STEMpedia

Internet of Things

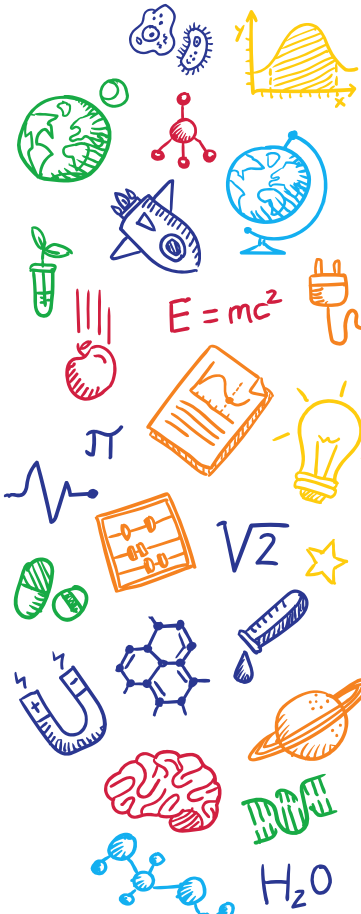
Publishing Temperature and Humidity Data on Cloud

STEMpedia

What will you do?

What will you do?

- In this project, we are providing you a microcontroller (evive), a ESP8266 module, DHT11 sensor, jumper wires and 10 kOhm resistor.
- You will make the project to publish temperature and humidity sensor data on ThingSpeak cloud.
- You have to perform the following activities:
    1. Connect the DHT11 sensor.
    2. Make a code in PictoBlox.
    3. Upload the code onto evive.
    4. Test the project and enjoy ☺

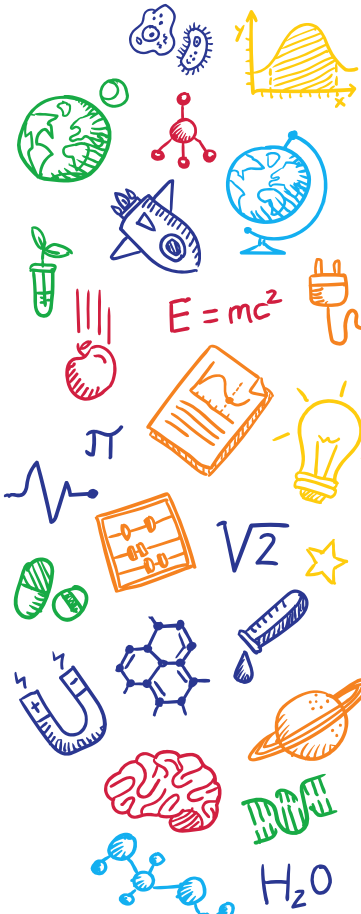


STEMpedia

What is Internet of Things?

What is Internet?

- The Internet of Things means **taking all the things in the world and connecting them to the internet**.



