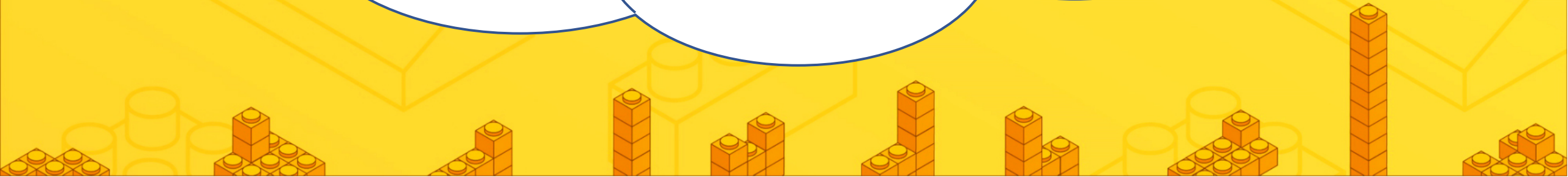




The Hug From Robot

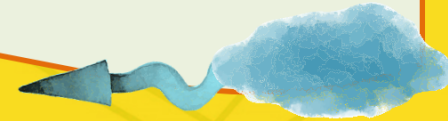


Target

- **Learn the basic color detection methods of the color sensor.**
- **Learn to use the color sensor to detect objects.**
- **Learn the applications of conditional logic.**



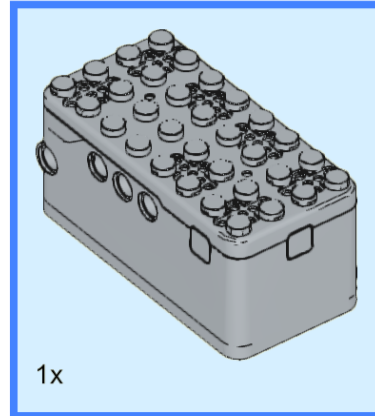
01 Assembly



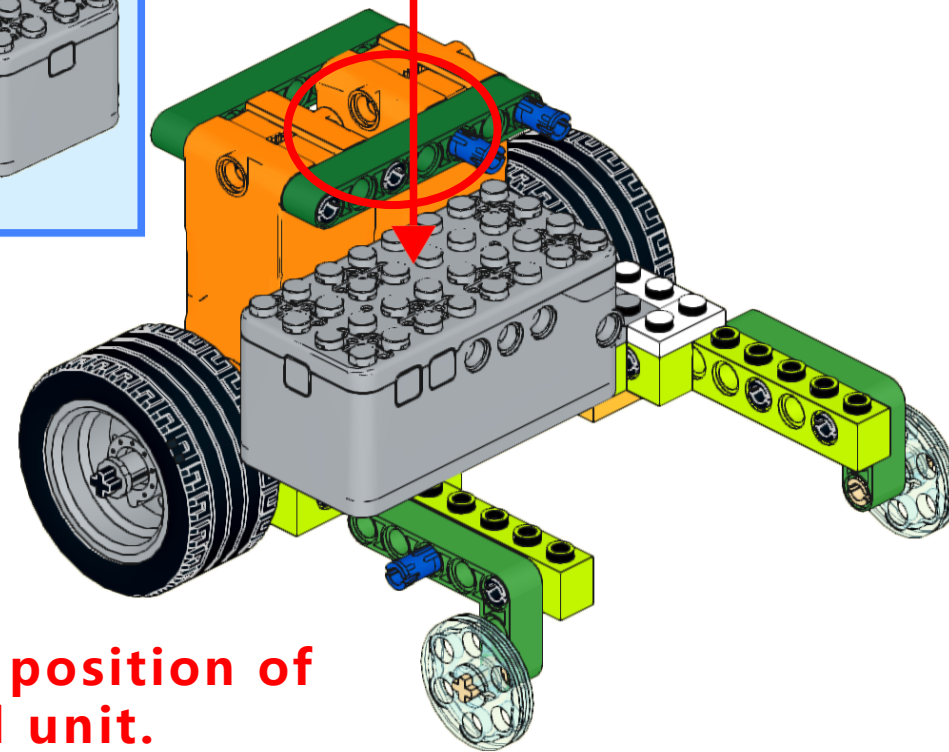
Assembly

Start from the assembly in Lesson 5.

