Sphero Edu

ADMINISTRATORS GUIDE

Table of Contents

Introduction

Sphero Edu uses app-enabled robots to foster creativity through discovery and play, all while laying the foundation for computer science education. Our program goes beyond simply learning to code with collaborative STEAM activities, and activities suited for all ages, classes, and subjects. Spheros can be used in general classes, clubs, and in makerspaces. See our makerspace guide for more information.

Benefits to students include:

- Engaging in STEAM concepts
- Getting involved in the Maker Movement
- Project-Based Learning
- Autonomous learning
- 21st Century skills
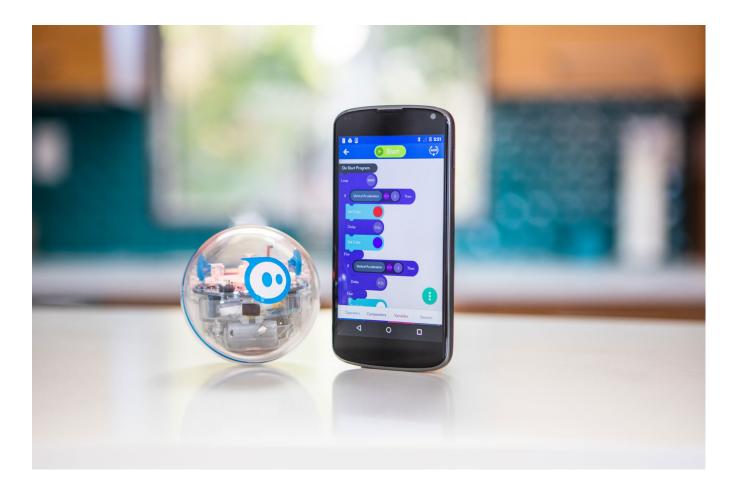
The Sphero Curriculum

Suited for All Classes and Levels, and Aligned to Popular Standards

Our activities have been aligned to Common Core ELA and Math, NGSS, and ISTE standards, so you can be assured they will support the curriculum of your school.

Students of all ages and abilities can use Sphero. To support this wide range of users, we've developed three ways of controlling the Sphero - these 'canvases' include: Draw, Block, and Text. You do not need additional resources or activities to use these different canvases – the same Sphero used in a first grade classroom can also be used in a high school.

Here are the three canvases available for all users in our app:

- **Draw** - Uses a drawing interface. Best suited for grades K-4 and all class types.
- **Block** - Uses a drag-and-drop block interface and teaches the logical structure of code. Best suited for grades 3-10 and all class types.
- **Text** - Uses the programming language JavaScript. Best suited for grades 7-11 and classes that focus on computer science and programming.

The Sphero Curriculum

Teaches Computational Thinking Skills and Mindsets

Sphero goes further than teaching math, science, and ELA standards, however. Sphero is the perfect platform to help students develop computational thinking skills and the mindsets that are necessary to compete in a global, technology-rich economy.

Sphero serves as both a coding platform and self-contained robotics system that can be used by any teacher or student, without any background in computer science. In addition, Sphero has a sophisticated set of sensors (called an inertial management unit or IMU) used for measuring forces and gathering data during scientific experiments.

Here are some examples of how Sphero activities help build a computational thinking mindset, with or without writing code.

Computational Thinking Fundamentals	What This Means	Examples in Sphero Activities
Decomposition	Does the activity encourage the student to break a larger problem into smaller problems to come up with a solution?	Students solve complex problems through smaller, more manageable tasks.
Pattern Recognition	Does the activity encourage the student to identify common patterns?	Students identify common patterns like movement, speed, light, time, or direction of the Sphero.
Pattern Generalization and Abstraction	Does the activity encourage the student to make connection about common patterns?	Students connect concepts, such as speed & direction to how far Sphero traveled.
Algorithm Design	Does the activity encourage the student to create logical steps that can be automated based on those patterns and connections?	Students create programs to control the Sphero. These often require using patterns like loops, which can be used to automate repeated behavior.

