



### 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.

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

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**.

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 1/19
* rainbow
Define rainbow()=
Prgm
Send "CONNECT RGB"
EndPrgm
```

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

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

```
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
```

