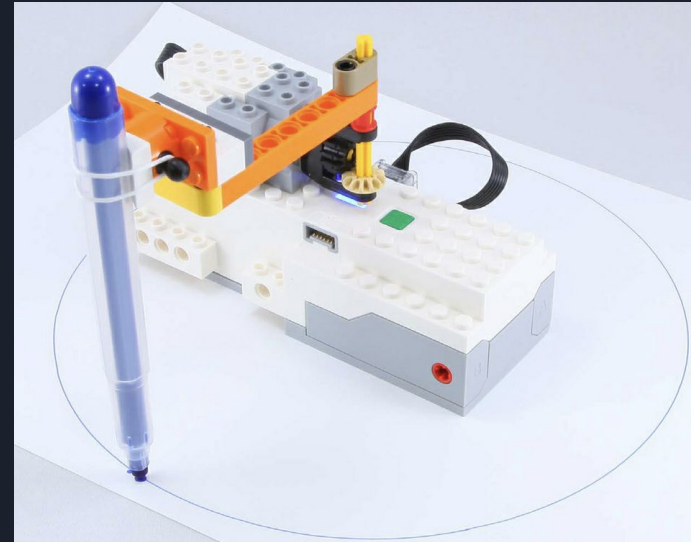
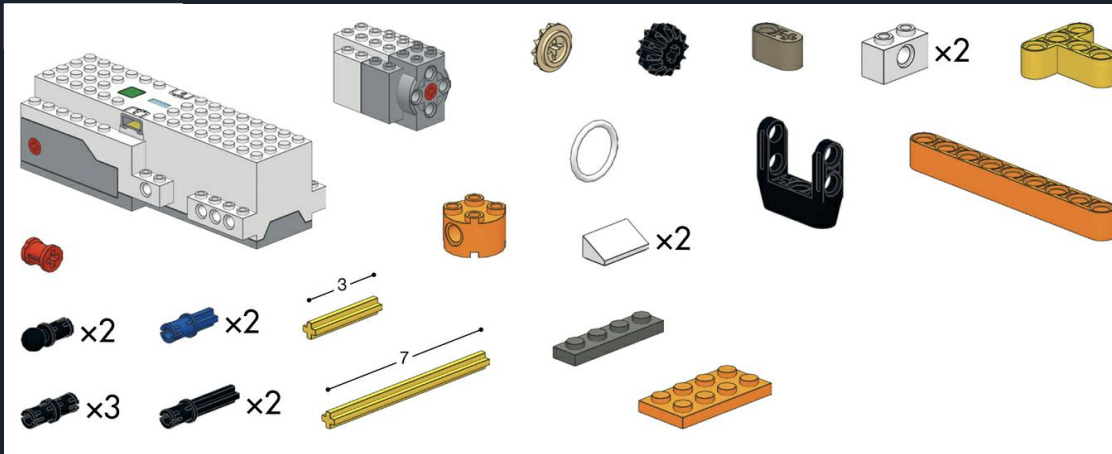




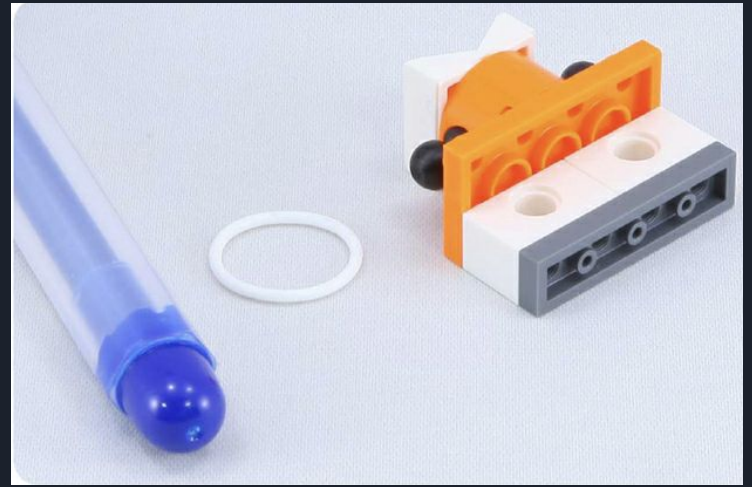
Drawing with a Pen

Drawing with a Pen 1 Building - Part 1

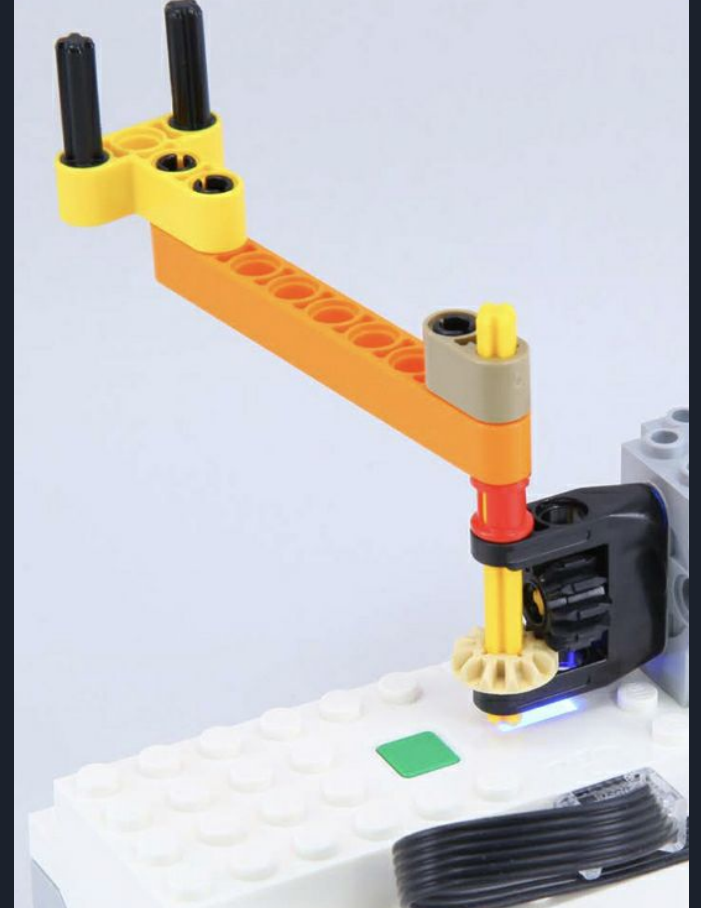
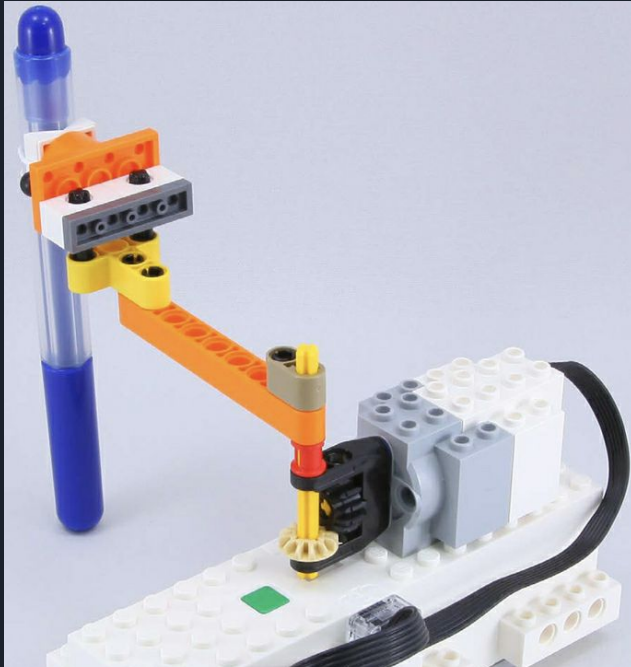


Gather your parts and check out
the next slides for building help.

