AVOID THE MINOTAUR

OVERALL TIME *1- to 2-hour lesson*

GROUPS *Three to four kids*

PROGRAMMING LEVEL *Advanced Block: Functions, Variables, complex Controls (If Then), and Comparators*

CONTENT THEME *Art*

OBJECTIVE

- **I will learn how to control the Sphero BOLT using precise code.**
- **I will illustrate how to decide which blocks to make the Sphero BOLT achieve a goal.**
- **I will create and execute a program that moves the Sphero BOLT along a changing path.**
- **I will analyze the program with supporting facts and reflect on the learning.**

OVERVIEW

Our hero, the Sphero BOLT, is trapped by a creature from Greek mythology, the Minotaur! In Greek mythology, many heroes used their brains rather than their brawn to outwit their foes. Together with your team, create a program to show how the Sphero BOLT could outwit the Minotaur and escape the maze.

MATERIALS

- **Sphero BOLT**
- **Something to create a simple maze: blocks of wood or boxes, tape, etc.**
- **Cardboard cutout representing the Minotaur.**

EXPLORATION: MINOTAUR'S MAZE

Oh no! The Sphero BOLT is trapped in the Minotaur's maze! Watch this video to find out how you can help it escape:
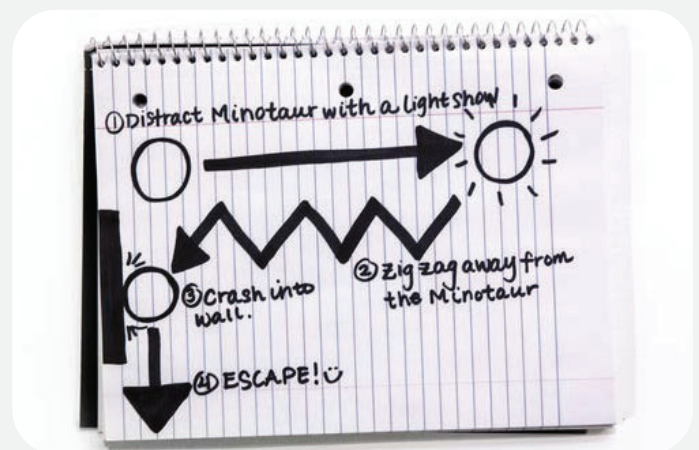
▶ *https://youtu.be/1pnmvGkuH7o*

EXPLORATION: MAKE A PLAN

In order to escape, you and your teammates must design a program that causes the Sphero BOLT to pull off some fancy moves to confuse the Minotaur.

Start by thinking about what you want your Sphero BOLT to do to accomplish this.

Plan it out by writing or drawing your ideas, like this:

EXPLORATION: DESIGN A MAZE

What should the Minotaur's maze look like? Draw some ideas on paper and evaluate the materials available to you.

EXPLORATION: EXPERIMENT WITH BLOCKS PROGRAMMING

Using the Block Canvas, experiment with code to make the Sphero BOLT move in different ways, illuminate lights, etc. - the crazier, the better. Your goal is to confuse the Minotaur so you can escape!

Write down each block you used and what it made the Sphero BOLT do. You'll use this list to build your program to escape from the Minotaur.

SKILLS BUILDING: CREATE A MAZE

Using available materials, construct the maze around your block program's logic in which the Sphero BOLT will encounter the Minotaur.

Watch this video to inspire your getaway!

▶ *https://youtu.be/N7ihLhL4RN8*

CHALLENGE: PROGRAM YOUR ESCAPE

Using the draw or Block Canvas, develop code that moves the Sphero BOLT erratically yet purposefully - remember, it still has to make its way out of the maze!

Test your program.

Can you improve it? How?

CHALLENGE: CHECK YOUR PROGRAM

Run your program. Did the Sphero BOLT escape the Minotaur? What changes can you make?

Write your reflections on this activity and discuss with the class:

- *What worked and what didn't?*
- *How would you do things differently in the future?*
- *What code worked best?*
- *What was the hardest or most fun part of the challenge?*