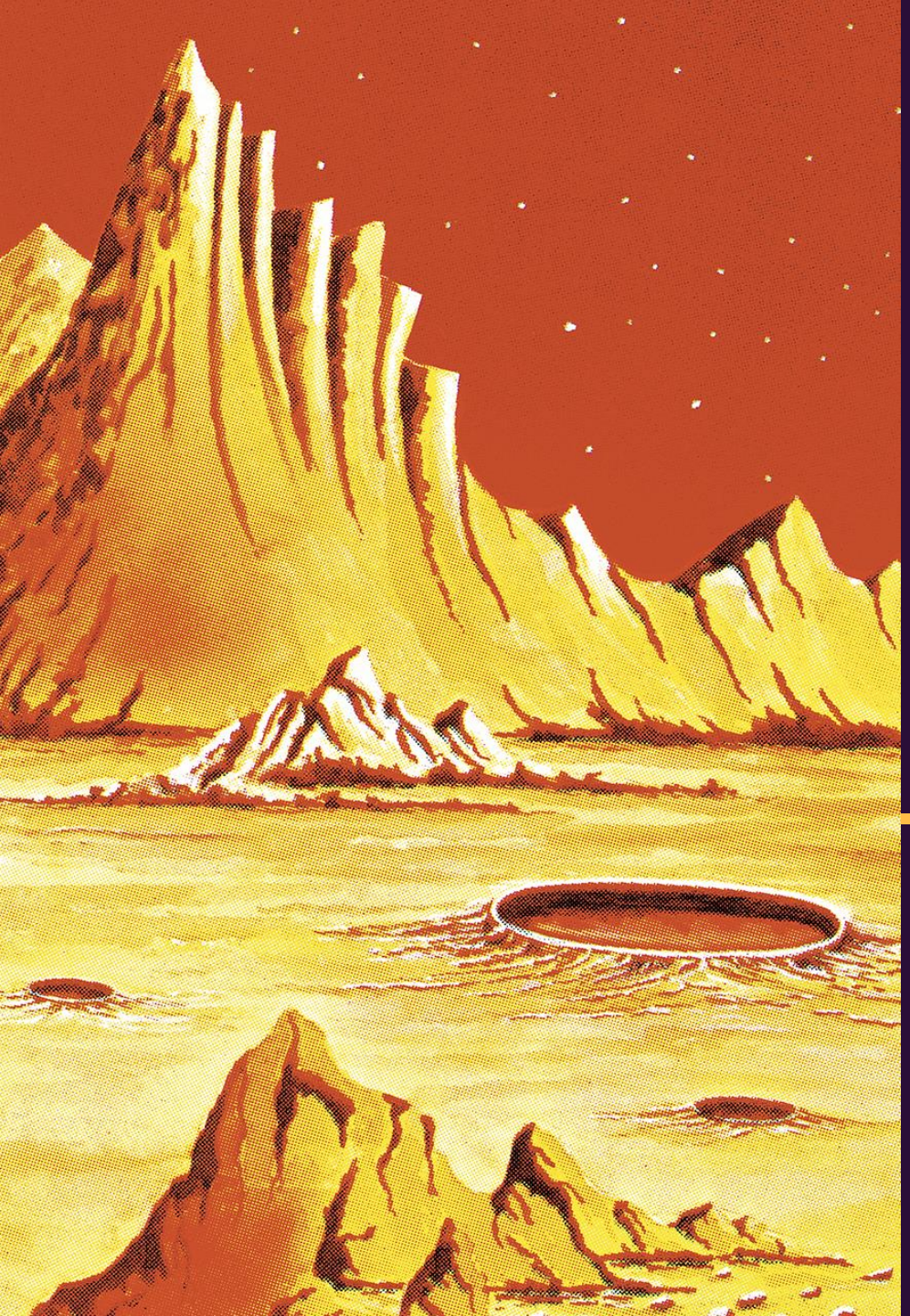

INVENTERPRISE
2025



We are the Martians!

Imagine if we actually made it to Mars.
How would we have to adapt our lifestyle
to live in this new environment?
Invent something that prepares us for
this future.

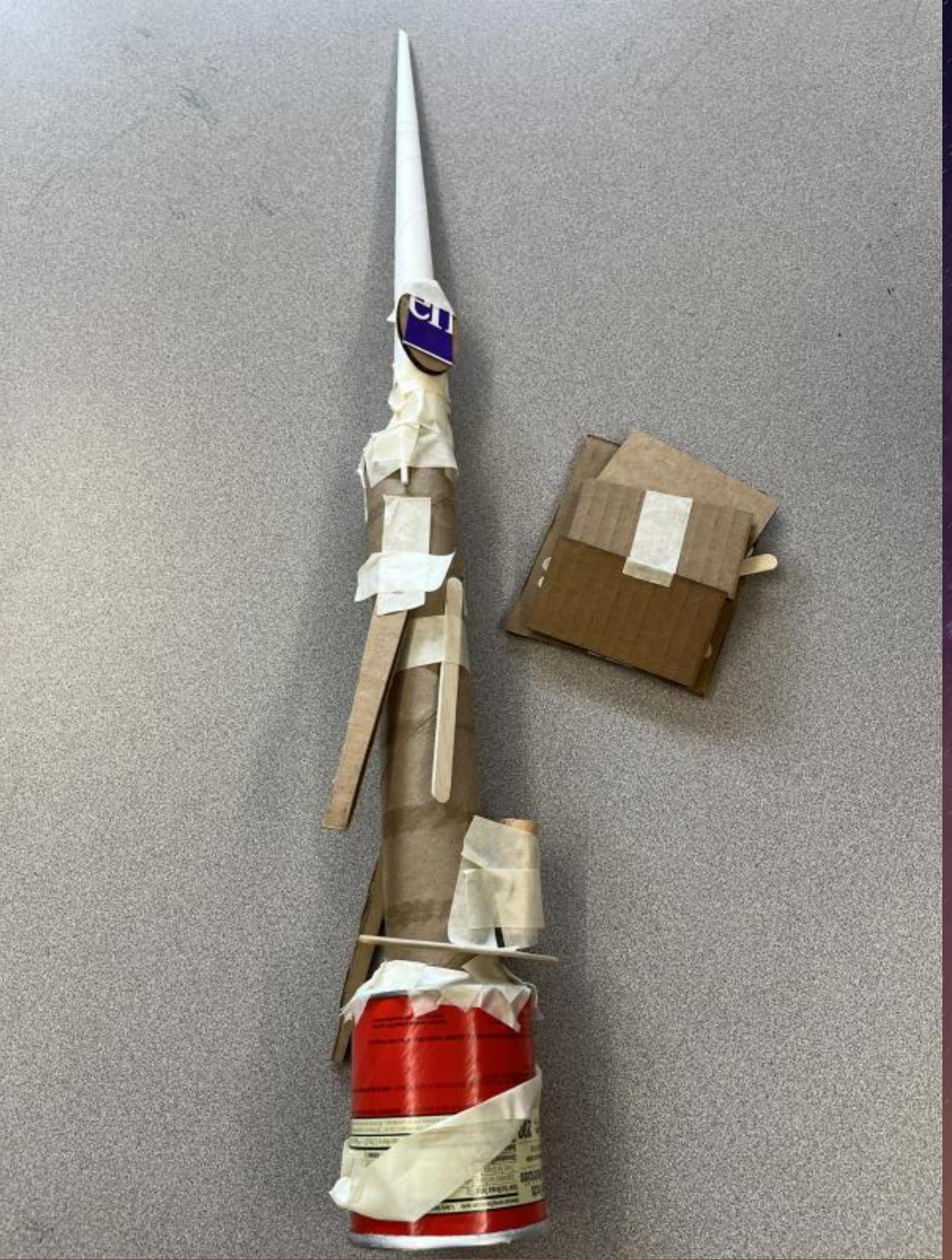
Out of 542 projects submitted from 781 students - These are the winning projects!

Kindergarten

Hailey Campo & Molly Roach

Food and Water Delivery

"A food and water [bridge] to bring it to Mars"



Max Chatwin

Texnovider

“It’s a rocket ship that has stuff on it. This part unfolds… This part is oxygen, This part is water, this part is food [with a pinecone]… shovels will make a hole and plant the tress that grow on Mars. It will make infinity of them to fill Mars with Trees!”

Sterling Ezrine

The Ghostbuster Backpack

"You wear it on your back like a backpack. It opens up so you can put [samples] on Mars in it and bring it back to Earth. It also has a water tank... The mirrors on the back are used to scare off aliens."

Walter Parker

The Martian Mover 360

"It has cameras and tracks to move over bumpy red rocks... It has a solar panel to recharge... and has a repairer so it can repair the arms.

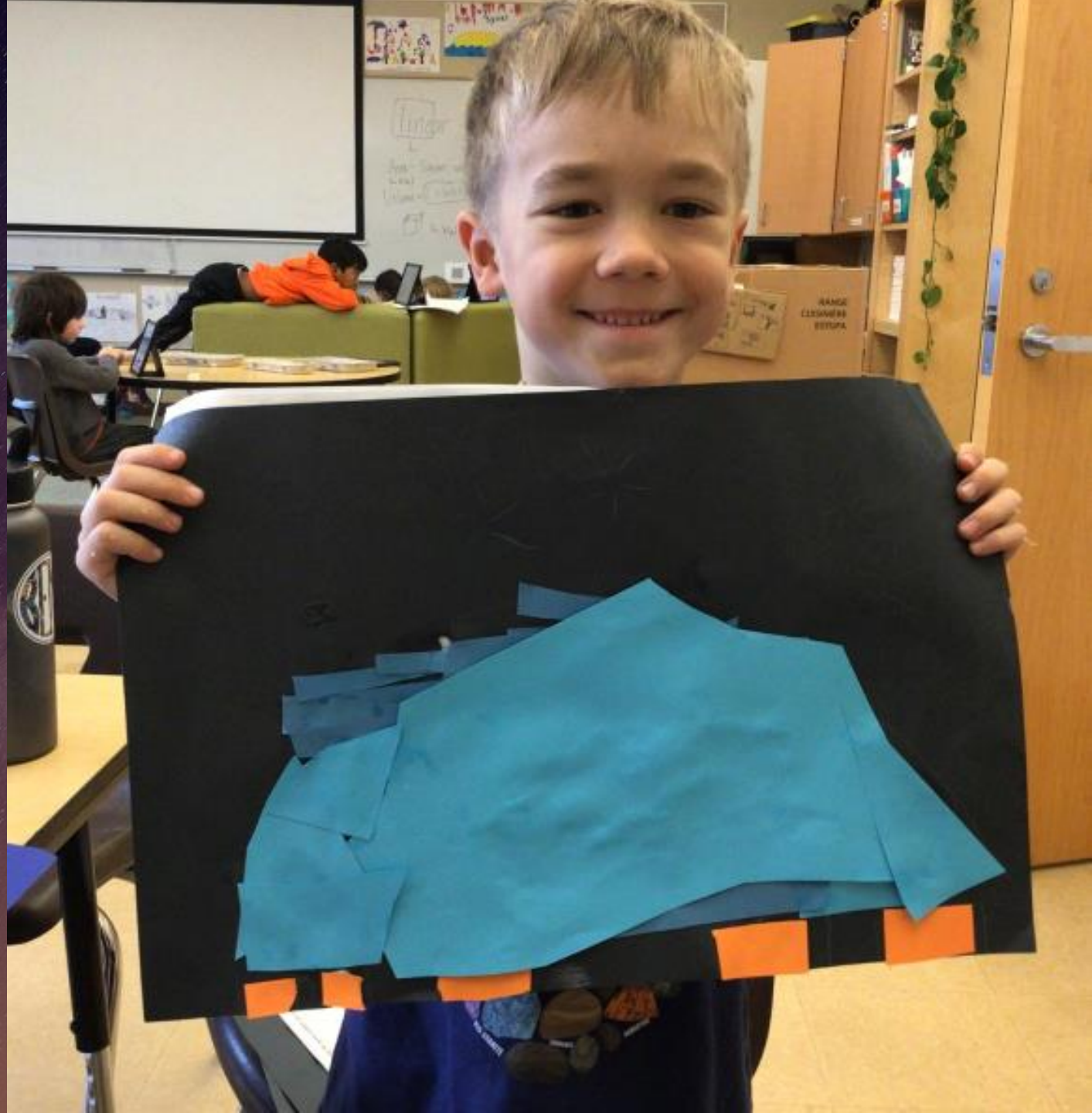
The grabbers...drag rocks to collect them for study.

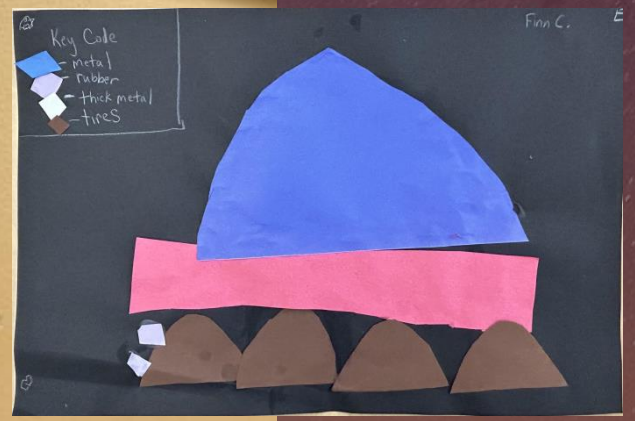
People sit inside and drive around Mars to explore."

Enzo Ramina

Mars Dome

“It’s a dome for people to live in. It’s made out of plastic and keeps people safe… Life on Mars will be easier with my invention because it protect people from dust storms.”





Finn Cohen

Super Mars Bike

"The problem it is solving is having transportation... It has rocket booster and suction cup tires so it can go over rocks and go fast. It also has a dome in case you get stuck in a dust storm."

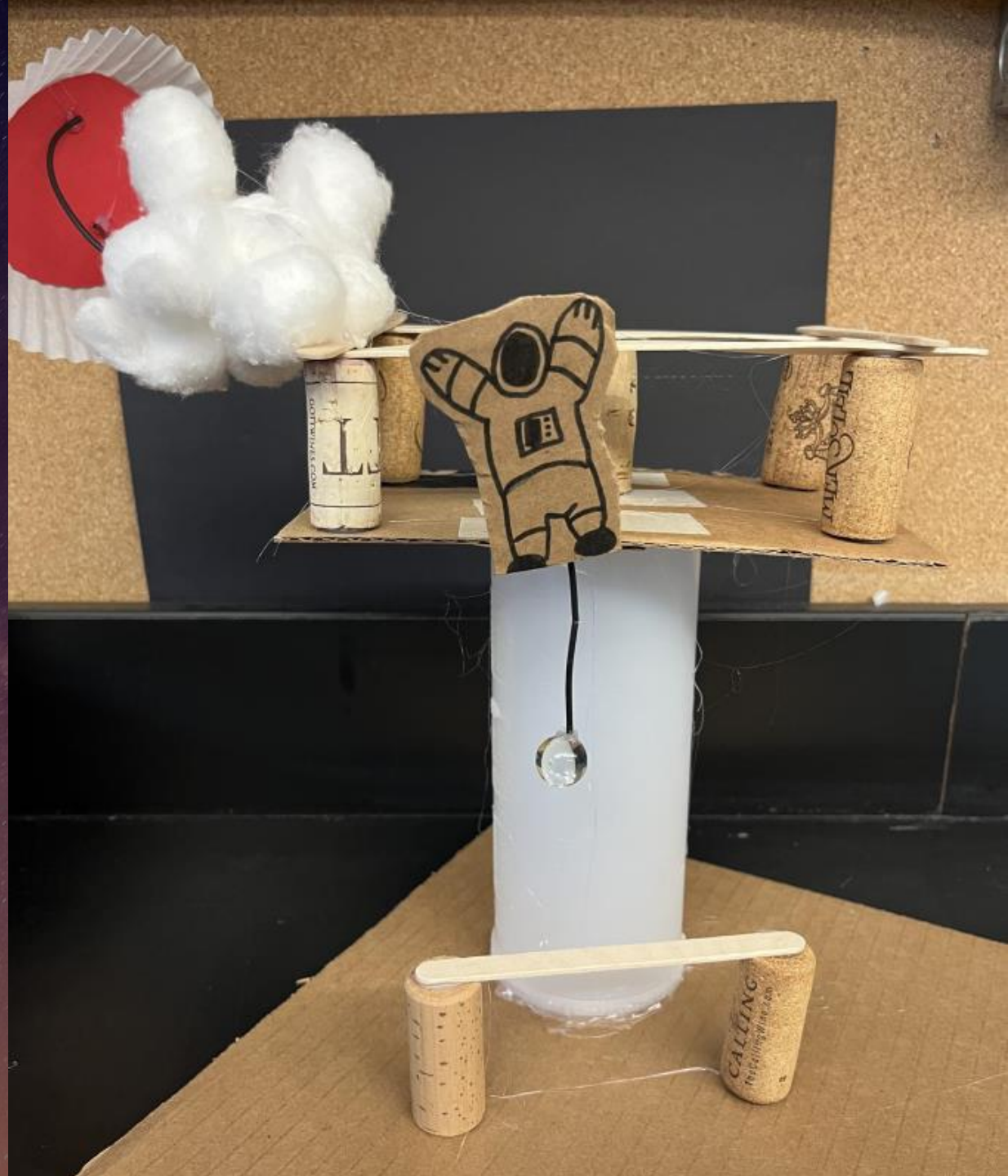
1st Grade

Kepler Groza

The Mars Machine

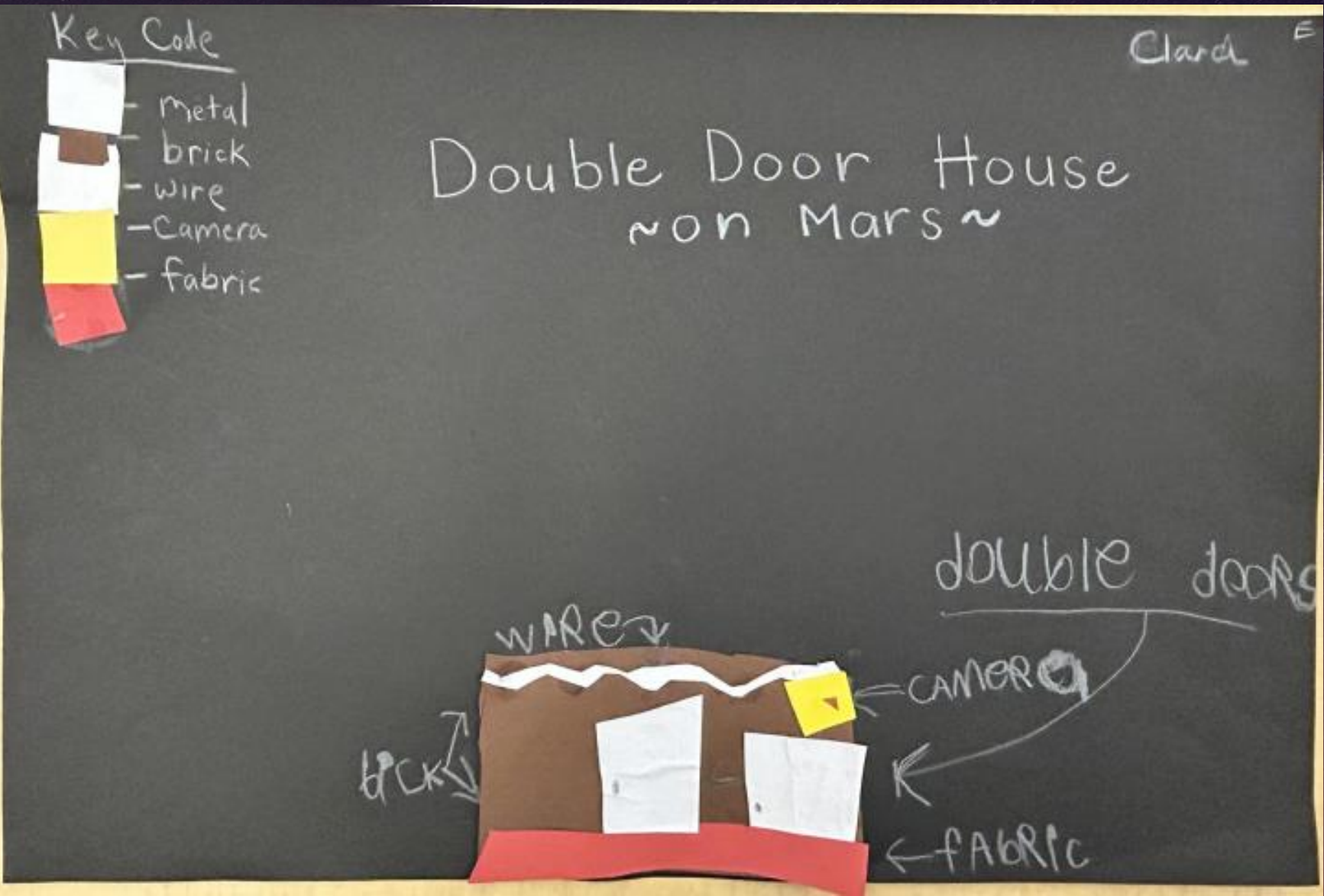
“First [people] get to Mars in a bubble bag. The parachute makes the bubble bag not be so fast for the landing... Then they have to go check in with the front desk to make sure they are healthy [and] don’t infect Mars.

[There is also] a weight for the person so they don’t float away [because] there is less gravity on Mars. Gravity on Mars will make people weaker, so [the machine] has a pull up bar. I make them do 20 pull ups before space walks!”



