DRAW 1: SHAPES

OVERALL TIME *Up to 1-hour lesson*

GROUPS *Three to four kids*

PROGRAMMING LEVEL *Draw: Manual Movement, Distance, Direction, Speed, and Color*

CONTENT THEME *Math*

OBJECTIVE

- **I can identify and describe shapes.**
- **I can distinguish between two and three-dimensional shapes.**
- **I can compose simple shapes to form larger shapes.**
- **I can create and execute a Draw program.**

OVERVIEW

Welcome to your first Draw activity! This is a great follow-up activity to "Introduction to Sphero Edu." This lesson introduces you to the Draw canvas by drawing shapes that represent code and executing that code using your Sphero BOLT.

MATERIALS

- **Sphero BOLT**
- **Paper**
- **Pencil**
- **Crayons**
- **Markers**
- **Colored pencils**

EXPLORATION: SHAPES AROUND YOU

- Two-Dimensional shapes are flat and have only two dimensions: length and width. For example, a square.
- Three-Dimensional shapes are solid and have three dimensions: length, width, and height. For example, a sphere.

Look around the room and find an object that interests you.

- *What shapes make up this object?*
- *Are the shapes that make up your object two-dimensional or three-dimensional?*

Now look at your Sphero BOLT.

- *What shapes make up this robot?*
- *What other robots have you seen? What types of shapes make up those robots?*

SKILLS BUILDING: YOUR FIRST DRAWING

The Draw programming "canvas" is designed to teach primary principals of programming like sequencing and basic logic through basic swipes that represent JavaScript code. Watch the video below to learn how to draw basic, two-dimensional shapes with the Sphero BOLT.

▶ *https://youtu.be/hC99exl8TVw*

SKILLS BUILDING: COLORS AND "WHOOPS"

You can use different colors to make your shapes more unique. Watch the video below and follow along. You'll also learn how to fix a mistake on the Draw Canvas.

▶ *https://youtu.be/W8Z4YSp9zkM*

CHALLENGE: ROBOT DRAWING

Now it's time to use your newfound programming skills to draw something different. Grab some paper and something to draw with.

Imagine a robot and think about which shapes make it up. On your piece of paper, draw a simple robot using shapes that you are familiar with. Some you may have already programmed the Sphero BOLT to draw today.

Consider the following before drawing your program:

-   *How can you draw the robot to make the Sphero BOLT move as little as possible between shapes?*

-   *Do you need to redesign the shapes of your robot?*

-   *Could you make larger shapes into smaller shapes or combine shapes to make a larger shape?*

-   *Should you make your robot different colors?*

Take a picture of your drawing and attach it to this step.