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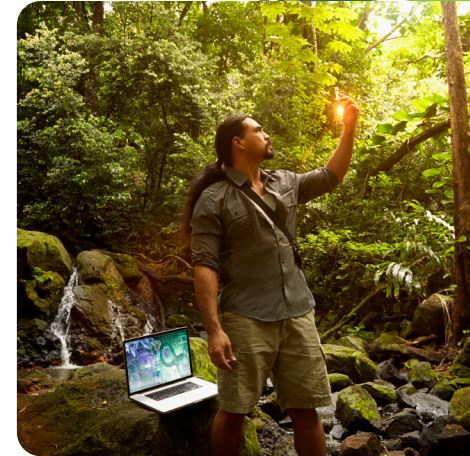
I'm an ecologist.



Students take on the roles of scientists and engineers every day.

**I'm an ecologist.**

Ecologists study the relationships between living things and their environment. Ecologists often investigate how human actions affect ecosystems.



**Current project**

I am currently working in a rainforest to figure out why organisms in the rainforest aren't growing and thriving. I've been asked to make a recommendation, once that work is complete, on how we can restore this rainforest back to health.

**What do you think?**

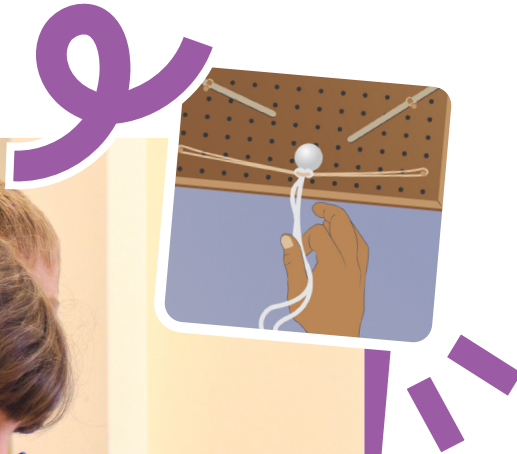
- Can you think of an ecosystem near you that might need the help of an ecologist?
- Do you think you would enjoy being an ecologist? Why or why not?



For more activities and information on Amplify Science, visit [amplify.com/science](https://amplify.com/science).



# I'm a pinball engineer.



Students take on the roles of scientists and engineers every day.

## I'm a pinball engineer.

Pinball machines have been around for hundreds of years! Players using a pinball machine try to score points by making the ball move in the right direction. To design a pinball machine, a pinball machine engineer has to know about how force can cause a ball to start moving, stop moving, or change direction. Pinball engineers also know a lot about designing, building, and testing things.



## Current project

Right now I'm building a physical model of my next pinball machine. I'm working with a team of designers, artists, and computer programmers to make a machine that will be a lot of fun to play!

## What do you think?

- Can you think of examples in your life where you need to use a force to change the motion of something?
- Would you enjoy working on a project like a pinball machine? Why or why not?



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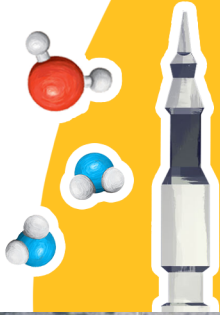
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I'm a  
weather scientist.

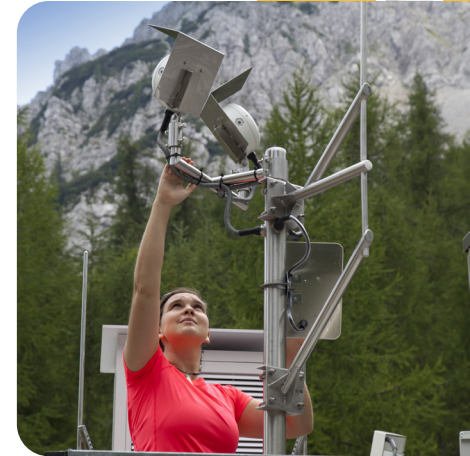


Students take on the roles  
of scientists and engineers  
every day.



#### I'm a weather scientist.

Weather can be sunny, cloudy, windy, rainy, or snowy. Weather scientists learn about how sunlight, air, and water affect weather. They analyze data and use models to make predictions and explanations about the weather.