Clara Olive

The Double Door House



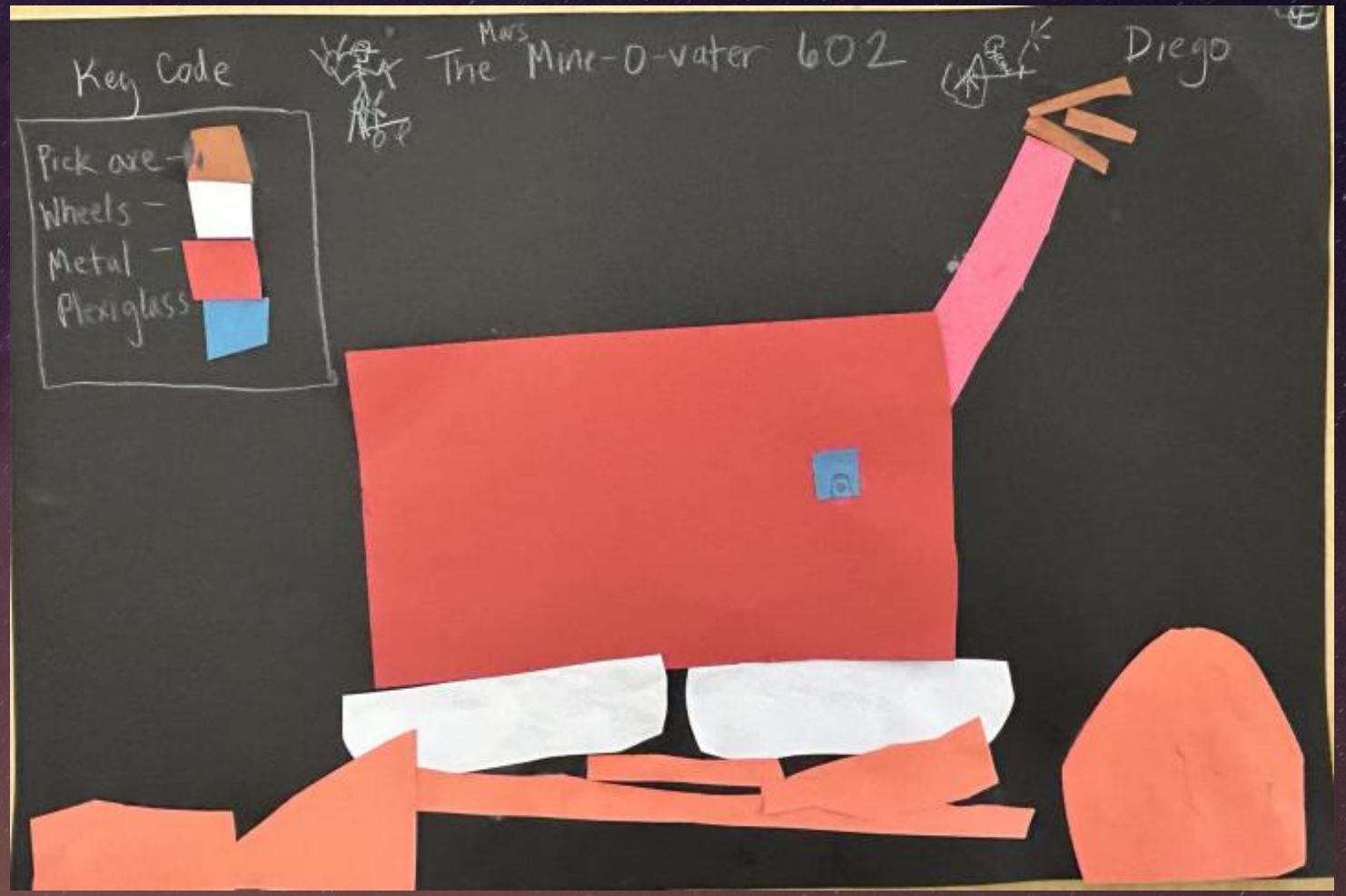
"It is a house that has two doors to enter. [The] sensor opens the second door after the first door closes...to block [dust] from coming inside.

The Double Door House will keep things clean!"

Diego Campbell

The Mars Mine-O-Vater

"The problem is on Mars there [are] no material to make houses. My invention mines rocks on Mars to make bricks for Building on Mars. We don't need to bring building materials!"



Jackson Pitney

Super Driller 3000

“It is a robot that drills into the surface of Mars to find water. [The robot] runs on electricity and uses a drill to dig into Mars. There is a hole that has a powerful suction… and moves it to a water tank.

[We’ll use] the water already on the planet instead of having to transfer water from Earth to Mars!”

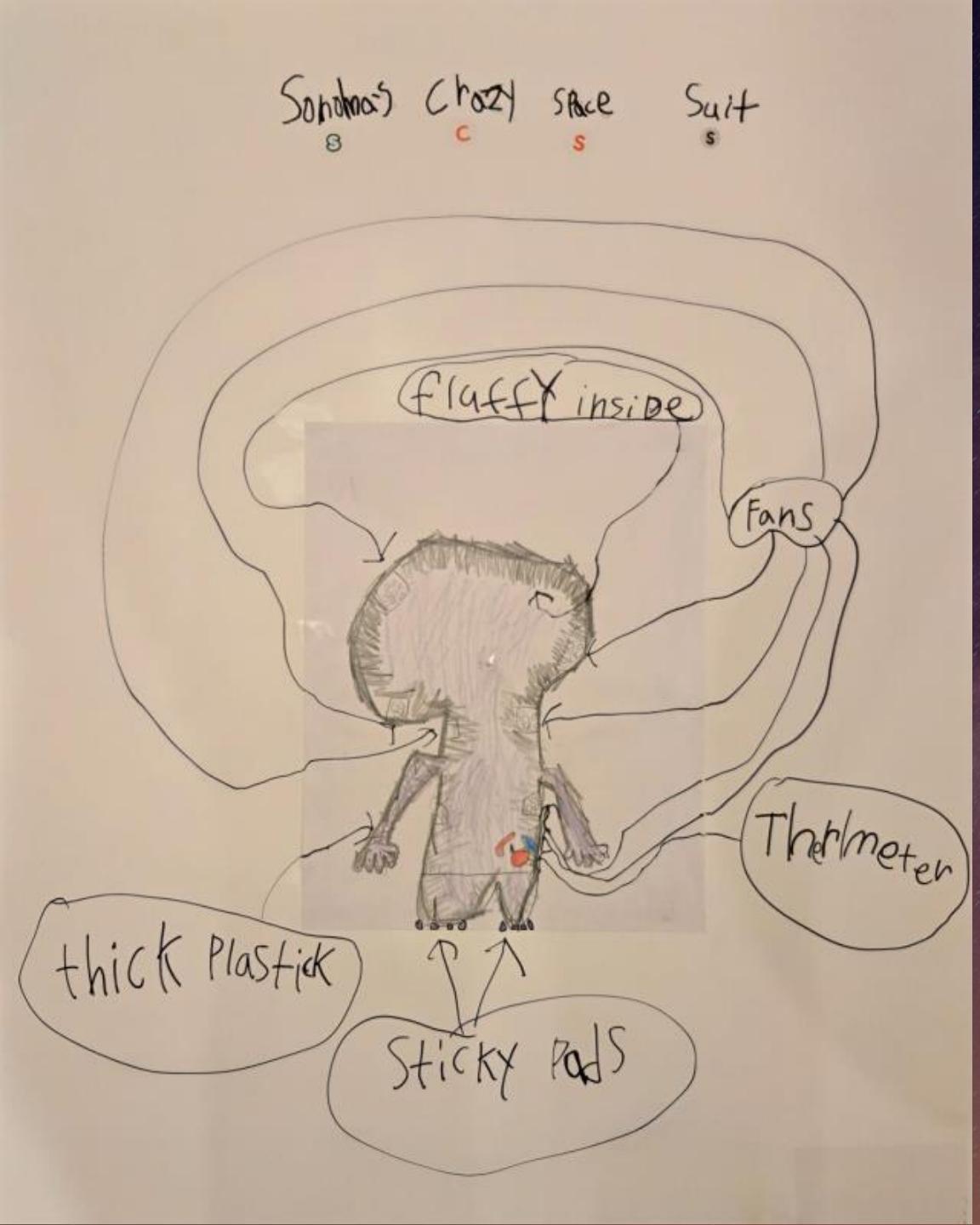
2nd Grade

Jojo Street

There's No Place like 3 Domes

"My invention has food, water and houses plus a rover to [travel] around Mars. The bottle caps are houses and they are in a dome. There are cows in a dome [too, for food.]

You need water…food like meat and veggies, and a place to live and sleep."



Sonoma Sears

SCSS

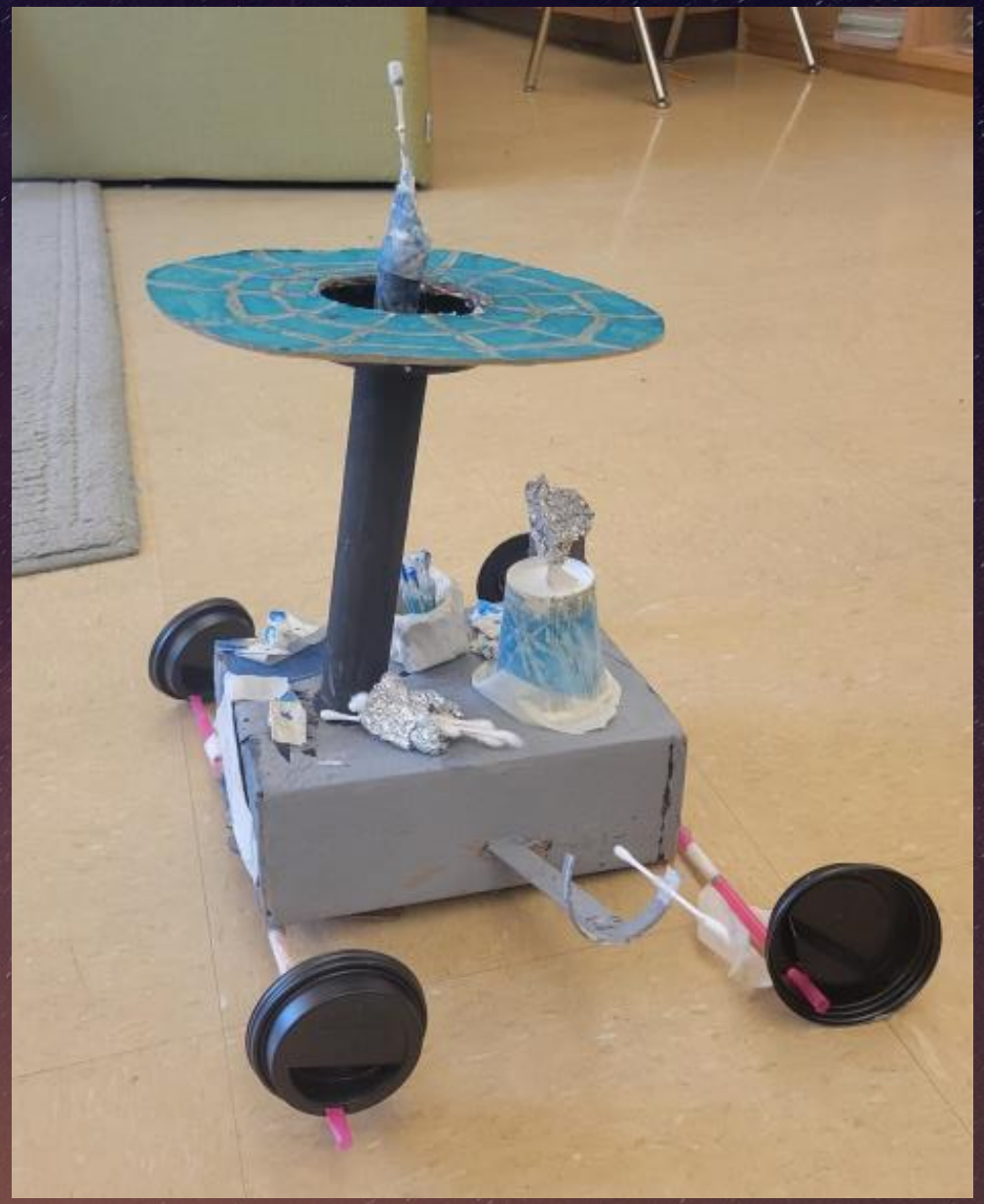
(Sonoma's Crazy Space Suit)

"It solves four problems: First there are fans to blow oxygen and a thermometer that can be set to hot or cold. Second, there is a fluffy inside. Third the outside is thick plastic to protect you from dusk. Fourth, there are sticky pads on your feet so you don't fly away."

Ayris Arbetter, Juniper Cottrell & Skye Hanson

Rover 24/7

"The rover uses a satellite to find signals of life. It has a camera to take pictures of life. Our rover also has a claw that gather rocks, rushes rocks and takes water from the rocks. Then, the rover filters water, puts it in a water bottle, and give it to people on Mars"



(Student wishes to remain anonymous)

Water Catching Device

"[This device] catches asteroids and breaks them open to look for water."

3rd Grade

Lane Dewolf & Kyle Palmer

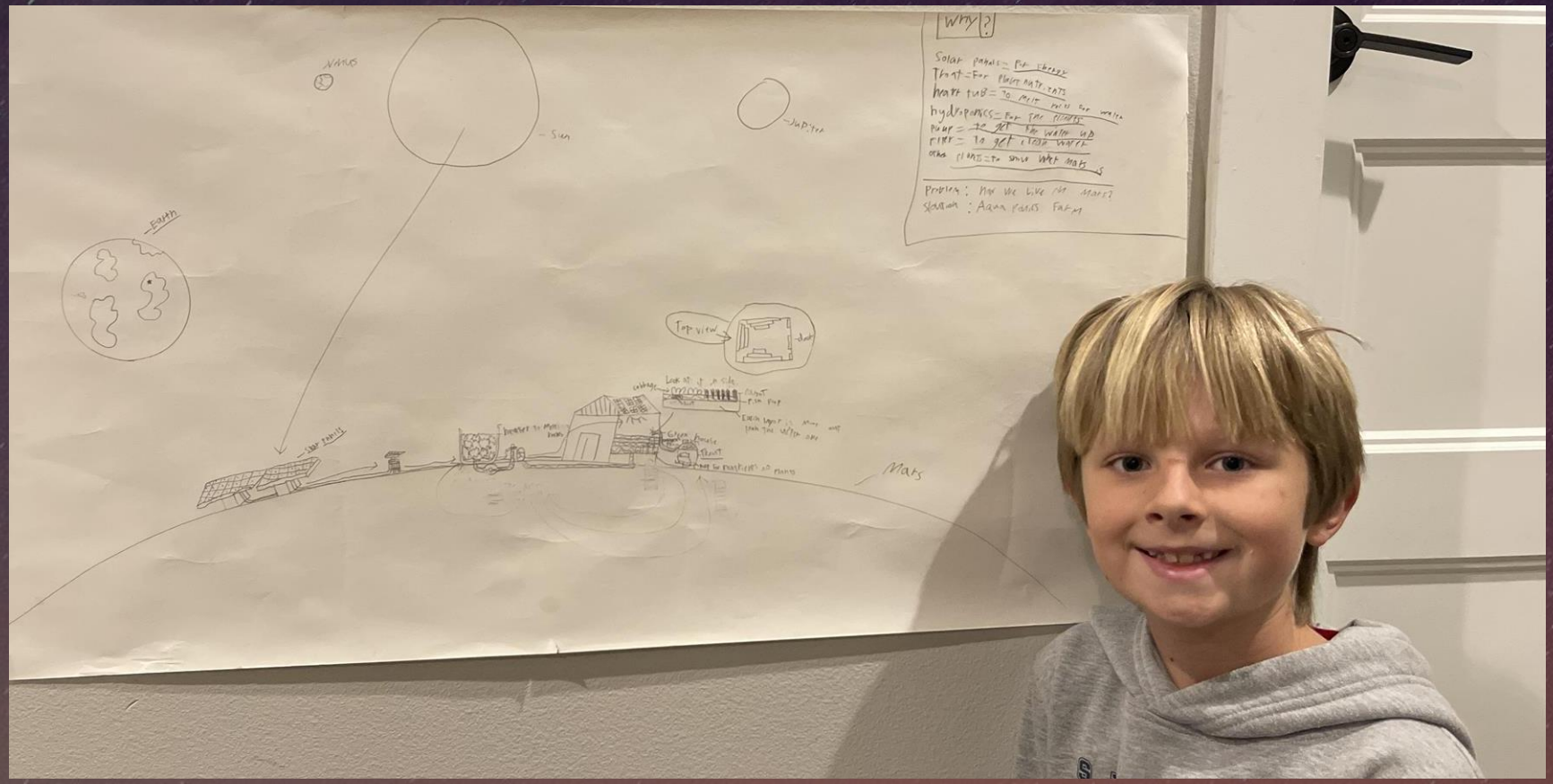
The Savior

“Our project helps us to get liquid water [on Mars]. We find a pile of ice and we put it in two tubes. We put torches around the tubes to melt the ice. The tube the suck the water up into our dome.

The dome covers the garden and living area to keep oxygen in.”

Ezekiel Glogau

How to survive on mars/food based



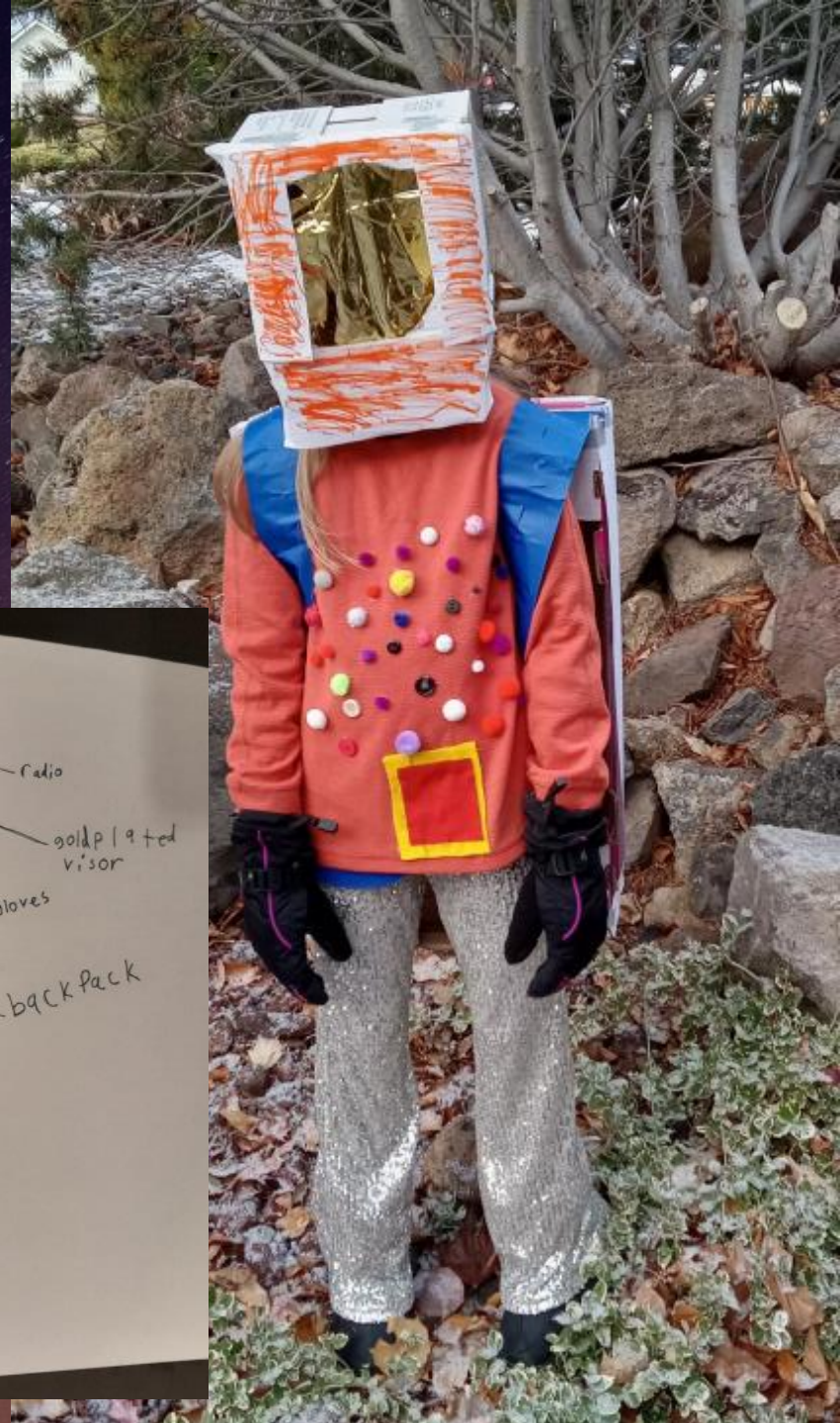
“I tried to focus on how we could live on Mars by figuring out how to feed people. Mars... might have water in the rocks so we put solar panels up to get energy to heat the rocks, then we will have water up there.

Trout eggs can easily be brought up and seeds to put in the aquaponics shed. ”

Grace Myers

The Martian Extravehicular Mobility Unit (EMU)

“I am interested in clothing design. I studied what Mars is like so I could overcome the challenges. I invented the EMU. It has pressure regulation, a gold plated visor, it is made of Kevlar and Teflon and Gore-Tex because these materials are very strong. [It] has a radio to communicate, and a backpack with an oxygen tank… My suit is comfortable maneuverable, and stylish.”



Nico Nasr & Finley Scott

Helmo 2000

"Mars is a lot different than Earth... so we invented a special Mars helmet. It is shaped like a spaceship.

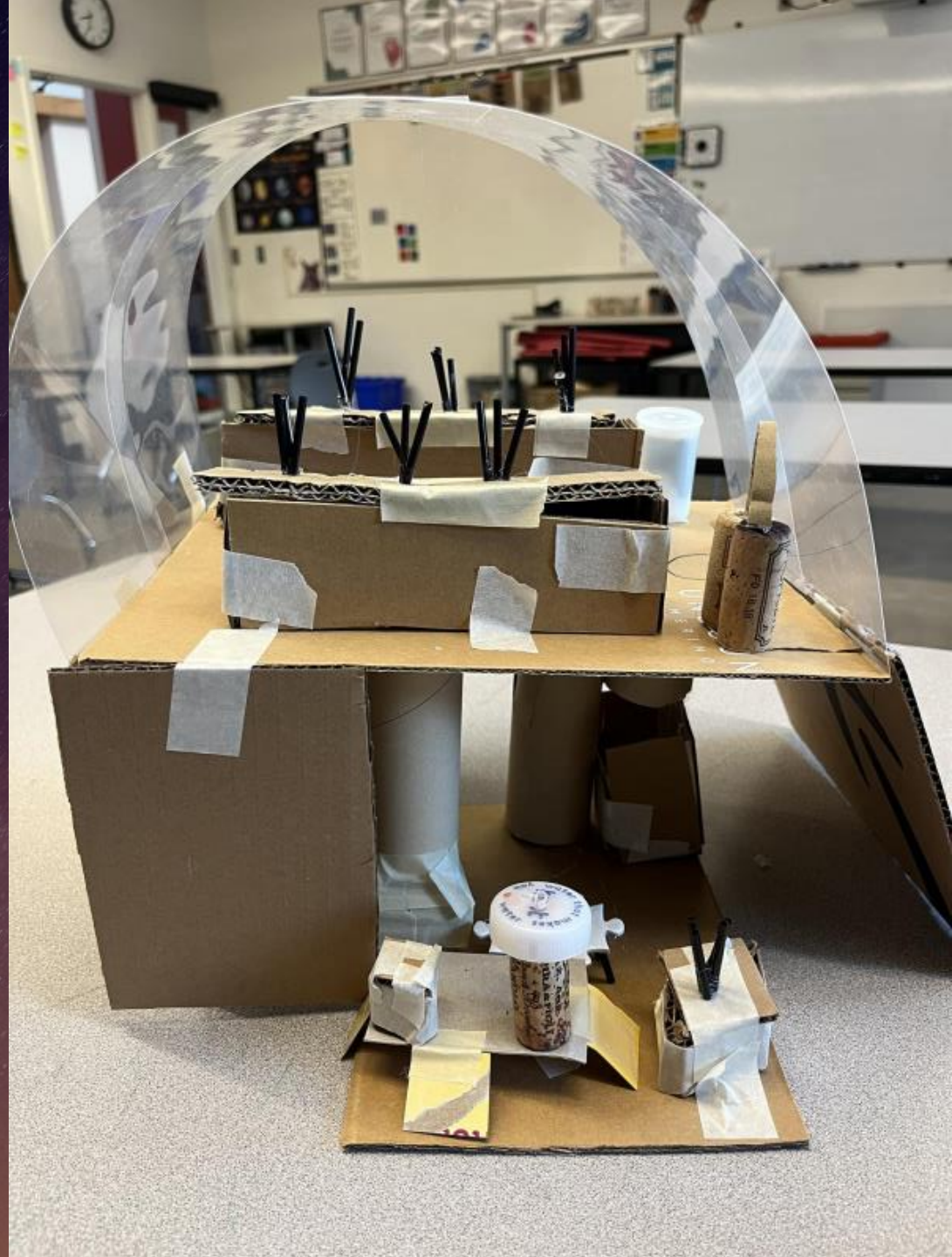
There are lots of tools... like a drill, a claw, and jet rockets. It also comes with a Maily Buddy. It...[can] talk to the people of Earth.

