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GFG Foundation Blast Furnace Workbook

Romania, 2023

Overview

You will learn about blast furnaces and how they are being replaced with modern electric arc furnaces to combat climate change.

In pairs, you will use STEM (Science, Technology, Engineering and Maths) skills to construct a model blast furnace from wooden and electrical components. Compete in a game to make all LED lights within the model's chimney to glow red.

The player within each pair who has the fewest attempts will win, but also the pair with the fewest combined attempts will win the overall trophy.

Course Outcomes

- To develop soft skills, such as teamwork, communication, problem solving skills, patience, etc..
- To educate on green technologies within the evolving steel industry
- Prepare for GFG Foundation Student GFG Programme year 2 and the Rewise week
- To develop STEM skills (Science, Technology, Engineering and Maths)
- Have fun!

Blast Furnace Card Game

In your pair/group read through all of the cards and list them under the related topic cards “Blast Furnace” “Electric ARC Furnace” and “Definitions”.

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Blast Furnace

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Electric ARC Furnace

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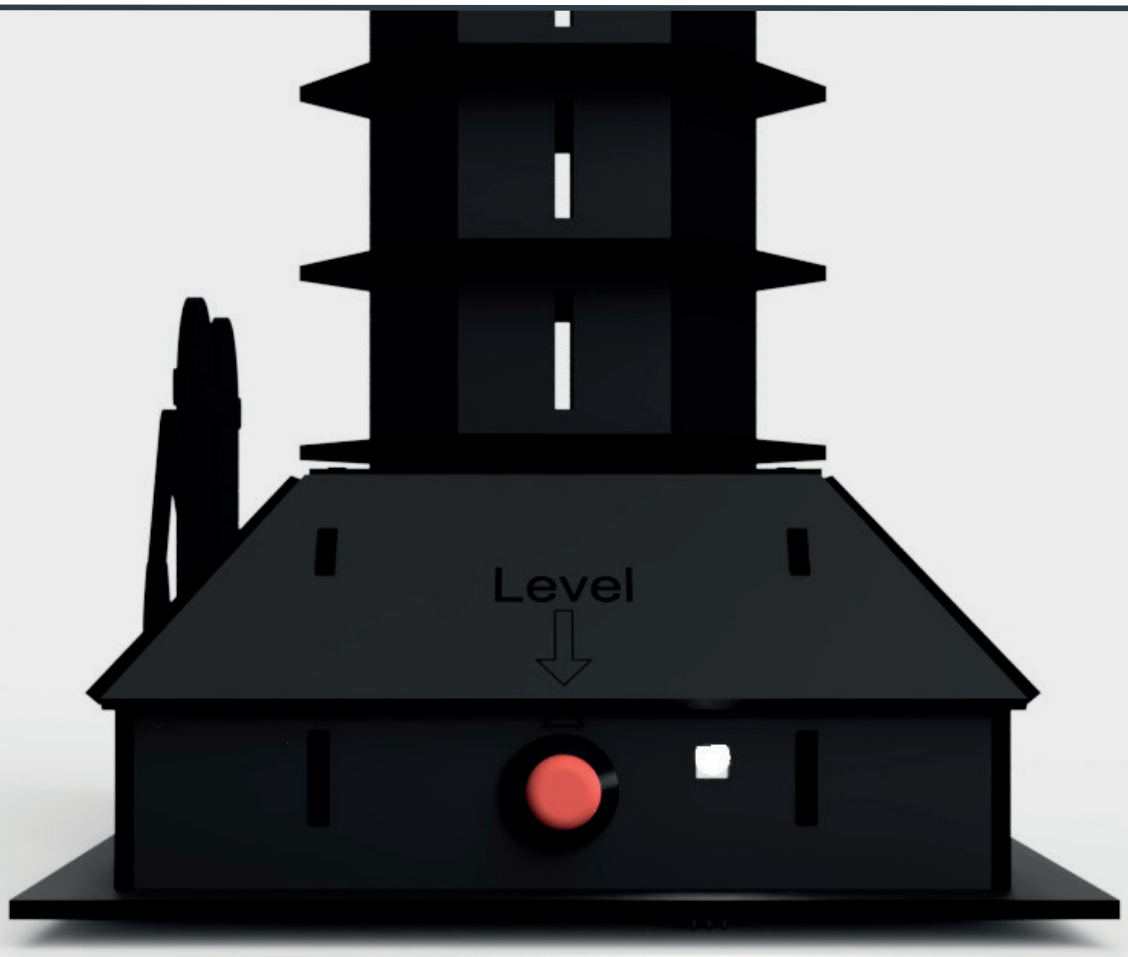
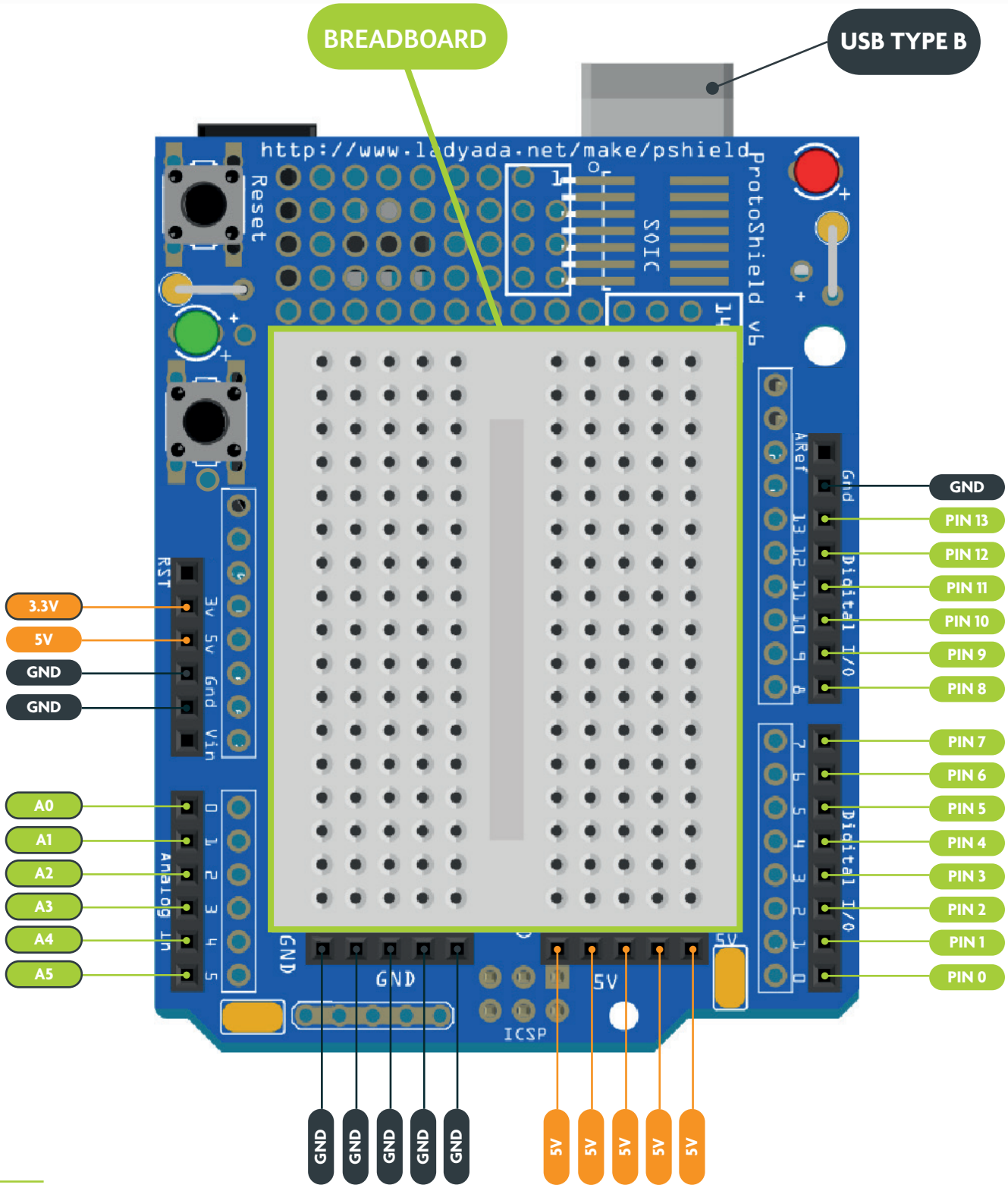
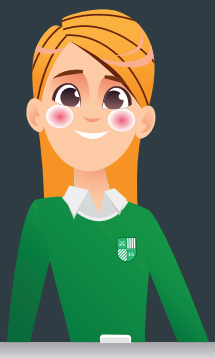
Definitions



