CodesSnaps - Psyched for STEAM Short Course Outline

**Schedule**

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| **Time** | **Activity** | **Type** | **Leader(s)** |
| 12:35 – 12:50 | Introduction | Talk | Tim |
| 12:50 – 1:20 | Getting to know SPRK+  | Team Activity | Team Mentors |
| 1:20 – 1:50  | Extend Your Knowledge | Team Activity | Team Mentors |
| 1:50 – 2:00 | Break & City Setup |  |  |
| 2:00 – 2:50 | City Challenge | Team Activity | Team Mentors |
| 2:50 – 3:00 | Wrap-Up | Group Discussion | Tim |

**Details**

**Part 1. Introduction**

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| **Content** | **Logistics** |
| * Introduction
* Purpose
* Introduce Mentors
* Sphero SPRK+ Overview
* How it works
* Accuracy (First team activity will demo this)
* CodeSnaps Overview
* Commands used for coding
* Look through Command Box, point out:
* Left/Right Turn has two types
* Repeat has End Repeat
* Set Color To & Spin
* Places for numbers (numbers on team table)
* Activity Overview
1. Getting to know Sphero SPRK+ – basic movements
2. Extending your knowledge – obstacle course
3. City Challenge – use what you’ve learned to navigate a city
* Mentors Role
* Explain objective
* Answer questions
* Scan Code
* Orient SPRK+
* Narrate SPRK+ movements on course
 | * All gather around the big table
	+ Pull up chairs
	+ Teams stay together
* Materials/Equipment
	+ Sphero for each team (3)
	+ CodeSnaps Command box (3)
 |

**Part 2. Getting to know SPHERO SPRK+**

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| **Content** | **Logistics** |
| * CodeSnaps Review
* Mentor:
* addresses any question from intro
* demo attaching numbers
* First activity - Test accuracy by running 1 meter
1. Mentor: explains objective
2. Discussion: Lessons learned
* Mentor explains that later activities will be affected by the SPRK+’s accuracy factor. You will probably need to allow for this when determining how far to go before turning a corner.
* Second activity - Make 1-meter square
1. Mentor: explains objective
* Make SPRK+ travel in a 1-meter square
1. Discussion: Lessons learned

**TIME CHECK – What time is it? Is there time to run the Bonus Activity and be done by 1:20 (+- 5 minutes). If not, do not run the Bonus Activity.*** Bonus activity (time allows) - Loop to make 1-meter square
1. Mentor: explains objective
* Shorten the code to make SPRK+ travel in a 1-meter square
* Let students explore command box and see what could work
1. Discussion: Lessons learned
 | * Each team gathers in their team spot to start
* Materials/Equipment
	+ SPRK+
	+ CodeSnaps Box
	+ 1-meter stick

**For each activity:**NOTE: No special setup is needed. The teams sharing the big table will each work on one side of the center dividing noodle. 1. Mentor: explains objective
2. Students: write code
3. Mentor:
	* Scans and reads back code – students check code
	* Gets SPRK+ from charging station
	* Orients SPRK+
	* Runs code
	* Narrates SPRK+ movements
4. Students: Assess results
	* If changes to the code are needed, start back at Step 2
5. Mentor: Put SPRK+ back in charging station
 |

**MENTORS: Prior to starting Part 3, lay out Obstacle Course using** [**Diagram 3.1**](#g45m701mphw) **on the SPRK+ table.**

**Part 3. Extend Your Knowledge**

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| **Content** | **Logistics** |
| * First activity – Run an Obstacle course with 1 obstacle
1. Mentor: explains objective
* There is an obstacle course on the table.
* SPRK+ is sitting at the Start position, facing forward.
* The finish position is marked with four small metal cups with bells inside.
* There is one obstacle on the course that you must go around.
* You have a meter stick and CodeSnaps box.
* Your objective is to move SPRK+ around the obstacle and get to the finish line.
1. Discussion: Lessons learned