Drawing with a Pen 1 Building - Part 2



Drawing with a Pen 1 Building - Part 3



Drawing with a Pen 1 Programming

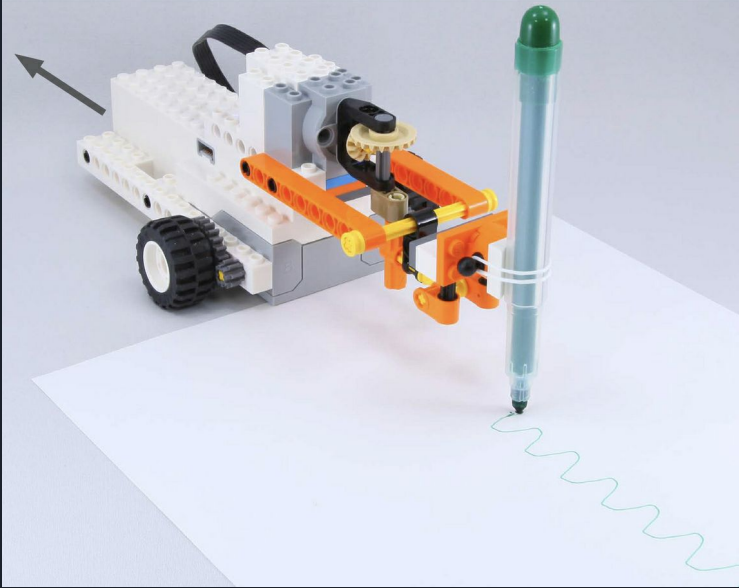
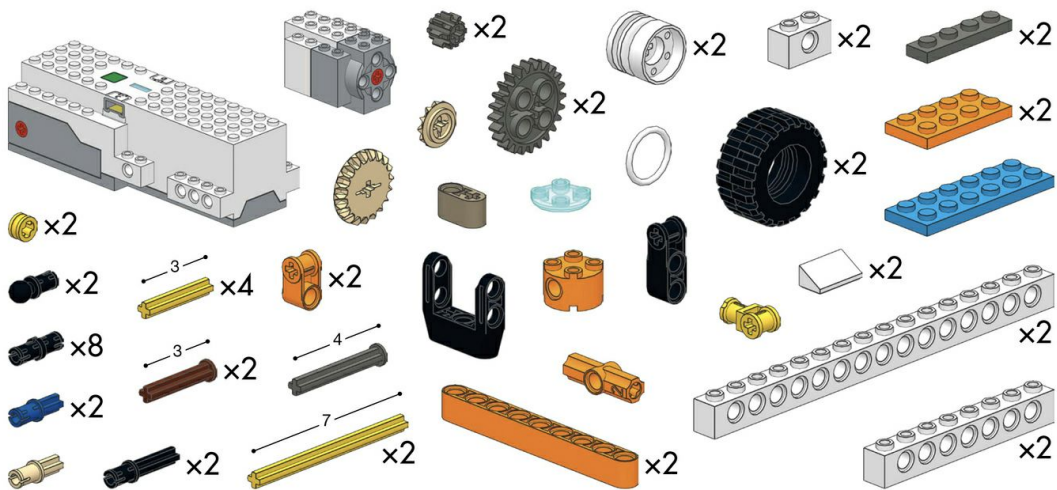


When ready, move on
to the next build.



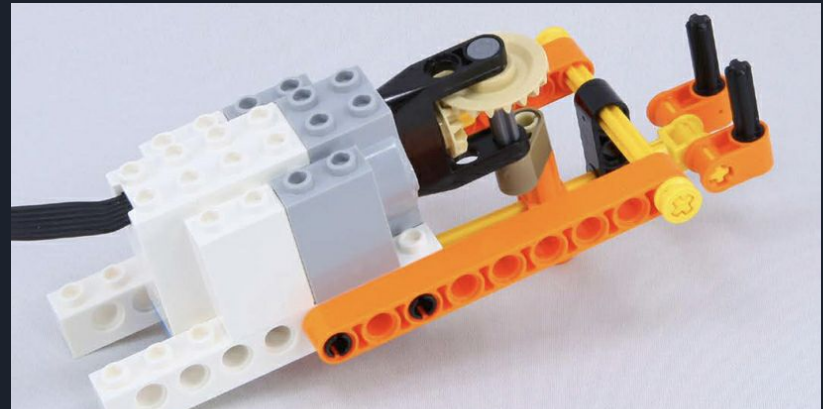
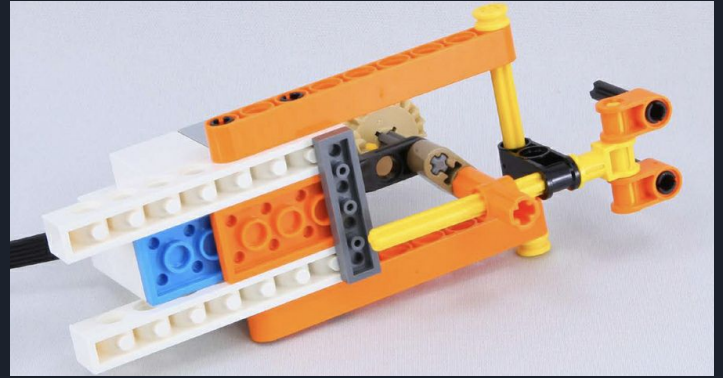
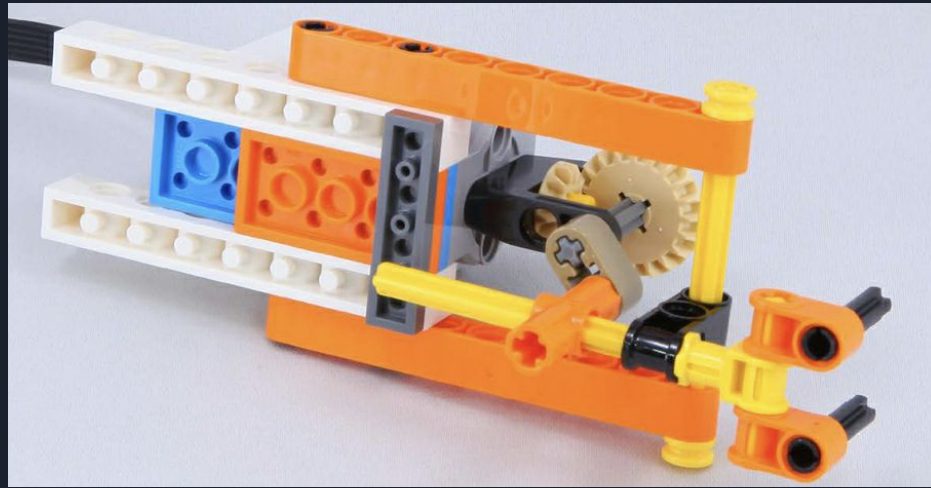
Drawing with a Pen 2