When you have the Helmo 2000... It's like walking in a park."

Elliot Clawson & Sawyer Groza

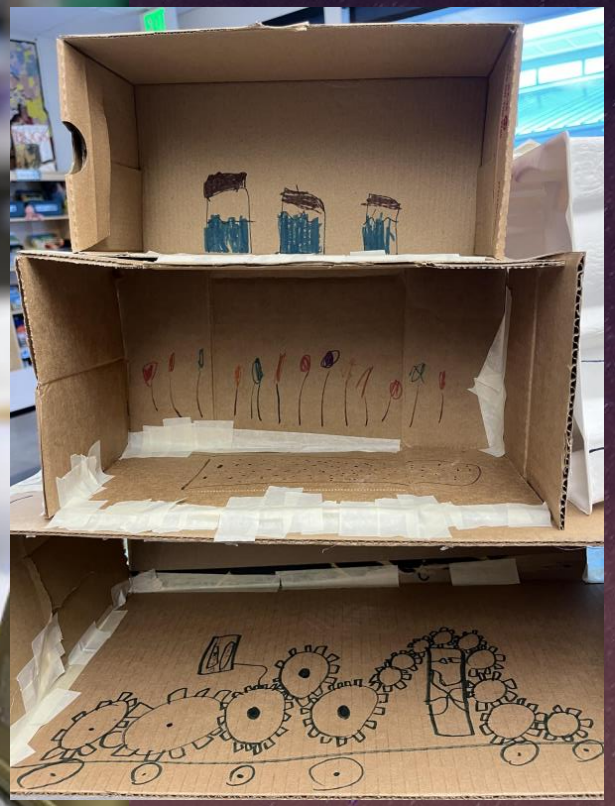
The Life Grower 5000

"[This] will solve the problem of no food on Mars. It grows vegetables and plants that help with your body, like the plants that can heal your body or help you. The plants filter air so you can breath... There are 2 layers, one with Mars soil and the other has soil from Earth. We put fertilizer into both to see what happens."



Maisie McDonald

Lifesaving Nurse 3000



"If someone gets hurt my invention is a robot nurse. It can save lives. It has different compartments with medical stuff and the first column has bandages and medicines. The second column has lollipops... And the third column has the engine that makes Lifesaver Nurse 3000 go around [to] find someone who is hurt on Mars and can help."

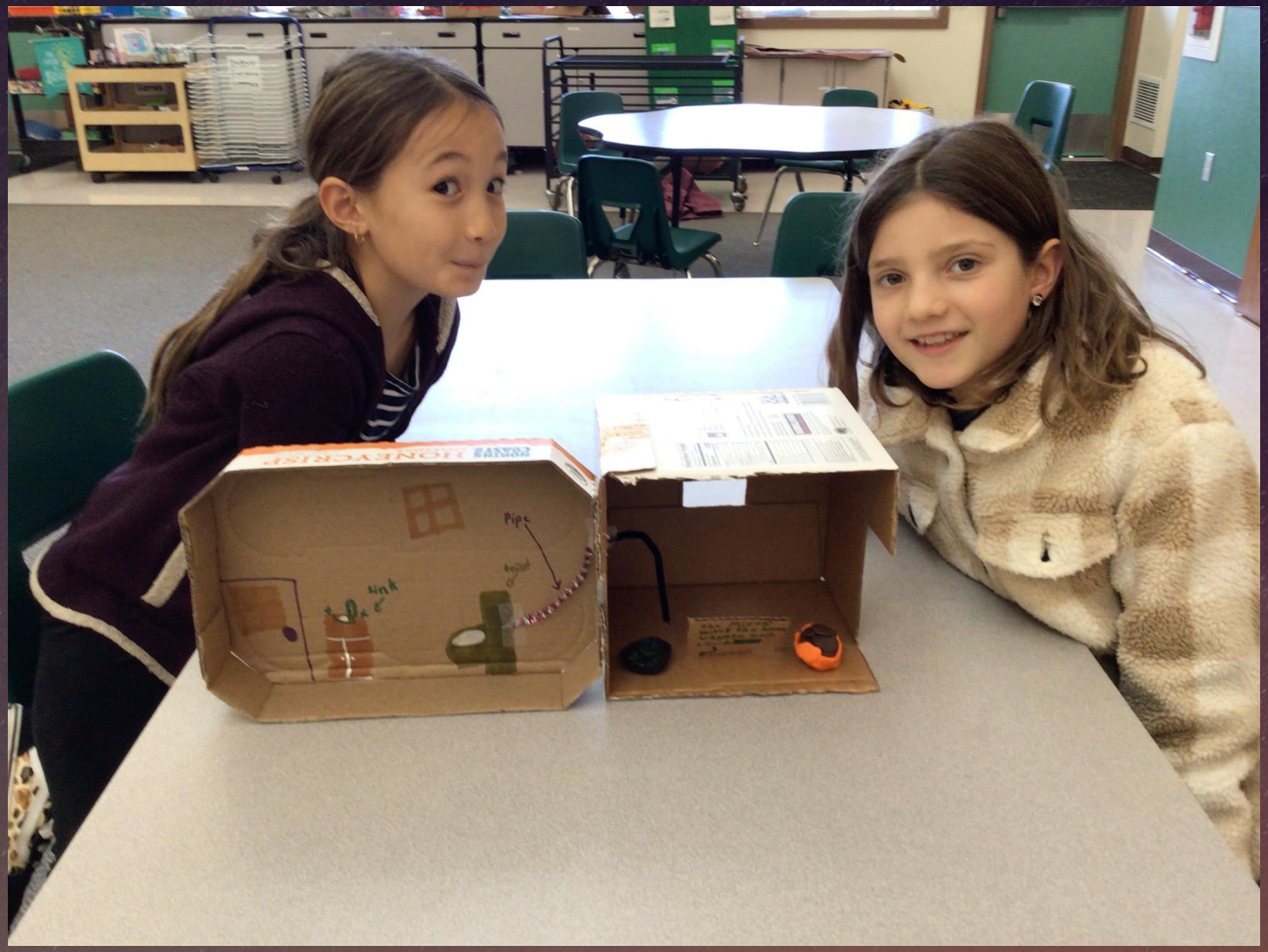
4th Grade

Audrey Beal

Volleyball on Mars

“Since the gravity is less on Mars than Earth, you could jump really high and spike the ball from way up in the air. The problem is, you would have to wear a space suit the whole time because Mars is too cold.”

Natalie Francis & Jett Young



Super saver pollution system

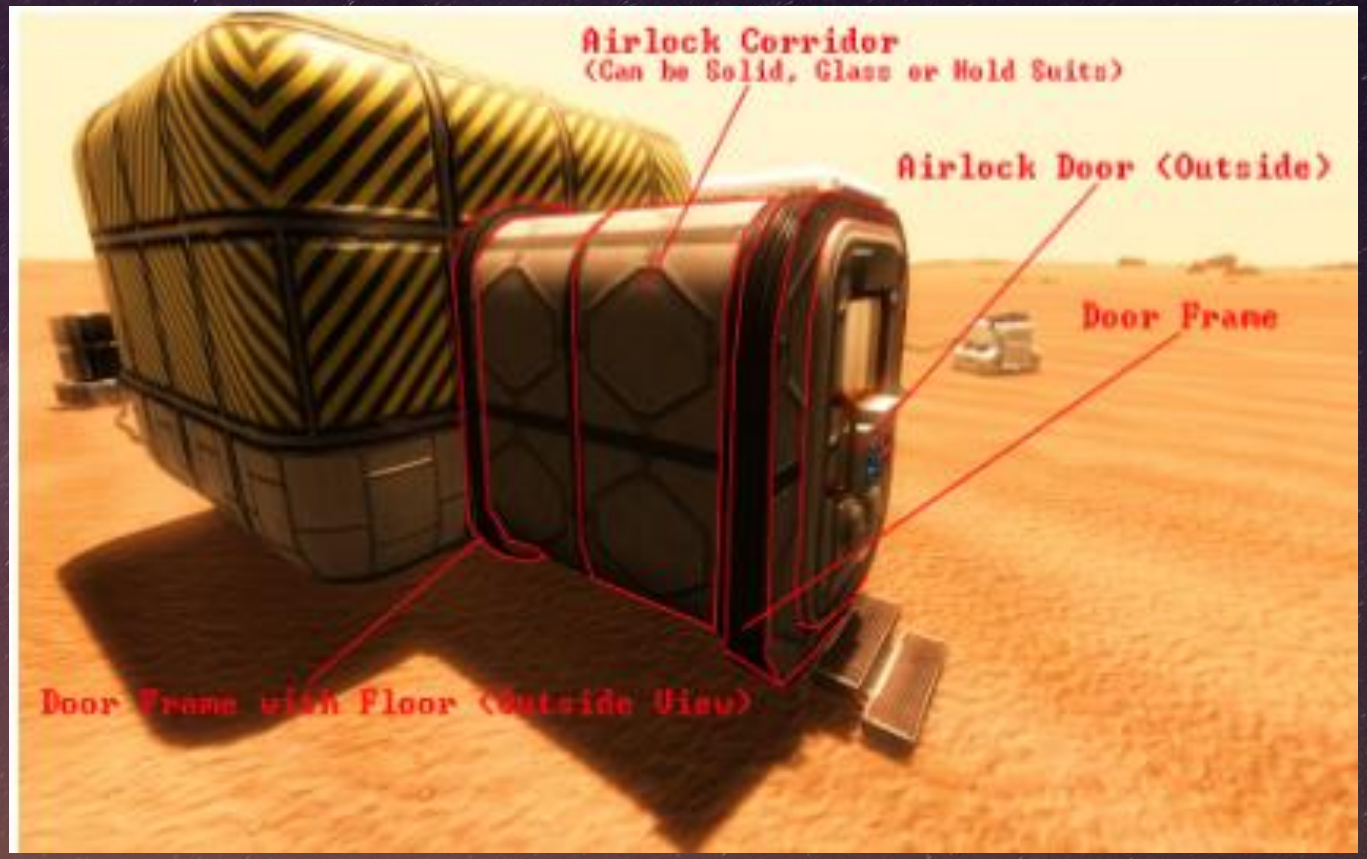
"We will turn human waste into fertilizer to plant plants into our ecosystem and have healthy and nutritious food to eat."

(Student wishes to remain anonymous)

Mars Experiment

“My mission is to make [living on Mars] possible… [We] need a machine so when we go out of the cover no air escapes. This machine will have two doors and when you go through the first door, the [other] door will shut.

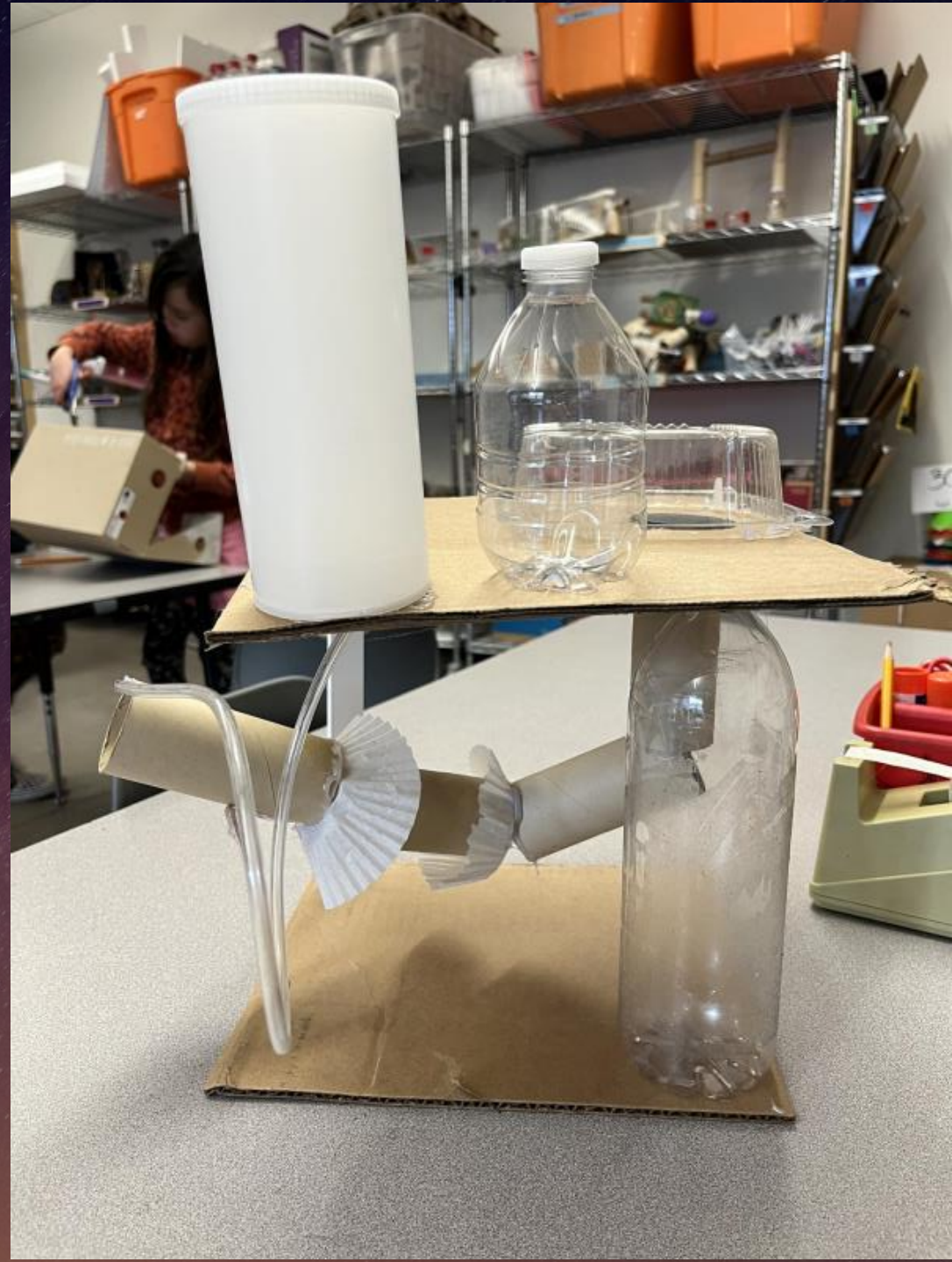
Then the machine will push out all of the space air and then the second door will open. ”



Lilly Etherington, Fiona Knight, & Riley Konovalov

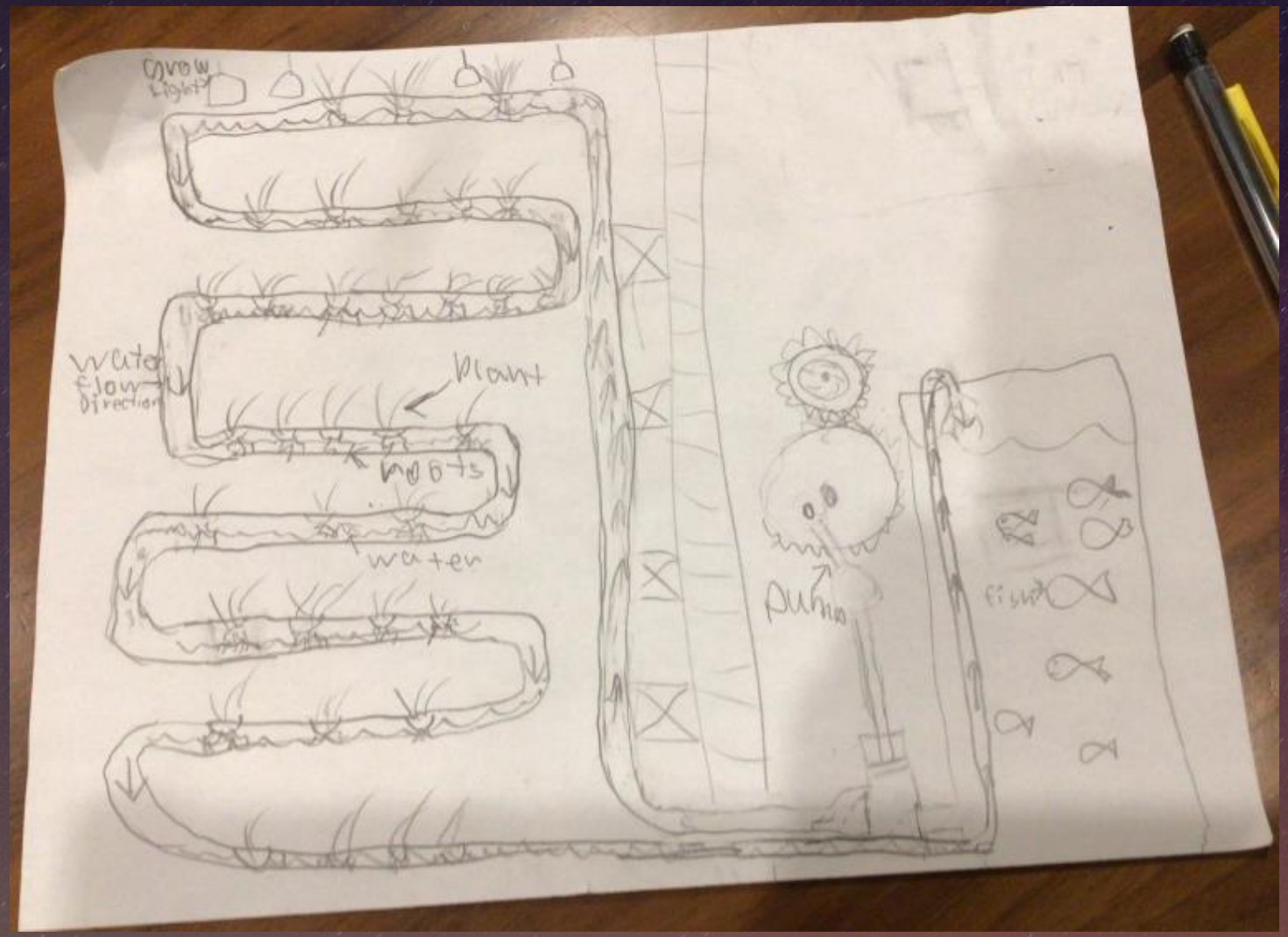
PC Exterminator/ Perchlorate and Chlorate Exterminator

"Our invention will turn the Martian ice into drinkable water and will send the perchlorates and chlorates to a processing plant to be turned into fertilizer. [Ice is melted] in a greenhouse... then water will be filtered by activated carbon filters and membrane tech... then tested for lingering toxins."



Kai Niedermeier

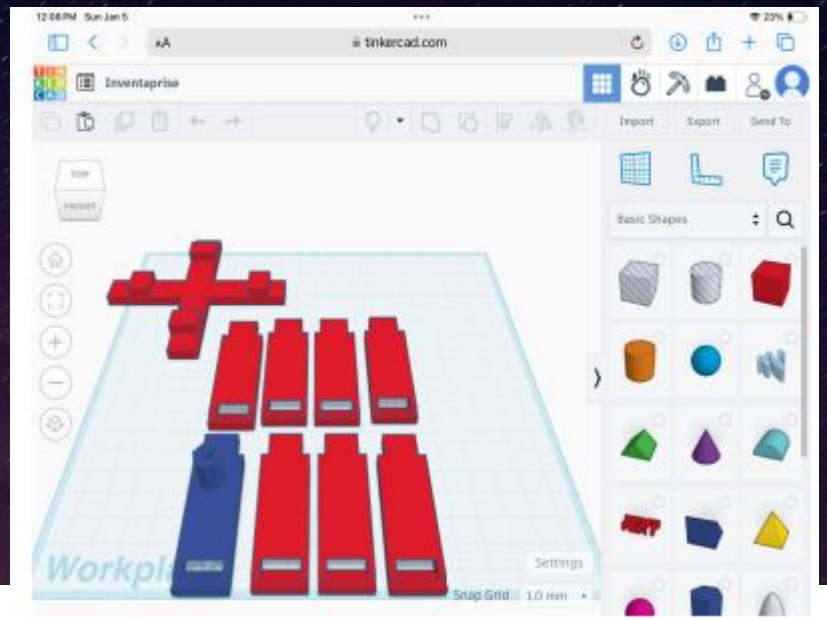
Martian aquaponics



“This is an aquaponic systems to provide food on Mars. Hydroponics is a system that grows plants in nutrient rich water instead of soil. Aquaponics is a type of hydroponics that has a fish tank to the waste from the fish is used to add nutrients to the water. The plants then clean the water for the fish when the extract the nutrients from the water.”

Isaac Wahl

Poisonous gas to oxygen



"[My idea is to set up 3D printed bioshpheres on Mars, that will allow plants to grow]. I was thinking about what makes Earth a habitable planet, and realized one big reason was that plant balance the atmosphere through photosynthesis.

While Mars does have way less sunlight than Earth, we could choose plants used to low light levels that would then further adapt to Mars light levels."

This is a person putting a old carbon dioxide tank in the fill station.

My Inventaprise model

This is the 3D printed biosphere.

(Students wish to remain anonymous)

The Garden Girls

“Our project is a garden for Mars to plant healthy food… Mars has extreme heat waves so the dome helps prevent burning.. This is a fully enclosed system so people can have a garden on Mars to grow their food with. There is research from NASA that potatoes can grow on Mars. Our garden will have carrots, cauliflower, broccoli and much more.”

Aurora Ahlman & Madeline Nicolet

cat and dog pet space suits

"On the feet...it has little spikes come out, that when the sandstorm happens it helps them grip the ground."

