

Sphero Edu

EDUCATOR'S GUIDE

Everything you need to know to get the ball rolling

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Introducing Sphero Edu

Learning is evolving. Get on the ball.

Technology is evolving. Learning should evolve with it. Through connected play and discovery, Sphero robots are challenging and inspiring brilliant young minds. SPRK+ is a fully programmable robotic ball, designed to inspire curiosity, creativity, and invention. Powered by the Lightning Lab app, you can easily learn foundational programming and 21st century skills, complete hands-on activities, and share your creations with the community. Our mission is to foster a love of robotics, coding, and STEAM principles... all through play.



You don't need to be a programming expert to introduce Sphero to your class. It's flexible and adaptable enough for all ages, classes, and subjects. The intuitive SPRK+ robot performs specific functions - such as motion and direction, color and light, and sensor-controlled reactions, allowing students be creative with their programs. Educators and students can easily engage in STEAM learning through activities. Navigate a maze. Program a painting. Mimic the solar system. Swim across the water. Have a dance party... The only limit is your imagination.





Sphero and Lightning Lab allow you to collaborate with other users around the globe to innovate the world of education and empower anyone to program. The ever-expanding community of educators use our robots to ignite and engage students in problem solving and design thinking. Together we can expand imaginations and help shape a brighter future.
All it takes is a little SPRK.

How is SPRK being used in Education?

Make every day the best day of school.



In the Classroom

SPRK+ brings students together to engage in STEAM concepts, regardless of skill level, gender, interests, culture, language, or socioeconomic status. They are empowered across all grade and ability levels, from elementary to high school and special education. Students can work collaboratively or at their own pace thanks to the Lightning Lab app, and track their progress on individual or group work.

The robot and app teach K-12 students foundational programming by enhancing cross-curricular STEAM projects, but they also lay the foundation for problem solving, design thinking, creativity, and engagement.

SEE SAMPLE ACTIVITIES

Elementary

In K-5 schools, Sphero robots are being integrated into all subject areas including STEAM. Young students are grasping early concepts of programming while fostering 21st century skills, whether they're replicating the solar system, programming characters in a story, or painting geometric shapes with the robot. Students learn to think and act like engineers, exposing them to real world problems and the 4C's (collaboration, communication, creativity, and critical thinking).

SEE SAMPLE ACTIVITY

Middle/HS

At the secondary level, students explore more advanced concepts of logic, design thinking, and computer science. With more complex variables, sensors, and text programming, students in these grades are taking programming to the next level and actually learning the foundations of a C-based coding language.

SEE SAMPLE ACTIVITY

How is SPRK being used in Education?

Make every day the best day of school.



Beyond the Classroom

The educator community is finding creative ways to use Sphero both in and out of the classroom and in less formal settings. You don't need to be a teacher to use SPRK+ robots. Check out some other opportunities to get kids learning with Sphero.

Clubs

- Clubs can be an effective way to attract students to STEAM concepts and target underrepresented groups, such as girls.
- They can be held before or after school, focus on robotics, or solely be a Girls Who Code type of group.

Competitions

- Competitions are a great way to bring younger and older students together.
- Kids can complete engineering challenges, program robots, and compete against peers.
- Events can encompass the entire school and all grade levels.
- Ideas include Sphero Olympics, STEAM Night, Evening of Code, etc.

Makerspaces

- Makerspaces are being implemented in library programs to encourage creativity, innovation, and hands-on learning.
- Sphero is the perfect addition to design workshops and Makerspace modules, giving students an opportunity to learn by doing, tinker with robotics, and experiment with open-ended programming challenges.

Why Is Sphero Edu Valuable For Students?

The future is now.

