



MISSION **MANUAL**

26-27 BOLT Missions: Smart City



 A note about this Mission Manual

This Mission Manual receives ongoing updates (major and minor). Each published version is official and mandatory for all Sphero Robotics Competition Events. New versions immediately supersede the preceding ones.

For any questions related to this Mission Manual, please email support@teamalliance.org.

Version History:

Version 1.0 - May 11, 2026 - initial release

Version 2.0 - July 15, 2026- Major Update

- Added 26-27 Smart City Season Logo
- Changed page numbering to match PDF numbering
- Added hyperlinks to TEAM Alliance Student-Powered Policy and Code of Conduct
- Added clarification to BOLT-MF1 related to In-Person Mission Field
- Changed Mission 3 to Championship Mission
- Changed Mission 4 to Mission 3
- Championship event timing
- Clarified rules M2-4 and M2-7
- Rename Remote Submissions with Online Submissions
- Added Awards section
- Score minimums
- Added that Online Submission scores are not shared with a team or displayed publicly under Participation Guidelines
- Changed Creativity and attention to detail with Theme Story Points for BOLT-M1-9, BOLT-M2-9, BOLT-M3-10, and BOLT-MC-10
- Changed "Thoroughly understands code and strategy to "Implementation Points" for Live and Live Remote Events for BOLT-M1-10, BOLT-M2-10, BOLT-M3-11, and BOLT-MC-11

Version 2.1 - September 21, 2026 - Minor Update

- Updated SRM-CR1 - Expanded Student-Powered enforcement
- Updated SRM-CR3 - Expanded Code of Conduct requirements
- Updated BOLT-RHR2 - Added that Blueprint Engineering and 3D-printed versions of the listed Blueprint pieces are acceptable in competition.
- Implementation Scoring - Removed "Online Submission Only" documentation
- Theme Story Points - Clarified that Theme Story Points reward "unique, non-functional features" beyond mission requirements
- Swapped MC-2 and MC-3: trench construction is now MC-2, 70 points; robot starting positions are now MC-3, 10 points
- Corrected scoring total on Championship Mission Objective
- Fixed typos

Sphero Robotics Mission Common Rules

SRM-CR1	<u>Student-Powered™</u>: Mission solutions are designed, built, coded, and executed by students. If competition work was designed, built, or coded by an adult instead of the Students, the Team will first be given an opportunity to remove the adult contribution and make corrections using only Student work. If the Team can make the necessary corrections, they may continue participating in the Event. If the adult contribution cannot reasonably be removed or corrected, the Team will not be able to continue competing at that Event. The Head Evaluator makes the final on-site determination and may work with the Event Host or TEAM Alliance when needed.
SRM-CR2	<u>Single Participation</u>: A Student can only be on one Team per Program per Season.
SRM-CR3	<u>TEAM Alliance Code of Conduct</u>: Students, Team Coordinators, volunteers, and spectators are expected to treat others with kindness and respect and follow the TEAM Alliance Code of Conduct and any additional Event or venue policies. The Event Host is responsible for addressing conduct or behavior concerns. Serious or continued behavior that does not meet these expectations may result in a Student, adult, or Team being asked to leave the Event. TEAM Alliance may be contacted for assistance when needed.
SRM-CR4	<u>Iterative Excellence</u>: Celebrate learning from failure.
SRM-CR5	<u>Creative Autonomy</u>: Teams are encouraged to interpret the Mission Objectives through the lens of their own unique strategy. The Mission Manual provides the "What" (the objective) and the "Constraints" (the kit limits), but the "How" is entirely up to the Students. The rules in this Mission Manual are the only rules.
SRM-CR6	3D printing is allowed as long as it follows Student-Powered <SRM-CR1>
SRM-CR7	<u>Autonomous Solutions</u>: Once a robot's program has started, no Student interaction is permitted with the robot until the Mission is complete unless a specific rule in a Mission Manual allows it. An unpermitted Student interaction voids the results of that Mission.

Safety Rules

SRM-SR1	<u>Signed Waivers:</u> Any Student participating in the Sphero Robotics Missions must have a signed waiver.
SRM-SR2	<u>Adult Supervision:</u> A Team Coordinator must accompany a Team at all times.

In-Person Event Rules

SRM-IPE1	At all In-Person Events or Live Remote Events , Teams have timed rounds to attempt a Mission Objective as many times as desired. Teams must tell the Evaluator which attempt to record for their Individual Mission Score .
SRM-IPE2	If a Team has begun their code before the round time is called, the Team will be allowed to let their code finish.
SRM-IPE3	A Team may only challenge the results of an Individual Mission Score before they leave the Mission Field area.
SRM-IPE4	All rounds of Mission Objectives remain Student-Powered. Team Coordinators may not provide assistance to a Team during Mission Objectives .

BOLT Mission Rules:

BOLT-MR1	Teams in BOLT Missions are classified as U12 Student
BOLT-MR2	There are four (4) Mission Objectives in the BOLT Missions . Each Mission Objective is scored according to the respective points outlined in this document

Robot and Hardware Rules

BOLT-RHR1

Teams may use either BOLT or BOLT+ robots for the **BOLT Missions**. The choice of robot may impact a **Team's** score based on a robot's capabilities. For the rest of this document, BOLT is a reference to either robot.

BOLT-RHR2

Teams must build the functional portions of all **Field Objects** and **Field Elements** as specified in the **Mission Objectives** using parts from the Blueprint Snap Sphero Robotics Missions Kit. A missing kit part may be replaced with a functionally equivalent 3D-printed part.

Additional Blueprint Snap pieces, craft materials, 3D printed parts, and decorative items may be used only for non-functional purposes. They may not support, strengthen, position, move, guide, trigger, or otherwise affect a **Field Object**, **Field Element**, **Robot** to contribute to a scoring action.

Teams must verbally confirm compliance during inspection. At an **Evaluator's** request, a **Team** must demonstrate that an additional item is non-functional or remove it before completing the associated **Mission Objective**. If an element's purpose is unclear, Evaluators should give the **Team** the benefit of the doubt.