5th Grade

Ezra Walton

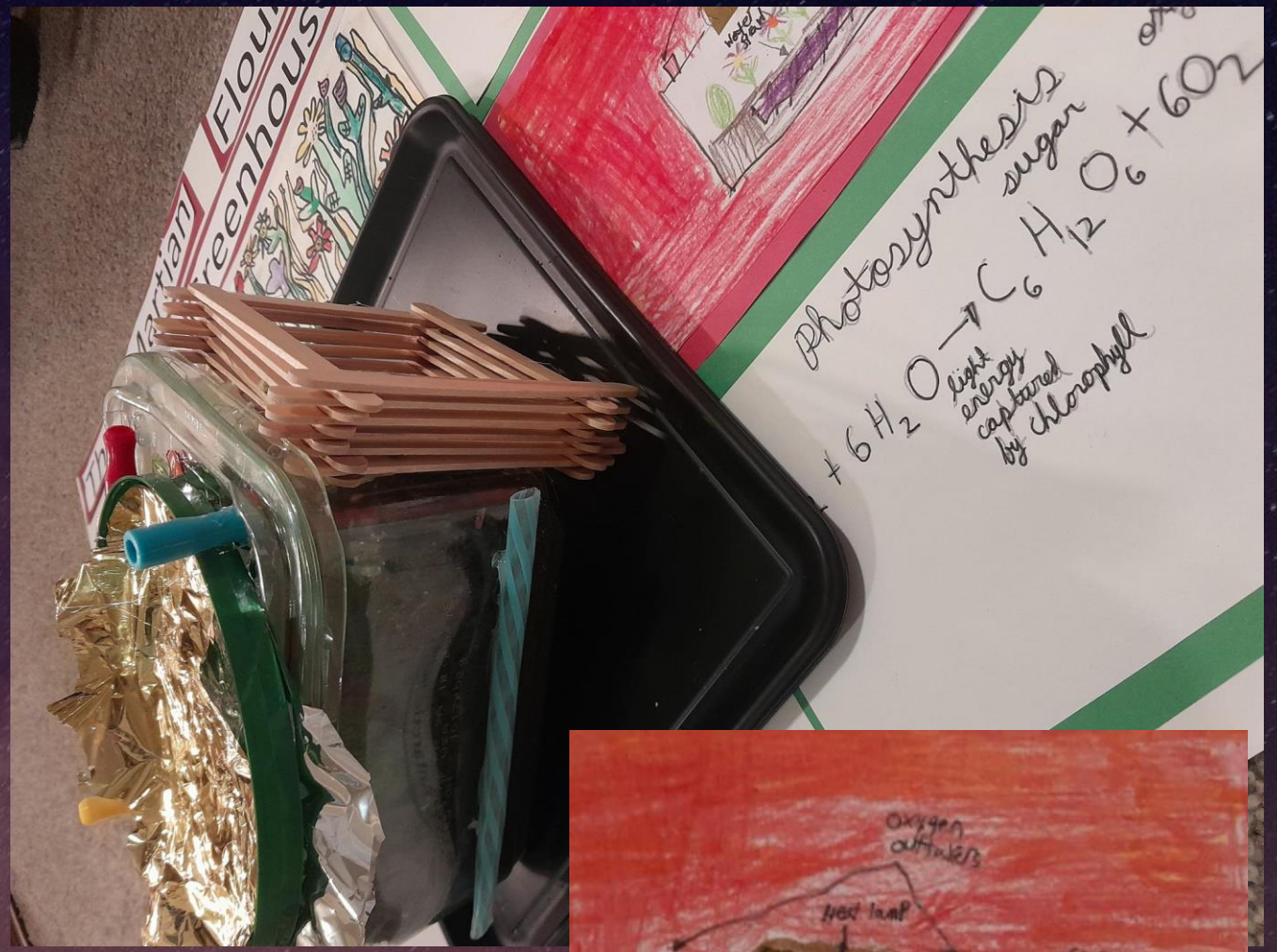
Inventerprise Challenge

“I learned that there is water and ice deep in the planet, which means if you take a drill and drill with it the heat from its spinning in theory melt the ice and when it melts the ice…[you can get] water perfect to drink if you filter it.”

Mercy Myers

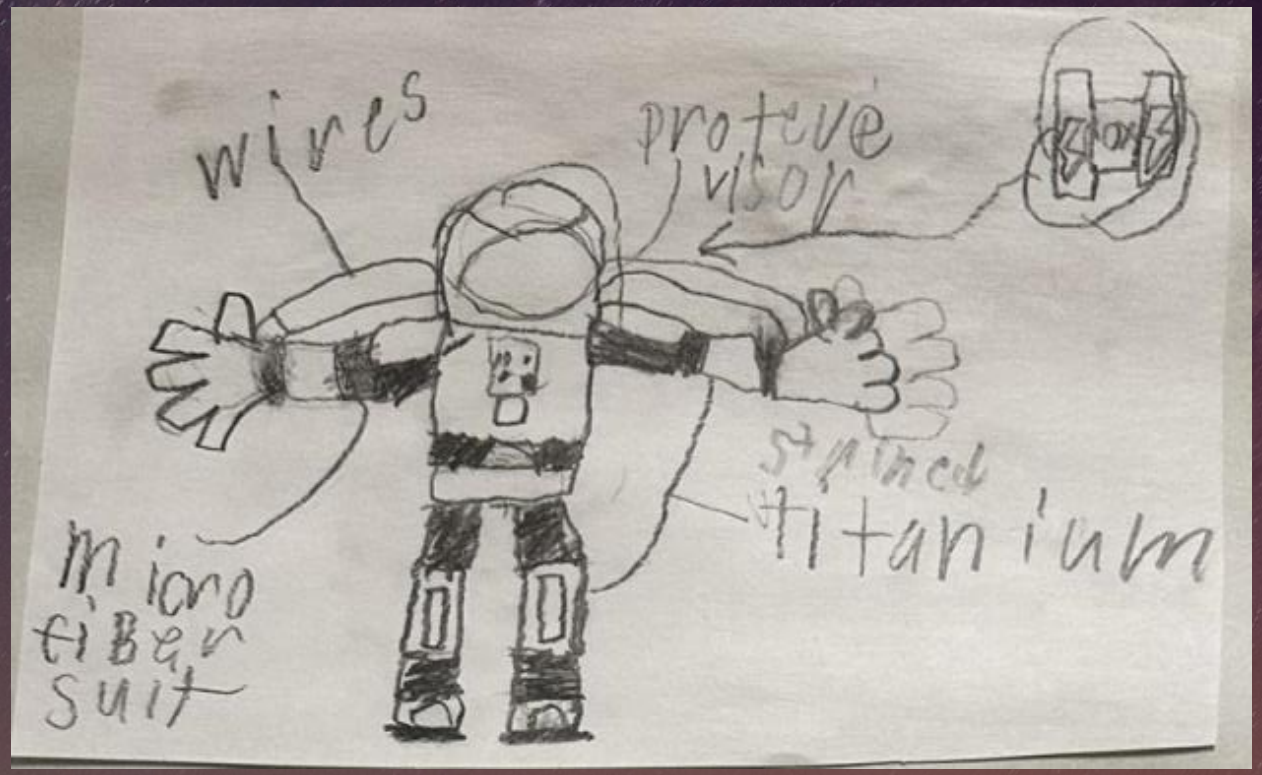
The Martian Flourishing Flora Greenhouse

"My invention is a greenhouse to create an environment similar to Earth. It will include heat lamps, be self-watering, have fertilizer for healthy soil, increased air pressure, and since the Martian atmosphere is 95% carbon dioxide, my invention will compress the atmosphere for the plants to use photosynthesis. I will use gene splicing from hardy Antarctic and Andean plants to create designer plants for Mars."



Luke Kane

Hydraulic Suit



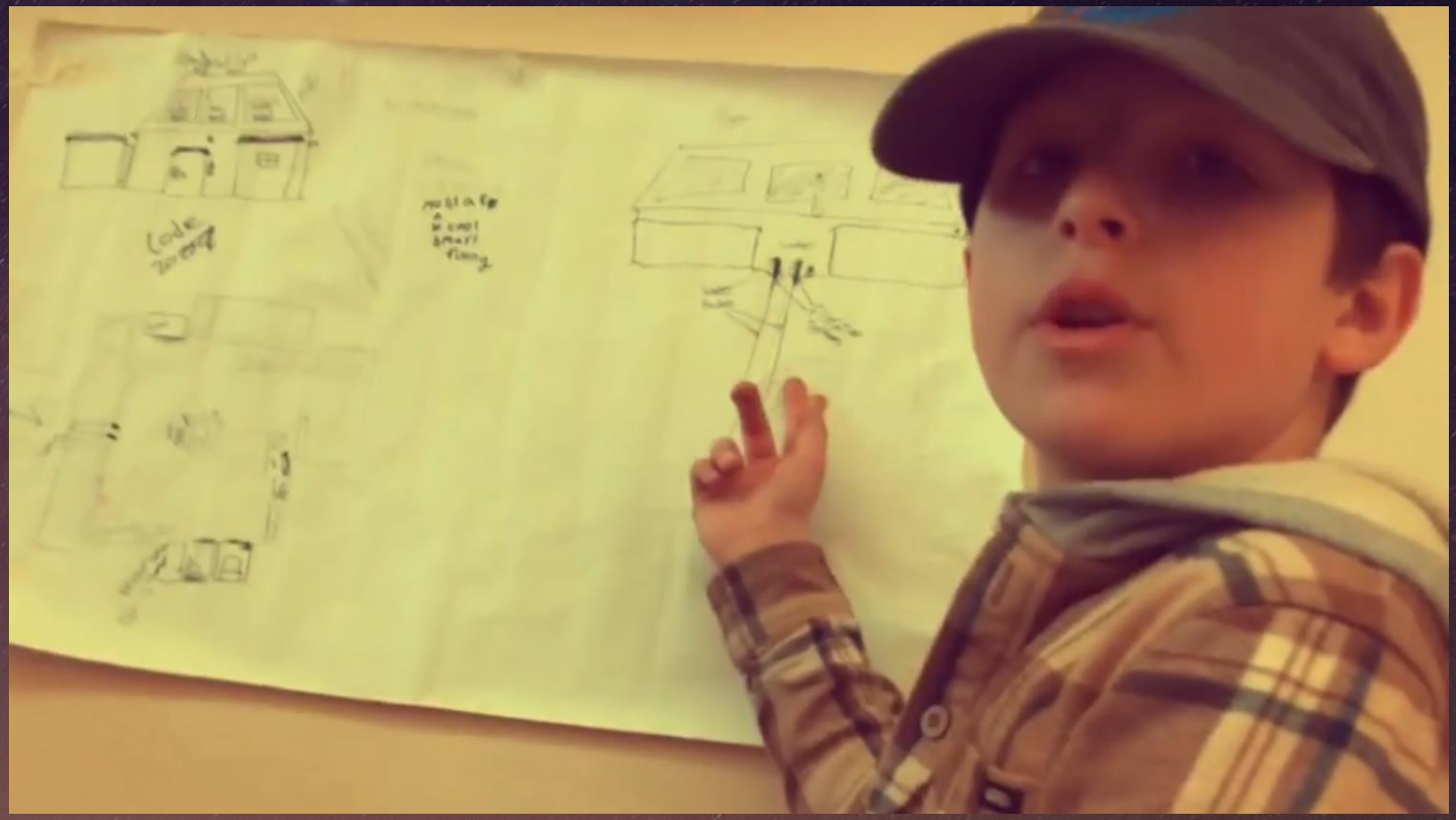
“My idea is a hydraulic suit for the big red planet, that can lift the heaviest objects, works as a functional space suit, and looks good. [There are] stilts to make me taller, Moveable wooden hands for longer reach, and Foam body armor for extra protection…”

Grayson Jensen

House on Mars

“The refrigerator/cooler will be about 4-5ft deep. There is a pressurization chamber [and] solar panels.

It is proven that there is ice under all the sand. So if we can get tubes down to all that ice, put a jackhammer to like break it up, then it will be sucked up.”

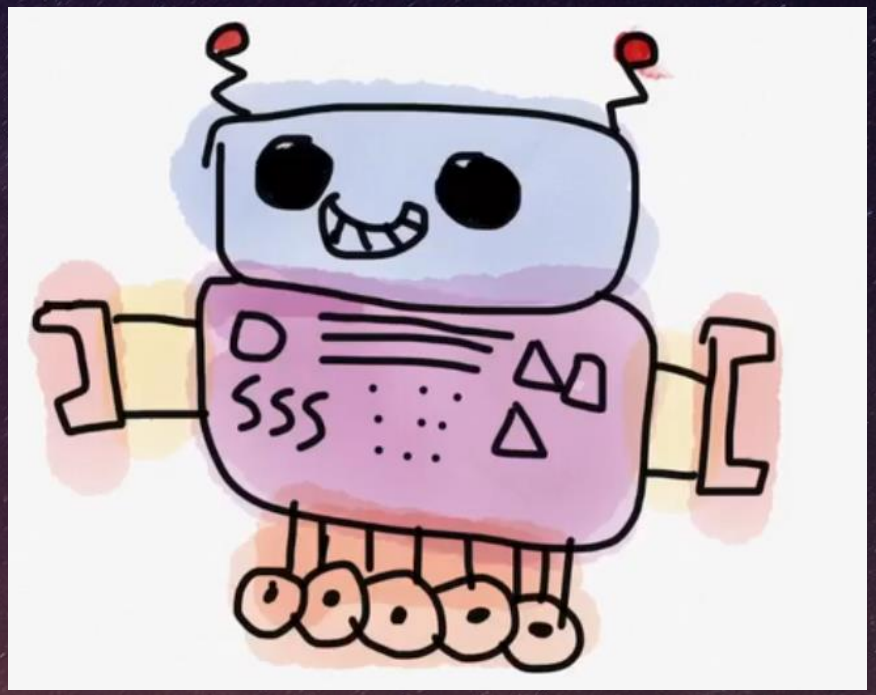


Emma Majerczyk, Drew McGuire, & Annalyn Mettler

Mars Bots

"Family Bot: can clean, because there will be a LOT of red dust. The bots can cook, because...it will be EXTREMELY difficult to cook in a space suit. [They] alert when there is danger like oxygen levels drop or upcoming dust storms."

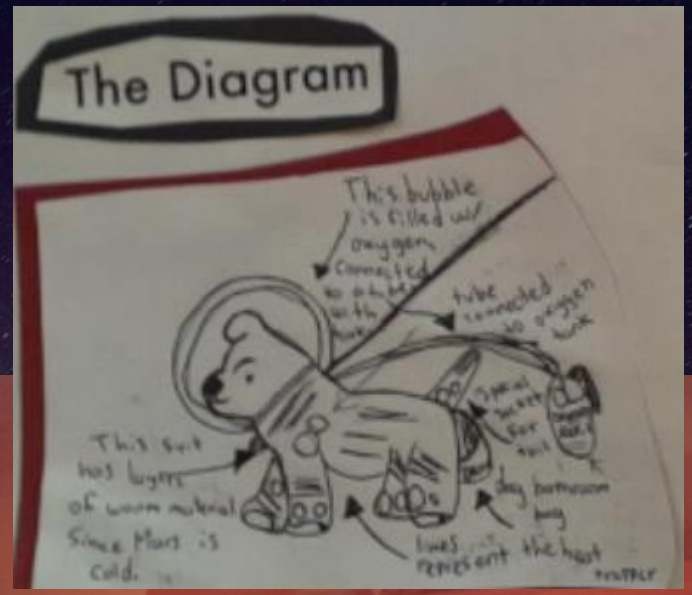
"Worker Bot: It can make electricity, build, and garden. They have solar panel hats."



"Adventure Bot: explores Mars seeing if new places are safe, [and will] send notifications to worker bots to start building. If they find water or other resources...they can bring it to people."

Claira Parker

Rover's A7L Spacesuit



"My Rover A7L Spacesuit is unique because [it] has a bubble filled with oxygen connected to a tube with a refill oxygen tank. The suit has layers of warm material since Mars is -225 degrees F up to -81` degrees: very cold! My suit has a waste collection bag at the end so the dog won't have an accident in his suit. The suit has boots for the Martian rough terrain so the paws are healthy.

My Rover A7L Spacesuit will allow our furry friends to come along with us on our journey to Mars!"

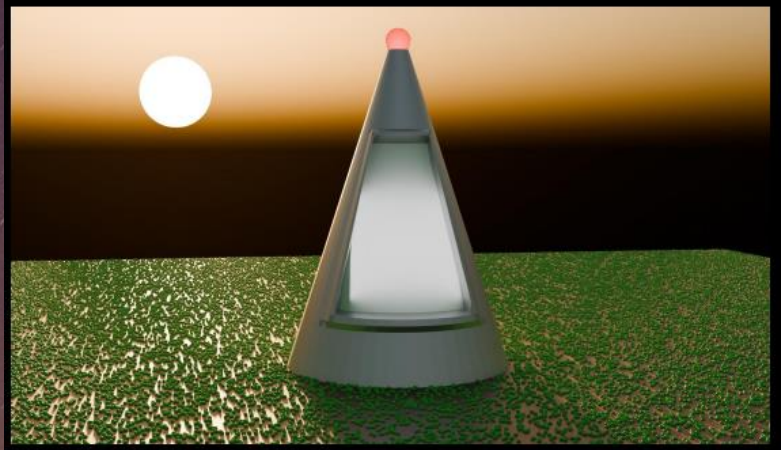
Rocco Ibsen, Asher Paulson

Radiation Communication

“Our idea is radiation communication aka laser texting. The main idea of the terminal is to use a touch screen to type a message in any language. Then the terminal uses a radio signal to communicate with the satellite. The terminal is also used to receive a message from the satellite and display it. The main idea of the satellite is to receive the message then pass it on to the terminal. So the laser hits the solar panels and the satellite decodes the message.”

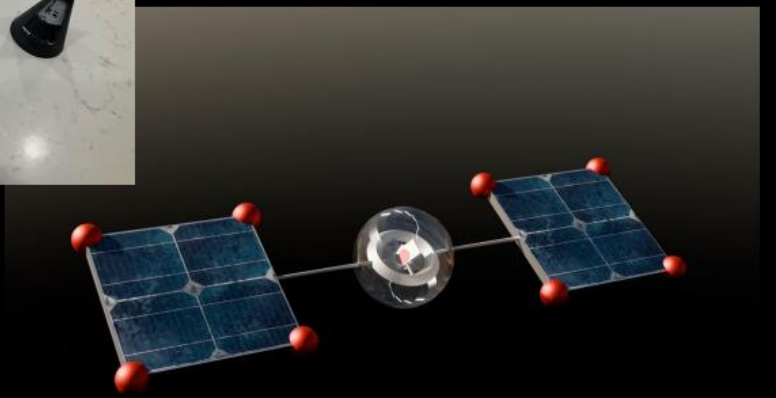
Rocco, Asher and the Mastermind behind the project

Our board

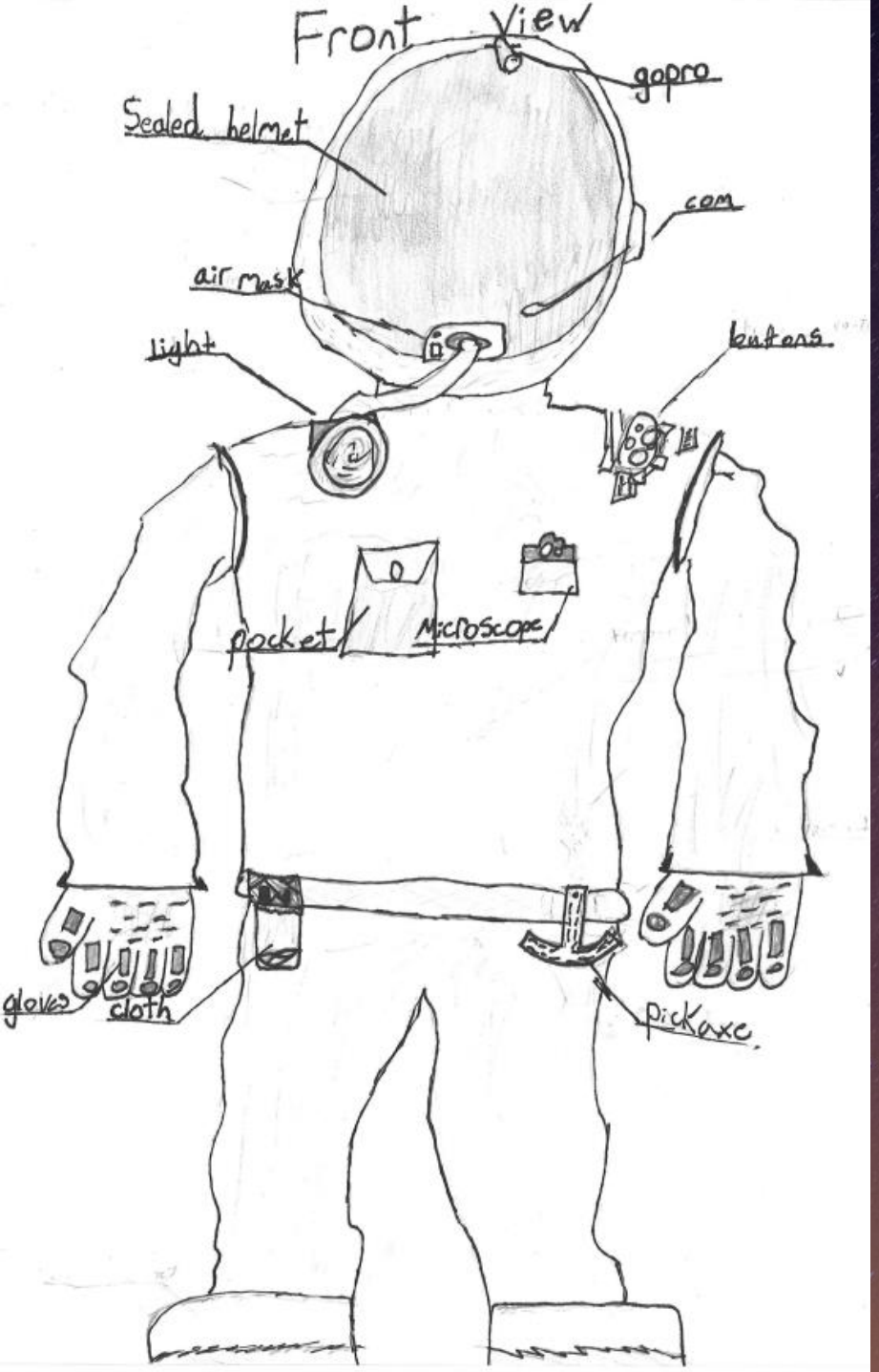


This is the terminal

3D printed versions of our project. 3D modeled by Rocco.