20



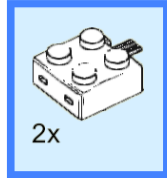
Replace the two-pin connector with a three-pin connector



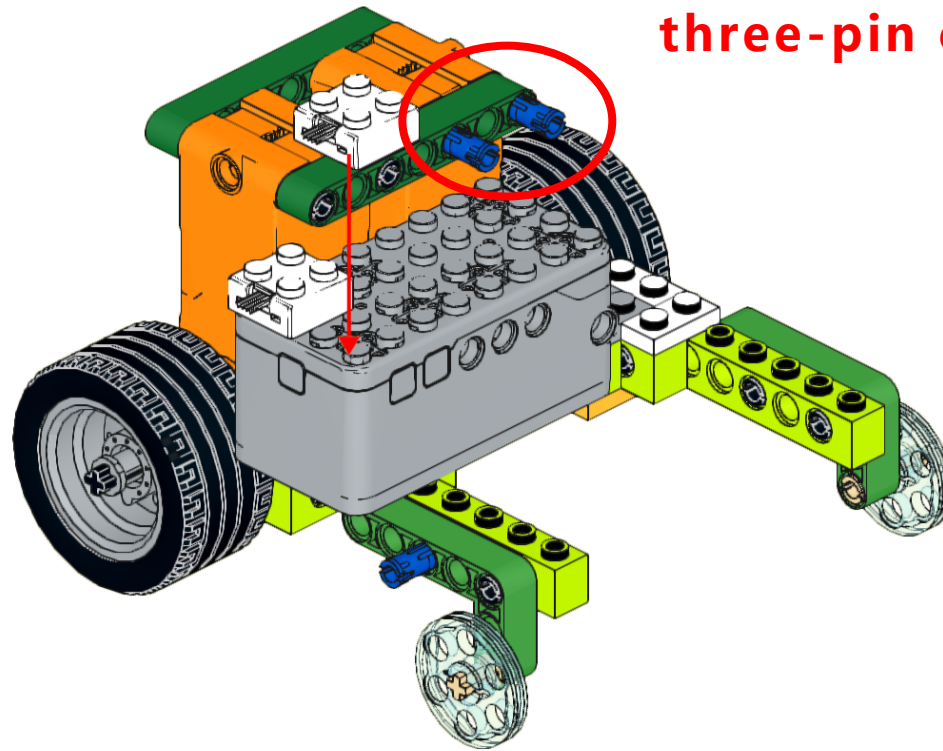
Switch the position of the control unit.

Assembly

21

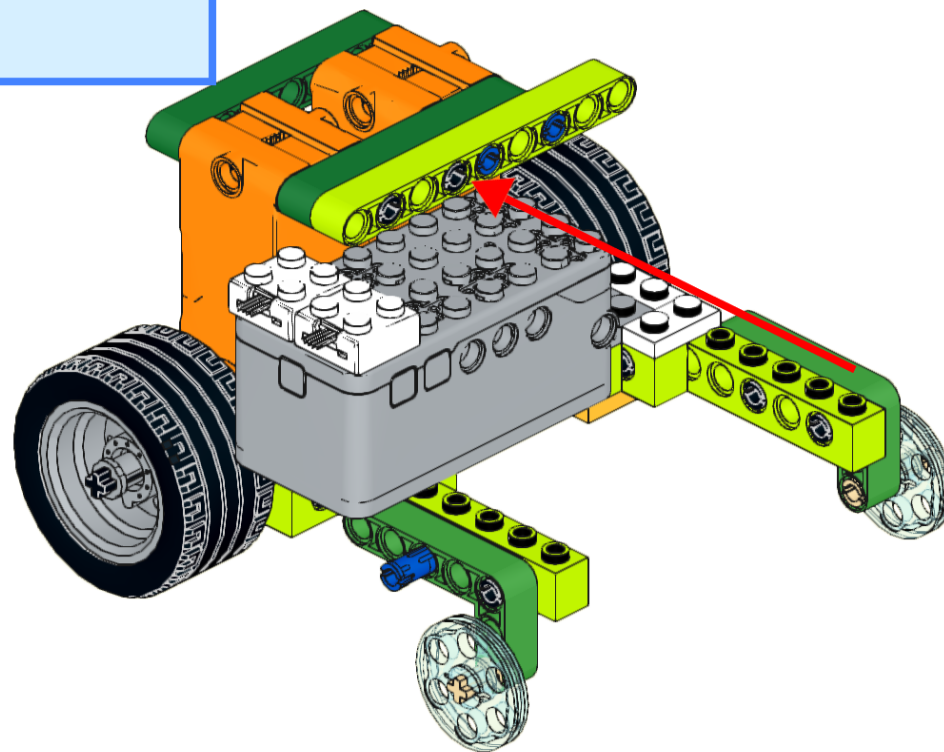
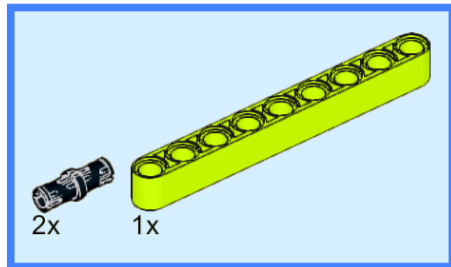