Sphero products align with important trends and hot topics in education today. Through creative programming activities, our robots provide opportunities for students to learn by doing through a more open-ended model. We inspire young minds to learn the skills of the future and embrace careers in technology as computer science backgrounds become more and more necessary. Benefits to students include:

- Engaging in STEAM concepts
- Getting involved in the Maker Movement
- Project-Based Learning
- Autonomous learning
- 21st century skills



Sphero came in at the perfect time to push me and challenge my thinking on how I can present things to my students...allowing them to take ownership of their learning. I have never seen anything like Sphero before...the kids go home and say "*Look at this program I've creeated!*". It's really been a catalyst for some great learning in the classroom, but then in the home as well. It just keeps going.

Amy Murch, Fourth Grade Teacher, Brooks School Elementary



In my classroom Sphero has done away with the *"Why do we have to do this?"* and the question has been *"When can we do this again?"*....It's really changed the way kids see their own education. The most rewarding thing for me is getting to the end of the class, running out of time, and seeing them go *"Oh no!! Le'ts go ten more minutes!!"*

Brad Lowell, Elementary Teacher, Falls Creek Intermediate



[The] type of "meaningful learning" that empowers students to embrace challenge, enjoy their efforts, shine with resiliency and to truly value their own improvement is there with Sphero ... right out of the box... it's when the students stop looking for "wins" and start thriving on challenges that include more risk, strategy and struggle – changing their maze or ramping up their program - that I step back, shake my head and smile.

Jenn Ferguson, Multimedia Specialist, Calgary Academy



I love Spheros for helping students see how code can come to life in the real world. With my second graders...we program shapes, creating squares and different polygons. My fourth and fifth graders love learning about rate, time and distance...Sphero empowers my students to discover things about the world *quickly*.

Sam Patterson, MakerSpace Coordinator, Echo Horizon School

Becoming Familiar with Sphero

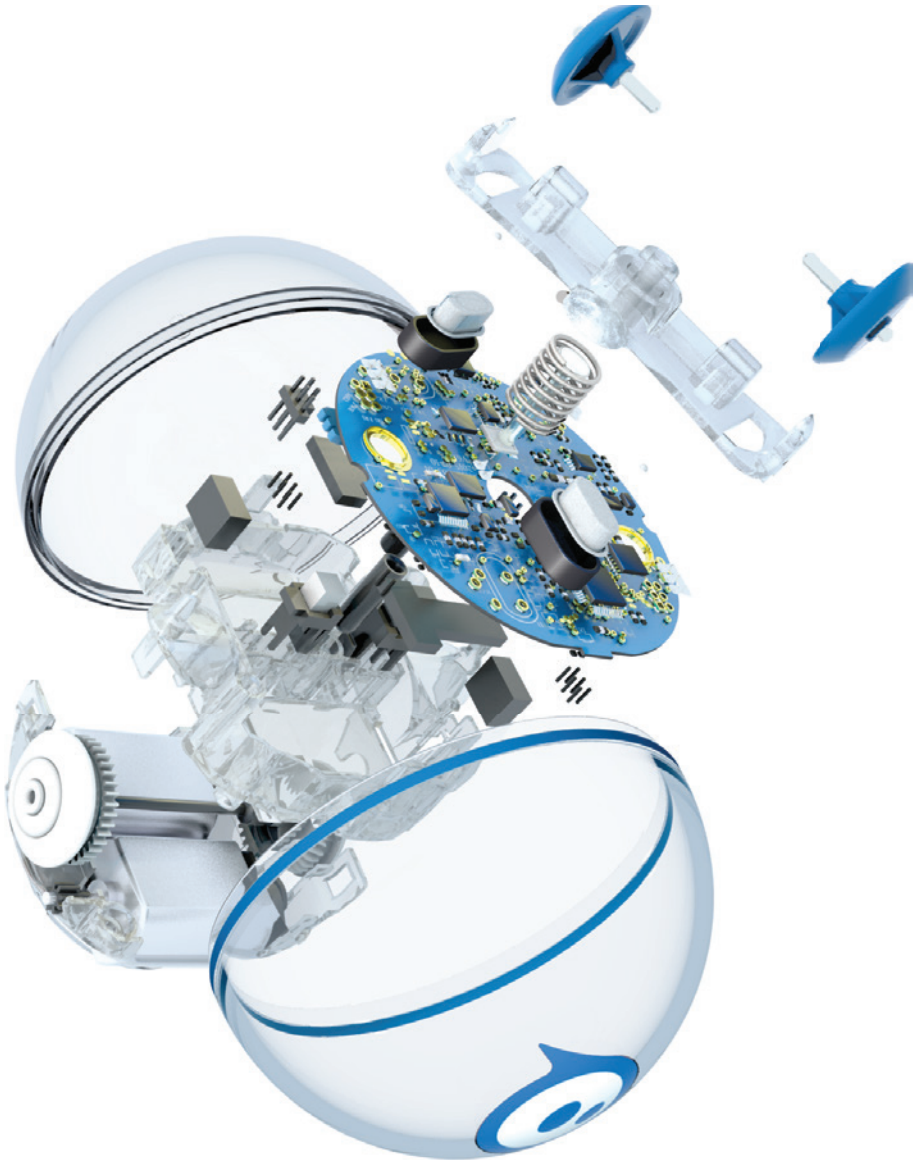
Built smart to drop knowledge.