The Sphero Curriculum

A Useful Accessory for Clubs, Competitions, and Makerspaces

Some ideas for where to use Sphero outside of the classroom are:

Clubs

- Clubs can be an effective way to attract students, especially underrepresented groups,to participate in STEAM-based learning activities and creative challenges.

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.

Makerspaces

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

What You Need

Sphero Products and Accessories

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 Sphero Edu 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.

What You Need

Tablets/Phones/Apps for Device Control & Programming

Spheros are controlled by apps that run on smartphones or tablets. Student devices are often used. If your budget permits, dedicated tablets (or even retired/donated cell phones) can be utilized. The larger the screen, the better. These devices obviously need dedicated chargers as well as periodic updates.

Chromebooks can be used with Sphero Edu directly thanks to the free Chrome Extension.

Your Investment in Sphero

Looking for a grant that meets the funders' criteria and your schools needs can be daunting. We recommend that you start looking at the local level first. There are many foundations and businesses that will fund an after-school program in your community if you identify a financial need or gap in educational services that justify funding.

There are many foundation grants, business grants, educational & federal grants that support after school programs that focus on science, technology, engineering and math. Visit this link for resources and example templates: https://www.sphero.com/education/funding.

Security & Privacy

Security Practices

The strategy starts with being absolutely committed to security and privacy, and then we layer on some unique approaches for the education market. Below is an overview of the efforts we take to make Sphero Edu safe and secure to use. We're open to improvements and want to help, so please contact us if you have a suggestion or question.

- **3rd Party Help:** We work with expert third parties to design and audit our hardware and software.
- **Annual Audit:** We employ a top notch digital security firm to do annual penetration testing. If they find critical vulnerabilities, we fix them.
- **Bug Bounty Program:** We work with a global community of white-hat hackers to report issues for reward, and address their findings. This adds crowdsourced diligence in an evolving world of vulnerabilities.

Privacy Practices

- **COPPA Compliance:** We closely monitor compliance with the Children's Online Privacy Protection Act (COPPA) and follow other developments in children's online privacy and security.
- **Student Privacy Pledge:** We are among the more than 300 signatories of the Student Privacy Pledge, which sets a high standard of privacy commitment in education.
- **Agreements:** By using the Sphero Edu platform you agree that you have read, understand and consent to our user Agreements: Privacy, Terms, Intellectual Privacy Policy, and Child Privacy Policy

Publishing Content

- **Publishing:** Some users have the ability to publish public content in the form of media, programs, activities, or comments (don't worry, all content is private by default). We love seeing this creative content from our community, but we also recognize we have a responsibility to ensure publicly-viewable content is safe for our users.
- **Moderation:** We moderate all media, programs, activities, and comments before they're made public, regardless of your age or permissions. If you're a parent and want to allow a child under the age of 13 (U13) to publish publicly, then you need to provide Verifiable Parental Consent (VPC) and enable public posting permissions in the child's profile. If you're an educator, your U13 students can never post anything publicly. 13+ students in an Educators class can comment publicly, but the Educator must approve publishing media, programs, and activities. To reiterate, all content is moderated by Sphero before being published publicly regardless of user permissions. All users also have the ability to flag public content, which Sphero will review again to ensure it is appropriate for our users.
- **Inappropriate Content:** We don't allow inappropriate content to be published and reserve the right to reject or remove it for any reason. To be sure your content will be approved, make sure it does not contain or suggest any of these attributes: Personal information of U13 children (photo, video, audio, contact info, etc).; content that is irrelevant, sexual, dangerous, repulsive, hateful, abusive; spam; misleading; content that infringes third parties' rights; or violates the Sphero Agreements noted above.

Conclusion

Sphero is so much more than it appears to be at first glance. It's a sophisticated robotics platform that is simple enough for learners of any age to use. Possibilities range from simply driving the device via the app to writing complex programs with the text canvas. And that's just the beginning. Learn more information about our resources at edu.sphero.com.