Replace the two-pin connector with a three-pin connector



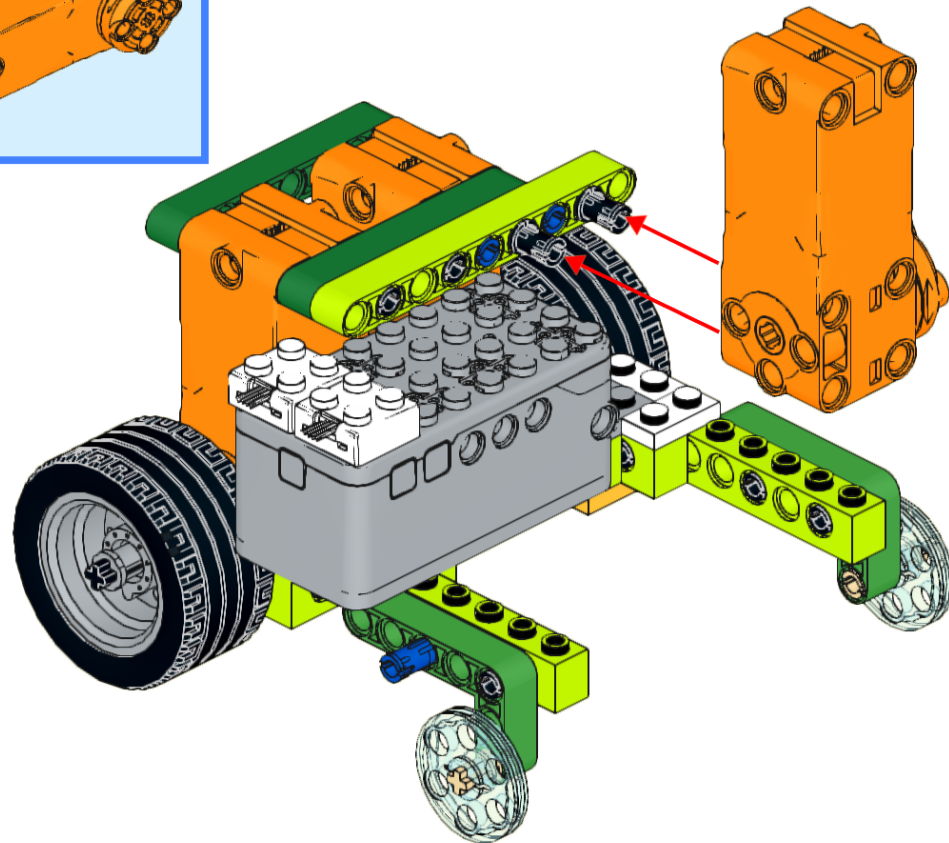
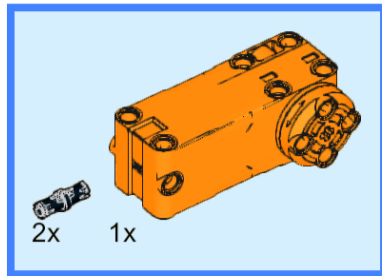
Assembly

