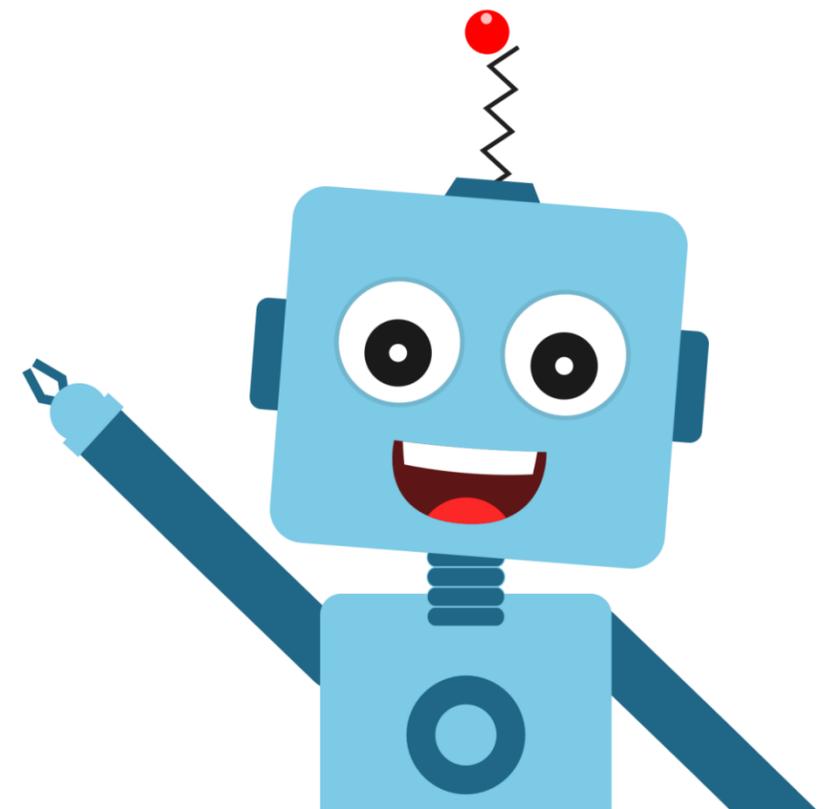


Introduction to Pictoblox

Session 1



What is a Program?

What is a Program?

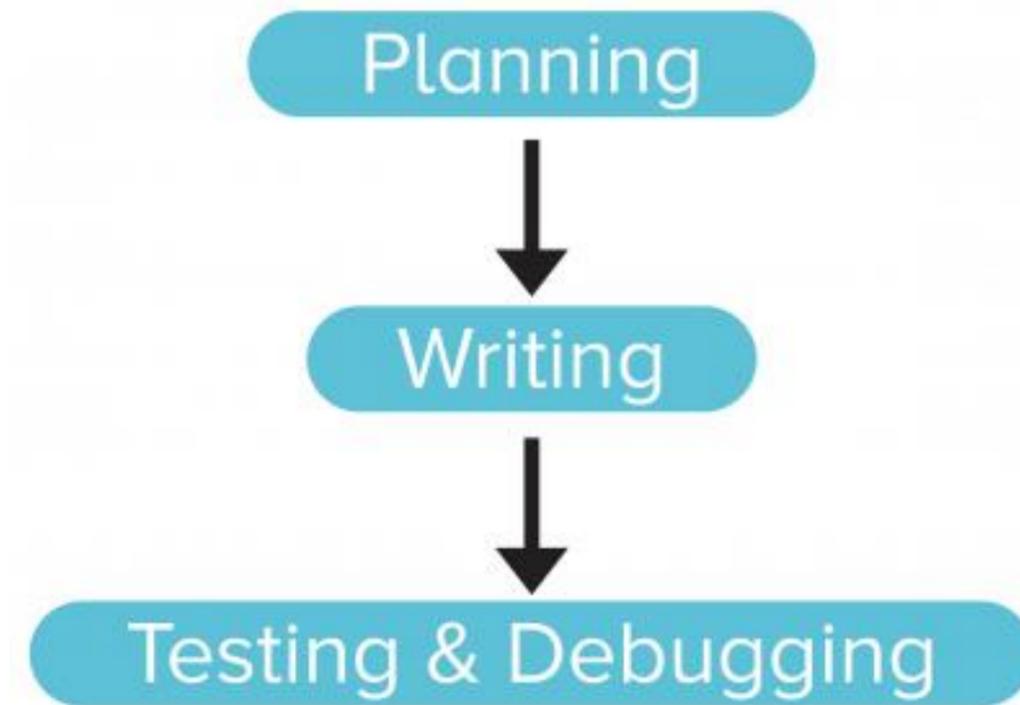
- A **program** is a set of instructions that a computer follows to complete a task.
- The computer receives a **set of instructions (program)** which it interprets and follows step by step, to produce the required output in order to accomplish a given task.



