



SEASON 3  
**OFFICIAL RULES**



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SPHERO BOLT

**ANIMAL  
BEHAVIOR**



***BOLT: Animal Behavior***  
**EVENT RULES**



# BOLT: Animal Behavior Event Specific Rules

## CHALLENGE DESCRIPTION



The study of animal behavior (Ethology) teaches us how animals interact with their natural environment, which provides valuable information to help conservation efforts for all animals. BOLT is an extremely versatile robot. In fact, it can imitate your favorite animals if you program it to. Gather some teammates and create or join a team because now is your time to program BOLT to imitate the lives, behaviors, and actions of nature's most famous animals!



Teams will design, program, and engineer their BOLTs to solve the animal behavior *Mission Objectives* that await them. Only the most dedicated and practiced programmers can become the best BOLT ethologists to:

- program multiple BOLTs to navigate through missions and solve problems
- harness your creativity and show off BOLT being programmed to imitate animal behaviors
- create and engineer interactions for BOLT as part of the *Mission Objectives*

During the challenge season, you will document your learning in your engineering journal. Each team will showcase the successful completion of each *Mission Objective* by submitting their program code and video evidence.

## GENERAL RULES / LEVELS



**BOLT-G1** Teams considered *Upper Elementary School Teams* will be scored on three *Mission Objectives* and their Slide Presentation for a total of 400 points (300 from *Mission Objectives*, and 100 from the presentation). See the *Evaluation Rubric* for more information on scoring.

- Teams must submit *Mission Objective #1, Mission Objective #2 OR #3, and Mission Objective #4 OR #5*. This means the final submission will consist of one beginner, one intermediate, and one advanced *Mission Objective*.
- Teams may choose to submit all five *Mission Objectives*. If you choose to do this, your submission will still be scored on a scale of 400 points (300 from *Mission Objectives*, and 100 from the presentation). However in this case, the judges will score all five *Mission Objectives* and your final score will consist of points from *Mission Objective #1*, the highest score from *Mission Objective #2 and #3*, the highest score from *Mission Objective #4 and #5*, and the Slide Presentation.

**BOLT-G2** Teams considered *Middle School Teams* will be scored on all five *Mission Objectives* and their Slide Presentation for a total of 600 points. (500 from *Mission Objectives*, and 100 from their Slide Presentation).

**BOLT-G3** Once "Start" is pressed on any BOLT program, no human interaction can take place for the remainder of the program.





**MISSION OBJECTIVE #1**

**01**


## Mission Objective #1: BOLT on Safari

*Level: Beginner*

Use your BOLT movement skills to navigate BOLT 1 through the Sphero Safari. Follow the path as closely as possible to roll by all the animals. Using BOLT 2, you'll bring an elephant to bring to life. Use BOLT 2's features to mimic an elephant on repeat while BOLT 1 passes by.

### Mission Objective #1 Set-Up

1. Use a printout or Code Mat as the *Competition Field*.
2. Mark out path, start block, finish block, and Elephant Exhibit Area with markers, tape, colored paper, or other craft supplies.
3. Optionally, use craft supplies to decorate areas of the *Competition Field*. These props cannot interfere or come in contact with either of the BOLTs during the *Mission Objective*.

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## Mission Objective #1 Rules

- BOLT-M1-1** BOLT 1 must start the course completely inside the starting box (A9 & A10) and stay on the *Competition Field* for the entire *Mission Objective*.
- BOLT-M1-2** While navigating through the course, BOLT 1 must stay completely within the yellow squares on the path.
- BOLT-M1-3** BOLT 2 must start inside of the Elephant Exhibit Area (O1-9, P1-9, Q1-9, R1-9, S2-10, T2-10) and stay there for the entire *Mission Objective*.
- BOLT-M1-4** Once the programs have been started, BOLT 1 has 60 seconds to navigate through the course following the arrows and stopping in the finish box.
- BOLT-M1-5** Once program on BOLT 1 has been started, BOLT 2 must run a program using movement, light, and sound to imitate an elephant inside the Elephant Exhibit Area.
- BOLT-M1-6** The program for BOLT 2 must contain at least one loop that repeats one behavior at least three times during the 60 second time limit.
- BOLT-M1-7** *Mission Objective* points will be awarded based on the *Evaluation Rubric*. Each time BOLT 1 leaves the yellow path or BOLT 2 leaves the Elephant Exhibit Area, 5 points will be deducted from the overall score.

