# ARDUINO 4 – MOTOR

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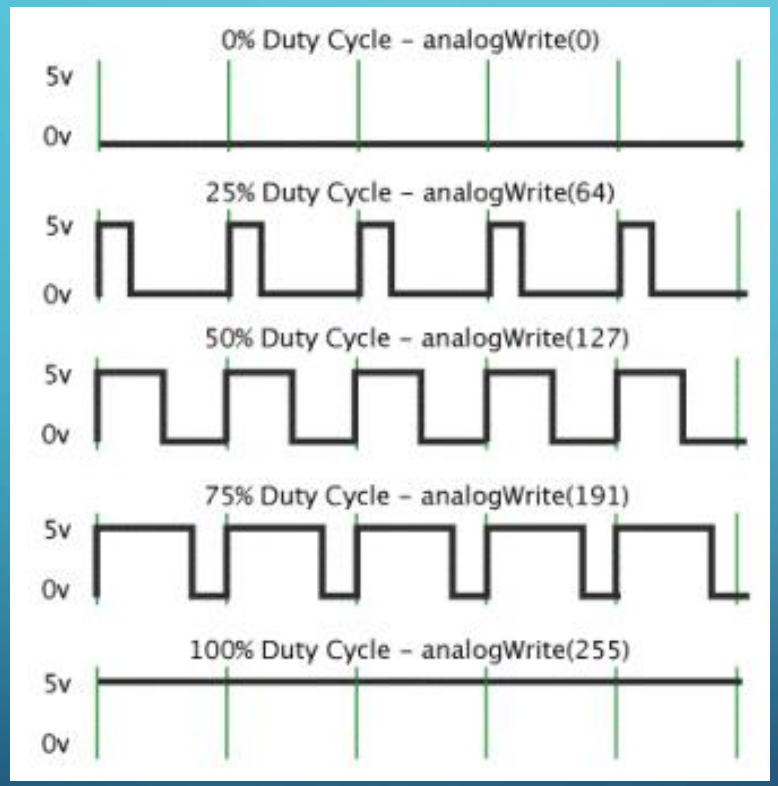
# INTRODUCTION

- Use an Arduino with PWM to control a motor
- Use a potentiometer to adjust the speed of the motor

