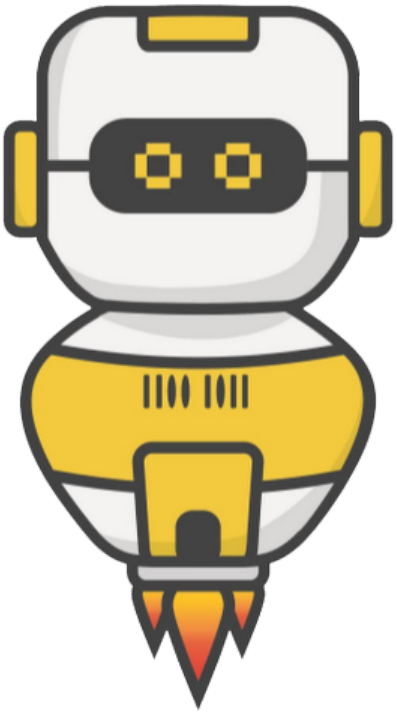
Mission 12:
Remix

Student Workbook

FIRIA LABS

REMIX

You are shining bright!



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

Go to the Mission 12 Remix Log and fill out the Pre-Remix preparation.

Time for a project remix

A remix can be:

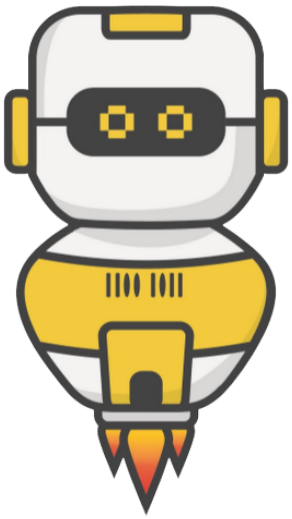
- A new program created by adding new code to a program you already created
- You can combine parts of two or more programs in a remix
- Use a similar idea in a different way

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 12
  - What do the programs do?
  - What skills were used or concepts learned?



DO THIS:

- Open your project from Mission 12– Night Light
- Review what the program does
- Review the programming concepts and skills you learned
- Fill out the information in the remix log

```
from codex import *
from time import sleep

# select a value slightly under the
# room light readings
ROOM = 5500

while True:
    value = light.read()
    if value < ROOM:
        scaled = (1 - value / ROOM) * 20
        level = int(scaled)
        pixels.fill(WHITE, brightness = level)
    else:
        pixels.fill(BLACK)
```

Step #2: Brainstorm ideas

- Read through remix suggestions.
  - Four 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, or 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 #1

Add another level variable of light intensity to the program -- it could be for bright light or very dark. This will give CodeX three options for the light sensor reading.

Video of Remix #1A

Medium Remix #2A

Change CodeX to a people counter. When the light sensor changes from room light to dark, increment a counter. Wait a little before checking again, so the person isn't counted twice.

Video of Remix #2A

Medium Remix #2B

Change CodeX to an alarm. When room light is detected instead of dark, an alarm will sound. Otherwise, display a peaceful picture.

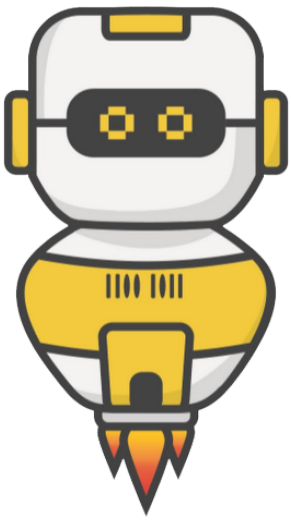
Video of Remix #2B

Spicy Remix #3

Add more level variables for CodeX, with each variation of light intensity displaying a different picture and pixel color. Try five levels.

Video of Remix #3

Step #2: Brainstorm ideas



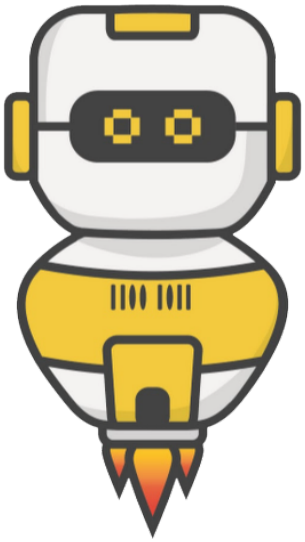
DO THIS:

- Decide with your partner what project you will do
- Fill out the information in the Mission 12 Remix Log for **Step #2**

Step #3: Make a plan

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

- What variables or constants will you need? What values will they hold, or what will you use them for?
- What if statements will you need for the program?
- What buttons will you program, and what will each button do?



DO THIS:

- Fill out the information in the Mission 12 Remix Log for **Step #3**

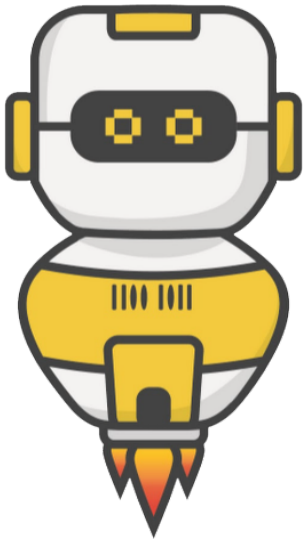
Variable / Constant	What value will it be, or what will be used for?

Conditions (if statements)	What it will do

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 **NightLight**, and use it as a guide



DO THIS:

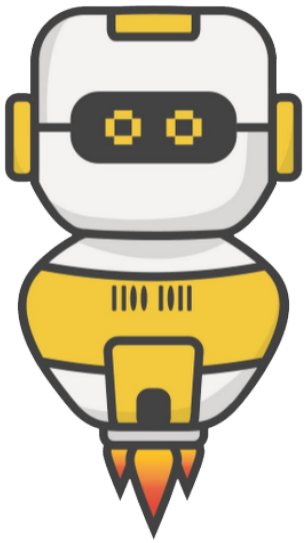
- Start with a new file and give it a descriptive name (**Remix12**)
- Import your modules
- Create variables and constants as you go or when you see a need
- Write your code, testing frequently

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.

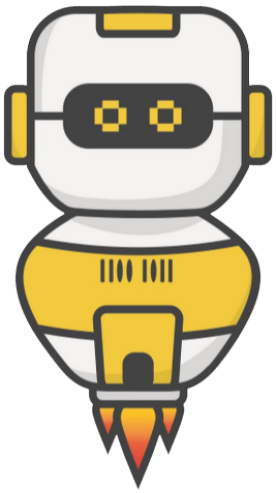


DO THIS:

- 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 12 Remix Log
- Get feedback from someone else (or yourself)
- Have him/her fill out the feedback form on your Mission 12 Remix Log

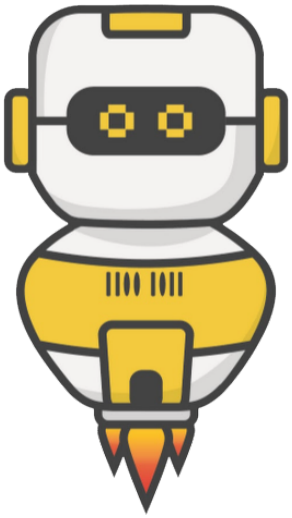
Modify your code to make your project even better

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 12 Remix Log
- Don't forget to clear your CodeX by running your **Clear** program