#### Current project

I've been working with a team of scientists to use observations of temperature and thunderstorms to help predict tornadoes.

#### What do you think?

- How can weather scientists' predictions help people?
- Would you enjoy working on a project where you learn more about weather? Why or why not?

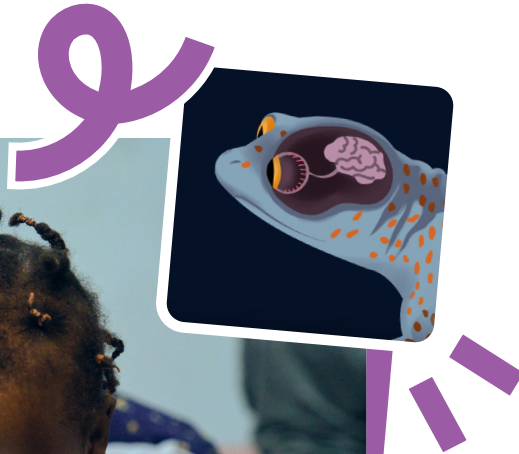


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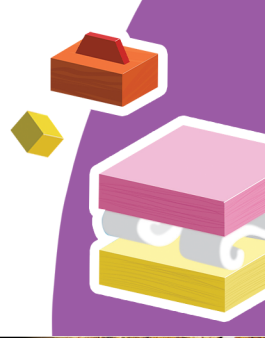
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# I'm a light and sound engineer.



Students take on the roles of scientists and engineers every day.



**I'm a light and sound engineer.**

Light and sound engineers design new ways to use light and sound. Some light and sound engineers create special effects for plays, shows, and movies. For example, lighting and sound can make a stage seem to be a forest clearing on a sunny day or a city street on a rainy night.



**Current project**

Currently, I'm working on designing and installing a floating magnetic train in order to provide a new transportation option for citizens of the town in which it's being built.

**What do you think?**

- Can you think of other things that a light and sound engineer might do?
- Would you enjoy working as a light and sound engineer? Why or why not?



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# I'm an aquarium scientist.



Students take on the roles of scientists and engineers every day.

## I'm an aquarium scientist.

An aquarium scientist works in an aquarium, which is a place where visitors can come to see and learn about animals and plants that live in water. Sometimes aquarium scientists help take care of injured sea animals so that they can be returned to the sea.



## Current project

I am currently working at a local aquarium to help a sea turtle who will soon be released back into the ocean. Sharks live in the area, so we want to make sure the sea turtle can survive.

## What do you think?

- What kinds of things would you like to observe at an aquarium?
- Would you enjoy helping injured sea animals get better before being returned to the ocean? Why or why not?



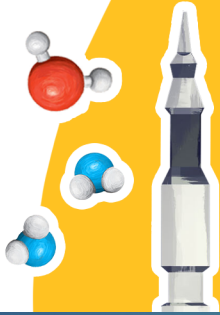
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# I'm a sky scientist.



Students take on the roles of scientists and engineers every day.



## I'm a sky scientist.

Sky scientists observe the sky in the daytime and the nighttime. They observe things like the motion of the sun, the moon, and the stars. They look for patterns in their observations and make explanations.



## Current project

I've been using a special telescope to observe the sky. I'm working with a team of people trying to discover new stars!

## What do you think?

- What have you observed in the sky in the daytime? What have you observed in the sky in the nighttime?
- Would you enjoy being a sky scientist? Why or why not?



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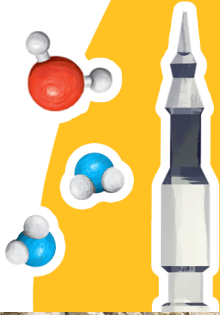
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# I'm a geologist.



Students take on the roles of scientists and engineers every day.



**I'm a geologist.**

A geologist is a scientist who studies the solid part of Earth, including landforms like mountains, valleys, and cliffs. Many geologists use models to investigate how wind and water can cause changes to landforms over time.



**Current project**

I am currently working with the director of a recreation center near the edge of a cliff that is eroding. He is worried that the cliff may collapse, putting visitors in danger. I am helping him figure out whether it is safe to keep the center open.

