

# THIS IS WHAT A SCIENTIST LOOKS LIKE

## See yourself in science



LEARN MORE!

The IF/THEN® Collection inspires young girls to pursue STEM careers while creating a culture shift in how the world perceives women in STEM. We are committed to advancing gender equity and representation at this institution.

Science and scientists are all around you. You can learn from them in the kitchen, the park, the laboratory, and even right here.

**Can you find** one of these scientists' faces nearby and learn something new from them?



The IF/THEN® Initiative, sponsored by Lyda Hill Philanthropies®

Living Wild as a

# LARGE CARNIVORE ECOLOGIST



## Dr. Rae Wynn-Grant

Rae studies really big animals: lions, tigers, and bears (even gorillas and chimps, oh my!) She learns about their movement, behavior, and predation in the wild. Rae currently uses data to inform how bears and humans can best co-exist.

**Did you know** that carnivores are animals that eat other animals? Predation is how one animal tracks and another. Because large carnivores live all over the world, Rae has traveled from Kenya, Tanzania, and the Congo to Wyoming and Montana to study them.

📍 Washington, DC

### TRACKING BEARS

Wildlife ecologists use different types of surveying tools to track and count the animals they're studying. This helps them learn about habits and population growth.

**Do you see any trackers or tags on this bear?**



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# IF/THEN

Living Wild as a

# HERPETOLOGIST



## Dr. Earyn McGee

Earyn knows that science is for everyone, even people who don't have access to green spaces. #FindThatLizard, the social media game she created, shares cool facts about her favorite animal. Thanks to lizards' special role as an indicator species—meaning they can signal changes in the environment for us—Earyn can research how drought impacts lizards and their food supply.

**Did you know** that Earyn's specialty is herpetology? This type of zoology studies amphibians (like frogs and salamanders) and reptiles (like lizards and snakes).

📍 Tucson, AZ

### #FINDTHATLIZARD

Lizards are masters of disguise.

**Can you find the lizard in this picture?**



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# IF/THEN

Living Wild as a

# BAT CONSERVATIONIST



## Dr. Kristen Lear

Kristen started as a kid wondering about the shapes she saw flying in the night sky, and now is a bat conservationist and environmental educator. She leads restoration initiatives for endangered bat species and educates the public about the wonderful world of bats.

**Did you know** that Bracken Cave, near San Antonio, TX, is the summer home of the largest colony of bats in the world? Kristen follows migrating bats all over the world from Texas to Australia.

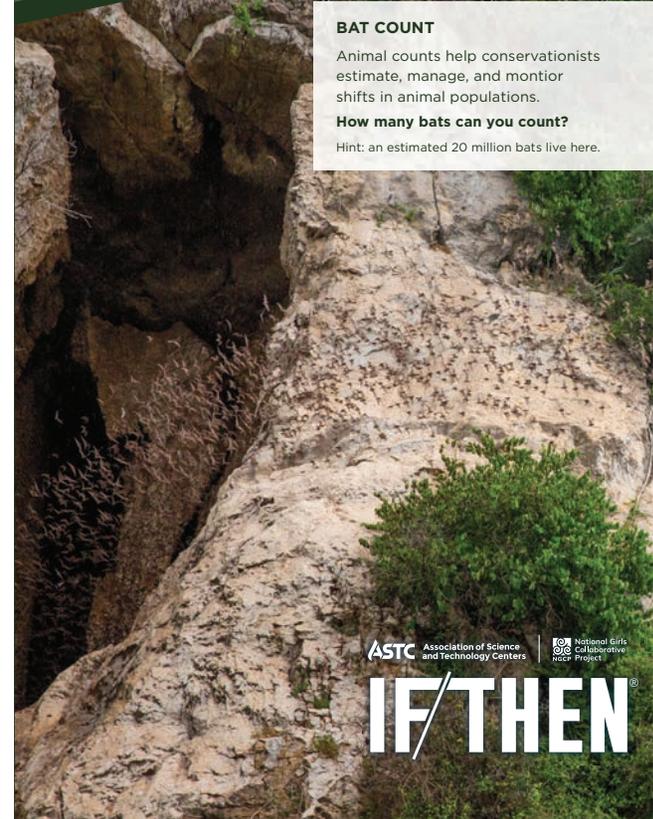
📍 Fort Collins, CO

### BAT COUNT

Animal counts help conservationists estimate, manage, and monitor shifts in animal populations.