What is a Program?

Programming consist of three parts:

- 1) Planning the program
- 2) Writing the program in a programming language
- 3) Testing and debugging the program



Programming Analogy: Getting Dressed for School

Analogy – How to change dress?

- Taking off the pajamas.
- Taking off the undergarments from the previous day.



Analogy – How to change dress?

- Wearing a fresh pair of undergarments.
- Putting on the school uniform.



Analogy – How to change dress?

- Wearing your accessories such as the belt, tie and ID card.
- Finally, wearing socks and shoes.

Here, as you can see, you followed a set of instructions in a specific order, to complete the task of getting dressed.



Analogy – How to change dress?

Similarly, you must write a program in a specific order, so that the computer does the task given to it correctly, and we can get the result that we expect.

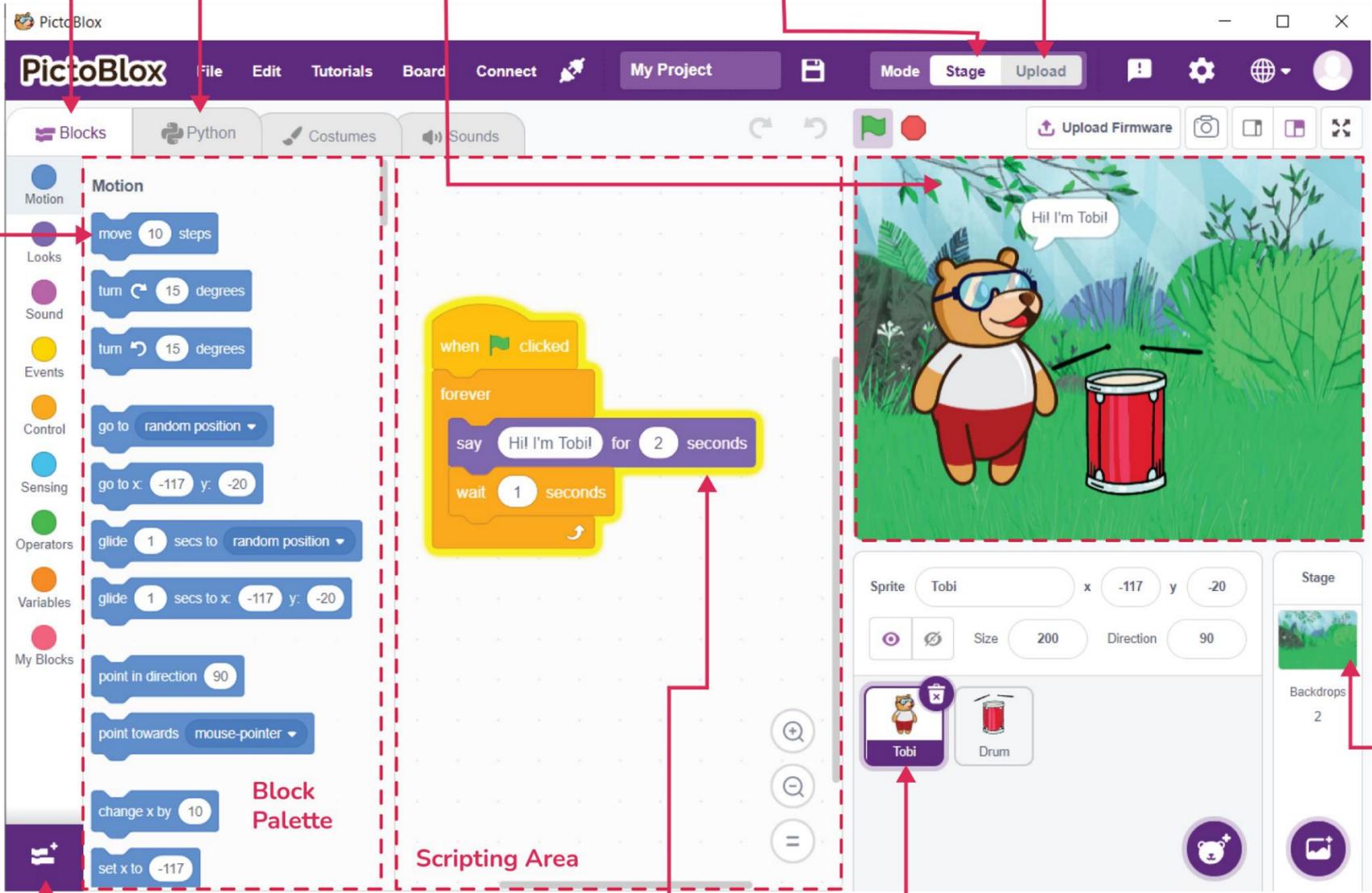


All about PictoBlox

What is PictoBlox?