STEMpedia

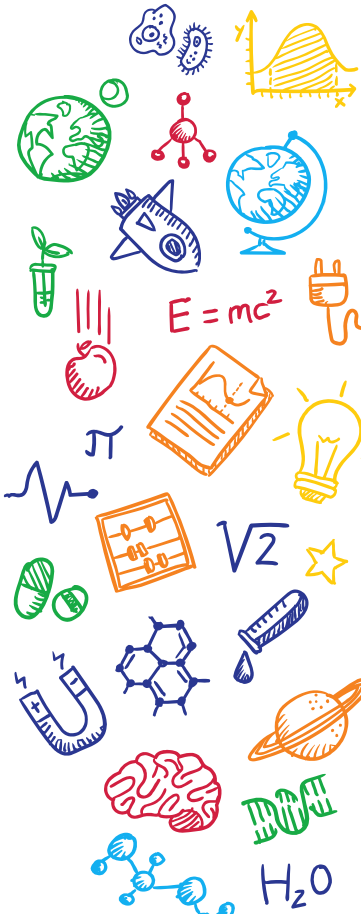
ThingSpeak

IoT Cloud Platform

ThinkSpeak

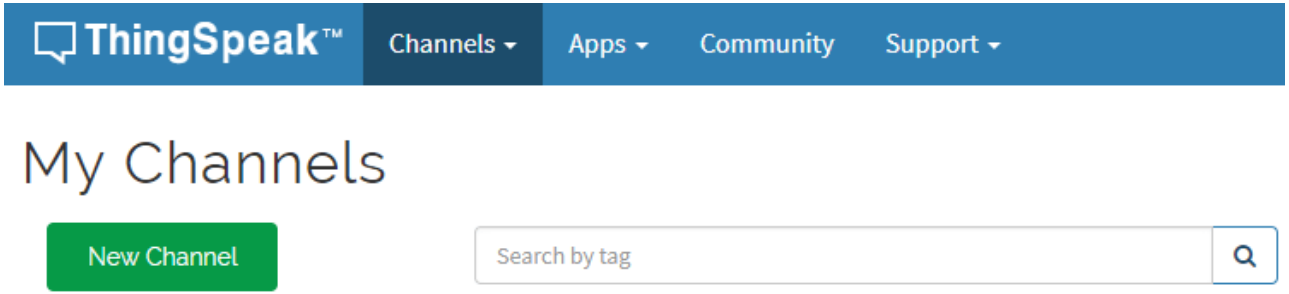
STEMpedia

- An open source IoT application and API to store and retrieve data from *things.*
- Applications
  - Sensor logging applications
  - Location tracking applications
  - Social network of things with status updates



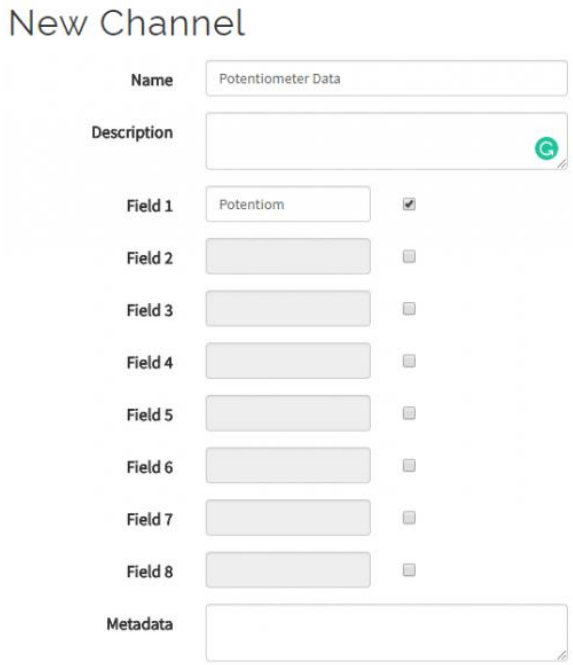
Creating Channel on ThingSpeak

- Go to **thingspeak.com** & create a ThingSpeak account.
- Create a new channel:



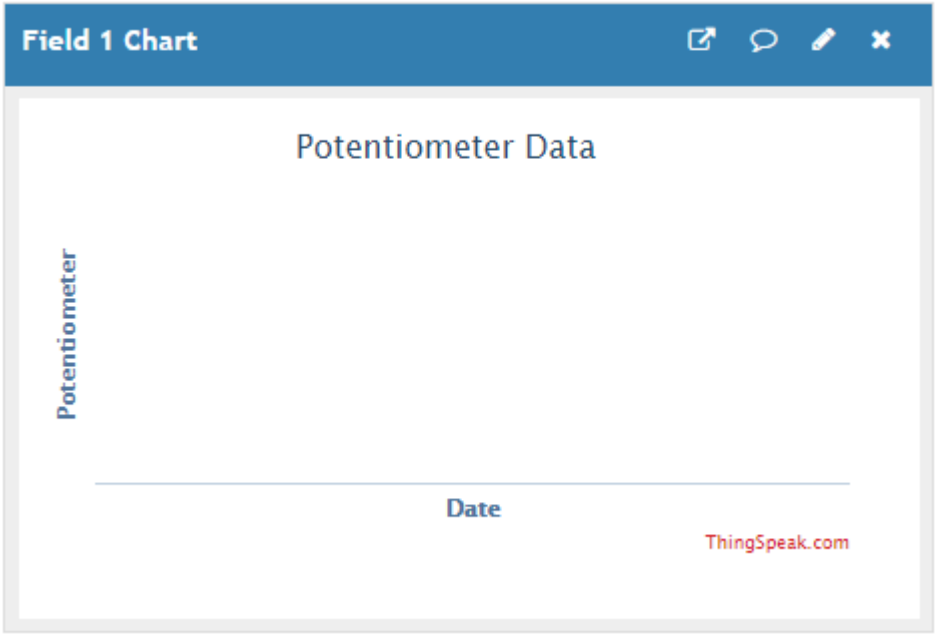
Creating Channel on ThingSpeak

- You can store up to 8 fields on 1 channel. We will store 2 parameters – Temperature and Humidity.



