# Sphero Swimsuits

**Overview:**
Participants will design a swimsuit to help the Sphero BOLT Robot move through the water.

**Goals:**
- Design a suit to help "drive" the Sphero in water.
- Use Draw or Block Canvas to program the Sphero to complete a water course

**Time Required:** 90 minutes

**Materials:**
- Sphero BOLT robots
- iPads or other devices to control and program BOLTs.
- Waterproof craft materials, such as:
    - Cardboard (cover with duct tape to make waterproof)
    - Duct Tape
    - Rubberbands
    - Balloons
    - String
    - Plastic folders / craft foam
- Stopwatch
- Scissors
- Tub or pool to test spheros

**Procedure:**
1. Students will work in small groups for this activity.
2. Begin the lesson by demonstrating how the Sphero BOLT can move through the water. Fill a plastic tub or kiddie pool with water, connect the Sphero BOLT to the app and place in the water. Use the "drive" function to show how the Sphero BOLT moves in the water.
3. Encourage students to share their observations. Ask "What do you notice?" "What are the forces pulling and pushing on the Sphero?"
4. Identify the problem: Have students think about how they might help the Sphero overcome drag and swim faster.
5. Brainstorm: Instruct students to draw and label their ideas.
6. Choose a Solution: Groups should decide on an idea to build and test. Think about what materials you have available!
7. Construct and Test Prototype: Groups should build and test their design. Make changes as needed!
8. Evaluate Solution: Have students evaluate their design by answering the questions on their worksheet.
9. Present Solution: Have groups present and demonstrate their final design. You may choose to have a race!

OSU EXTENSION
4-H YOUTH DEVELOPMENT

**Reflection:**
1. Which designs worked "best"?  What did they have in common?
2. What happened when you changed the design?
3. What would you do differently in the future?

**Extension / Adaptations:**
1. Set up a simple course or track and have students program their Sphero to complete the course.

**Adapted from the following lesson:**

"Swim Meet." *Sphero Edu*, 2023, edu.sphero.com/cwists/preview/67x.