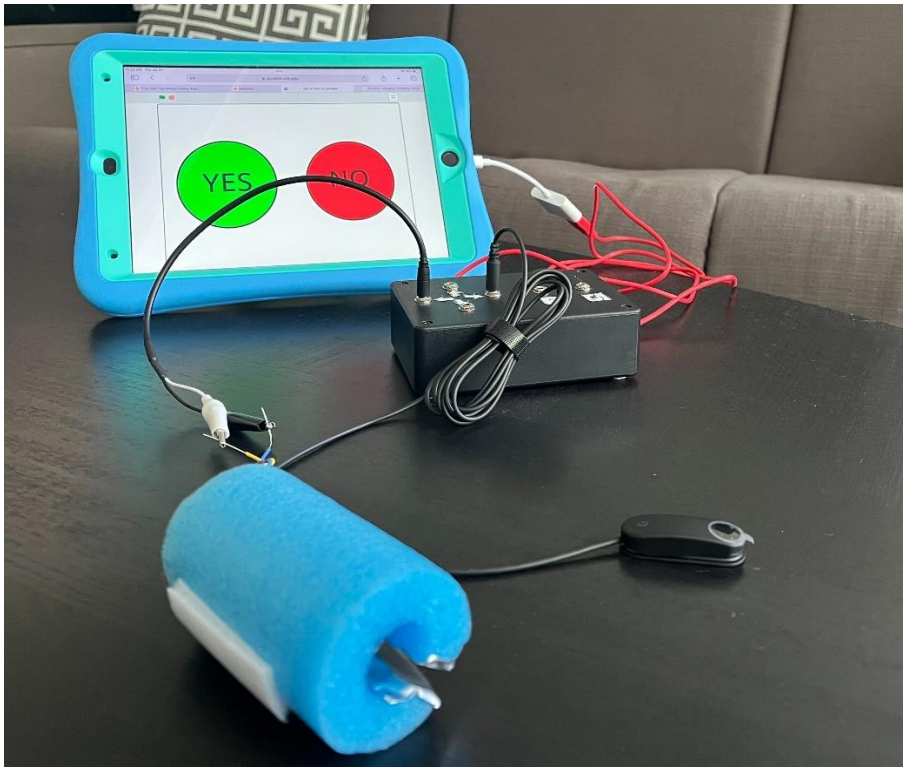
Switch Kit Instruction Manual



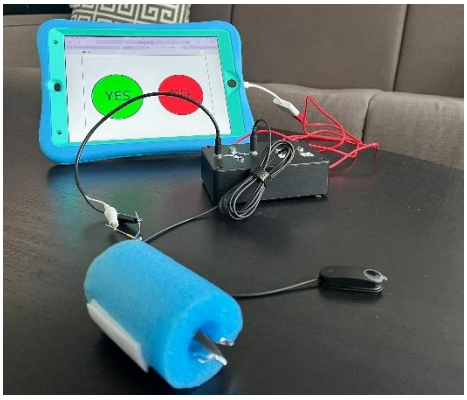
Last Updated 7/9/24 by Riley Bernas

Getting Started

Congratulations on receiving your very first switch learning toolkit! We want to start you off with a few basics:

- What is the switch kit?
- How do switches work?
- How can this be used to support therapy?

What is the switch kit?

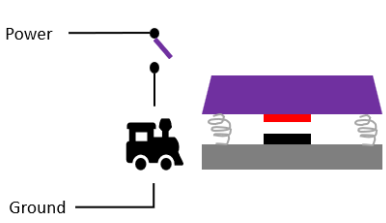


The switch kit is a DIY toolkit designed to facilitate digital accessibility using accessible switches, which can be either commercial switches like the AbleNet Big Red Switch or homemade ones from various materials. What sets our switch kit apart is its compatibility with a wide range of switches, made possible by housing a MakeyMakey board within the input device. MakeyMakey is a commercial circuit board that transforms everyday objects into touch-sensitive inputs. By integrating it into our input device, we've made the board easier to use and more durable.

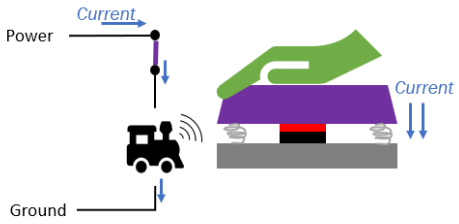
The switch kit connects to your tablet or computer, enabling it to be used with apps or websites. We've developed user-friendly games using Scratch, a kid-friendly programming platform, but the switch kit can also work with other games or apps that utilize arrow keys or the space bar for input. Additionally, it's compatible with switch control, an accessibility feature on iPads, offering unlimited accessibility possibilities.