**How many bats can you count?**

Hint: an estimated 20 million bats live here.



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# IF/THEN

Living Wild as a

# RESEARCH ECOLOGIST



## Dr. Lindsey Rustad

Lindsey wanted to live in the forest, so she became a forest scientist. She takes big risks to run large-scale experiments like recreating major ice storms and studying them over a long time with tools like fire hoses and cybertechnology.

**Did you know** that scientists like Lindsey make ice sculptures to understand the effects of climate change on forests?

📍 Durham, NH

### HEAVY ICE

Ice may seem temporary or seasonal. But scientists discovered that even a small amount of ice, as thin as a half inch, can create long-term damage, causing large branches to break.

**Do you see evidence of ice damage in this picture?**



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# IF/THEN

Living Wild as an

# ENVIRONMENTALIST



## Shyla Raghav

Shyla is a leading expert on climate change. She helps find solutions to global problems because she sees how those problems affect the quality of life for everyday people. The carbon calculator Shyla developed helps individuals measure their personal climate impact.

**Did you know** that your carbon footprint, calculated by tools like the one that Shyla developed, is how much carbon dioxide (CO<sub>2</sub>) you produce going about your daily life?

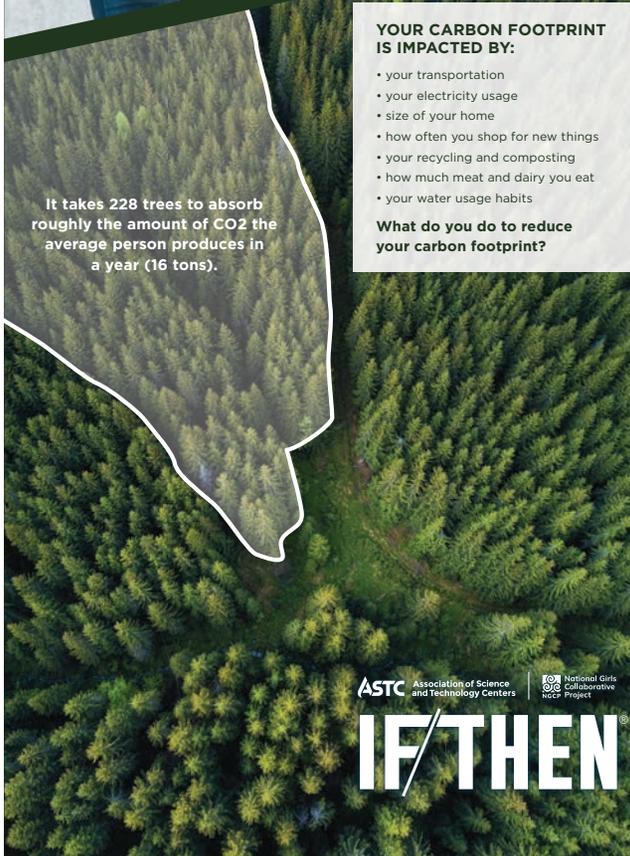
📍 Arlington, VA

### YOUR CARBON FOOTPRINT IS IMPACTED BY:

- your transportation
- your electricity usage
- size of your home
- how often you shop for new things
- your recycling and composting
- how much meat and dairy you eat
- your water usage habits

**What do you do to reduce your carbon footprint?**

It takes 228 trees to absorb roughly the amount of CO<sub>2</sub> the average person produces in a year (16 tons).



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# IF/THEN

Living Wild as a

# SOIL ECOLOGIST



## Dr. Yamina Pressler

Yamina is on a mission to make soil a household name. She studies soil biodiversity and the organisms that control how soil works. Yamina uses unexpected methods—even running ultramarathons and painting watercolors—to educate the public on how soils form the very basis of our existence.

**Did you know** that the soils under our feet are some of the most diverse habitats on Earth? Yamina credits using her eyes (to identify subtle colors) and her microscope (to identify tiny organisms) as important tools for soil scientists studying habitats.

📍 San Luis Obispo, CA

### HEALTHY SOIL

There are many ways to determine if soil is healthy. One way is the amount of microscopic worms (nematodes) in the soil.

