MAKING NEWS

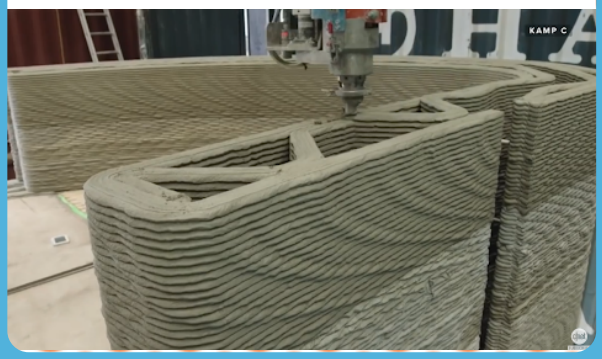
HOW THINGS GET MADE

SPACESUITS

Have you ever wondered how they make spacesuits for astronauts? Special fabrics are needed to help keep them safe in space. Every suit is custom made for each crew member so that it fits them well. When the crew sit in their seats, they plug in the suit to the umbilical that provides communication, electronics, and air they need. What else would be important for a spacesuit to have?

BIG PRINTING

It's fun to design and 3d print toys or other small items. Did you ever wonder what kind of bigger things could be 3d printed? Some companies have created giant 3d printers that use cement instead of plastic filament. These printers can make houses, swimming pools, or foundations for windmills in just a few days (it just takes the cement a little longer to dry than plastic). Why would this be such a good idea?



PRECIOUS MINERALS

Did you know you have a gold mine in your home? Not a literal gold mine, with shovels and gold nuggets. Every tech device, like phones, computers, and other electronics, use precious metals in the circuitry, and that can add up. Since old technology, or e-waste, is more common as people upgrade their devices, recycling and reclaiming those tiny bits of gold and other precious metals can be profitable. In a typical gold mine, there are about 5 grams of gold in 1 ton of dirt. But in 1 ton of e-waste there's about 350 grams of gold!

MAKING NEWS

COOL CAREERS

MEDICAL ROBOTS

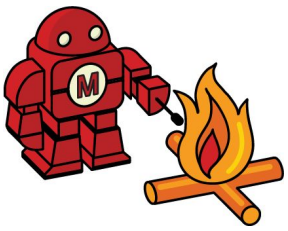
Do you like helping people when they're sick or injured? Doctors and nurses do amazing work to help people every day in hospitals, but did you ever wonder where the technology they use comes from? Biomedical engineers use knowledge of how the human body works to create all kinds of hi-tech devices used in hospitals. They've even started creating robots to help patients. Robots are being designed to help patients recover after surgery, deliver medications to patients, and sanitize rooms in hospitals. There are even robots being used to perform surgery on people, especially helpful when a doctor isn't available in a certain area. If you like robotics and helping people, this may be a career for you.

ART CONSERVATOR

Did you ever wonder what happens if a priceless painting or sculpture gets damaged? Art conservators are people who repair, preserve, and clean priceless works of art. Sometimes they even have to determine if a piece of artwork is authentic or a forgery. People who work in art conservation must study the chemistry and properties of materials used in artwork, be able to analyze the artwork using various types of technology, and have a love of history. They must have good analytical and critical thinking skills. If you think a career in art conservation sounds interesting, learn more about Art Conservators.

WANT MORE MAKING NEWS?

Register today for Maker Camp at makercamp.make.co to enjoy all six special issues written by Chris Woods of The Daily STEM (http://dailystem.com).



Making News: eTextiles & Wearables Edition

Maker Camp

Making in the News

Your laptop or phone can collect data about what you search for or where you are, but clothes of the future could collect data about you too. Researchers at MIT are teaming up with the Army to develop fabric that can detect information about the soldier wearing it. The hi-tech fibers can be woven in with standard clothing fibers to keep track of body temperature, stress level. They'd even like to be able to use the sensitive fabric to notice sound vibrations from nearby or exposure to toxins to help protect soldiers from danger. Pets and livestock are even getting wearable devices. A cow mask is being tested in Europe that can detect early signs of disease. The mask will also turn cow burps that contain methane into less harmful carbon dioxide. Other engineers have developed a sensor for pets that can track vital signs, even through fur. It uses a layer of liquid to detect acoustic waves, like a stethoscope, and record the breathing or heart rate in the furry friend. That data could even help sniffer dogs be more reliable.

Questions:

...How could the army's clothes that detect information be changed to help kids?

...What other ways could wearable technology help animals?

...What problems need to be considered when using wearable technology with animals?