## Deliverables

1. Video (.mp4, .mov, .avi) of the *Mission Objective*
  - a. ideally a top down view
  - b. both BOLTs visible while their respective programs are running
2. Picture of code for BOLT 1 and BOLT 2 included in the submission (See page 16 for submission details)





MISSION OBJECTIVE #2

02

### Mission Objective #2: A Day and Night in the Life

*Level: Intermediate*

Choose any animal you can think of, and show off a typical day in the life of that animal using BOLT. Use movements, lights, sounds, and functions to show behaviors of your chosen animal, while you narrate. Additionally, you'll use the ambient light sensor to show the difference between the animal's behavior at night and during the day.

#### Mission Objective #2 Set-Up

1. Use a printout or code mat as the *Competition Field*.
2. Use markers, print out, or craft supplies to decorate areas of the *Competition Field* that represent different parts of your animal's day. BOLT **can** come into contact or interact with props.

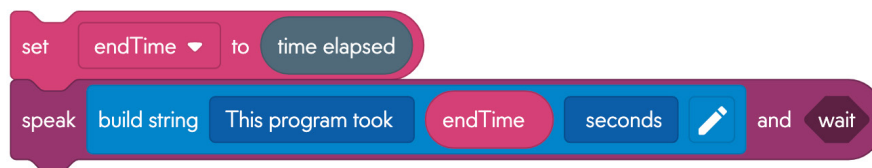
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## Mission Objective #2 Rules

- BOLT-M2-1** BOLT must start on the *Competition Field*, and stay on the *Competition Field* for the entirety of the program.
- BOLT-M2-2** During the *Mission Objective*, at least three distinct behaviors must be shown using movement, lights on BOLT, and sounds.
- BOLT-M2-3** At least one behavior must be triggered by a conditional statement using the value of the ambient light sensor. Example: Once it gets bright or once it gets dark, an action is triggered.
- BOLT-M2-4** At least one function must be created in the program, and the function must be called in the main program at least twice to show a behavior that repeats multiple times during the day.
- BOLT-M2-5** The program run time and narration must not exceed 90 seconds.
- To show this in your program and video, create a variable (endTime) and have your program speak this variable at the end of the program. See the code snippet below for an example:



- BOLT-M2-6** It is not required to use more than one BOLT, but it is permissible to use a second BOLT to show interactions between two of your chosen animals.
- BOLT-M2-7** *Mission Objective* points will be awarded based on the *Evaluation Rubric*. Each time BOLT leaves the *Competition Field*, 5 points will be deducted from the overall score.

## Deliverables

- Video (.mp4, .mov, .avi) of the *Mission Objective*
  - any BOLT used must be visible while it's program is running
- Picture of code for BOLT 1 (and BOLT 2 if applicable) included in the submission (See page 16 for submission details).







MISSION OBJECTIVE #3

03


## Mission Objective #3: Predator and Prey

*Level: Intermediate*

Every animal needs food to survive and every ecosystem strikes a delicate balance between predators and their prey. In this *Mission Objective*, you'll program one BOLT to represent a wildebeest searching for food and another to represent a lion hunting its prey. Using BOLT's IR sensors, you'll show how your wildebeest evades the lion and escapes back to its herd.

### Mission Objective #3 Set-Up

1. Use a printout or Code Mat as the *Competition Field*.
2. Mark out the *Safe Zone* and *Feeding Zones* on the *Competition Field* with markers, tape, colored paper, or other craft supplies.
  - a. *Safe Zone*: A1-10, B1-10, C1-10
  - b. *Feeding Zone #1*: F8-9, G8-9
  - c. *Feeding Zone #2*: H3-4, I3-4
  - d. *Feeding Zone #3*: P1-2, Q1-2
  - e. *Feeding Zone #4*: L7-8, M7-8
3. Optionally use craft supplies to decorate areas of the *Competition Field*. These props cannot interfere or come in contact with either of the BOLTs during the *Mission Objective*.

