

CHANGING LIGHTS

STUDENT SECTION

HELLO, IT'S CODEY, BACK FOR MORE CODING FUN! BEFORE YOU BEGIN, MAKE SURE YOUR CODE CUBE IS CONNECTED TO AND PAIRED WITH YOUR COMPUTER. IN CASE YOU FORGOT HOW TO DO THIS:

1. OPEN THE CODE CUBE APPLICATION IN A CHROME BROWSER.
2. ATTACH, OR TETHER, THE CODE CUBE TO YOUR COMPUTER WITH THE CABLE.
3. CLICK **CONNECT CUBE** IN THE TOP-LEFT CORNER OF THE APPLICATION AND SELECT YOUR CODE CUBE FROM THE LIST. THEN, CLICK **CONNECT**.

**HINT:**

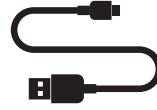
YOU CAN RIGHT-CLICK THE IMAGE BLOCK AND SELECT **DUPLICATE** TO MAKE A COPY OF THE HAPPY HEART. THEN, ADJUST THE COLORS OF THE PIXELS TO MAKE THE SAD HEART. YOU CAN DUPLICATE ANY BLOCKS BY RIGHT-CLICKING THEM!

In this lesson, we will learn how to make your Code Cube display multiple images. Gather the materials listed, and we will get started.

MATERIALS NEEDED



Code Cube



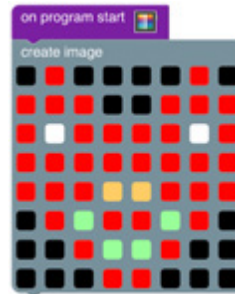
Micro USB cable



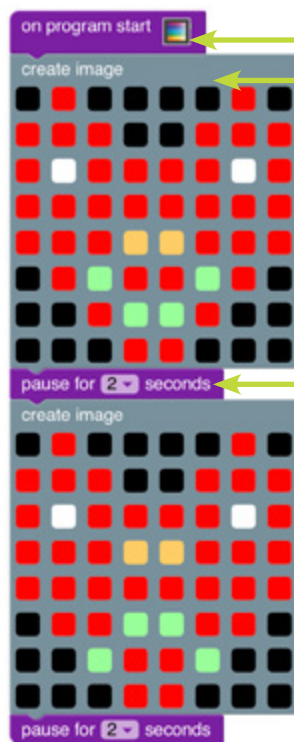
Computer with Code Cube application open

CODING TIME

If you saved your program from Lesson 1, you can open it by clicking **Open Blocks** on the top row of buttons. If you did not save it, you can write a new one as you follow along in this lesson. We will start with the program from Lesson 1 that displays a happy heart.



Add the following code blocks into the programming area of your application and arrange them as shown.



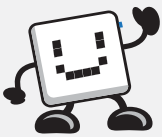
On program start tells the Code Cube to run the program when uploaded (**Send Code**). It automatically runs when tethered or, when it is not tethered, when the start button is pressed.

Create image tells the Code Cube what image to display when the program is running.

Pause for – seconds tells the Code Cube how long to wait before going to the next block. In this example, it tells the Code Cube to display the image and wait 2 seconds before showing the next image. You can change how long the image is displayed by adjusting the number of seconds for the pause.

Notice that we are showing two images for 2 seconds each. The program should keep running this loop until we stop it or load a new program. We can add up to eight different images by adding **create image** blocks to our program loop before the memory is filled.

CONGRATULATIONS! YOU HAVE JUST FINISHED YOUR SECOND PROGRAM WITH YOUR CODE CUBE. USE THIS CODE TO COMPLETE ANY OF THE FOLLOWING ACTIVITIES. DON'T FORGET THAT YOU CAN ADD MORE IMAGE AND PAUSE BLOCKS (UP TO EIGHT) IF YOU NEED THEM! I CAN'T WAIT TO SEE WHAT YOU CREATE! I WILL BE BACK WHEN YOU ARE READY FOR LESSON 3.



Now, recolor your pixels in the second **create image** block to make the second shape in your program.

To display these images on your Code Cube, click **Send Code** in the upper left of your application. It should automatically appear on the display if it is tethered to your computer.

Note: When you create a code or display, you might want to use it again. Save it by:

1. Clicking **Save Blocks**.
2. Giving it a descriptive name (such as Lesson 2).
3. Choosing the location where you want it saved.

ACTIVITIES



ELA – Multiple Characteristics

This is your chance to dream up a different character than in Lesson 1 or extend the same character that you would like to meet or maybe never meet. It could be a monster (good or bad), a pet, a person, a superhero, or anything you can think of that would have certain characteristics. Use a program like the one you used in Lesson 2 to create at least five different images of your character and display them on your Code Cube. Write down the characteristics of your character captured in each image so you can share them with others.

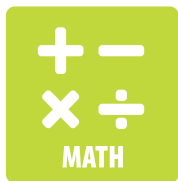
Use a worksheet to sketch your ideas and write your responses.



SEL – Many Moods

How are you feeling right now or today, in general? Create five images that communicate how you are feeling or have felt during the week. Use a program like the one you used in Lesson 2 to create the images and display it on your Code Cube. Write down things that make you feel like your images so you can share them with others.

Use a worksheet to sketch your ideas and write your responses



Math – Symmetry

When one half of an image looks like a mirror image of the other half, it is said to have reflectional symmetry. A plus sign and a square have symmetry. There are different kinds of symmetry, but you will create five images that have reflectional symmetry. Use a program like the one you used in Lesson 2 to create the images and display them on your Code Cube. Write down at least three places where you might see an example of your images in your classroom or community.

Use a worksheet to sketch your ideas and write your responses.



Science – Multiple Stages

Think about the stages in a life cycle of an animal such as a frog or butterfly. Create at least three images or icons that represent the stages. Use a program like the one you used in Lesson 2 to create the images and display them on your Code Cube. Write down the stages in the life cycle of the animal that include your images and explain when your images would happen.

Use a worksheet to sketch your ideas and write your responses.