



Center on Technology and Disability
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Switches

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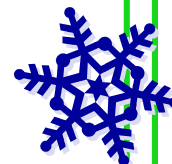
Thomas Jefferson University

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Arizona State University

E-Newsletter



Switches: The Basics

What is a switch?

In very basic terms, a switch is a device that makes, breaks or changes the connection in an electrical circuit. For example, when you turn on a light switch the electrical circuit's connection is complete, allowing current to flow and the light to shine. When you flip the switch off, the circuit's connection is broken and current can no longer flow, meaning the lights are off.

How does this relate to infants and toddlers?

We use switches in our everyday lives to help us accomplish tasks and control our environments. We use them to turn on/off lights, turn on/off the radio, ring doorbells, honk car horns, etc. Infants and toddlers can also use switches to help them accomplish tasks, control their environments, and even communicate and socialize!

How can infants and toddlers use switches?

Kids can use switches in a variety of routines and activities (this is just a short list to give you an idea)

- Play—a battery operated toy can be hooked up to a switch allowing the child to turn it on and off independently
- Mealtimes—connect a switch and a blender to an environmental control unit (ECU) to allow the child to help with meal preparation
- Morning/Evening routines— a tape player can be adapted to use with a switch and an answering machine loop tape can be used to record a message that will not need to be re-recorded. Having the switch near the child's bed will allow them to call mom or dad when they wake up in the morning or during the middle of the night.

What type of switch should I use?

There are lots of different types of switches out there, here are some things to consider when choosing a switch or attempting to make one

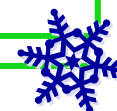
- Child's abilities—what is your child's most reliable body movement? Switches can be activated in a variety of different ways (touch, air pressure, motion, sound, etc.) to accommodate your child.
- Size of switch—If your child has poor fine motor control a bigger switch will be helpful
- Switch sensitivity—how much pressure, movement, sound, etc. does it take for the switch to be activated? The amount of pressure should be one that the child can consistently exert. You can make switches more sensitive by removing springs or taking cushioning out of the switch.
- Durability—can the switch withstand the amount of pressure your child may apply? Will it hold up if it is dropped?
- Auditory/tactile feedback—children with visual impairments may benefit from a switch that makes a clicking noise after it has been pressed so they know they switch has been activated.



Keep in mind that a lack of motor ability does not mean the child lacks the cognitive ability to use the device/toy/switch, etc.

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Switches: How to Get One

With some time, energy, and a trip to your local Radio Shack you can adapt some fairly inexpensive switches for use with children. Try these directions put out by the Alliance for Technology Access (ATA) <http://www.ataccess.org/resources/wcp/enswitches/enmaking.html>.

You can also purchase switches from a variety of vendors. Here are a few:

- Ablenet, Inc. (<http://www.ablenetinc.com/>)
- R.J. Cooper & Associates (<http://www.rjcooper.com/>)
- Enabling Devices (<http://enablingdevices.com/catalog>)
- Don Johnston Inc. (<http://www.donjohnston.com/>)

Using Switches During Activities & Routines

Morning Routine	Indoor Play	Mealtimes	Evening Routine	Errands
Connect a switch and a lamp to an ECU so the child can turn on their light in the morning.	Adapt a battery operated toy with a switch so that the child can turn it on and off independently.	Point to food choices and have the child press a switch with a recorded message to let you know what they'd like to eat.	Hold up pajama choices and have the child press a switch with a recorded message to let you know what they'd like to wear.	Bring an adapted battery operated toy or tape recorder with headphones so the child can entertain themselves in the car or grocery cart.
Adapt a tape recorder with a switch so that the child can let mom & dad know when they're up.	Adapt a tape recorder with a switch so that the child can listen to books on tape independently.	For a child who is being fed by an adult, the recorded message can say "more food, please" so that the child may request the next bite.	Adapt a tape recorder with a switch so that the child can read their favorite book before bed.	Bring a switch with a preprogrammed message to let the child make choices during a trip to the store.
Hold up clothing choices and have the child press a switch with a recorded message to let you know what they'd like to wear.		Have a switch with a recorded message that says "All done" so the child can let you know they are finished.	Connect a switch and a lamp to an ECU so the child can turn off their light when they are ready for bed.	