How Sphero Works

Sphero products have always had more magic than meets the eye. Our robots are approachable and simple to use, yet are packed with incredibly complex tech. Here's the gist of the magic inside your ball, starting with the circuit board, then the motor and charging functions. Pretty much a Sphero 101 as to the "what does what and why".

The printed circuit board (or PCB) is what houses all of the electronics in your Sphero that process commands into actions. A Bluetooth chip within that board connects to your device, receives your commands, and sends them to the IMU, or Sphero's brain, to process. Also built into the circuit board are the gyroscope and accelerometer, which detect your Sphero's movements, acceleration, and turning, helping to keep it oriented and driving where you tell it to drive.

An electric motor turns the wheels that move your Sphero while the pressure from a stabilizer on top allow the wheels to move your robot, keeping it from going in circles inside the ball. To keep Sphero's tech sealed inside its shell, it uses inductive charging rather than wiring to the batteries inside. Place it on the base and it'll charge right through the polycarbonate. Easy peasy.



Check out where each piece is on your robot with the Lightning Lab app.

Becoming Familiar with Sphero

Don't just get your feet wet. Dive right in.

Exploration

The best way to learn about Sphero and block-based programming in the Lightning Lab app is through experimentation and play. We advise adults and students alike to get started in the same way - take time to be a kid and give yourself ample time to explore. Developing a degree of familiarity with Sphero will help you envision how to use them with your students.



Ball so hard

SPRK+ has a protective, clear UV-coated polycarbonate shell.



All systems glow

Ultra-bright LEDs give you over a million colors to choose from.



Programmed to evolve

The intelligence in SPRK+ can easily be hacked and programmed.



Driving the future

SPRK+ is propelled by an electric motor – rolling up to 4.5 MPH.



Get connected

Tap to connect SPRK+ to your Bluetooth-enabled device.



Keep it running

Place SPRK+ on the inductive charging base and let science do the rest.

Lightning Lab - The Sphero App For Programming Sphero Robots

Discovery starts in the lab.



chrome

android

kindle fire

SPRK Lightning Lab is the Sphero app for programming Sphero robots. Go beyond code by incorporating unique STEAM activities to complete with your bot.

Designed to be truly scalable, Lightning Lab beginners can give robots commands by drawing a path in the app for their robot to follow. Intermediate coders can utilize the block-based drag and drop interface, while pros can use text programming and write their own code. Accessible from almost any platform, you can program using your smart device and the Lightning Lab app or download the Chrome app on Chromebooks and more.

Lightning Lab is built for makers, students, instructors, and parents. Join the growing community and share your creations to inspire and be inspired. The interactive platform allows you to keep track of your class or group from one easy place. Anyone can save their progress, jump from device to device, and continue the discovery from anywhere.