**Can you find the nematode in this photo?**



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# IF/THEN

# Diving Deep as a SOFTWARE ENGINEER



## Gracie Ermi

Gracie is solving big problems one line of computer code at a time. She is a computer scientist who writes code for wildlife conservation—like protecting endangered killer whales.

**Did you know** there are many different types of science careers that can help wildlife and our oceans? Gracie is an engineer applying her machine learning specialty to help track and study marine life. Now she's a conservationist too!

📍 Seattle, WA

### HELP GRACIE INTERPRET DATA

Gracie develops code to identify killer whales from drone photos.

Using their unique saddle patch (the white marker on their back), can you tell which whale this is?



# Diving Deep as a SHARK RESEARCHER



## Jess Cramp, PhD

Jess is a shark researcher who specializes in conservation policy and dispelling myths about sharks. To do her work, she spends time on boats and surfboards getting wet, and with fishers and politicians making policy.

**Did you know** that great white sharks like the ones Jess studies need to swim continuously to breathe? They even "sleep swim" to keep water moving over their gills while they catch some "zzzzz".

📍 Rarotonga, Cook Island

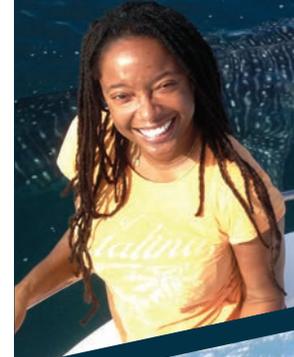
### SHARK BREATH

Sharks don't breathe air, but they do need oxygen. They get oxygen from the water as it passes over their gills.

Can you find the shark's gills?



# Diving Deep as a MARINE CONSERVATION SCIENTIST



## Dr. Lekelia (Kiki) Jenkins

Kiki is a marine sustainability scientist who created a new field of study using technology for ocean conservation. She now studies how dance can be used to engage the community with marine research.

**Did you know** there are competitions for using dance to communicate about science? Kiki hid her passion for dance before she knew it could help her as a scientist; then she won an award for her dance about sea turtle conservation and recovering ecosystems.

📍 Tempe, AZ

### DANCE YOUR SCIENCE

Art can surprise, delight, inform, and make us look deeper at the natural world.

How would you dance like a sea turtle?



Diving Deep as a

# CONSERVATION PHOTOGRAPHER



## Dr. Jennifer Adler

Jennifer is a marine scientist. She uses photojournalism to document the impacts of climate change on ocean ecosystems.

**Did you know** that special cameras allow scientists and photographers like Dr. Adler to go cave diving and capture images of extreme underwater environments?

📍 Gainesville, FL

### A PICTURE IS WORTH A THOUSAND WORDS

Both scientists and photographers use **observations** and **inferences** to understand the world around them.

- **Observation:** something fact-based you experience through one of your five senses.
- **Inference:** what you think or decide about something you have observed.

**Can you make an observation and an inference about this photo?**



Diving Deep as a

# MARINE BIOLOGIST



## Dr. Tamar Goulet

Tamar is a marine biologist and professor. She investigates the effects of global climate change on coral reefs.

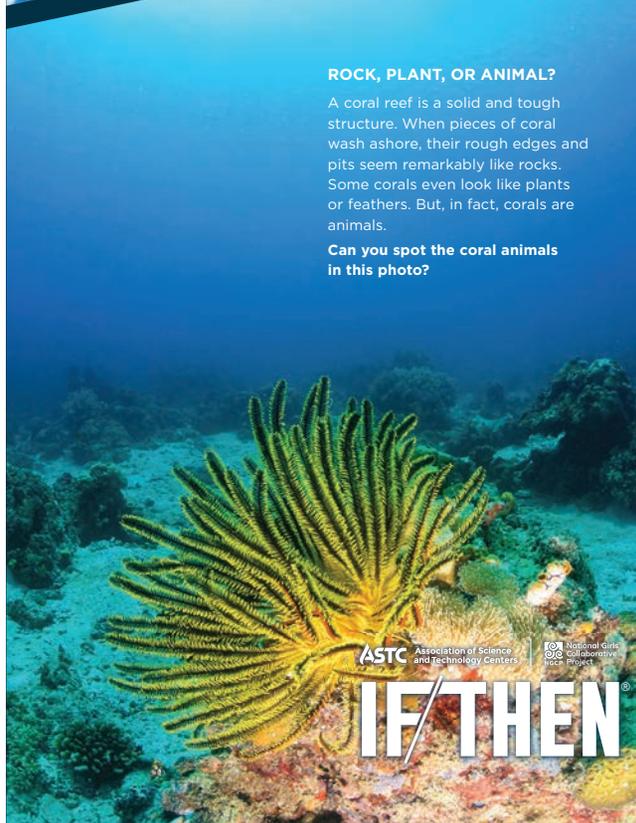
**Did you know** that coral reefs like the ones that Tamar studies provide sea life with shelter and food, protect the shore from waves and storms, and are the source of new medicines for cancer, arthritis, and Alzheimer's?