Using Switches During Activities & Routines

Leaving the House	Bath Time	Chores	Family Outings	Physical Activity
Connect lamps in your home to an ECU so that the child can help you prepare to leave the house by pressing the switch to turn off the lights.	Use a switch during the bathtime routine (not during the bath!!) to allow the child to make choices about toys to play with, clothes to put on afterwards, etc.	Children can assist in chores such as taking care of family pets. Use a switch programmed to say "I want to help" and then give your child verbal choices of chores with which s/he may help. Connect a switch and a blender to an ECU so the child can help with meal preparation.	Take along a Big Mac switch & program comments for the child to make during the trip. Fasten a switch to the back of the seat in the car or to the child's car seat so that a toy, tape recorder, etc. may be activated while riding. Or use a switch with a pre-recorded message.	Adapt a Barbie car, jeep, or other type of preschool vehicle so that it can be switch operated & used on a playground or to get around the neighborhood. Attach a switch to play equipment such as a swing & program it to say "push me" or other appropriate requests. Or the switch could be fastened inside a vest or the child's clothing for accessibility.

Switches: Placement

Switches should be placed in areas where kids can easily access them. They could be put on the ground during play time, on the table during meals, on the child's night stand before bedtime, or on the child's push toy during play time. Velcro, suction cups, or Dycem can be used to prevent the child from moving the switch while they activate it. Smaller switches can be attached to the child's hand with an elastic strap. Bigger switches could be put into a (big!) pocket so the child can access their switch at all times. Commercial switch mounts can also be purchased from a variety of retailers.





Switches: Next Steps

Kids can use switches during lots of different activities and routines, the possibilities are endless! With the help of a battery adapter a switch can be used with any battery-operated device (toys, fans, flashlights, tape players, etc.) during all sorts of routines. Switches can also be plugged into Environmental Control Units (ECUs) so that a child can control their environment on their own.

What is a battery adapter and where can I find one?

A battery adapter interrupts the battery's current, allowing your switch to control the current instead of the toy's on/off switch. They work with AA batteries and C/D batteries.

Here's another device you may be able to make on your own! Just follow ATA's step by step directions and you'll be on your way! <http://www.ataccess.org/resources/wcp/enswitches/enadaptingtoy.html>

If you would prefer to buy a battery adapter, they can be purchased from a variety of vendors for about \$12.

- Ablenet, Inc. (<http://www.ablenetinc.com/>)
- Enabling Devices (<http://enablingdevices.com/catalog>)
- Enable Mart (<http://www.enablemart.com/>)
- Inclusive TLC (<http://www.inclusivetlc.com/>)

What is an ECU and where can I find one?

An ECU is a device that allows the user to control electrical devices in their environment with a switch. All you have to do is plug your switch and the device you want to use into the ECU. PowerLink® 3 is pictured here.

ECUs can be purchased from a variety of vendors.

- Ablenet, Inc. (<http://www.ablenetinc.com/>)
- Enabling Devices (<http://enablingdevices.com/catalog>)
- Enable Mart (<http://www.enablemart.com/>)



Switches: Helpful Websites

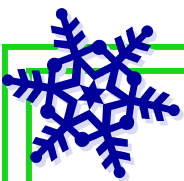
Adapting a Toy for Switch Use through Electrical Modification (<http://www.adaptableminds.com/adaptingtoys.html>) - This website provides directions for adapting a toy with a hidden switch in the doll's hand that is activated when squeezed.

Battery Adapters (<http://www.adaptableminds.com/battery.html>) - This website provides some basic information on battery adapters including how to use one with a battery operated toy.

Switches (<http://www.adaptableminds.com/switch.html>) - This website provides background information on switches including different types and access methods.

Switch Toys (<http://letsplay.buffalo.edu/toys/switch-toys-begin.htm>) - This website provides basic information on switch toys.

Early Childhood Technology Integrated Instructional System (<http://www.wiu.edu/users/ectiis/index.html>) - This website has workshops (which you can sign up for and complete online) on a range of topics including adaptations/switches.



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I d e a s t o S h a r e C o n t e s t W i n n e r s !

Heidi Gowden
Nancy Hansen
Becky O'Keefe
Kathleen Sadao
Gayle Wiens
Sarah Yates

Thank you all for submitting such great ideas to share! Look for their ideas (as well as many others) on the Tots-n-Tech website at http://www.asu.edu/clas/tnt/home_files/ideas.htm.

Although the contest has ended we will still gladly accept your ideas. If you have an Idea to Share, please email Jill.Mcleod@jefferson.edu and include a description of your idea. Pictures are always helpful. Jill will then work with you so that we can add your idea to our growing Ideas to Share resource.

Please feel free to forward this newsletter to any individuals or agencies that may benefit from information on assistive technology.

Questions? Comments? Concerns? Email Jill at jill.mcleod@jefferson.edu