Building - Part 1

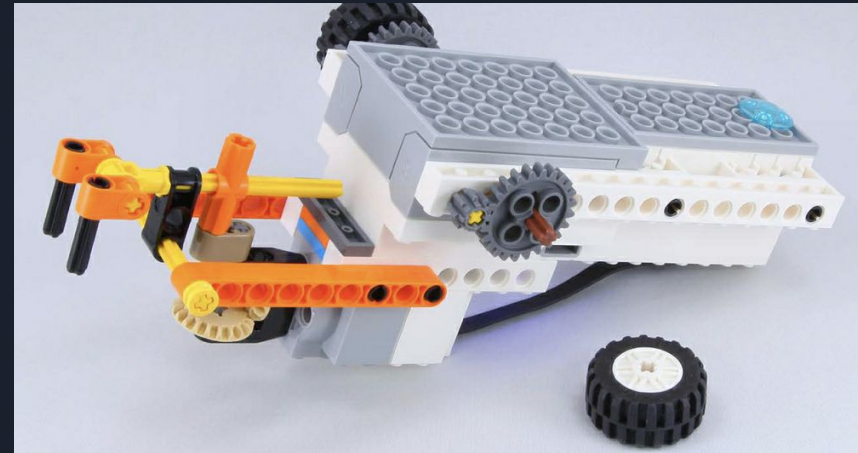
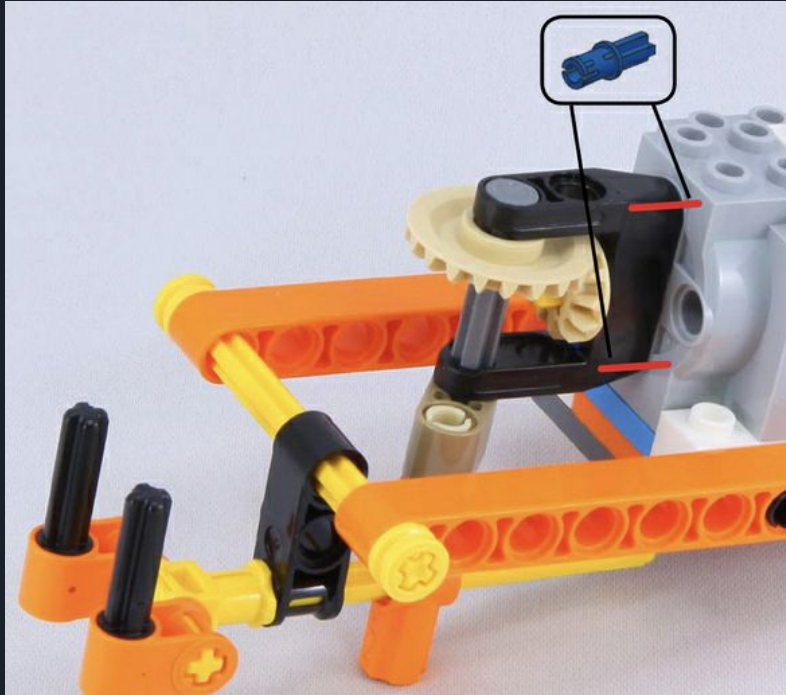


Gather your parts and check out the next slides for building help.

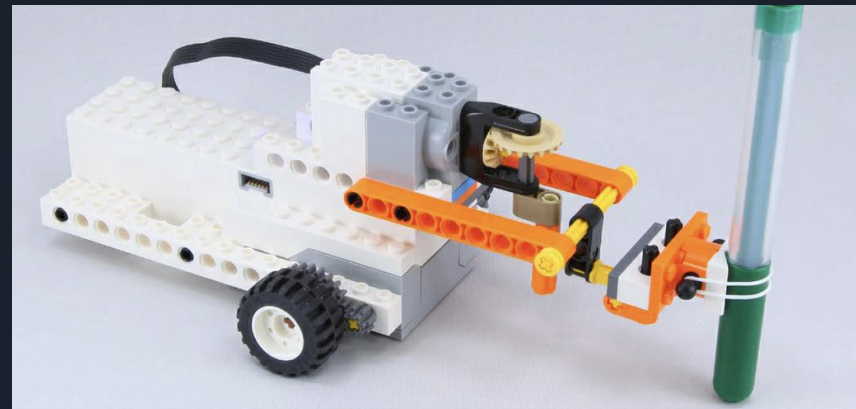
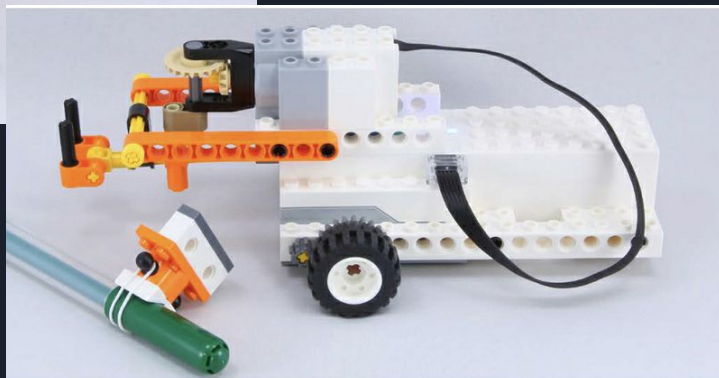
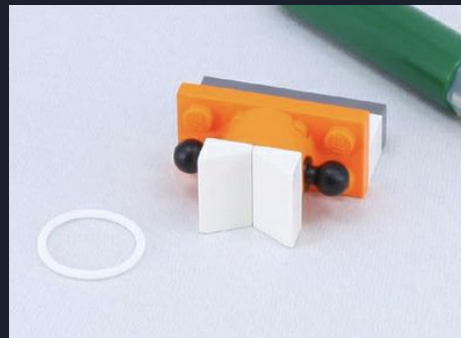
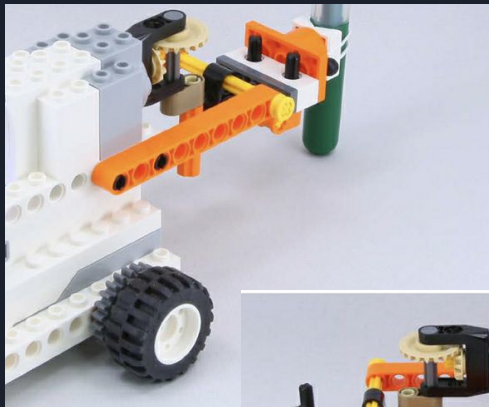
Drawing with a Pen 2 Building - Part 2



