Teacher Guide: Hour of Code with Connected Toys

https://www.tynker.com/hour-of-code/hardware

Time: 60 minutes
Grades: 3+
Difficulty: Beginner

Bring your Hour of Code into the real world by creating programs to control connected toys. Your students learn the basics with our virtual course, Crash Course. Then they can program Sphero to trace geometric shapes on the floor, create a controller for a connected device, or navigate a maze.

Activity Requirements: This activity requires tablets with the Tynker App and a Sphero or Ollie app-enabled robot or a Parrot Rolling Spider drone.

Download Links

Tynker for iPads from Apple App Store
https://itunes.apple.com/us/app/tynker-learn-to-code.-program/id805869467?mt=8

Tynker for Android-Enabled Tablets from Google Play Store
https://play.google.com/store/apps/details?id=com.tynker.Tynker

Prerequisites: No prior coding experience is required.

Connectivity Guides

Parrot Minidrone Connectivity Guide: https://www.tynker.com/support/drone

Sphero and Ollie Connectivity Guide: https://www.tynker.com/support/sphero-ollie

Suggested Activities by Experience Level

Beginner (Drone)

- **Crash Course - 20 minutes.** Solve at least 10 of these puzzles to learn the drone and robot commands (18 puzzles total).
- **Flappy drone - 40 minutes.** Program your drone to fly up and land when you touch the screen of your tablet.

Intermediate (Drone, Sphero, or Ollie)

- **Crash Course - 20 minutes.** Solve at least 10 of these puzzles to learn the drone and robot commands (18 puzzles total).
- **Air/Ground Controller - 40 minutes.** Start with a template with buttons and expand it to build an advanced controller for your connected toy. You can make your drone move, turn, take off, land, and even perform tricks like zig zagging or moving in a square. You can make your Sphero or Ollie turn, move, speed up, slow down, and perform tricks as well.

Advanced (Sphero)

- **Crash Course - 20 minutes.** Solve at least 10 of these puzzles to learn the drone and robot commands (18 puzzles total).
- **Maze Solver - 40 minutes.** Use collision detection and the new sensors on Sphero to program an intelligent maze solver.

Crash Course Puzzle Solutions: https://www.tynker.com/app/solutions/crash-course-answer-keys.pdf

Hour of Code Certificate
Be sure to download a personalized certificate for your students when they complete this activity.

Standards Mapping
CCSS ELA: RI.3.3, W.3.6, RI.4.5, RI.4.3, RI.5.10, RST.6-8.4, RST.6-8.7, RST.9-10.5, RST.11-12.3
CCSS Math: MP.3.2, MP.3.8, MD.4.5, NF.4.7
CSTA: L1:6.CT.1, L1:6.CPP.5, L1:6.CPP.6, L2:9.CT.1, L2:9.CT.3, L2:9.CT.5, L2:9.CT.12, L2:9.CPP.3, L2:9.CPP.5