ARDUINO 5 – TEMPERATURE

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INTRODUCTION

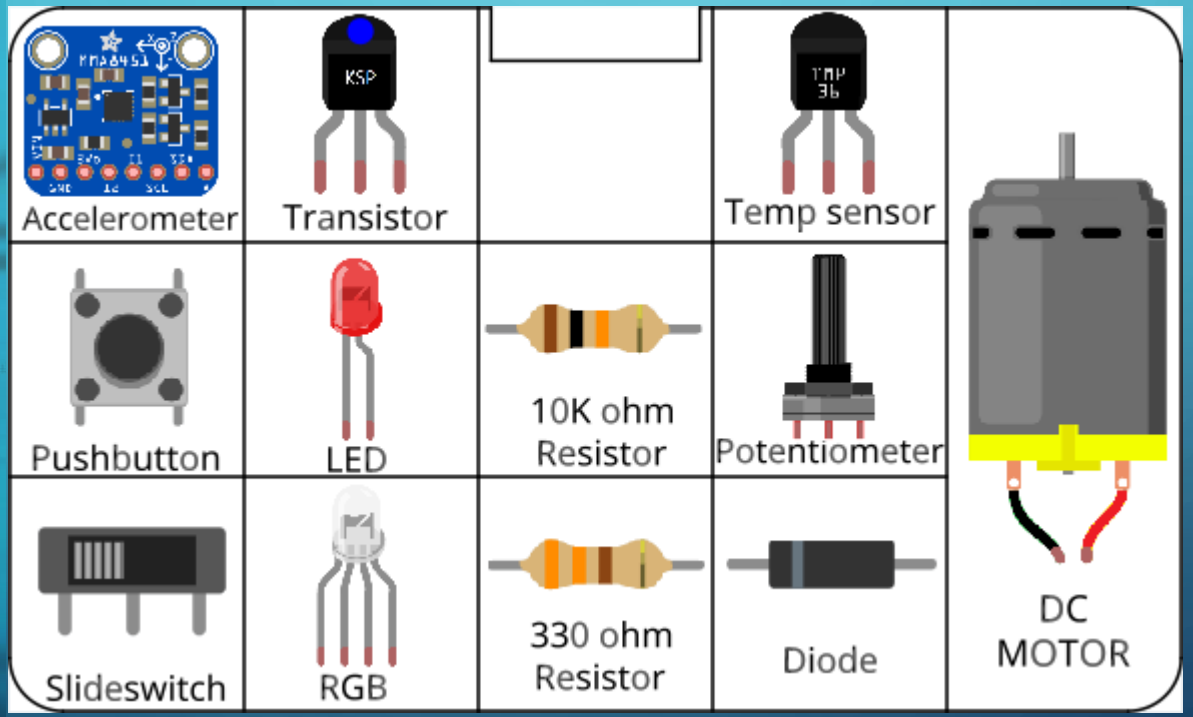
- Use an Arduino and a temperature sensor to measure temperature
- Log the data and plot it in Excel

WHAT ARE WE DOING TODAY?

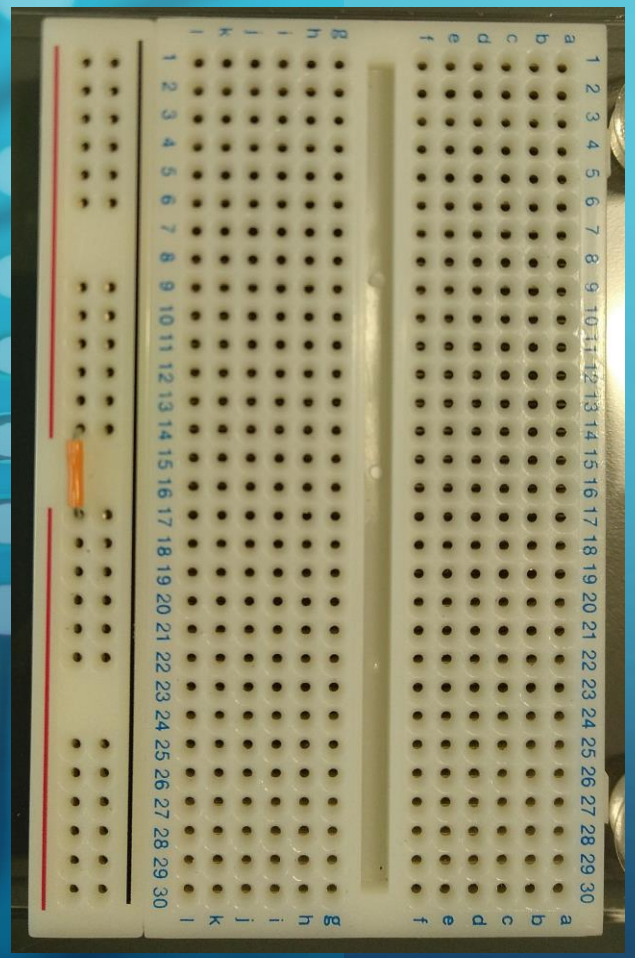
1. Create a circuit with a temperature sensor
2. Measure temperature and log it to the serial window
3. Copy/paste and send to Excel for graphing