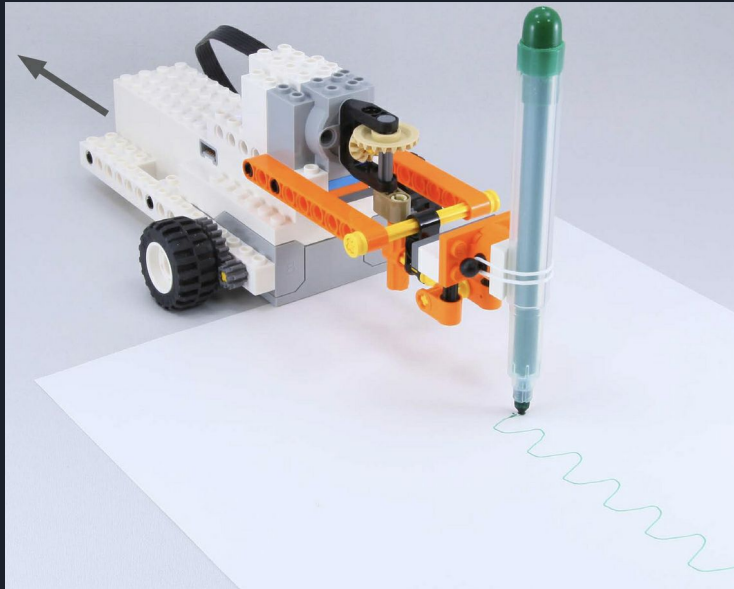
Drawing with a Pen 2 Building - Part 3



Drawing with a Pen 2 Building - Part 4



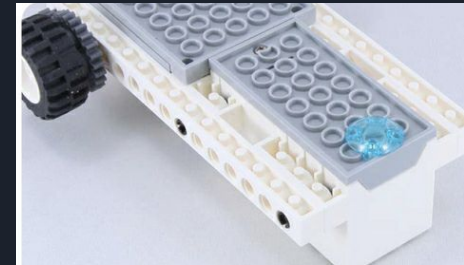
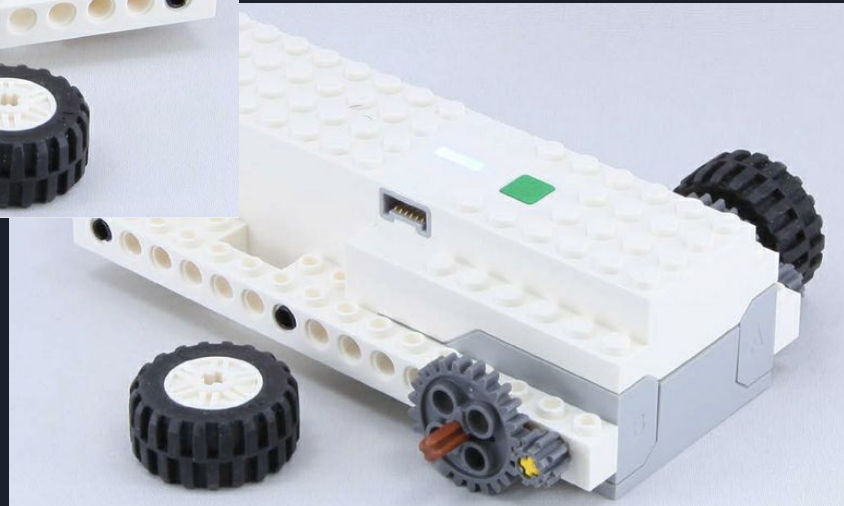
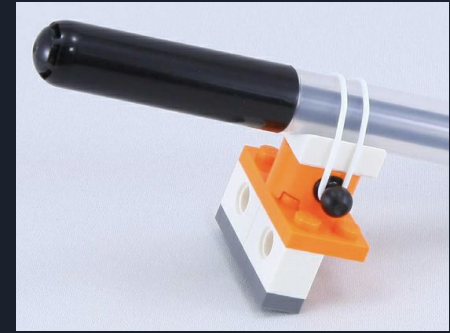
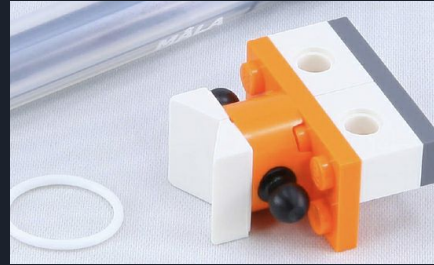
Drawing with a Pen 2 Programming



When ready, move on
to the next build.



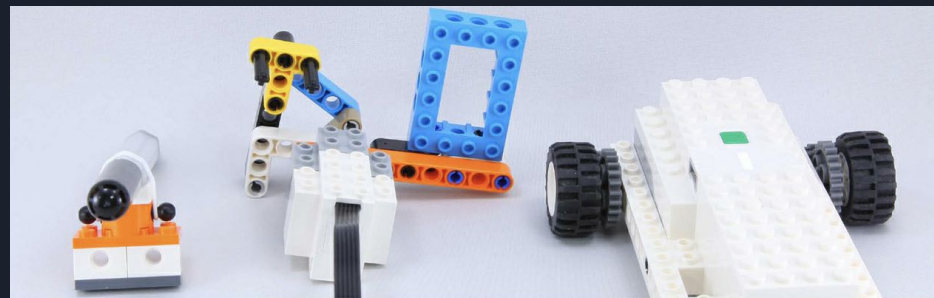
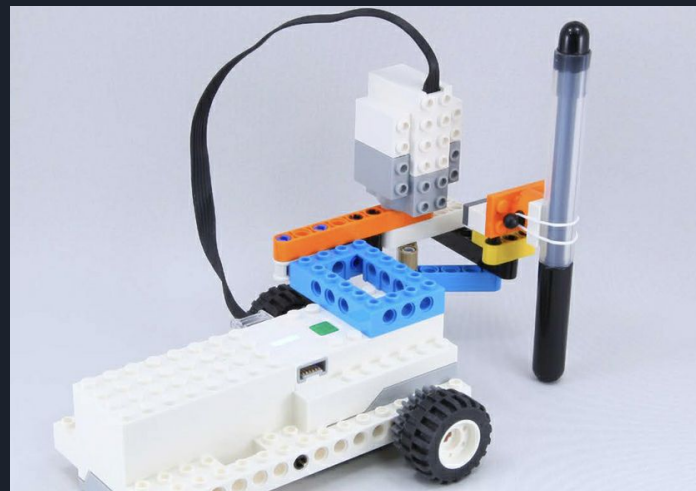
Drawing with a Pen 3 Building - Part 2