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### Mission Objective #3 Rules

- BOLT-M3-1** BOLT 1, the prey, will start fully contained in the *Safe Zone* (A1-10, B1-10, C1-10) and remain on the *Competition Field* for the entire *Mission Objective*.
- While BOLT 1 is evading BOLT 2 (see BOLT-M3-8), it is acceptable for BOLT 1 to leave the grid momentarily. See BOLT-M3-8, 9, & 10 for more information.
- BOLT-M3-2** BOLT 2, the predator, will start in T1 and remain on the *Competition Field* for the entire program.
- BOLT-M3-3** BOLT 1 and 2 programs must start with a matrix animation block that indicates which BOLT is the predator and which is the prey. You can be creative in the way you distinguish them, but the matrix must show the difference for the entire program.
- BOLT-M3-4** Both BOLTs must move from their starting position before sending or receiving IR messages.
- BOLT-M3-5** BOLT 1 must leave the *Safe Zone*, visit *Feeding Zones* 1-3 in order, and pause for at least four seconds in each area.
- BOLT-M3-6** After visiting the first three *Feeding Zones*, BOLT 1 must proceed to the *Feeding Zone* 4 and stop. Once BOLT 1, has stopped it should send a message to BOLT 2 indicating that it is feeding.
- Note that the *send message block* should be used to send one message, *broadcast message* should not be used in BOLT 1's program.
- BOLT-M3-7** When BOLT 2 receives a message from BOLT 1, it should slowly move towards BOLT 1.
- BOLT-M3-8** BOLT 1 should be programmed to evade BOLT 2, and no other commands may be used to make BOLT 1 move after it reaches the last *Feeding Zone*.
- BOLT-M3-9** BOLT 2 should not begin broadcasting an IR signal until it is within two grid squares of BOLT 1.
- BOLT-M3-10** BOLT 1 should evade BOLT 2 and end back in the *Safe Zone*.
- BOLT-M3-11** *Mission Objective* points will be awarded based on the *Evaluation Rubric*. Each time either BOLT leaves its designated area, 5 points will be deducted from the overall score.

### Deliverables

- Video (.mp4, .mov, .avi) of the *Mission Objective*
  - ideally a top down view
  - both BOLTs visible while their respective programs are running
- Picture of code for BOLT 1 and BOLT 2 included in the submission (See page 16 for submission details)



**MISSION OBJECTIVE #4****04****Mission Objective #4: BOLT Migration**

*Level: Advanced*

Many animals migrate throughout the year to different feeding, mating, and climate areas. Caribou in the arctic migrate every year to avoid snowstorms and cold weather and ensure that they have enough food. In this *Mission Objective*, you'll use BOLT's IR sensor to help a lost caribou follow a migration corridor and avoid man-made *Obstacles* to rejoin its herd. You'll use events and variables to successfully complete the course.

**Mission Objective #4 Set-Up**

1. Use a printout or Code Mat as the *Competition Field*.
2. Mark out the *Checkpoints* and *Obstacles* using tape, markers, color paper, or other supplies on the *Competition Field*.
  - a. *Checkpoint #1*: BOLT Wetland: D6-7, E6-7
  - b. *Checkpoint #2*: Lake Sphero: J4-5, K4-5
  - c. *Checkpoint #3*: STEM Forest: O8-9, P8-9
  - d. *Obstacle #1*: Airport: C4, D4, E4
  - e. *Obstacle #2*: City: I8-9, J8-9, K8-9
  - f. *Obstacle #3*: Highway: O6, P6, Q6, R6, S6, T6
3. Optionally use craft supplies to decorate other areas of the *Competition Field*. These props cannot interfere or come in contact with either of the BOLTs during the *Mission Objective*.

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## Mission Objective #4 Rules

- BOLT-M4-1** BOLT 1 must start in A1 and remain on the *Competition Field* for the entire program.
- BOLT-M4-2** BOLT 2 must start in T10 and remain in T10 for the entire program.
- BOLT-M4-3** This *Mission Objective* is complete when BOLT 1 rolls to Checkpoint 1, 2, then 3, and stops in any of the squares adjacent to BOLT 2 (T9, S10, or S9).
- BOLT-M4-4** BOLT 1's program can only have *movement blocks* under *on message received events*.
- BOLT-M4-5** BOLT 2's program must use the *send message block* to communicate with BOLT 1, and BOLT 1 must use those messages to determine which way to move.
- BOLT-M4-6** BOLT 1's program must use a *light block* to indicate when it receives a message.
- BOLT-M4-7** BOLT 2's program must use a *variable* to track how many messages it has sent to BOLT 1, and display that number on the LED matrix so that it counts up as messages are sent.
- BOLT-M4-8** Both BOLTs must celebrate using lights and sounds when they reach each other.
- BOLT-M4-9** *Mission Objective* points will be awarded based on the *Evaluation Rubric*. Each time BOLT leaves the grid area or rolls into an *Obstacle*, 5 points will be deducted from the overall score.

