

Mission 7: Remix

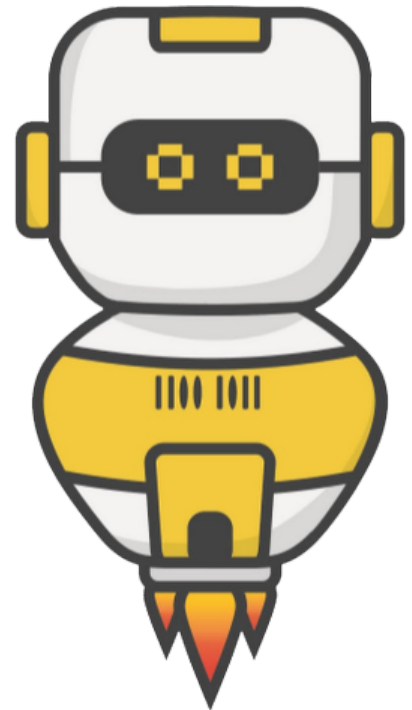
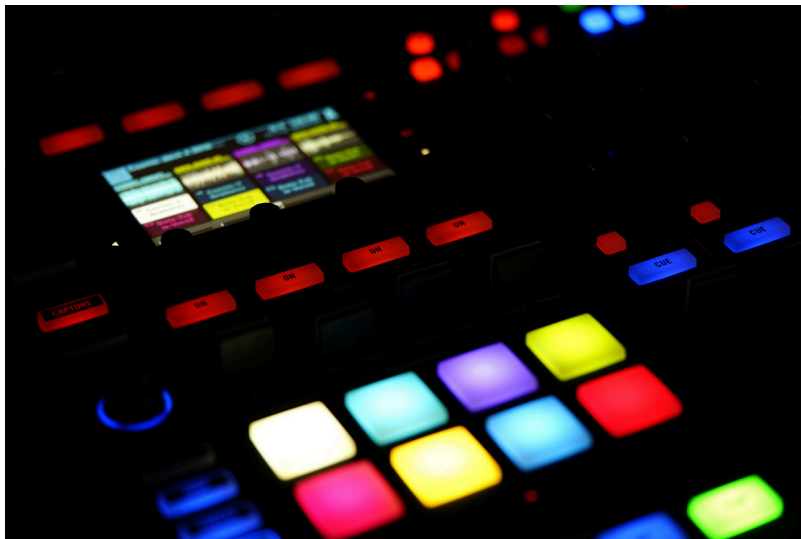
Student Workbook





Make a list and check it twice!

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



Go to the Mission 7 Remix Log and fill out the Pre-Remix preparation.



Time for a project remix

A remix can be:

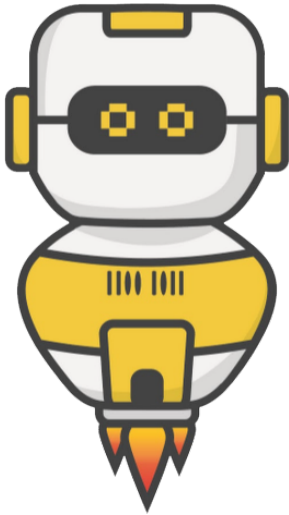
- A new program created by adding new code to a program you already created
- You can combine parts of two or more programs in a remix
- Use a similar idea in a different way

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 3 through 7
 - What do the programs do?
 - What skills were used or concepts learned?



DO THIS:

- Open your project from Mission 7 - Billboard
- Review what the program does
- Review the programming concepts and skills you learned
- Fill out the information in the remix log

```
choice = 0
my_list = [GREEN, "Ahoy", pics.HAPPY,
           pics.SAD, RED, pics.SURPRISED,
           "Having a great day",
           pics.ASLEEP, PINK, pics.TIARA,
           "Meh", pics.TARGET]
LAST_INDEX = len(my_list) - 1

while True:
    my_image = my_list[choice]
    if type(my_image) == tuple:
        display.fill(my_image)
    else:
        display.show(my_image)

    if buttons.was_pressed(BTN_L):
        choice = choice - 1
        if choice < 0:
            choice = LAST_INDEX

    if buttons.was_pressed(BTN_R):
        choice = choice + 1
        if choice > LAST_INDEX:
            choice = 0

    if buttons.was_pressed(BTN_L):
        choice = choice - 1
        if choice < 0:
            choice = 3
```

Step #2: Brainstorm ideas

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



Mild Remix #1A

Select a button (other than A or B) and add an if statement that will break out of the loop to stop the program.

[Video of Remix #1A](#)



Mild Remix #1B

Create a list of 6 items (images, text or colors). Assign a value to choice when the button is pressed. Then display the image, text, or color from the list -- no scrolling needed.

[Video of Remix #1B](#)



Medium Remix #2A

Create a list of 6 items, like Mild #2. At the beginning, and after each item, clear the screen to black and print “Press a button”.

[Video of Remix #2A](#)



Medium Remix #2B

Add print statements that introduce the program, and add a loop that will “wait” until a button is pressed to begin. Also include a button that will break out of the loop and stop the program. Display an ending message.

[Video of Remix #2B](#)



Medium Remix #2C

Create two lists: one for images and one for sounds. Using the same “choice” variable, display an image and play a sound. You can use the audio sound files or tones.