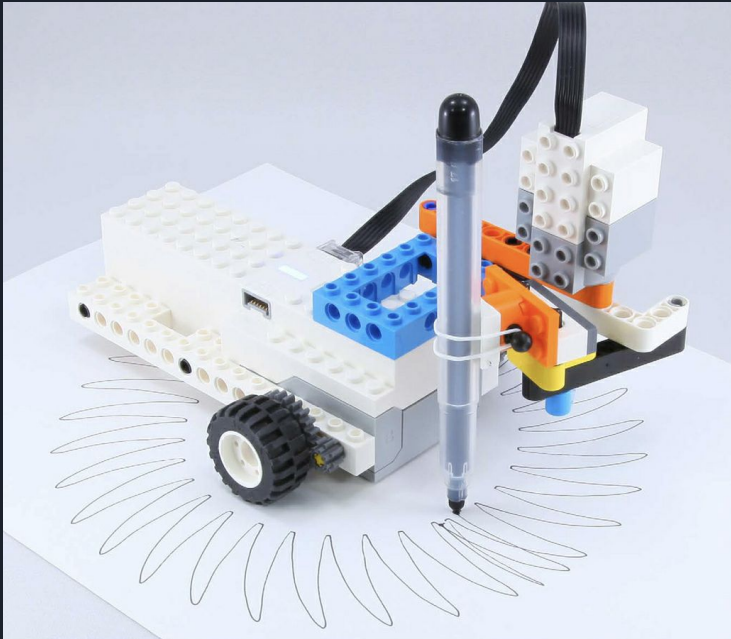
Drawing with a Pen 3 Building - Part 3



Drawing with a Pen 3 Building - Part 4



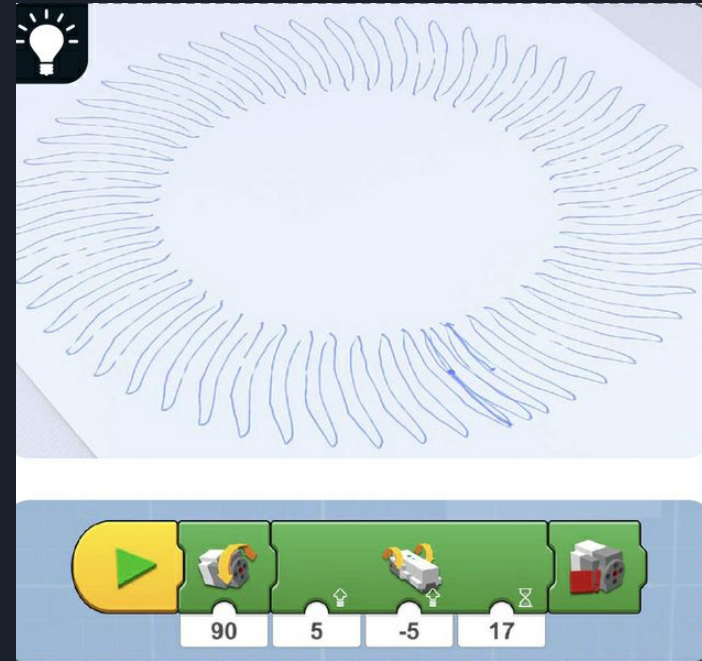
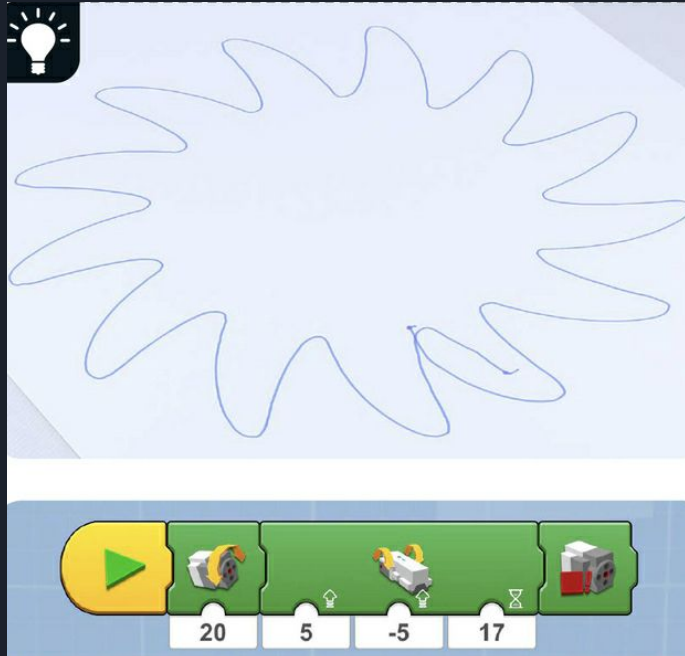
Drawing with a Pen 3 Programming



Now it is time to
modify the program..



Drawing with a Pen 3 Customizing

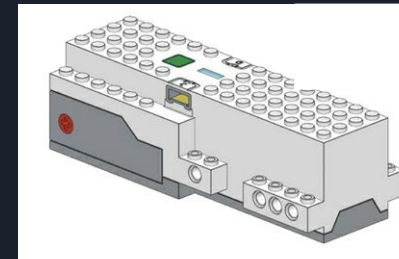
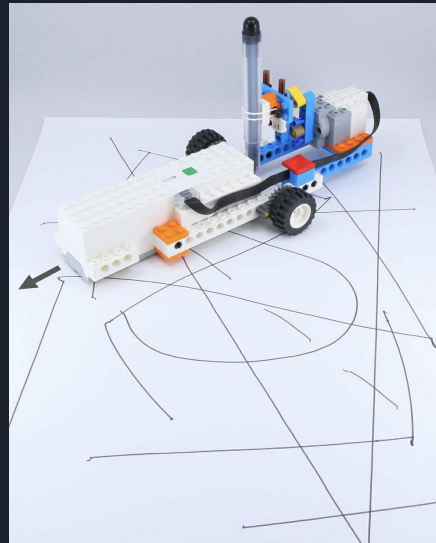
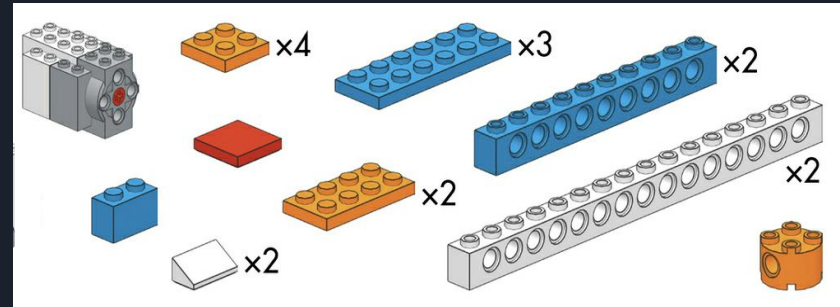
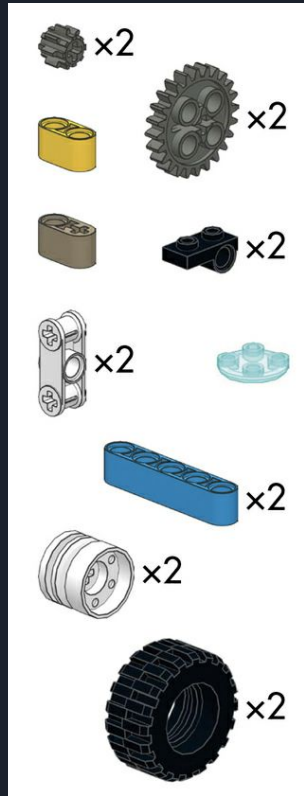
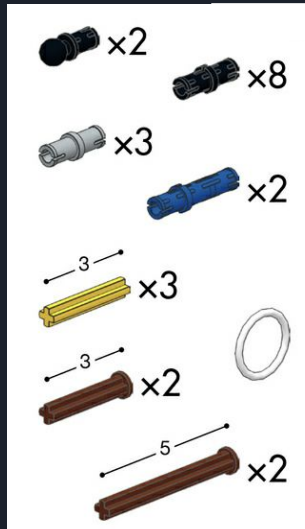


Try this or an idea of your own.

