

## PROGRAM

# Code Vol. 3



## ORGANIZATION NAME

Herschell Carrousel Factory Museum

### AVAILABLE FORMATS

- Performance
- Single Workshop
- Multi-Session  
Residency Workshop
- Field Trip

### GRADE LEVELS

- Pre-K
- K – 2nd
- 3rd – 5th
- 6th – 8th
- 9th – 12th

### MAX NUMBER OF PARTICIPANTS

In-Person: 35  
Virtual: 35

### PROGRAM LENGTH

Single Workshop: 45 minutes  
Field Trip: 90 minutes

## PROGRAM DESCRIPTION

The third coding lesson offered by the museum. This lesson highlights the use of functions within computer coding. Teachers have the option to choose between two workshops. Both challenge students to complete function tasks to direct a Sphero Bolt+ to complete the project.

## CURRICULUM STANDARDS

This program supports these NYS or Next Generation Learning Standards:

- 3SL1b: Follow agreed-upon norms for discussions by actively listening, taking turns, and staying on topic.
- 3SL1d: Explain their own ideas and understanding of the discussion
- 4SL1b: Follow agreed-upon norms for discussions and carry out assigned roles.
- 4SL1c: Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
- 5SL1b: Follow agreed-upon norms for discussions and carry out assign roles.
- 5SL1c: Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
- 5SL1d: Consider the ideas expressed and draw conclusions about information and knowledge gained from the discussions.
- 6SL1d: Consider the ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
- 7SL1b: Follow norms for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.
- 7SL1c: Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed
- 8SL1b: Follow norms for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed
- 9-10SL1b: Work with peers to set norms for collegial discussions and decision-making, establish clear goals, deadlines, and individual roles as needed.
- 11-12SL1b: Work with peers to set norms for collegial discussions and decision-making, establish clear goals, deadlines, and individual roles as needed.
- 11-12SL1c: Pose and respond to questions that probe reasoning and evidence; address a full range of positions; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

Next Generation Science Standards:

- 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
- 4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.
- MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

NYS Learning Standards for the Arts:

- VA:Cr1.1.7: Apply strategies to overcome creative blocks.
- VA:Cr1.2.7. Develop criteria to guide making a work of art or design to meet an identified goal.
- VA:Cr2.2.4:: Utilize and care for materials, tools, and equipment in a safe manner.

Contact Arts for Learning WNY for more information.  
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## EDUCATIONAL OBJECTIVES

- Students will understand the definitions of computers and coding.
- Students will understand the uses of functions within computer coding.
- Students will be able to use functions to complete tasks using a Sphero Bolt+.

## LOGISTICS/EQUIPMENT

- open floor space

## VOCABULARY

**7 ca di hƒ** – an electronic device for storing and processing data, typically in binary form, according to instructions given to it in a variable program

**Coding** – coding refers to creating computer programming code. In a more general sense, the word coding is used to refer to assigning a code or classification to something

**Function** – a relationship or expression involving one or more variables

**Simon Says** – a children's game in which players must obey the leader's instructions if (and only if) they are prefaced with the words "Simon says"

**Sequencing** – arrange in a particular order

**Direction** – a course along which someone or something moves or the management or guidance of someone or something

## POST-PROGRAM ACTIVITIES & RESOURCES

Resources:

- <https://edu.sphero.com/cwists/category>
- <https://stemeducationguide.com/classroom-activities-sphero/>
- <https://code.org/>

### ORGANIZATION DESCRIPTION



The Herschell Carrousel Factory Museum, operated by the Carousel Society of the Niagara Frontier, is a premier national historic site and community resource for family recreation and learning that fosters an appreciation for the unique heritage of the carousel and related industries in the Niagara Region.



Arts for Learning WNY's mission is to inspire, expand learning, and strengthen our community through engagement with the arts.

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