**What do you think?**

- If you were a geologist, what landforms would you want to study?
- Would you enjoy working as a geologist? Why or why not?



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# I'm a plant scientist.



Students take on the roles of scientists and engineers every day.

## I'm a plant scientist.

Plant scientists investigate how plants survive and grow. Every plant is part of a habitat filled with other living things, including animals. In order to understand plants, plant scientists study the relationships between plants and other living things in their habitats.



## Current project

I am currently consulting with the people who run the Bengal Tiger reserve. We are working to figure out why no new chalta trees are growing there, even though other plants are.

## What do you think?

- What plants have you seen growing in your neighborhood? What do you think a plant scientist would notice about them?
- Would you enjoy working as a plant scientist? Why or why not?



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# I'm a glue engineer.



Students take on the roles of scientists and engineers every day.

## I'm a glue engineer.

Glue engineers work to design new kinds of glue. They learn about the properties of different materials and combine the materials to make different glue recipes. The engineers test the recipes to find out how sticky and strong the glues are. Then they use what they learned from their tests to revise their recipes and make the most effective glue.



## Current project

I am currently working on designing a new glue for use in schools. I've recently been testing different ingredients to find the perfect mixtures for classrooms.

## What do you think?

- Can you think of any ways to test different glue recipes?
- Would you enjoy working as a glue engineer? Why or why not?



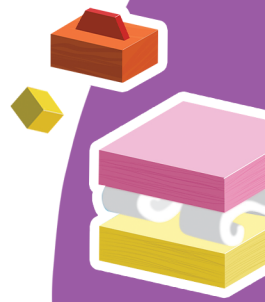
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# I'm a civil engineer.



Students take on the roles of scientists and engineers every day.



## I'm a civil engineer.

Civil means for people, and civil engineers are engineers who design things for use by people! That includes a lot of different kinds of things, including roads, buildings, bridges, and vehicles like cars or trains.



## Current project

Currently, I'm working on designing and installing a floating magnetic train in order to provide a new transportation option for citizens of the town in which it's being built.

## What do you think?

- What kinds of things do you think civil engineers need to learn about to do their job?
- Would you enjoy designing and building things like bridges and roads?



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I'm a  
biomimicry engineer.

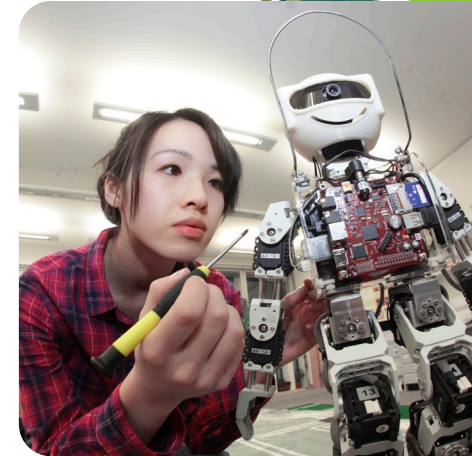


Students take on the roles  
of scientists and engineers  
every day.



### I'm a biomimicry engineer.

Engineers can get ideas by observing the traits of living organisms, like the shape of a fly's wing. Getting ideas in this way is called biomimicry. Bio means life, and to mimic something is to imitate it. Engineers can imitate organisms' traits in their designs. That's biomimicry.



### Current project

Currently, I'm helping an engineering firm design a robot for clearing away invasive plants. The design is inspired by plant-eating animals!

### What do you think?

- Can you think of an animal that has traits that would be good to imitate in a robot design?
- Would you enjoy working on a project like designing robots? Why or why not?



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# I'm a wildlife biologist.



Students take on the roles of scientists and engineers every day.

## I'm a wildlife biologist.

Wildlife biologists study animals in their natural environments. Biologists often observe variation in traits such as size, coloration, and hunting behavior. They investigate how organisms get their traits, figuring out which traits are inherited from parents and which are caused by an organism's environment.



## Current project

Currently, I'm observing two packs of wolves in a national park to figure out why one wolf has different traits than its pack.

## What do you think?

- Think about your favorite animal. What are traits that this type of animal has? What are some examples of variation you see in this type of animal?
- Would you enjoy working on a project like observing wolves? Why or why not?