A Note About Creativity: Make your **Mission Field** your own! **Teams** are encouraged to personalize their **Mission Field** with creative, non-functional elements that bring their theme and story to life and help your **Team** earn Theme Story points. Have fun and let your creativity shine!

Blueprint Snap Sphero Robotics Missions Kit Contents:

- (8) 2x Pitch Truss
- (12) 3x Pitch Truss
- (12) 4x Pitch Truss
- (8) 5x Pitch Truss
- (6) 10x Pitch Truss
- (4) Linear Motion Bracket
- (2) 100 mm Tire
- (2) 90 mm Pulley
- (2) 45 mm Pulley
- (2) Spool
- (40) Connector
- (20) Cardboard Clamp
- (4) Turntable
- (2) Hinge
- (4) Lock Plate
- (4) Bearing Plate

	(4) 1x4 Plate (1) Ring Tool (2) 2x Pitch Capped Shaft (2) 3x Pitch Capped Shaft (2) 4x Pitch Capped Shaft (8) 0.5x Pitch Shaft Collar (2) 1m Rope (2) Rope Anchor
BOLT-RHR3	BOLT and Snap parts must be able to pass Inspection at Events .
BOLT-RHR4	A Team must have two (2) BOLTs to fully complete the Mission Objectives .

Mission Field Rules

BOLT-MFR1	The Mission Field is 1.00 m x 2.00 m divided into 10 cm x 10 cm grid squares. Grids are labeled A-T on the X axis, and 1-10 on the Y axis. In-Person Events must use the Sphero BOLT+ Code Mat as the Mission Field for the BOLT Missions. Event Hosts will supply the Mission Fields at In-Person Events. Live Remote Events and Online Submissions can use any BOLT Code Mat or a homemade Mission Field with the correct dimensions.
BOLT-MFR2	Except when specified in the Mission Manual for a specific Mission Objective, Blueprint Snap parts and other elements of decoration may be secured to the Mission Field using non-permanent adhesive (painter's or masking tape are recommended)

Mission Participation Guidelines

In-Person & Live Remote Events	In-Person Events provide an opportunity for Teams to work on their Mission Objectives at home, school, or in their extracurricular club and then showcase their completed Mission Objectives in an In-Person Event format. Teams will be given three (3) minutes to set up for their Mission Objective. Teams will be given five (5) minutes to attempt their best run of their prepared Mission Objective for an Evaluator. This Evaluator will award an Individual Mission Score
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	based on the Team's best attempt during the round and the Team's ability to thoroughly articulate an understanding of code and strategy with the Evaluator A Team's Total Score at a Qualifying Event can earn them Awards and qualification to a Championship Event.
Online Submission	Online Submission is where Teams work on their Mission Objectives at home, school, or in their extracurricular club and submit them to be evaluated virtually. Each Event submission will be scored by the Sphero Robotics Missions Evaluators based on the scoring rubric. Online Submissions are due in Spring 2027—Date to be announced in a future Mission Manual revision. For each Mission Objective, Teams must prepare the following deliverables for an Online Submission: • Submit the following evidence of completion in the Google Slide Submission template (sphero.cc/SRM-bolt-template). ○ VIDEO: Submit a publicly viewable video of the Mission Objective. The video must: i. be submitted in a .mp4, .mov, or .avi format ii. be captured from top down perspective iii. show both BOLTs for the entire Mission Objective iv. show the timer (if it's a timed Mission Objective) ○ CODE: Submit a screenshot or image of the programs for both BOLT 1 and BOLT 2. ○ DOCUMENTATION: Describe your Team's process and strategy. Online Submission Scores: Individual scores from Online Submission events are not shared with teams or displayed publicly. After all submissions have been reviewed, TEAM Alliance will announce the finalists from each region. These teams will receive an invitation to compete at the Championship Event.

Awards

In-Person & Live Remote Events

The following awards will be given at In-Person and Live Remote SRM Events:

	Mission Mastery Awards: Recognizes the three teams that achieved the highest scores on each individual Mission. These awards are not ranked, and all recipients are recognized equally. • Mission 1 Mastery Award - 3 Teams • Mission 2 Mastery Award - 3 Teams • Mission 3 Mastery Award (Championship Events only) - 3 Teams If a tie would result in more than three teams receiving a Mission Mastery Award, ties are broken using scores from that Mission in the following order: 1. Highest Implementation Points 2. Highest Theme Story Points 3. If a tie still remains, all tied teams will receive the Mission Mastery Award, even if there are more than three recipients. Overall Event Mission Awards: Recognizes the top three teams that have achieved the highest Total Scores at that event. • Overall Event Champion - Team with the highest Total Score • Overall Event 2nd Place Award - Team with the second highest Total Score • Overall Event 3rd Place Award - Team with the third highest Total Score If there is a tie for the Overall Event Mission Awards, then ties will be broken in the following order: 1. Highest Mission 3 Score (Championship Events only) 2. Highest Mission 2 Score 3. Highest Mission 1 Score 4. If there is still a tie, then the teams will have the same rank
Online Submissions	Championship Events The following awards will be given for Online Submission Championship Events: Overall Event Mission Awards: Recognizes the top three teams that have achieved the highest Championship Mission Scores at that event. • Overall Event Champion - Team with the highest Championship Mission Score • Overall Event 2nd Place Award - Team with the second highest Championship Mission Score • Overall Event 3rd Place Award - Team with the third highest Championship Mission Score

Championship Event Advancement Criteria

In-Person & Live Remote Events

Teams may receive an invitation to a **Championship Event** in one of the following ways:

