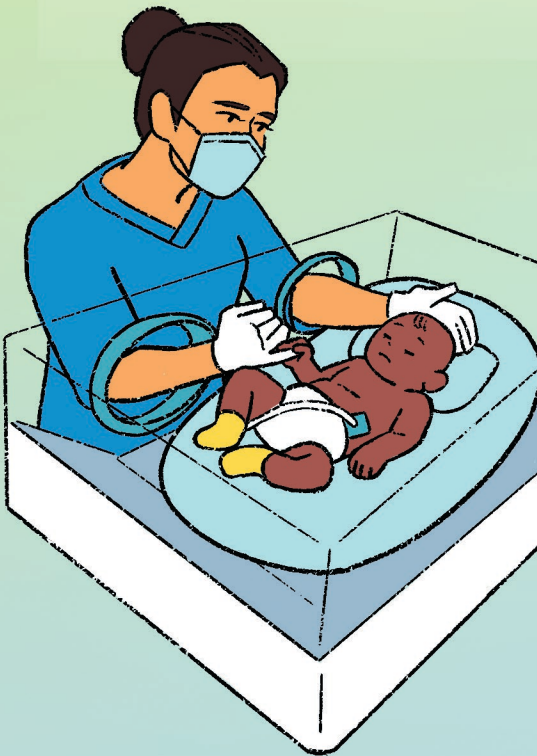
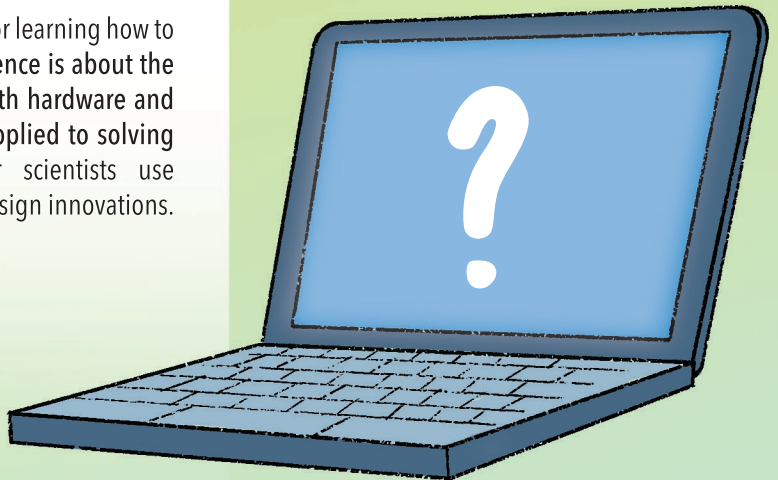


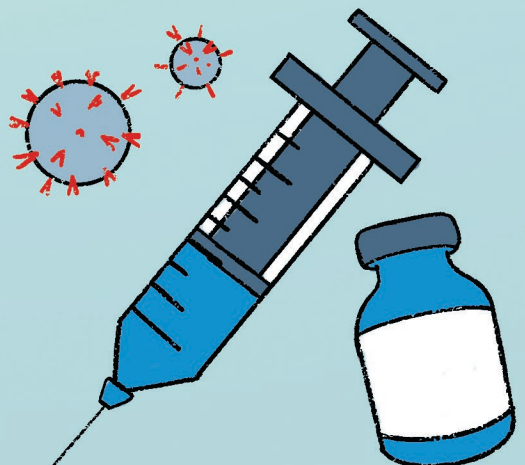
## What is computer science, anyway?

Computer science isn't just typing or learning how to make spreadsheets. Computer science is about the study of computers, including both hardware and software, and how they can be applied to solving real-world problems. Computer scientists use creativity and critical thinking to design innovations.