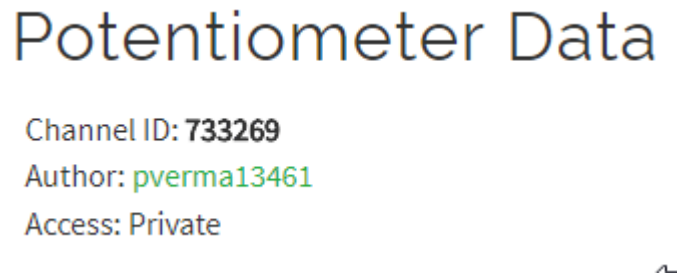
Creating Channel on ThingSpeak

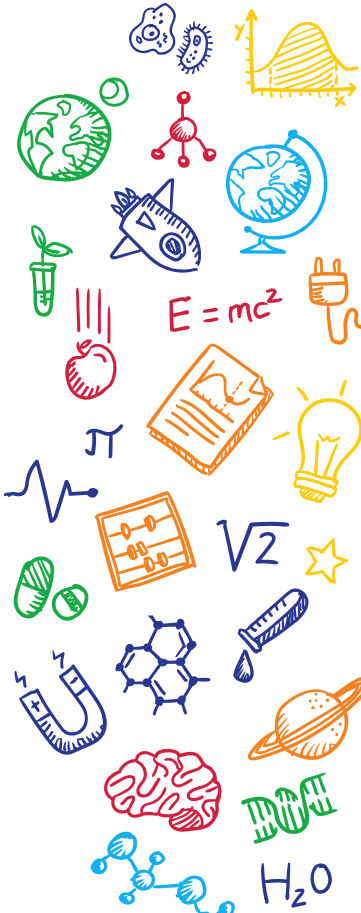
- When a new channel is created, you can see graphs for each parameter:



Creating Channel on ThingSpeak

- Get the Channel ID of your Channel (To be used while connecting to the channel):
- Here Channel ID is 733269

