Unit 1: Getting Started with TI-Innovator™ Hub **Application: Traffic Light**

Write a program that controls a traffic light.

Objectives:

- Control the COLOR LED to simulate a traffic light using a single bulb
- Create a sequence of statements with proper timing controls

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Your task is to write a program that controls a traffic light. The light will be simulated using the COLOR LED on the TI-Innovator™ Hub.

The COLOR LED should switch from green to yellow to red AND from red to green. Timing is up to you.

Your program will have a sequence of statements that simulate the change from RED to GREEN to YELLOW to RED. A sequence control structure in programming is a set of statements that are processed one after another, from top to bottom, without interruption.

Using *Disp* and *Pause*

The **Disp** command displays a message on the Home screen of the calculator. It can be used to display the value of a variable as in **Disp X**, or it can display a string as in the example on the right. You can locate **Disp** by pressing [PRGM] and arrowing over to **I/O** and selecting **Disp**.

The **Pause** command displays a message as well but stops the calculator from processing any more statements until the user presses [ENTER]. You can locate **Pause** by pressing [PRGM] and selecting **Pause**.

Setting up the Title Screen

1. Begin a new program, and call it APPLIC1.
2. Add a **ClrHome** statement from [PRGM] **I/O** menu.
3. Add **Disp** by pressing [PRGM], arrowing over to **I/O**, and selecting **Disp**.
4. In quotation marks ([ALPHA] [+]), add the message “TRAFFIC LIGHT”.
5. Add **Pause** by pressing [PRGM] and selecting **Pause**
6. In quotation marks, add the text “PRESS ENTER…”, as shown.

Teacher Tip: Why are there three different lights on a traffic signal rather than just one that could change color? People who are color blind can tell by the position of the light whether it is red or green. Green is always at the bottom or on the right.

Set the Colors

First we set the color to red by setting the RGB values of 255, 0, 0.

In the example on the right, we use a **Wait** statement to tell the calculator to wait 5 seconds before sending the next command to the TI-Innovator Hub. The red light will stay on during this time.

Your task is to add the statements to make the light green, then yellow, and then red again.

Challenge: Add SOUNDs to indicate the color of the light.

Teacher Tip: The RGB values for yellow are 255, 255, 0.