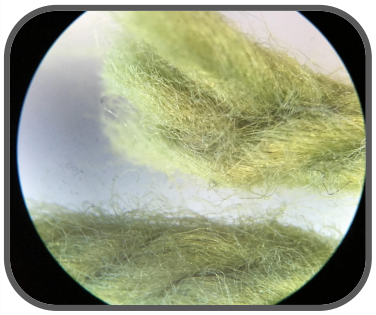
Learn more about Wearables: Here, here, & here

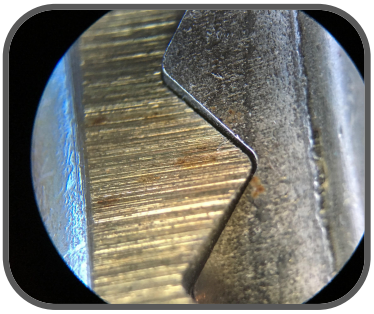
Cool Career: Shoe Design

Do you like shoes? Did you ever wonder how they come up with all those different designs and colors and patterns? Shoe designers use their art skills with a knowledge of different materials to create the new shoes we buy at the store. Shoe ideas are drawn on paper and computer software. Those drawings are turned into patterns, prototypes, and eventually put into production. Each step of the shoe design process requires a lot of math and science, combined with artistic skills. To learn more about what it takes to be a shoe designer, check out the resources here & here

Mystery Photos

Can you identify the mystery textiles & wearables items under the microscope?



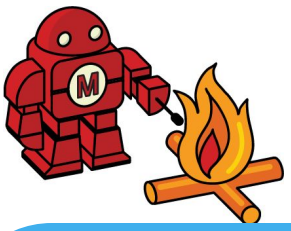


Decode the answers using Morse Code:

-.-- .- .-. -. … . .--

.. -. --. -- .- -.-. …. .. -. . -. . . -.. .-.. .

.--. .. -. -.- .. -. --. … …. . .- .-. …



Making News: eTextiles & Wearables Edition

Maker Camp

How Things Get Made

Have you ever wondered how they make spacesuits for astronauts? Special fabrics are needed to help keep them safe in space. Every suit is custom made for each crew member so that it fits them well. When the crew sit in their seats, they plug in the suit to the umbilical that provides communication, electronics, and air they need. What else would be important for a spacesuit to have? Watch the process

Maker Camp Events

Ask your Maker Camp leader to attend live events!

CodeJoy Live Virtual Sessions: Robot Memories
July 26-30, 4 pm ET / 1 pm PT
During this live coding session, Elby is visiting his grandma Dottie during a terrible storm. When there is a power outage, her memory files become corrupted. We need to find them and bring them back to life with color and movement. Participants will learn the basics of coding tri-LEDs and motors using Makecode. CodeJoy participants will learn the basics of coding tri-LEDs and motors using Makecode.

Coming Soon! Mario the Maker Magician Live Zoom Party on July 29, 10 am PT / 1 pm ET. Space is limited!

Maker Challenge

Have you tried all of the challenges for this Adventure? If not, ask your Maker Camp leader for info about these fun projects: Trashion Fashion
The Simplest Circuit
MakeFashion Edu Design Process

Q & A with a Maker

Twila Busby: Maker, Educator, Make Fashion Edu

1) When did you start making?

I think because I grew up in a small farming town, making was just a part of life. Sewing, crocheting, quilting, as well as building, fixing, gardening, canning, and baking were what everyone did. Not much in the way of computing and electronics though! Now I regret that, even though my father had a Radio Shack dealership, I didn't learn anything about all those components hanging on the racks that I helped to stock.

2) What is your favorite part of making?

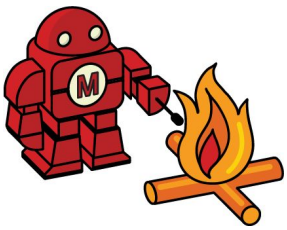
I like the puzzling part of it, trying to make it all work together, whatever it is. And then I like the feeling of seeing something that I made later on and thinking, "I did that!" I really enjoy working with someone else on a project. I also like that whenever someone is making something, there is a story in the process and outcome. I love those stories!

3) What was your biggest "fail" when making something?

I can't really think of an epic fail. Mostly a lot of little "failures" along the way, which I don't even think of as fails anymore, just another piece of the puzzle to find out why something didn't look or act like I expected.

4) What do you want to learn about next?

I really, really need to learn to use design software better, right now I do a lot of copy, paste or downloading someone else's generous shares, but it is time I learn to start from scratch with my own ideas.



Making News: Fabrication Edition

Maker Camp

Making in the News

Sometimes when a baby is developing inside its mother, something goes wrong. One hospital in Florida is using 3d printing to help doctors perform surgery on babies before they are born. The doctors are able to use ultrasound to scan the developing child and then print a 3d model. The model allows doctors to see bones, nerves, and more to better prepare for surgery. It makes it much easier for the doctors to anticipate problems that can happen during surgery, and so far the results are good. Babies that are operated on in the womb have fewer problems as they grow up. 3d printing can also help with older patients too. Michael Nicoletti, a veteran who spent a 30 year career designing medical devices, realized he was having a hard time hearing. He noticed some straws on his kitchen table and came up with an idea. He used a small piece of straw to open up his ear canal, like a stent in a blood vessel, and was able to hear better. He worked with a small tube that allows sounds to reach his eardrum better when inserted in his ear canal. Now he's able to hear the TV at home without turning it up too loud!

Questions:

...What kinds of things could be 3d printed to help people who are sick or injured?

...Can you think of any problems that could happen with 3d printed items used in hospitals?

...Do you think it's possible to 3d print medicines or healthy food for people?

