

The Sphero Global Challenge is the ultimate STEM competition and an opportunity for students to go deeper with computational thinking, engineering, and programming skills. Teams of all abilities are encouraged to work together to identify problems and develop solutions. Through this challenge, students will work to accomplish their goals in various competitions that they will submit virtually to qualify for a live World Championship in Spring 2021.



The Sphero Global Challenge comprises three unique events. Teams can compete in one event or up to all three with one registration fee.



#### WHO PARTICIPATES?

- Teams of up to 5 kids per event in the same age bracket
- Two age divisions:
  - 3rd-5th grade (ages 8-11)
  - 6th-8th grade (ages 11-14)
- At least 1 supervising adult to serve as a coach



#### WHEN:

- 2020-2021 school year
- Registration will go live in August 2020  
(Stay tuned for details!)
  - Coaches can register their teams starting in August and will receive coaches materials, digital files, and judging rubrics to help guide students
- Virtual submissions are due at the end of February 2021
- The top teams from each country will be invited to an in-person competition in a location to be announced at a later time
- Visit [sphero.com/pages/global-challenge](https://sphero.com/pages/global-challenge) to sign up for emails and be the first to know when registration opens!



The littleBits Invent For Good: Mission Earth is a competition to help the next generation begin their journey towards solving the world's big problems. Teams are required to solve a problem of their own choosing by inventing a product/solution that can help the people of Earth or Earth itself. In essence, they will be Inventing For Good. Competitors must use littleBits electronics in conjunction with craft materials and follow the littleBits Invention Cycle: Create, Play, Remix, Share, to develop their solution. Teams must showcase their invention by video and infographic, to illustrate and explain why it is an effective and efficient solution to their chosen problem.



## EXAMPLE PROMPT:

Our society produces an incredible amount of waste; what can you do to help reduce the amount of waste and/or better reuse items in your community.

## NECESSARY MATERIALS TO COMPLETE:

littleBits STEAM Student Set or STEAM+ Class Pack (Bits from a PRO Library can also be used, but pay attention to specific bits needed.)

Craft Supplies (all available in Sphero Craft Pack)

- String
- Pipe Cleaners
- Tape
- Craft Sticks
- Rubber Bands
- Felt
- Chipboard
- Cardboard Tubes
- Duct Tape
- Straws
- Foam sheets
- Toothpicks
- Paperclips
- Tissue Paper
- Feathers
- 18 oz. cups
- Foam balls

## RECOMMENDED MATERIALS:

- Craft Pack (A Sphero curated pack of craft materials at a fraction of retail costs)

## REGISTRATION:

- A coach can register their team(s) in August
- Sign up for email notifications for when registration will go live

## TEAMS WILL SUBMIT:

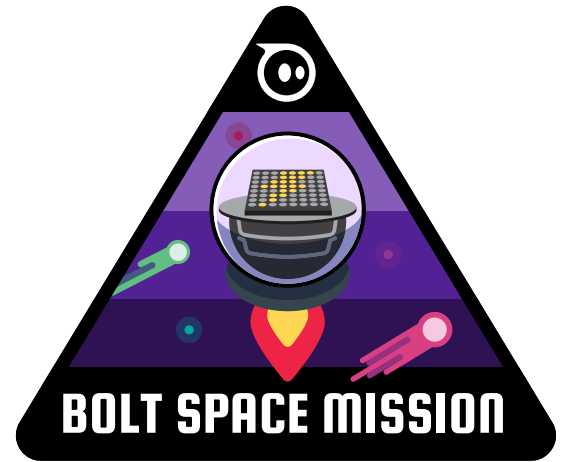
- A schematic of their LBi4G Invention from FUSE App
- A video demonstrating their invention in action
- An invention infographic using any design software available to students (8 ½" X 11" OR 11" X 17" PDF)



## THE GAME:

BOLT robots are taking flight as spacecrafts and are completing missions in space. Program and engineer solutions to each of the challenges to make sure that the BOLTs have a productive and successful mission in space.

- There are a total of 5 programming challenges that utilizes two BOLTs as they navigate on the Outer Space Code Mat.
- The engineering challenge will require teams to create a solution for transporting materials with BOLT.



## NECESSARY MATERIALS TO COMPLETE:

2 BOLT robots

Access to Sphero Edu

Programming Devices (MacOS, Windows, ChromeOS, iOS, or Android)

Competition field space of 200 cm x 100 cm

Craft Supplies (all available in Sphero Craft Pack)

- |                 |                   |               |                |
|-----------------|-------------------|---------------|----------------|
| • String        | • Felt            | • Straws      | • Tissue Paper |
| • Pipe Cleaners | • Chipboard       | • Foam sheets | • Feathers     |
| • Tape          | • Cardboard Tubes | • Toothpicks  | • 18 oz. cups  |
| • Craft Sticks  | • Duct Tape       | • Paperclips  | • Foam balls   |
| • Rubber Bands  |                   |               |                |

## RECOMMENDED MATERIALS:

- 1 Outer Space Code Mat
- Craft Pack (A Sphero curated pack of craft materials at a fraction of retail costs)

## REGISTRATION:

- A coach can register their team(s) in August
- Sign up for email notifications for when Registration will go live

## TEAMS WILL SUBMIT:

- A program file from Sphero Edu with their challenge code
- A video of all of the challenges being completed. Video may be edited to combine challenges together, but each individual challenge should be recorded in one take.
- Engineering Design report



## THE GAME:

RVR is stationed on Mars and is expecting a supply mission to land. Program RVR and engineer solutions with littleBits to complete all of the missions for a successful Mars mission.