Share your creations, comment on posted activities, and collaborate with other users around the globe to innovate the world of education.

Lightning Lab - The Sphero App For Programming Sphero Robots

When creativity strikes... Make. Code. Share.

Lightning Lab is your hub to create, contribute, and learn. Check out just a few of its awesome features below.



PROGRAM YOUR BOT 3 WAYS

Draw - Beginners can give robots commands by drawing a path for their robot to follow.

Blocks - Intermediate coders can utilize the familiar block-based drag and drop interface.

Text - Pros can use text programming and write their own code like a boss.

COMPLETE ACTIVITIES

Program a painting. Navigate a maze. Mimic the solar system. Swim across the water. Have a dance party... The only limit is your imagination.





TAKE A DRIVE

Need a brain break? Go Drive and play.

ASSIGNMENTS

Review student progress by assigning activities. Evaluate student programs and stay in tune with your class without being behind a computer.





CLEVER INTEGRATION

Clever users can sign in, and instructors will have class rosters synced.

Lightning Lab - The Sphero App For Programming Sphero Robots

When creativity strikes... Make. Code. Share.



Sign up for SPRK Lightning Lab at edu.sphero.com and download the SPRK Lightning Lab app. Follow these steps to get acquainted with your robot:

1 AIM + DRIVE

Explore aiming and driving the robot. Change its colors, adjust the speed and drive it around freely.

2 EXPLORE THE BLOCK CANVAS

Get a feel for dragging and dropping, explore Sphero's Sample Programs, and create your own.

3 EXPLORE THE COMMUNITY

Check out other features in Lightning Lab – community programs, activities, feed, etc.

4 PUBLISH AN ACTIVITY

Do your homework. Complete the auto-assigned Block 1, 2, 3 Activities once you log into Lightning Lab.

Things to think about

- What problem(s) did you encounter on your own?
- How did you solve them?
- Will your students encounter similar problems and be able to solve them?
- How will you structure introducing Sphero to your students?
- What questions could you ask to help students connect what they're learning to the real world?
- How much exploration time will you give your students in the beginning?

Lightning Lab - The Sphero App For Programming Sphero Robots

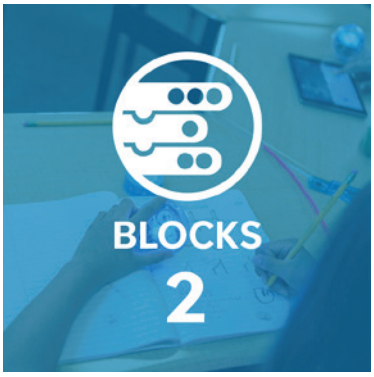
Getting Started Activities

Learner progression. It's a kind of big deal. Lightning Lab has some new features that truly cater to a beginner, intermediate, and ad-vanced audience. Start with Draw and Drive, move to drag and drop block-based programming, and move to text coding, where you write your own. As students' skills grow, they can continue to progress all within the same app. Plus, we've got the activities to guide them. Get started in block-based programming or text programming with a walkthrough of guided activities in Lightning Lab.



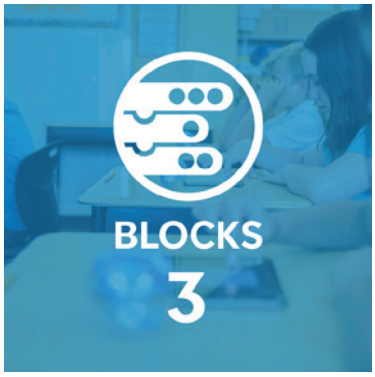
BLOCKS 1

Get a quick video overview of the app, learn how to create block-based programs, and gain an understanding of loops.



BLOCKS 2

Discover the different methods to control Sphero's lights, and then put those lights to work in your own program.



BLOCKS 3

Start moving toward intermediate commands with variables that let you set conditional values.



TEXT 1

Write your first programs to learn the basics of the Text canvas and the Oval language.