When ready, move on to the next build.

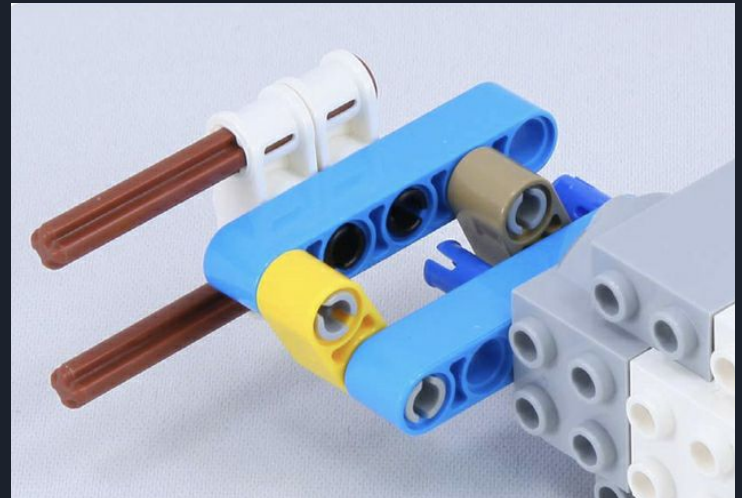
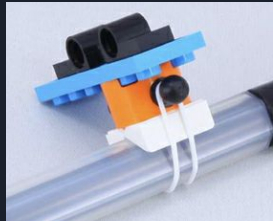
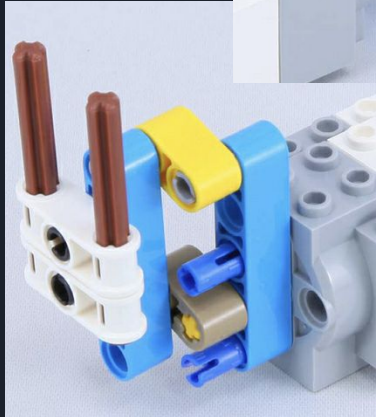
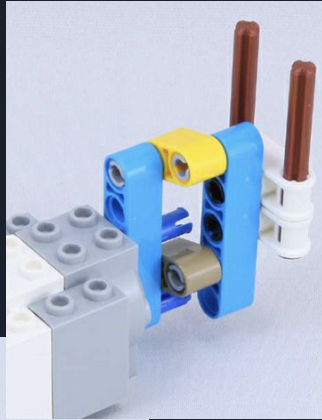


Drawing with a Pen 4 Building - Part 1

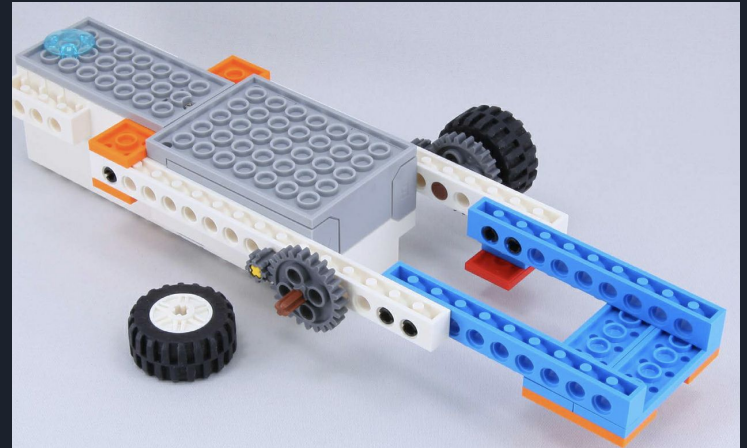
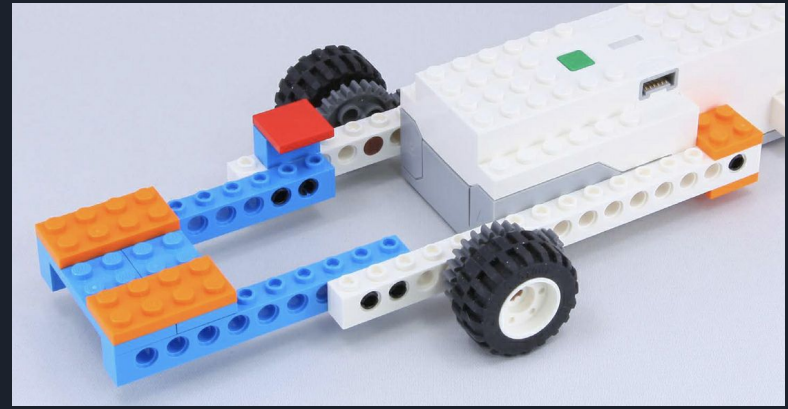
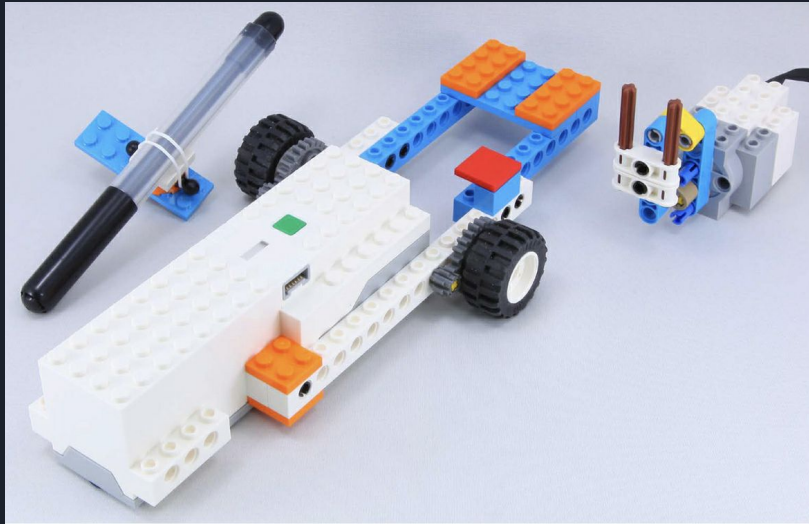


Gather your parts and check out the next slides for building help.