📍 University, MS

### ROCK, PLANT, OR ANIMAL?

A coral reef is a solid and tough structure. When pieces of coral wash ashore, their rough edges and pits seem remarkably like rocks. Some corals even look like plants or feathers. But, in fact, corals are animals.

**Can you spot the coral animals in this photo?**



Reaching the Stars as an

# ASTROPHYSICIST



## Dr. Kelly Korreck

Kelly is an astrophysicist who designs, builds, and operates special instruments to study our sun's hot outer atmosphere.

**Did you know** that the Sun's corona—its outermost atmosphere—is much hotter than its surface? Instruments like the ones Kelly use help us know that while the sun's surface is about 10,000 degrees Celsius, the corona can reach temperatures of up to a few million degrees Celsius.

📍 Cambridge, MA

### CORONA GLOW

The Sun's corona is visible as a halo around the moon during a solar eclipse.

**Can you identify the corona in this picture?**



Reaching the Stars as a  
ROCKET SCIENTIST



**Jasmine L. Sadler, MBA**

Jasmine is an aerospace engineer and entrepreneur who worked to harness the power of wind to create energy. Also a classically trained ballet dancer, she explores STEM (Science, Technology, Engineering, and Math) through art and education.

**Did you know** that engineering principles can be applied to more than just airplanes and rockets? Jasmine uses her aerospace science background to analyze the physics of dance movements.

📍 San Diego, CA

**ENGINEERING IN MOTION**

Understanding aerodynamics and the mechanics of movement can help improve the performance of rockets and dancers alike.

**Can you think of a way engineering might help improve dance?**



Reaching the Stars as a  
SPACEFLIGHT ENGINEER



**Dana Bolles**

Dana is a NASA engineer and an advocate for disability inclusion in STEM. She has many job roles, from helping create new spaceflight technologies to assisting the public to understand NASA's search for life beyond Earth. Dana celebrates her different abilities because they give her singular insights into her work.

**Did you know** there are special parabolic flights that can simulate weightlessness? Dana was a crewmember on one such zero-gravity flight researching what assistive technologies might help astronauts with disabilities to be successful on missions.

📍 Washington, D.C.



**INCLUSIVE INNOVATION**

Diversity in STEM (Science, Technology, Engineering, and Math) leads to stronger solutions and innovations.

**How can different perspectives help improve technology and exploration for us all?**

Reaching the Stars as a  
TELESCOPE SYSTEMS SPECIALIST



**Mimi Fuchs**

Mimi uses a radio telescope to collect astronomical observations, helping scientists around the world study how stars and planets form and what black holes look like. In fact, she helped take the very first photo of a black hole!

**Did you know** that black holes can be detected by the radio waves they emit? Radio telescopes like the ones Mimi works with can help astronomers observe these invisible giants and understand their behavior.

📍 Hilo, HI



**BLACK HOLE HUNTER**

Black holes are regions of space where gravity is so strong that not even light can escape.

**Can you find the black hole?**

NASA/CXC/Villanova University/J. Neilsen

Engineering New Paths as a

# VIDEO GAME DESIGNER



## Dr. Mitu Khandaker

Mitu designs and codes video games. An avid gamer, she founded her own company to feature more diverse narratives and characters missing from the games she grew up with.

**Did you know** that video games are a blend of art and engineering? Sometimes different creators and scientists collaborate to make games, while other times the same person—like Mitu—does both the designs and engineering.

New York, NY



### WHERE ART MEETS SCIENCE

Video games are more than just beautiful graphics and compelling stories. Engineers are behind the scenes of some of your favorite games, from building the physics engines that simulate realistic movements to the AI that controls non-playable characters.