	1. Earn a qualifying award at a Qualifying Event. 2. Receive an invitation from the Global Leaderboard if Championship Event spots remain available. 3. Receive an invitation from the Championship Event waitlist if Championship Event spots still remain available. Depending on Championship Event capacity and the number of Qualifying Events within a state or region, one or more of the following awards may qualify teams for a Championship Event: • Overall Event Champion Award* • Overall 2nd Place Award • Overall 3rd Place Award *The Overall Event Champion Award is guaranteed to qualify at In-Person Events when the Qualifying Event meets the minimum registered team requirement. Additional awards may qualify to a Championship Event at the discretion of TEAM Alliance. Live Remote Events that have teams from multiple Championship event regions may only upload results to the Global Leaderboard. Teams are ranked in the Global Leaderboard using their highest Total Score from a single Qualifying or Championship Event. Ties are broken using the following criteria, in order: 1. Highest Mission 4 score from the most recent event 2. Highest Mission 3 score from the most recent event 3. Highest Mission 2 score from the most recent event 4. Highest Mission 1 score from the most recent event 5. If there is still a tie, then the teams will have the same rank Global Leaderboard Deadline: Results must be uploaded to the Global Leaderboard by May 17, 2027, to be included in TEAM Alliance and Sphero's 2026–2027 Global Leaderboard recognition. Events held after this date may still upload results, but those scores will not be considered for global recognition. Championship Events must be posted by May 15th, 2027.
Online Submissions	Qualifying Online Submission Events The top 20 Teams from each region will be Online Submission Finalists and advance to their region's Online Submission Championship Event. Ties are broken by: 1. Highest Mission 2 score 2. Highest Mission 1 score 3. If there is still a tie, then the teams will have the same rank

	Qualifying Online Submissions must be submitted in myTEAMevents.org by March 5, 2027. Online Submission Finalists will be notified on or before March 15, 2027 and must submit their additional Championship Online Submission by April 16th. Regions will be defined by TEAM Alliance for the 2026-2027 season and will be posted in an upcoming manual update.
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26-27 BOLT Mission Specific Terms

Turnstile	A Field Object required for Mission Objective #1 . A Turnstile begins the Mission Objective in the closed position, and a Team receives points when Turnstile is in the open position.
Tunnel	A Field Element required for Mission Objective #1
Small Building	A Field Element required for Mission Objective #2 that has a 5 pitch x 5 pitch footprint
Medium Building	A Field Element required for Mission Objective #2 that has a 10 pitch x 6 pitch footprint
Large Building	A Field Element required for Mission Objective #2 that has a 10 pitch x 10 pitch footprint
Blueprint Interaction	A Field Object for Mission Objective #3 where Blueprint Snap mechanical pieces are placed at the dead end of the Trench for BOLT to cause motion (push, pull, spin, knock over, etc.)
Trench	A Field Element required for Mission Objective #3 - A Trench must conform to constraints outlined in BOLT-M3-3
Autonomous Cargo Vehicle	A Field Object required for Mission Objective #4
Freight Sled	A Field Object required for Mission Objective #4
Garage	A Field Element required for Mission Objective #4

Mission Objective 1: Underground Synchronization

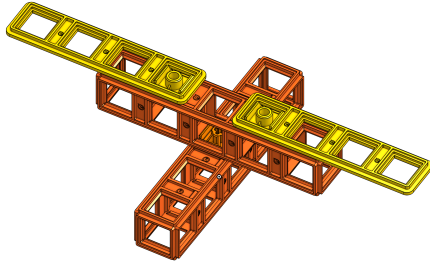
Overview: Beneath the bustling streets of a Smart City lies a complex network of utility tunnels and transit arteries. To keep the city running, autonomous maintenance bots must navigate these narrow passages to inspect infrastructure. In this mission, **Teams** must coordinate two BOLT robots as they swap shifts in the city's underground tunnel system.

The challenge is twofold: the robots must first clear the entrance by operating a mechanical **Turnstile**, and then they must take turns navigating a narrow **Tunnel** without making contact. Precision and speed are vital to ensure the underground remains clear for the next shift.

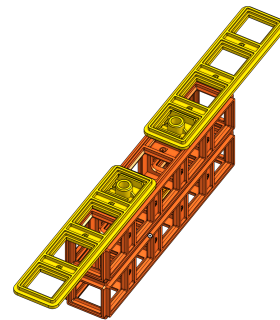
Mission Objective 1 Set Up:

1. Build two **Turnstiles** and place them at the intersection of E1-2 & F1-2 and O9-10 & P9-10 in the "closed" position" (pictured).

"Closed":



"Open":



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Mission Objective 1 Rules and Scoring:

Rule ID	Objective	Possible Points
BOLT-M1-1	Mission Field is set up correctly to the diagram.	10
BOLT-M1-2	BOLT 1 and BOLT 2 begin in the Starting Area . (5 points per robot)	10
BOLT-M1-3	Execution of the programs for BOLT 1 and BOLT 2 begin at the same time.	10
BOLT-M1-4	This is a timed Mission Objective . Teams place a timer, stopwatch, or phone timer on the Mission Field .	10
BOLT-M1-5	BOLT 1 and BOLT 2 roll to a Turnstile and move it to the open position. (10 points per turnstile)	20
BOLT-M1-6	BOLT 1 and BOLT 2 roll through the Tunnel at different times in opposite directions. (20 points per robot)	40
BOLT-M1-7	Teams stop the timer once BOLT 1 and BOLT 2 reach the Ending Area . The Ending Area for each BOLT is to finish in the opposite BOLT's Starting Area . For example, BOLT 1 finishes in BOLT 2's Starting Area . (> 30 sec = 20 points, 15 - 30 sec = 40 points, < 15 sec = 60 points)	60
BOLT-M1-8	Teams receive a Foul if BOLT 1 or BOLT 2 come in contact with each other, if BOLT 1 or BOLT 2 touch the Tunnel , or if they leave the Mission Field . (-5 points each Foul)	
BOLT-M1-9	"Theme Story Points": Teams implement unique, non-functional features beyond the Mission requirements that enhance the theme. Field Design Features (custom structures, Blueprint Engineering parts, improved zone designations, or other custom design elements) • None = 0 pts • 1-3 = 5 pts • 4-5 = 7 pts • 6+ = 10 pts Robot Design Features (digital audio, and physical changes to the base robot) • None = 0 pts • 1-3 = 5 pts • 4+ = 10 pts	20
BOLT-M1-10	Mission Strategy Features (planning, testing, iteration, trade-offs, time-management, robot positioning, or other strategies to optimize performance) • None = 0 pts • 1-3 = 5 pts	20

- 4-5 = 7 pts
- 6+ = 10 pts

Coding Features (strategic code organization, comments, programming logic (IF/ELSE, loops, variables), custom functions, use of sensors, audio, and displays)

- None = 0 pts
- 1-3 = 5 pts
- 4-5 = 7 pts
- 6+ = 10 pts

Max Points: 200

Mission Objective 2: The Morning Rush

Overview: In a thriving Smart City, efficiency is key. As the city grows, the demand for reliable public transportation increases. In this **Mission Objective**, **Teams** will act as transit dispatchers. Your goal is to code two BOLT robots to navigate the city grid, servicing various residential and commercial hubs (**Small**, **Medium**, and **Large buildings**) to collect as many passengers as possible.