22



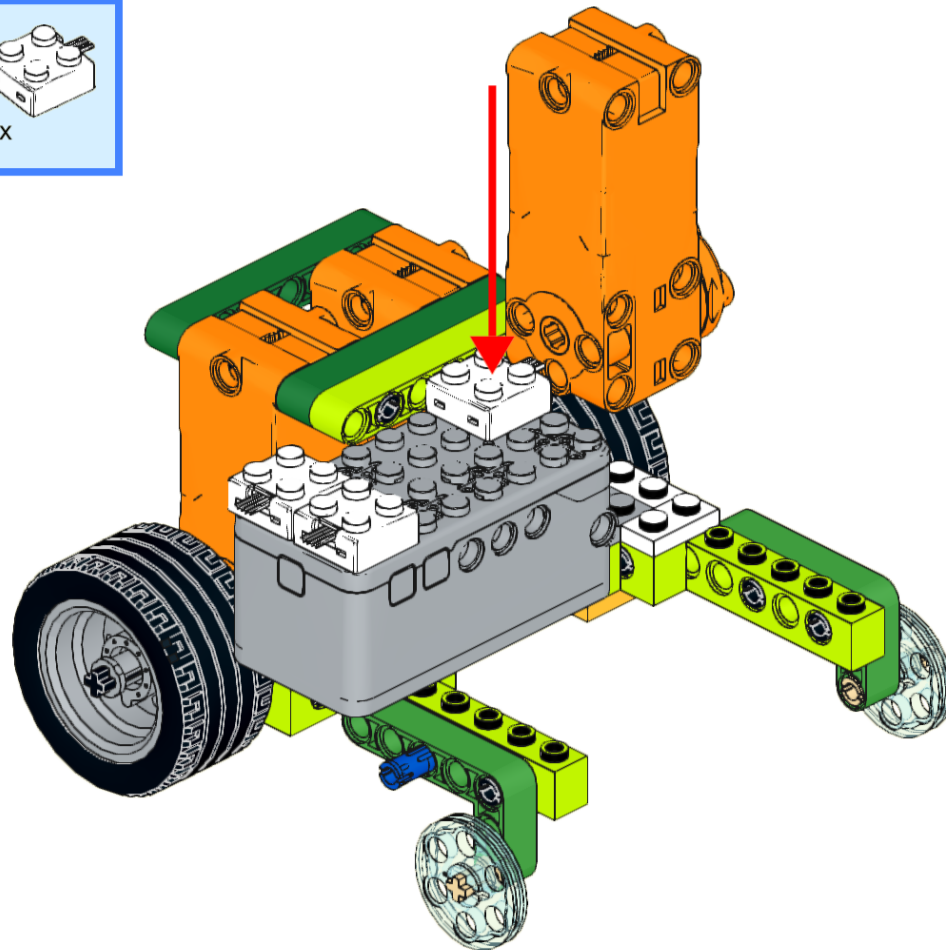
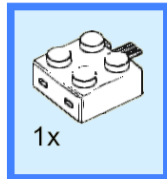
Assembly