How do switches work?

Switches are used in many everyday objects, like lights, appliances, or toys. They are used to control the movement of electricity through a pathway. This is called current. In an electrical circuit, current flows from a power source, like a battery or a wall outlet, through wires and components, and back to the source. For example, by flipping a light switch, you're allowing the current to flow, and the light turns on. When you turn off the switch, you interrupt the current, and the light goes off.



Off



On

Teaching the Switch Kit

We suggest that you follow a series of steps that will allow your child to learn what the switch kit does and be set up for success while using the device.

Step 1: *Accidental Switch Activations*

Goal	Important tips	Games
The goal during this phase is for the child to make the connection that they can make an outcome or effect in a game happen by pressing a switch.	It's important not to direct the child's movements at this point – instead, allow them to activate the switch accidentally, and then make the connection that their action can produce an outcome.	Games during this stage should only require one switch. The effect should only occur immediately when the switch is pressed, and then stop after it is released. Examples: Bluey Dancing, Dancing Elmo, and Hop Little Bunnies.

Step 2: *Intentional Switch Activations*

Goal	Important tips	Games
During this step, the goal is that the child can intentionally activate a switch to produce an outcome.	At this point, repetition is very important. Practice with different types of switches, the switches in different locations, different games, and different environments and positions.	Step two games need to have instantaneous effects so that children can clearly connect the action of pressing a switch to the outcome that occurs digitally. They should still only require one switch. Examples: Popping Bubbles.

Step 3: *Two Switches*

Goal	Important Tips	Games
Child can understand that two switches with different functions can cause different outcomes within the same game.	Make sure not to move onto this step without making sure the child has established cause and effect.	These should require two inputs (ex: up arrow and down arrow, left arrow and right arrow). Each input should create a different outcome. Examples: Truck Go/Stop, Yes/No, and Giant Duck

Step 4: *Multiple Switches*

Goal	Important Tips	Games
Child can interact games that require multiple different switches and understand that each has a different outcome when activated.	Make sure not to move onto this step until the child is comfortable with games with two switches. Introduce switches one at a time and allow the child to become familiar after each new addition.	Three inputs: Whack a Mole Four inputs: Animal Piano Woods

Ideas

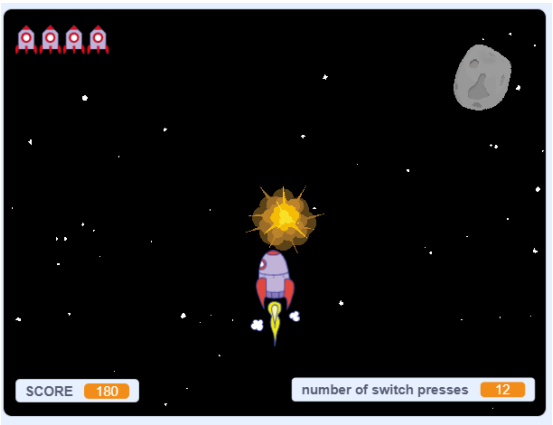
The switch kit offers so many opportunities for creativity and innovation. Here are some that we suggest!

Collaborative Play!

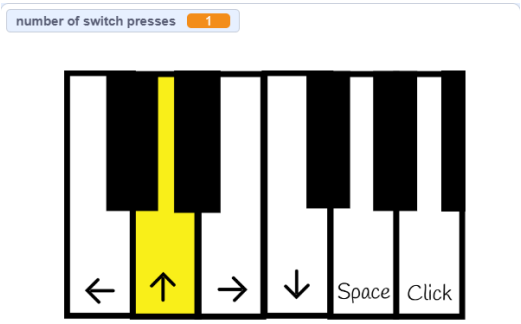
Games with multiple inputs can be used for collaborative play! Some Scratch games that are great for this are Comet Combat and Etch-a-Sketch. Have the child control one or two functions on the game, and their playmate control the other functions for a fun teamwork activity!

Some games that work well:

Comet Combat:
This game requires three switches. Have the child use the space bar to destroy all the asteroids, and their playmate control the arrow keys to fly the rocket. See if you can reach a high score!

