

Mission 9: Remix

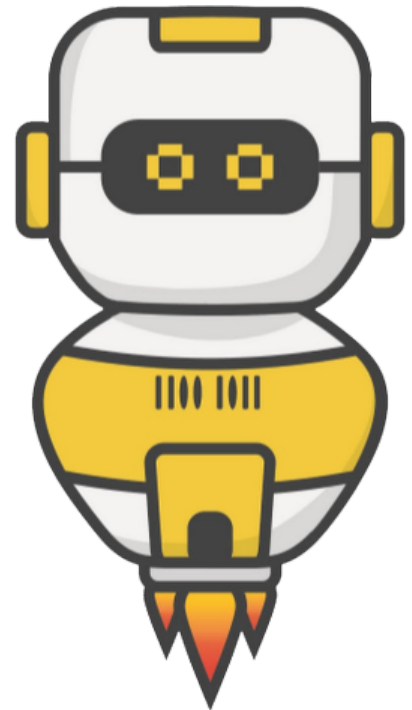
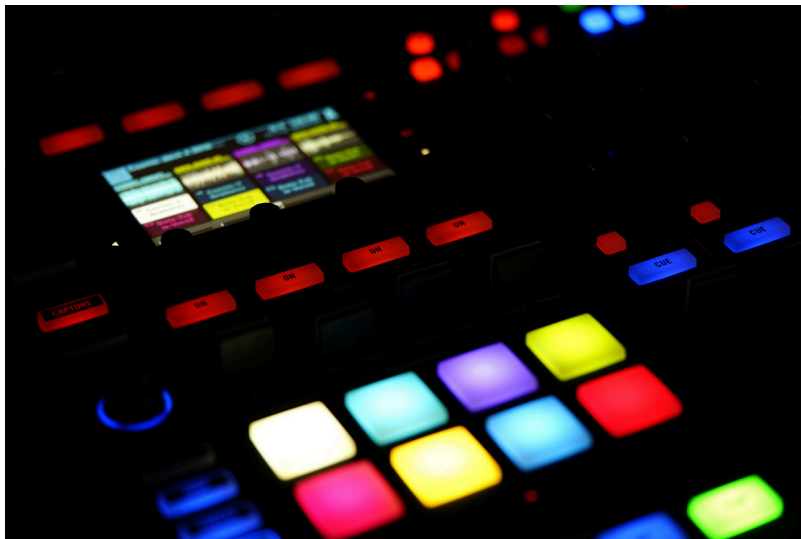
Student Workbook





Make a functional program!

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



Go to the Mission 9 Remix Log and fill out the Pre-Remix preparation.



Time for a project remix

A remix can be:

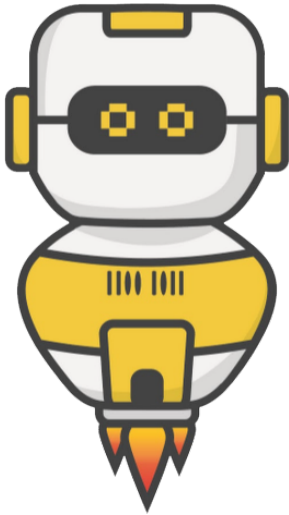
- A new program created by adding new code to a program you already created
- You can combine parts of two or more programs in a remix
- Use a similar idea in a different way

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 9
 - What do the programs do?
 - What skills were used or concepts learned?



DO THIS:

- Open your project from Mission 9 - Game Spinner
- Review what the program does
- Review the programming concepts and skills you learned
- Fill out the information in the remix log

```
from codex import *
import random
from time import sleep

def show_random_arrow():
    arrow = random.randrange(8)
    display.show(pics.ALL_ARROWS[arrow])

def spin_animation(count):
    index = 0
    loops = 0
    delay = 0.0
    while loops < count:
        loops = loops + 1
        display.show(pics.ALL_ARROWS[index])
        sleep(delay)
        delay = delay + 0.005
        index = index + 1
        if index == 8:
            index = 0

while True:
    if buttons.is_pressed(BTN_A) or buttons.is_pressed(BTN_B):
        spin_animation(20)
        show_random_arrow()

    if buttons.is_pressed(BTN_U):
        break
```

Step #2: Brainstorm ideas

- Read through remix suggestions.
 - Six 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 own mild, medium, 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

Create a function that will give an introduction and wait to start the game spinner. Then add a button to break out of the infinite loop and end the program with a message.

[Video of Remix #1A](#)



Mild Remix #1B

Add a beep for each arrow spin.

[Video of Remix #1B](#)



Mild Remix #1C

Make the animation spin counterclockwise instead of clockwise.

[Video of Remix #1C](#)



Medium Remix #2A

Use BTN_A for spinning clockwise and BTN_B for spinning counterclockwise.

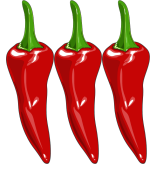
[Video of Remix #2A](#)



Medium Remix #2B

Many games use colors, numbers or specific images on the wheel. Show a random color (or large number) on the screen. Instead of ending with a random arrow, get a random number for count and whatever is showing at the end is the selection. (Only one function is needed.)

