Career & Technical Education (CTE) Cluster Alignment

Understanding Career Clusters

The National Career Clusters Framework organizes career pathways into broad categories to help educators prepare students for in-demand jobs. These clusters provide a foundation for curriculum development, industry partnerships, and workforce training.

- **Agriculture & Natural Resources:** Robotics in precision agriculture & environmental monitoring
- **Education & Training:** Teaching foundational STEM skills and problem-solving
- **Engineering & Technology:** Mechanical design, prototyping, and real-world engineering challenges
- **Information Technology:** Coding, cybersecurity, and software development
- **Manufacturing:** Robotics, automation, and product design
- **Transportation & Logistics:** Autonomous vehicles and mechanical systems

Learn more about the National Career Clusters on the Sphero Blog

Career Cluster	indi Coding Robot *Pre-K+*	littleBits *Grades 3+*	BOLT+ Coding Robot *Grades 3+*	Blueprint Engineering *Grades 6+*	RVR+ Coding Robot *Grades 6+*
Agriculture, Food, & Natural Resources • Robotics in precision agriculture • Environmental monitoring		Invent for Good	Sphero Goes Green What a Seed Needs World: Ocean Food Webs World: Costa Rican Turtles World: Endangered Animals The Animal in BOLT+ Animal Charades Jungle Blocks The Reason for Seasons	Machines in Our Food System (8)	RVR+ littleBits: Animal Imitations RVR+ Micro:bit: Soil Moisture Sensor
Education & Training* • Coding • Cybersecurity • Data science *Elementary and middle school tools support educator training programs by helping future teachers learn to teach computational thinking, robotics, and coding. Lessons shown align with these objectives.	indi Core Lessons (20)	Meet the Bits Challenge Cards (10)	BOLT+ Programming 1.0 (4), 2.0 (6), 3.0 (6) Cybersecurity Labs (20) BOLT Meets ChatGPT Generative Art and AI BOLT Programming Fundamentals (14)	Control Systems (12)	RVR+ Programming Fundamentals (14) RVR+ Educator Guide Lessons (8) SGC Competition-Ready RVR+ (6) RVR+ & MakeCode: Movement, Light, and Sound RVR+ & MakeCode: Proximity Bit and Movement RVR+ & MakeCode: Radio Communications RVR+ Public SDK: micro:bit & Raspberry Pi
Engineering & Technology - Cross-Cutting Cluster* *(formerly under STEM & Architecture & Construction clusters)* • Robotics • Mechatronics • Real-world engineering solutions	indi Core Lessons (20)	Meet the Bits Challenge Cards (10) SEL Challenges (6) Invention Cycle Classics (9) Makerspace Card Games (4) Micro:bit and littleBits (4)	BOLT+ Programming 1.0 (4), 2.0 (6), 3.0 (6) Engineering and Design w/ BOLT (9) Engineering and Design (8) BOLT+ Swerve Drive	Simple Machines (14) Carnival (6) Control Systems (12) Machines in Our Food System (8)	RVR+ Programming Fundamentals (14) RVR+ Educator Guide Lessons (8) SGC Competition Ready RVR+ (6) Engineer and Apple Picker Automatic Headlights AI with RVR+: Autonomous Vehicles AI with RVR+: Image Recognition RVR+ & MakeCode: Movement, Light, and Sound RVR+ & MakeCode: Proximity Bit and Movement RVR+ & MakeCode: Radio Communications RVR+ Public SDK: micro:bit & Raspberry Pi

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Information Technology *(formerly under STEM cluster)* • Coding • Cybersecurity • Data science	indi Core Lessons (20)	Meet the Bits Challenge Cards (10)	BOLT+ Programming 1.0 (4), 2.0 (6), 3.0 (6) Cybersecurity (20) BOLT Meets ChatGPT Generative Art and AI BOLT Programming Fundamentals (14)	Control Systems (12)	RVR+ Programming Fundamentals (14) RVR+ Educator Guide Lessons (8) SGC Competition Ready RVR+ (6) RVR+ & MakeCode: Movement, Light, and Sound RVR+ & MakeCode: Proximity Bit and Movement RVR+ & MakeCode: Radio Communications RVR+ Public SDK: micro:bit & Raspberry Pi
Manufacturing *(formerly under STEM & Architecture & Construction clusters)* • Prototyping • Automation • Robotics engineering		Invention Cycle Classics (9) Makerspace Card Games (4)	Engineering & Design with BOLT (9) Engineering & Design (8) BOLT+ Swerve Drive	Simple Machines (14) Carnival (6) Control Systems (12) Machines in Our Food System (8)	Engineer and Apple Picker Automatic Headlights AI with RVR+: Autonomous Vehicles AI with RVR+: Image Recognition
Transportation, Distribution & Logistics • Autonomous Vehicles • Mechanics • Systems engineering	indi Core Lessons (20)	Invent a Self-Driving Vehicle RVR+ Topper Core (7)	BOLT+ Swerve Drive BOLT+ Powered Vehicle BOLT+ Chariot Challenge BOLT+ Bumper Cars Tractor Pull Around the World in 60 Minutes Hydro Hypothesis	Control Systems (12) Machines in Our Food System (8)	RVR+ Programming Fundamentals (14) Engineer and Apple Picker Automatic Headlights AI with RVR+: Autonomous Vehicles

*__Cross-Cutting Cluster:__ Some clusters, like Engineering & Technology, intersect multiple fields. Sphero's interdisciplinary tools support learning across multiple pathways—not just a single subject area.
__Lesson Count Key:__ Numbers in parentheses ( ) indicate how many lessons are available in a curriculum or lesson collection.

Perkins V Funding

Integrating Sphero into career-focused pathways helps schools align with Perkins V requirements and access federal funding.

Perkins V supports programs that:

- Prepare students for high-skill, higher-wage, in-demand careers
- Align with state-recognized career clusters
- Provide hands-on, real-world learning experiences

Sphero supports these goals through:

- Curriculum aligned to CTE pathways (STEM, Engineering, Robotics, and Information Technology)
- Skill-building in coding, electronics, mechanical engineering, and design thinking
- Project-based learning and industry-relevant challenges

Perkins V provides funding for CTE programs, and alignment with career clusters helps schools qualify for grants. Educators can explore:

- Perkins V Overview
- Career Clusters & CTE Funding
- CTE Policy & Implementation

Speak with a Sphero Expert on how to support a CTE program at your school/district with Sphero's education offerings:
https://sphero.com/pages/meet-the-team