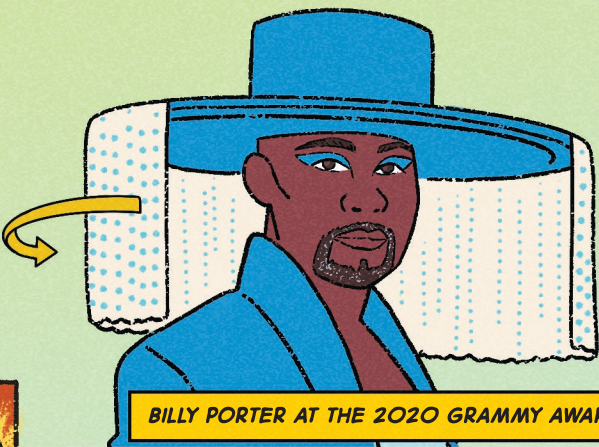


Computer science is changing every field: it is used to mix beats and make all genres of music, create special effects and animation in films/TV, create medicine and vaccines or help doctors and nurses decide on treatments for patients, help athletes monitor their health and skills during training on and off the field, collect data and information for scientists working anywhere from forests to labs, improve how people learn in school, and more. Everyone needs to learn computer science because it affects everything we touch and do. Computing determines how we understand what is going on in the world.

**Using computers to develop vaccines:** In computational immunology, scientists use mathematical models that can predict which part of a new virus will be recognized by the immune system. This helps speed up the development and testing of vaccines.



Using computer science to revolutionize fashion: Designers can incorporate and sew microcomputers, sensors, LEDs, and more into fabric so that clothing can make sounds, light up, and sense and react to the environment.

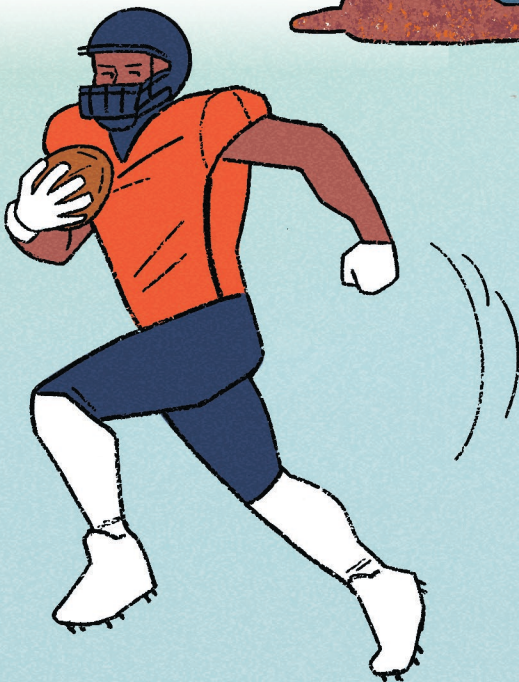
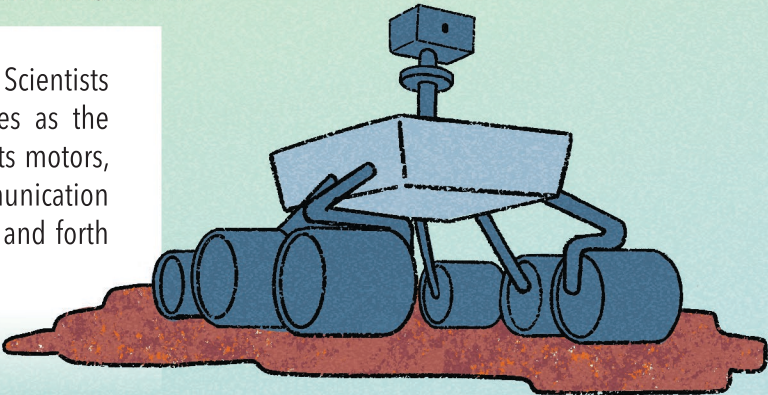


*BILLY PORTER AT THE 2020 GRAMMY AWARDS*



Addressing climate change: Computer scientists analyze data to address how trapped greenhouse gases are affecting sea levels, droughts, hurricanes, fires, and heat waves.

Finding life on other planets: Scientists program a computer that serves as the Mars Rover's brain—controlling its motors, science instruments, and communication functions—as it sends data back and forth between Mars and Earth.



Monitoring head impact and injury: Head sensors, data analytics, and machine learning allow coaches and families to receive quick information about the severity of brain injuries during sports events.