

Taking Things Apart

Preschool students are naturally curious about the world around them, including what might be inside the electronics and toys they use every day. With mindful planning and supervision, allowing preschool students to take things apart can be a rich opportunity for exploration and learning.

Before the activity...

- Gather toys with moving parts and simple electronics. Aim for a variety of different toys – some with moving parts inside, some with circuitry and wires. Examples might be a child's cash register, toys that light up or play music, small battery operated appliances such as remote controls, flashlights, or radios. Source these items from thrift stores, and yard sales, or use your own non-working items.
- Before using with students, be sure to disassemble each toy and ensure it is safe and suitable for the activity. Check for sharp edges and points, and for springs that may become projectiles, and then reassemble the toy.
- If you are disassembling an object with a plug, completely remove the plug and cord before taking the object apart.

Safety

- All preschool disassembly activities must be supervised.
- Do not take apart televisions or monitors, as these can retain a dangerous charge for years, even when turned off and unplugged.
- Do not take apart kitchen appliances such as microwaves or toaster ovens.
- When finished, be sure to wash hands and carefully gather any small leftover parts such as screws for disposal.

Supplies

- Reassembled simple children's toys and/or electronics.
- Tools: screwdrivers (Phillips and straight), pliers, small screwdrivers, etc.
- Safety goggles or glasses
- Magnifiers
- Practice boards to allow children to practice working with tools.
- Introductory story
- K-W-L chart

Procedure

- Gather the necessary tools and allow students to practice using them prior to the activity. For example, you might demonstrate how a screwdriver works, and then ask students to try.
- Remove most of the screws from toys before starting the activity, leaving only a few so that student disassembly is easy.
- Ask students to use the screwdrivers and other tools to open the toys and take them apart.

Inquiry based questions

As students explore their toys, guide their curiosity by asking open-ended questions that cannot be answered with one-word answers.

- How do you think things work?
- How do you think things are put together?
- Do all toys need batteries to work?
- What do you think is inside these toys?
- What do you think makes the toy's parts move?
- What do you think that part is? What do you think it does?
- What do you think would happen if we pressed the button now?

Extension activities

- Toys with moving parts, especially those with motors, often contain tiny gears that allow them to move. Your students might be interested in exploring how gears work using larger classroom manipulatives.
- Though taken-apart toys should not be left out for students to explore without supervision, they may want to continue or repeat their investigation for several days with the same toys, or with new ones.
- Electronic toys contain circuit boards, wires, and batteries. Students might like to explore a simple circuit kit that allows them to light a light bulb using batteries and a switch.

Taking Things Apart (cont.)

Resources

Books:

The New Way Things Work by David Macaulay

Forces Make Things Move by Kimberly Brubaker Bradley

How Things Work by Conrad Mason

Websites:

<http://www.howstuffworks.com/remote-control.htm>

<http://wonderopolis.org/wonder/when-is-technology-old/>

<http://wonderopolis.org/wonder/how-do-touch-screens-work/>

<http://electronics.howstuffworks.com/inside-cell-phone.htm>