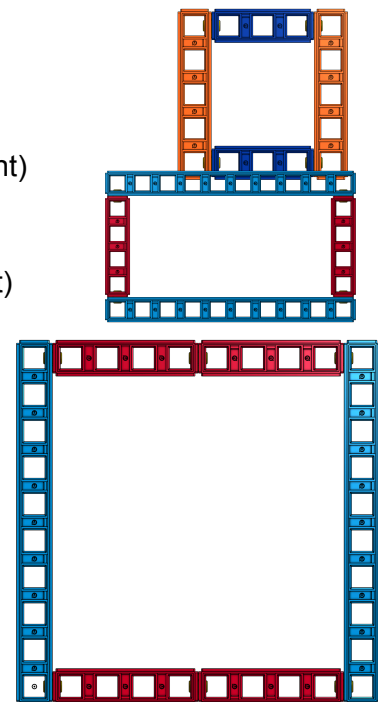
Success depends on high-speed precision and time management. Can your transit system clear the morning rush before the 45-second clock runs out?

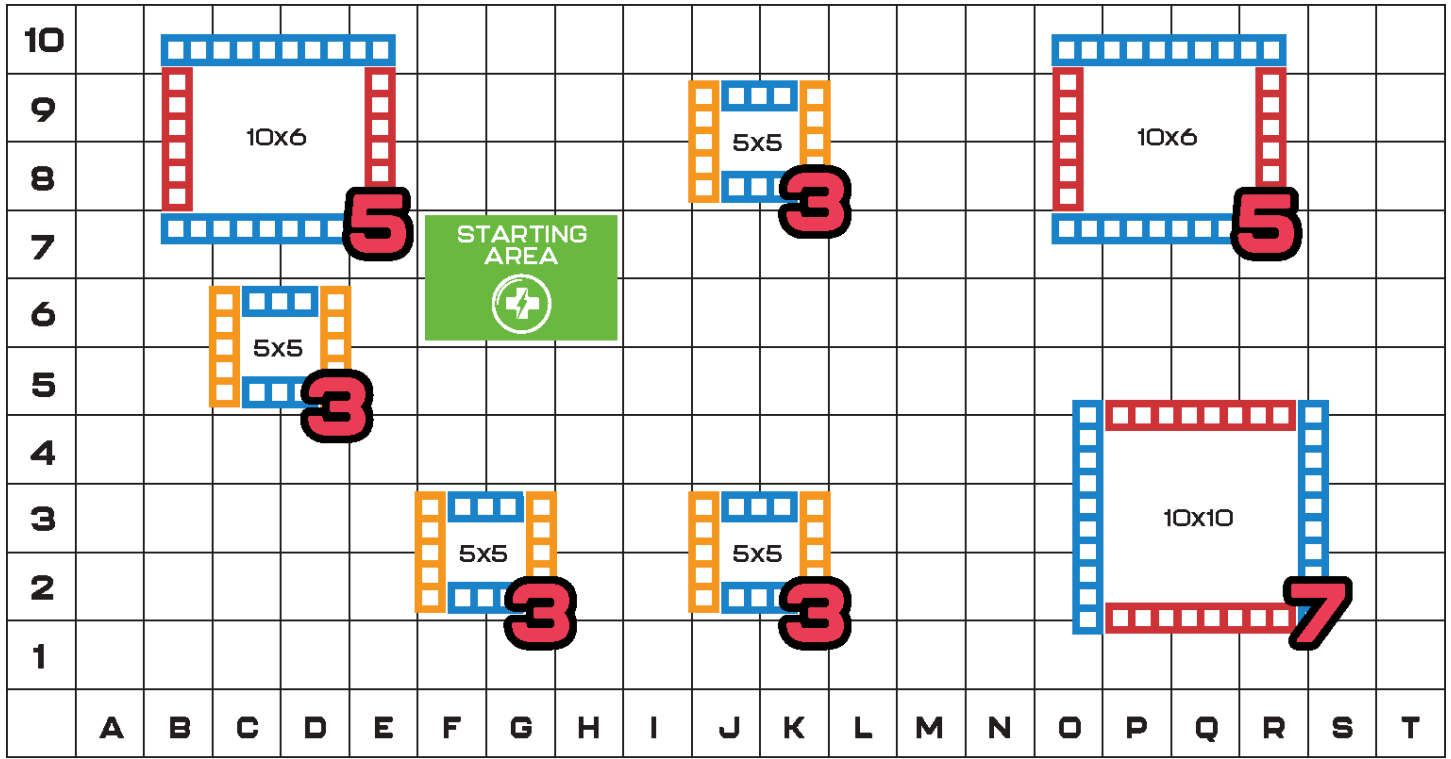
Mission Objective 2 Set Up:

1) Construct the building footprints and place them centered in the designated grid squares:

- **Small Building** = 3 passengers (5 pitch x 5 pitch footprint)
 - i) C5-C6, D5-D6
 - ii) F2-F3, G2-G3
 - iii) J2-J3, K2-K3
 - iv) J8-J9, K8-K9
- **Medium Building** = 5 passengers (10 pitch x 6 pitch footprint)
 - i) C8-C9, D8-D9, E8-E9
 - ii) P8-P9, Q8-Q9, R8-R9
- **Large Building** = 7 passengers (10 pitch x 10 pitch footprint)
 - i) P2-P4, Q2-Q4, R2-R4

- 2) Center the **Buildings** as much as possible in the center of the designated grid squares. The **Buildings** may be attached to the **Mission Field** with tape or other materials.
- 3) Designate the **Starting Area** in grid squares F6-F7, G6-G7, and H6-H7.