- There will be 5 objectives that students will need to complete by programming RVR to navigate around the game field and by building littleBits inventions to interact with the physical world.



## NECESSARY MATERIALS TO COMPLETE:

One Sphero RVR robot

littleBits RVR Topper Kit

Access to Sphero Edu

Programming Devices (MacOS, Windows, ChromeOS, iOS, or Android)

Competition field space of 304.8 cm x 304.8 cm

micro:bit (6th-8th grade age division)

Craft Supplies (all available in Sphero Craft Pack)

- |                 |                   |               |                |
|-----------------|-------------------|---------------|----------------|
| • String        | • Felt            | • Straws      | • Tissue Paper |
| • Pipe Cleaners | • Chipboard       | • Foam sheets | • Feathers     |
| • Tape          | • Cardboard Tubes | • Toothpicks  | • 18 oz. cups  |
| • Craft Sticks  | • Duct Tape       | • Paperclips  | • Foam balls   |
| • Rubber Bands  |                   |               |                |

## RECOMMENDED MATERIALS:

- Craft Pack (A Sphero curated pack of craft materials at a fraction of retail cost)

## REGISTRATION:

- A coach can register their team(s) in August using [robotevents.com](http://robotevents.com)
- Sign up for email notifications for when Registration will go live

## TEAMS WILL SUBMIT:

- A program file from Sphero Edu with their challenge code
- A video of all of the challenges being completed. Video may be edited to combine challenges together, but each individual challenge should be recorded in one take
- Schematics from littleBit Inventions from FUSE app



# FAQs

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- **I want to coach a team, but I don't know anything about programming, designing, or engineering. Should I do this?**

For sure! Wanting to support a team is half the battle. Not only will you help guide students in submitting registration, final submissions, etc. you can learn along with the students.

- **Do I have to compete in all 3 competitions?**

Absolutely not, but each team has the ability to turn in one submission for each competition as part of their registration cost. It's like the ultimate 3 for 1!

- **Do I need to purchase a Code Mat for the BOLT competition?**

We recommend a Code Mat for the competition since it standardizes the competition for everyone and provides a similar surface to work from. We will provide measurements for the competition area for teams that do not have a code mat so that they can compete.

- **Do teams have to be school based?**

Teams do not need to be based out of a school. The only requirement is that there is at least 1 child in the appropriate age range with a supervising adult to act as coach and submit materials on behalf of the students.

- **Can teams have only one team member?**

Yes, a team consisting of 1 student can complete the challenges and submit for competition. We highly recommend collaboration and teamwork in these competitions.

- **Can my coach, or another adult, help me with our challenges?**

Yes, but students are required to do the actual designing, building, and programming. Adults and other non team members should help by teaching and guiding the students.

- **Can my coach, or another adult, help us with our video and infographic submission?**

Yes, but students are required to do the actual design and creation of the submission. Adults and other non team members should help by teaching and guiding the students as well as assisting with any software used to create or upload the submission.

- **Do I have to purchase a new littleBits Kit each year?**

No, but be mindful of the rules that specify which bits you need from to compete.

- **What are the criteria for advancement to the World Championship?**

Criteria are not finalized, but we expect that top teams in each individual events will automatically qualify so even if you participate in only one event you can qualify. However, most of the teams will advance based on combined scoring in all events.



# Cost Breakdown

Teams can compete in one event or up to all three with **one registration fee of \$75**.



Required Materials	Possible Cost
littleBits	Could use any of these sets: <ul style="list-style-type: none"> <li>• STEAM+ Individual Unit* (\$340)</li> <li>• STEAM Student Set (\$300)</li> <li>• littleBits PRO Library</li> </ul>
Optional Materials	
Sphero Craft Pack	\$115



Required Materials	Possible Cost
BOLT (x2)	\$150 (x2)
Optional Materials	
SPACE Code Mat*	\$180
Sphero Craft Pack	\$115



Required Materials	Possible Cost
RVR	\$249
littleBits	Could use any of these sets: <ul style="list-style-type: none"> <li>• RVR Topper Kit* (\$125)</li> <li>• STEAM+ Individual Unit* (\$340)</li> <li>• STEAM Student Set (\$300)</li> <li>• littleBits PRO Library</li> </ul>
Optional Materials	
Sphero Craft Pack	\$115
micro:bit (6th-8th grade)	\$15

\*Launching Summer 2020