- PictoBlox is a Scratch 3.0-based graphical programming software. It is the ideal companion for setting the first step into the world of programming.
- It is a user-friendly interface where drag-and-drop functionality eliminates the need to memorize syntax and rules which is the case in traditional programming language.
- It helps budding programmers like you, to learn how to write a program in a fun, educational and easy way, using blocks.

PictoBlox Interface



Block Coding
Python Coding

Stage
The area where the sprite performs actions based on the script

Stage Mode
Write scripts for the sprite and boards to interact with them in real-time

Upload Mode
Write scripts for the board to control them even when disconnected from the computer

Blocks
Puzzle-piece shapes used to write scripts

Block Palette

Scripting Area

Script
A stack of blocks interlocked with one another in a specific order to perform a task.

Sprite
An object, or a character, that performs actions based on the script

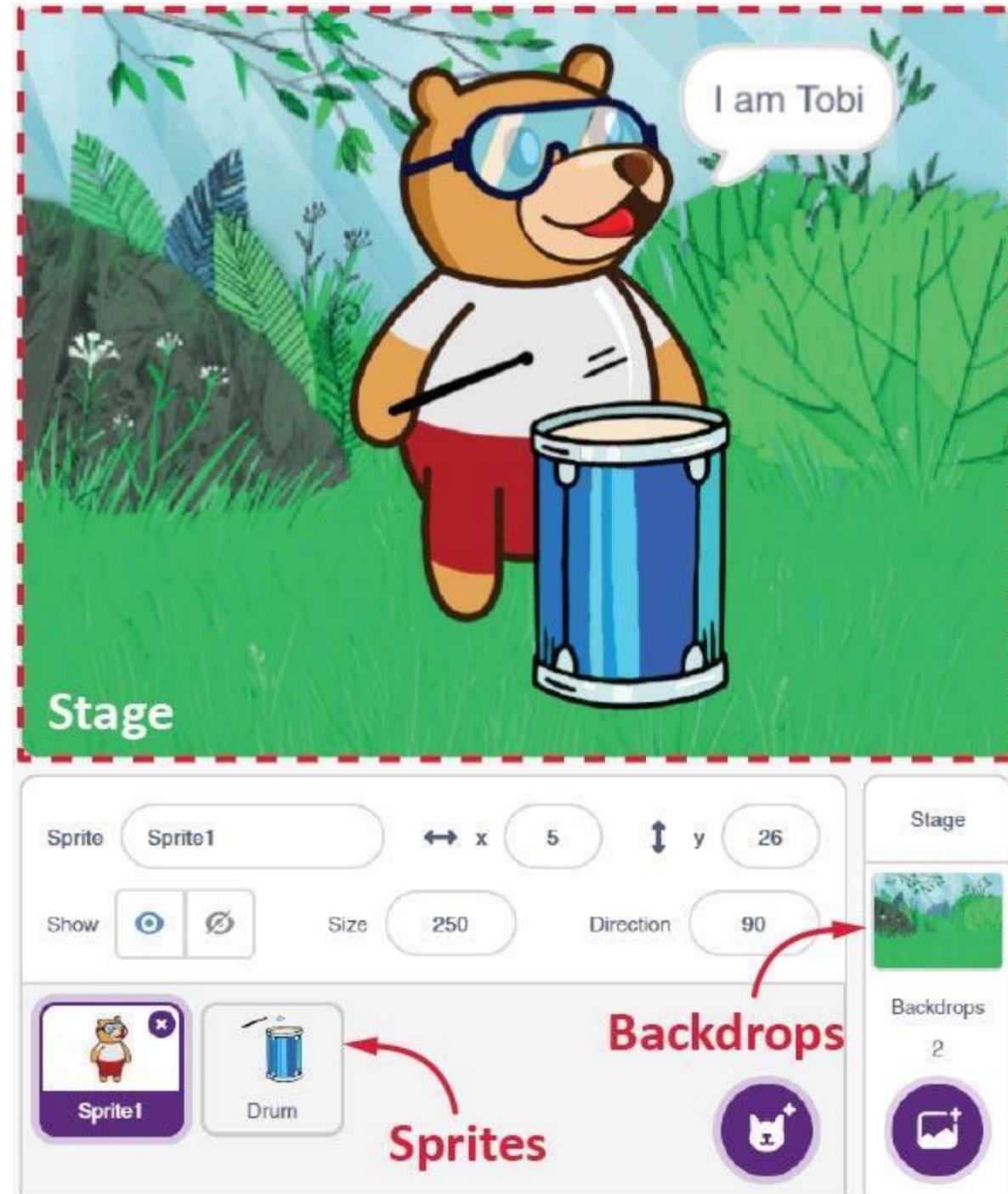
Backdrops
Possible backgrounds of the stage