## Deliverables

1. Video (.mp4, .mov, .avi) of the *Mission Objective*
  - a. ideally a top down view
  - b. both BOLTs visible while their respective programs are running
2. Picture of code for BOLT 1 and BOLT 2 included in the submission (See page 16 for submission details)





**MISSION OBJECTIVE #5**

**05**



## Mission Objective #5: Engineer a Rescue

*Level: Advanced*

Poachers are an unfortunate reality for animals that have features that are considered desirable. In this *Mission Objective*, you will save BOLT from a poacher’s cage using a mechanism that you design and a program you create.

### Mission Objective #5 Set-Up

1. Use a printout or Code Mat as the *Competition Field*.
2. Mark out poacher area, and the animal preserve with markers, tape, colored paper, or other craft supplies.
3. Engineer other *Competition Field* elements as part of this *Mission Objective* as outlined in BOLT-M5-3.
4. Optionally use craft supplies to decorate other areas of the *Competition Field*.

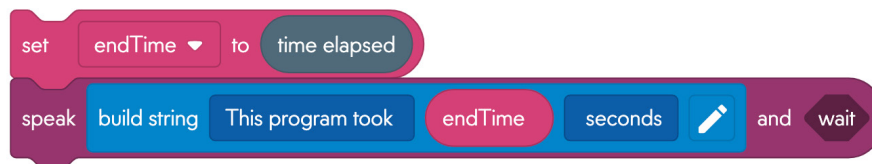
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## Mission Objective #5 Rules

- BOLT-M5-1** BOLT 1 must start in A10 and remain on the *Competition Field* for the entire *Mission Objective*.
- BOLT-M5-2** BOLT 2 must start in T10 and remain on the *Competition Field* for the entire *Mission Objective*.
- BOLT-M5-3** Teams must design and build a ramp and cage so that BOLT 1 will start its program by rolling up the ramp and dropping into the cage.
- The tallest part of the ramp must be between 6 and 10 cm.
  - If you have the **Sphero Terrain Park**, you may use the ramp from that kit, but it is not required.
  - The cage must have sides that provide line of sight access to allow IR messages to be sent and received.
- BOLT-M5-4** The ramp and cage may be set up anywhere in the poacher area, but may not take up more than 20 grid spaces combined.
- BOLT-M5-5** Once BOLT 1 is trapped in the cage, it must use the *on collision event* or the value of the *total accelerometer sensor* to send an IR message to BOLT 2 to indicate that it needs to be rescued.
- BOLT-M5-6** The program for BOLT 1 and BOLT 2 must include a light or sound indication that they have sent and/or received a message.
- BOLT-M5-7** Once BOLT 2 has received the message to rescue BOLT1, it should move to the cage and interact with it in some way so that BOLT 1 can escape.
- BOLT-M5-8** Once BOLT 1 has been rescued, both BOLTs must navigate back to the animal preserve.
- BOLT-M5-9** BOLT 1's program run time can not exceed 60 seconds.
- To show this in your program and video, in BOLT 1's program create a variable (endTime) and have your program speak this variable at the end of the program. See the code snippet below for an example.





**BOLT-M5-10** You have an engineering budget of \$45 for the ramp, cage and the mechanism to open it.

Items	Quantity	Price
Cardboard Box	1	\$20
18 oz Plastic Cup	1	\$15
Paper cups	1	\$10
Cardboard	1 12"x12" sheet	\$7
Craft Foam Sheets	1 sheet	\$7
String	30 cm	\$6
Ruler	1	\$5
Pencil	1	\$5
Paper Tube (3")	1	\$5
Paper Tube (2")	1	\$5
Wood Blocks	1 block	\$5
Rubber Bands	2	\$4
Masking Tape	30 cm	\$3
Popsicle Sticks	4	\$3
Straws	4	\$3
Glue Dots	1 sheet (12 glue dots)	\$3
Toothpicks	6	\$3
Paper Clips	4	\$3
Pipe Cleaners	4	\$2
Felt Sheet	1 sheet	\$2
Foam Balls	2	\$2
Sticky Notes	10	\$1
Tissue Paper	1 sheet	\$1
Construction Paper	1 sheet	\$1

**BOLT-M5-11** *Mission Objective* points will be awarded based on the *Evaluation Rubric*. Each time BOLT leaves the *Competition Field* 5 points will be deducted from the overall score.





