

TINY TECHS CLUB

Creativity | Science | Technology



Staircase

HOLD ON!! This Staircase moves with a Pulley System. Use the Tilt Sensor to control where the stairs will go.



Step 1

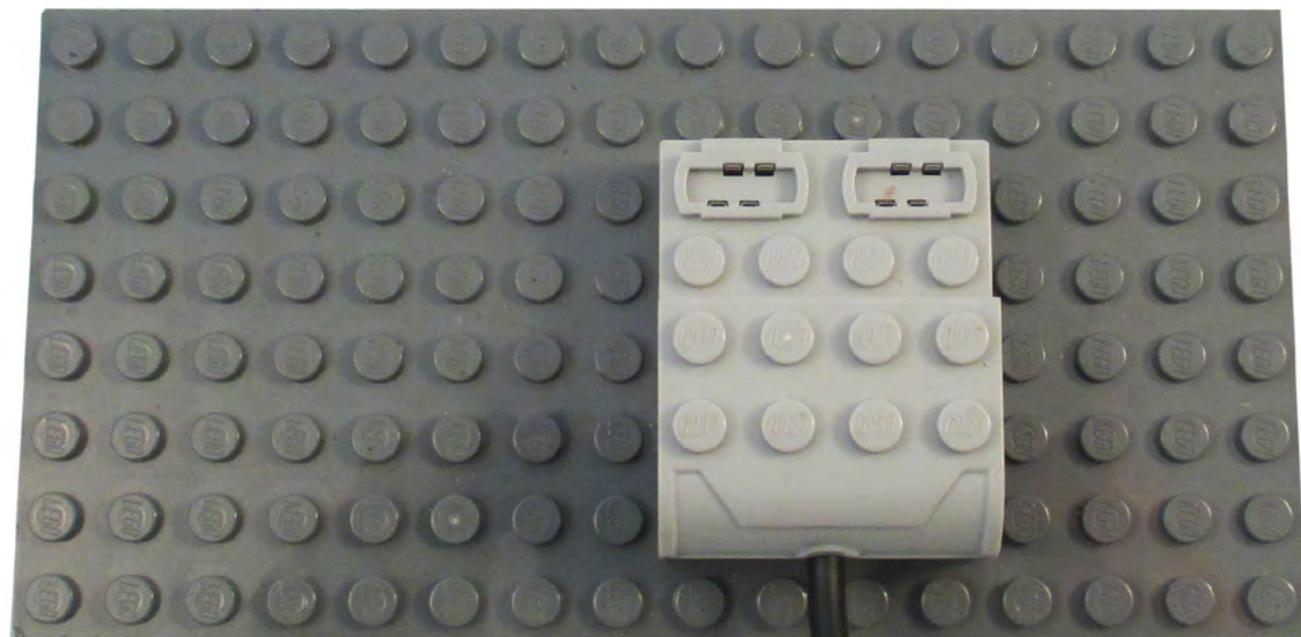
You will Need:



Hub

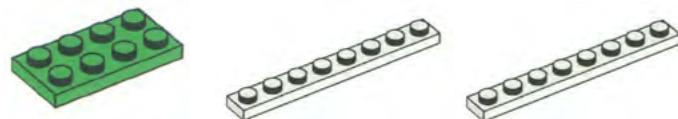


Grey 8x16
Brick

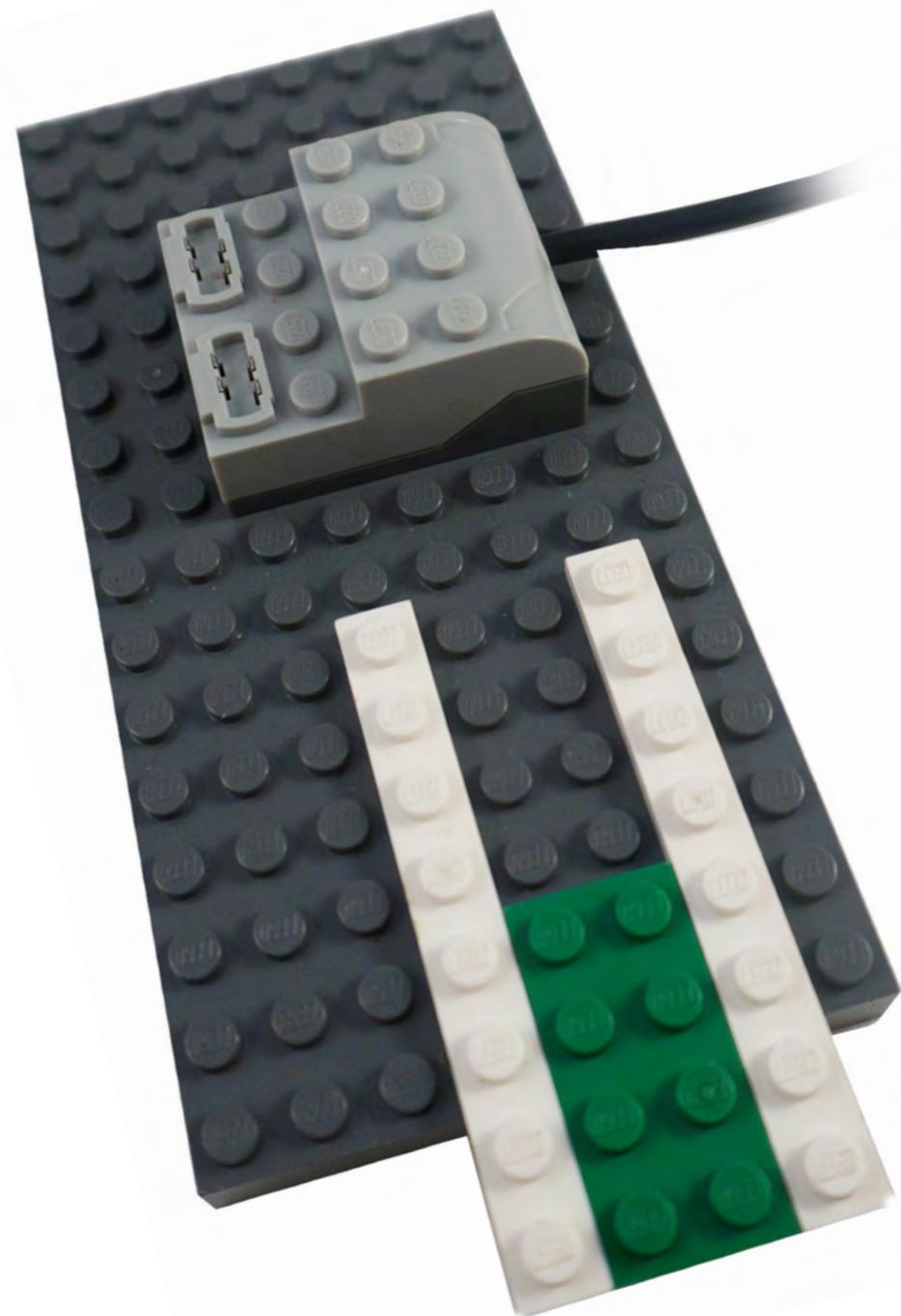


Step 2

You will Need:



Green 2x4
Plate White 1x8
Plate White 1x8
Plate



Step 3

You will Need:



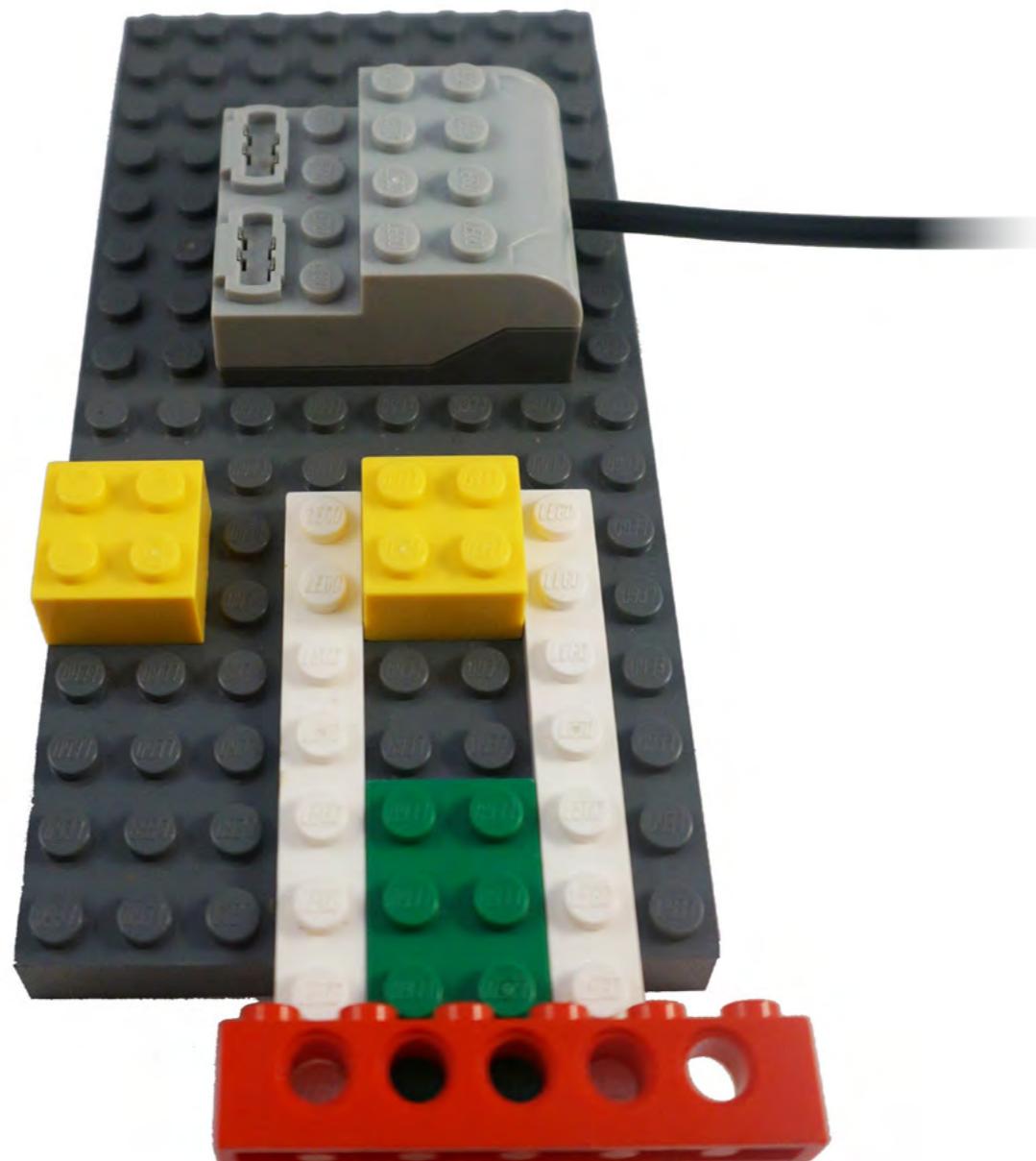
Yellow 2x2
Brick



Yellow 2x2
Brick

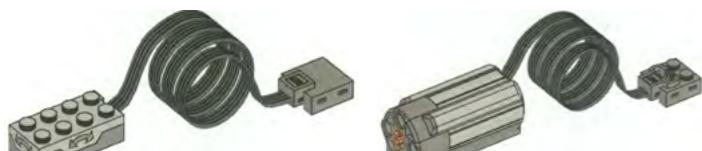


Red 1x6
with Holes



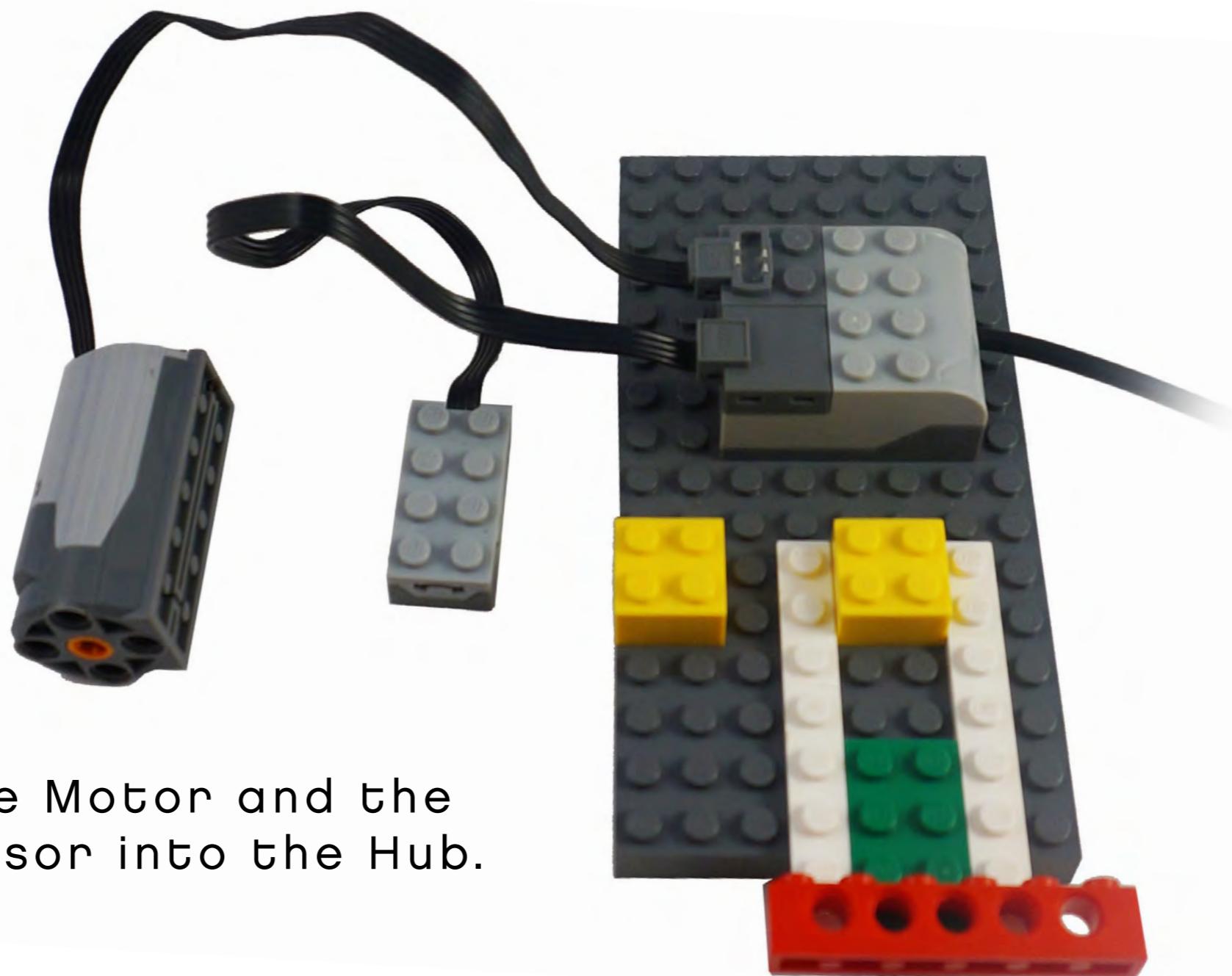
Step 4

You will Need:



Tilt Sensor

Motor



Plug the Motor and the Tilt Sensor into the Hub.