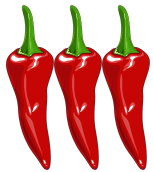
[Video of Remix #2B](#)



Spicy Remix #3A

Use both Button A and Button B for two different things. For example, use button A for the arrow spin and button B for the dice roll. Or button A for arrow spin and button B for colors.

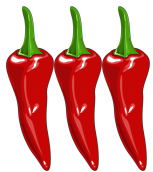
[Video of Remix #3A](#)



Spicy Remix #3B

Create another list and use a different beep for each arrow.

[Video of Remix #3B](#)



Spicy Remix #3C

Create a 2-player game. Each player presses their own button. Use the dice roll or assign points to the arrows or colors. The first player to a point value wins.

[Video of Remix #3C](#)



Extra Spicy Remix #4A

Many games use two dice. Create a program that rolls two dice at the same time.

[Video of Remix #4A](#)

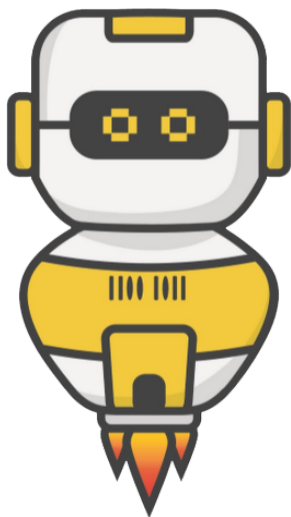


Extra Spicy Remix #4B

Create a color-match game. Display two rectangles, each with a random color. How long does it take to get matching colors?

[Video of Remix #4B](#)

Step #2: Brainstorm ideas



DO THIS:

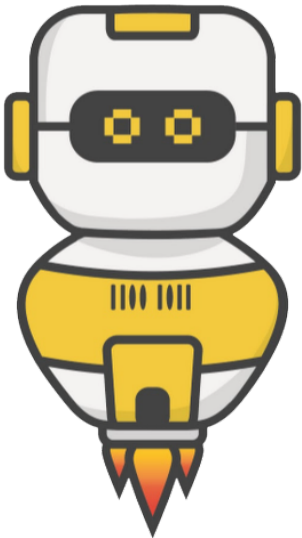
- Decide with your partner what project you will do
- Fill out the information in the Mission 9 Remix Log for **Step #2**

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 functions will you create for the program?
- What lists will you use, and what information will they store?
- What buttons will you program, and what will each button do?



DO THIS:

- Fill out the information in the Mission 9 Remix Log for **Step #3**


Remix Step 3: Plan your code. What functions, variables, lists and buttons will you use in the project? You do not need to fill out every line.

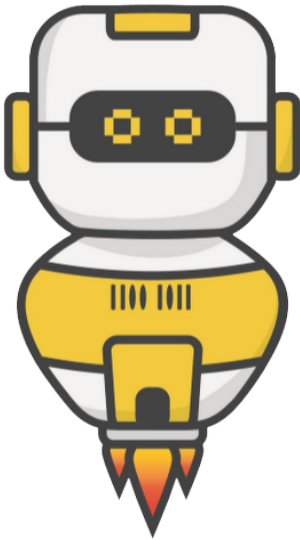
Variable Name	What it will be used for

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

Function name	What it will do

Step #4: Code your project

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



DO THIS:

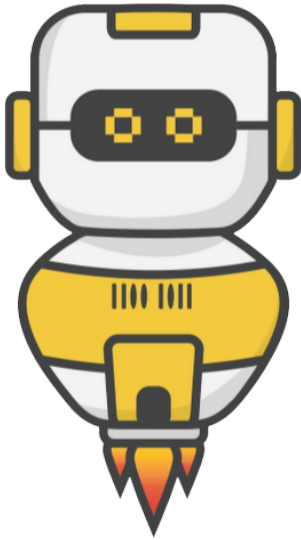
- Start with a new file and give it a descriptive name (**Remix9**)
- Import your modules
- Create your lists
- Define your variables
- Write your code, testing frequently

Reminders!

- Don't try to write all the code at one time
- Think about the steps –
 - Just get one thing to work, and then move on
 - Step by step!
- 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.

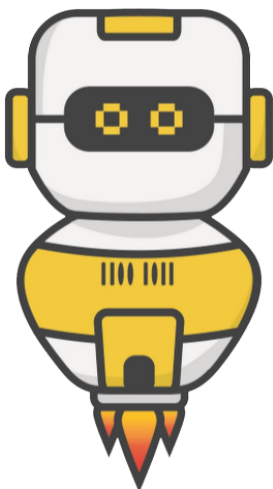


DO THIS:

- 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 9 Remix Log
- Get feedback from someone else (or yourself)
- Have him/her fill out the feedback form on your Mission 9 Remix Log

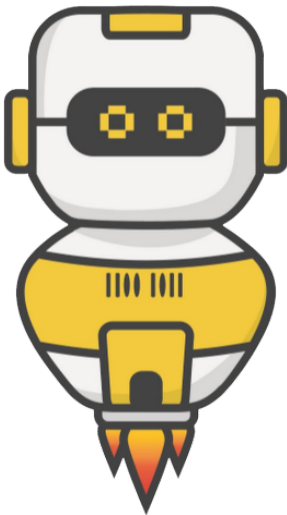
Modify your code to make your project even better

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 projects from other students
- Complete the Mission 9 Remix Log
- Don't forget to clear your CodeX by running your **Clear** program