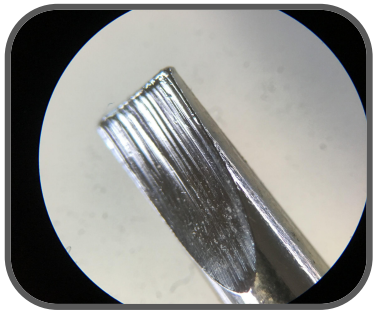
Learn more about 3D Printing: Here & here

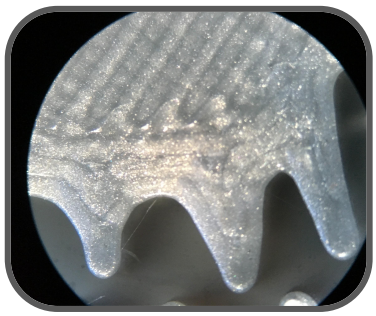
Cool Career: Welding

Do you like working with your hands to make things? If you see something made of metal, there's a good chance it was welded. Welding is the process of joining metal, and it can be done using electricity or fuel. From the cars and planes we ride in, to the buildings we live and work in, welding is how things made of metal are put together. Some welders even work underwater! And because welding is used in a wide variety of situations, welding careers can include almost any other interest you have. Boilermakers work on rocket boosters, Ironworkers build bridges and stadiums, and Shipfitters help make aircraft carriers! If you're looking for a career that combines art and science, learn more about different jobs in Welding

Mystery Photos

Can you identify the mystery fabrication items under the microscope?



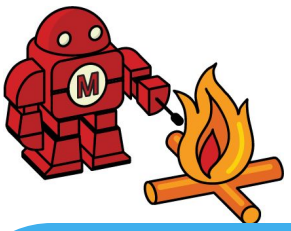


Decode the answers using K=C & L=D...

3LXZQVBMLBW

GKIZLJWIZLAKZ

MELZQDMZ

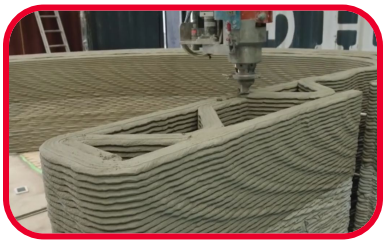


Making News: Fabrication Edition

Maker Camp

How Things Get Made

Have you ever used a 3d printer? It's fun to design and print toys or other small items. Did you ever wonder what kind of bigger things could be 3d printed? Some companies have created giant 3d printers that use cement instead of plastic filament.



These printers can make houses, swimming pools, or foundations for windmills in just a few days (it just takes the cement a little longer to dry than plastic). Why would this be such a good idea?

Watch the process

Maker Camp Events

Maker Camp has online live events too! Ask your Maker Camp leader for the links to attend!

Mario the Maker Magician Wrap Party!
August 13th, 2021 at 10 am Pacific / 1 pm Eastern. Streaming to Make: Magazine & Maker Camp Facebook channels. Everyone is welcome!

Maker Camp Fireside Chat
August 13, 2021 at 2 pm Pacific / 5 pm Eastern
Join your fellow Maker Camp Community Partners to share your favorite projects, best stories, biggest challenges, and more as we get together to wrap the official Maker Camp 2021 season! Register online today.

Maker Challenge

Have you tried all of the challenges for this Adventure? If not, ask your Maker Camp leader for info about these fun projects: Sunglasses
Air Rocket Glider
Laser Cut This Slot-Together Raceway

Q & A with a Maker

Brenda Shivanandan: Maker & Fabricator at SteamLabs

1) When did you start making?

I started making as a kid. I would make miniature buildings and communities out of scrap paper, cans and other things that I could find in our recycling bin. My mom and grandma also encouraged me to embroider & sew using the extra material and fabric they had. Once I got to university, I was introduced to woodworking equipment, and I fell in love with that practice. I love making wood pieces of different scales such as furniture and installation structures.

2) What is your favorite part of making?

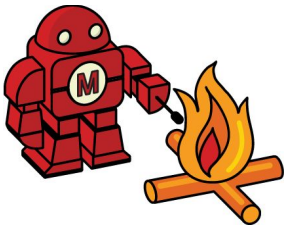
My favourite part of making is learning new fabrication techniques and learning about different equipment and how they work. I also love making with others! When making as a team, you combine skills and experiences to create something together.

3) What was your biggest "fail" when making something?

My biggest "fail" would be when I was making a colour illusion installation with my friend. We envisioned that by using colour theory, the installation would display differently in red than in blue. That didn't work and it ended up looking the same in both colours. We decided to switch gears and made it a lighting installation using the lighting perspective and shadows. I think that ended up turning out a lot cooler than our original idea. I used to be really afraid of failing, and admittingly, I still do at times. When the fear of failure starts creeping in I remember to: validate those feelings first because that fear is normal, take a second to breathe and reflect, and always remember to ask for help. With this process in mind, I've gotten better at celebrating failure!

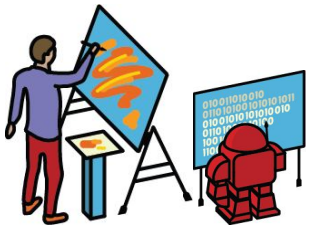
4) What do you want to learn about next?

