

CREATOR STUDIO

Coding for Robotics and Game Design

SPHERO: DANCE PARTY

EVENT PLAN

EQUIPMENT

- 10 Spheros
- 10 iPads

COMPUTATIONAL SKILLS TAUGHT

- Events, conditionals, data
- Testing and debugging
- Decomposition, abstraction

SAMPLE PROJECTS

On iPad 7, the program “Sphero Dance” has examples of several of the blocks from this lesson.

IN-HOUSE CODER

INSTRUCTOR ROLE

CATALYST: Ask “What song are you using?” “What do you want Sphero to do in this dance?” “What is the coolest dance move you know?”

CONSULTANT: Tips that will help refine this project include: Think through each step needed to execute a dance move. Use your planning time wisely.

CONNECTOR: If students are working in pairs, have students take turns as the Driver and Navigator in pair programming. Students should collaborate during the planning phase to pick a song and a dance that they are both happy with.

At the end of the event, ask the kids what tips they would give the next group.

COLLABORATOR: Pick your own song and design a Sphero dance for it! Share with the students at the end of the event.

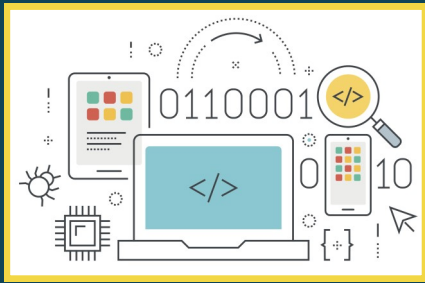
ACTIVITY

Students will use the Sphero Edu app and the Blocks feature to design a dance for their Sphero. This dance will be designed to follow the students’ favorite songs. This activity assumes familiarity with the Sphero as outlined in the Sphero Basics lesson. Feel free to refer back to that lesson for more information.

In preparation for this event, charge all Spheros and iPads. Charge Sphero by connecting the charging cradle to a USB port on a PC, or to a wall charger. When the cradle is plugged in, set Sphero inside the cradle so that the gyroscope (the heaviest part of the robot) is facing down into the cradle. While Sphero is charging, the light on the cradle will blink blue. When Sphero is fully charged, the light will change to solid blue. Please charge all Spheros BEFORE sending them to the next library as well; some libraries may not have time to charge the Spheros before their event.

GETTING STARTED (20 min):

When students arrive, give each student a Sphero and an iPad. Have students connect their Sphero to their iPads by opening the Sphero Edu app and touching the Sphero to the iPad screen. Once all students are connected, have them practice for about 10 minutes using the Blocks option to code their Sphero. Make special note of the Roll, Spin, and Color commands, which will be useful in this activity. After students have had a chance to practice, explain that the activity today will be teaching Sphero to dance to a favorite song.



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BLOXELS: BASICS

EVENT PLAN

PLANNING (30 min):

Students start off this part of the activity by choosing a song from their phone that Sphero will learn to dance to. Use discretion when helping students select their songs; the songs should be appropriate for the library setting. Students should play the song all the way through at least once. Ask students questions about their song like:

- What is the structure of your song? Where are the verses and choruses?
- Does your song have a strong beat? Does it have a catchy melody?
- What colors does this song make you think of?
- Does this song have a dance that you already know? What elements of that dance do you think you can incorporate into your Sphero?

After students have chosen and listened to their songs, give each student a pencil and a piece of paper. Have students plan out their dance in simple descriptive phrases. Use the following as some examples:

- “During each verse, change colors from red to green, then blue.”
- “During verse 1, spin for five seconds, then roll toward me for two seconds.”

Students should plan dance moves for at least one minute of their song before they start programming their Sphero.

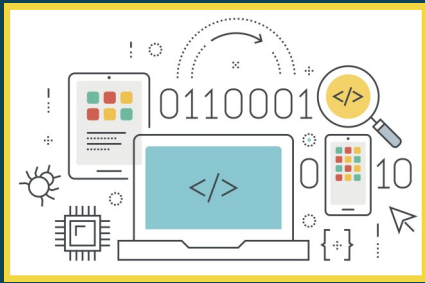
DANCE DESIGN (45 min):

Students can now start designing their dance in the Blocks section of the Sphero Edu app. Students should follow their planned design, finding the code blocks that allow Sphero to execute their dance. Show students a few of the blocks that may be helpful to them before they start planning their dance.

Helpful blocks to design a dance include:

- **Spin:** Spin is a Movement block. This block will make the robot rotate in place inside its shell. This is a way to make the lights on the Sphero appear to pulse or spin. The block has two commands: degrees and time. The robot will spin the number of degrees specified over the amount of time. A higher number of degrees over the same period of time will make the robot spin faster.
- **Main LED:** Main LED is a Lights & Sounds block. It will change the color of the light in the center of the Sphero. The block has one command that sets the color of the LED.
- **Fade:** Fade is a Lights and Sounds block. It will cause the light in the center of the Sphero to fade from one color to another over a specified amount of time. The block has three commands: the starting color, the fade color, and the amount of time it will take to fade.
- **Strobe:** Strobe is a Lights and Sounds block. It will cause the light in the center of the Sphero to strobe on a specified color. The block has three commands: the color of the strobe light, a time in seconds that measures the duration of each strobe, and a count of the total number of times the strobe will happen. In my tests, the fastest possible duration of the strobe appears to be 0.05 seconds. Any faster than that and the strobe will remain solid.

Using these commands in addition to Roll, students should be able to program a fun dance for their Sphero in about 45 minutes.



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BLOXELS: BASICS

EVENT PLAN

SHARING

Use the last 20 minutes to hold the dance party. Have students play their songs and get their Spheros dancing along! Students should share what worked well for them and what was difficult about each dance. Talk about what students have learned from this activity. Ask for suggestions they would make to future students attempting this dance party.