ARDUINO 3 – RGB LED

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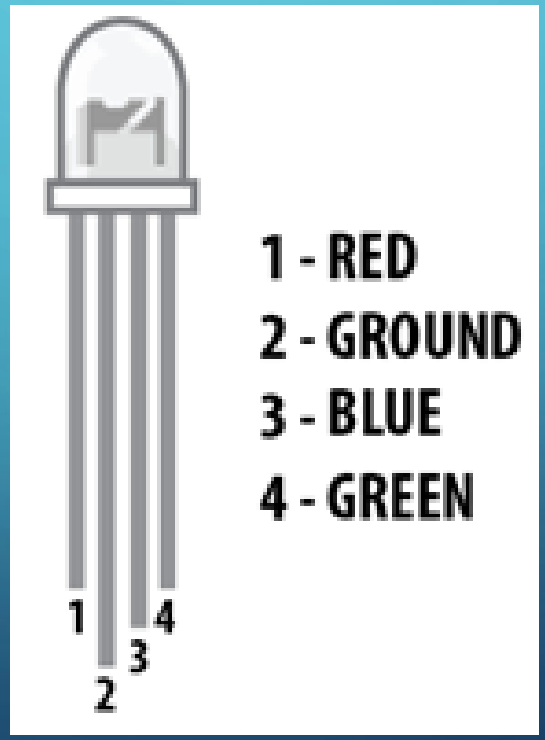
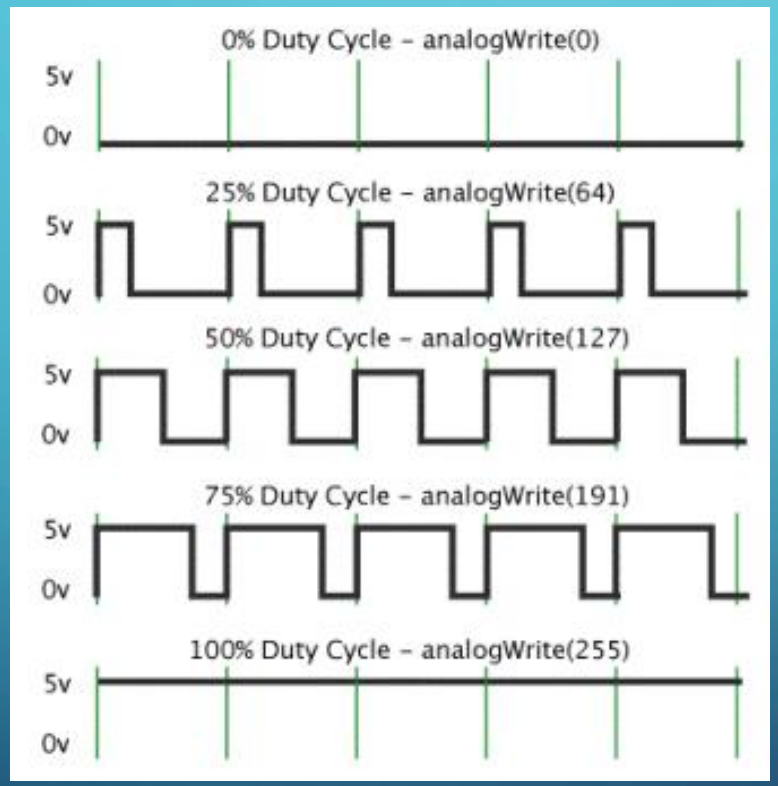
INTRODUCTION

- Use an Arduino with PWM outputs to control the colour of an RGB LED



WHAT IS PWM?