Add Extension
For adding new palettes to the block palette

The screenshot shows the PictoBlox interface with a menu bar (File, Edit, Tutorials, Board, Connect, My Project), a toolbar (Blocks, Python, Costumes, Sounds, Upload Firmware), and a main workspace. The workspace is divided into a Block Palette on the left, a Scripting Area in the center, and a Stage on the right. The Stage shows a bear sprite named 'Tobi' with a speech bubble saying 'Hi! I'm Tobil' and a drum. The Stage Mode toolbar includes a 'Stage' button and an 'Upload' button. The Block Palette has categories like Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, and My Blocks. The Scripting Area shows a script starting with 'when clicked', followed by a 'forever' loop containing 'say Hi! I'm Tobil for 2 seconds' and 'wait 1 seconds'. The Stage Mode toolbar also includes a 'Stage' button and an 'Upload' button. The Stage shows a bear sprite named 'Tobi' with a speech bubble saying 'Hi! I'm Tobil' and a drum. The Stage Mode toolbar includes a 'Stage' button and an 'Upload' button. The Block Palette has categories like Motion, Looks, Sound, Events, Control, Sensing, Operators, Variables, and My Blocks. The Scripting Area shows a script starting with 'when clicked', followed by a 'forever' loop containing 'say Hi! I'm Tobil for 2 seconds' and 'wait 1 seconds'. The Stage shows a bear sprite named 'Tobi' with a speech bubble saying 'Hi! I'm Tobil' and a drum. The Stage Mode toolbar includes a 'Stage' button and an 'Upload' button.