I love plants and learning about sustainable farming, so I am excited to learn more about foraging as well as closed-loop hydroponic systems.



Making News: Arts & Crafts Edition

Maker Camp



Making in the News

On April 15, 2019, the world watched as the Notre Dame Cathedral in Paris burned. The famous cathedral was built from 1163-1345 and is the most famous gothic cathedral built during the Middle Ages. Since the fire, hundreds of people have been working to restore the cathedral, with a goal of having it restored for the 2024 Olympics in Paris. A lot of progress has been made in a short time, with all of the burned timbers safely removed and the structure stabilized. The spire is also being recreated using 1000 oak trees from around France, with some of the trees being over 200 years old! The trees have been cut and are currently being stored at a low humidity level to help them be ready for building a new spire in 2022. Scientists also have to make sure that any harmful chemicals from the fire are safely removed, as well as checking the stone used to make sure it's still strong enough. Heat can cause iron in the limestone blocks to change and turn brittle. They are even using radar devices to scan below the floor to see what is underneath.

Artwork from inside the cathedral is being restored as well, and people can even donate to "sponsor" a particular piece of artwork. The task of remaking a cathedral is a huge task, but people with all types of skills are contributing to the work.

Questions:

...What would be the toughest part of restoring an old structure like the Notre Dame Cathedral?

...How would you design new buildings to be able to withstand disasters?

...What types of careers would be useful when rebuilding old buildings?

Learn more about the cathedral: Here, Here, & Here

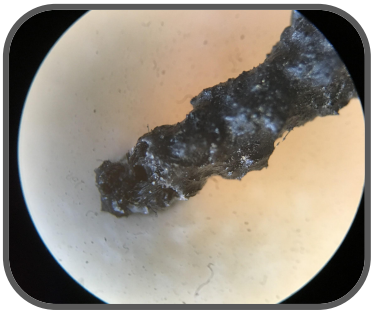
Cool Career: Art Conservator

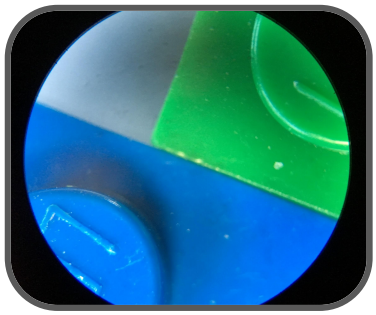
Did you ever wonder what happens if a priceless painting or sculpture gets damaged? Art conservators are people who repair, preserve, and clean priceless works of art. Sometimes they even have to determine

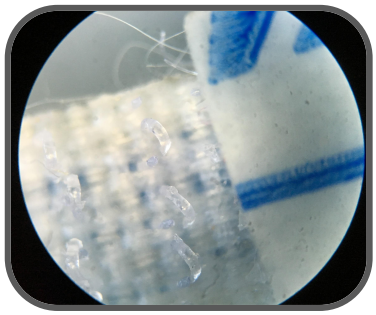
if a piece of artwork is authentic or a forgery. People who work in art conservation must study the chemistry and properties of materials used in artwork, be able to analyze the artwork using various types of technology, and have a love of history. If you think a career in art conservation sounds interesting, learn more about Art Conservators

Mystery Photos

Can you identify the mystery arts & crafts items under the microscope?







Decode the answers using A=1 & B=2...

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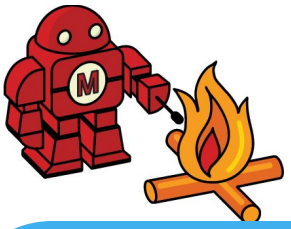
12 5 7 15 19 22 5 12 3

18 15



Making News: Arts & Crafts Edition

Maker Camp

How Things Get Made

Have you recycled paper before? Did you ever wonder how it happens?
Or what the machinery looks like that turns your old magazines, cardboard, mail, and homework into fresh new paper? Sorting the old paper requires sifting, tumbling, and scanning machines, and even human inspectors to ensure the right materials make it into new paper for our use.
Watch the process.

Maker Camp Events

Maker Camp has online live events too! Ask your Maker Camp leader for the links to attend!

CodeJoy Daily Live Virtual Sessions
July 12-16 from 4 pm ET / 1 pm PT
During this live coding session, Elby is desperate to win a kazoo from the prize wall at the mini-golf course, but this game is rigged! Kelsey and Matt the Robot will need to teach participants to reprogram the old, unfair code of the obstacles to make the games playable. Participants will learn the basics of coding position and rotation motors using Makecode.

Coming Soon! Mario the Maker Magician Live Zoom Party on July 29. Space is limited!

Maker Challenge

Tried all of the challenges for this Adventure? Ask your Maker Camp leader for info about these fun projects:
Make Edible Paper
Flea Circus Coin Magic
T-Shirt Yarn Knotted Headband

Q & A with a Maker

Kathy Ceceri: Author, Industrial Maker, & Teacher

1) When did you start making?

I think most Makers would say they've been making stuff all their lives (here's a comic panel about my maker origins). I started turning my Maker powers to good when I used hands-on projects to homeschool my kids. Now I write books and tutorials (and teach classes online and in person) that use Maker projects to help kids explore science, technology, and more!