23



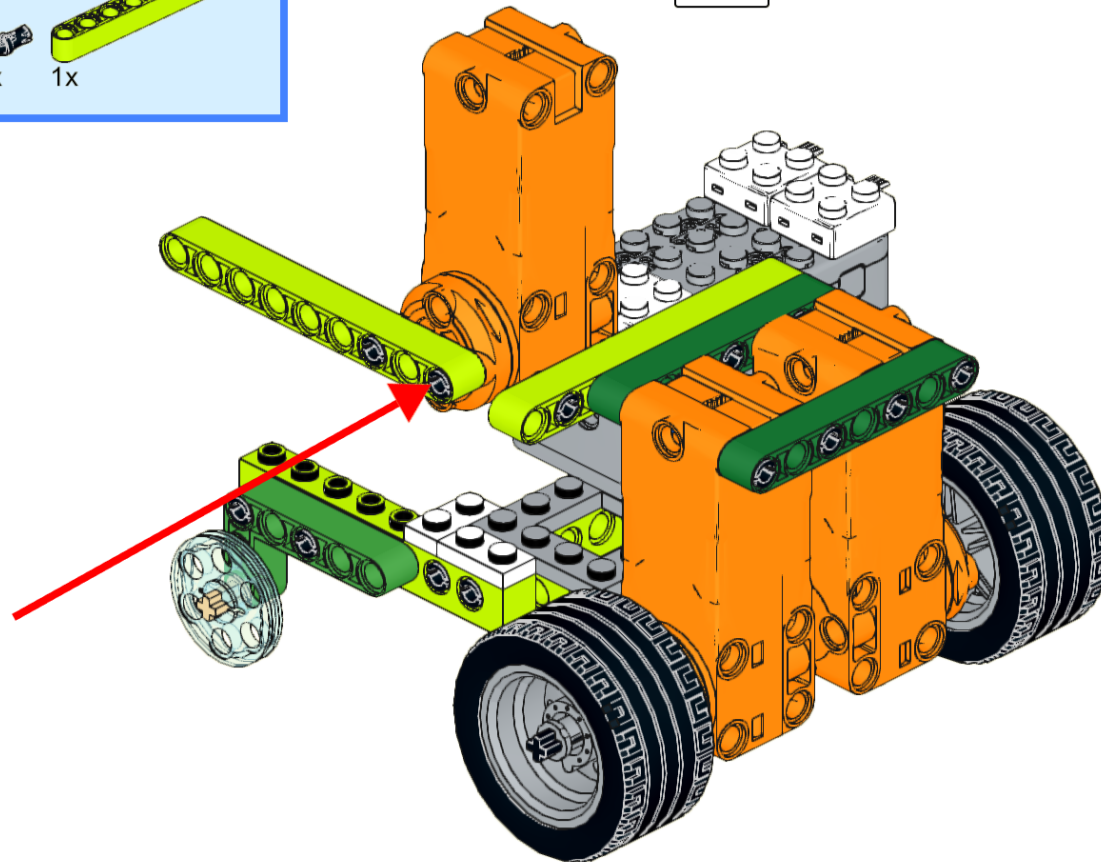
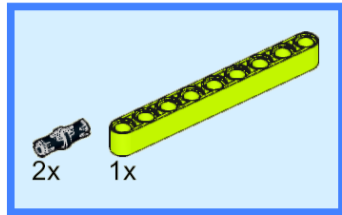
Assembly

24



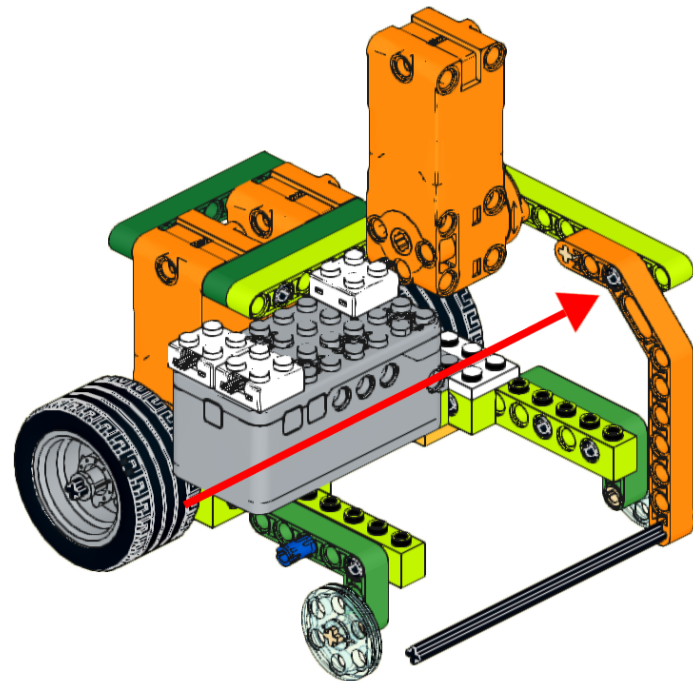
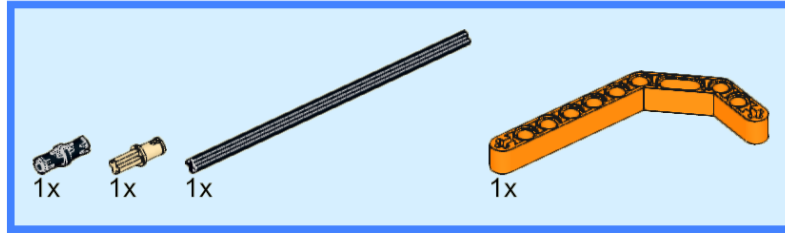
Assembly