TEXT 2

Discover some creative uses for variables and Sphero's temperature sensor.



TEXT 3

Learn how to use functions to build games and add more complex logic to your programs.

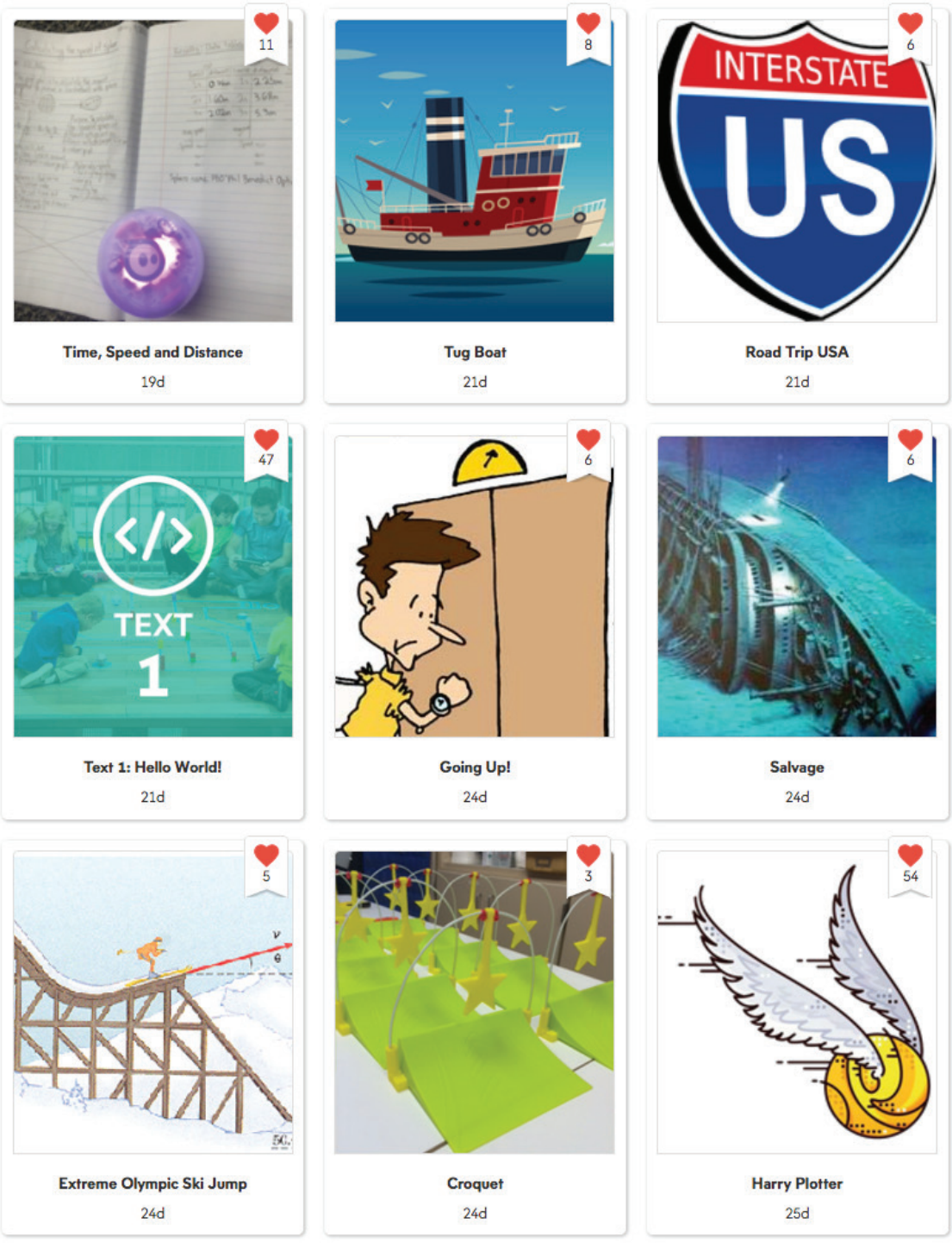
Oval Wiki

Text programming busting your brain? It has the tendency to do that. To help you along, and because learning, we have an Oval Wiki within Lightning Lab to provide more information on how to write Oval code. Text activities often reference the Wiki, so dive right in. It's less scary than you think. **sprk.sphero.com/wiki**

Sphero and Community Generated Activities

So much room for activities.