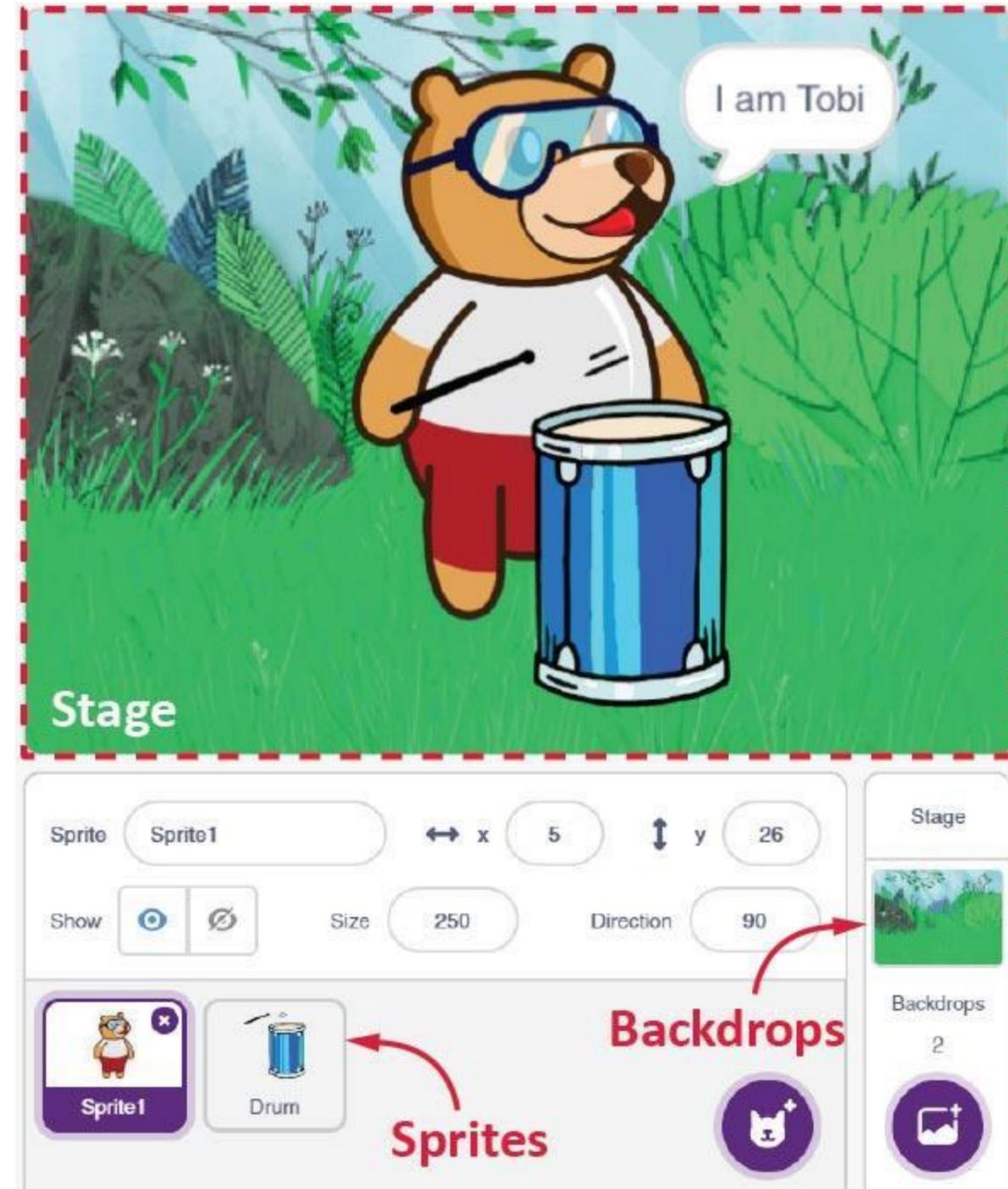
Stage

- **Stage** is a background (also called a backdrop) for your Scratch projects.
- The **Stage** is where the sprites move, draw, and interact with each other.