Step 5

You will Need:



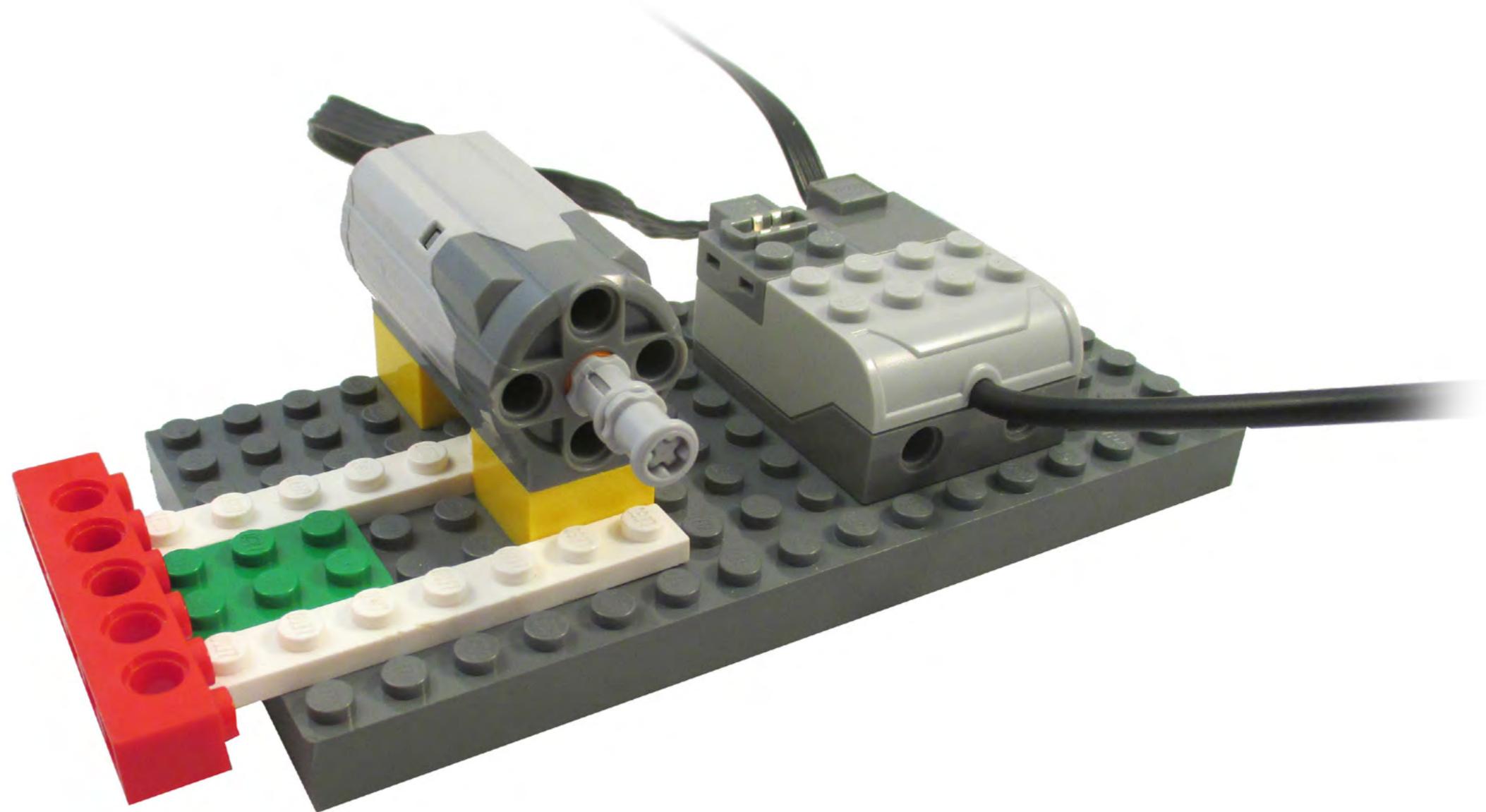
Bushing



Bushing



#3 Axle



Step 6

You will Need:



Red 1x4
Brick

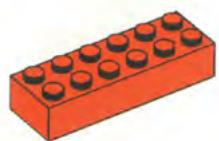
White 2x6
Plate

White 2x6
Plate

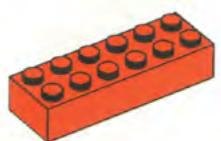


Step 7

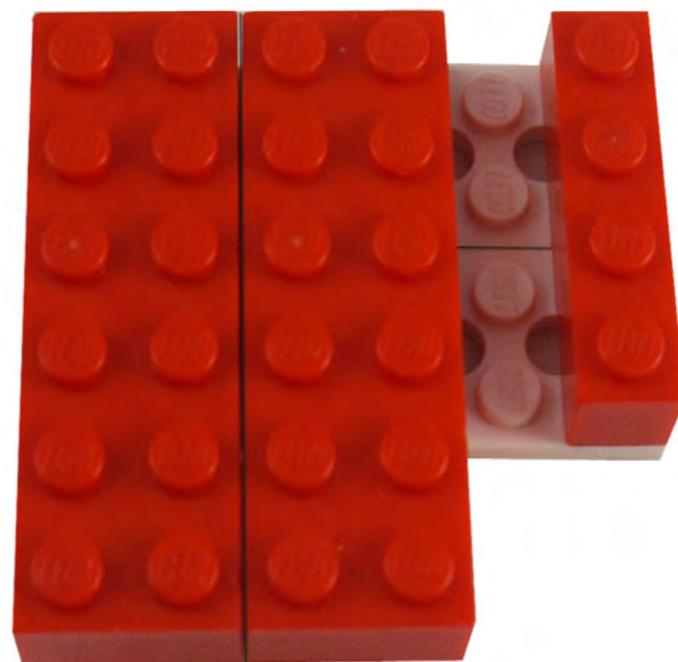
You will Need:



Red 2x6
Brick

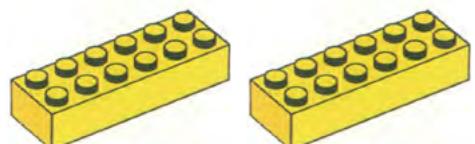


Red 2x6
Brick

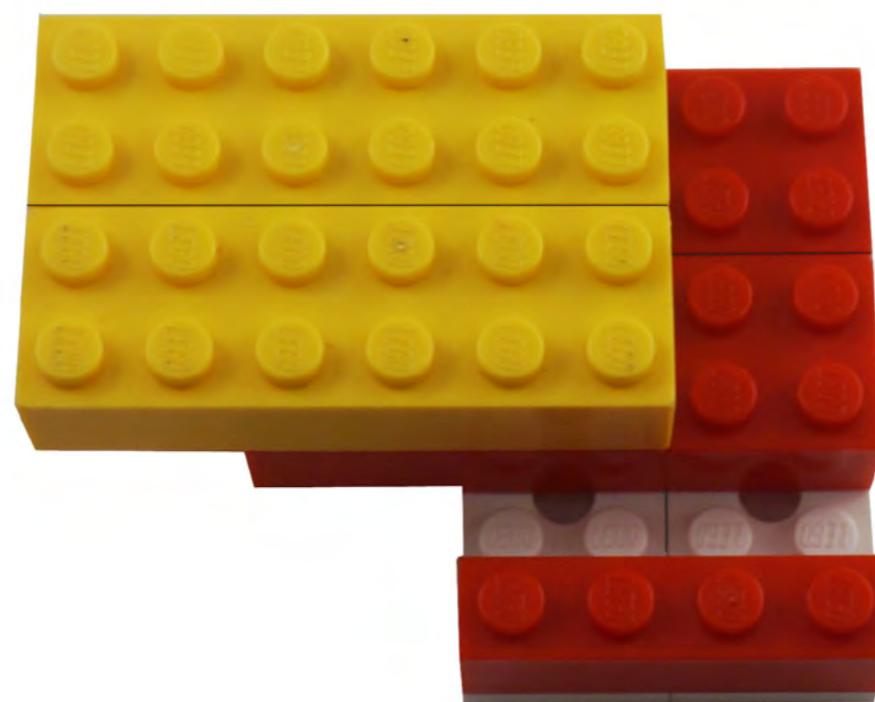


Step 8

You will Need:

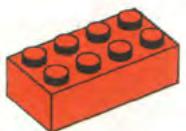


Yellow 2x6
Brick Yellow 2x6
Brick

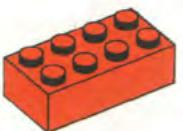


Step 9

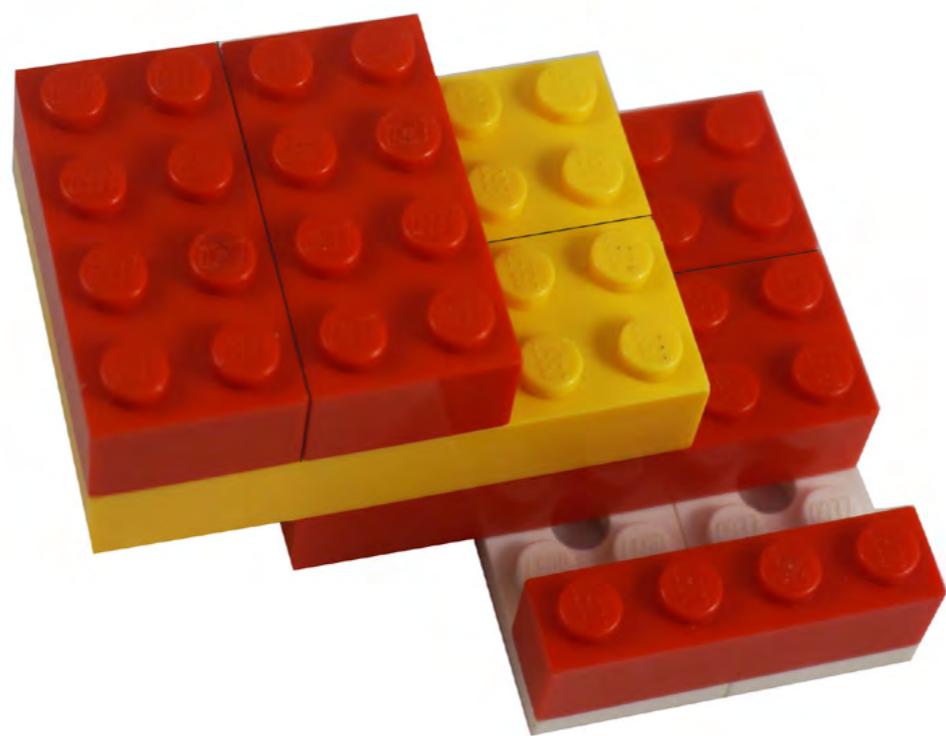
You will Need:



Red 2x4
Brick

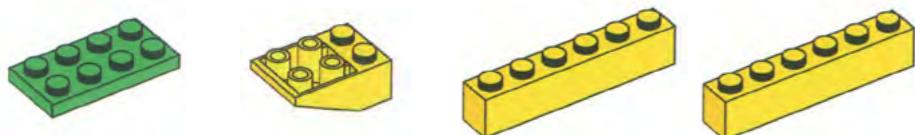


Red 2x4
Brick



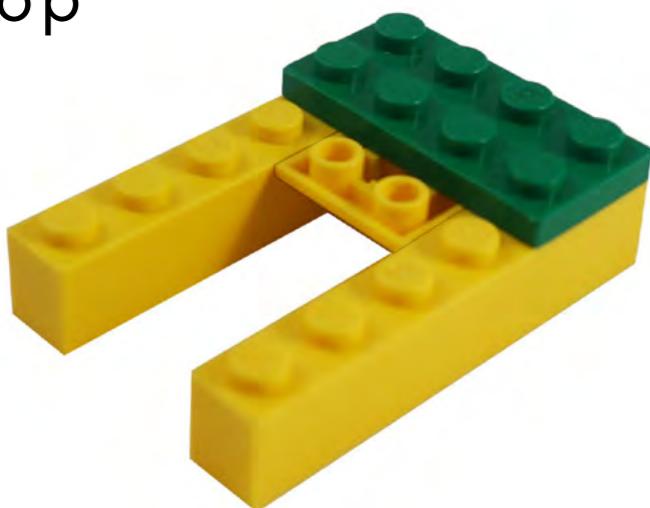
Step 10

You will Need:

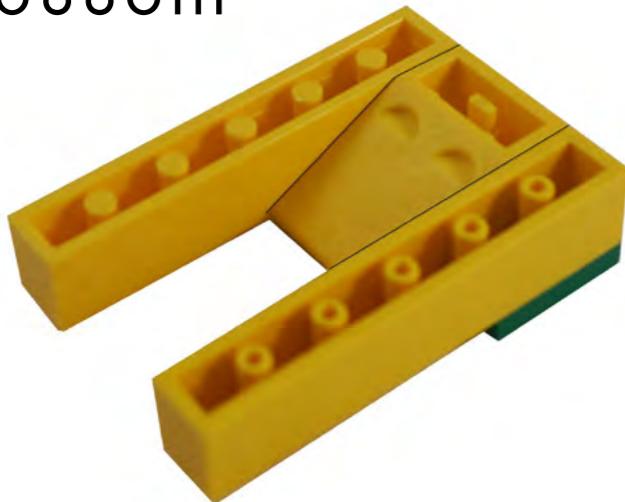


Green 2x4
Plate Yellow 2x3
Inverted
Wedge Yellow 1x6
Brick Yellow 1x6
Brick

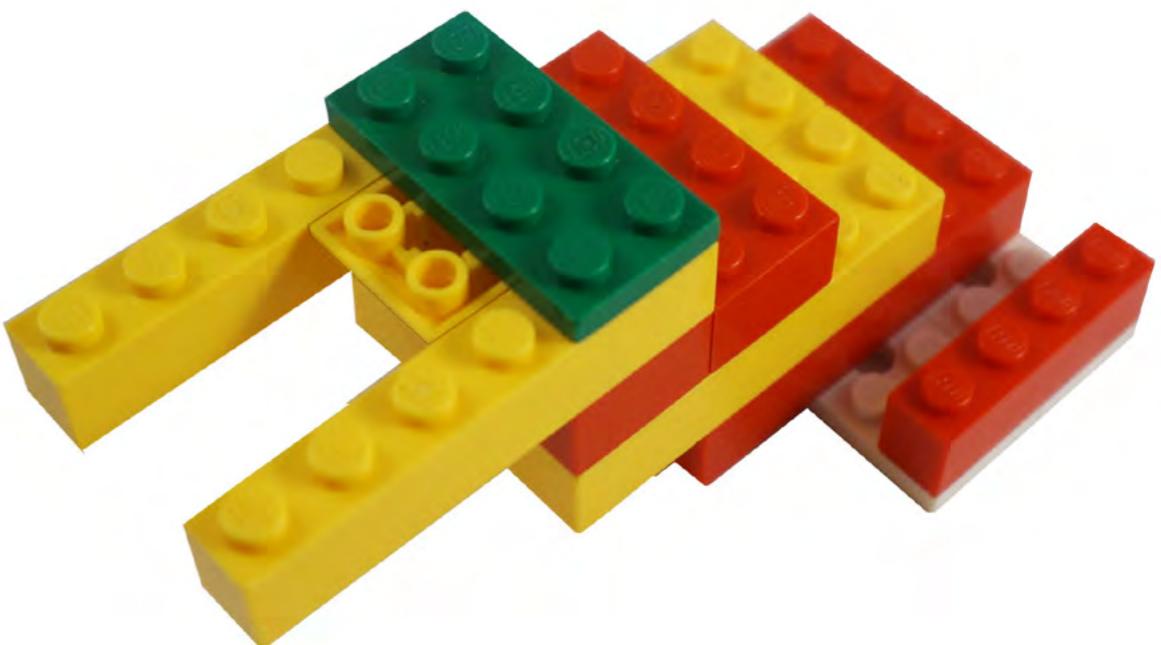
a. Top



Bottom



b.

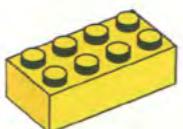


Step 11

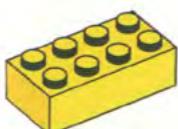
You will Need:



Green 2x4
Plate

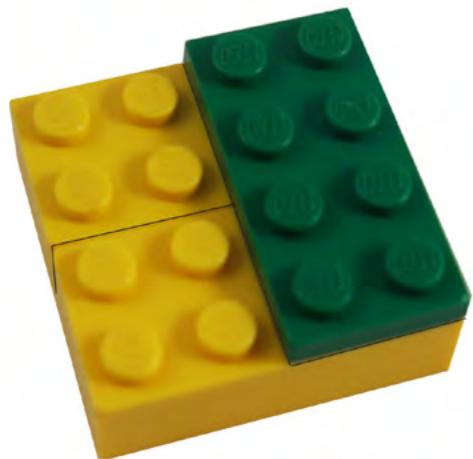


Yellow 2x4
Brick

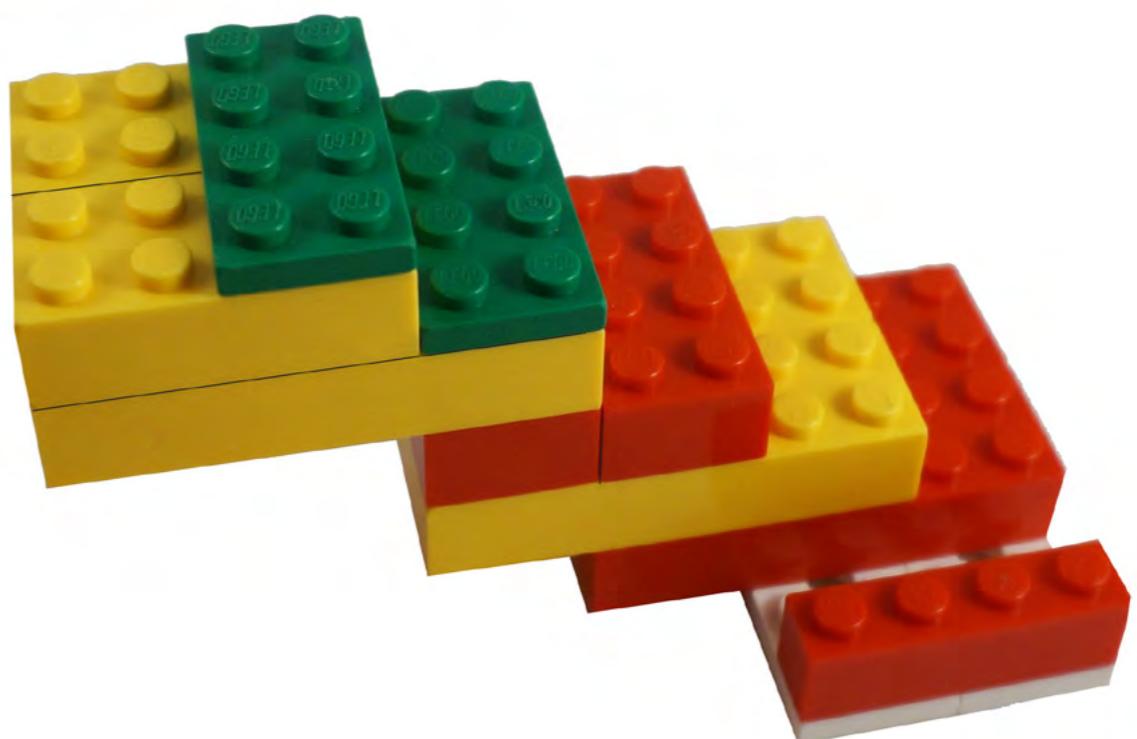


Yellow 2x4
Brick

a.

