There are only 10 types of people in the world:
Those who understand binary and those who don't

Binary Switch

with MaKey MaKey & Scratch

Short Description:

One of the fundamental computer science concepts is that everything we do on a computer is really just turning binary digits on and off. Even though this sounds simple, it can be a concept that is hard to wrap one's head around. This activity brings the binary concept to reality by creating a binary switch with the MaKey MaKey kit to turn a Scratch animation on or off.

Step-by-Step Guide

1. Ever see a [binary clock](#)? Not so simple to read for humans (at least not this human).
2. Check out the [CS Unplugged Count the Dots](#) videos & activities. This helps demonstrate how binary numbers works.
3. Try your luck at the [Binary Game](#).
4. If you have never used Scratch before, the [Scratch cards](#) are a great way to get familiar with the coding blocks.
5. Create an account on Scratch and then go to [MaKey MaKey Binary Switch I](#). Select *See inside code* and then *Remix*.
6. Select the Stage, see variable called switch. This is what will turn the animation on and off (1=ON and 0=OFF). Do you see which keys correspond to ON and OFF?
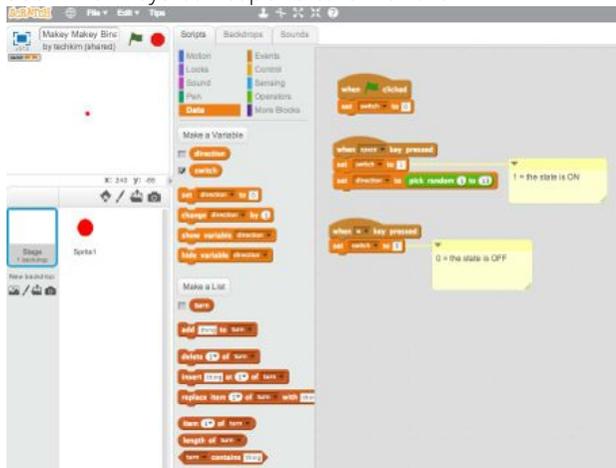

7. Select Sprite1. See that when the variable *switch* is set to 1, the sprite moves forward. When *switch* is set to 0, the sprite stops moving forward and it waits for you to switch it on again. Notice the code is checking *forever* whether the *switch* is set to *1*, *then* it is performs the ON code, *else* it performs the OFF code.
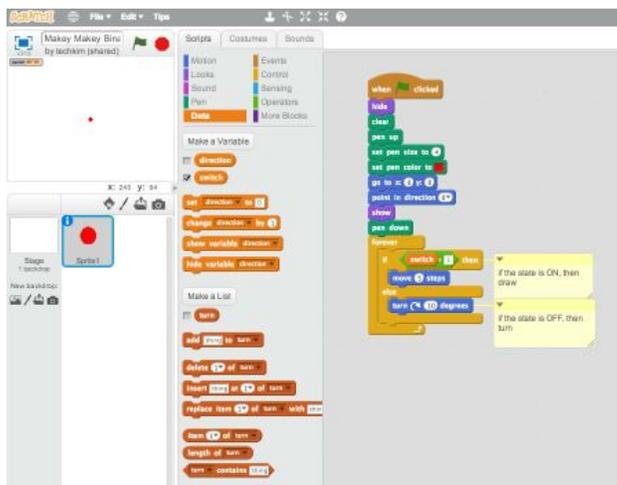
More, more, more!

- Try remixing the Scratch project to add sound that will turn on and off using the same switch variable.
- Add another sprite and have its movements turn on and off using the same switch variable.
- How many different On / Off switches can you design with for the MaKey MaKey?
- What happens if you reserve the switch?
- Can you use just one input key to switch between on and off? Have you ever heard of The Clapper!
- See [MaKey MaKey Binary Switch II](#) for more examples.

Click on the images below to check out more Scratch projects created for MaKey MaKey control.
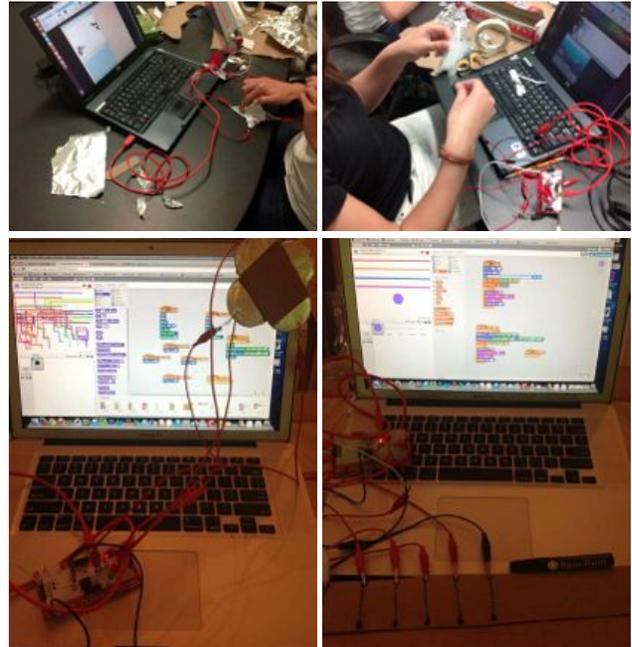
References

- Created by [TechKim](#) for the [MaKey MaKey Group-How-To Contest!](#) using the Mozilla Thimble template from [#teachtheweb](#).
- [Let's Get Physical with Scratch: Sensors, Robots & Consoles](#)
- Special thanks to [Chad Sansing](#) and his CPCS Dragons for inspiring me and letting me borrow a MaKey MaKey kit.
- Also thanks to [Teen Tech Girls](#) for trying out this activity & giving it a thumbs up!
- [#nerdcamp first MaKey MaKey badge](#)

8. Create a ON / OFF switch with your MaKey MaKey kit. Remember which key is ON and which is OFF? You'll also need to complete the circuit, which means you must be connected to the ground wire in some way (I'm a fan of the tin foil bracelet, except when it itches;-).

Binary Numbers Game