

# Robots!

## What are they *really* thinking?

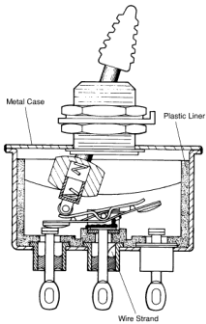


When you hear the word “robot,” what do you imagine? You probably use robots everyday. They don’t have to look like humans.

To us, a robot is a **machine** that does something **physical**, **automatically**. It can make something **move**, and has some way to decide **when** and **how** it should move.

### Sense

Your body has many different sensors; you can see, hear, touch, smell, and more! Robots only one sense: **electricity**. Electricity is just **electrons flowing**, usually through a wire. The simplest sensor is a **switch**. When you flip a switch or press a button, you connect two wires together, letting electricity flow. For a robot to sense different things, like light, sound, or touch, we build things that block the flow of electricity in different amounts based on what comes in. For example, if lots of light gets into a light sensor, it might make more electricity flow.



### Check Yourself

If you notice you are falling, what do you do? You move your feet. To stay balanced, you have to use your senses. Robots do this too. Robots (and humans) use their senses to check what they are doing and fix it. Checking and correcting yourself is called using **feedback**. Without feedback, robots would miss, drop, or break whatever they try to do.



### Program Yourself

*Try it:* Find something long, like a feather or a spoon. Try to balance it on your hand. If it starts to fall over, which way should you move to keep it balanced? Figured it out? Cool! You wrote a **program**.

A program is the connection between sensing, and doing. **If this happens, do that.** Programs can be simple: if a switch is on, do something, or if step 1 finishes, do step 2. Programs can be complicated, like games in your phone, where programs control hundreds or billions of things!



More info: [wondergy.com/robotics](http://wondergy.com/robotics)

Contact: +1-86-MOLECULE (866-653-2853) | [science@wondergy.com](mailto:science@wondergy.com)

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