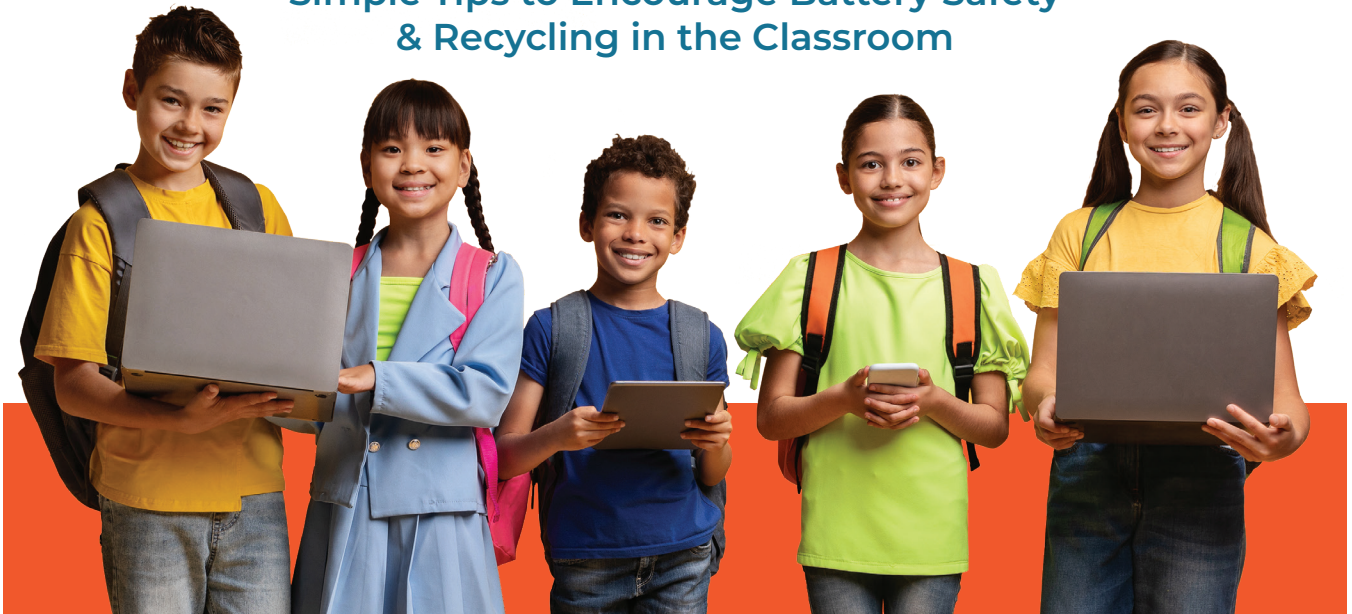


BE BATTERY SMART

A Guide for South Carolina Schools

Simple Tips to Encourage Battery Safety
& Recycling in the Classroom



Lithium-Ion Batteries the Classroom

The use of digital devices such as tablets and laptops has revolutionized the way students learn in the 21st century.

These devices have become an integral part of the modern classroom. An overwhelming majority – 94 percent – of public schools nationwide reported they are providing electronic devices to students according to a 2022 survey conducted by the U.S. Department of Education. Eighty school districts in South Carolina have implemented 1:1 Technology Initiative of one device per student. In short, there are thousands of laptops and tablets in use throughout the state’s schools.

Almost all laptops and tablets are powered by the most popular rechargeable battery in the market – lithium-ion (li-ion). Li-ion batteries are lightweight, have exceptionally long lifespans, fast charge times, and a higher energy density (the amount of energy a battery can hold relative to its size) than other rechargeable batteries.

Other Li-ion batteries found on school campuses include: **smart phones; smart watches; wireless headphones; e-bikes; and e-scooters.**

While lithium batteries are generally safe, if there is a manufacturing defect or if improperly charged, stored, disposed of, or damaged, these batteries can catch fire or explode causing bodily harm, serious injuries, and devastating property damage.

 **All lithium-ion batteries contain lithium, but not all lithium batteries are lithium-ion batteries.**

Due to increased use and visibility of li-ion batteries in schools, measures need to be in place to ensure a safe learning environment. The Be Battery Smart Guide is designed for schools to raise awareness of the number of products that use li-ion batteries, offer basic tips on how to keep these batteries safe, and provide recycling options.

The guide is part of an overall outreach/ awareness campaign designed by the S.C. Department of Environmental Services (SCDES) in partnership with the Recycled Materials Association (ReMA). To learn more, visit des.sc.gov/bebatterysmart.

