

# Painting with a Sphero!

*\*This activity requires the use of Spheros*

TOPIC: HARDWARE AND SOFTWARE

GRADES: 3-5, 6-8, 9-12

LESSON DURATION: N/A

SOFT SKILLS: COLLABORATION, CRITICAL THINKING, PROBLEM SOLVING, PLANNING

---

## Introduction:

- Students need very basic background information on programming. This activity then allows students to program a Sphero to perform a fun task. Students will need access to a Sphero, space to work, and should be allowed to fail and re-attempt.

---

## Learning Outcomes:

- Students will apply basic programming skills while engaging in a logical ordering/sequencing activity involving a Sphero.

---

## Materials:

- Spheros and an app to operate (iPod/iPad/etc.)
- Water based paint
- Large sheets of paper (roll paper)
- Ziploc bags; tops of large cardboard boxes

---

## Activities:

1. Teacher preparation:
  - A. Using large sheets of paper, line the top of a large box with sides. This will serve as the “canvas” for the group creation. Spheros will be placed in this area to paint the end product. Each group needs a box lid.
  - B. Once groups are ready and have their coding done: Put the Sphero in a ziplock bag of water-based paint, using a few tablespoons of paint (just enough to coat).
2. After discussing basic programming skills, place students into small groups and assign them a task. The task should involve creating something with paint such as a team name, the teacher’s name, or a school mascot. Allow students time to write the code. Once set to run, place the Sphero in the box top and let the program run. Let students complete the task up to three times. If they fail, have them journal what went wrong and their plan to fix it. Each time they retry; have them remove the paper and start afresh.
3. Afterwards, discuss with the class the issues that they faced. Writing software can be difficult and involves adjustments.

© 2018 Teach Cyber



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

4. This lesson can be adapted in a variety of ways. The follow-up discussion could also cover a variety of topics including software development, software development ethics, user responsibility, patches/updates, etc.

---

### **For Advanced Students:**

1. Some students may already have some experiencing either coding or working with Spheros. If this is the case, group these students together. Split them into pairs or small groups and assign them a partner pair. Give them a design that requires 2 colors. Each group of partners should be assigned one color and must complete the design assigned to that color. Meanwhile, the other group is working on the same box top canvas to complete the aspect of the design that requires their assigned color. This activity is a bit more challenging because one group relies on the other for successful completion, but they also have to communicate so that their programmed Spheros do not collide.

© 2018 Teach Cyber



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-nc-sa/4.0/).