2) What is your favorite part of making?

Figuring out how to replicate a project that looks much too difficult to do at home, using everyday stuff. Things like building a working hydraulic robot arm from paper towel tubes,
or making a speaker that you can plug into your phone using a coil of copper wire, a magnet, and strips of tape.

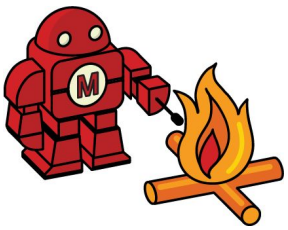
3) What was your biggest "fail" when making?

Oh, so many fails. I've never had a dramatic fail (no explosions or nuclear meltdowns) but I've had quite a few ideas simply fizzle out. Sometimes they can be salvaged when I've done a little more research, or consulted some of my expert Maker friends. A lot of times you just have to move on. But there are also failures I've put away in a box in the attic, hoping to find an answer sometime in the future. I still have the supplies to make a DIY Edison phonograph that cuts its own records on a rotating plastic cup. Someday I'll figure it out!

4) What do you want to learn about next?

I've written about paper projects, musical & edible inventions, and things you can make from fabric and fiber. Lately I've been digging into robotic contraptions that can be built with a DIY body and a basic microcontroller, a servo motor, and simple programming. I love seeing what other people are doing with paper and cardboard robots and light-up wearables, and trying to put my own spin on them!

Learn more at makercamp.com



Making News: Coding & Computer Science Edition

Maker Camp

Making in the News

Every day, people are coming up with new ways to use robots and drones to make our world better. Robots and drones can perform dangerous tasks, work without taking breaks, and operate over and over again without making mistakes. The US Navy has been testing a drone that can refuel a jet while it is flying. In June, the MQ-25 Stingray Drone was able fly a few feet in front of a F/A-18 Super Hornet and attach it's probe to refuel the jet in the air. Research teams are now hard at work analyzing the data collected during of each aircraft affected the other's flight. On land, farmers are using robots and drones to help with planting, fertilizing, and keeping watch over crops as they grow. This allows farmers to reduce time and resources needed for growing the food we eat. It also allows for more accurate use of fertilizers or pesticides, which limits pollution and contamination. Tractors that drive themselves, guided by GPS systems, will become more commo Robots that pick, clean, and package fruits and vegetables are also being developed that use software and sensors to make sure the food we eat is the freshest it can be.

Questions:

...What are some jobs that could be done with robots or drones?

...What are some problems that could happen with using robots or drones?

...Can you think of some jobs that robots can't do?

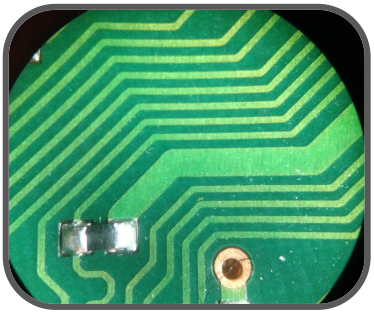
Learn more about robots & drones: Here & here

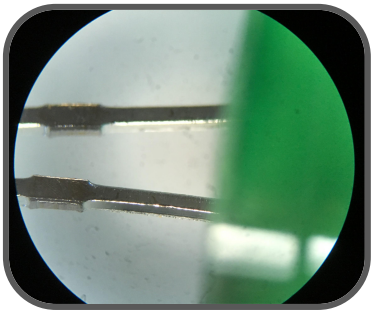
Cool Career: Medical Robots

Do you like helping people when they're sick or injured? Doctors and nurses do amazing work to help people every day in hospitals, but did you ever wonder where the technology they use comes from? Biomedical engineers use knowledge of how the human body works to create all kinds of hi-tech devices used in hospitals. They've even started creating robots to help patients. Robots are being designed to help patients recover after surgery, deliver medications to patients, and sanitize rooms in hospitals. There are even robots being used to perform surgery on people, especially helpful when a doctor isn't available in a certain area. If you like robotics and helping people, learn more about careers with Robotics in Medicine

Mystery Photos

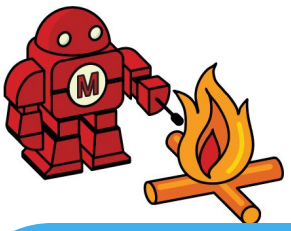
Can you identify the mystery computer science items under the microscope?





Decode the answers using tapcode (if you don't know what tapcode is, read about it here)

13 24 42 13 45 24 44 12
34 11 42 14 31 15 14 12
45 31 12 13 11 32 15 42 11 35 23 34 33 15

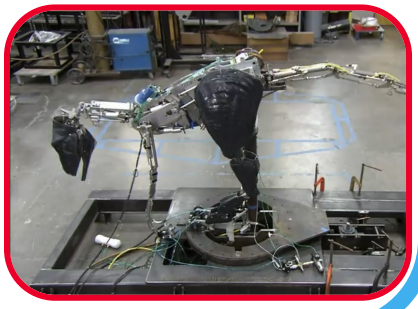


Making News: Coding & Computer Science Edition

Maker Camp

How Things Get Made

Have you ever visited a zoo or museum and saw a statue that moved on it's own? Animatronics is the field of study that combines puppetry, sculpting, and robotics to make people think they're seeing a real person or animal. Since dinosaurs are extinct, animatronic dinosaurs give us the experience of interacting with these marvelous creatures. Building them takes a lot of hard work and skill. How do you think they are created? Watch the process



Maker Camp Events

Ask your Maker Camp leader to attend live events!