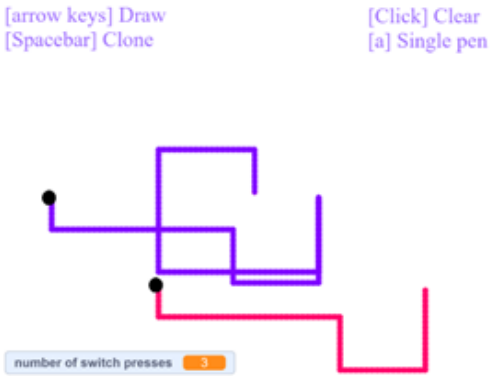


Piano:
Play the piano together! Connect switches to each of the six keys and work together to see what music you can create.



Etch a Sketch:

Draw a picture together! One playmate can control the pen's movements with the arrow keys, and the other can use the spacebar to clone the pens.

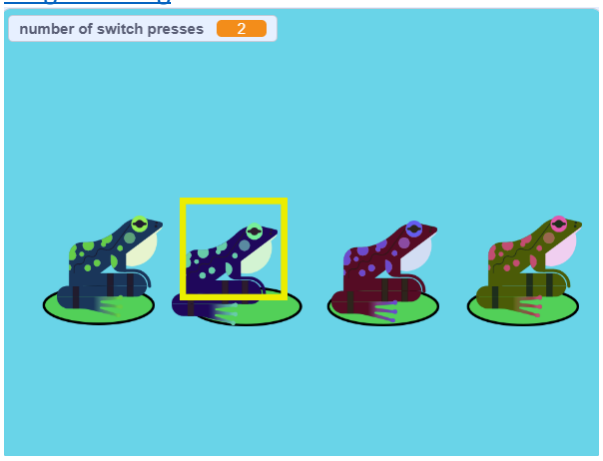


Scanning:

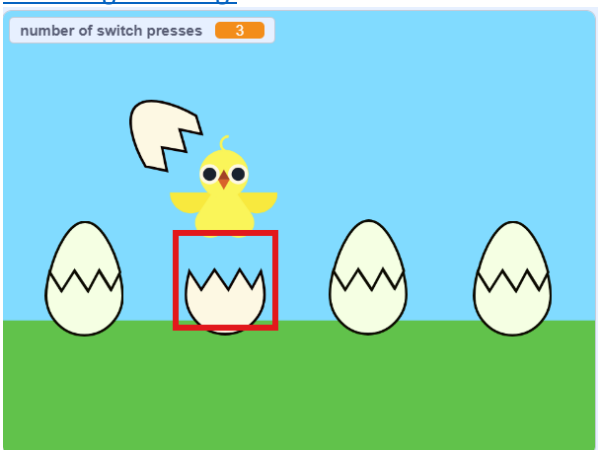
Scanning refers to the use of switches to sequentially navigate through options and choices. This skill can be used with AAC and computer technology and can improve access and even communication. Switch control and scanning can also be used on an Apple iPad: learn more about that here. Check out a few of our games on Scratch designed to help with basic scanning skills:

In these games, the selection square automatically scans back and forth and hovers on each object. When the space bar is pressed, the effect occurs!

Frog Scanning



Hatchling Scanning.



Modifying the Switch Kit

Here are some ideas that will allow you to adapt the Switch Kit

Using the tilt switch

The tilt switch activates when held upright and deactivates when tilted in a different direction. It can be used to practice movement and head control!

To practice head control, attach the switch to glasses or a headband and place it on the child's head. It will activate when the head is held upright.

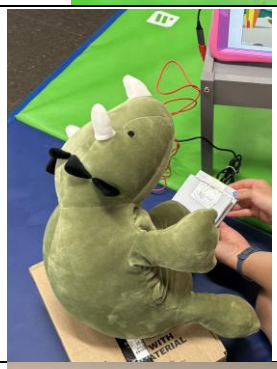
Deactivated ----> Activated

Demo Dino practices holding his head up with the tilt switch!

