



Unit 7: The TI-RGB Array

Skill Builder 2: A Rainbow of Color

In this lesson, you will light up the LEDs in random colors.

Objectives:

- Import another module
- Use **randint()** to generate random LEDs in random colors
- Use **esc** to end the program

1. Begin a new Python Hub Project.

Make a variable using the **rgb_array()** constructor by selecting it from:

menu > TI Hub > Add Output Device

Use the variable **cb** (for 'circuit board') again.

Add the usual **esc** keypress loop from

menu > TI Hub > Commands

so that your program will loop until you press **esc**.

```

1.2 1.3 1.4 *Unit7 Py...ray RAD 10/23
*u7sb2.py
# Hub Project
#=====
from ti_hub import *
from math import *
from time import sleep
from ti_plotlib import text_at,cls
from ti_system import get_key

#=====
cb=rgb_array()
while get_key() != "esc":

```

Teacher Tip: This lesson is simple but has an awesome visual effect.

2. Write four statements using **randint()** to assign values to variables representing the LED number (0...15) and the colors red, green, and blue. **randint()** is found in the **random** module which is *not* included in the import section at the top of your program. You will have to add it yourself. Find that import statement on **menu > Random**.

led = randint(min,max)

Try it yourself before looking at the next step.

3. Have the TI-RGB Array light up the random LED in the random color using:
cb.set(led, r, g, b)

Try your program now. If the lights are flashing too fast, add a **sleep()** statement after the **cb.set()** statement.

```

1.2 1.3 1.4 *Unit7 Py...ray RAD 18/27
*u7sb2.py
from random import randint
#=====
cb=rgb_array()
while get_key() != "esc":
  r = randint(0,255)
  g = randint(0,255)
  b = randint(0,255)
  led = randint(0,15)
  cb.set(led, r, g, b)
  .
  .
  .

```



4. At the end of your program, turn all the LEDs off:

```
cb.all_off()
```



(demo2.1.gif)

Teacher Tip: For an interesting variation, add a fifth random value that determines whether to light up the random LED or just turn it off.

```
onoff = randint(0,1)
if onoff ==1:
    cb.set(...)
else:
    cb.all_off()
```

This creates blinking colored lights.