CodeJoy Live Virtual Sessions: Robot Aerobics
July 19-23, 4 pm ET / 1 pm PT
During this live coding session, Kelsey and Matt the Robot are leading a dance fitness class designed to get the robots of the world moving, and they need YOUR help to code the dancers! Groove along with the robots as you program their servo motors to move to the beat. CodeJoy participants will learn the basics of coding position servo motors and creating sequences and algorithms.

Coming Soon! Mario the Maker Magician Live Zoom Party on July 29 at 10 am PT / 1 pm PT.

Maker Challenge

Have you tried all of the challenges for this Adventure? If not, ask your Maker Camp leader for info about these fun projects: Robot Mini Golf
Ultimate Stomping Pad
Your First LED

Q & A with a Maker

Matt Chilbert: Filmmaker, Educator, & Tinkerer from CodeJoy

1) When did you start making?

When I was a kid, I was obsessed with the movie Hook. I spent a lot of time building treehouses and forts in an attempt to recreate the Lost Boys' island. These structures were rarely stable and always included some overly complicated pulley system to open a window or release a trap door. These projects were probably more make believe than making, but they did allow me to play the role of inventor at a young age.

2) What is your favorite part of making?

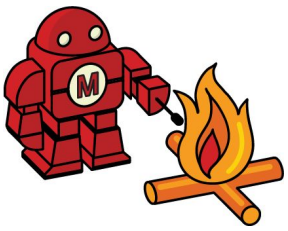
No matter what I set out to create, there is always a community dedicated to making something similar. Making provides endless opportunities to meet new people and exchange ideas.

3) What was your biggest "fail" when making something?

I spent about 3 years and more money than I want to admit trying to make a Disney-style dark ride. In the end, I could not afford to keep the project going. Thinking about that project still hurts, because I can clearly see every detail of a project that does not and may never exist.

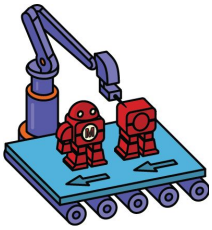
4) What do you want to learn about next?

I would like to get better at coding in Python.



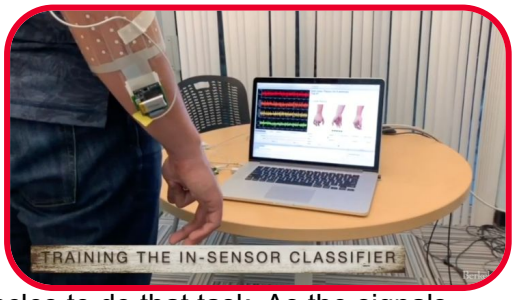
Making News: Electronics Edition

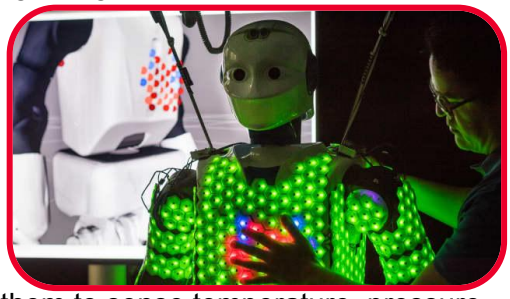
Maker Camp



Making in the News

Technology is changing the way we do things every day. And as technology advances, more things become possible to change. Researchers in California are developing an arm band that detects the electrical signals our brain sends when we make a movement. For example, when you want to raise your hand or give a thumbs up, your brain sends specific signals to your hand muscles to do that task. As the signals travel through neurons in your arm, the device can detect the patterns and mimic the motion on a screen or with a robotic arm. This technology could be used to help people with limb loss better control a prosthetic or to interact inside a video game. Another new advance that relies on electronics and circuitry is artificial skin for robots. As robots are taking on more tasks, and sometimes working alongside humans, it's important that they have more abilities beyond just grabbing, holding, or carrying. Creating a "skin" for robots allows them to sense temperature, pressure, or even pain. Without such sensors, robots could bump into human co-workers and cause accidents. And although the robots could have more sensitivity with their touch and feel, designing robots with feelings and emotion is a potentially harmful idea.





Questions:

What kinds of ways would you use a wearable armband?

How would you improve robots?

Would you want to work with a robot at your job?