This is the satellite



Everett McLaughlin

Mars Suit With Air Generator

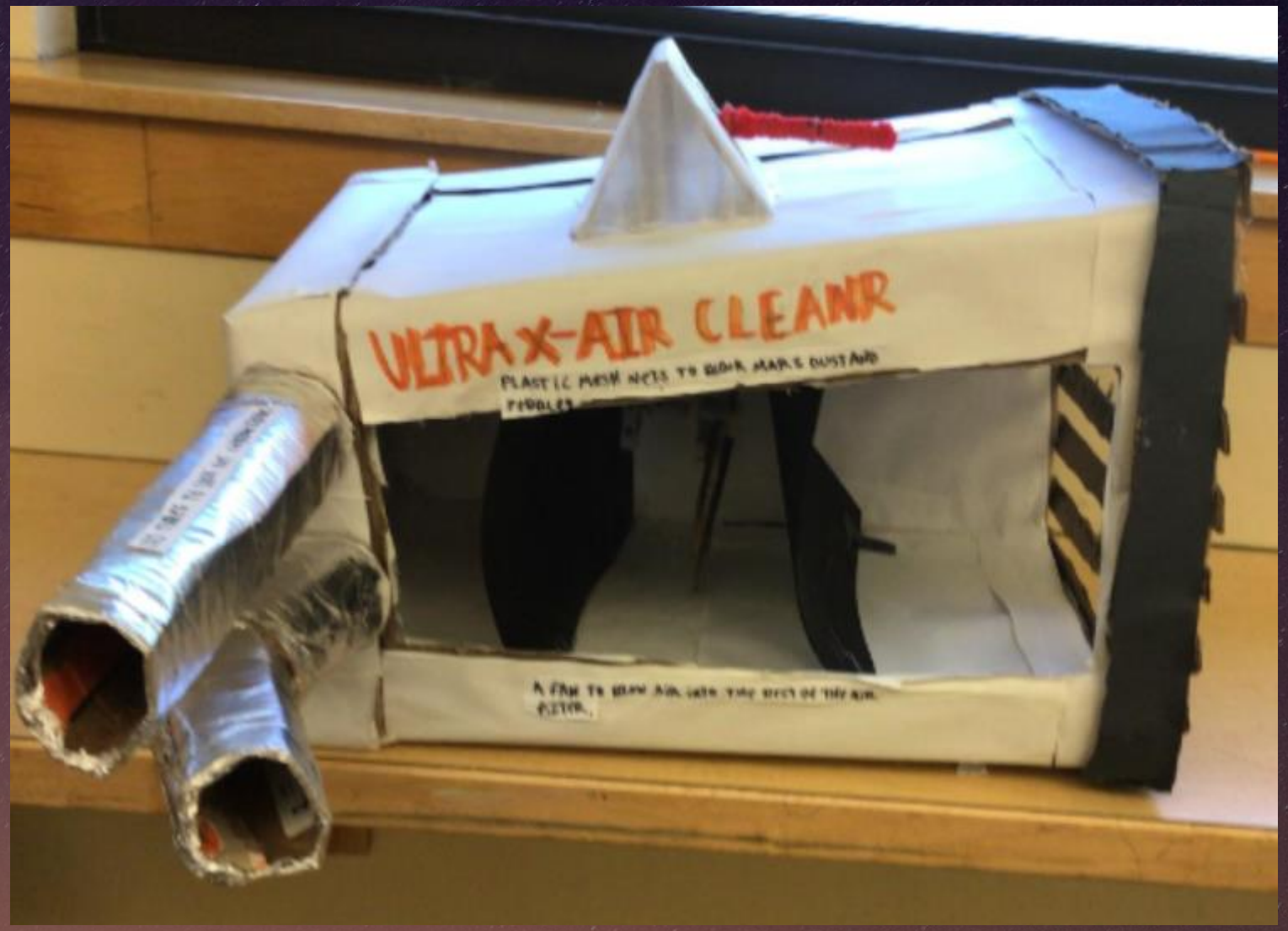
"My air generator is sucking in CO2 from around the suit, and then Pincushion Moss uses photosynthesis, which turns the CO2 into breathable oxygen."

Vance Young

Ultra X Mars Filter

"...on the front [there] is a vent cover that stops any big pebbles and protects the air filter. The next component is a mesh plastic net that stops small pebbles and dust. Then there is a fan that blows air into the rest of the system...another mesh plastic net stops dust...

And finally there is a flap that leads into the vent syste, that is there was a malfunction it would close off the air filter from the rest of the vent system."



Maddox Hellwich

Telepix

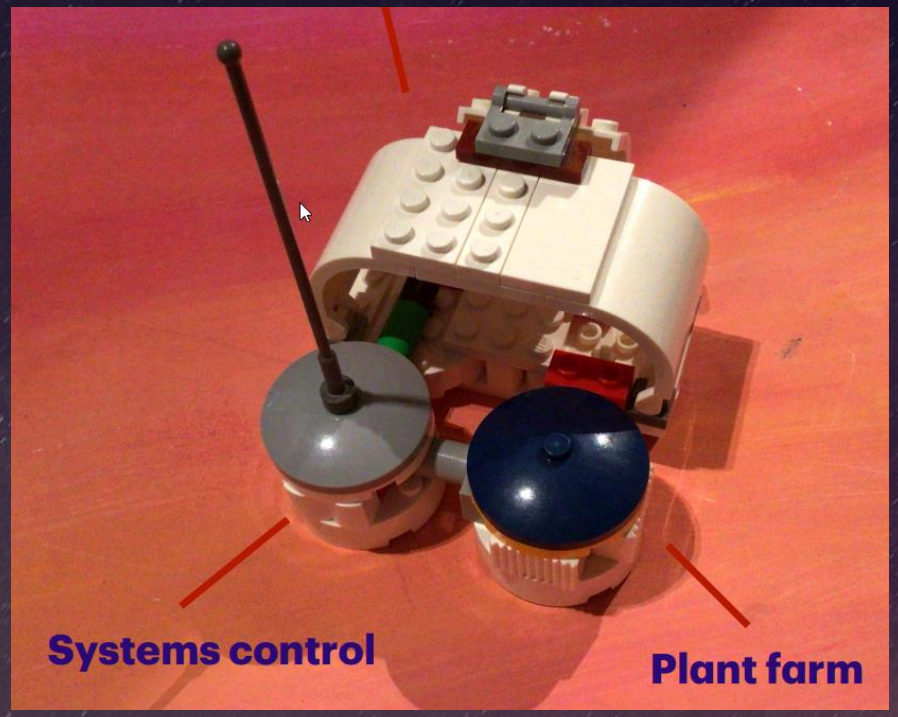
"I know how teleportation could possibly work and I call it Telepix. [It's] based on two theories both with the roots of quantum physics (quantum entanglement and the datastream).

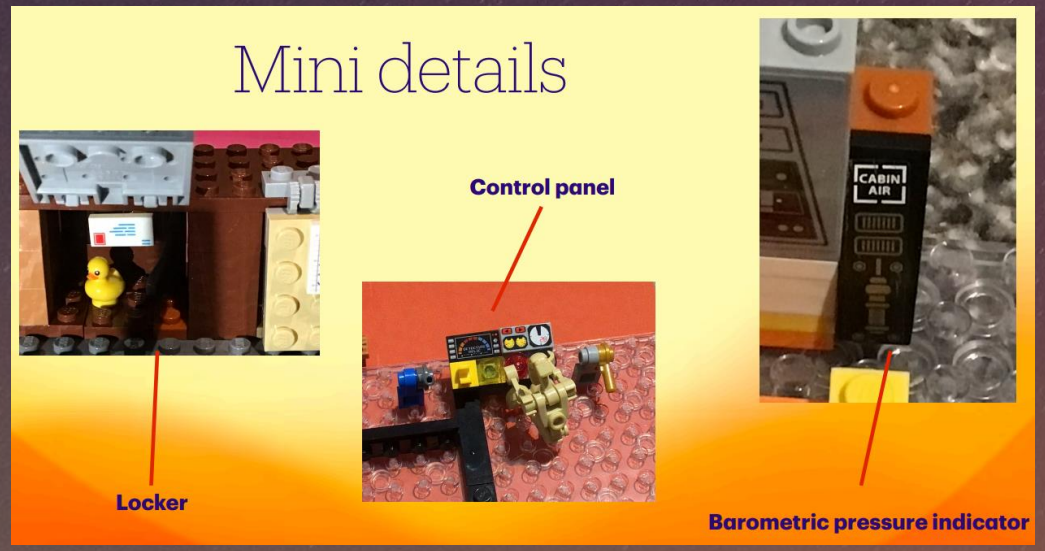
You can call me crazy all you want, but...in 1903 the Wright brothers... sustained flight. If I told you then that in 60 years we would have a person on the moon, you would still call me crazy.

What would we be able to teleport? The most important thing of all, water! ...A space shuttle could carry 22 peoples' worth of water per year, but it would take 8 months and it would freeze. Now there are some things that are just way too complicated to be able to teleport and one of them is a sandwich. It's just too many molecules."

Oliver Bunning, Keeran Dharmarajah, & Theo Eiben

Life Underground





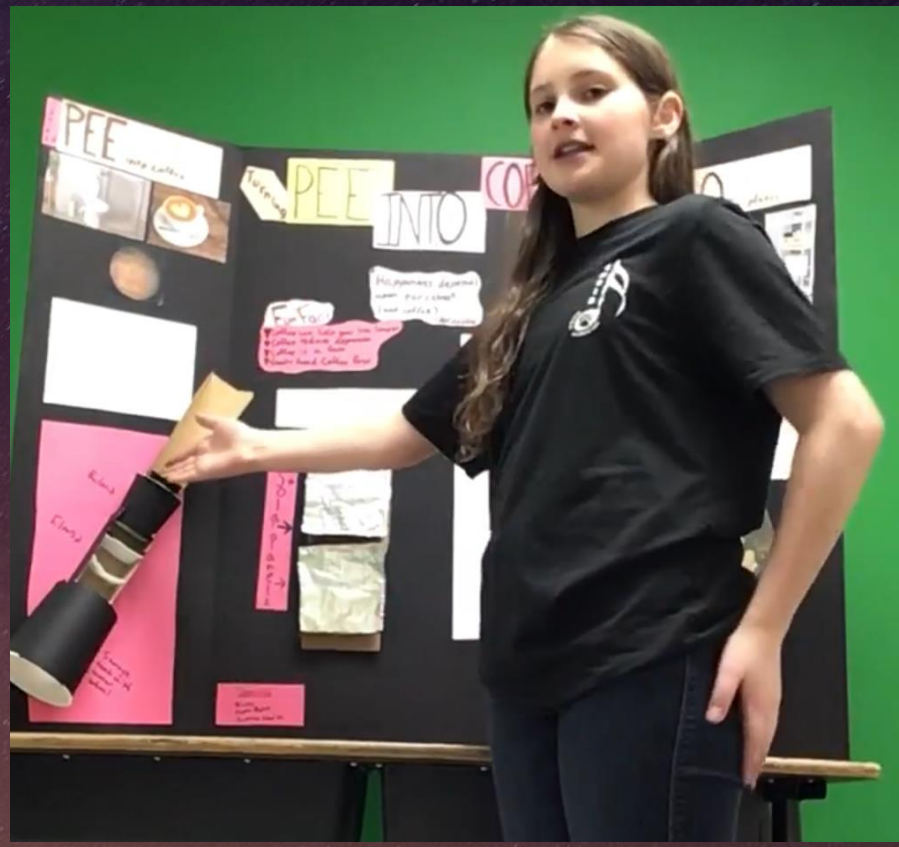
"Our idea is to send 3 pods that each have a drill to burrow into the surface of Mars. They will be assembled while orbiting Earth, the way the ISS was built.

They each have different purposes. One is filled with tech to control all systems; one is filled with living quarters for the humans; and one will arrive with dormant seeds that will grow into plants for air and food. "

Chloe Rhoads, Margot Tatum-Ling

The Mars Cafe

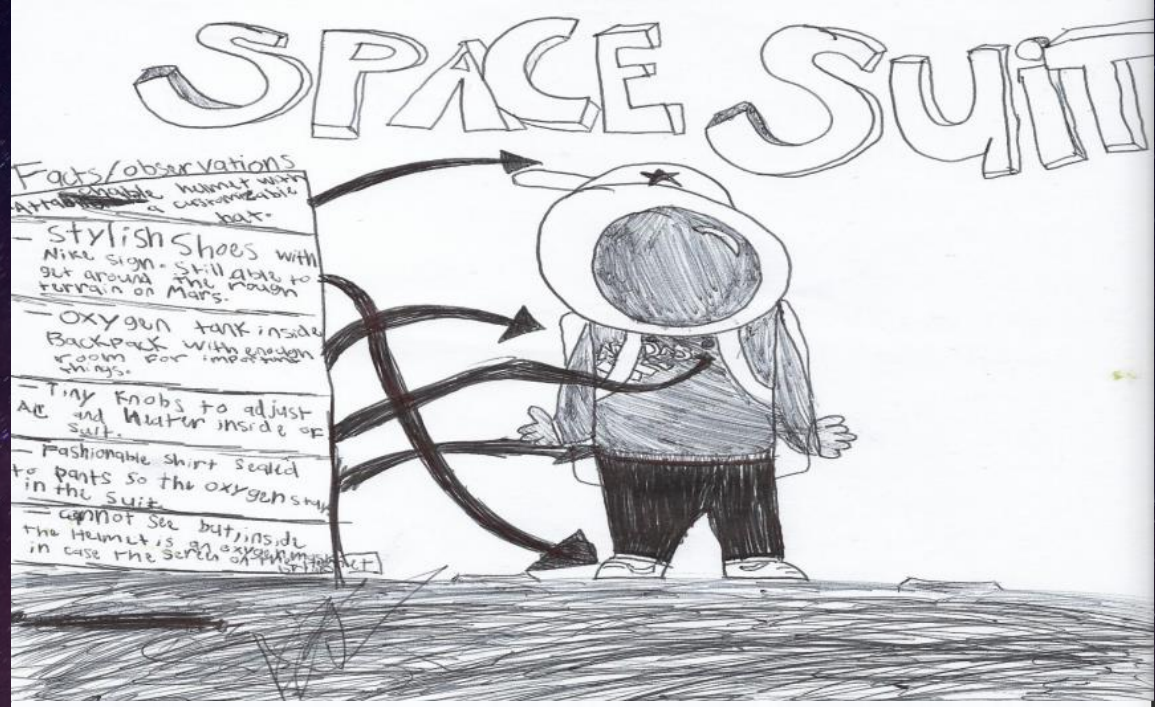
"The Mars Cafe is designed to be a cafe that serves a space to connect, as well as a sustainable recycler for human waste. The waste is filtered into a complex system that turns pee into water suitable for drinking, tea and coffee, and espresso. The poop is utilized as a natural fertilizer for plants..."

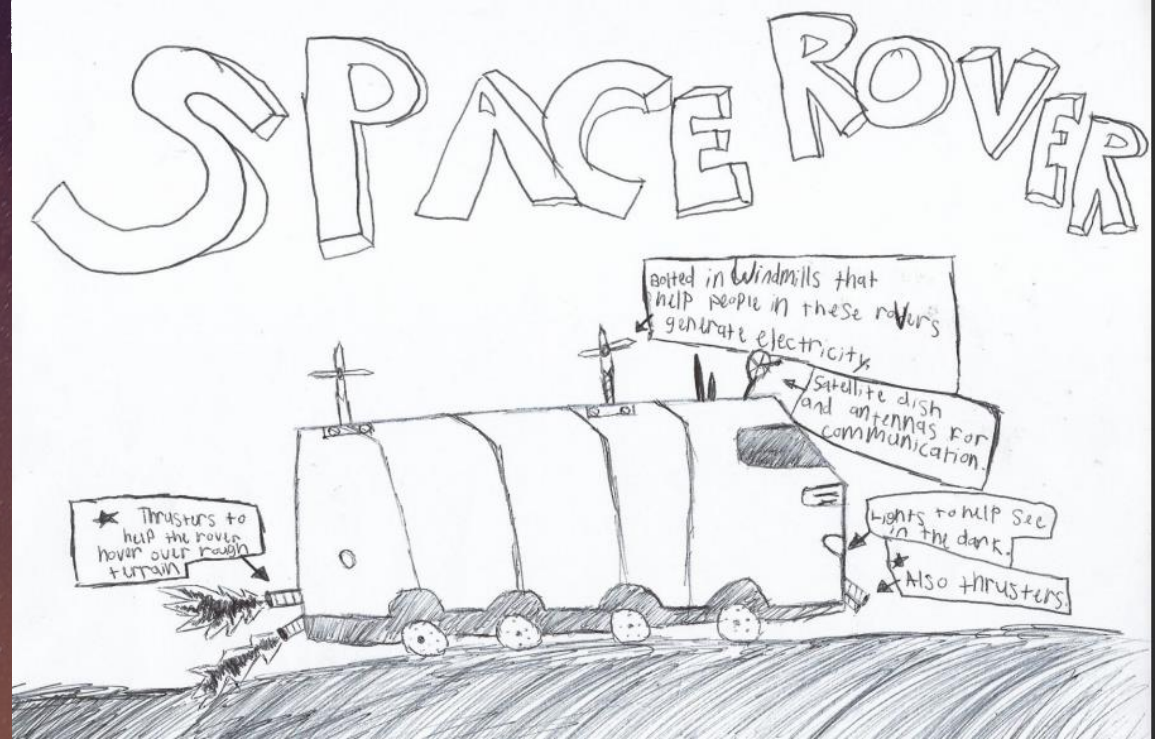


Josselyn Juarez & Timber Tewee

Life on Mars

"In order to live on Mars, us humans will need a space suit to get above ground. So we have designed a suit that is stylish, but still able to get around the rough terrain on Mars. [There is] a rover for getting around above ground on Mars. It has everything you need. At least, on the outside."





Middle School

Grand Prize!

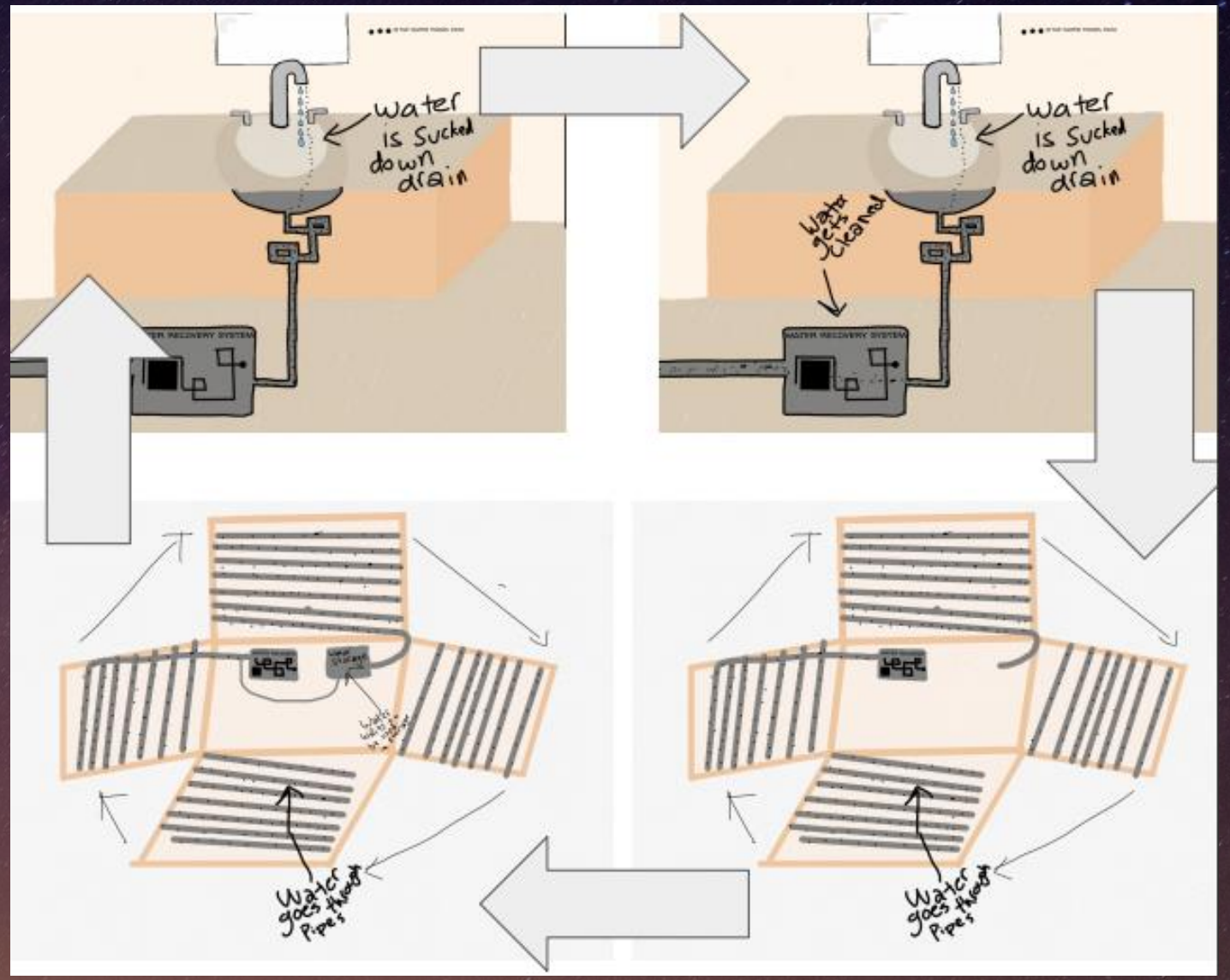
Adelyn Keever

Water Walls

“This is a water filtration system that doubles as a radiation blocker.

Similar to houses on earth, shelters on Mars will have water pipes in the walls. However, instead of water pipes in random places, there will be one long pipe wrapping around the whole house.

With the pip insulated between the inside and outside walls, and constant water motion, the water won’t freeze. It will block radiation while being able to be used for hydration and hygiene.”



Grand Prize!