Beyond the Classroom

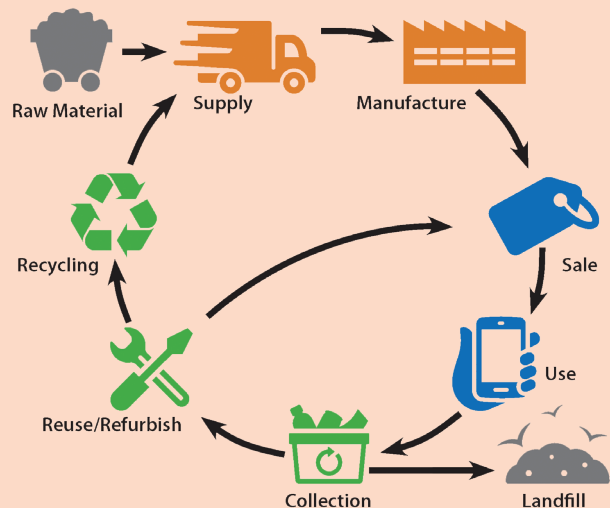
Li-ion batteries are made up of valuable metals such as lithium, cobalt, nickel, graphite, manganese and copper.

These metals are all non-renewable but can be recycled infinitely.

Why is that important? These metals are a perfect fit for a circular economy (see the illustration below) – meaning materials and products are reused as much as possible rather than being discarded.

We all have an opportunity to preserve these natural resources by recycling.

The Circular Economy



SOURCE: U.S. Environmental Protection Agency (EPA)

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Battery Safety Tips for Students & Staff

Li-ion batteries have a higher chance of causing fire or explosion when damaged. Taking special care of devices is important.

Here are a few important safety tips.

1 Do not overcharge devices.

Li-ion batteries can overheat, explode, and catch fire when overcharged.

2 Do not charge or store near school or classroom entrances or exits. A defective battery could overheat and catch fire.

3 Park e-scooters and e-bikes at least 6 feet away from the school.

4 Stop using a device if the battery shows signs of damage. Have students report to a teacher or staff member if a damaged battery is found.

5 Never discard batteries or devices with non-removable batteries in school garbage cans or recycling bins unless the bin is specifically designed to collect batteries.

6 Recycle properly. Please visit des.sc.gov/bebatterysmart to learn more.



COMMON CAUSES OF BATTERY DAMAGE

- **Overcharging the battery**
- **Physical damage** (dents, punctures, swollen)
- **Extreme Temperatures** (above 130°F and below 32°F)

THE WARNING SIGNS OF A BATTERY FIRE

- **Noise** (e.g., hissing, cracking, popping sounds)
- **Odor** (e.g., strong or unusual smells coming from the battery)
- **Smoke** – If you see smoke coming from a battery or device, a fire may have already started!

Safety Tip

If a school-issued device is reported as damaged, teachers and/or staff should follow the school's policy to replace and dispose of the battery properly.



Fast Fact

Charge your device a little bit whenever possible. Li-ion batteries take little bits of charge better than charging all the way up and then running all the way down.

SOURCE: Popular Mechanics



IN CASE OF FIRE

- **Do not try to put out the fire.** Li-ion fires are extremely dangerous and difficult to extinguish.
- **If a battery fire occurs,** pull school fire alarm, follow fire drill procedures, and call 9-1-1.

See "Fire Safe SC: A Community Risk Reduction Program" at firesafe.sc.gov for more information.

Why recycle batteries?

Recycling Li-ion batteries and rechargeable devices containing them is important for several reasons.

- **Reduce environmental impact.** End-of-life batteries still contain usable material for future batteries. Recycling Li-ion batteries conserves valuable metals that can be reused instead of discarded in landfills, reducing the environmental impact and preserving our resources.
- **Meet growing demand.** With the unprecedented growing demand for Li-ion batteries across various industries, recycling helps address this increasing need.
- **Minimize safety hazards.** Proper recycling of Li-ion batteries and consumer devices helps minimize the risk of fires and other safety hazards.

Did You Know?

Recycling lithium-ion batteries can boost the economy right here in South Carolina.

Companies such as Redwood Materials and Cirba Solutions have made a home here in the Palmetto State to provide innovative recycling solutions for Li-ion batteries.

See **RESOURCES** page for more information.



Fast Fact

Ninety-five percent of children ages 13 to 17 own a smartphone in the United States.

SOURCE: GITNEX Marketdata Report 2024



Benefits of Battery Recycling Education

With a staggering number of children using devices with li-on batteries, they have an important role in keeping their environment safe.