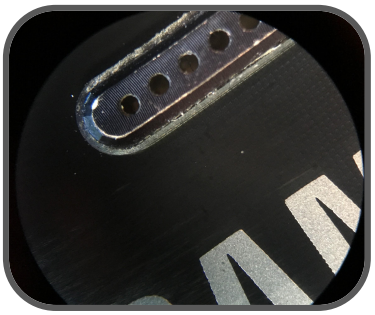
Learn more about these technologies: Here & here

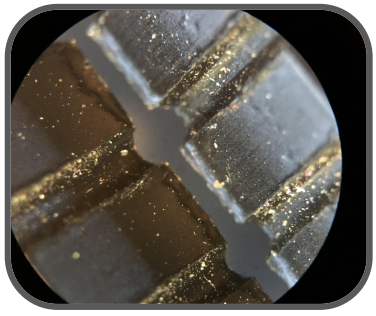
Cool Career: Audio Engineer

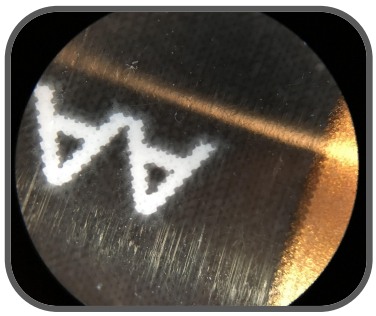
Did you ever watch a video or listen to a song and think about being that person? Yes, being a singer or actor can be exciting, but they need people with serious skills to make them sound good. That's the role of an Audio Engineer. They're the people who make everything sound natural and exciting, whether you're in the front row at a concert, listening on headphones, or in your living room watching a movie. A lot of science and math are involved to engineer and use the hi-tech devices needed for recording the sound or improving the live experience. If you think a job like this "sounds" fun, start learning more about careers in Audio Engineering

Mystery Photos

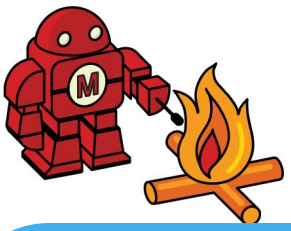
Can you identify the mystery electronics items under the microscope?





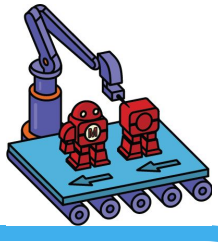


Decode the answers using a Pigpen Cipher...



Making News: Electronics Edition

Maker Camp



How Things Get Made

Did you know you have a gold mine in your home? Not a literal gold mine, with shovels and gold nuggets. Every tech device, like phones, computers, and other electronics, use precious metals in the circuitry, and that can add up. Since old technology, or e-waste, is more common as people upgrade their devices, recycling and reclaiming those tiny bits of gold and other precious metals can be profitable. In a typical gold mine, there are about 5 grams of gold in 1 ton of dirt. But in 1 ton of e-waste there's about 350 grams of gold! How do companies do it? Watch the process

Maker Camp Events

Ask your Maker Camp leader for the links to attend!

CodeJoy Daily Live Virtual Sessions
August 9-12 at 4 pm ET / 1 pm PT and
August 9 at 2 pm ET / 11 am PT.
During this live coding session, the Little Bots are feeling nervous about taking a test today. They could use some support from their friends! CodeJoy participants will learn the basics of coding position servo motors and creating sequences and algorithms. Participants will learn the basics of coding the micro:bit LED array and using pause blocks while programming in Makecode.

Coming Soon! Mario the Maker Magician Wrap Party, August 13 at 10 am PT / 1 pm ET.

Maker Challenge

Have you tried all of the challenges for this Adventure? If not, ask your Maker Camp leader for info about these fun projects: Paper Clip Circuit
Your First Scrappy Circuit
Easy No Sew Light Up Cuff

Q & A with a Maker

Kelsey Derringer: Filmmaker/Tinkerer at CodeJoy

1) When did you start making?

In a broad sense, I have always loved making things! I was a really artsy kid, mostly focused on dance & music - I've been on stage since I was three! But I also always loved tinkering with things as a kid. As an adult, I joined the STEM & Maker movements when I moved to Pittsburgh in 2014 and started teaching for a girls-only after-school STEM club. That's how I discovered robotics, and I fell in love with how ENGAGED the girls were with designing and creating their own robots!

2) What is your favorite part of making?

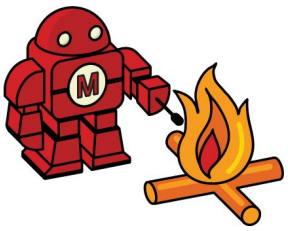
I love most the feeling of real accomplishment and ownership after I finish a project. I've usually gone through a number of ideas before I settle on one, a couple of drawings, a few versions of the thing. And when I get the thing to work, it's not unusual to hear me letting out a big "Whoop!" from the studio when I finally get something working just right.

3) What was your biggest "fail" when making something?

In the first version of Robot Mini Golf, I built a big purple version of the Crocodile at the second hole (you can see it in the Sneak Peek video here). While I did get the mechanism to work, it was not very durable. The first time we took it down, the poor croc fell apart completely. The version of the croc we use now is pared down and uses a completely different mechanism. It's funny - I was so proud when I got that croc working! But also, I'm humble enough to admit that it wasn't quite the right look and feel for our show, and it didn't stand the test of time.

4) What do you want to learn about next?

I want to learn so many things! In coding, I want to learn Python. In making, I want to learn more about cam mechanisms. In education, I'm currently reading more about researched-backed strategies to engage more girls & racial minorities in coding & robotics.