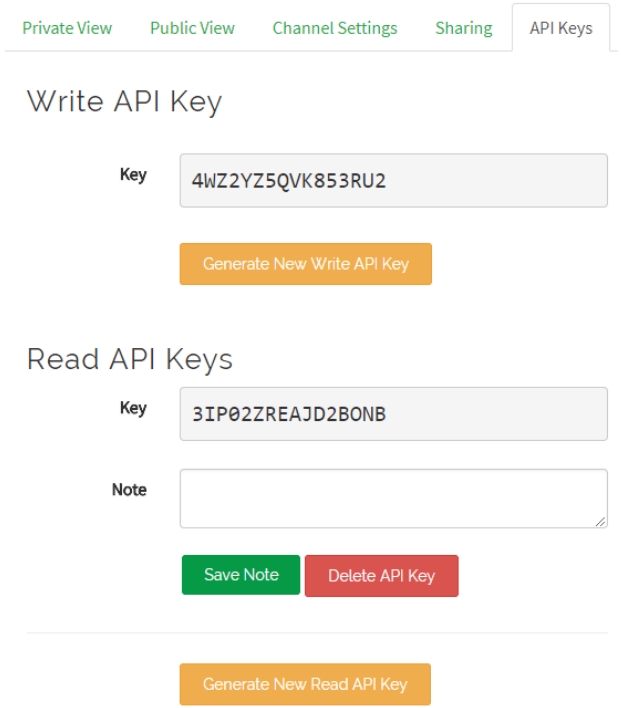


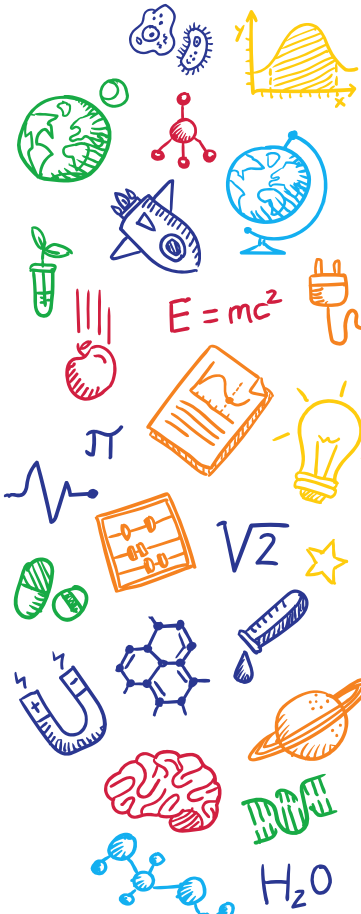


Creating Channel on ThingSpeak

STEMpedia

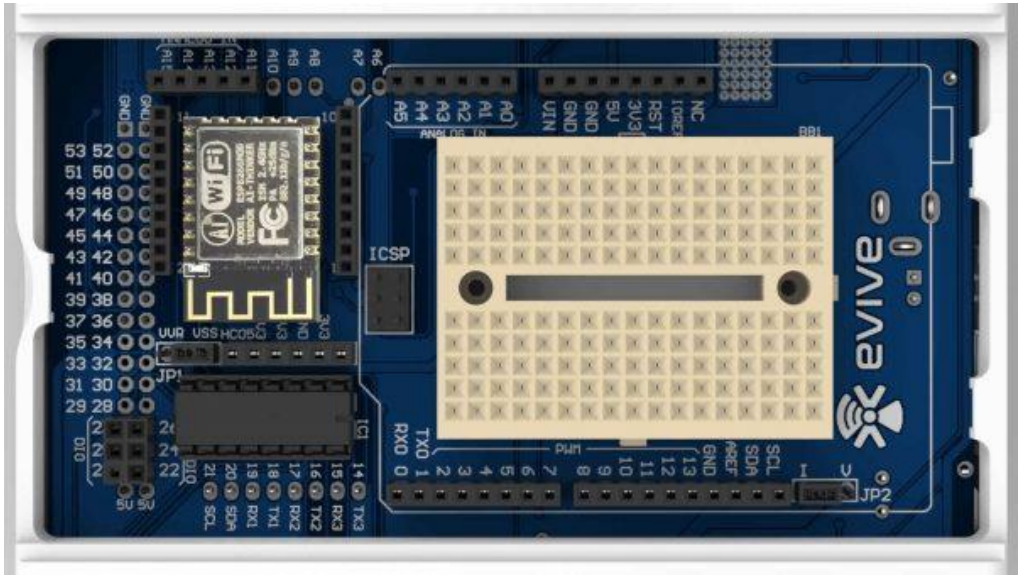
- Get the **Read and Write API** from API tab:





Connecting evive to Internet

- To connect evive with the internet we will use the ESP8266 module.
- Connect ESP8266 Module to its header on evive:

