

What's an Engineer? Crash Course Kids #12.1

How do we **get around** from place to place without having to walk everywhere? How can we **communicate** with people who live far away? These were problems that people **struggled** with for a long time, until recently. Before there were things like cars, phones, and computers. And you know who **solved** those problems?

Engineers. But do you know what an engineer is? The short answer is that an engineer is someone who wants to know how and why things work. Now, I want to know how and why things work, but does that make me an engineer? Not quite. Besides being **naturally curious**, an engineer is a person who **designs** and **builds** things like **machines** or **systems**, or **structures**, that help solve a **specific** problem.

There's more than just one type of engineer, too. But no matter what **type** of engineer someone is, they have to ask themselves three very important questions when they're working.

1. **What** is the problem that needs to be solved?
2. **Who** has the problem that needs to be solved?
3. **Why** is this problem important to solve?

Let's take a look at some examples. A really famous example of engineering is the **Golden Gate Bridge** in San Francisco, California. I mentioned that there are different kinds of engineers, and the **civil** engineer is someone who **designs** and **constructs** buildings, roads, and, bridges

For the person who designed the Golden Gate Bridge, what was the problem that they needed to solve? People couldn't travel in or out of San Francisco, which is **surrounded** on most sides by water, without a boat. Who had the problem? **Residents** of San Francisco, mostly, but really anybody traveling in the area. Why was the problem important to solve?

Well, you didn't want a whole **bunch** of San Francisco residents **trapped** in San Francisco forever. Even if it's a super cool city. Plus you wanted people outside of San Francisco to be able to travel to the city easily if they needed to. So the Golden Gate Bridge was **engineered** as a solution to this problem

In addition to civil engineers, there are also **mechanical**, **electrical**, **chemical**, **computer**, **nuclear**, and **software** engineers. And the list goes on Let's talk about what some of the other types of engineers do.

First up, electrical engineers. Electrical engineers study **electricity**. They design electrical systems like **circuits** and computer **chips**. Think of an electrical object that you use pretty **regularly**. How about your microwave? What problem was the microwave a solution to? **Cold food**, right? You have an electrical engineer to thank for the ability to **reheat** that **leftover** pizza you just had for lunch.

But while you might not have heard of Joseph Strauss or Percy Spencer, the engineers responsible for the Golden Gate Bridge and the microwave **respectively**, You've probably heard of Henry Ford. As in Ford cars. Henry Ford was a mechanical engineer, or someone working in the **manufacturing industry**, making mechanical things like **tools**, **engines**, and **machines**. Machines, like cars. Ford didn't **invent** the automobile, but his Ford Motor Company made a lot of them. His Model T car was famous for being **affordable** for plenty of Americans. Ford saw that lots of people who wanted to drive cars, just couldn't. Because they couldn't afford the **pricey** vehicles that were for sale. So he engineered a cheaper model as a solution to this problem. His fellow engineers started to do the same and now, well, cars are everywhere. Henry Ford was not the only **big-name** engineer.

A famous engineer around today is Marissa Mayer. Mayer is the **president** of the internet company Yahoo and is also a software engineer. Software engineers work on computers and other **products** that use software to write **programs** to make them faster and able to do more things.

No matter what kind of engineer someone is, their job at its most basic level is **problem-solving**. Each engineer just **specializes** in solving certain kinds of problems. While it might seem like there are too many types of engineers to keep **track** of, just wait 15 years, or 50, or 100. Because we will probably have a **ton** of different types to **add** to the list by then. Think about it. Over 100 years ago we didn't have jobs in **fields** like **aerospace** engineering where people design and construct planes and **spacecraft**. We didn't have planes like we do today, or need spaceships. So we didn't need people to engineer them. Who knows what machines or **tools** or everyday objects we will have in the year 3015? Personally, I'm hoping for **underwater** cities. But whatever these things are, we will need engineers to make them. So what do you say? Who wants to be an engineer?