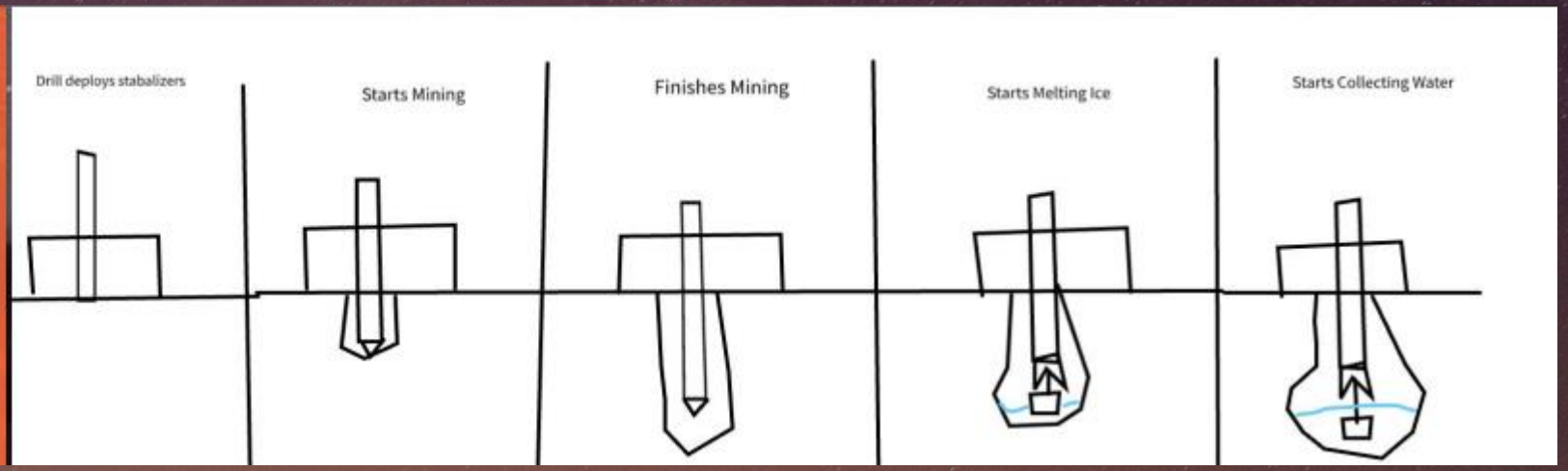
Josh Hayner, Vincent Heraeus

Mining on Mars

“Our idea is to create an experiment to teach us how life would function on mars.

At the mining site the drill will extend and start spinning using a Brushless DC Motor. After finding H2O ice a heating probe will be lowered along with a vacuum to collect any liquids.”

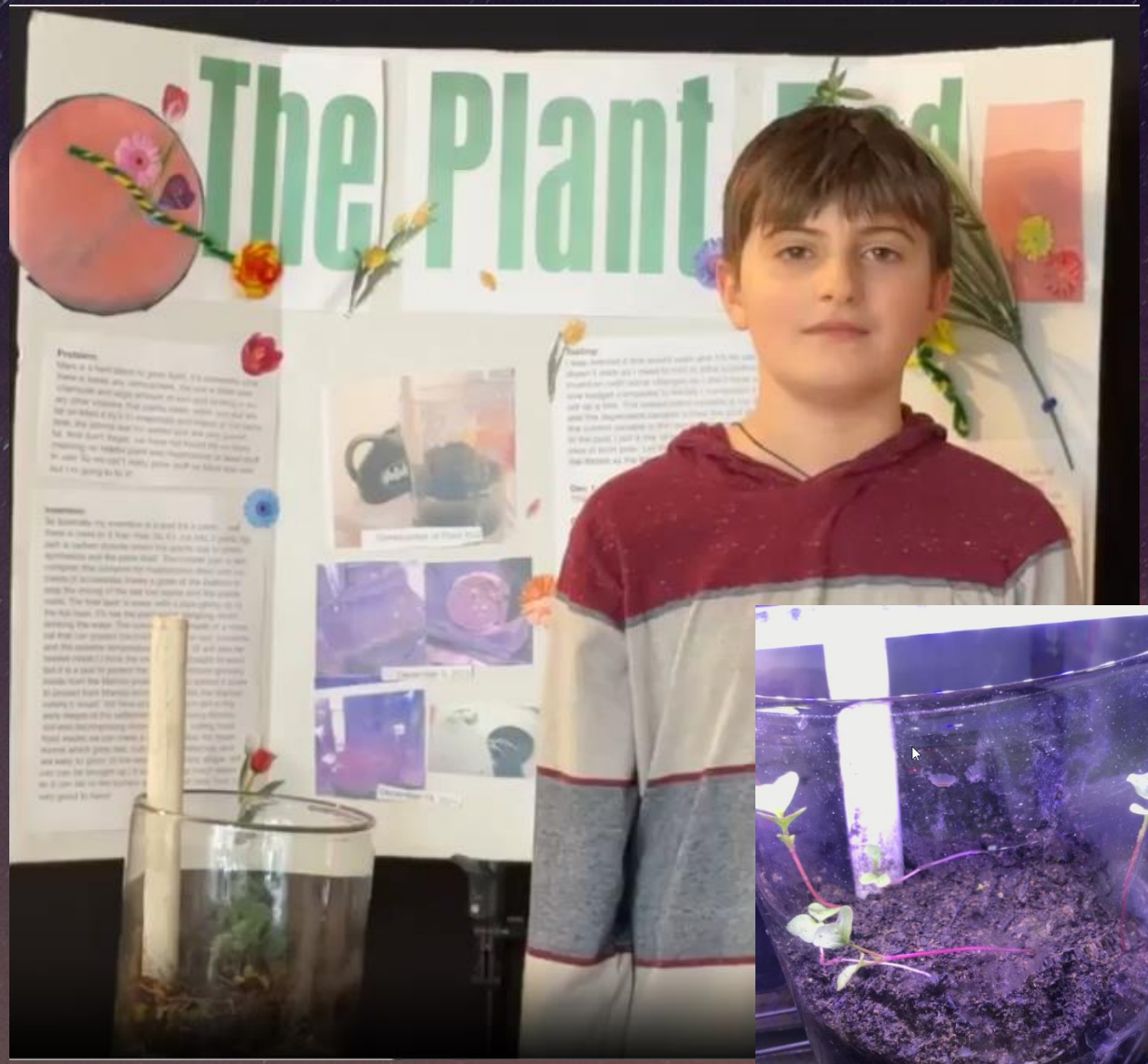
“The green house would have a 3’x3’ base with a triangular roof. Inside there would be a articulated arm form planting seeds. Using the articulated arm we could slowly release small amounts of martian soil into the dirt that the plants are in to see how plants adapt.”



Thomas Dawson

The Plant Pod

Runner Up



"A space suit for plants so that they may flourish on the surface of Mars.

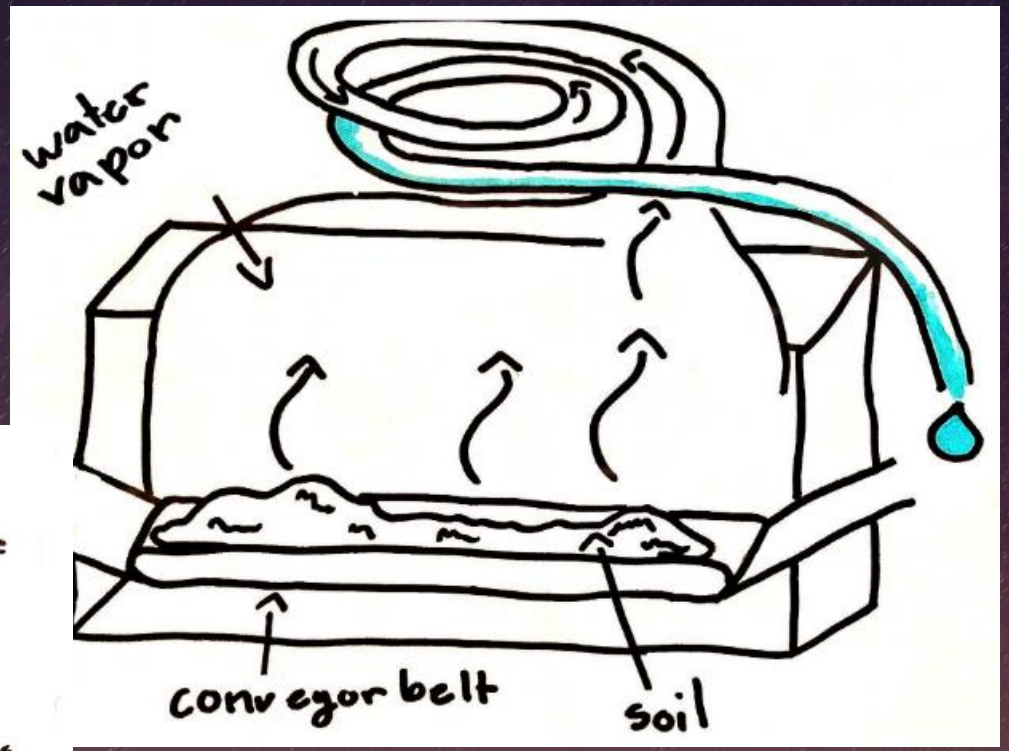
So it's cut into 3 parts, top part is carbon dioxide which the plants use to photosynthesize…The middle part is the dirt/compost…The final layer is water with a pipe going up to the top layer, it's has the plant roots dangling down drinking the water.

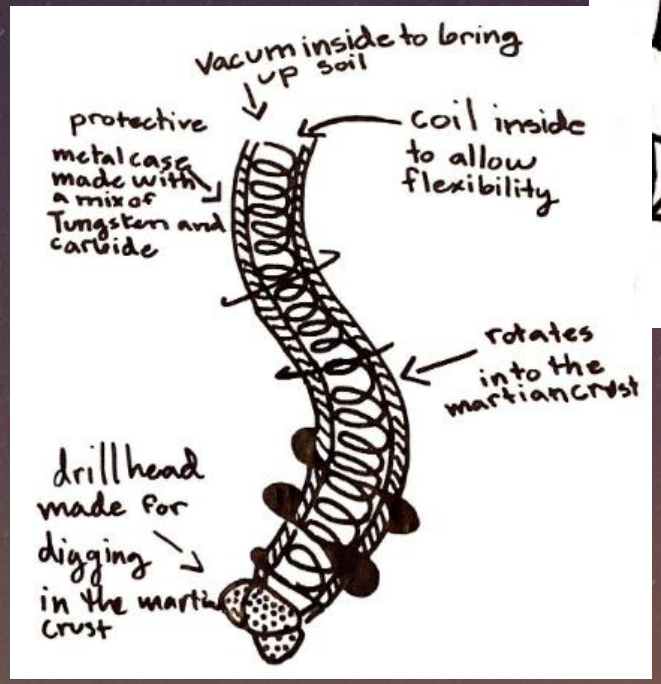
…while Martian colony's would not have access to much dirt in the early stages of the settlement but by mining Martian soil and decomposing materials (feces, rotting food, food waste) we can make a compost okay for mushrooms which grow fast…"

Kennedy Petersen

H2O Extracter

Runner Up





"This drill has a coil inside to allow flexibility and a protective metal case with a mix of tungsten and carbide…There would be a small hole at the drill head and at the top there is an auger that spins the soil up.

Next to harvest the water you must…heat the soil up…The soil would be transferred into a large microwave where we would heat it up…the water inside the soil will be distilled, then the water will become vapor that we can collect.

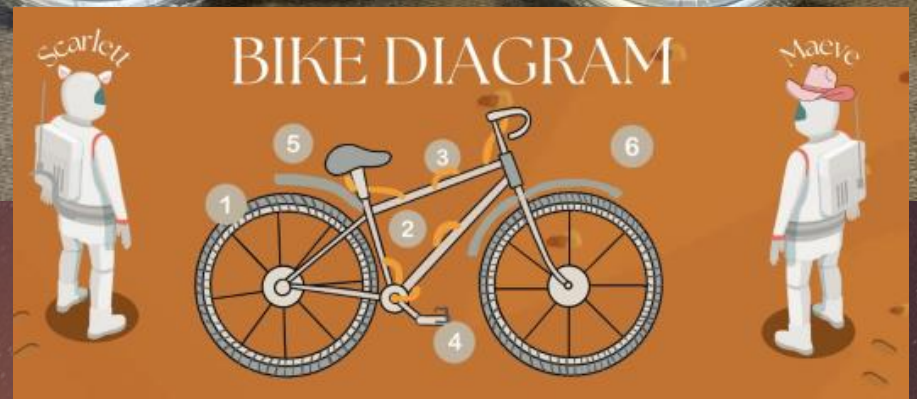
The soil after having the water taken out would be sorted and other valuable minerals would be harvested."

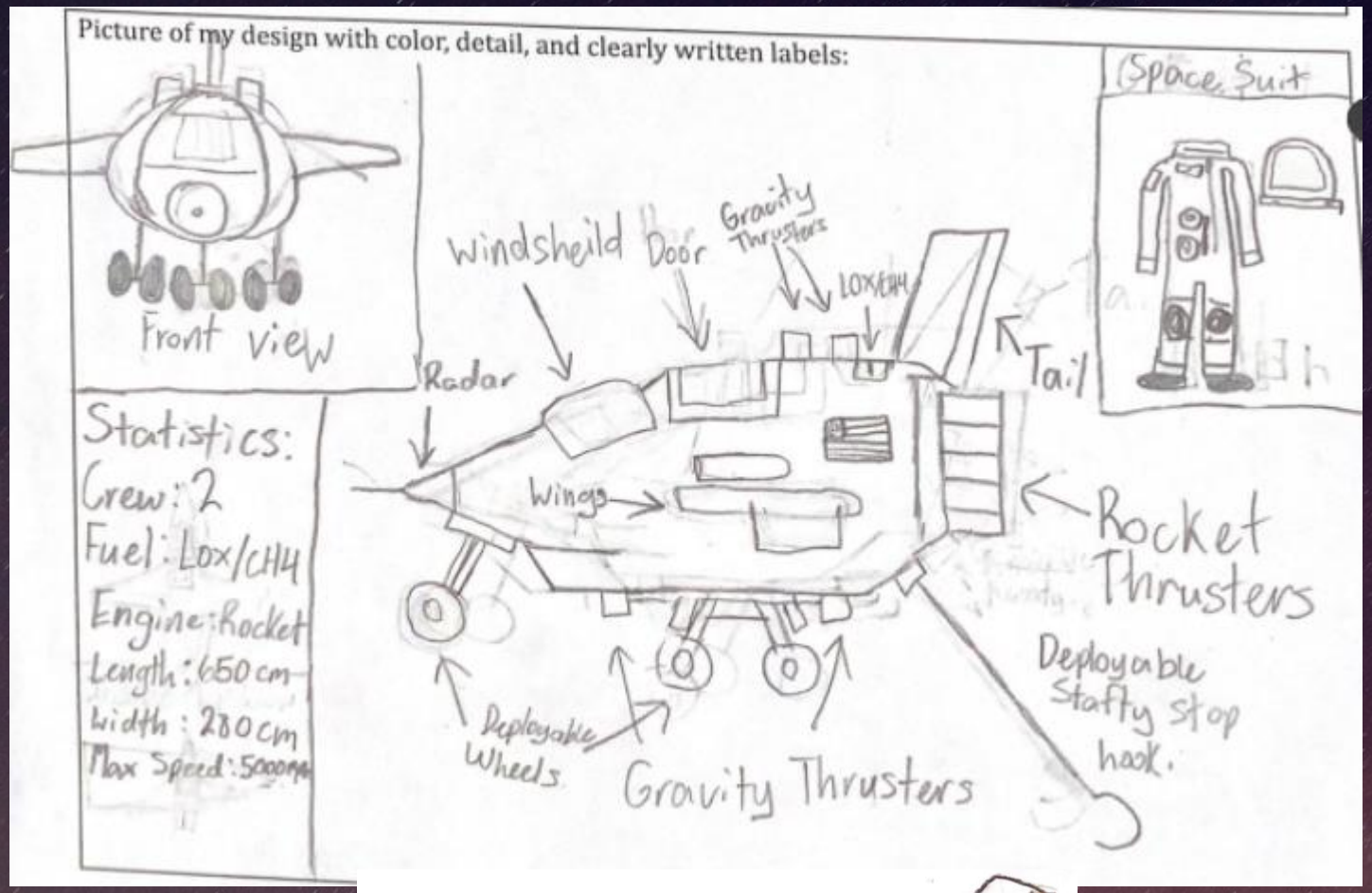
Scarlett August & Maeve Mcdonough

Bikes on Mars

“We wanted to make sure that your weight to bike ratio on mars be as similar to these ratios on earth. After comparing and contrasting a bunch of metals…we decided on titanium – due to it being the most well rounded metal that matches our criteria.

…to make it easier to peddle and have your feet secure in case you are riding during a dust storm or over bumps…we will offer an attachment to place on the bottom of the space suit boot. Each attachment will clip into a gear that is attached to the bike pedal.”





Boone Fowles & Parker Kang

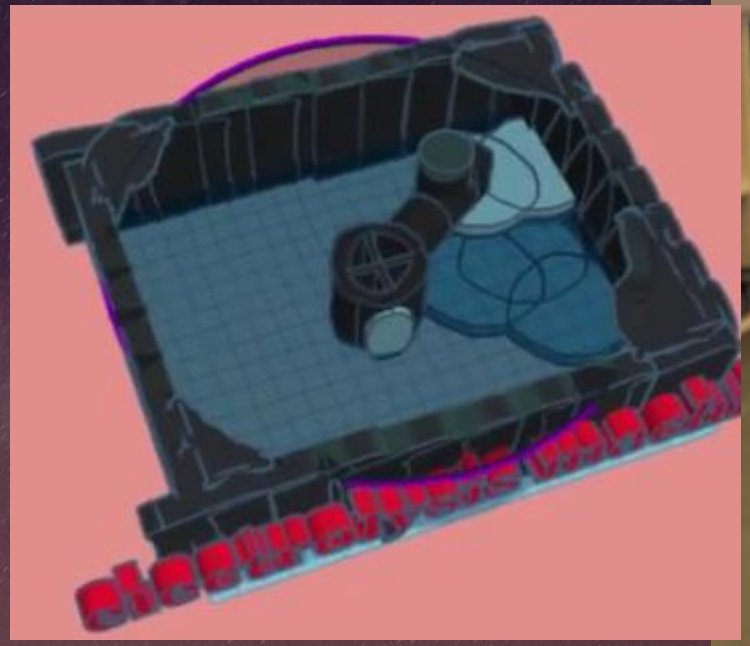
LGMTC Project

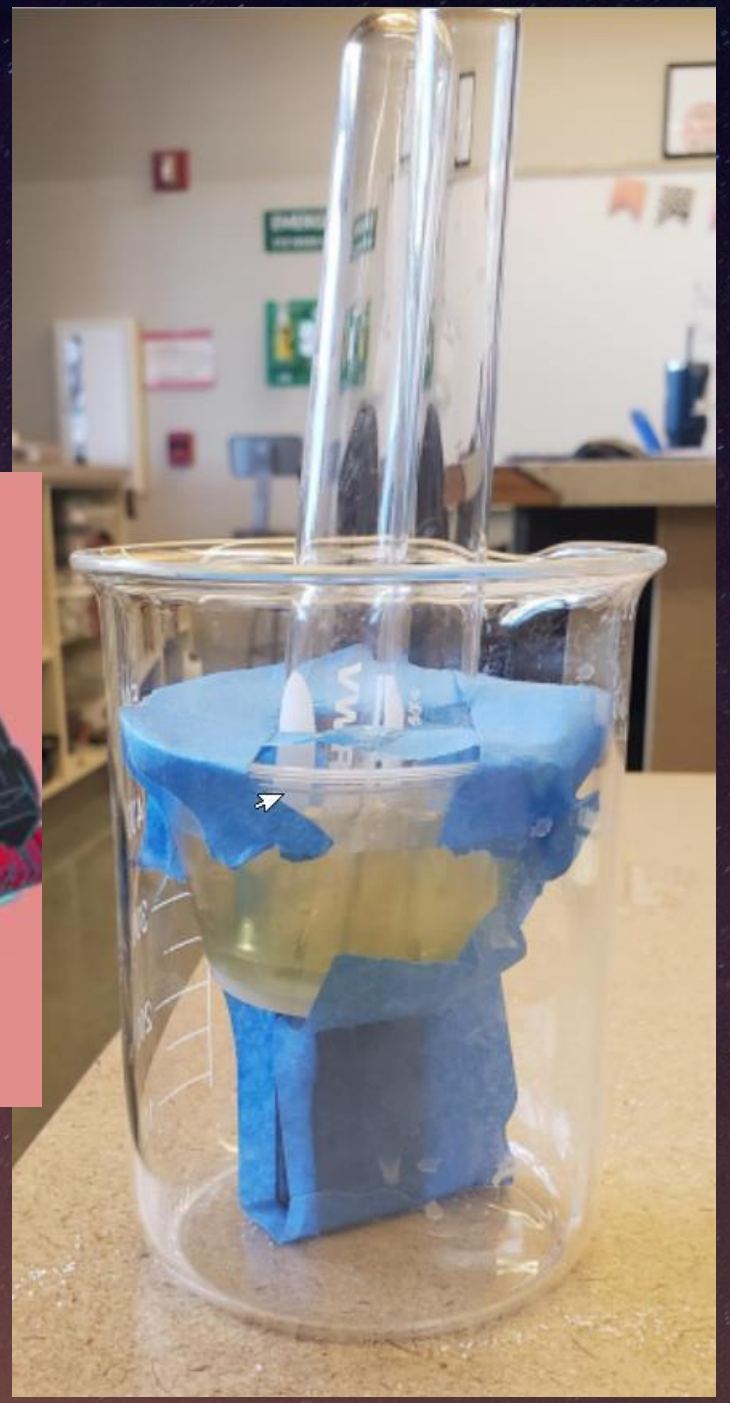
"LGMTC stands for Low Gravity Mars Transportation Craft and it is a way to provide transportation on Mars."