Mission Objective 2 Rules and Scoring:

Rule ID	Objective	Possible Points
BOLT-M2-1	Mission Field is set up correctly to the diagram.	10
BOLT-M2-2	BOLT 1 and BOLT 2 begin in the Starting Area . (5 points each robot)	10
BOLT-M2-3	This is a timed Mission Objective . Teams place a timer, stopwatch, or phone timer on the Mission Field . Teams start the timer, then start the BOLT 1 and BOLT 2 programs at the same time.	10
BOLT-M2-4	BOLT 1 and BOLT 2 roll to Buildings , stop in front of a Building , and then drive around the perimeter. (10 points each robot)	20
BOLT-M2-5	BOLT 1 and BOLT 2 show an image or animation on the screen at each Building during the passenger pickup.	10
BOLT-M2-6	After collecting passengers at buildings, BOLT 1 and BOLT 2 return to the Starting Area before 45 seconds have elapsed.	20
BOLT-M2-7	Total number of passengers picked up. (5 points per passenger; Max points available is 145 points)	145
For Teams to receive points for passengers “picked up”: • BOLT comes to a stop at any grid square adjacent to the Building. • BOLT travels around the Building returning to the original grid square. • BOLT comes to a complete stop. • BOLT has to return to the Starting Area before 45 seconds has elapsed. • Once passengers have been picked up at a Building, no more passengers may be picked up from the same Building by either BOLT. A “Stop” is defined as the robot coming to a complete stop before proceeding to the next command. If a BOLT moves before the full pause is complete, the passengers for that Building are not counted.		
BOLT-M2-8	Teams receive a Foul if BOLT 1 or BOLT 2 touch an Obstacle or if they leave the Mission Field . (-5 points each Foul)	
BOLT-M2-9	“Theme Story Points”: Teams implement unique, non-functional features beyond the Mission requirements that enhance the theme. Field Design Features (custom structures, Blueprint Engineering parts, improved zone designations, or other custom design	20

elements)

- None = 0 pts
- 1-3 = 5 pts
- 4-5 = 7 pts
- 6+ = 10 pts

Robot Design Features (digital audio, and physical changes to the base robot)

- None = 0 pts
- 1-3 = 5 pts
- 4+ = 10 pts

BOLT-M2-10 **Mission Strategy Features** (planning, testing, iteration, trade-offs, time-management, robot positioning, or other strategies to optimize performance) 20

- None = 0 pts
- 1-3 = 5 pts
- 4-5 = 7 pts
- 6+ = 10 pts

Coding Features (strategic code organization, comments, programming logic (IF/ELSE, loops, variables), custom functions, use of sensors, audio, and displays)

- None = 0 pts
- 1-3 = 5 pts
- 4-5 = 7 pts
- 6+ = 10 pts

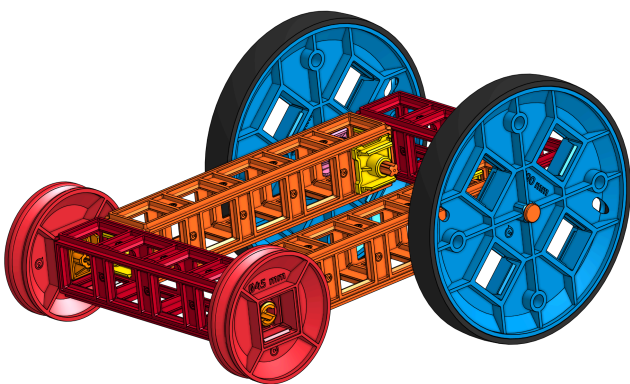
Max Points: 200

Mission Objective 3: Cargo Coordination

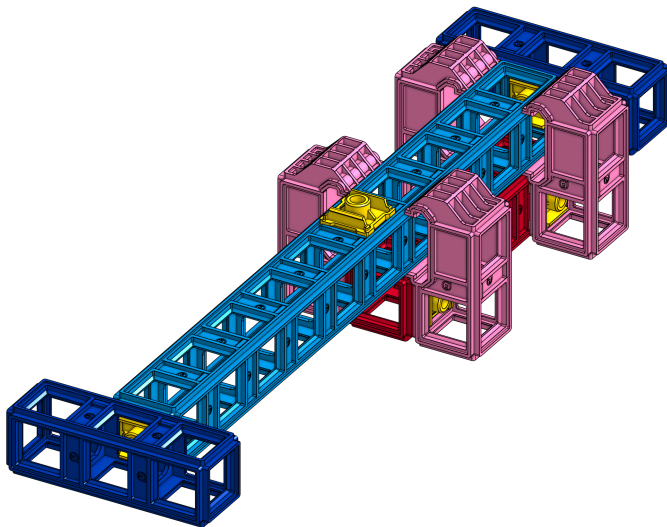
Overview: As the Smart City grows, the demand for efficient, contactless goods-handling increases. The city's central logistics hub is the heart of this operation, where automated systems manage the flow of heavy cargo and high-priority autonomous deliveries. In this **Mission Objective**, **Teams** must coordinate two BOLT robots to perform precision heavy-lifting and autonomous delivery tasks to keep the city's supply chain moving.