25



Assembly

26

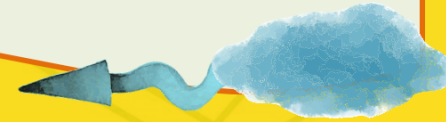


Remember to install the grayscale sensor before starting the task.





02 Task

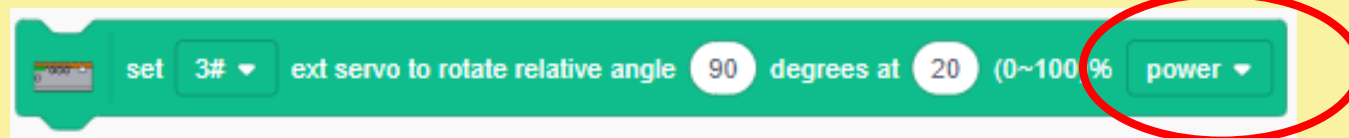
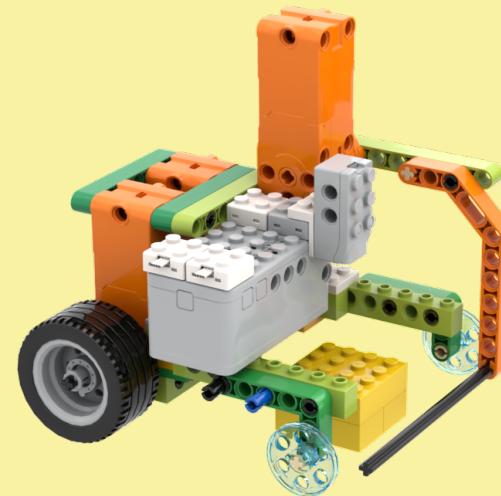
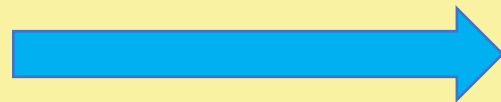
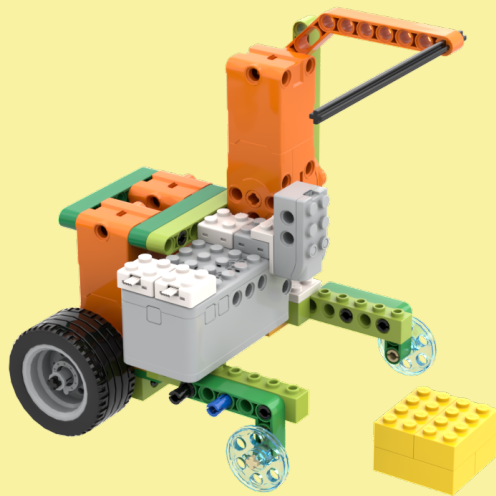




Task

Task 1 : Grab the item

After detecting the object, lower the robotic arm to ensure the item is fully grasped.



The robotic arm should move more slowly, so it's advisable to use Power mode to control it.





Task

Referrable Program

Still remember what the module is for?



Pay attention to the selection of the motor IDs.