Kyden Smith & Frankie Zolfo

The Mars System

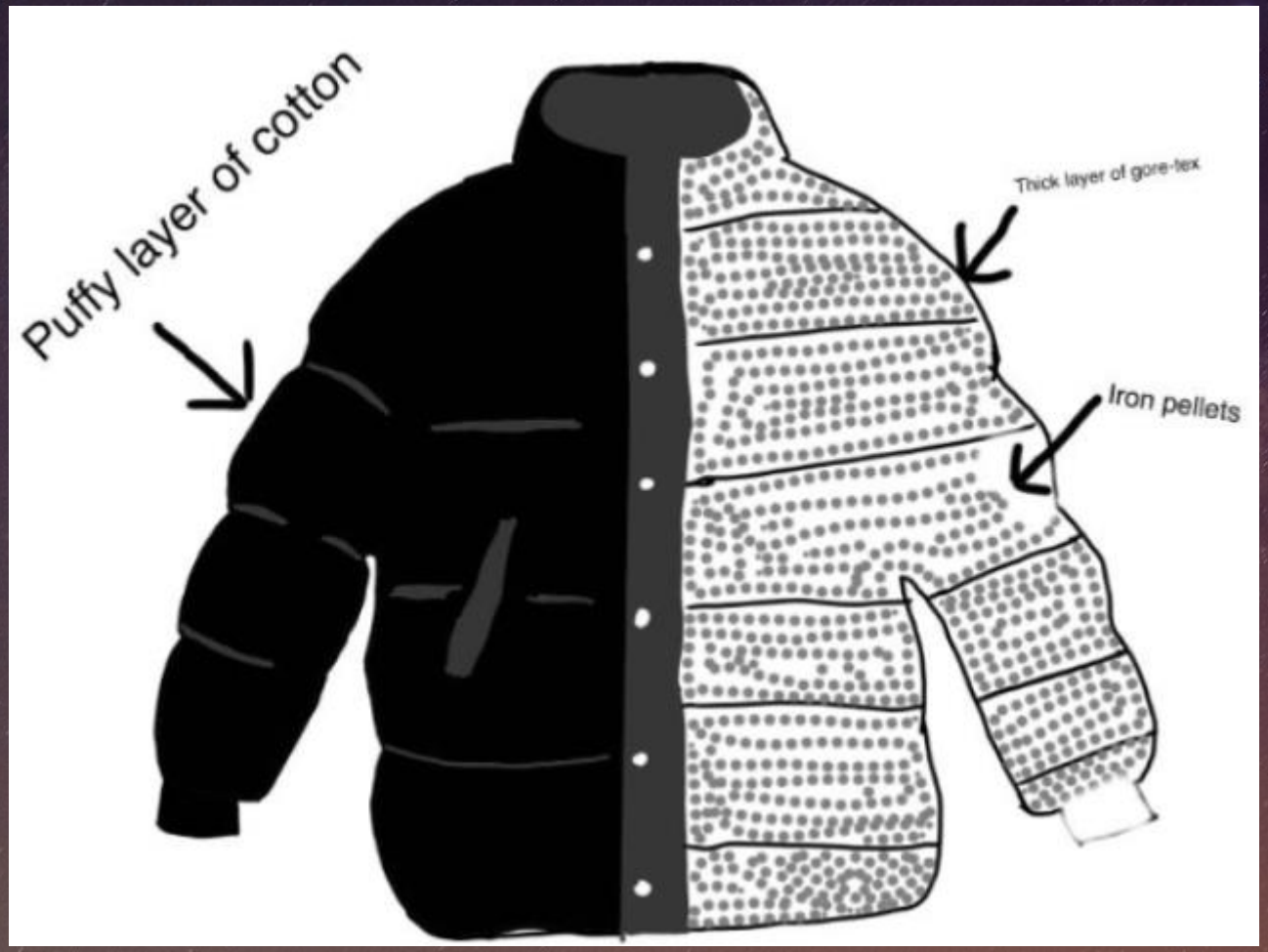
“How can we get a living ecosyetm on Mars? We would start out with treese like a terrarium. Then when we have enough oxygen to go there we make a ice mine. We would melt the ice into water. We would use that water for electrolysis.”





Charlie McKae

Skiing on Mars



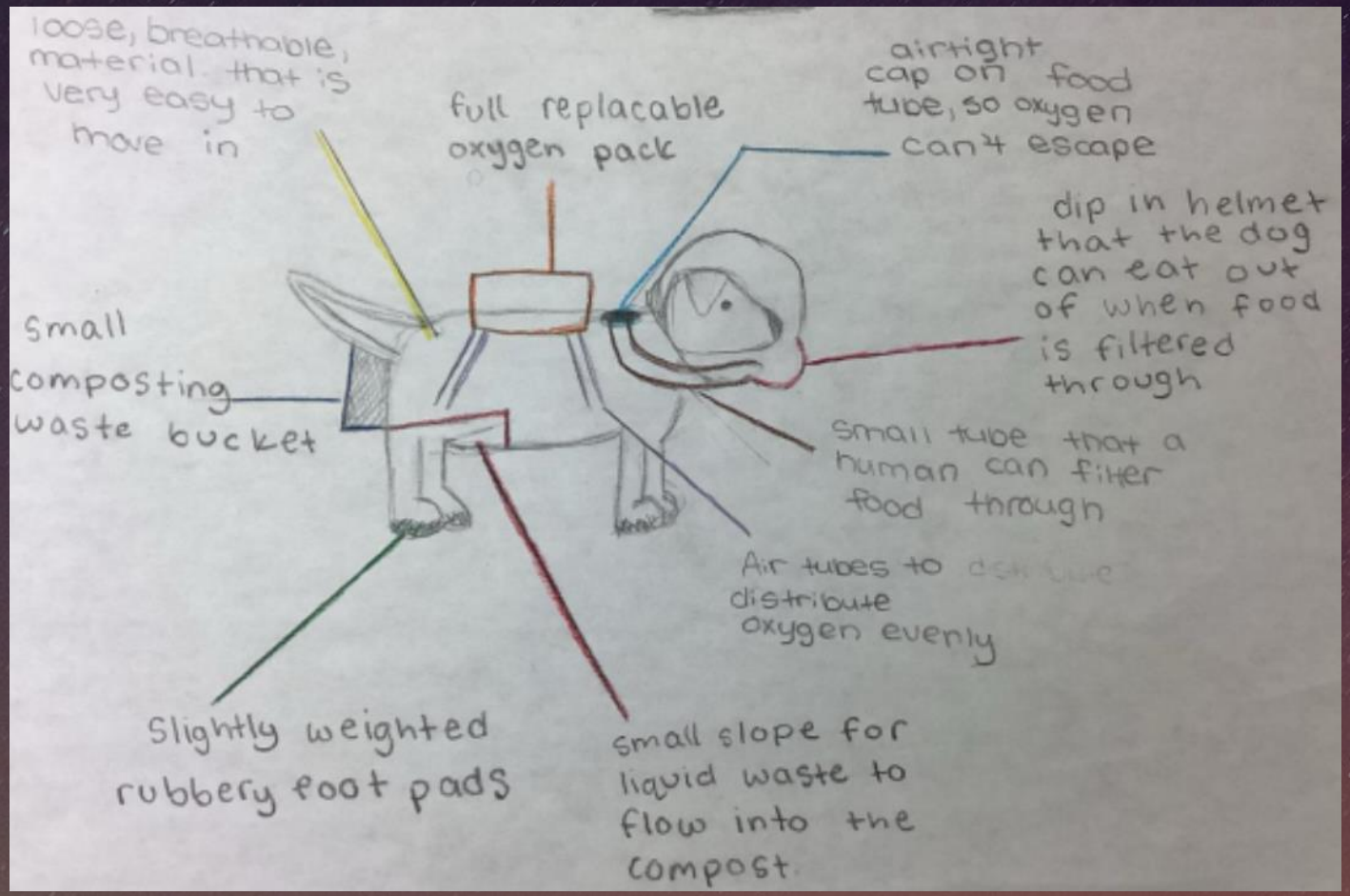
“I want to introduce you to this revolutionary new ski jacket that will take your love of skiing all the way to Mars!

I am designing a ski jacket that would both add to your weight, AND keep you safe against the surface…The jacket would have sections similar to a down jacket, but instead of feathers it will be filled with iron beads. While the beads weigh you down they also protect you from rocks and hard surfaces like chain link armor.

The amount of iron is personalized to you, and will be approximately 3x your body weight.”

Elizabeth Albin, Madalyn Pedry

Pet Space Suit



"We designed a space suit that is light so the dog can move easily... it has a very small amount of extra weight incorporated to the rubbery foot pads. This will help with the problem of low gravity...

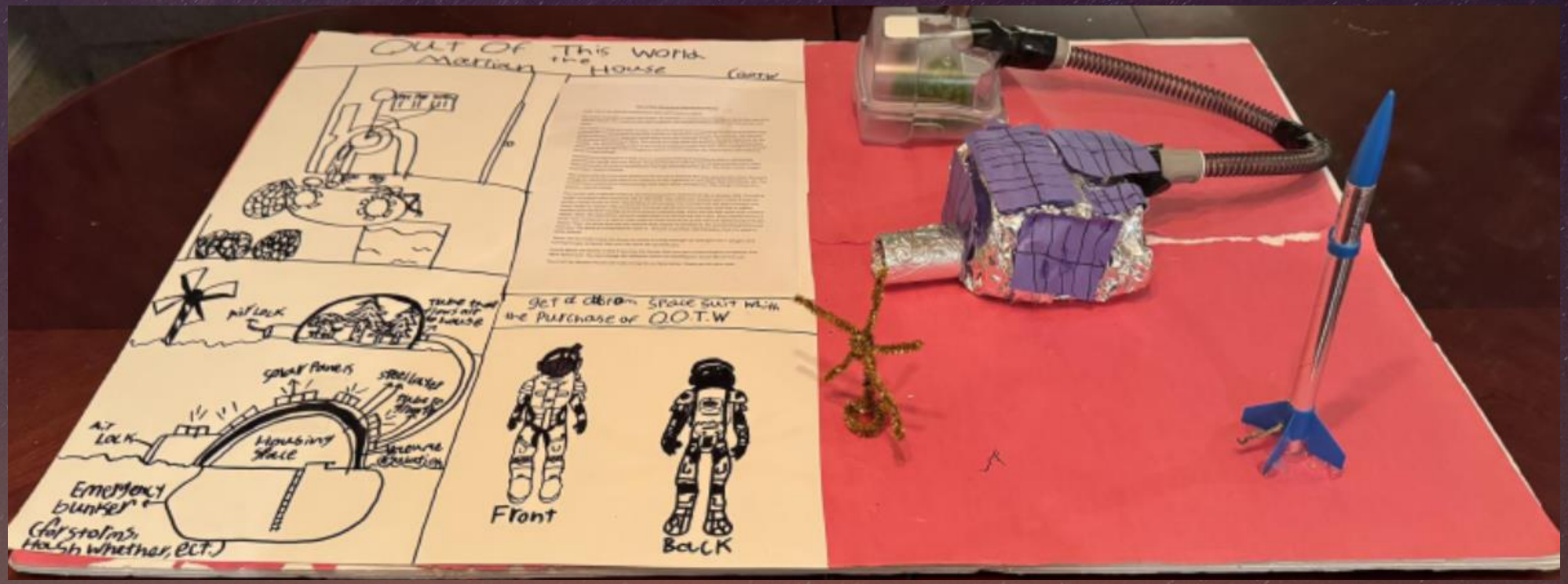
In the back of the suite, there is a small downhill sloping toward the solid waste compost. The dog can distribute liquid waste in the suit and it will slope into the solid waste compost bin.

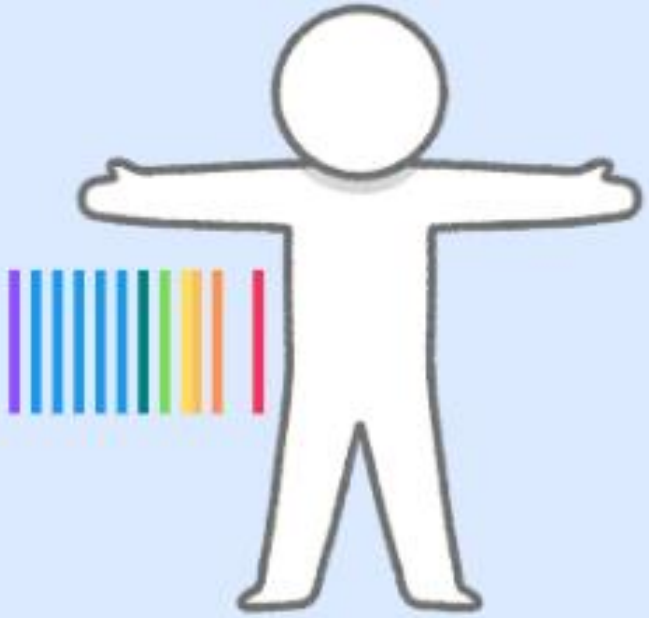
Dillon Ostendorff

Out of This World (O.O.T.W) Martian House

"This house is built to withstand the harsh winds and storms on Mars.

You have an underground lair that's your bunker for emergencies...The greenhouse is how you'll get your air...It's a community greenhouse, everyone else also gets to like use it so everyone has like a tube connecting to this."





Base Layer
Liner
Heating and Cooling tubing (my idea)
Backing for Tubing
Liner
Restraining Fabric
Insulation (5 layers)
Ortho Fabric

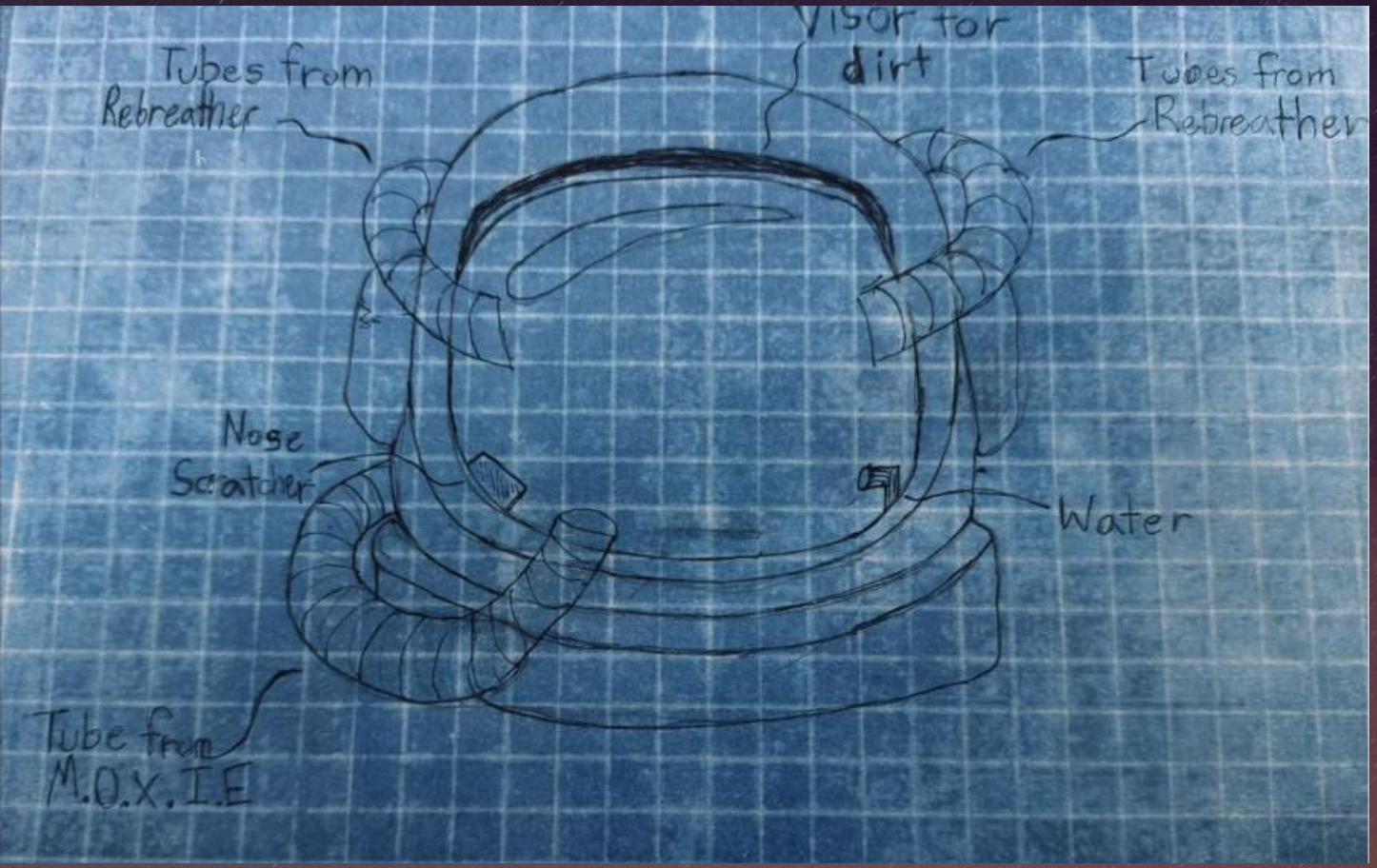
Ella Adams

Mars Space Suit

"My idea is to make a regulated heating and cooling layer in space suits. With this, astronauts on mars would not freeze or overheat on mars' harsh temperatures."

Ava Hershman, Neve Kelley

Nava Helmet of the Future 8824

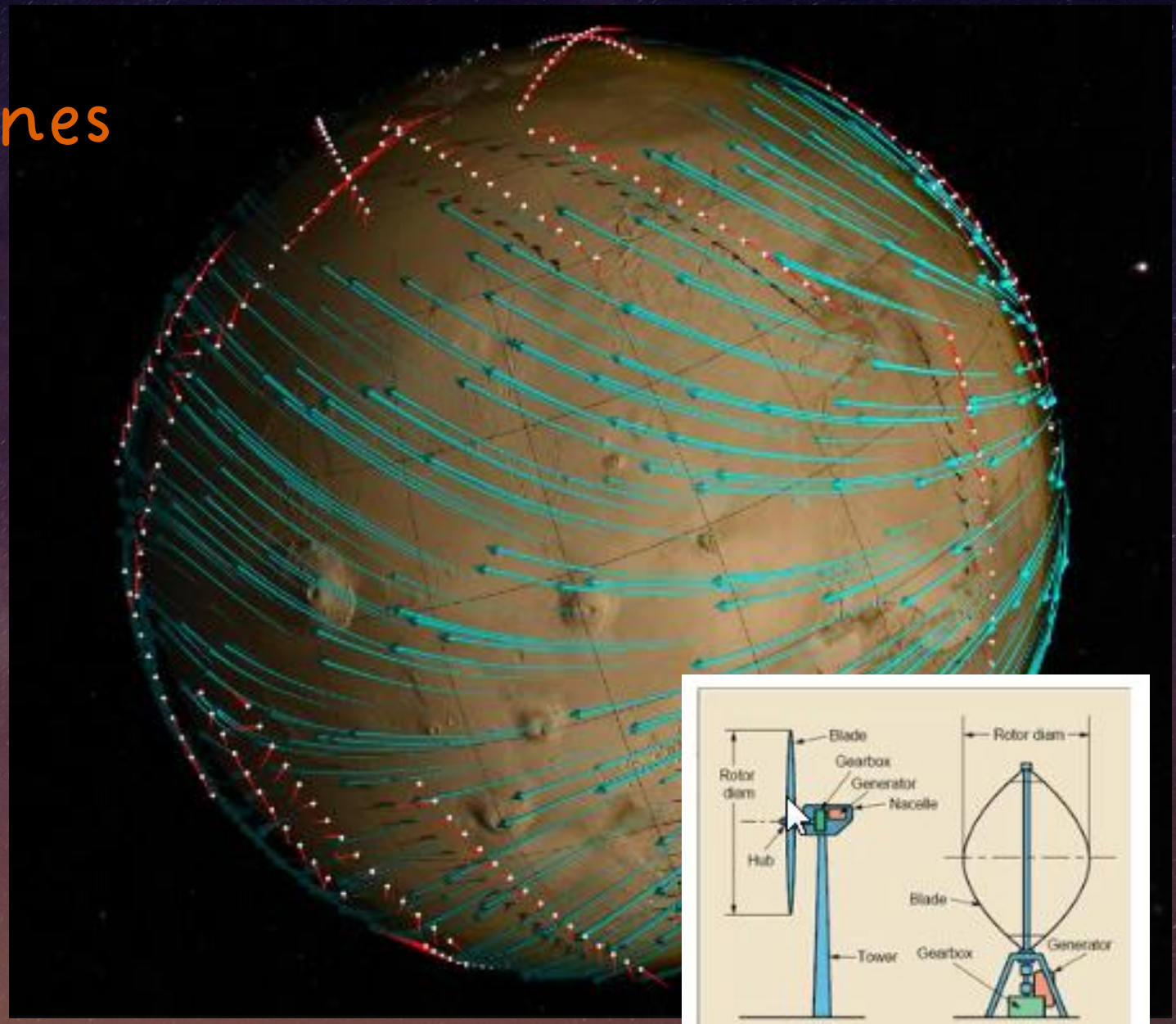


"We chose this idea because we realized that before you could focus on anything else on mars you have to be able to breathe.

The MOXIE would create...breathable air...this would be sent straight into the helmet, the Rebreather would suck in all the carbon dioxide that would come out after you exhale the air and reuse it....it would send back out the carbon dioxide that was converted to oxygen."

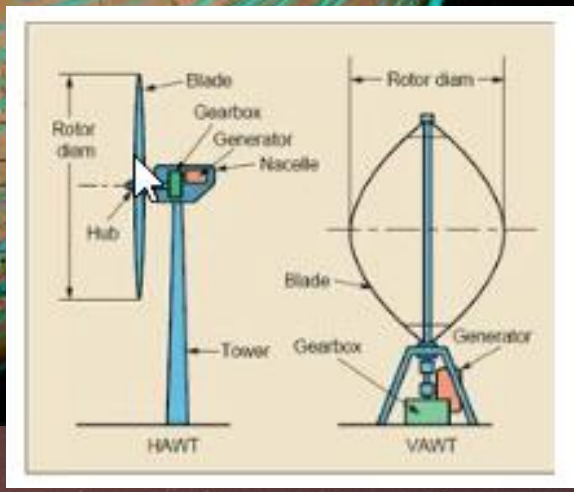
Athena Prince

Horizontal Wind Turbines



"The winds on mars are predictable and strong...I think we should take advantage of that power.

I think horizontal axis wind turbines would be best for mars because they can be used to generate large scale power and face the exact source of wind whereas vertical axis wind turbines create less power and it's not necessary to gather wind from all directions since it's only coming from one."