**Can you identify an example of science at play here?**

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# IF/THEN

Engineering New Paths as a

# NUCLEAR ENGINEER

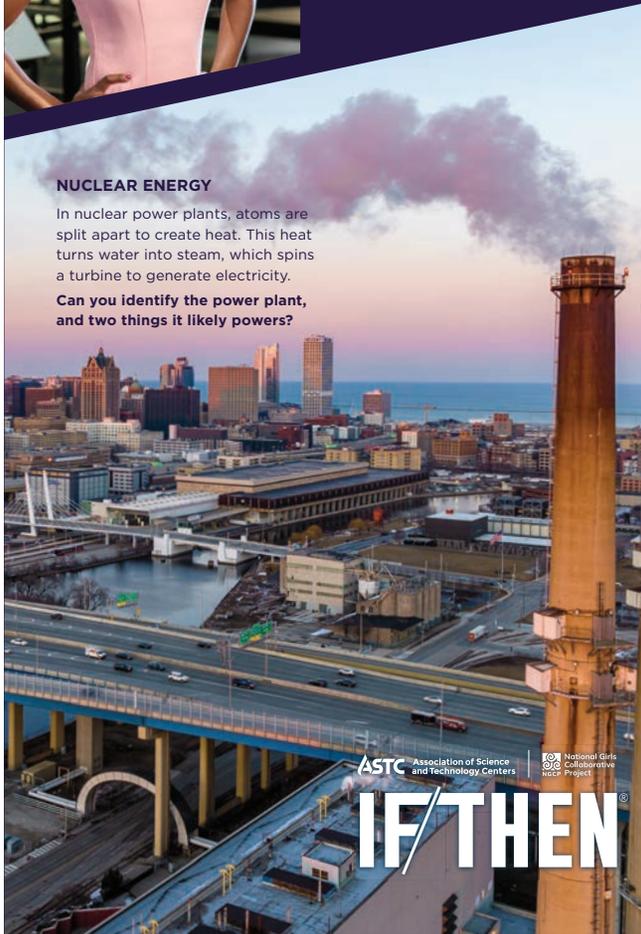


## Dr. J'Tia Hart

J'Tia analyzes top-secret nuclear science and technology for national security. The briefings she creates simplify complex science ideas so that the Secretary of Energy, the White House, and Congress can make informed and impactful decisions.

**Did you know** that nuclear energy comes from splitting tiny atoms? This process, called nuclear fission, creates enough power to light up entire cities! Nuclear engineers like J'Tia are the experts who make sure this powerful energy is used safely in policy and practice.

Argonne, IL



### NUCLEAR ENERGY

In nuclear power plants, atoms are split apart to create heat. This heat turns water into steam, which spins a turbine to generate electricity.