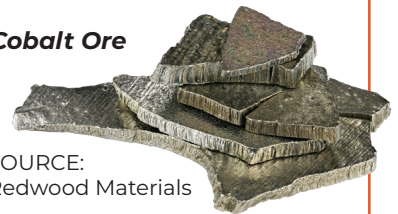
- **Enhance knowledge of the importance of recycling.** Recycling paper, cardboard, and aluminum cans is a big focus in school recycling programs, but adding battery recycling will widen their knowledge of the growing commodities that can be recycled.
- **Learn to be a better consumer.** Batteries are a part of everyone's life now, and it's important to teach students how their choices and habits can affect the environment.
- **Safety, Safety, Safety.** The safety of students and staff is a high priority to provide a safe learning environment. By providing these resources and tips, students will share this knowledge with their families as a result, making our communities safer.



Fast Fact

The demand for critical metals used to build lithium-ion batteries such as lithium, cobalt, nickel, graphite, manganese, and copper is projected to skyrocket by nearly 1,000 percent over the coming decade.

Cobalt Ore



SOURCE: Redwood Materials

Promote Battery Recycling at School

Schools are in a unique position to demonstrate **environmental responsibility and leadership** for their students and community. This guide focuses on three opportunities that support a variety of budgets as well as educational priorities.

No. 1: Hold a collection event.

Start a battery recycling drive as big or as little as desired (classroom or school-wide) with help from the Take Action SC (TASC) Partnership Program and Redwood Materials' K-12 Battery Collection Program. These materials are provided at no cost to the school:

- **Teacher resources;**
- **Battery recycling collection boxes** (shipping costs covered); and
- **Promotional material templates** (posters, flyers, etc.)

Scholarships and other incentives are available through Redwood Materials. To learn how to get started, visit redwoodmaterials.com/edu or contact a TASC educator at takeactionsc.org.

No. 2: Start a battery safety/recycling club.

Expand your school's current recycling club to include battery safety and recycling.

- **Secure support** from school or school district;
- **Consider partnerships** with community organizations or local businesses to recycle batteries;
- **Include key participants** (e.g., teachers, custodial staff, students, parents); and
- **Educate other students and staff** about the program and encourage participation.

No. 3: Promote battery safety and recycling.

Have students produce a PSA video or hold a poster contest that can be shared with the school and parents.

Visit des.sc.gov/bebatterysmart and use resources for poster and/or video inspiration.



Battery Education Beyond the Classroom

Teaching students the importance of battery safety and recycling is important, but having a part in extending that knowledge to the parents and community can be just as significant. Here are some ways to include parents and the community.

No. 1: Battery Homework

Once students have a basic understanding of what lithium-ion batteries are and the benefits of recycling, have students conduct a “home scavenger hunt” with the Rechargeable Battery Scavenger Hunt worksheet. (See page 7.)

Ask them to work with family to make a list of all lithium-ion batteries they can find in each room of their home.

No. 2: Battery Recycling in the Community

Have students find out how many battery drop-off locations they can find near their home. Many retailers have partnered with the Call2Recycle Program to collect batteries at no cost, including – but not limited to – **Best Buy, Home Depot, Lowe’s** and **Office Depot**.

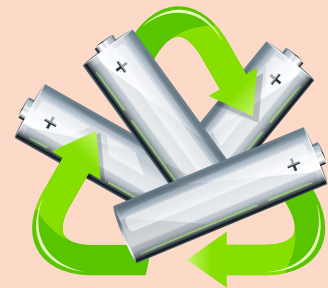
Other li-on battery collection opportunities are offered through **Batteries Plus, Redwood Materials, Cirba Solutions, Goodwill, Verizon, T-Mobile**, and more.