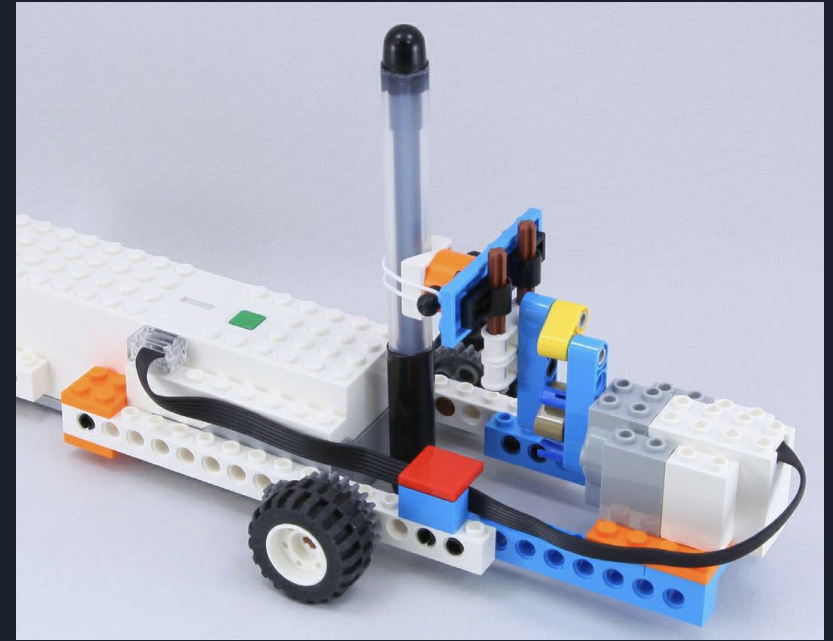
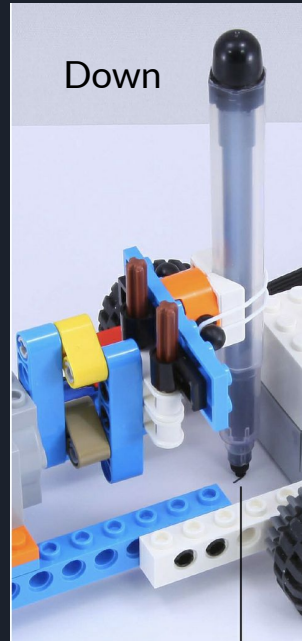
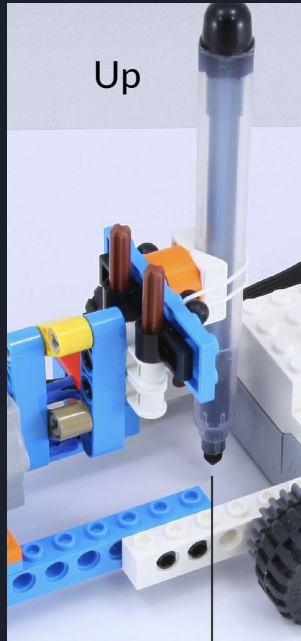
Drawing with a Pen 4 Building - Part 2



Drawing with a Pen 4 Building - Part 3

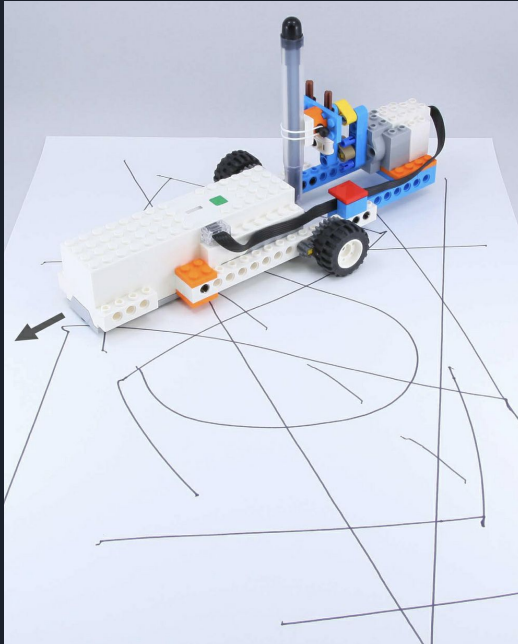


Drawing with a Pen 4 Building - Part 4



Adjust the position of the pen so that the tip doesn't touch the surface of the paper when the pen holder is up and does when they holder is down.

Drawing with a Pen 4 Programming

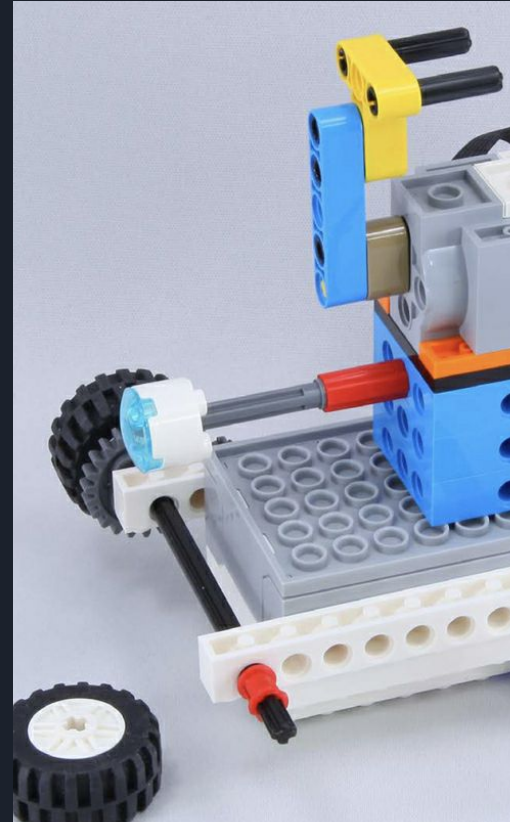
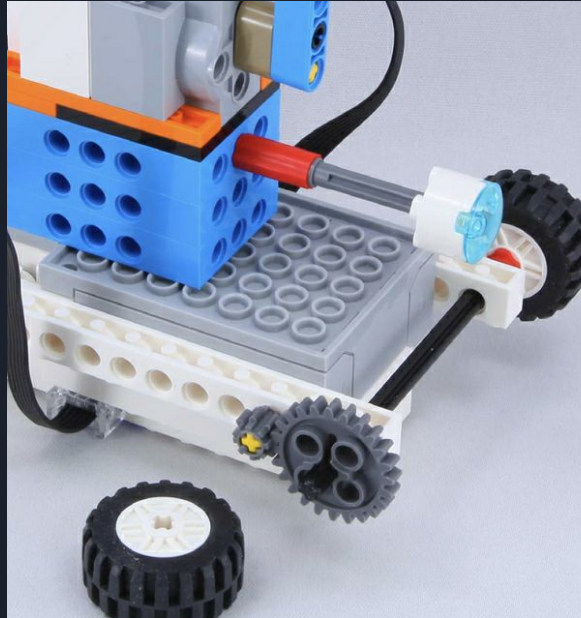
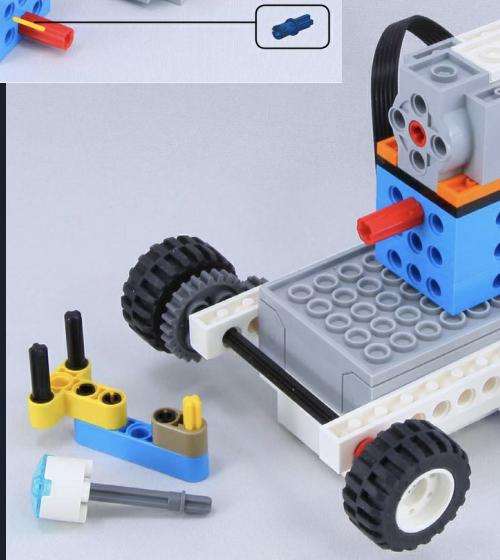
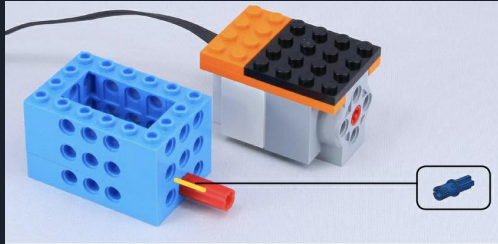