## Deliverables

1. Video (.mp4, .mov, .avi) of the *Mission Objective*
  - a. ideally a top down view
  - b. both BOLTs visible while their respective programs are running
2. Picture of code for BOLT 1 and BOLT 2 included in the submission (See page 16 for submission details)
3. Outline of Engineering Budget included in submission (See page 16 for submission details)
4. Close up pictures of ramp, cage, and cage opening mechanism included in submission

## SUBMISSION REQUIREMENTS



## Submission Requirements

**BOLT-S1** Submissions should include all deliverables from each completed *Mission Objective* in a Slideshow, using the [Google Slide template](#).

- The template is meant to help ensure you include all the submission requirements. You can get creative with layouts, fonts, add slides, etc.
- Google slides presentation must be shared so “anyone with the link” can view your presentation.



**BOLT-S2** Videos for each *Mission Objective* may be embedded into the Slide Presentation, but also must be uploaded in the submission form.

- If you choose to embed videos, make sure the sharing permissions are changed to “anyone with the link”.

**BOLT-S3** Each submission must be uploaded using the Google Form that will be sent to all the Coaches once the submission window is open.

**BOLT-S4** Submissions will be scored based on the *Evaluation Rubric*.







*littleBits Invent 4 Good: Animal Kingdom*  
**EVENT RULES**



Biologists, zoologists, and other scientists spend their time studying the animal kingdom. What does it take to become one of these experts in the field? Education, dedication, and a love for animals!

This is your chance to become a scientist and teach others about an organism in the animal kingdom with littleBits powered by Sphero!



## Mission Objective Overview

Follow the littleBits Invention Cycle to create an interactive display designed to educate the public about an animal of your choice. Displays should address the importance of conservation efforts to protect the animal and its ecosystem.

### **CREATE**

With your team, choose an animal and then brainstorm an interactive display to educate and engage the public.

### **PLAY!**

Scope out your idea and design your initial solution. Test out your interactive display to see what works and what needs improvement.

### **REMIX**

This is your opportunity to experiment with fixes and improvements. Track your observations and try to improve or add more details to your design.

### **SHARE**

Create a video that explains your interactive display and your design process. Then share and reflect on your journey through the littleBits Invention Cycle by putting together a slideshow presentation.





## MISSION OBJECTIVE RULES



- LB-M1-1** Competitors must use littleBits electronics in conjunction with other materials and follow the littleBits Invention Cycle—Invent, Play, Remix, Share—to develop their final solution.
- LB-M1-2** Teams must showcase their museum display, via both video and slide presentation, to illustrate and explain their chosen animal or ecosystem.
- LB-M1-3** All participants must abide by the Sphero Global Challenge age requirements for *Students*, *Upper Elementary Students*, and *Middle School Students*.
- LB-M1-4** The only motors, servo, and electrical components that can be used are electrical components from the littleBits Design System, a littleBits compatible power source, and the Micro:bit (optional).
- LB-M1-5** If the Micro:bit is used, then it must be used with the littleBits Micro:bit adapter Bit (w34).
- LB-M1-6** There are no restrictions on the use of any mechanical components as long as no other rules are violated. Mechanical parts from other building kits or general household items (e.g. wood, cardboard, plastics, craft materials) are all examples of acceptable building materials.
- LB-M1-7** The base of your display must be a minimum size of 40cm x 40cm and a maximum size of 60cm x 60cm footprint, and your display may not exceed 60cm in height.
- LB-M1-8** The display must use a minimum of 1 Power Bit, 1 Input Bit, and 1 Output Bit.

### Deliverables

1. Video (.mp4, .mov, .avi) of the museum exhibit and include all features
  - a. ensure the view makes any movement, lights, or other features visible
  - b. any narration is audible in the video
2. Picture of code if used is included in the submission (See page 20 for submission details)
3. Pictures, notes, or other artifacts from each step of the invention cycle included in the submission (See page 20 for submission details)





## SUBMISSION REQUIREMENTS



### Submission Requirements

**LB-S1** Submissions should include all deliverables from each completed *Mission Objective* in a Slideshow, using the [Google Slide template](#).