Tone example: `audBio.pitch(440, delay)`

[Video of Remix #2C \(audio mp3\)](#) / [Video of Remix #2C \(tones\)](#)



Medium Remix #2D

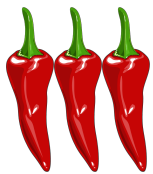
Create a list of text strings with facts from math, science, history, etc. Scroll through and display the list of facts. You will need to sleep(), clear the display, and print a scroll message.

HINT: use \n in a string to print on a new line

Example:

```
display.print("Hello \n there")  
will print hello  
there
```

[Video of Remix #2D](#)



Spicy Remix #3

Create 2 lists and use BTN_A and BTN_B to determine which list to display. Then use L and R to scroll through the lists. The lists can be anything that interests you, or facts from two different subjects.

[Video of Remix #3 \(images, etc.\)](#) / [Video of Remix #3 \(facts\)](#)



Extra Spicy Remix #4

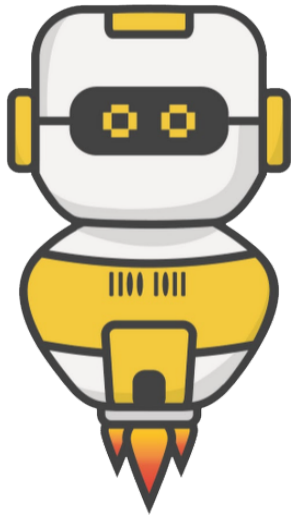
Add another list with colors. Use the list to light the pixels a different color for each corresponding item in the list.

Optional: light up the red LED light above A or B when the button is pressed.

```
# Example for button LEDs  
# Turn on the LED above button A  
leds.set(LED_A, True)
```

[Video of Remix #4](#) / [Video of Remix #4 with LEDs](#)

Step #2: Brainstorm ideas



DO THIS:

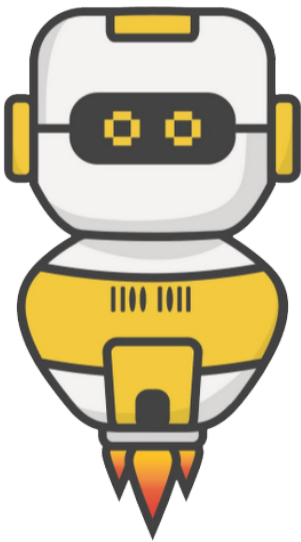
- Decide with your partner what project you will do
- Fill out the information in the Mission 7 Remix Log for [Step #2](#)

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?
- What lists will you use, and what will be their items?
- What buttons will you program, and what will each button do?



DO THIS:

- Fill out the information in the Mission 7 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.

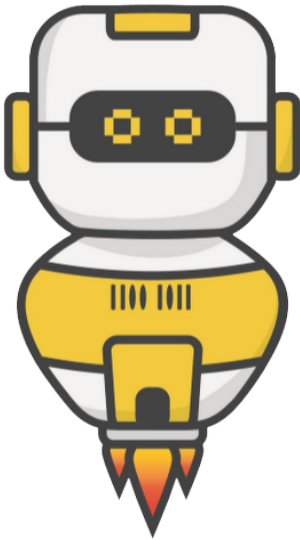
Variable Name	What it will be used for

First list name:	
Items in list	
Second list name:	
Items in list	

Button	What it will be programmed to do:

Step #4: Code your project

- **IMPORTANT:** In CodeSpace, go to the sandbox: 
- You can leave any program open, including **Billboard**, and use it as a guide



DO THIS:

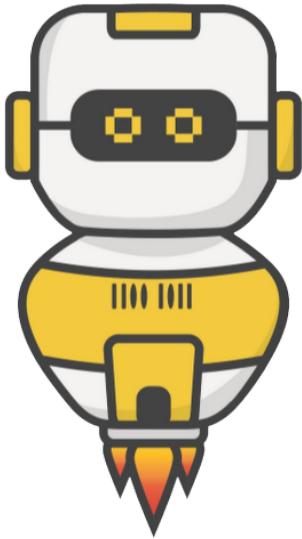
- Start with a new file and give it a descriptive name (**Remix7**)
- Import your modules
- Create your lists
- Define your variables
- Write your code, testing frequently

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.

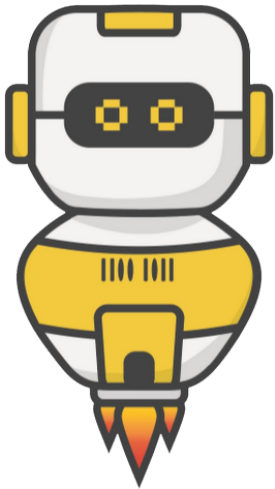


DO THIS:

- 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 7 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 7 Remix Log

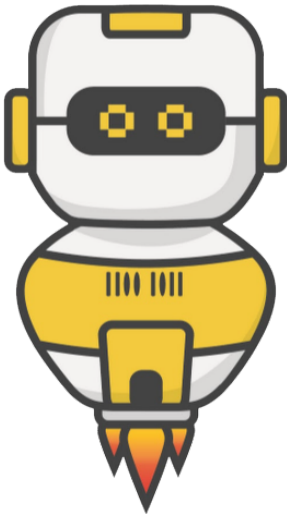
Modify your code to make your project even better

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:

- Run at least three projects from other students
- Complete the Mission 7 Remix Log
- Don't forget to clear your CodeX by running your **Clear** program