- PWM = Pulse Width Modulation



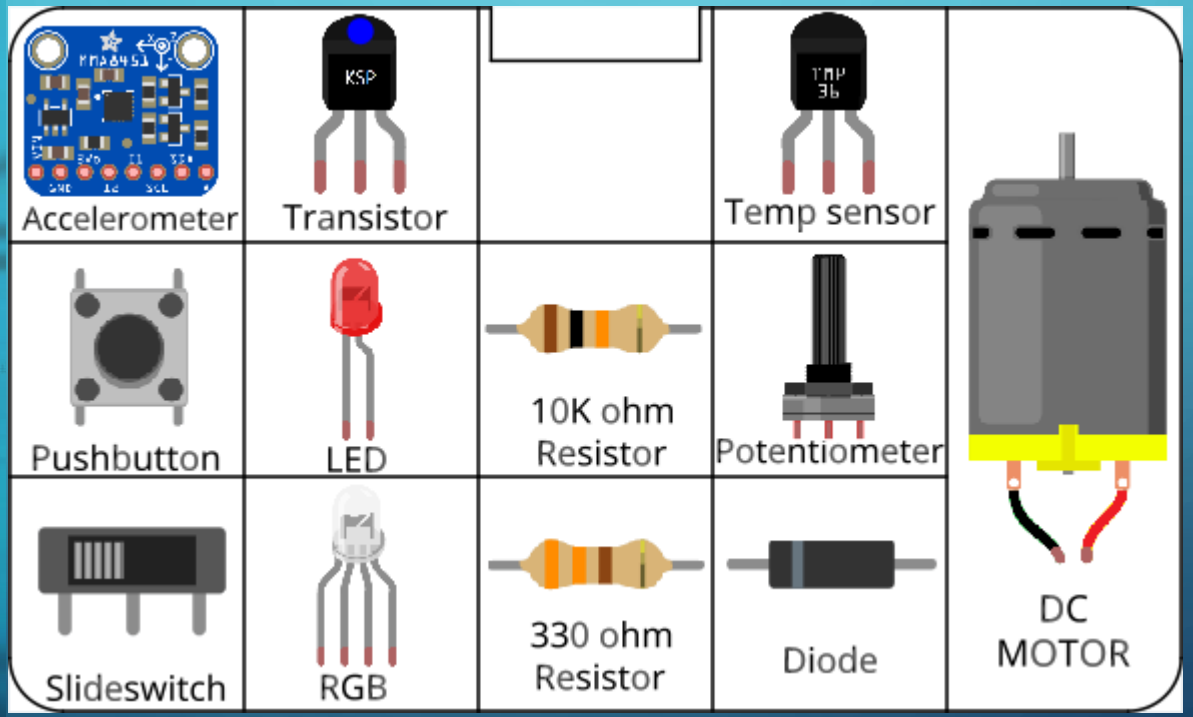
- Switch on/off at varying frequencies to control LED brightness

WHAT ARE WE DOING TODAY?

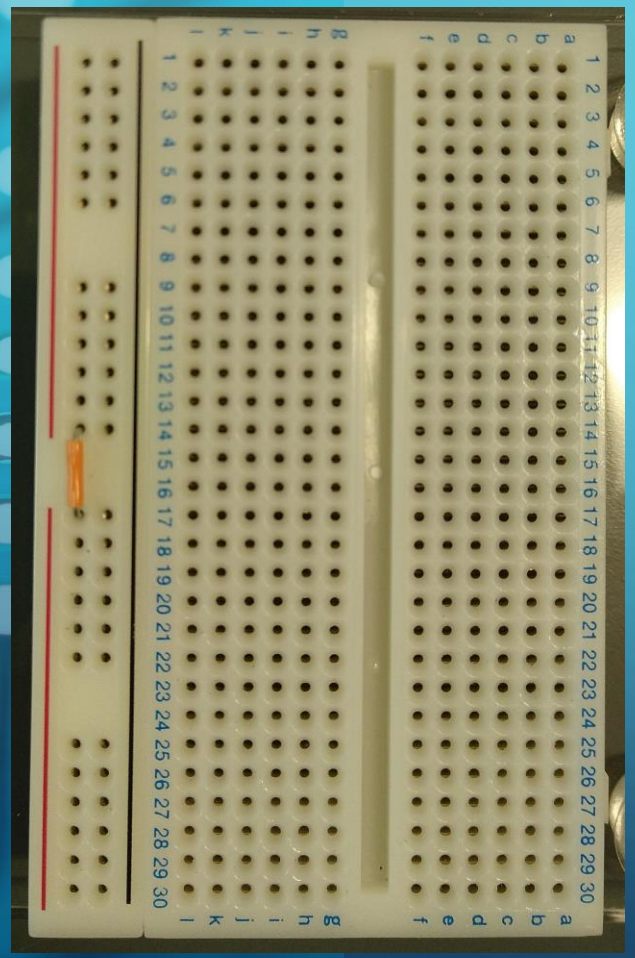
1. Set the RGB LED to illuminate with various colours (yellow, purple, navy…)
2. Use a potentiometer to control fading between different colours