**TIME CHECK – What time is it? Is there time to run the Second Activity and be done by 1:50? If not, do not run the Second Activity. If there is a little time, consider changing the Finish position on the first course and having the students run that.****xx****MENTORS – Change the Course to match Diagram 3.2, either** [**3.2 Option 1**](#i2th71c21whp) **or** [**3.2 Option 2**](#ah7wphi6vx1t)**xx*** Second activity - Run another obstacle course.
1. Mentor: explains objective
* There is an obstacle course on the table.
* SPRK+ is sitting at the Start position.
* The finish position is marked with four small metal cups with bells inside.
* There are one/two obstacles on the course.
* You have a meter stick and CodeSnaps box.
* Your objective is to move SPRK+ around the obstacles and get to the finish line.
1. Discussion: Lessons learned

**TIME CHECK – What time is it? Is there time to run the Bonus Activity and be done by 1:50? If not, do not run the Bonus Activity.****xx****MENTORS – Switch the Start and Finish positions of the 3.2 course** **xx*** Bonus activity - Run an Obstacle course with 2 obstacles
1. Mentor: explains objective
* The obstacles are still in the same places but the Start and Finish have been moved.
1. Discussion: Lessons learned
 | * Each team gathers at their SPRK+ table **and stands at the front edge.**
* Materials/Equipment
	+ SPRK+
	+ CodeSnaps Box
	+ 1-meter stick

**For each activity:**NOTE: **Special setup is needed.** See diagrams 3.1 and 3.2 1. Mentor: explains objective
2. Students: write code
3. Mentor:
	* Scans and reads back code – students check code
	* Gets SPRK+ from charging station
	* Orients SPRK+
	* Runs code
	* Narrates SPRK+ movements
4. Students: Assess results
	* If changes to the code are needed, start back at Step 2
5. Mentor: Put SPRK+ back in charging station
 |

**VERY IMPORTANT: Return SPRK+ to a charging station before going on break.**

**During the break, the two tables will be set up with a City layout. Each team will also get a Graphics Board which has a scale layout of the City they will use. Two teams will share the large city. One team will use the small city.**

**Part 4. City Challenge**

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| **Content** | **Logistics** |
| * Preparation – Understand the scale layout
* Mentor: explains layout
* Legend/Buildings
* “No driving zones” marked by bells in city
* Scale
* Students: familiarize themselves with layout
* Determine distance between two buildings

When students are ready, proceed to the first scenario.**xx*** Activities
* Run through as many scenarios as time permits.
* If students finish all the pre-planned scenarios, they can develop their own.

**TIME CHECK – Plan to finish by 2:45 so students can be gathered around the table by 2:50 for the Wrap-Up.****xx** | * Each team gathers at their team table**.**
* Materials/Equipment
	+ SPRK+
	+ CodeSnaps Box
	+ 1Graphics Board with City Layout
	+ Scenario Sheet for each team member

**For each activity:**NOTE: **The tables each have a city layout.** 1. Students:
	* read scenario
	* write code
2. Mentor:
	* Scans and reads back code – students check code
	* Gets SPRK+ from charging station
	* Orients SPRK+
	* Runs code
	* Narrates SPRK+ movements
3. Students: Assess results
	* If changes to the code are needed, go back to Step 1
4. Mentor: Put SPRK+ back in charging station
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**Part 5. Wrap-Up**

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| --- | --- |
| **Content** | **Logistics** |
| **TBD****xx** | * All gather around the big table
	+ Pull up chairs
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**Diagram 3.1**

Note: Two teams are sharing the big table for this exercise. The dividing noodle is in place, giving each team a 5’ x 5’ area. The third team has the smaller table all to themselves.

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**Diagram 3.2 Option 1**

Note: Two teams are sharing the big table for this exercise. The dividing noodle is in place, giving each team a 5’ x 5’ area. The third team has the smaller table all to themselves.

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**Diagram 3.2 Option 2**

Note: Two teams are sharing the big table for this exercise. The dividing noodle is in place, giving each team a 5’ x 5’ area. The third team has the smaller table all to themselves.

