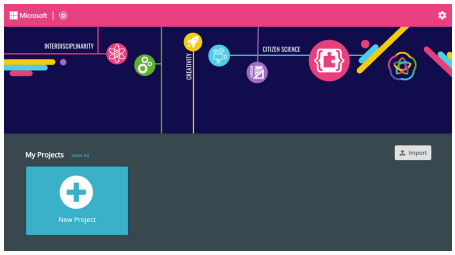
PROGRAMMING RESOURCES - INTRODUCTION

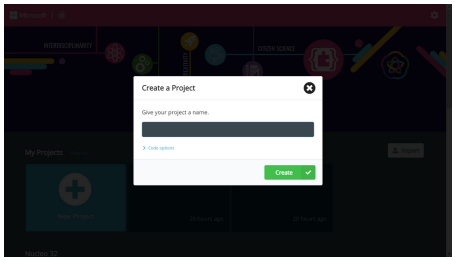
# TAKE A TOUR OF MAKECODE

## BASICS OF PROGRAMMING - SOFTWARE AND HARDWARE

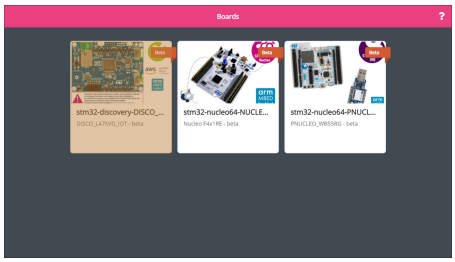
When you enter the MakeCode Let's STEAM website, you will directly land on the homepage. On this page, you can create a new project, open an existing project if you have been working on the editor before, view the supported boards and discover inspiring resources.



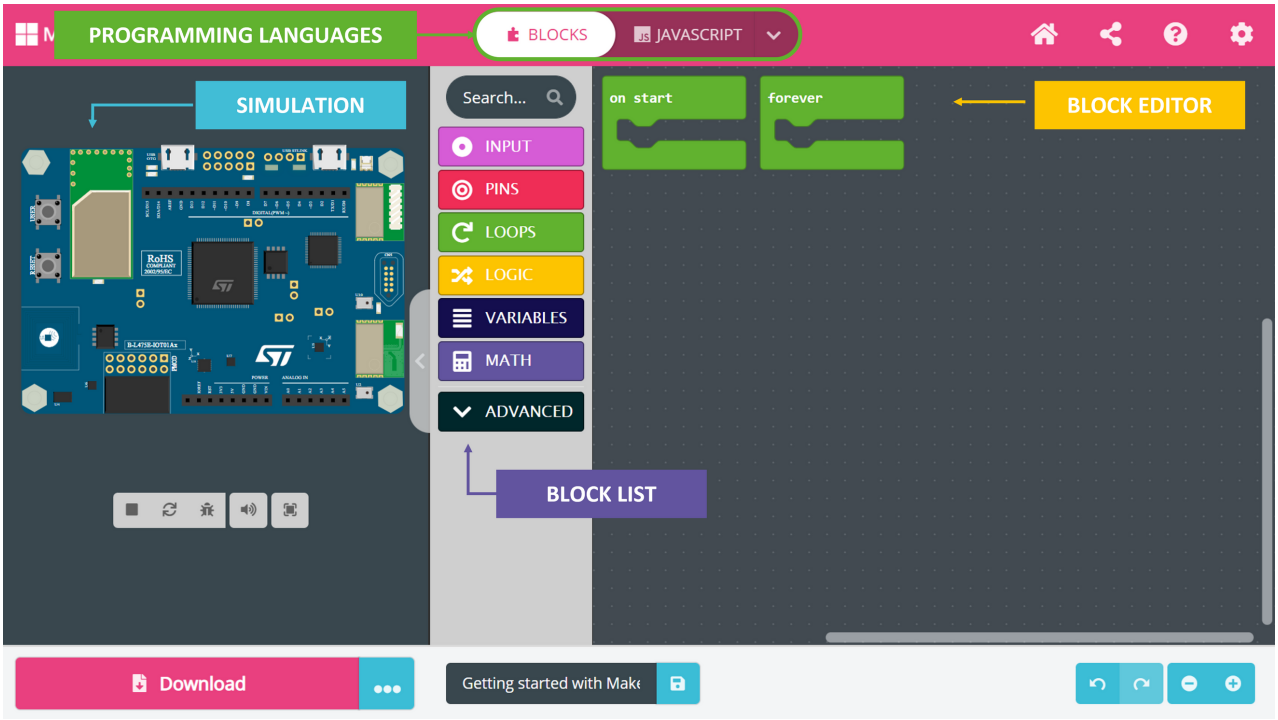

- When you are creating a project, it is important to **name it with a clear and understandable title**, enabling you to express what will be the purpose of the program.




