



Unit 7: The TI-RGB Array

Skill Builder 2: A Rainbow of Color

In this lesson, you will generate random colors on each of the LEDs on the TI-RGB Array.

Objectives:

- Use getKey() to end a program
- Use randInt() to light a random LED in a random color

We will use the random number generator **randInt()** to make random LEDs light up in random colors.

1. Start a new program - we called it **rainbow()** - and add

Send "CONNECT RGB"

Using **menu > HUB > Send "CONNECT-Output..."** and select **RGB** from the next menu.

Type the closing quote and parenthesis.

```

1.8 1.9 1.10 *10MoC...Sim RAD 1/19
* rainbow
Define rainbow()=
Prgm
Send "CONNECT RGB"
EndPrgm

```

2. Add a **While... EndWhile** loop using **menu > Control > While...EndWhile**

```

1.8 1.9 1.10 *10MoC...Sim RAD 2/21
* rainbow
Define rainbow()=
Prgm
Send "CONNECT RGB"
While |
EndWhile
EndPrgm

```

3. The loop will end when the **[esc]** key is pressed. The condition is:

While getKey(0) ≠ "esc"

≠ is found on **ctrl =**

type the quotes using **[ctrl] [*]** then the letters **esc**.

```

1.8 1.9 1.10 *10MoC...Sim RAD 2/21
* rainbow
Define rainbow()=
Prgm
Send "CONNECT RGB"
While getKey(0) ≠ "esc"
EndWhile
EndPrgm

```

4. In the loop body write four statements to assign random integers to four variables representing the LED number and the red, green, and blue values.

```

led := randInt( 0, 15)
red := randInt( 0, 255)
green := randInt( 0, 255)
blue := randInt( 0, 255)

```

```

1.8 1.9 1.10 *10MoC...Sim RAD 7/25
* rainbow
Define rainbow()=
Prgm
Send "CONNECT RGB"
While getKey(0) ≠ "esc"
led:=randint(0,15)
red:=randint(0,255)
green:=randint(0,255)
blue:=randint(0,255)
EndWhile

```



10 Minutes of Code

TI-NSPIRE CX™ WITH TI-INNOVATOR™ AND TI-RGB ARRAY™

UNIT 7: SKILL BUILDER 2

STUDENT ACTIVITY

5. Add the **Send** statement to control one of the TI-RGB Array LEDs:
Send “SET RGB eval(led) eval(red) eval(green) eval(blue)”
 and a **Wait** statement to slow the lights down:
Wait .25

6. Press **ctrl-R** to run the program to see a wide variety of colors blinking.

Press **[esc]** to stop the program. Notice that the LEDs are still lit even though the program has ended. Fix this by turning them off just after the **EndWhile** statement by adding the statement:

```
EndWhile
Send “SET RGB ALL 0 0 0”
EndPrgm
```

```
1.6 1.7 1.8 *10MoC .. Sim RAD 14/24
* rainbow
While k*"esc"
l:=randInt(0,15)
r:=randInt(0,255)
g:=randInt(0,255)
b:=randInt(0,255)

Send "set rgb eval(l) eval(r) eval(g) eval(b)"
Wait .25

EndWhile
```