The screenshot displays the LEGO Mindstorms programming environment. At the top left, a card labeled "Lance" is visible. A green play button in the top right corner is accompanied by the text "Tap this button to start the program." The main workspace contains two programming blocks. The first block is a "Motor" block with a green background, set to "8" for power and "0.1" for duration. The second block is a "Motor" block with a green background, set to "50" for power and "1" for duration. This is followed by a "Motor" block with a yellow background, set to "-50" for power and "0.5" for duration. This is followed by another "Motor" block with a yellow background, set to "50" for power and "0.5" for duration. At the bottom, two joysticks are shown. The left joystick is labeled "Control the robot with the joystick." The right joystick is labeled "Tap this button to move your pen up or down." A green arrow in the bottom right corner points to the right, with the text "When ready, move on to the next build." above it.

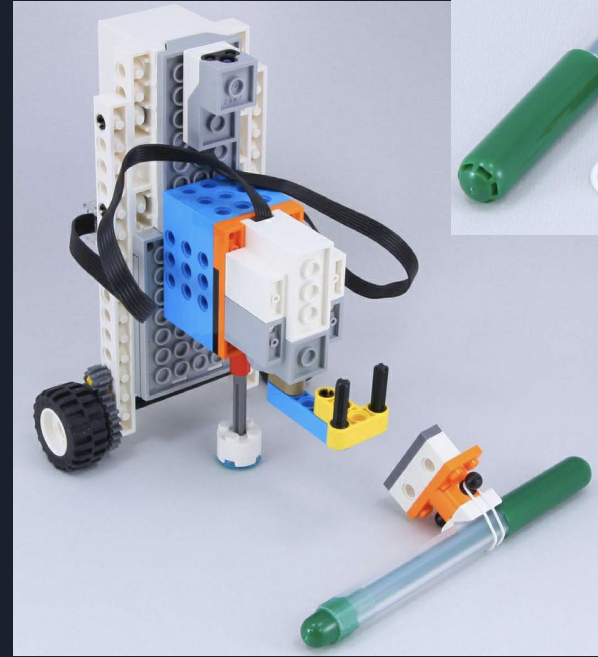
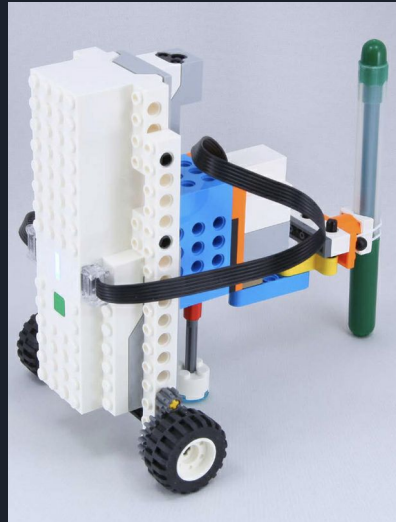
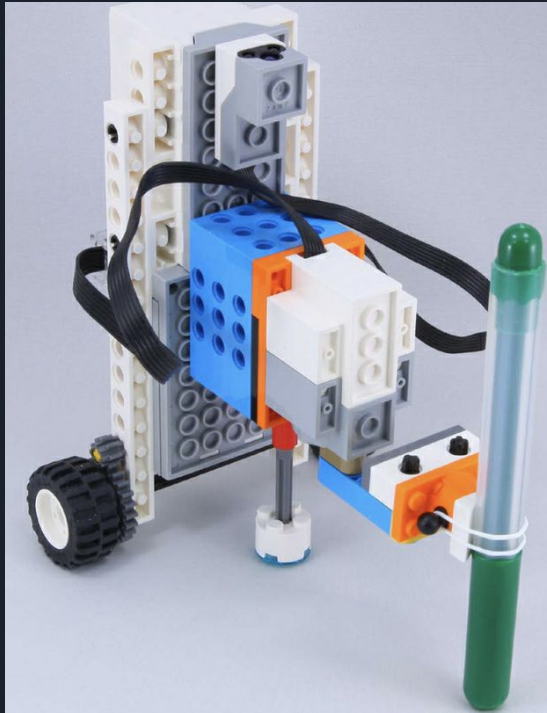
When ready, move on
to the next build.



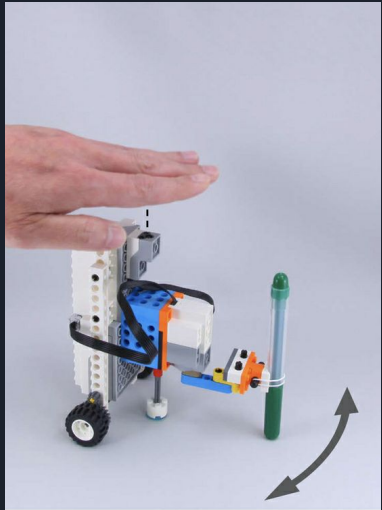
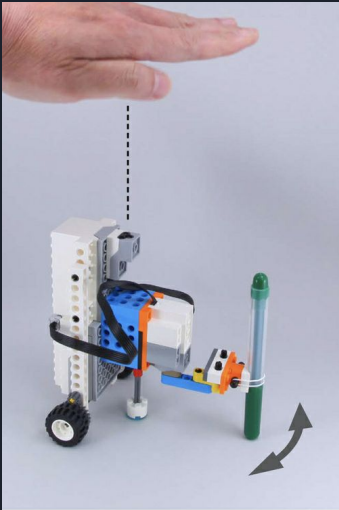
Drawing with a Pen 5 Building - Part 2



Drawing with a Pen 5 Building - Part 3



Drawing with a Pen 5 Programming



A sequence of programming blocks for a drawing task:

- Start block (green play button)
- Block 1: Motor power -5 , duration 0
- Block 2: Motor power a , duration a
- Block 3: Motor power 10 , duration $-$, motor icon, duration \times , duration 3
- Block 4: Motor power 20 , duration a
- Block 5: Motor power -20 , duration a
- Block 6: Motor power -20 , duration a
- Block 7: Motor power 20 , duration a
- End block (blue refresh button)