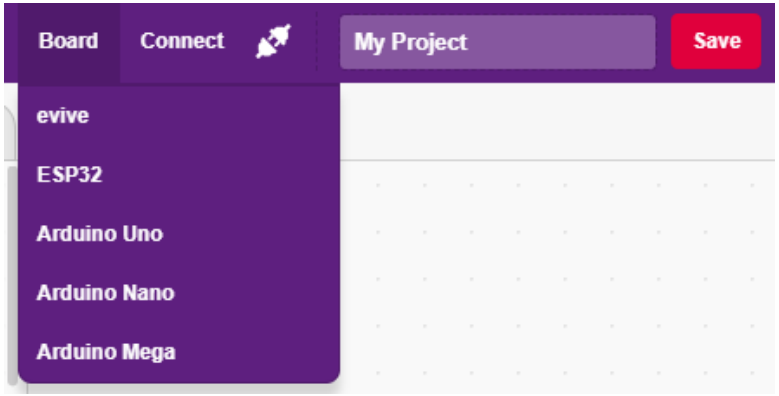


STEMpedia

Programming the evive

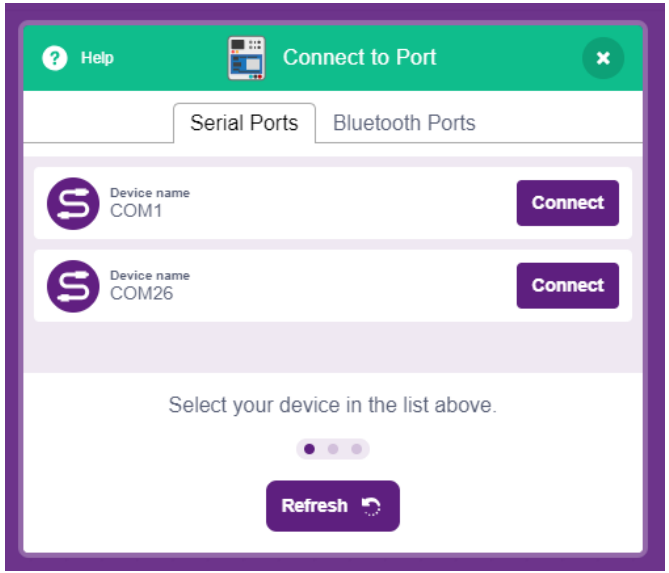
Interfacing evive with PictoBlox

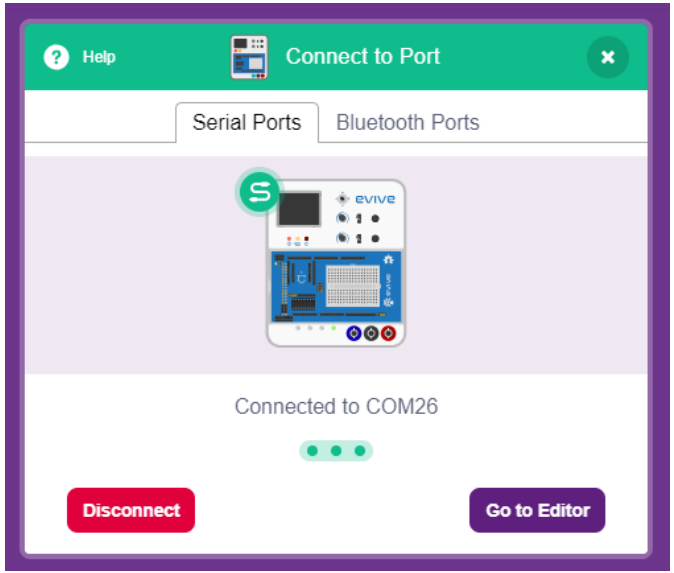
- Connect evive to your laptop/PC and open PictoBlox.
- In PictoBlox, go to the menu and click on the Boards Select the evive.



Interfacing evive with PictoBlox

- Once you've selected the board, click on the Connect tab and connect the board.





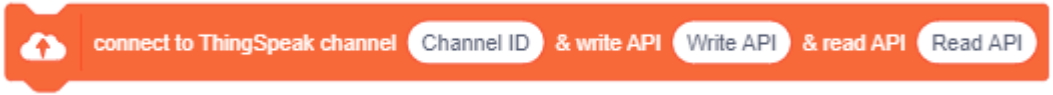
PictoBlox Program

- Add Internet of Things extension in PictoBlox by clicking on the add extension button on the bottom left corner.

Internet of Things Extension

- **Connect to Wi-Fi () with password ()** block connects ESP8266 module connected to evive to the Wi-Fi. The user has to specify the Wi-Fi name and password in the block.

- This block connects to the ThingSpeak Channel using Channel ID, read API and write API. The user has to specify the channel ID, read API and write API.



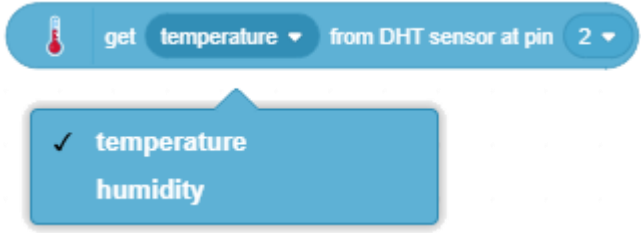
Internet of Things Extension

- **Send data to cloud () delay () sec** block sends input data to the specified read API. This data is always Field 1 for the channel.

- **Send multiple data to cloud () delay () sec** The block sends multiple data (upto 8 fields) to the ThingSpeak channel.