- The template is meant to help ensure you include all the submission requirements. You can get creative with layouts, fonts, add slides, etc.
- Google slides presentation must be shared so “anyone with the link” can view your presentation.



**LB-S2** Videos for the *Mission Objective* may be embedded into the Presentation, but also must be uploaded in the submission form.

- If you choose to embed videos, make sure the sharing permissions are changed to “anyone with the link”.

**LB-S3** Each submission must be uploaded using the Google Form that will be sent to all the coaches once the submission window is open.

**LB-S4** Submissions will be scored based on the *Evaluation Rubric* out of 1000 points.



SPHERO INDI



*indi: To The Zoo*  
**EVENT RULES**



## indi: To The Zoo Event Specific Rules



### CHALLENGE DESCRIPTION



When you walk into any zoo, you're given a map of how the zoo looks and where all of the animals are located. Make indi your guide in this challenge by using indi's abilities to navigate around your zoo. With your Sphero Global Challenge team, you will build your computational thinking skills, collaboration skills, and creativity by:

- creating your ideal 2D or 3D zoo for one indi to navigate
- transforming a second indi into your favorite animal with craft supplies
- using the Sphero Edu Jr app to extend indi's capabilities (optional)

Designate an Android or iOS device that students can use as a programming device (optional). indi can be used in a screen-free environment and programming indi with the Sphero Edu Jr app is not a requirement for a successful solution to each *Mission Objective*.

### GENERAL RULES



**indi-G1** All participants must abide by the Sphero Global Challenge age requirements for *Students* and *Early Elementary Students*.

**indi-G2** Student(s) may not handle/touch/interfere with any indi after it has been placed on a green tile and started moving.





## MISSION OBJECTIVE #1

### 01

### Mission Objective #1: Zoo Tour

To see all the exhibits in the zoo, you need to map out the best path! In this *Mission Objective*, you'll create your own zoo. Then, you'll use colored tiles to program indi to navigate through your zoo.

**indi-M1-1** Your zoo should contain at least four (4) exhibits that indi 1 drives by. Your exhibits are your chance to get creative! Make sure each of your exhibits meet the following guidelines:

- a. Exhibits can be 2D drawings or 3D creations using craft supplies.
- b. Each exhibit should be about the size of an 8.5" x 11" standard piece of paper.
- c. One exhibit should include indi 2 as outlined in *Mission Objective #2*.

**indi-M1-2** Using the color tiles, create a path for indi #1 to drive through your zoo and past all four of your exhibits. The path should meet the following guidelines:

- a. Your entrance (first tile) and exit (last tile) to the zoo should be next to each other, meaning they share a common side.
- b. Your path should use at least eight (8) tiles.
- c. Your path should use at least four (4) different colors of tiles.

## MISSION OBJECTIVE #2

### 02

### Mission Objective #2: Animal Imitation

Every animal species has unique characteristics! For this *Mission Objective*, you'll use a second indi to imitate an animal in a zoo exhibit. You'll decorate your indi to look like your chosen animal and then you'll program it to move in your animal's path.

**indi-M2-1** Your indi 2 should be decorated using craft supplies and/or stickers from your indi kit to look like the animal you choose. These decorations should stay on indi 2 for the entire program.

**indi-M2-1** Using the indi tiles, you will create a path for your animal (indi 2) to move around in its exhibit. The path should meet the following guidelines:

- a. Your path should repeat, or loop, so that your animal continues to move in its exhibit the entire time that indi 1 is driving its path through the zoo.
- b. Your path should use at least four (4) tiles.
- c. indi 2's exhibit can be larger than the other three (3) exhibits to accommodate the tiles you are using.





## Deliverables

1. Video (.mp4, .mov, .avi) of both indi's running their complete path
  - a. ensure both indi's are visible in the video
  - b. any narration is audible in the video
2. Pictures of any modifications made to indi in the Sphero Edu Jr. app, if applicable, is included in the submission (See page 24 for submission details)
3. Pictures of each exhibit and indi #2 included in the submission (See page 24 for submission details)

## SUBMISSION REQUIREMENTS



## Submission Requirements

**indi-S1** Submissions should include all deliverables from the *Mission Objective* in a Google Slide Format, using the linked [template](#).