Try securing the tilt switch to the child's arm with Coban to practice arm movements! When the child lifts their arm up, the switch will activate:

Positioning Ideas

Here are some creative ideas for positioning the switches:

Using a switch taped to a box while laying on side	
Pressing the switch with foot instead of hand	 
Placing a soft switch behind the head to practice posture	

Adding to the switches

You can also add colored felt and tape, shiny or crinkly materials, and any other additions to make the switches more interesting and provide more feedback to the child! Here are some examples below:

Adding a shiny bow for visual and texture feedback

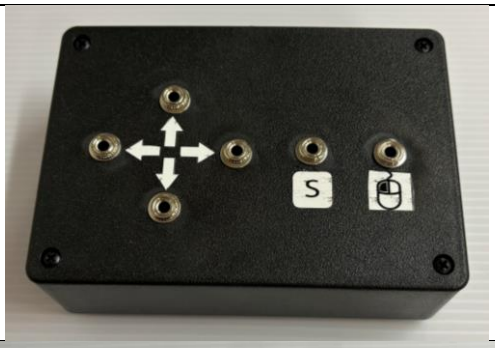
Felt adds texture and bright color

Tinfoil provides audio and visual feedback

Included Materials

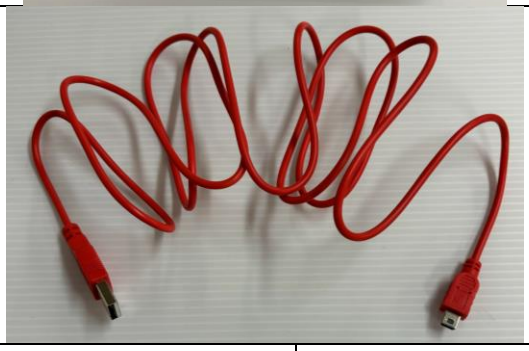
Input Device:

The black box with the 6 holes for audio jacks.



Red wire:

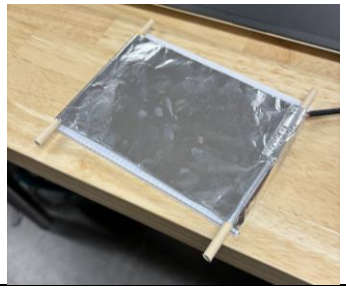
Mini USB-B to USB-B cable. This can be used to connect your input device to the computer.



DIY Switches:

You should have received six switches with your input device. Each of these switches has an audio jack on the end that can be plugged into the input device or other switch-adapted technologies.

Feather Switch



Conductive Switch

Paddle Switch

Tilt Switch

	Soft Switch 	Pool Noodle Switch 

Resources

Switch Access Games Spreadsheet!

Switch Control on iPad

How to set up an iPad for switch control

1. Plug in your switch into the MakeyMakey and plug the MakeyMakey into the iPad
2. Go to the Accessibility section in settings and click “Switch Control”
3. Select “Switches”
4. Select “Add New Switch”
5. Press your switch and give it a name
6. Select which action you want your switch to perform

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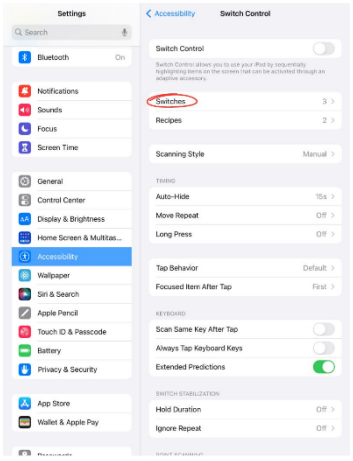
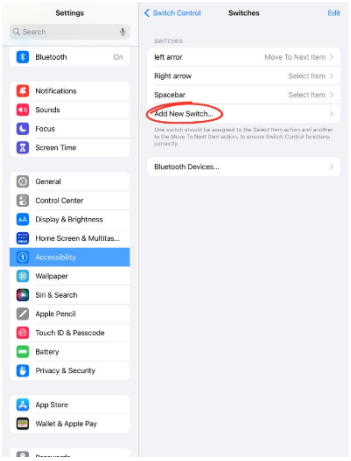
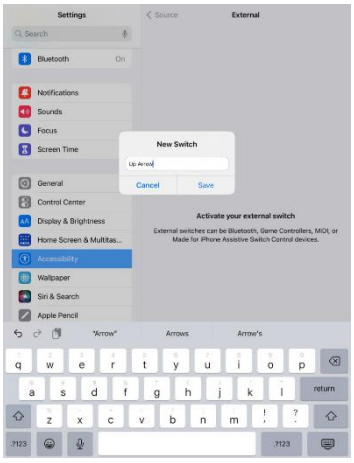
3. 

4. 

5. 

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