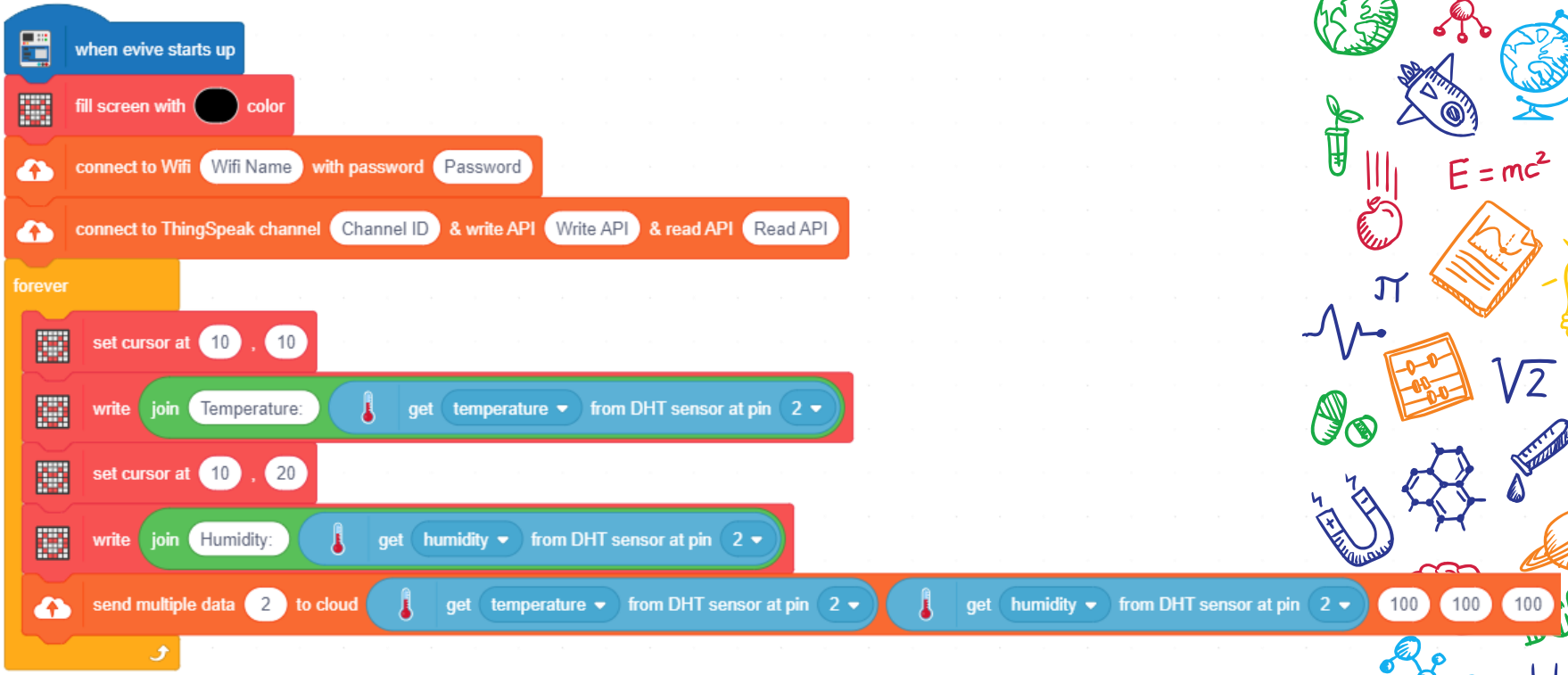
Sensor Extension

- **Get () from DHT sensor** at pin () block is a stack block available in sensors extension.
- The block reports either the temperature or humidity (selected from the dropdown menu) from the DHT sensor connected to the digital pin selected from the drop-down menu.