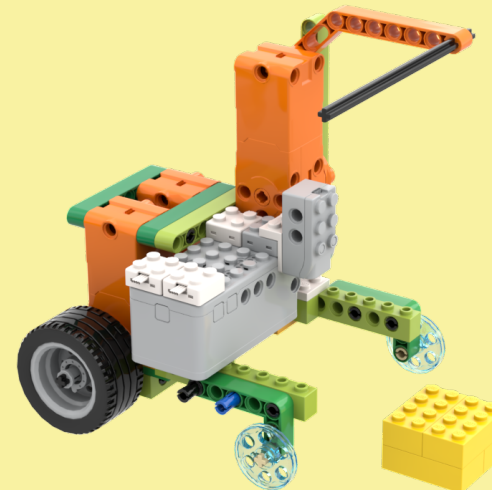
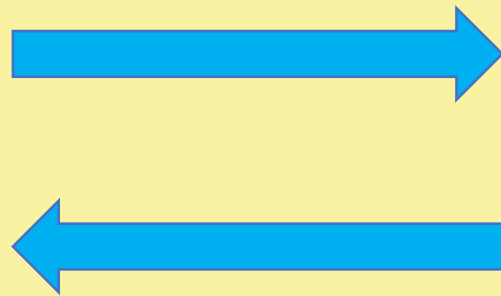
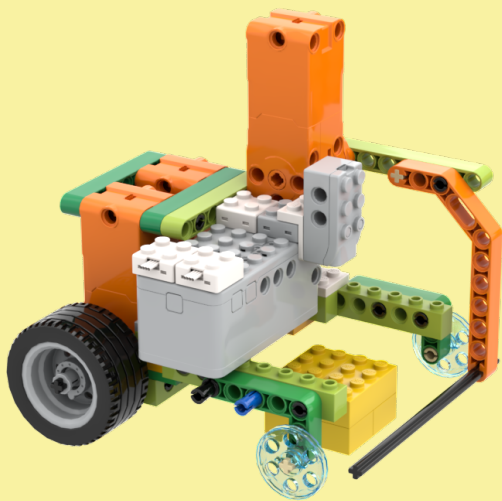
```
when clicked
  set 1# ext servo's origin
  set 2# ext servo's origin
  repeat until 1# single channel line tracker's value < 15
    set 1# ext servo to keep running at 30 (-100~100)% speed on anticlockwise
    set 2# ext servo to keep running at 30 (-100~100)% speed on clockwise
    set 我的变量 to 1# single channel line tracker's value
  stop all ext motor(s)
  set 3# ext servo's origin
  wait 0.1 seconds
  set 3# ext servo to rotate relative angle 90 degrees at 20 (0~100)% power
  wait until is 3# ext servo done
```



Task

Task 2 : Carry the item

After carrying the item to the front, lift the robotic arm and return to the starting point.

