Amplify Science

I’m a chemist.

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.

*Career featured in the middle school *Chemical Reactions* unit of Amplify Science

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?

In Amplify Science, students take on the roles of scientists and engineers every day.

For more activities and information on Amplify Science, visit amplify.com/TakeOnTheRole.

Amplify Science

I'm a civil engineer.

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. Some 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?

*Career featured in the middle school *Earth's Changing Climate: Engineering Internship* unit of Amplify Science

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Amplify Science

I'm a climatologist.

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.

*Career featured in the middle school *Earth's Changing Climate* unit of Amplify Science

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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Amplify Science

I'm a spectroscopist.

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.

*Career featured in the middle school *Light Waves* unit of Amplify Science

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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Amplify Science

We are biologists.

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?

Career featured in the middle school *Natural Selection* unit of Amplify Science

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Amplify Science

I'm a genetic researcher.

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 is 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?

What questions do you have about how living things get their traits?

Can you imagine other uses for super-strong, super-flexible spider silk?

*Career featured in the middle school *Traits and Reproduction* unit of Amplify Science

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