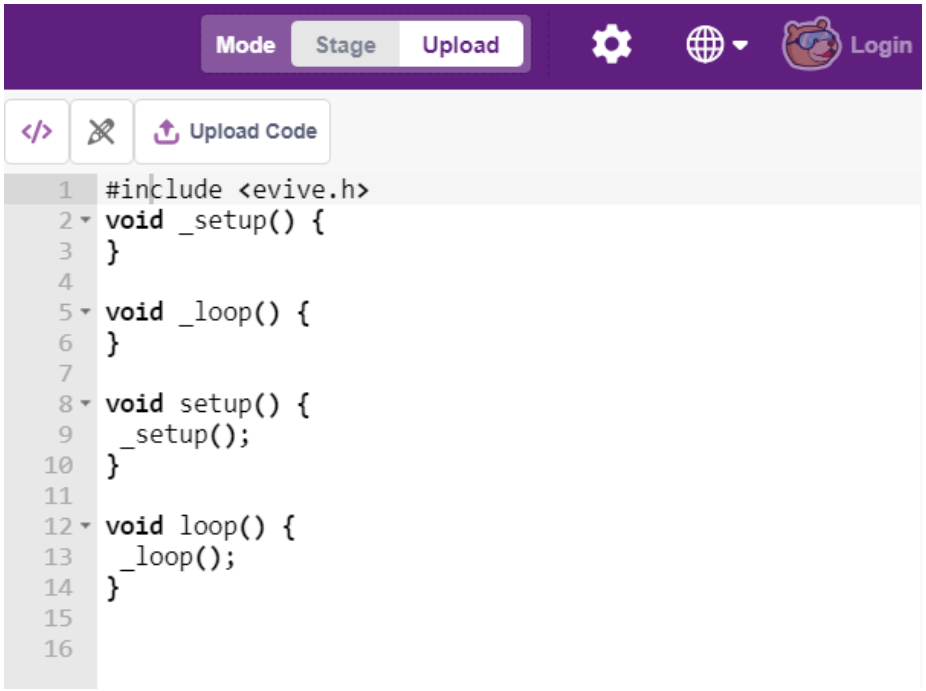
PictoBlox Script

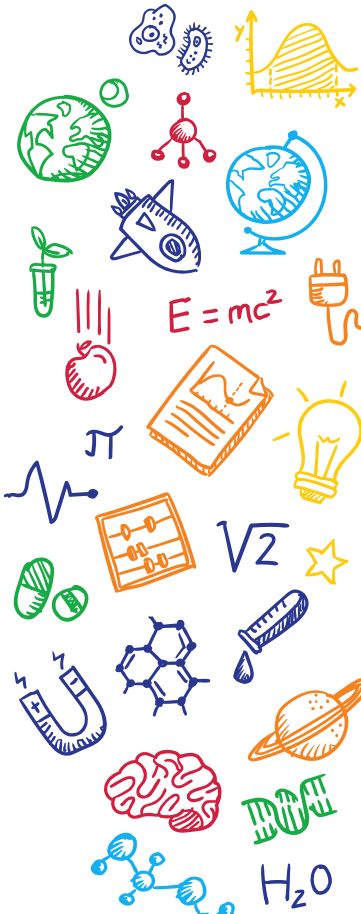
- Make the Script.



PictoBlox Script

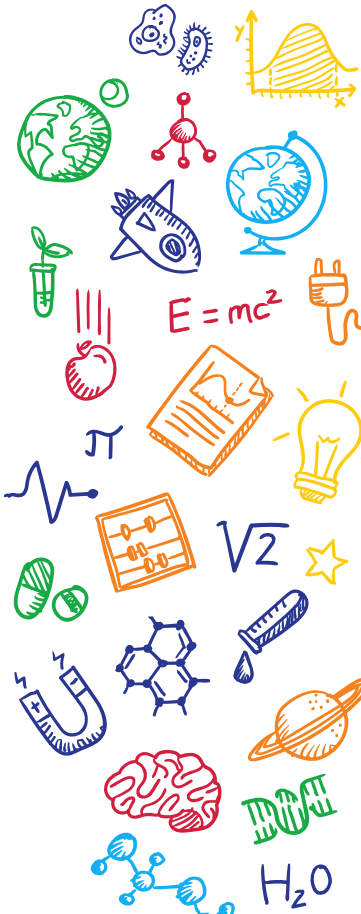
- Upload the code onto evive by clicking on the Upload Code Button:





Sending Data

- When you start your evive, you will see two things happening:
- M1 LED glowing:
  - Yellow: Connected to Wi-Fi.
  - Red: Not connected to Wi-Fi. Check if your Wi-Fi name and password are correct.
- M2 LED glowing:
  - Yellow: Connected to ThingSpeak.
  - Red: Not connected to ThingSpeak.



STEMpedia