Lightning Lab contains hundreds of ways to inspire you on how to get started with Sphero in the classroom. Provided by Sphero and the community, activities and programs are designed to incorporate Sphero robots in a way that encourages open-ended inquiry and discovery, while also aligning with important learning outcomes within curriculum. Test them out, remix and make them your own, and share with the global community.



Classroom Management

Set up for success.

Before introducing Sphero to students, consider how you will best manage the bots in a way that ensures organization, quick setup, and cleanup to maximize learning time. Here are some pro tips.

Student Grouping

Students can work with Sphero in small groups of 2-3 people - we recommend no more than three to maximize hands-on learning and collaboration. While some students may prefer to work alone or you're lucky enough to offer 1:1 devices, pairing students encourages 21st century skills that will lead to increased learning gains through peer to peer communication.

Storage & Organization Options

- SPRK+ Power Pack on a shelf.
- Powerstrips.
- Laptop/technology carts.
- Label robots and devices (Ex: Robot 1/iPad 1, Robot 2/iPad 2 - always pairing the same robot and device makes connectivity smoother).
- Assign groups of students to the same device and robot each day.

High Quality, Low Maintenance

Sphero is easy to store, keep organized, and take care of. It's unique in that there are no small pieces to keep track of and it's incredibly durable. All the crazy tech is sealed inside a polycarbonate shell, allowing it to be waterproof and shockproof. Pop it, lock it, drop it. Your ball can handle it.

- Do not store Sphero below 50 degrees F or above 80 degrees F (Doing so can lessen battery life).
- Place robots heavy side down in the charger (You may keep them charging at all times without over-charging).
- We've put our robots through extreme durability tests so you don't have to. Therefore we don't advise students throw it off a second story building. Obviously.
- If painting or using in water, simply wipe your robot with warm soapy water and dry it with a towel.
- Nubby and Turbo accessories are dishwasher safe.
- Nubby covers work great when using the robots on super slick surfaces.

Don't Forget the Extras

And by extras, we mean essentials.

Purchase products and accessories for education online at http://store.sphero.com/collections/education. We also gladly accept purchase orders at orders@sphero.com for processing.



Sphero SPRK+

Designed to inspire curiosity, creativity, and invention through connected play and coding, SPRK+ is far more than just a robot. Powered by the Lightning Lab app, you can easily learn programming, complete hands-on activities, and share your creations with the community. Navigate a maze. Program a painting. Mimic the solar system. Swim across the water. Have a dance party... The only limit is your imagination.

SPRK+ Power Pack

The best day of school just got better. The SPRK+ Power Pack™ lets you charge, store, and carry SPRK+ robots by the dozen. Built with an integrated cooling system, your robots can charge safely all from one place. Included with the Power Pack are 12 shiny new SPRK+ robots, Turbo Covers, maze tape, and protractors, so the activities can get started anytime, anywhere.

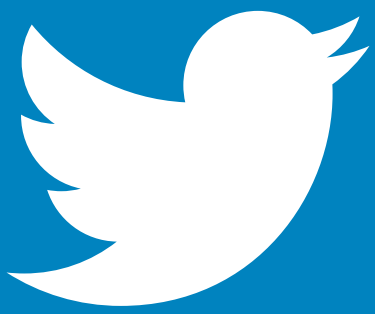




Education Pack - SPRK+® x 12

This special pack of 12 SPRK+ is available exclusively to educators at a discounted price. The pack contains everything you need to get started teaching robotics and the fundamentals of programming. These SPRK+ robots are brand new and come with a full 1 year warranty.

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