**Can you identify the power plant, and two things it likely powers?**

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Engineering New Paths as a

# MOLECULAR ARCHITECT

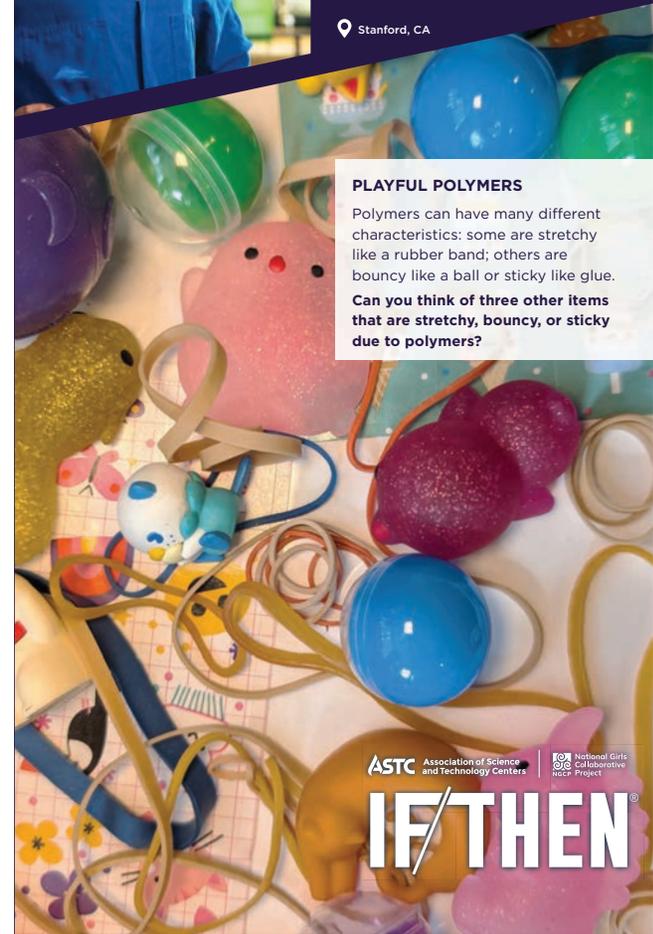


## Dr. Helen Tran

Helen is a chemist who invents brand-new molecules. For her, chemistry is like architecture—where art and engineering meet. She uses molecules as building blocks to design plastics, electronic products, and other new materials that are healthier and more sustainable.

**Did you know** that molecules can be used like building blocks? Helen connects molecules together like they are LEGO™ bricks to build structures called polymers. How the molecules are connected can have a big impact on the polymer's properties, making it flexible, brittle, or sticky.

Stanford, CA



### PLAYFUL POLYMERS

Polymers can have many different characteristics: some are stretchy like a rubber band; others are bouncy like a ball or sticky like glue.

**Can you think of three other items that are stretchy, bouncy, or sticky due to polymers?**

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# IF/THEN

Engineering New Paths as a

# DATA SCIENTIST



## Kay Savage

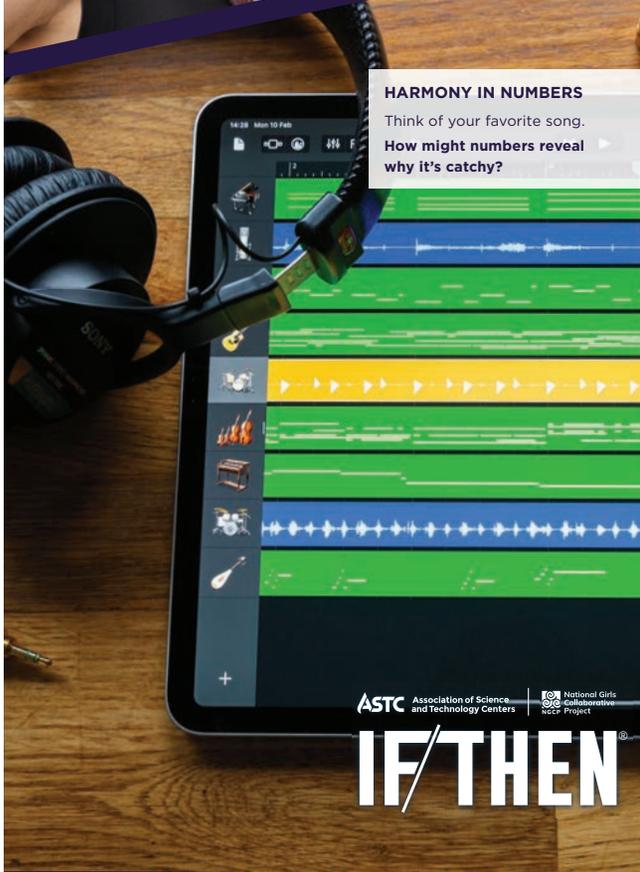
Kay puts music and math together in harmony: she uses statistics to identify patterns in people's listening habits, and coding to turn those patterns into recommended playlists.

**Did you know** math can help predict your next favorite song? Engineers like Kay use complex computer models to analyze the beats, tempo, and patterns of the songs that you listen to. By combining this data with information from millions of other listeners, they can predict what music you're likely to enjoy next.

📍 New York, NY

### HARMONY IN NUMBERS

Think of your favorite song. How might numbers reveal why it's catchy?



Powering the Planet as a

# RESTORATION ECOLOGIST



## Kellyn LaCour-Conant, PhD

Kellyn is an indigenous restoration ecologist working to heal the environment through nature-based climate solutions. She studies coastal science and works to restore wetlands and marshes, tending to native vegetation and oyster reef ecosystems.

