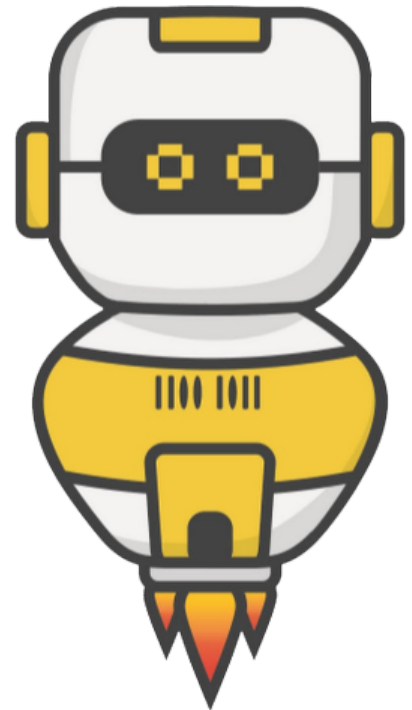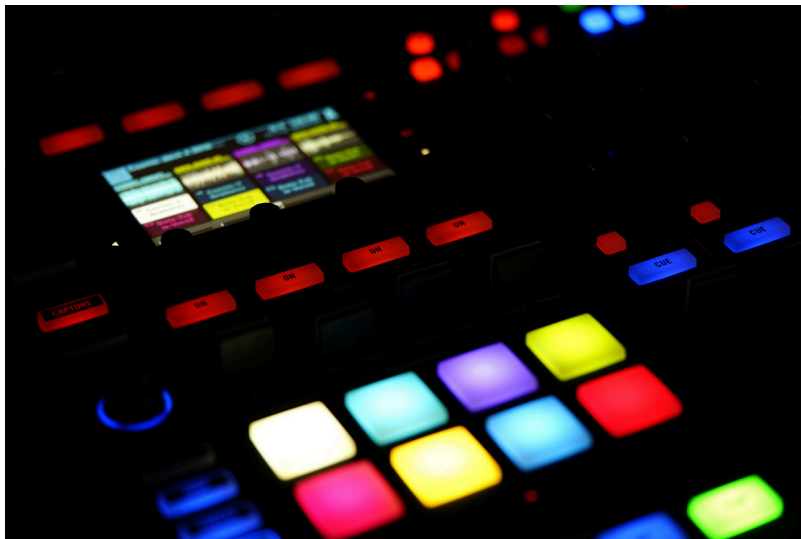# Mission 4:
Remix

Student Workbook

Ready to go!

This assignment will let you be creative and come up with your own program for the CodeX to run.

Go to the Mission 4 Remix Log and fill out the Pre-Remix preparation.

## Time for a project remix

A remix can be:

- A new program created by adding new code to a program you already created
- You can combine parts of two or more programs in a remix
- Use a similar idea in a different way

Creating a remix will let you:

- Master the skills and concepts practiced in the mission
- Be creative
- Remember code from earlier programs and missions
- Work with your peers
- Design an original program and write the code all on your own

Step #1: Review the mission

- Review your programs from Mission 2, 3 and 4
  - What do the programs do?
  - What skills were used or concepts learned?
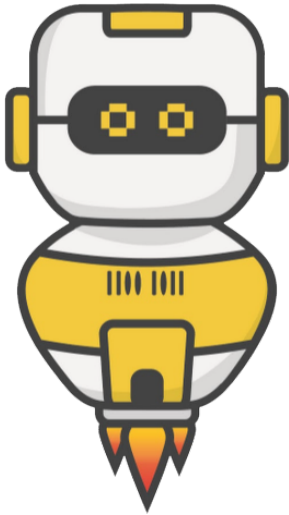
DO THIS:

- Open your project from Mission 4 – Display
- Review what the program does
- Review the programming concepts and skills you learned
- Fill out the information in the remix log

```python
from codex import *
from time import sleep

display.show("Press Button A")
sleep(1)
pressed = buttons.is_pressed(BTN_A)
if pressed:
    pixels.set(0, GREEN)
else:
    pixels.set(0, RED)

display.show("Press Button L")
sleep(1)
pressed = buttons.is_pressed(BTN_L)
if pressed:
    pixels.set(1, GREEN)
else:
    pixels.set(1, RED)

display.show("Press Button B")
sleep(1)
pressed = buttons.is_pressed(BTN_B)
if pressed:
    pixels.set(2, GREEN)
else:
    pixels.set(2, RED)
```

Step #2: Brainstorm ideas

- Read through remix suggestions
  - Three ideas are on the next pages. You can use one of these ideas or come up with your own.
- Use your creativity to come up with your own idea for a project
- Decide with your partner what project you will do

Mild Remix

Add images to the code. When a pixel turns green, display an image like a happy face. When a pixel turns red, display a different image, like a sad face.
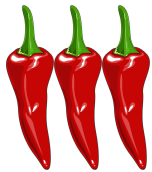

Video of Mild Remix

🌶️🌶️ Medium Remix

Use images instead of printed instructions. There are arrow images available. Display an arrow and check for the correct button. For example, the north arrow goes with BTN_U.

[Video of Medium Remix](#)

🌶️🌶️🌶️ Spicy Remix

Use a color of pixel to indicate which button to press. For example, if a pixel turns red, press BTN_U. If a pixel turns blue, press BTN_D. And so forth. You could use six colors and all six buttons. Display one image (like the happy face) if they choose correctly and a different image (like a sad face) if they are wrong. You may want to include a set of print statements at the beginning that tell the button and color combination.