- The template is meant to help ensure you include all the submission requirements. You can get creative with layouts, fonts, add slides, etc.
- Google slides presentation must be shared so “anyone with the link” can view your presentation.



**indi-S2** Videos for the *Mission Objective* may be embedded into the Google Slide Presentation, but also must be uploaded in the submission form.

- If you choose to embed videos, make sure the sharing permissions are changed to “anyone with the link”.

**indi-S3** Each submission must be uploaded using the Google Form that will be sent to all the coaches once the submission window is open.

**indi-S4** Submissions will be scored based on the Scoring Rubric out of 300 points.







## Advancement Criteria

All **Event** submissions will be evaluated by the Sphero Global Challenge judges based on the maximum score listed in the **Evaluation Rubric**. The top-performing teams in each age **Division** and **Event** will be identified as **Finalists** and have the opportunity to compete in the Sphero World Championship in spring 2023.

- The top 10% (or more as space permits) of teams for each **Event Score** are selected as **Finalists**.
- The highest scoring **Team** from each country will be selected as a **Finalist**.

**Finalists** in the **BOLT: Animal Behavior** and **littleBits Invent 4 Good: Animal Kingdom Events** will be invited to participate in the Sphero World Championship. Participation in the Sphero World Championship is not mandatory and is a privilege for students to participate. If an invited **Team** is invited and unable to attend, their title of **Finalist** will not be taken away, they just won't have the opportunity to compete for the Sphero World Championship awards.

**Finalists** in the **indi: To the Zoo Event** will not be a part of the Sphero World Championship (SWC) in spring 2023. Instead, the **Finalists** will be honored in blog and social media posts.



# Sphero Global Challenge Season 3 Glossary

<b>Student</b>	Anyone born after May 1, 2004.
<b>Early Elementary School Student</b>	Any Student born after May 1, 2014, meaning they will be 8 or younger when the Sphero World Championship is held.
<b>Upper Elementary School Student</b>	Any Student born after May 1, 2011, meaning they will be 11 or younger when the Sphero World Championship is held.
<b>Middle School Student</b>	Any Student born after May 1, 2008.
<b>Early Elementary School Division</b>	Teams competing in this division must consist of only Early Elementary School Students and at least one coach.
<b>Upper Elementary School Division</b>	Teams competing in this division must consist of only Elementary School Students and at least one Coach.
<b>Middle School Division</b>	Teams competing in this division may consist of Elementary School Students, Middle School Students, or both, and at least one Coach.
<b>Coach</b>	An adult in a supervisory role for the students that will handle the registration, submission, and management of Team meetings. Teams may have more than one Coach.
<b>Event</b>	Sphero Global Challenge comprises three unique Events: <ul style="list-style-type: none"><li>• Sphero indi: To The Zoo</li><li>• littleBits Invent for Good: Animal Kingdom</li><li>• BOLT: Animal Behavior</li></ul>
<b>Mission Objectives</b>	Each Event is broken up into <i>Mission Objectives</i> that Teams will be evaluated on based on the Event rubrics.
<b>Evaluation Rubric</b>	Rubrics are the official evaluation criteria provided for each Event and <i>Mission Objective</i> so that Teams can accurately predict their performance and know how they are being evaluated.



**Competition Field**

For BOLT Animal Behavior, it is recommended to use any Sphero Code Mat as a **Competition Field**. The side marked with A-T and 1-10 on the axes is the recommended side to use. If you do not have a Sphero Code Mat, or wish to decorate your mat to match this year’s challenge you can download and print a **Competition Field [HERE](#)**, along with the instructions [HERE](#).

Indi: To the Zoo & littleBits Invent for Good: Super Suit Mission Events do not have a specific **Competition Field**.

**Obstacles**

Defined as any object placed in the **Competition Field** as part of the setup for a **Mission Objective** and not to be interacted with by the robot or invented elements as outlined in **Mission Objectives**.

**Boundary Lines**

The area outside of the **Competition Field** dimensions of each Event as defined in the challenge guide section of the Coaching guide and the rules section of this document.

**Competition Rules**

Detailed rules specific for each Event. Competition Rules are contained within this SGC Rules document.

**Event Score**

Team’s score for an individual Event.

**Finalist**

Team invited to participate in Sphero World Championship based on individual Event score.