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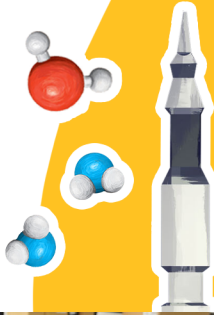
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# I'm a meteorologist.



Students take on the roles of scientists and engineers every day.



## I'm a meteorologist.

Meteorologists are scientists who study weather. Meteorologists collect and analyze weather data like temperature, rainfall, and wind speed. They analyze the data using computer models to help them explain and predict weather.



## Current project

I'm currently analyzing the weather patterns of three different islands so that I can help a wildlife organization decide which island would be the best location for an orangutan reserve.

## What do you think?

- What are the weather patterns where you live?
- Do you think you would enjoy being a meteorologist? Why or why not?

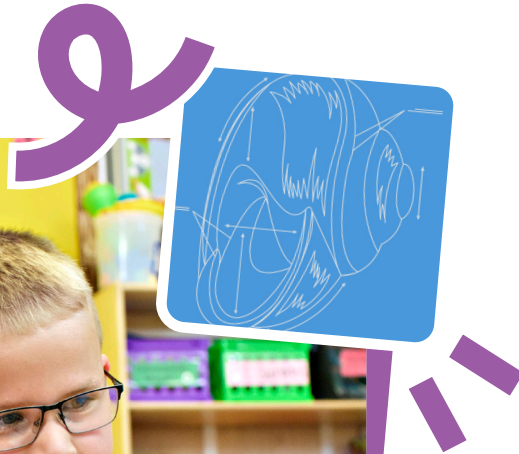


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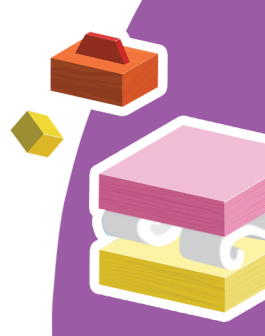
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# I'm a systems engineer.



Students take on the roles of scientists and engineers every day.



## I'm a systems engineer.

Systems engineers design, test, and improve systems—all kinds of systems! A system can be any group of parts that work together. For example, some systems engineers design transportation systems: ways for people to get around a city using trains, buses, bicycles, cars, and walking. Other systems engineers design electrical systems: systems that get electrical energy where it needs to go.



## Current project

I am currently working with a town that is experiencing frequent blackouts, and exploring ways to make their electrical system more reliable.

## What do you think?

- Can you think of a problem that could happen when part of a system breaks down, for example, part of the transportation system in a city?
- Do you think you would enjoy being a systems engineer? Why or why not?



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# I'm a conservation biologist.



Students take on the roles of scientists and engineers every day.

## I'm a conservation biologist.

A conservation biologist is someone who works to protect plants and animals in an environment. One thing a conservation biologist might do is count the numbers of plants and animals in an area. If there are fewer plants or animals than usual, they try to figure out why they are not surviving as well as they used to.



## Current project

I am working in the rainforest to figure out why a population of geckos has decreased since the installation of new highway lights nearby.

## What do you think?

- Can you think of an animal, plant, or place that you would like to study if you were a conservation biologist?
- Do you think you would enjoy being a conservation biologist? Why or why not?



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I'm a  
marine scientist.



Students take on the roles of scientists and engineers every day.

### I'm a marine scientist.

Marine scientists are scientists who investigate the ocean. There are many different kinds of marine scientists. For example, some marine scientists study how the ocean affects Earth's climate. Other marine scientists study living things in the ocean, like dolphins, whales, or plankton.



### Current project

I am currently studying dolphins to figure out how bottlenose dolphin mothers and their calves use patterns of sound to communicate across distances.

### What do you think?

- What do you wonder about the ocean? What would you study if you were a marine scientist?
- Do you think you would enjoy being a marine scientist? Why or why not?



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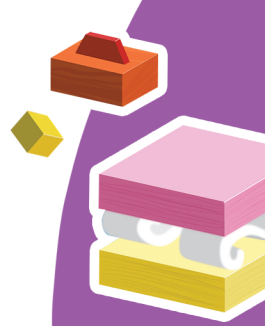




# I'm a food scientist.



Students take on the roles of scientists and engineers every day.



