

Sphero and Tickle Basic Training Activities

Video resources on how to program the Sphero:

- [Tickle basics with Sphero \(7 min.\)](#)
- More [Tickle basics with Sphero \(4 min.\)](#)

Activity 1: Color Spectrum

Concepts: events, commands, algorithms

Program your Sphero to alternate through the color spectrum. You should start with red and end with violet. (Hint: red, orange, yellow, green, blue, violet) Make sure your program includes commands that make each color visible for 1 to 3 seconds. Show your teacher when you are successful.

Activity 2: Make a Square

Concepts: loops, iterations

Step 1: Program your Sphero to roll and make the shape of a square. Each side of the square should be about 2 feet. (Hint: The circumference of Sphero is 9.4 inches.) Mark the starting point and try to make your Sphero finish its path within 2 inches of its starting point. Use a sequence of commands when you write your program. Test your program and show your teacher.

Step 2: Edit your program and use a repeating loop command to reduce your program's size. Test your program and show your teacher.

Step 3: Edit your program so that your Sphero lights up in different colors on each side of the square. Test your program and show your teacher.

Step 4: If you have more time, try other shapes. Also, try to improve your accuracy of finishing each shape where you started it. Test your program and show your teacher.

Activity 3: Redlight-Greenlight

Concepts: randomness, conditional statements

Step 1: Program your Sphero to play a redlight-greenlight game for kids. Use the random commands to set the timer for each color change. Use a forever repeat loop in your program. Test your program and show your teacher.

Step 2: Modify your program to end the game when Sphero is grabbed by the game winner. Specifically, use a conditional statement to make Sphero turn blue and stop the program when it detects that it is disturbed. Test your program and show your teacher.

Activity 4: Drive your Robot

Concepts: variables, binary

Create a program that permits you to drive your Sphero by tilting the iPad.

Hint: It will be helpful to create separate scripts for each direction (forward, backward, left, right). Caution: A script with a tilt command may conflict with its opposite direction. For instance, tilt left and tilt right commands are opposites and they may conflict if both are on at the same time. Use a variable to stop scripts that conflict or interfere with each other. You can create a variable that alternates to create off and on conditions. If you tilt the iPad left, the variable changes to ONE and a turn left command is engaged. Alternatively, if you tilt the iPad right, the variable changes

to TWO and a turn right command is engaged. If the iPad is not tilted left or right, the variable turns to ZERO.

More Activities

Activity: Measuring with Sphero

Use Sphero to measure the length of an unknown line on the floor. (Hint: you might need to use some math.)

Activity: Tag, You're It! (advanced)

Program your Sphero so that you can play a game of tag with peers.

Rules:

- If you are red, you are "it".
- If you hit an obstacle, you are out of the game.

Part A. Use events that roll the Sphero in the direction that the iPad is tilted.

Part B. Create a loop that alternates between red and green when the Sphero is impacted.

Activity: Bumper Cars (advanced)

Modify your program from "Activity: Tag, You're It!" so that your Sphero can play a bumper cars game with your peers.

Rules:

- You receive a penalty each time you hit another sphero or an obstacle.
 - 1st penalty turns your Sphero yellow
 - 2nd penalty turns your Sphero red
 - 3rd penalty stops your Sphero to end your game
- You will be chased by 1 rogue Sphero that is immune to penalties.
- Avoid: other Spheros, obstacles, and the rogue Sphero
- Last functioning Sphero wins

Activity: Perpetual Bumper Cars (more advanced)

Modify your program from "Activity: Bumper Cars" so that your Sphero can re-enter the game by using the free-fall command.

Add the following rule:

- Each time your Sphero can experience gravitational free-fall, it eliminate a penalty. For instance, it can drive up a ramp and fall to the ground to experience free-fall.