No. 3: Contact the City or County

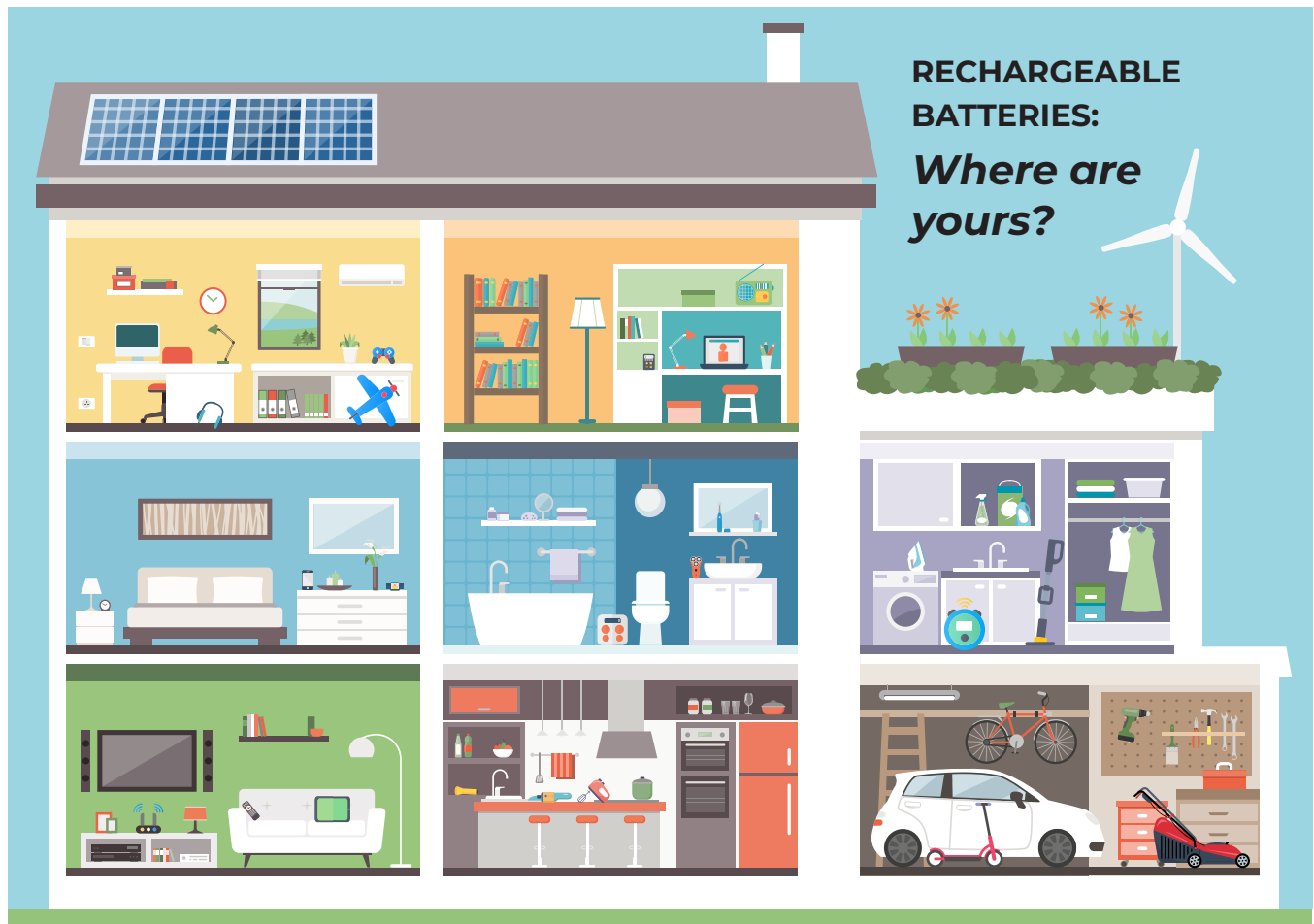
Contact the city or county Recycling Coordinator to find out if there are lithium-ion battery drop-off events or locations nearby.

To find your local recycling coordinator, please visit des.sc.gov/recycleheresc.



Rechargeable Batteries in the Home

With parental assistance, identify all of the rechargeable devices in your home. Below are examples of common devices you may find.



RECHARGEABLE BATTERIES:

Where are yours?

Bedroom No. 1

- Wireless headphones
- Game controller
- RC airplane

Bedroom No. 2

- Cell phone
- Smart watch

Home Office

- Calculator
- Laptop
- Emergency Radio

Bathroom

- Rechargeable toothbrush
- Electric razor
- Bathroom scale

Living Room

- TV remote
- Wireless router
- Tablet

Kitchen

- Flashlight
- Rechargeable mixer
- Cordless electric knife

Laundry Room

- Cordless vacuum
- Robot vacuum

Garage

- Cordless power tools
- Electric car
- Electric mower
- Electric scooter

Other

- Doorbell camera
- Golf cart

Resources & Contact Information

SCDES RESOURCES

SCDES's Office of Solid Waste Reduction and Recycling

Telephone..... 1-800-768-7348
Website..... des.sc.gov/recycle

S.C. Department of Environmental Services (SCDES)

Website..... des.sc.gov

Take Action SC

Website..... takeactionsc.org

Take Charge: Be Battery Smart Campaign

Website..... des.sc.gov/dwfsc

EXTERNAL RESOURCES

Recycled Materials Association (ReMA)

Website..... isri.com

U.S. Environmental Protection Agency

Website..... epa.gov
Lithium-Ion Batteries Web Page..... epa.gov/recycle/used-lithium-ion-batteries

Fire Safe SC: A Community Risk Reduction Program

Website..... firesafe.sc.gov

Redwood Materials

Website..... redwoodmaterials.com
K-12 Battery Collection Program..... redwoodmaterials.com/edu
Email..... education@redwoodmaterials.com

Cirba Solutions

Website..... cirbasolutions.com
Email..... customerservice@cirbasolutions.com

Avoid the Spark Campaign

Website..... batterynetwork.org/safety/avoid-the-spark/

The Battery Network

Website..... batterynetwork.org

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