CIRCUITS

All components included in the kit…

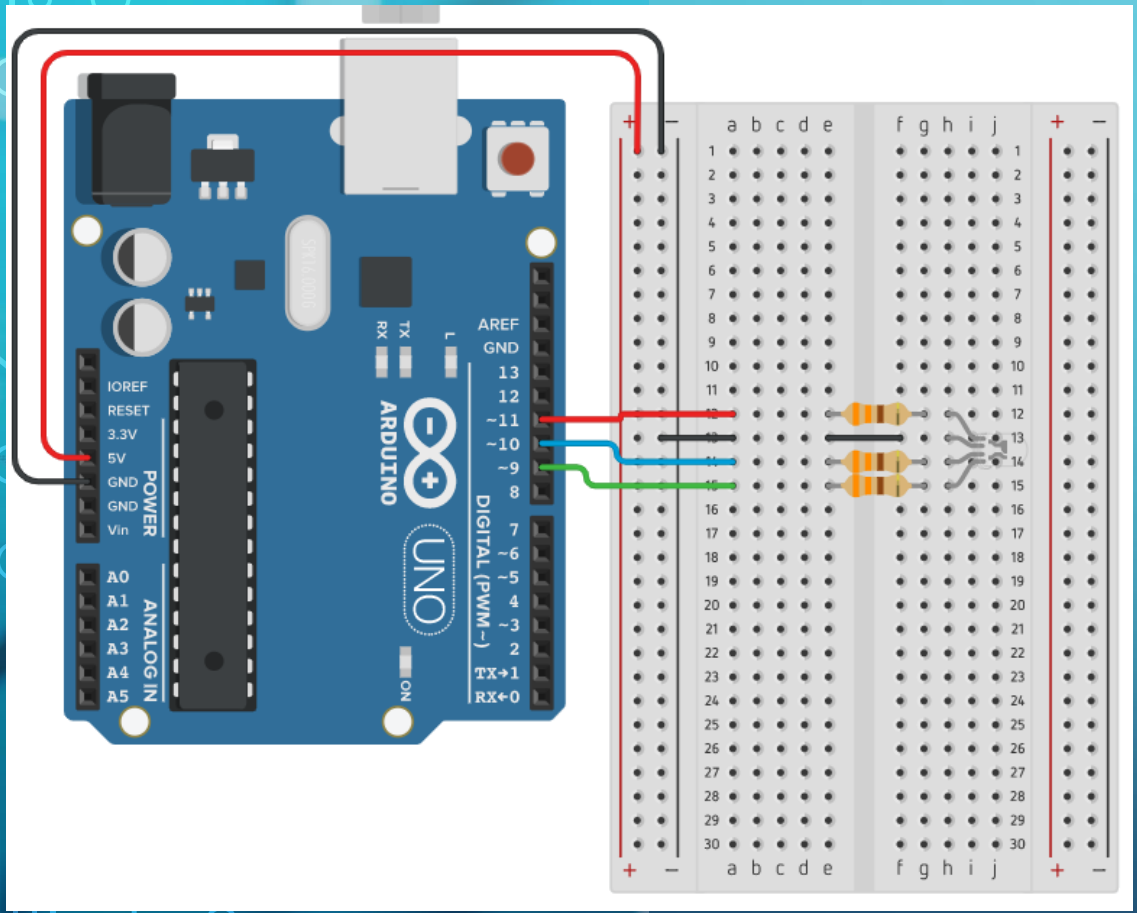


BEFORE YOU START BUILDING CIRCUITS…



- Connect power bus (+ line) together using a small section of jumper cable

BUILDING CIRCUITS



- Insert components into breadboard holes
- Connect up using instrument wire
- Arduino controls inputs and outputs
- Follow schematics

NOTE: GND = negative

DEBUGGING CODE

- Is there a space missing somewhere?
- Do all lines end with a semicolon;
- Is something commented out //

HOUSEKEEPING

- Take two boxes:
  - One Arduino box
  - One Sensors and Motion kit
- Put components back into labelled places in boxes after use
- Any components missing – let us know.

TIDYING UP

- Return components to your Sensors and Motion box IN THE CORRECT PLACES!!!
  - Put instrument wire in motor compartment
- Return Arduino to its case
- Return both boxes to tutor

FINISHED ALREADY?

- Try fading through a rainbow – fade between red, orange, yellow, green, blue, indigo and violet. Control the time that each colour is illuminated using the potentiometer.
- Create a dimmer switch – choose a single colour, and control brightness using input from the potentiometer
- Control colour using input from the potentiometer