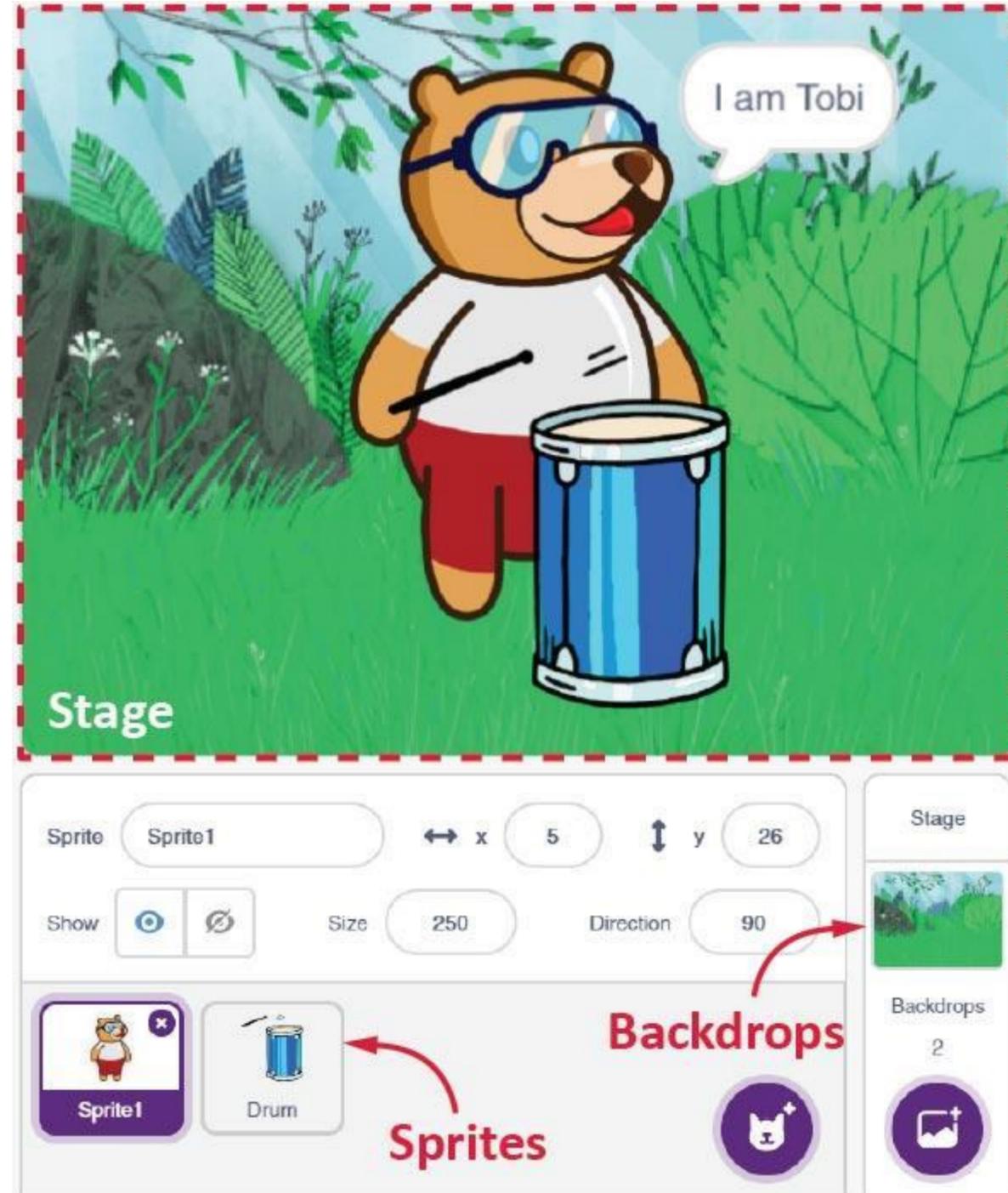
Sprite

- A Sprite is an object or a character which performs different actions in the project.
- They can be moved to any place in the stage, either by:
 1. Clicking on them and dragging.
 2. By writing a program to control them.



Stage Palette

- Below the **Stage** (bottom right) is the **Stage Palette**. You have different tools in the **Stage Palette** using which you can change the **Stage**:
 1. You can choose an image from backdrop library.
 2. You can paint a new stage or import an image.
 3. You can click a picture using your computer's or laptop's camera.



Blocks

- A block is a jigsaw puzzle piece, which is used to write programs.
- They can be simply dragged and dropped below one another in the scripting area to build awesome programs.