[Video of Spicy Remix](#)
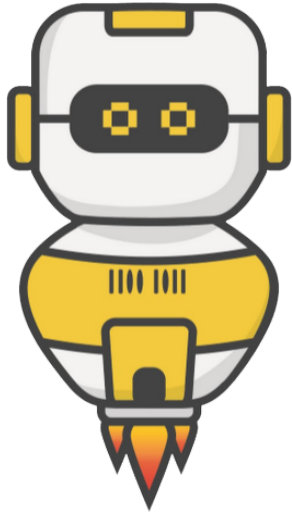
DO THIS:

- Decide with your partner what project you will do
- Fill out the information in the Mission 4 Remix Log for **Step #2**

Remix Step 2: Describe what your remix project will do:

_____

_____

_____

Step #3: Make a plan

Now that you have an idea for your remix, you need a plan.

- What variables will you need?
    - NOTE: You do not have to use a variable for this remix
- What colors will you use?
- What images will you display?
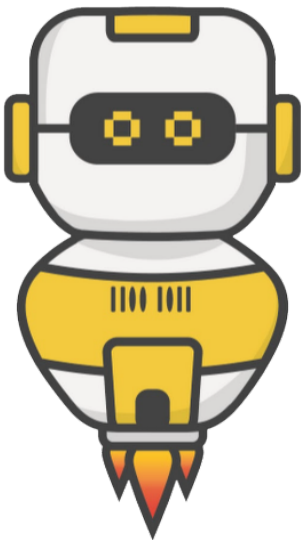
DO THIS:

- Fill out the information in the Mission 4 Remix Log for **Step #3**

**Remix Step 3:** Plan your code. What variables will you use in the project?

You do not need to fill out every line if you don't need that many variables.

Variable Name	What it will be used for

Image to use	What it will be used for

Step #4: Code your project

- **IMPORTANT:** In CodeSpace, go to the sandbox: It is above the toolbox in the lower left corner.
- You can leave **Display** open (use it as a guide)
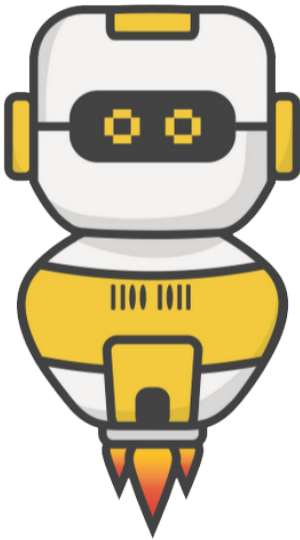
DO THIS:

- Start with a new file and give it a descriptive name (**Remix4**)
- Import your modules
- Define your variables
- Write your code, testing frequently

Reminders!

- Don't try to write all the code at one time
- Mistakes happen, so find them early
- Type just a few lines of code and then run the program
- If there is an error, fix it before continuing
- Use the debugger and your other programs for help

Step #5: Documentation

You should always make your code readable and easy to follow.
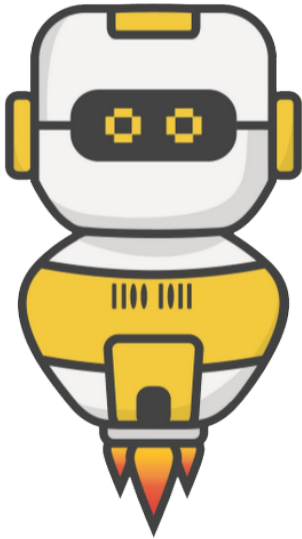
DO THIS:

- Add blank lines where needed to divide sections of code
- Add a comment at the top with your name and the name of the program
- Add a few more comments to sections of your code that explain what they do

Step #5: Get feedback

Getting feedback and reflecting on your code can help you make the program even better.
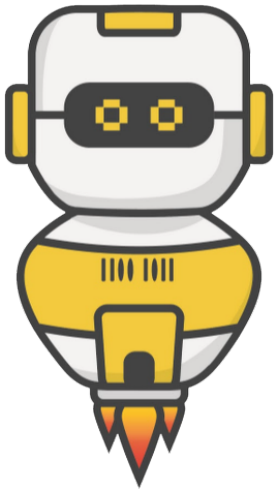
DO THIS:

- Show your code to another student
- Have him/her fill out the feedback form on your Mission 4 Remix Log
- Give yourself some feedback
- Is there something you want to change or improve or add?
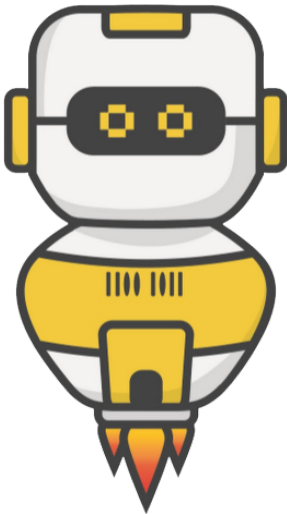- Fill out the feedback form on your Mission 4 Remix Log

Modify your code to make your project even better

Congratulations!

Now you have your own remix! Great job! Share your project with your friends.

By completing this remix you have:

- learned more about programming
- used skills and concepts from the missions
- been thinking!
- and problem solving
- and much more!

DO THIS:

- Complete the Mission 4 Remix Log
- Don't forget to clear your CodeX by running your **Clear** program