# WHAT IS PWM?

- PWM = Pulse Width Modulation



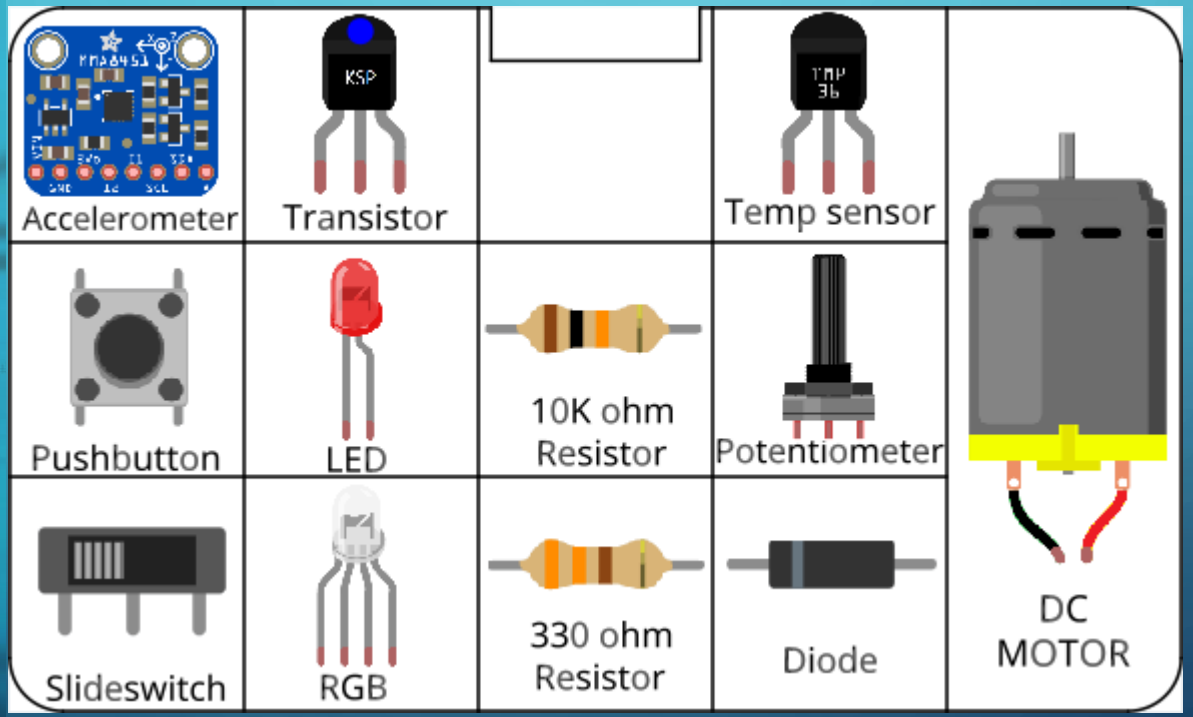

- Switch on/off at varying frequencies to control motor speed

# WHAT ARE WE DOING TODAY?

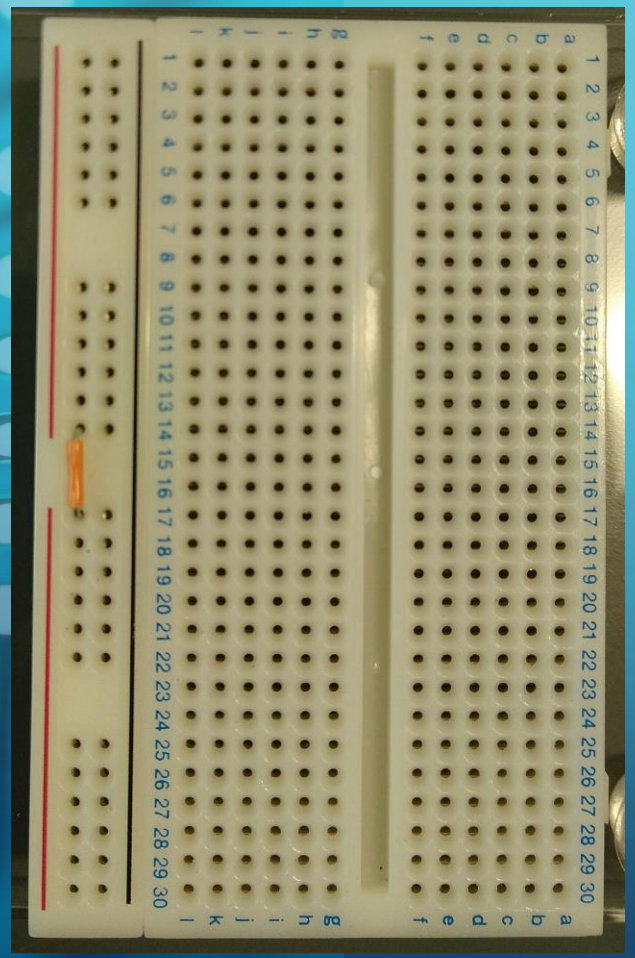
1. Turn the motor on and off
2. Slowly accelerate the motor from zero to full speed then back to zero
3. Use a potentiometer to control the speed of the motor

# CIRCUITS

All components included in the kit…

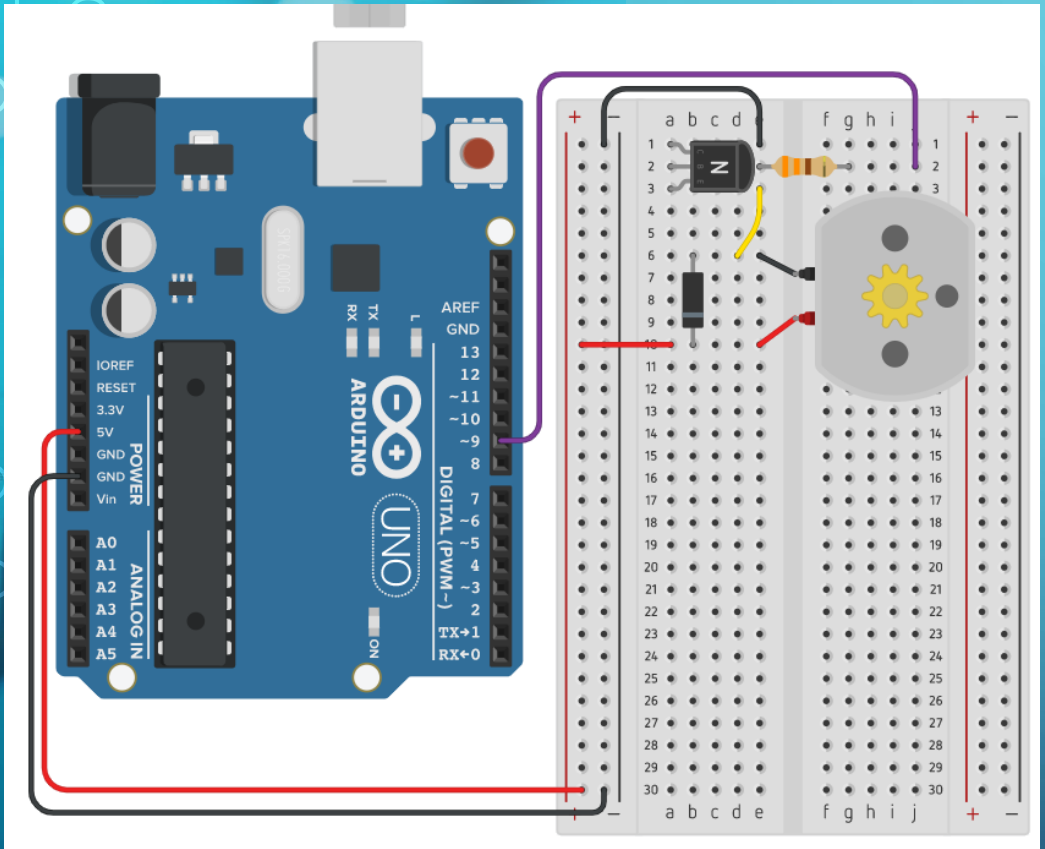


# BEFORE YOU START BUILDING CIRCUITS…



- 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 the RGB LED tutorial (on Teams) if you haven't already
- Combine exercise 2 (Alarm) and this exercise:
  - Create a circuit that turns on a pump (the motor) when the low level switch is triggered on the (simulated) water tank.
  - Switch off the pump (motor) when the mid or high level is reached.