


| CodeAIR Mission 3 Assignment | Name:  |
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| Pre-Mission Preparation | |
| You will be programming the LEDs for most of this mission. What code for LEDs do you remember? | <p>Answers will vary. Possible answers include:</p> <ul style="list-style-type: none"> • Students may not remember anything • <code>leds.set(0, 50)</code> • <code>Leds.set</code> has two arguments – one for the number of the LED, and the other is the brightness • CodeAIR has 8 blue indicator LEDs |
| You will also use CodeAIR's speaker. What sound code do you know for CodeX or CodeBot? | <p>Answers will vary.</p> <ul style="list-style-type: none"> • If this is the first CodeSpace mission pack, they won't know any code. • The other devices use <code>spkr.pitch(freq)</code> and <code>spkr.off()</code> |
| Mission 3 Checks | |
| Objective #1 How can you turn off an LED? | <code>leds.set(0, 0)</code> Use 0 for brightness |
| How can you cause a delay in code execution? | <code>sleep(amount)</code> <code>sleep(1)</code> or <code>sleep(0.1)</code> |
| Objective #2 How do you code an infinite loop? | <code>while True:</code> |
| What is the code for blinking an LED? | <code>leds.set(0, 50)</code> <code>sleep(0.1)</code> <code>leds.set(0, 0)</code> <code>sleep(0.2)</code> |
| Objective #3 What is the problem with the code in CodeTrek? | The lights don't turn off, so after one cycle, they are on all the time. |
| Objective #4 How do you fix the problem from #3? | Turn off the light before turning on the next light. <code>leds.set(0, 50)</code> <code>sleep(0.1)</code> <code>leds.set(0,0)</code> Then turn on the next light |
| Objective #5 Why are the notes defined as constants? | The note name, octave and frequency don't change. It is easier and more readable to use a name for the frequency instead of the number. |
| What is the code for playing a sound? | <code>speaker.beep(frequency, duration)</code> <code>speaker.beep(440, 200)</code> |
| Objective #6 Click on the RGB tool. A list of pre-defined colors is given. How many colors are readily available? | 16 pre-defined colors All pre-defined RGB colors in are ALL CAPS. This sets them apart from any user-defined colors. |

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| What is the difference between the user LEDs and the pixel LEDs? | The user (or blue indicator) LEDs are only blue. The code for the user LEDs asks for LED number and brightness. The pixel LEDs are multi-colored. The code for pixel LEDs asks for LED # and color. |
| Objective #7 Write the line of code that will flash all 8 pixels in sequence: | for n in range(8): |
| Objective #8 How are the lights designated for Standard Navigation Lights? | <ul style="list-style-type: none"> • Green on the right (starboard) • Red on the left (port) • White on the tail |
| What is the code to create strobe lights? | <pre>sleep(1.0) pixels.fill(WHITE, brightness=50) sleep(0.02)</pre> |
| Post-Mission Reflection | |
| What is a new concept you learned during this mission? | <p>Answers will vary:</p> <ul style="list-style-type: none"> • Using while loops • Infinite loops • Using a for loop • Blinking LEDs • Pixel LEDs • Strobing lights • Standard Navigation Lights • And much more! |
| What is the difference between a while loop and a for loop? | <p>A while loop is a standard go-to general purpose loop for a variety of tasks. It requires a condition, and will repeat indented code as long as the condition is true. If the condition is always true (like a Boolean) it is an infinite loop.</p> <p>A for loop iterates over a sequence, like a list of colors or a range of numbers. It is a specialized loop with built-in features, like its condition.</p> |