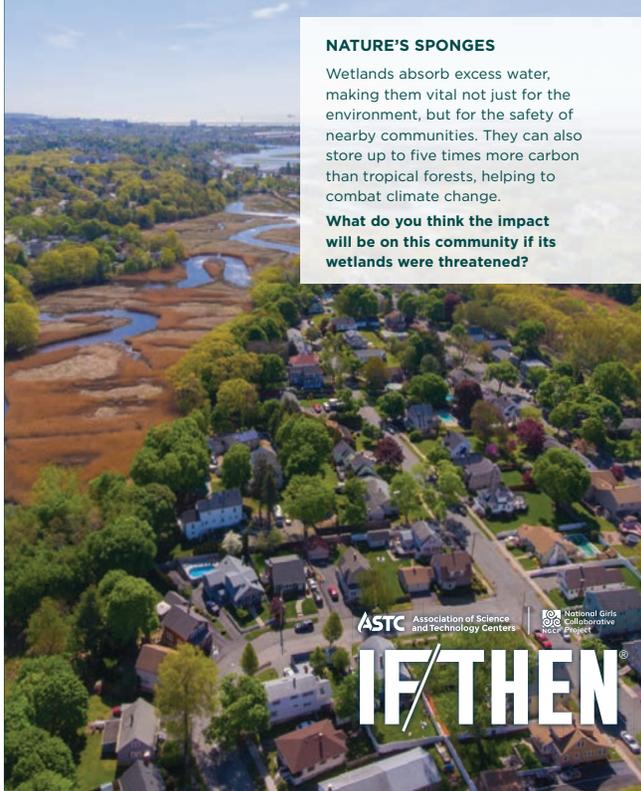
**Did you know** the wetlands Kellyn works to restore are nature's way of preventing floods?

📍 Baton Rouge, LA

### NATURE'S SPONGES

Wetlands absorb excess water, making them vital not just for the environment, but for the safety of nearby communities. They can also store up to five times more carbon than tropical forests, helping to combat climate change.

**What do you think the impact will be on this community if its wetlands were threatened?**



Powering the Planet as a

# WILDLIFE BIOLOGIST



## Kris Inman

Kris spends her days outdoors studying how wildlife populations and habitats are affected by humans and the changing climate. She believes that humans are part of nature and not separate from it.

**Did you know** beavers can help counteract climate change? By constructing dams, they create wetlands that super-saturate the land and act as a sponge, storing water and slowly releasing it throughout the seasons.

📍 Soldotna, AK

### NATURE'S ENGINEER

With US beaver populations declining, scientists are using radio-transmitters to track beavers and learn more about their primary threats: predation, disease, loss of habitat, and conflict with people. This data will help us give nature's engineers the best possible chance to continue creating wetlands and assisting us with climate resiliency

**Can you spot where the beaver is helping build our wetlands?**



Powering the Planet *as an*

# AGRICULTURAL ENGINEER



## Dr. Chavonda Jacobs-Young

Chavonda champions sustainable agriculture at a large scale. She leads research teams who work to make our food more sustainable, environmentally friendly, and efficient in terms of land and water use.

**Did you know** sustainable farming practices can help save water? By using techniques like drip irrigation to deliver water directly to a plant's roots and planting cover crops to protect the soil, farmers can produce more food with fewer resources.

📍 Washington, D.C.

### FARMING FOR THE FUTURE

Sustainable agriculture can improve soil year after year. Farmers can increase soil nutrients by rotating crops, focusing on biodiversity, and using natural compost. These help grow better crops and reduces the need for chemical fertilizers.

**How many sustainable practices can you identify?**

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Powering the Planet *as an*

# OCEAN ENGINEER



## Dr. Katy Croff Bell

Katy uses technology to investigate the depths of the world's oceans, from shipwrecks to discovering new species.

**Did you know** there are lakes and rivers hidden deep in the ocean? "Brine pools" or "brine rivers" are pockets of water too salty and dense to mix with other seawater. They move deep below polar sea ice and are too salty for most sea creatures to survive in!

📍 Arlington, VA

### SCIENCE UNDER PRESSURE

Marine scientists often use submarines or remotely operated vehicles (ROVs) to dive thousands of meters below the ocean's surface, where it's completely dark and the pressure is too immense for human divers to swim.

**What kinds of data would you collect with a submarine?**

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