

Workshop 1:

Pick & Place Basics

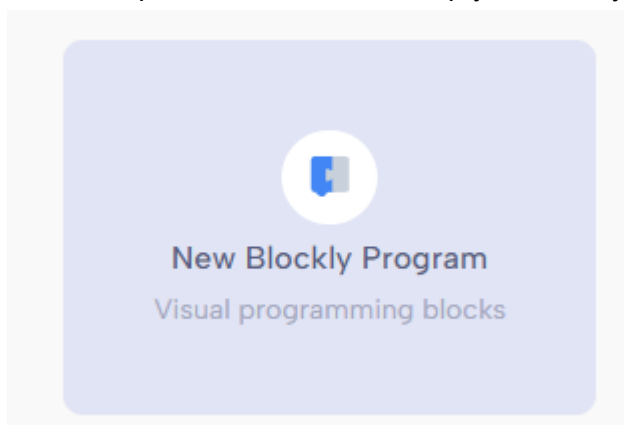
Follow this step-by-step guide during the session.

Step 1 – Connect and Calibrate

1. Open **NiryoStudio** on your computer or tablet.
 2. Connect to the robot (preferably via **Ethernet**).
 3. Run the **calibration** procedure so the robot knows its home position.
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Step 2 – Open a Blockly Program

1. In NiryoStudio, open a **new Blockly program**.
2. The workspace should now be empty and ready to record actions.



Step 3 – Learn the 3 Buttons on the Gripper

- **FreeMotion** → Move the robot by hand.
- **Save** → Record the robot's current position into Blockly.
 - Press once = save a single position.
 - Press and hold = record a trajectory.
- **Custom** → Open/close the gripper (or activate vacuum pump).
 - First press scans the tool (may require multiple presses).

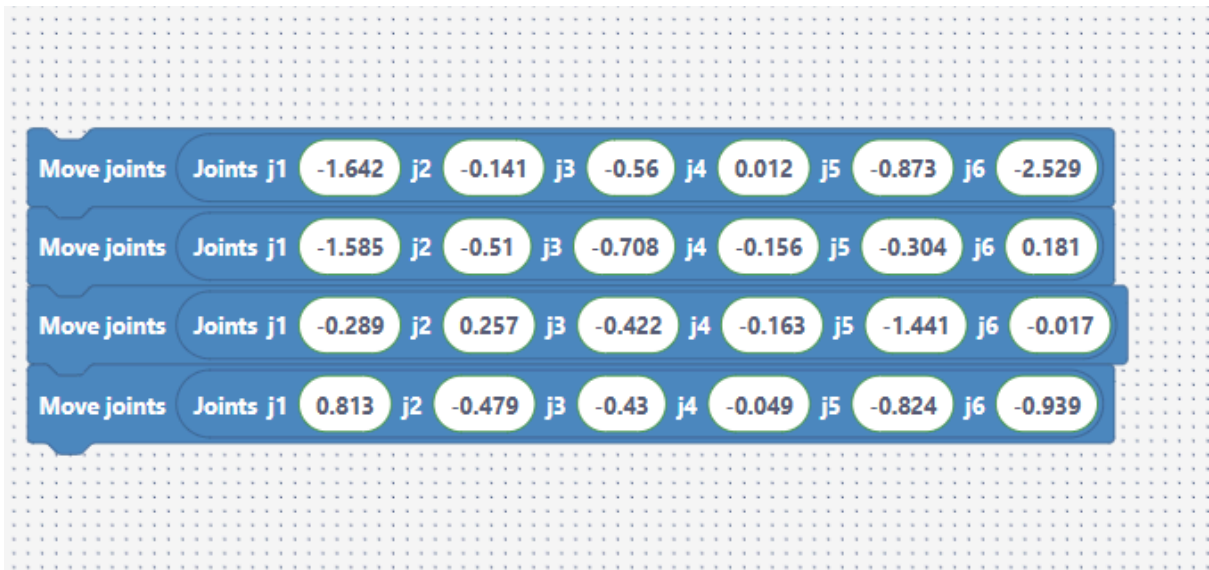


Tip: Remove any automatically created blocks to start with an empty program.