## I'm a food scientist.

Food scientists use biology, chemistry, and engineering to study food! They design new food products and investigate how to make food healthy, tasty, and safe.



## Current project

I am currently working with a food company on the research and development of a new salad dressing that the company is planning to release to the market. I am helping the company make sure the salad dressing has a good flavor, texture, and appearance, and that is safe for consumers to eat it.

## What do you think?

- Can you think of other things a food scientist might work on?
- Do you think you would enjoy being a food scientist? Why or why not?



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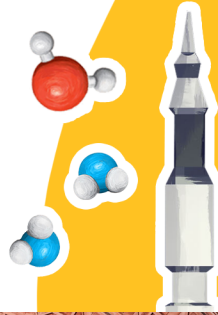
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I'm an astronomer.



Students take on the roles of scientists and engineers every day.



**I'm an astronomer.**

Astronomers study planets and the sun in our own solar system, as well as other stars, solar systems, galaxies, and the whole universe. Astronomers also try to understand how the universe works.



**Current project**

I am working with a team of other astronomers to observe far-off stars. We are trying to figure out which stars have planets orbiting them. Maybe one of the planets is similar to Earth!

**What do you think?**

- What is the most interesting thing you have observed in the sky?
- Do you think you would enjoy being an astronomer? Why or why not?



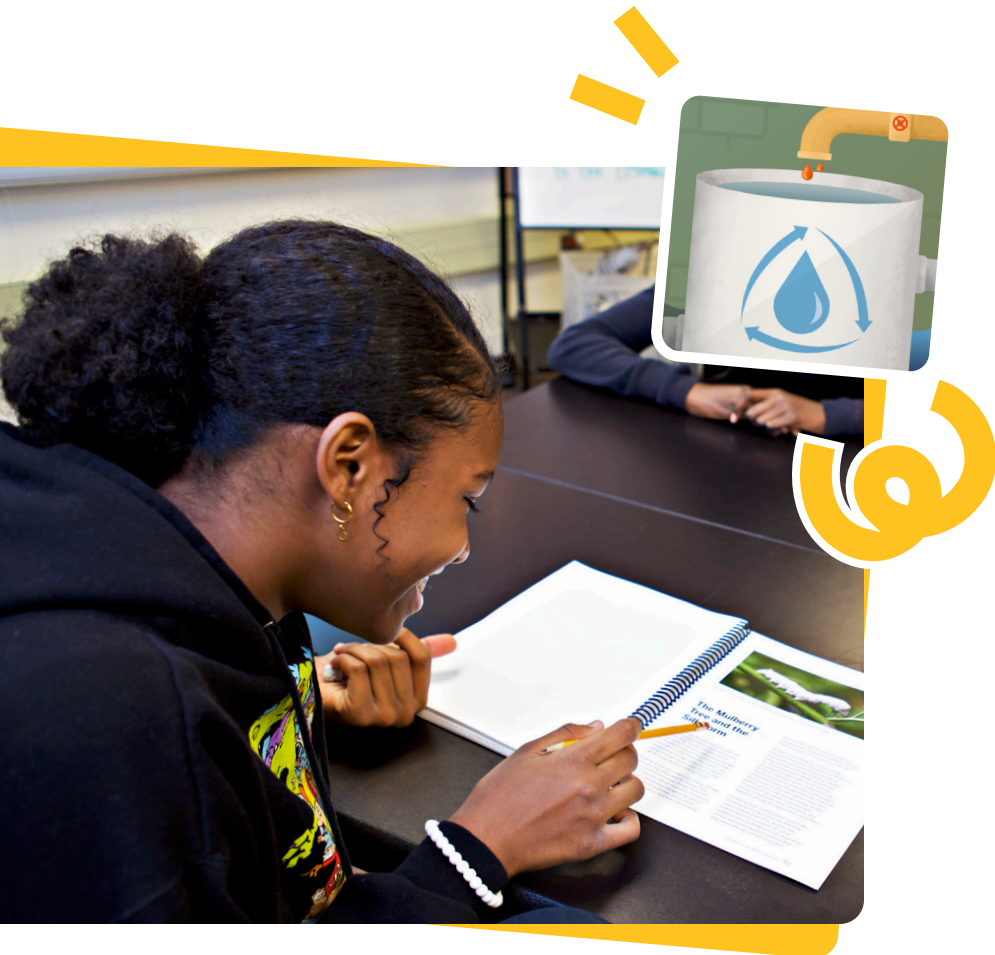
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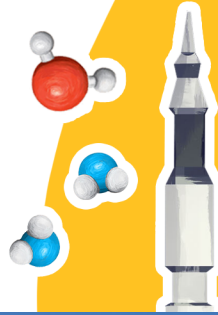
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# I'm a water resource engineer.