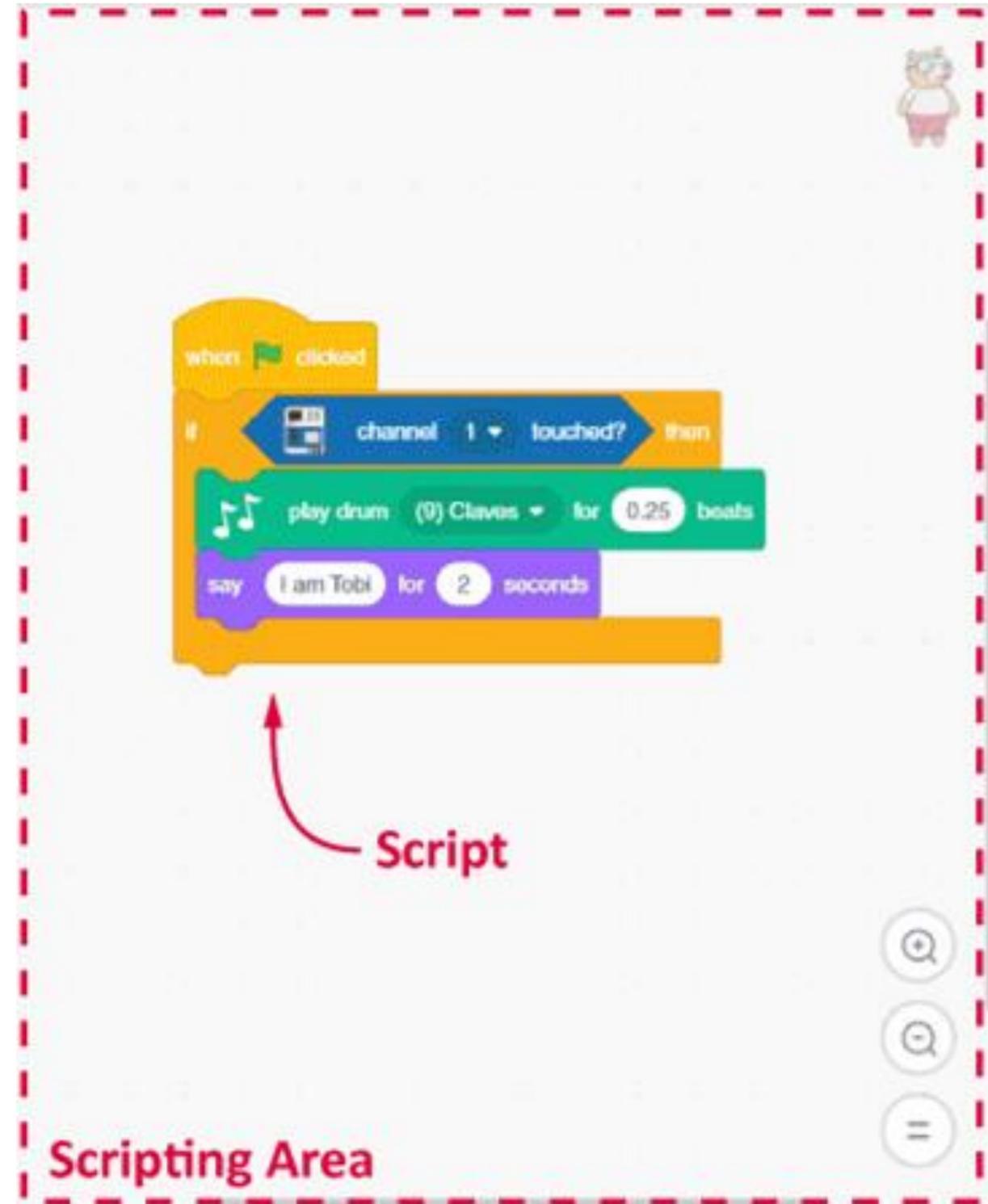
Block Palette

- The **Block palette** is under the **Blocks** tab. It consists of different palettes such as Motion, Sound, Control etc.
- Each palette has different blocks that perform functions as specified by the palette name.
- E.g., blocks in the **Motion** palette will control motion of the sprite, and the blocks in **Control** palette will control the working and order of the script.



Script

- **Script** is a program or code in PictoBlox/Scratch programming language.
- Script is a 'set of blocks' that are arranged below one another, in a specific order, to perform a single task or a series of tasks.
- **Scripting Area** is where you write the Script.



Make Tobi Move

- Follow the steps below to make the script :

Step	Block	Palette
1.	when flag clicked	Events
2.	Forever	Control
3.	Move () steps	Motion
4.	If on edge, bounce	Motion
5.	Wait () seconds	Control

- Run the script by clicking on the green flag above the stage.