Mission Objective 3 Set Up:

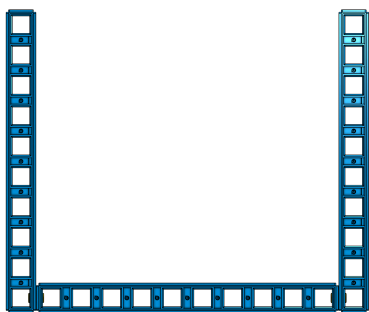
- 1) Use a Code Mat as the **Mission Field**. You can also create your own **Mission Field** using another method for **Live Remote Events** or **Online Submissions**.
- 2) Establish the **Starting Area** in S6-S7 and T6-T7.
- 3) Engineer the **Autonomous Cargo Vehicle** and place anywhere on the **Mission Field** before Zone 1

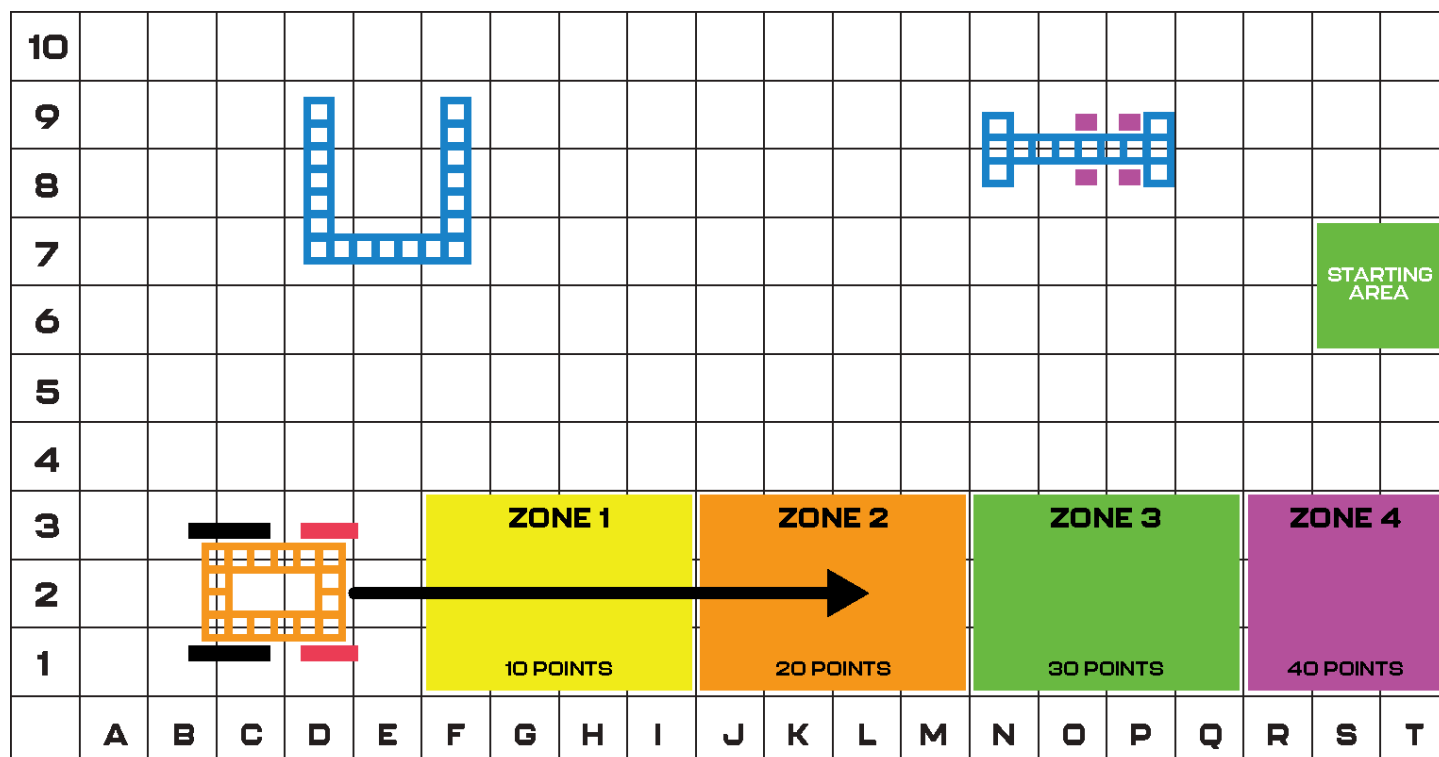


- 4) Engineer the **Freight Sled** and place on the **Mission Field** so the edge of the **Freight Sled** is split between row 8 and 9. The right edge of the **Freight Sled** is in Column P, but not Column Q.



- 5) Engineer a **Garage**. **Garage** must be placed in grids D7-D9, E7-E9, and F7-F9





Mission Objective 3 Rules and Scoring:

Rule ID	Objective	Possible Points
BOLT-M3-1	Mission Field is set up correctly to the diagram. The Autonomous Cargo Vehicle , Freight Sled , and Garage are built and placed according to specs.	10
BOLT-M3-2	BOLT 1 and BOLT 2 begin in the Starting Area . (5 points each robot)	10
BOLT-M3-3	BOLT1 and BOLT 2 begin the program at the same time.	10
BOLT-M3-4	BOLT 1 travels to the Freight Sled and pushes it into column Q so the yellow Snap Connector passes the Linear Motion Brackets .	40
BOLT-M3-5	BOLT 1 codes an animation, image, or text sequence on the LED matrix or screen to indicate the task has been completed.	10
BOLT-M3-6	BOLT 2 travels to the Autonomous Cargo Vehicle and pushes the Autonomous Cargo Vehicle forward.	20
BOLT-M3-7	The Autonomous Cargo Vehicle stops fully contained in: Zone 1 Columns F-I = 10 points Zone 2 Columns J-M = 20 points Zone 3 Columns N-Q = 30 points Zone 4 Columns R-T = 40 points If the Autonomous Cargo Vehicle is in two zones, it gets credit for the lower point zone.	40
BOLT-M3-8	BOLT 1 must end in the Garage. <i>*BOLT 2 ends in Garage = 10 bonus points</i>	20
BOLT-M3-9	Teams receive a Foul if BOLT 1 or BOLT 2 leave the Mission Field . (-5 points each Foul)	
BOLT-M3-10	“Theme Story Points”: Teams implement unique, non-functional features beyond the Mission requirements that enhance the theme. Field Design Features (custom structures, Blueprint Engineering parts, improved zone designations, or other custom design elements) • None = 0 pts • 1-3 = 5 pts • 4-5 = 7 pts • 6+ = 10 pts	20