Students take on the roles of scientists and engineers every day.



## I'm a water resource engineer.

Water resource engineers design and maintain systems for providing clean, safe water. Some water resource engineers work on making contaminated water safe to drink. Others design systems for moving water to places where it is needed.



## Current project

I am currently designing ways to reduce the effects of water shortages, including freshwater collection systems and a new proposal for using chemical reactions to treat wastewater.

## What do you think?

- Do you know where the water comes from that you use?
- Do you think you would enjoy being a water resource engineer?



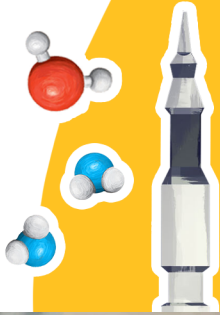
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# I'm a climatologist.



Students take on the roles of scientists and engineers every day.



## I'm a climatologist.

Climatologists like Derrick Lampkin are scientists who study Earth's climate and how it is changing over time. They collect data about temperatures and conditions in the atmosphere and ocean. Some, like Lampkin, study melting ice.



## Current project

Derrick Lampkin studies how large ice sheets respond to a warming climate. An ice sheet is a large block of ice that covers an extensive area the size of a continent. He has traveled to the island of Greenland to collect data about the huge ice sheet that covers most of the island. He found that warmer air temperatures make the ice sheet melt faster. The water from the melting ice flows into the ocean and contributes to sea level rise.

## What do you think?

- If you could travel anywhere to study Earth's climate, where would you want to go?
- What can you or your community do to help keep the climate from warming so much?



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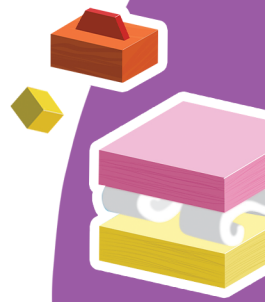




# I'm a civil engineer.



Students take on the roles of scientists and engineers every day.



## I'm a civil engineer.

Civil engineers like Zaki Mustafa work on projects for cities and other communities. Some civil engineers work on public safety issues, like road design and traffic management. Other civil engineers design structures, like buildings and bridges, while others figure out solutions to environmental issues, such as reducing a city's impact on the climate.



## Current project

Zaki Mustafa works to make the roadways of Los Angeles as safe and usable as possible, for both drivers and pedestrians. That's no easy task: there are more than 10,460 kilometers (6,500 miles) of road in Los Angeles. During his 35-year career with the city, he's helped put many ideas into practice, like flashing lights at crosswalks and striped crosswalks that are more visible to drivers.

## What do you think?

- What solutions might you design to make roads and sidewalks safer?
- What are some other issues you think civil engineers might be able to help solve?



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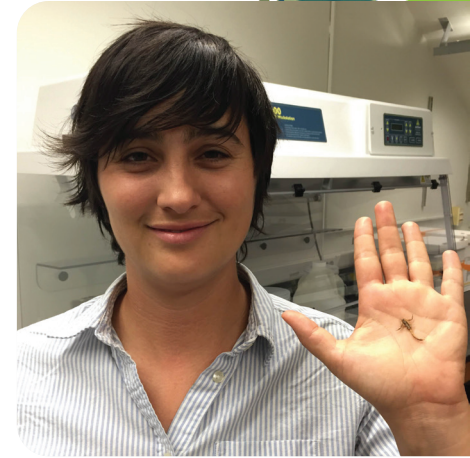
# I'm a biologist.