- The next screen will request you to **choose the board on which you will work**. On the Let's STEAM activity sheets, all the examples have been developed using the STM32 IoT Node Board (the board is highlighted in orange in the picture presented here).




Once the board is selected, you will then have access to the editor, with three parts as shown hereunder:

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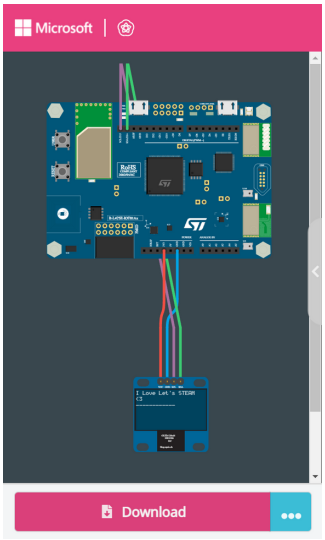
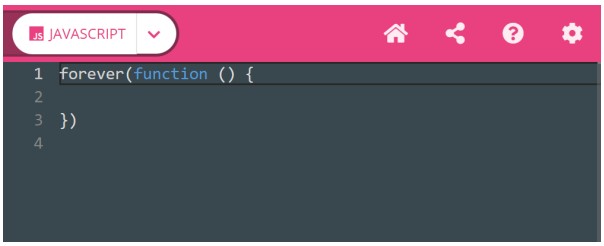
Here are the basic components of your editor:

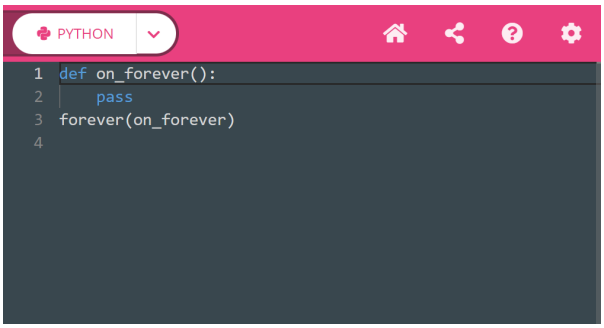
- The **SIMULATOR** (on the left side of the editor): an interactive simulator provides students with immediate feedback on how their program is running and enable them to test and debug their code.
- The **BLOCK LIST** in the middle, that can be used in your program to search for functions.
- The **BLOCK EDITOR** on the right part, that includes already 2 functions common to all activities: on start & forever loop. Students new to coding can start with coloured blocks that they can drag and drop onto their workspace to construct their programs.



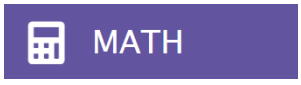

In the editor, you will also be able to choose the way of programming i.e.:

- **Through blocks** (see activity sheet R1AS1 - Blink a LED)
- **Through JavaScript editor** (all the activity sheets proposed in this coursebook will include the code in JavaScript that can directly be copy-pasted in this specific editor)
- **Through Python language** for more advanced students.



Even if you will have more precise insights on each block function in the diverse activity sheets proposed in this coursebook, here is the basic blocklist available that can be found on the Let's STEAM MakeCode editor:

| | | |
|---|---|---|
| **Input** |  | Use sensors in your programme (such as buttons, thermometer) |
| **Pins** |  | Interact directly with the pins and change their status (from low to high, from on to off) |
| **Control** |  | Manage the execution of events |
| **Loops** |  | Implement repetitions |
| **Logic** |  | Perform tests, comparision and boolean logic operations |
| **Variables** |  | Create variables and counters |
| **Math** |  | Perform diverse mathematical calculations |
| **Functions** |  | Create subprogrammes |
| **Arrays** |  | Create a value or text in a table |
| **Text** |  | Modify texts |
| **Console** |  | Display data |
| **Extensions** |  | Access the list of extensions available in the MakeCode version |
| **Datalogger** |  | Create a dataset to store the data from the sensors |
| **LCD Screen** |  | Display text or information on a screen (LCD) |
| **OLED Screen** |  | Display text or information on a screen (OLED) |