Making News: STEAM Edition

Maker Camp

Making in the News

Remember the last time you touched a dark colored surface on a sunny summer day? It probably felt very warm on your hand. Now multiply that warmth by 4 million miles of road in the United States. Dark colored paved roads absorb sunlight and release it gradually to the surrounding buildings, making the buildings warmer. But lighter surfaces reflect that solar radiation back to the atmosphere and stay cooler. Researchers are studying how to best use lighter colored paints and additives to help roads and neighborhoods stay cooler. This allows people to use less energy cooling their homes and buildings. Some cities don't need reflective coatings because they have many tall buildings or trees, which keep city streets shady and prevent sunlight from heating up buildings. But other cities that are more spread out, or have freeways and highways that don't get a lot of shade. Those are perfect for painting with reflective coatings or adding lighter colored stone to road surfaces. This reduces the albedo, or amount of light a surface reflects. The researchers also studied places where people take walks. Using reflective coatings reduced the temperature of the sidewalk, but it caused the air just above the sidewalk to feel much hotter. Research is continuing, and rethinking the colors of roads, sidewalks, and cars can help us reduce our energy use and live more comfortable lives.

Questions:

...What else could you paint lighter colors to keep cooler?

...Can you think of some things that would be good to paint darker colors to keep warmer?

...Could you design an experiment to test temperatures based on the darkness of color?

Learn more about it: Here & here

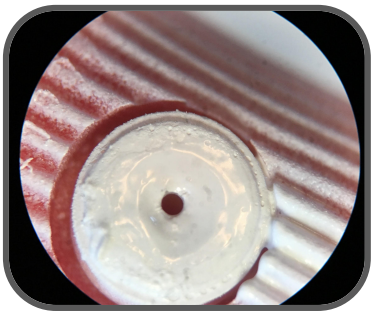
Cool Career: Food Scientist

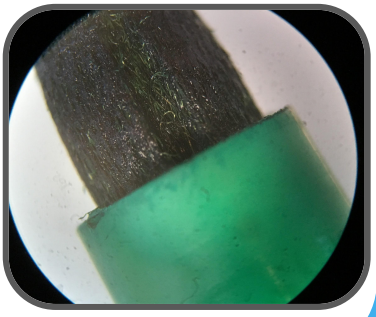
Did you ever wonder how food makes it safely from a farm to your plate? Food science includes the study of animals, plants, soils, and the environment to help produce more and better foods for us to eat. Many food scientists work with companies that process, package, and deliver food to stores and restaurants.

A career in food science can even involve figuring out ways to make foods look and smell more appealing to customers. NASA employs food scientists that ensure astronauts have delicious and nutritious things to eat in space. Food production uses STEAM at every step of bringing breakfast or dinner to you. If this sounds interesting, learn more about the people making food better as a Food Scientist

Mystery Photos

Can you identify the mystery STEAM items under the microscope?





Decode the answers using Z=A & Y=B...
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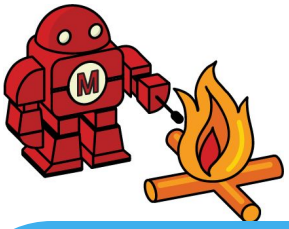

Making News: STEAM Edition

Maker Camp

How Things Get Made

Have you ever wondered how a bike is made? The frame, seat, tires, chain, and more each require different design and materials to build. One person decided to make a very special bike. Using a lot of engineering and math, he built it entirely out of wood, with just a little glue to hold it together and some aluminum for the chain. How did he do it? Did it actually work when he rode it? Watch the process

Maker Camp Events

Ask your Maker Camp leader to attend live events!

CodeJoy Live Virtual Sessions: Robot Rovers
Aug. 2-6, 4 pm ET/1 pm PT; Aug. 2-3, 2 pm ET/11 am PT
During this live coding session, Elby is on a mission to find the earring that Kelsey has lost in the space behind her wall. To complete this mission, Elby must first learn how to drive a rover, or robotic vehicle. He's never driven before, so he can use a little help from our live coders to get those rotation servos spinning. CodeJoy participants will learn the basics of coding rotation motors and learn how to code multiple outputs at once.

LIVE on Zoom! Mario the Maker Magician Punk Rock Magic Show, Thursday, July 29, 10am PT/1pm ET.

Maker Challenge

Have you tried all of the challenges for this Adventure? If not, ask your Maker Camp leader for info about these fun projects: Cooking Fossils
Water and Plants in action
Recycled Microscope

Q & A with a Maker

Camila & Diego: Students, Makers, & YouTubers from Moon Makers

1) When did you start making?

From a very young age, we began to create, due to our curiosity, we began by disassembling appliances that were at home and then creating robots and circuits.

2) What is your favorite part of making?

We love the trial and error process as it allows us collaboration, learning and new ways to develop our skills.

3) What was your biggest "fail" when making something?

Mistakes are part of the learning process, it is normal to commit them during the development of a project, it is where we persevere.

4) What do you want to learn about next?

MoonMakers wants to continue learning and developing creative and digital skills, to continue sharing knowledge with more people.