Make Tobi Move

What is happening to Tobi? Is Tobi upside down sometimes?

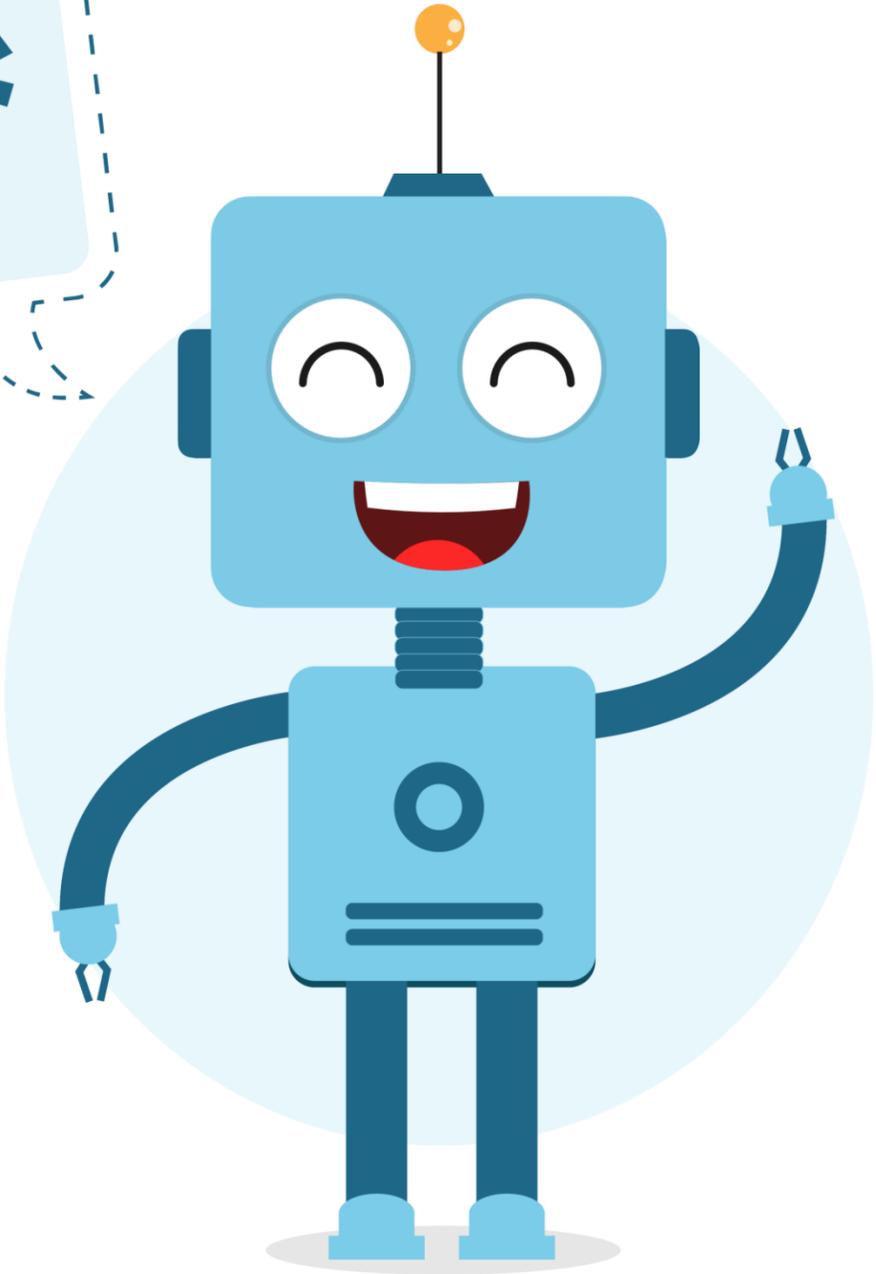


Make Tobi Move

- To prevent Tobi from going upside down, we must change its rotation style.
- Add a **set rotation style (left-right)** block from the *Motion* palette, below the **when flag clicked** block.
- The program is now complete.
- Run the script by clicking on the green flag.



**THANK
YOU**



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