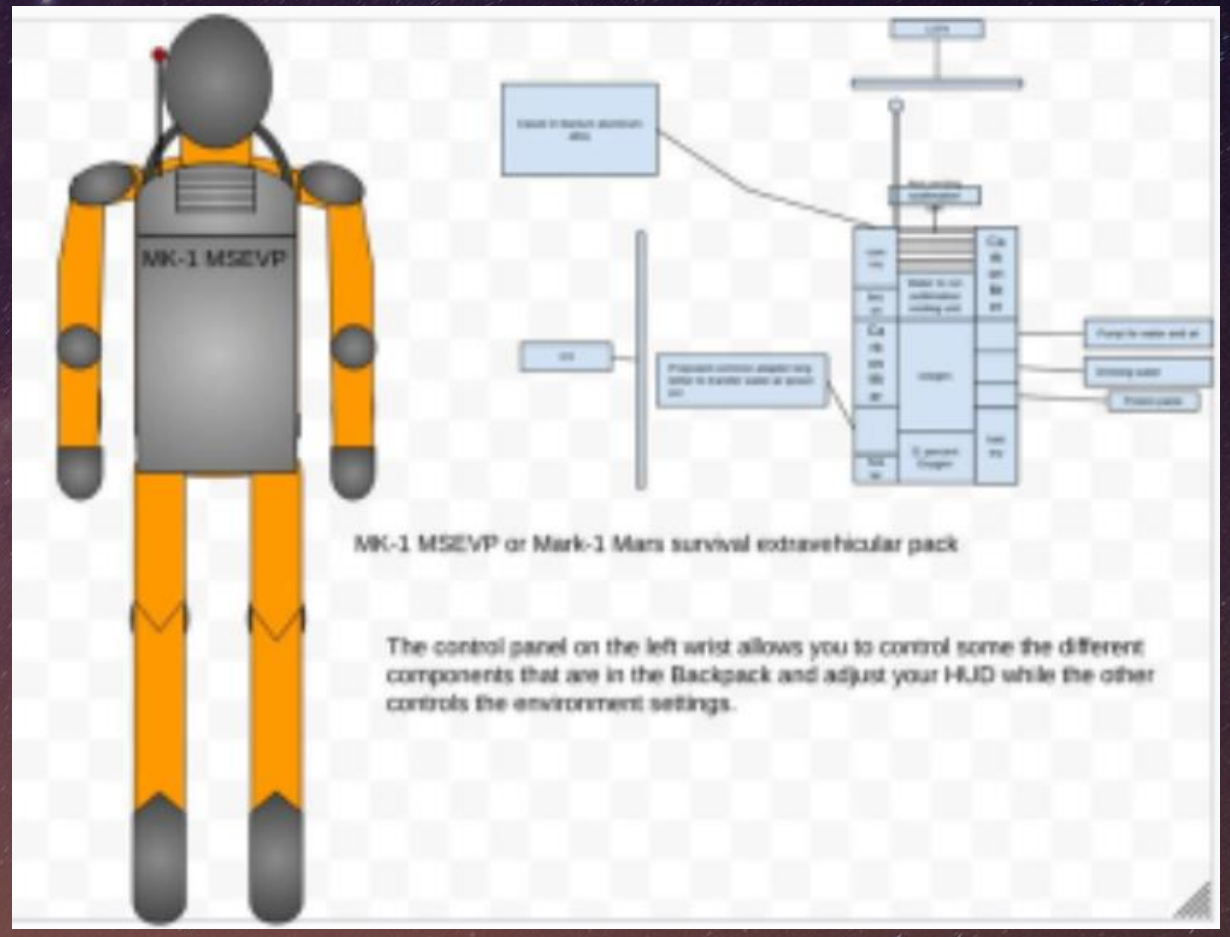


Nolan Elkins, Finn Mellor

Nolan and Finn inventerprise

"Our space suit aims to enhance the utility and effective length of human survival on mars outside of pre established structures. To accomplish this we have taken basic ideas of the Apollo lunar space suit but improved them.

The suit includes layers of radiation shielding...the pressure suit is cased in...a titanium chain mail to avoid the problems encountered in early space suits relate dto inflating due to the lack of exterior atmospheric pressure."



Oliver August & Drew Bollinger

Super Milk

"Since Mars has around 38% of the Earth's gravity, peoples bones would get weaker and less dense. The problem with bones getting less dense would be that anyone trying to get home would certainly have many life threatening issues.

Super milk is a dissolvable pill. It is called super milk because we would pump up the calcium levels to make your bones super dense."

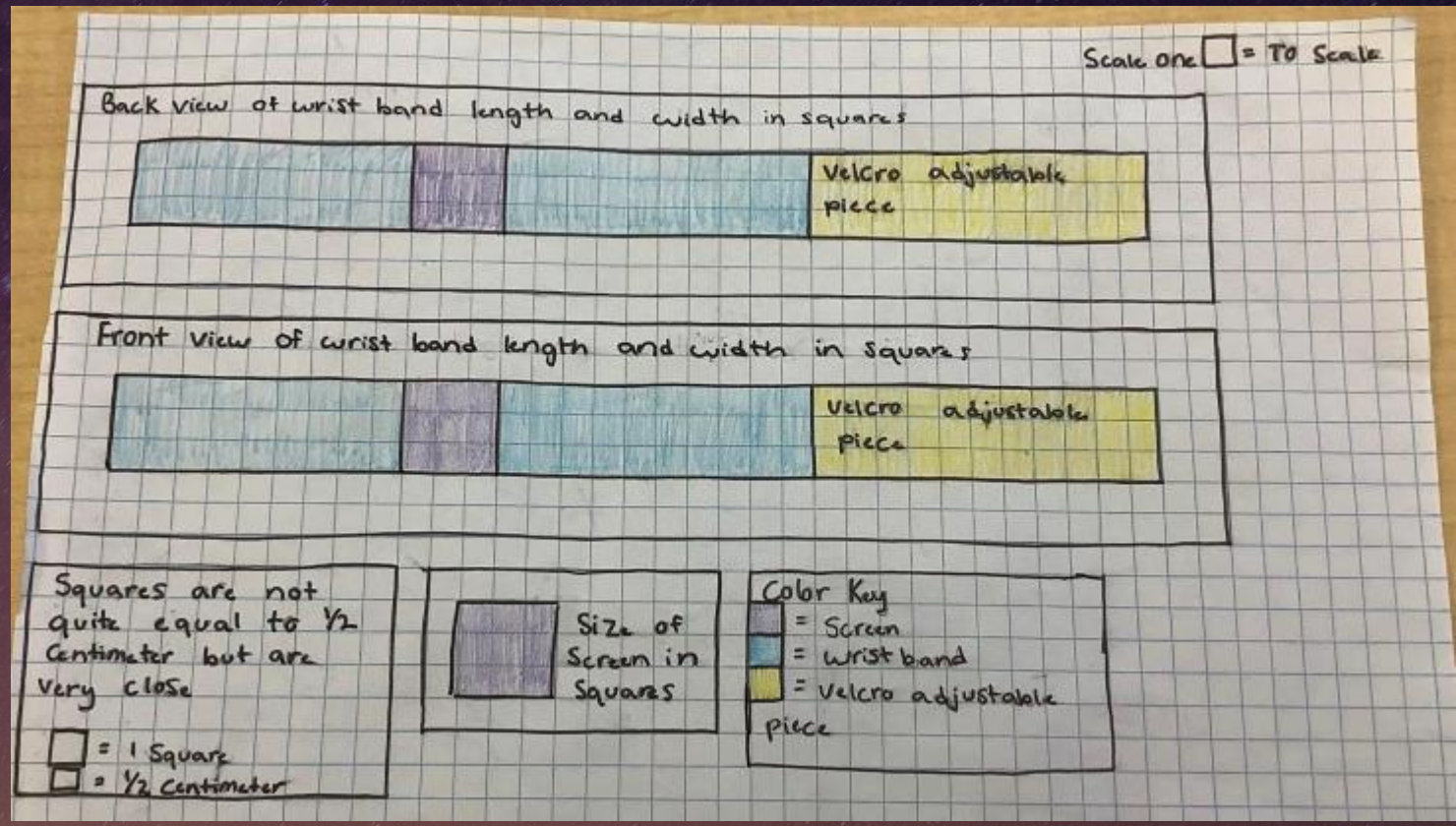
Celia Fornaciari

Mental Health Support

“ My idea is to have a wristband that you can wear to sense your emotions through your vital signs like heart rate. If the wristband senses an elevated or low heart rate…it would provide an activity or breathing exercise based on your pulse in that moment.

Your family and friends back on Earth could record messages on it before you leave for Mars.

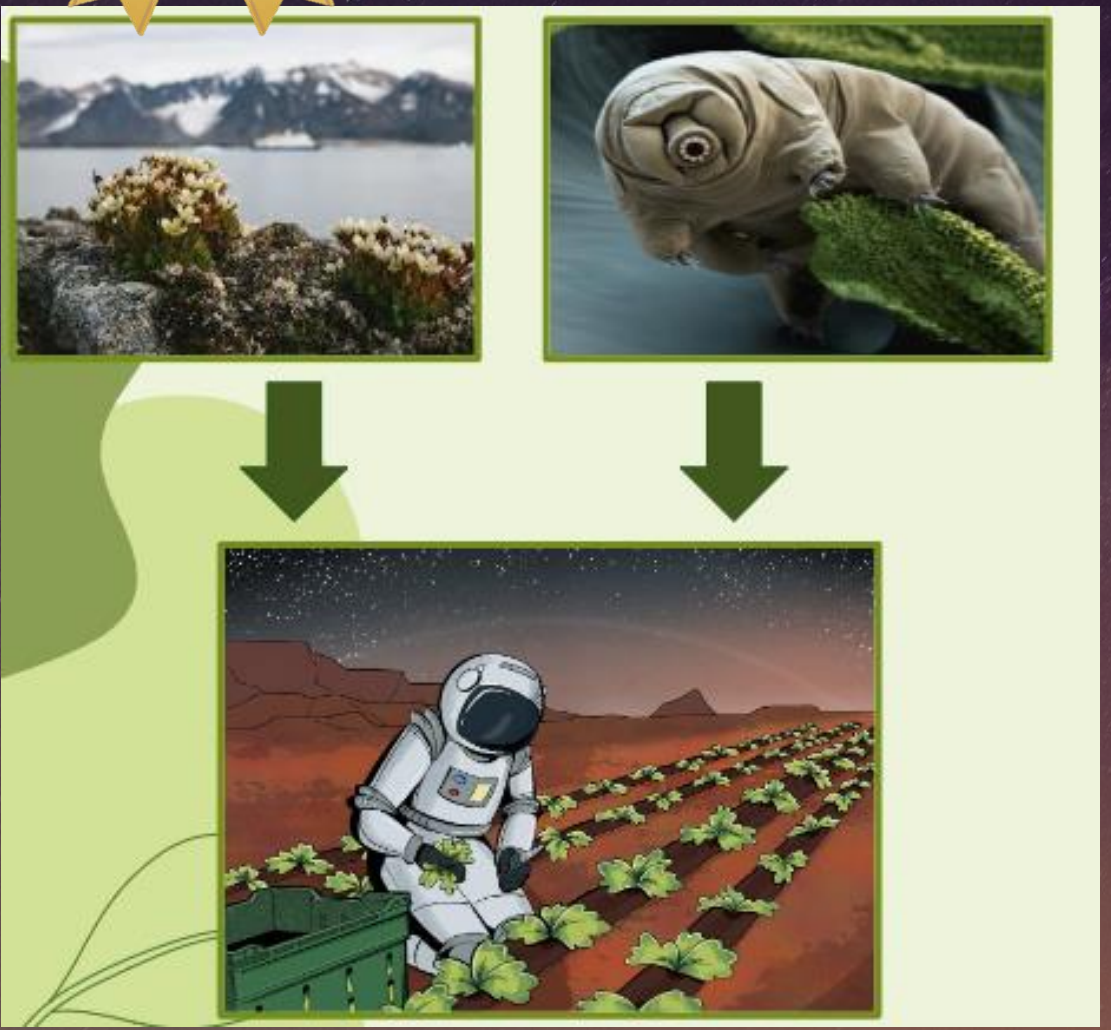
All of the functions of the band would be beneficial to mitigating the negative effects of isolation which would occur on Mars.”



High School

Skye Knox

Tardigreen: Biologically inspired cold weather protection proteins for Martian crop preservation and production



"My solution is to genetically modify the crops using Antifreese proteins from arctic plants and Tardigrades. This will allow foods we enjoy on earth…to become resistant to the colder temperatures right away, without needing to create a heated building to grow them…

While during the day temperatures on Mars average about -60°C, within the range of AFPSs, during the night and winter on Mars, temperatures can drop to -153°C. When temperatures drop this low, CAHS's abilities would be absolutely vital in protecting the crops against these extremely low temperatures."

Runner Up

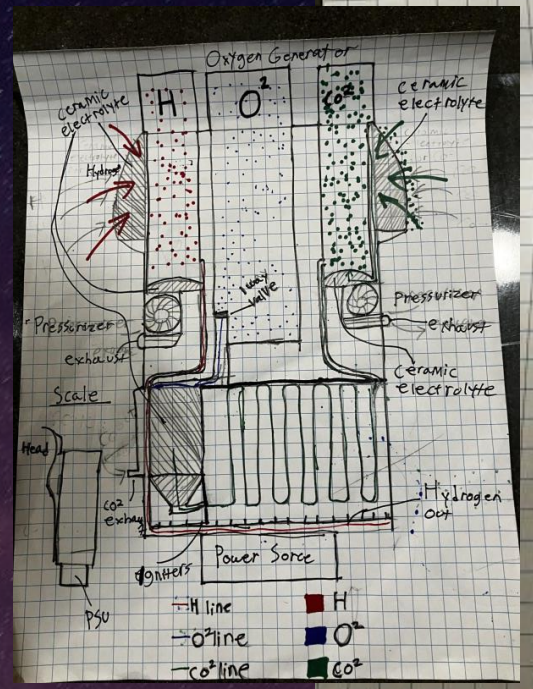
Graham Finley

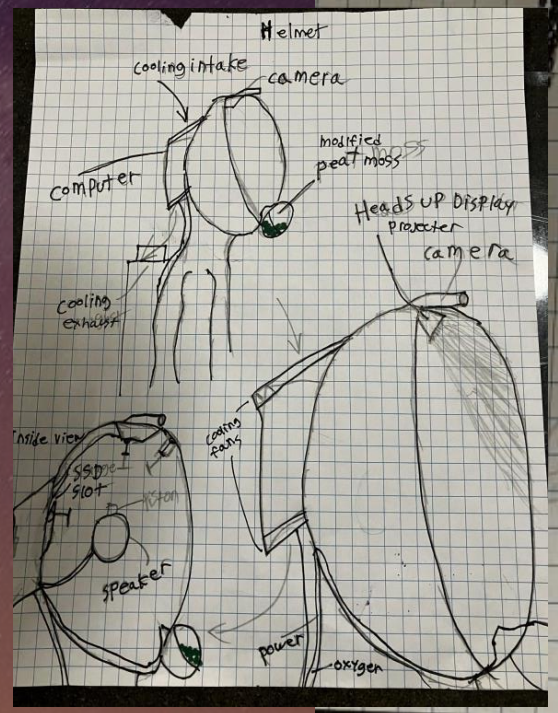
Energy Efficient Full Body Vehicle

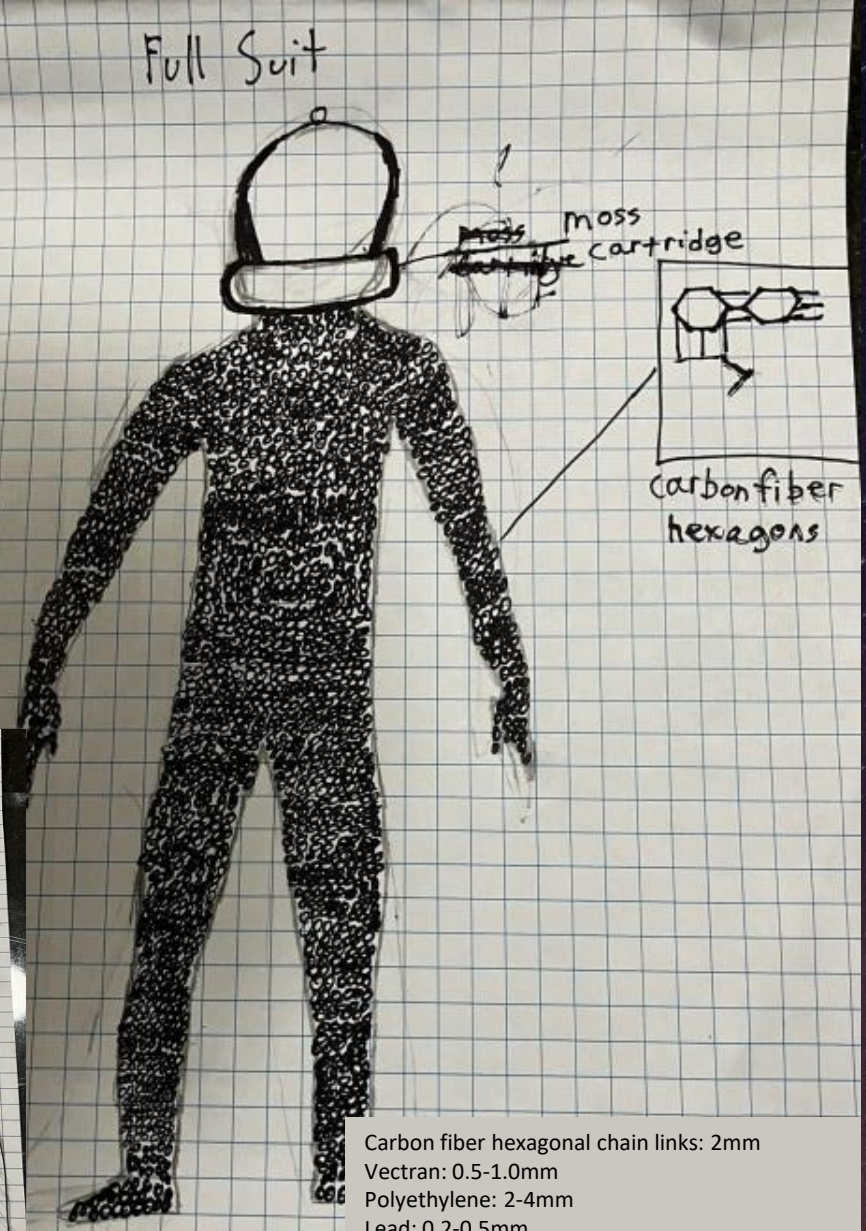
“This suit is self-sustaining, designed to withstand the harshest of conditions, and utilizes its surroundings to create a healthy environment for the user…

This shell comprises carbon fiber hexagons for maximum movement, so all parts can flex and be protected… Under the outer layers of Vectran and carbon fiber, there is a layer of non-Newtonian fluid…to mitigate potential damage from a fall…The visor of the helmet functions like a welding helmet. If the light coming through… is too bright or harmful, [it] will darken…

[Many of the suit’s functions] require significant energy, so the suit has multiple ways to generate it. The first consists of separate hexagonal [solar] cells…The second method of energy generation comes from piezoelectric generators made of quartz…[which] convert movement pressure into electricity.”







Carbon fiber hexagonal chain links: 2mm
Vectran: 0.5-1.0mm
Polyethylene: 2-4mm
Lead: 0.2-0.5mm
Nylon-coated urethane (pressure): 0.3-0.5mm
Mylar (thermal insulation): 5-10mm
Moisture-wicking fabric: 1-2mm
Titanium (Shell of RTG): 1.5-2mm

Overall weight: Suit + RTG: 63-65kg

Kadyn Cheney & Cade Grogan

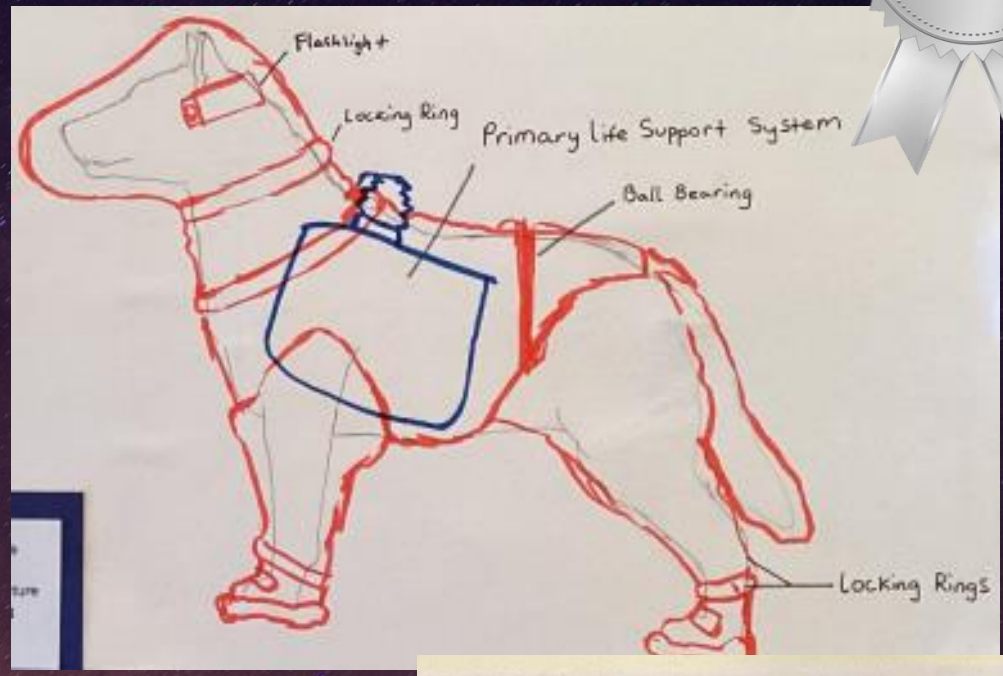
Laika's Legacy

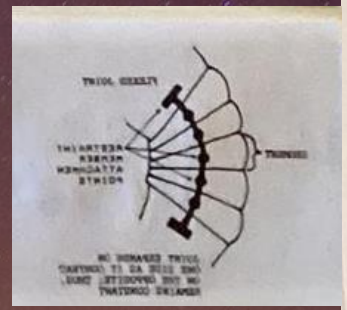
Runner Up

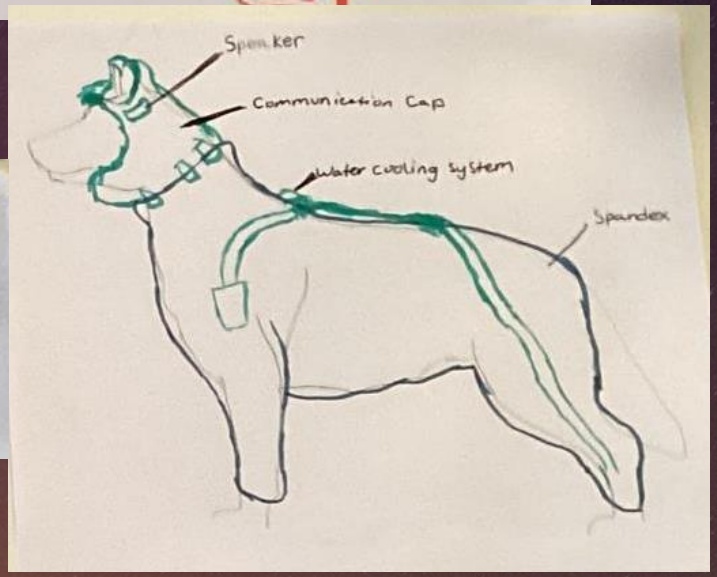
"Our idea for a pet space suit was inspired by…Laika, the first soviet dog in space, and the challenges she faced during her historic mission. Laika's suit, while groundbreaking at the time, was primitive and uncomfortable, designed solely for survival with little consideration for her well being.

We studied a dog's anatomical structure to determine areas where the body flexes and bends… A dog's neck has a much larger range of motion compared to a human's…we had to find a way to support the dog's neck while maintaining mobility. The solution involved creating a flexible 'stovepipe joint' that alternates between vertical and horizontal flexibility…

Since dogs pant and release saliva in order to cool themselves off, we will need a system to deal with the humidity inside the helmet. A pump…will pump the saliva out of the bottom of the helmet, recycling it into water that goes through a filtration system…"







We hope to see you for next year's mission!

2025 Inventerprise Judges