Arduino Motherboard





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Arduino
Matching Activity

Using the labelled diagram on the previous page match the descriptions to pins.

GND	Pins used to output (give) 5 volts of power
3.3V	Digital Pins that can be programmed to do a certain job
5V	Pins that can be used as an extension cable
BREADBOARD	Analogue Pins that can be programmed to do a certain job
PIN 0 - PIN 13	Pin used to output (give) 3.3 volts of power
A0 - A5	Pins that provide a ground charge, can also be labelled as - or G

Organisation and Labelling

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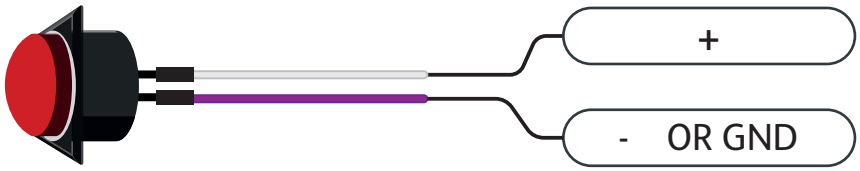
1. Organise all of your wooden pieces from A1 - A20.

TICK ONCE COMPLETED.

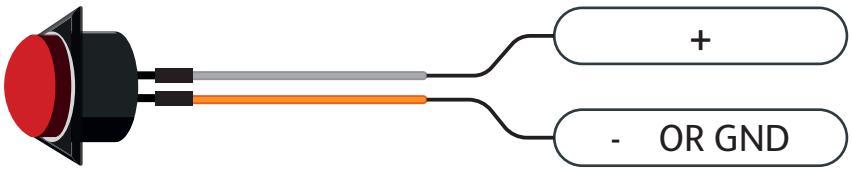
2. Find the components below and label the name of each pin/cable. The first two have been Provided as an example.

TICK ONCE COMPLETED.

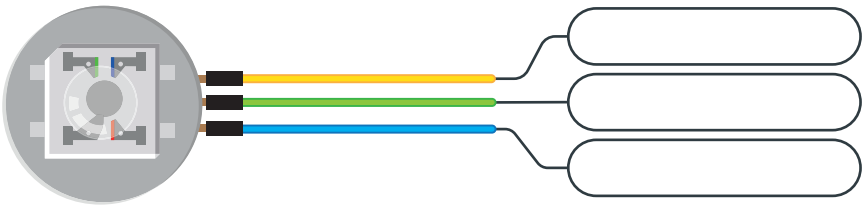
BUTTON 1



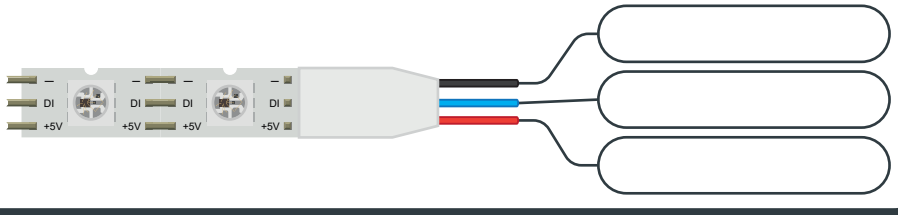
BUTTON 2



NEOPIXEL



LED STRIP



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