CIRCUITS

All components included in the kit…

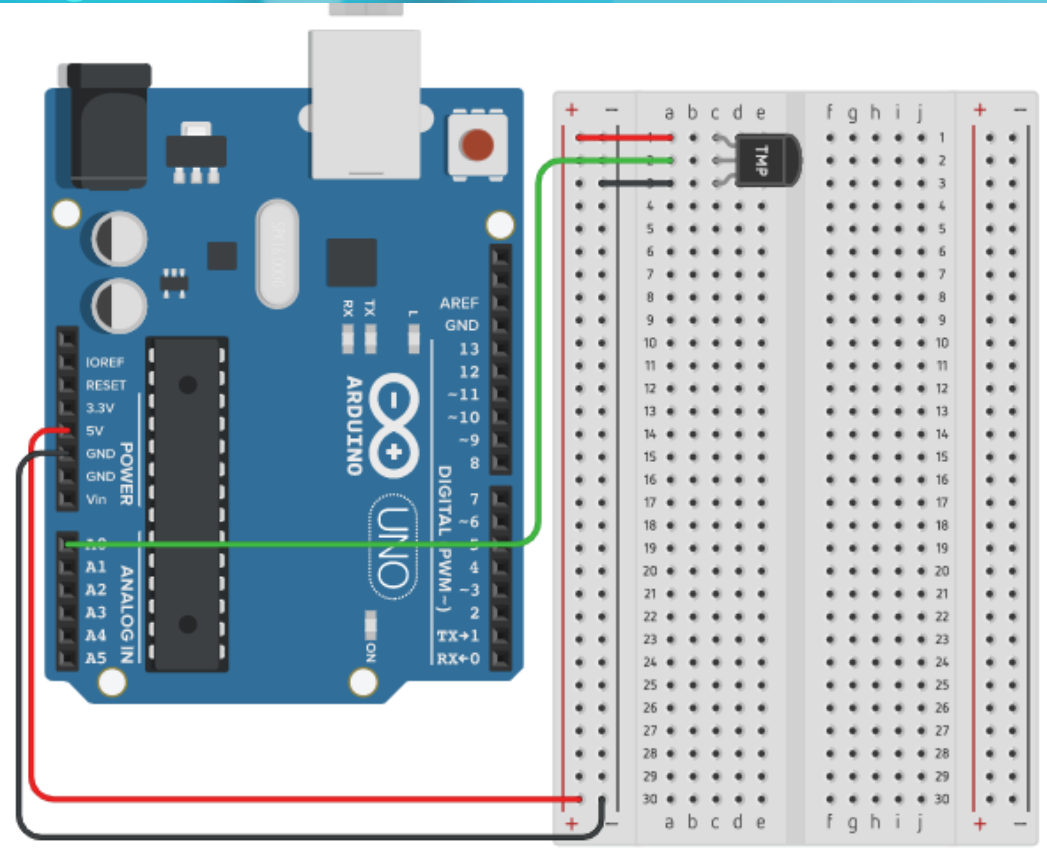


BEFORE YOU START BUILDING CIRCUITS…



- 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

- **Work in pairs**
- Take two boxes per pair:
  - One Arduino box
  - One Sensors and Motion kit
- Cut your own (single core) instrument wire
- 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?

- Add a timestamp to each measurement in the Arduino code (not just the serial monitor timestamp)
- Turn on a fan (servomotor) when the measured temperature goes above a chosen level
  - Log when the fan is switched on along with the measured temperature
- Change the colour of an RGB LED to match the measured temperature (blue = cold, orange = medium, red = hot)