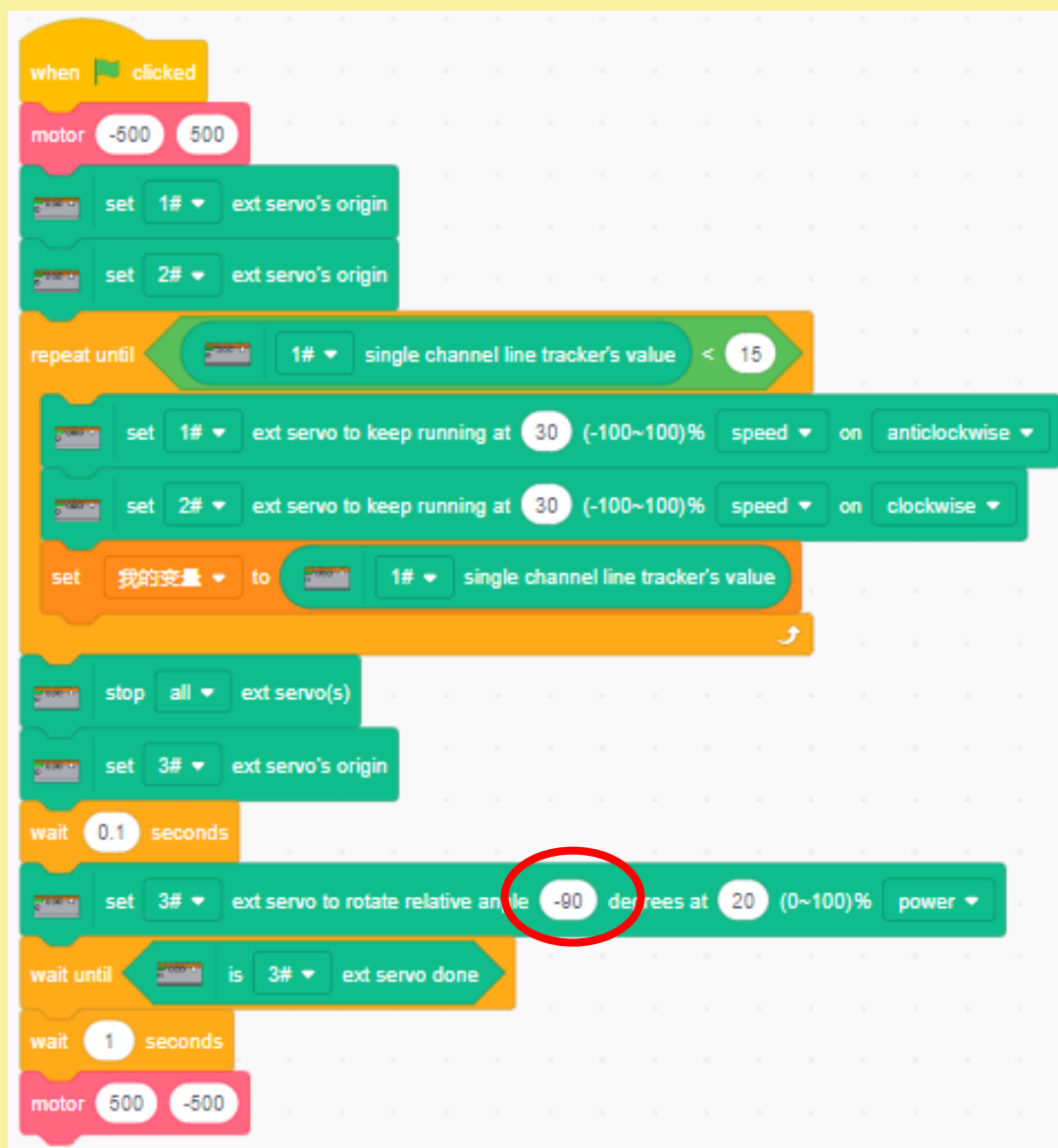


Task

Referrable Program

Remember what the module is for?

Pay attention to the direction of the robotic arm.



```
when clicked
  motor -500 500
  set 1# ext servo's origin
  set 2# ext servo's origin
  repeat until 1# single channel line tracker's value < 15
  set 1# ext servo to keep running at 30 (-100~100)% speed on anticlockwise
  set 2# ext servo to keep running at 30 (-100~100)% speed on clockwise
  set 我的变量 to 1# single channel line tracker's value
  stop all ext servo(s)
  set 3# ext servo's origin
  wait 0.1 seconds
  set 3# ext servo to rotate relative angle -90 degrees at 20 (0~100)% power
  wait until is 3# ext servo done
  wait 1 seconds
  motor 500 -500
```

The image shows a Scratch code block for a robotic arm task. The code starts with a 'when clicked' event, followed by a 'motor' block with values -500 and 500. It then sets two servos (1# and 2#) to their origins. A 'repeat until' loop follows, where the condition is '1# single channel line tracker's value < 15'. Inside the loop, servo 1# is set to run at 30% speed anticlockwise, and servo 2# is set to run at 30% speed clockwise. A 'set' block updates a variable named '我的变量' (my variable) to the value of '1# single channel line tracker's value'. After the loop, all servos are stopped, and servo 3# is set to its origin. A 0.1-second wait follows, then servo 3# is set to rotate to -90 degrees at 20% power. A 'wait until' block waits for servo 3# to be done, followed by a 1-second wait. Finally, the 'motor' block is set to 500 and -500. A red circle highlights the '-90' value in the rotation block, and a red arrow points from the 'Referrable Program' text to the 'repeat until' loop.



Task

Task 3 : Carry the item

Advance to obtain the item, carry it to the designated location, release the item, and return to the starting point.