Robot Design Features (digital audio, and physical changes to the base robot)

- None = 0 pts
- 1-3 = 5 pts
- 4+ = 10 pts

BOLT-M3-11 **Mission Strategy Features** (planning, testing, iteration, trade-offs, time-management, robot positioning, or other strategies to optimize performance) 20

- None = 0 pts
- 1-3 = 5 pts
- 4-5 = 7 pts
- 6+ = 10 pts

Coding Features (strategic code organization, comments, programming logic (IF/ELSE, loops, variables), custom functions, use of sensors, audio, and displays)

- None = 0 pts
- 1-3 = 5 pts
- 4-5 = 7 pts
- 6+ = 10 pts

Max Points: 200*

*Max Points with Bonus 210

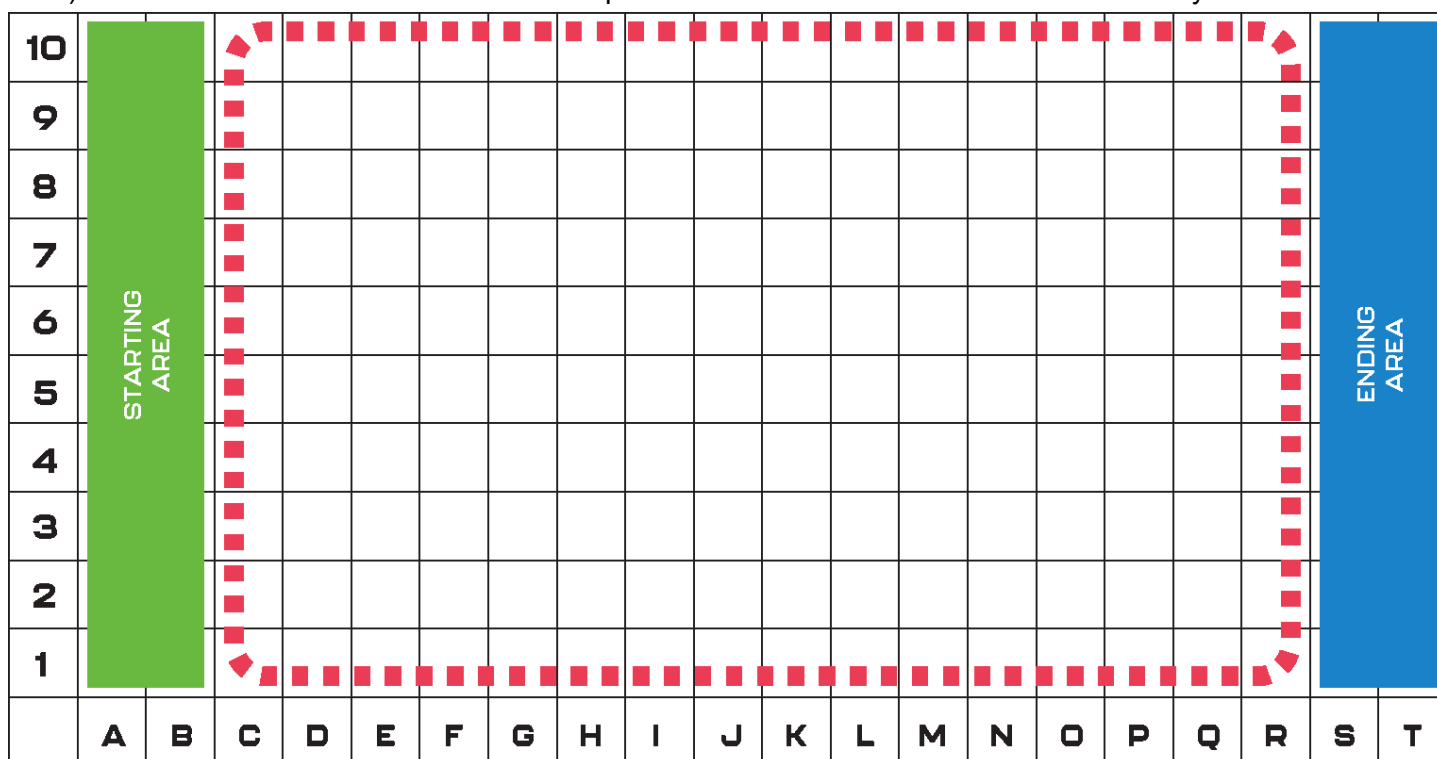
Mission Objective #4-Championship Mission: City Underground - Trench Inspection

Overview: Deep beneath the Smart City, a complex system of maintenance ducts houses the electrical and water conduits that keep the city running. These trenches are narrow, winding, and hazardous. In this **Mission Objective**, **Teams** must coordinate a high-stakes inspection.

BOLT 2 is a surface operator responsible for managing the high-security entrance and exit hatches of the duct. BOLT 1 is the trench investigator and must navigate the tight, multi-angled trench, locate a specific mechanical fault at a dead end, and successfully interact with the infrastructure to "reset" the system. Success requires a perfect blend of mechanical timing and precision movement to avoid damaging the sensitive trench walls.

Mission Objective 4 Set Up:

- 1) Use a Code Mat as the **Mission Field**. You can also create your own **Mission Field** using another method for **Live Remote Events** or **Online Submissions**..
- 2) Establish the **Starting Area** in columns A and B
- 3) Establish the **Ending Area** in Columns S and T
- 4) The remainder of the Mission Field is open to use for the **Team** to create a **Trench** system.