Step 4 – Record Pick & Place Positions

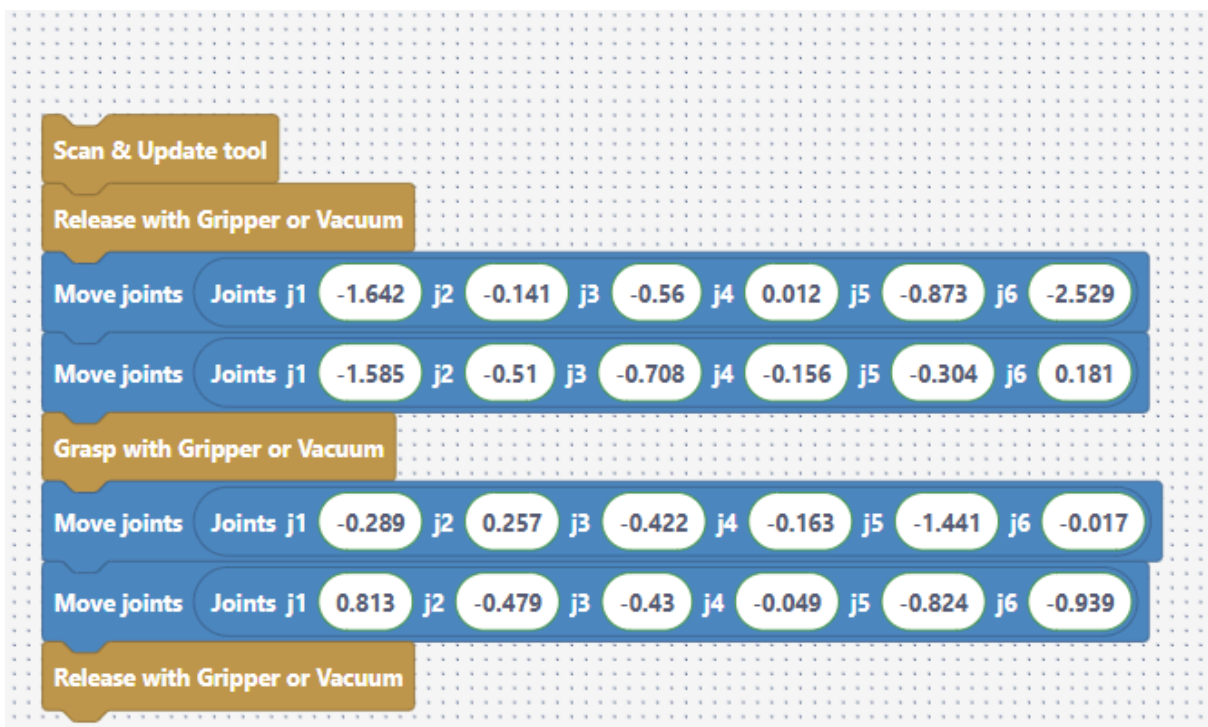
1. Make sure the **gripper is open** (press Custom if needed).
2. Using FreeMotion, move the arm to:
 - Above the object (safe approach) → press **Save**
 - At the object (grasp position) → press **Save**
 - Back above the object (after grasp) → press **Save**

- Place position (drop location) → press **Save**



Step 5 – Add Gripper Actions

1. In Blockly, add these actions:
 - At the very start → **Release** (ensures gripper starts open)
 - After grasp position → **Grasp**
 - After place position → **Release**



Step 6 – Run and Practice

1. Run your Blockly program.
2. Watch the robot complete the pick & place cycle.
3. If needed, adjust positions and re-run.
4. Practice saving positions and programming your own sequence.