Students take on the roles of scientists and engineers every day.

## I'm a biologist.

Biologists like Lauren Esposito are scientists who study living organisms such as animals and plants. Biologists look at organisms on different scales, from the tiny cells that make up all living things on Earth to individual organisms to entire populations. Many biologists investigate how populations of organisms change over time. Sometimes they might discover a new species.



## Current project

Lauren Esposito studies scorpions. Scorpions are small animals with claws and stinging tails, and they are related to spiders. Esposito travels around the world observing scorpions in their natural environments. She has even discovered new species of scorpions!

## What do you think?

- If you become a biologist, at which scale would you be interested in focusing your research: Cells? Organisms? Populations?
- Is there an organism you'd like to become an expert on?



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# I'm a genetic researcher.



Students take on the roles of scientists and engineers every day.

## I'm a genetic researcher.

Genetic researchers like Cheryl Hayashi zoom into the cells of living things to investigate how genes provide instructions for the proteins that determine an organism's traits, such as fur color. They work to understand the different ways that variation in traits can arise. Some genetic researchers even seek to change the traits of certain organisms.



## Current project

Cheryl Hayashi's research focuses on the genetics of spider silk. There are lots of variation in spider silk: some spider silk is very strong, some is very stretchy, and some is very sticky. Spider silk is made up of proteins. Hayashi figures out which genes give instructions for the proteins that produce different kinds of spider silk. People may be able to use spider silk for all kinds of things, from strong, light fabric for parachutes to thread for surgical stitches.

## What do you think?

- If you become a biologist, at which scale would you be interested in focusing your research: Cells? Organisms? Populations?
- Is there an organism you'd like to become an expert on?



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I'm a chemist.



Students take on the roles of scientists and engineers every day.

### I'm a chemist.

Chemists like Kristi Lorenson answer questions about what substances are and where they come from. They also study the properties of substances and how different substances can react and change.



### Current project

Kristi Lorenson works at an agency that provides drinking water to more than one million people every day. As a chemist, it's her job to test the water. She uses her knowledge of properties and chemical reactions to figure out what substances are present in drinking water samples. Lorenson makes sure the water is safe to drink and doesn't have any dangerous substances in it.

### What do you think?

- Do you know where your drinking water comes from?
- What are some other questions you think chemists could use their knowledge of substances to answer?



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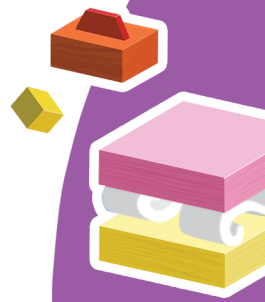
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# I'm a spectroscopist.

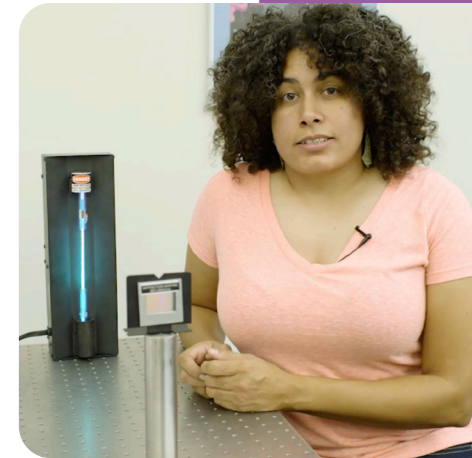


Students take on the roles of scientists and engineers every day.



## I'm a spectroscopist.

Spectroscopists like Desiré Whitmore are scientists who study light. Visible light isn't the only kind of light: there's a whole spectrum of different kinds of light, including gamma rays, X-rays, ultraviolet light, visible light, infrared, microwaves, and radio waves.



## Current project

Spectroscopists like Desiré Whitmore focus their research on lasers, a kind of technology that generates a concentrated beam of light. She studies how lasers interact with different materials. Whitmore currently works at a science museum, where she figures out how to help people understand light, materials, and other important science topics.

## What do you think?

- How is light important in your everyday life? How do you think learning more about light could improve people's lives?
- What kind of light would you want to study if you were a spectroscopist, and why?



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