Championship Mission Objective Rules and Scoring:

Rule ID	Objective	Possible Points
BOLT-MC-1	Mission Field is set up correctly to the diagram.	10
BOLT-MC-2	Teams engineer a Trench with the following constraints: • Trench must have an entrance door and exit door built using Blueprint Snap and craft materials - door must be able to be opened and closed. (10 points) • Trench can be no wider than 20 cm—8x Blueprint Snap Pitch—wide at any point. (10 points) • Must have a dead end with a Blueprint Interaction. (10 points) • Must include 3 turn angles: ○ One 45° turn (10 points) ○ One 90° turn (10 points) ○ One Team chosen angle (10 points) • Trench walls are at least 5 pitches high. (10 points) Trench walls must use Blueprint Snap parts as the base, but other craft materials may be used to meet the height requirement. Blueprint Snap pieces do not have to be connected and craft materials can be used to span gaps between Blueprint Snap trusses	70
BOLT-MC-3	BOLT 1 and BOLT 2 begin in the Starting Area . (5 points each robot)	10
BOLT-MC-4	BOLT 2 opens the entrance to the Trench . (20 points)	20
	** Bonus Points: BOLT 2 closes the entrance after BOLT 1 enters the Trench . (10 points)	*10
BOLT-MC-5	BOLT 1 enters the Trench door and navigates through the Trench .	20
BOLT-MC-6	BOLT 1 navigates to a dead end in the Trench and interacts in some way with a Blueprint Interaction (knock down, rotate, etc.).	20
BOLT-MC-7	BOLT 2 opens the exit door to the Trench . (20 points)	20
	**Bonus Points: BOLT 2 closes the entrance after BOLT 1 exits the Trench . (10 points)	
BOLT-MC-8	BOLT 1 and BOLT 2 end the program in the Ending Area . (5 points per robot)	10
BOLT-MC-9	Teams receive a Foul if BOLT 1 or BOLT 2 leave the Mission Field . (-5 points each Foul)	

BOLT-MC-10	“Theme Story Points”: <i>Teams</i> implement unique, non-functional features beyond the Mission requirements that enhance the theme. Field Design Features (custom structures, Blueprint Engineering parts, improved zone designations, or other custom design elements) • None = 0 pts • 1-3 = 5 pts • 4-5 = 7 pts • 6+ = 10 pts Robot Design Features (digital audio, and physical changes to the base robot) • None = 0 pts • 1-3 = 5 pts • 4+ = 10 pts	20
BOLT-MC-11	Mission Strategy Features (planning, testing, iteration, trade-offs, time-management, robot positioning, or other strategies to optimize performance) • None = 0 pts • 1-3 = 5 pts • 4-5 = 7 pts • 6+ = 10 pts Coding Features (strategic code organization, comments, programming logic (IF/ELSE, loops, variables), custom functions, use of sensors, audio, and displays) • None = 0 pts • 1-3 = 5 pts • 4-5 = 7 pts • 6+ = 10 pts	20

Max Points: 220*

*Max Points with Bonus 240

Glossary:

Program	Sphero Robotics Missions comprises three unique Programs : • indi Missions • BOLT Missions • RVR Missions
Student	Anyone born after May 1, 2007
Team	A group of Students
U9 Student	Any Student born on or after Sept 1, 2017 meaning they will be 8 or younger on Aug 31, 2026
U12 Student	Any Student born on or after Sept 1, 2014 meaning they will be 11 or younger on Aug 31, 2026
U15 Student	Any Student born on or after Sept 1, 2011 meaning they will be 14 or younger on Aug 31, 2026
indi Missions	Teams competing in this Program must consist of only U9 Students and at least one Team Coordinator
BOLT Missions	Teams competing in this Program must consist of only U12 Students and at least one Team Coordinator
RVR Missions	Teams competing in this Program may consist of only U15 Students , and at least one Team Coordinator
Team Coordinator	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 Team Coordinator .
Mission Objectives	Each Program is broken up into Mission Objectives that Teams will be evaluated on based on guidelines in this document
Mission Field	A defined space for each Program . Reference individual Mission Manual for specific Mission Field guidelines

Individual Mission Score	A Team's score for an individual Mission Objective recorded by an Evaluator
Total Score	The total combined score of all Individual Mission Scores for a Team
Starting Area	The area of the Mission Field where robots begin a Mission Objective
Ending Area	When required, the area of the Mission Field where robots finish their program
Manual Drive Mode	A driver controlled portion of a Mission Objective instead of programmed commands
Foul	Points deducted in some Mission Objectives if a team commits a Foul as outlined in the Mission Manual . Unless stated otherwise, there is no limit on the number of Fouls a Team can receive in a Mission Objective . The Team's Mission Total Score cannot go below 0 points due to Fouls .
Obstacles	Defined as any object placed in the Mission Field as part of the setup for a Mission Objective that should be avoided as outlined in the Mission Manual . If a robot drives into an Obstacle , they will receive a Foul .
Field Element	An element added to the Mission Field as specified in the Season rules
Field Object	A scored object added to the Mission Field as specified in the Season rules
Season	The approved timeline for participation in the Sphero Robotics Missions . A standard Season runs from June 2026 through May 2027.
Event Host	Approved adult coordinator and primary contact to organize, plan, and implement successful Sphero Robotics Mission Events with the help of TEAM Alliance
Evaluator	A volunteer responsible for evaluating a Team's mission attempts during an Event
Online Submission	Teams submit pre-recorded Mission Objectives to an Event Host for evaluation. This is an option for Online Submission Season registrations.
In-Person Event	Events that are included as an option with in-person Season registrations. These events allow a Team to run Mission Objectives at a location with other Teams and an in-person Evaluator .
Prequalifying Event	An early Season In-Person Event that doesn't qualify for a Championship Event (or any other Event). An in-person Team registration does not include entry into a Prequalifying Event .
Qualifying Event	A Season In-Person Event that qualifies a Team for Championship Events . An in-person Team registration includes entry into one Qualifying Event .
Live Remote Event	Events that are included as an option with in-person Season registrations. These

	events allow a Team to run Mission Objectives remotely with other Teams and a remote Evaluator .
Championship Event	A state, regional, or national event that serves as the culminating competition for Teams that qualify through designated Qualifying Events . In the U.S., Championship Events are typically state-level, but may include multiple Championship Events within a single state or combining multiple states into a regional Championship Event . Internationally, regional or national Championship Events are used where geographic considerations apply.