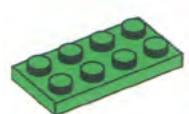


b.



Step 12

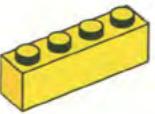
You will Need:



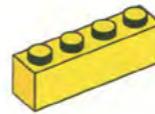
Green 2x4
Plate



Yellow 2x2
Inverted
Wedge

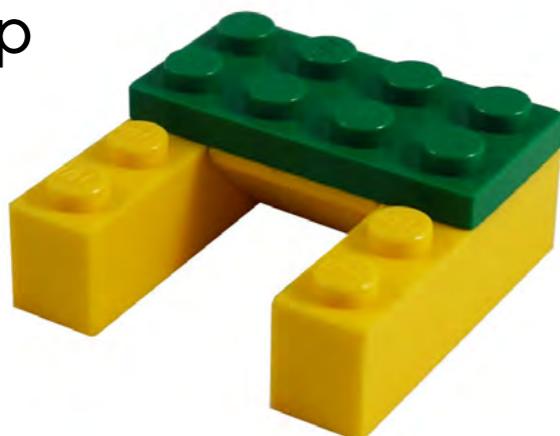


Yellow 1x4
Brick

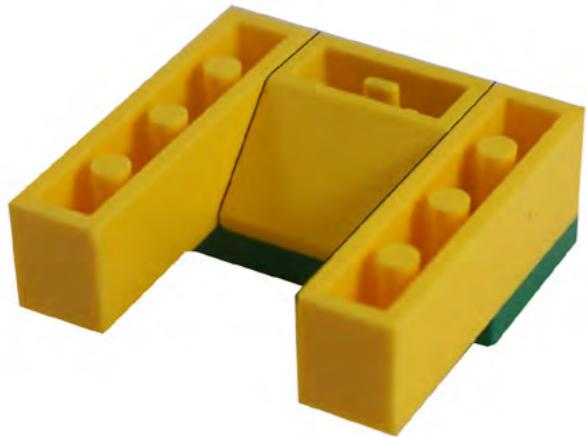


Yellow 1x4
Brick

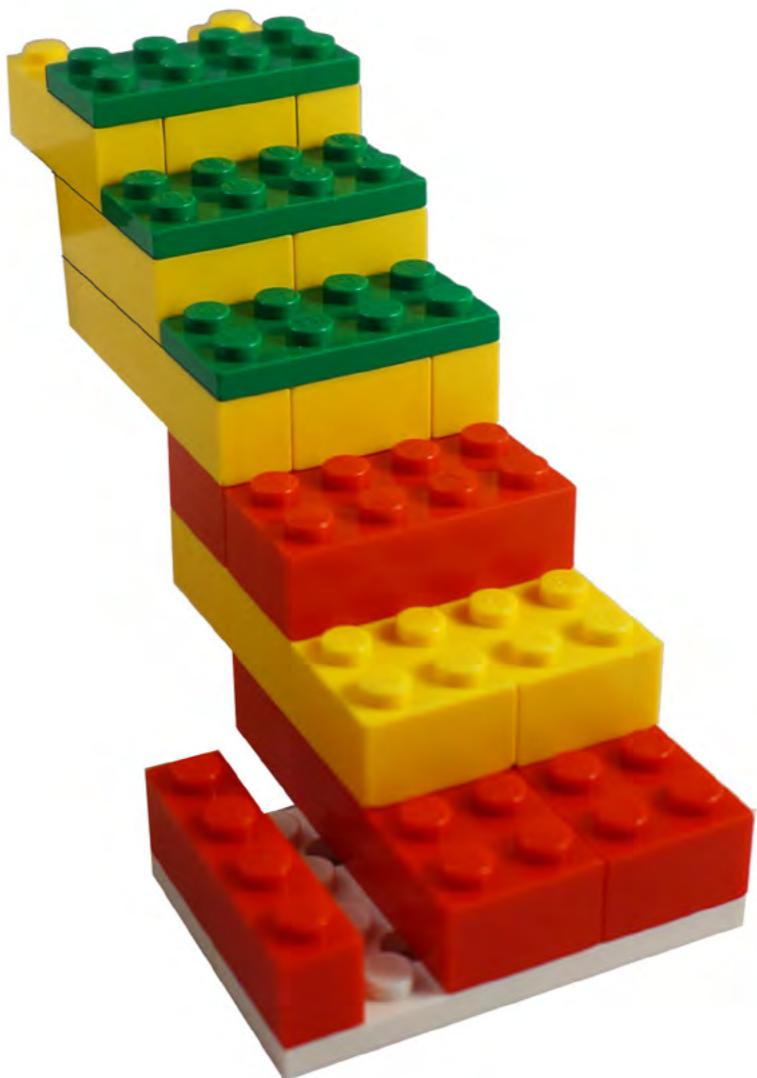
a. Top



Bottom

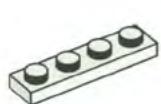


b.



Step 13

You will Need:



White 1x4
Brick



White 1x4
Brick



Yellow 2x3
Inverted
Wedge



White 2x6
Plate

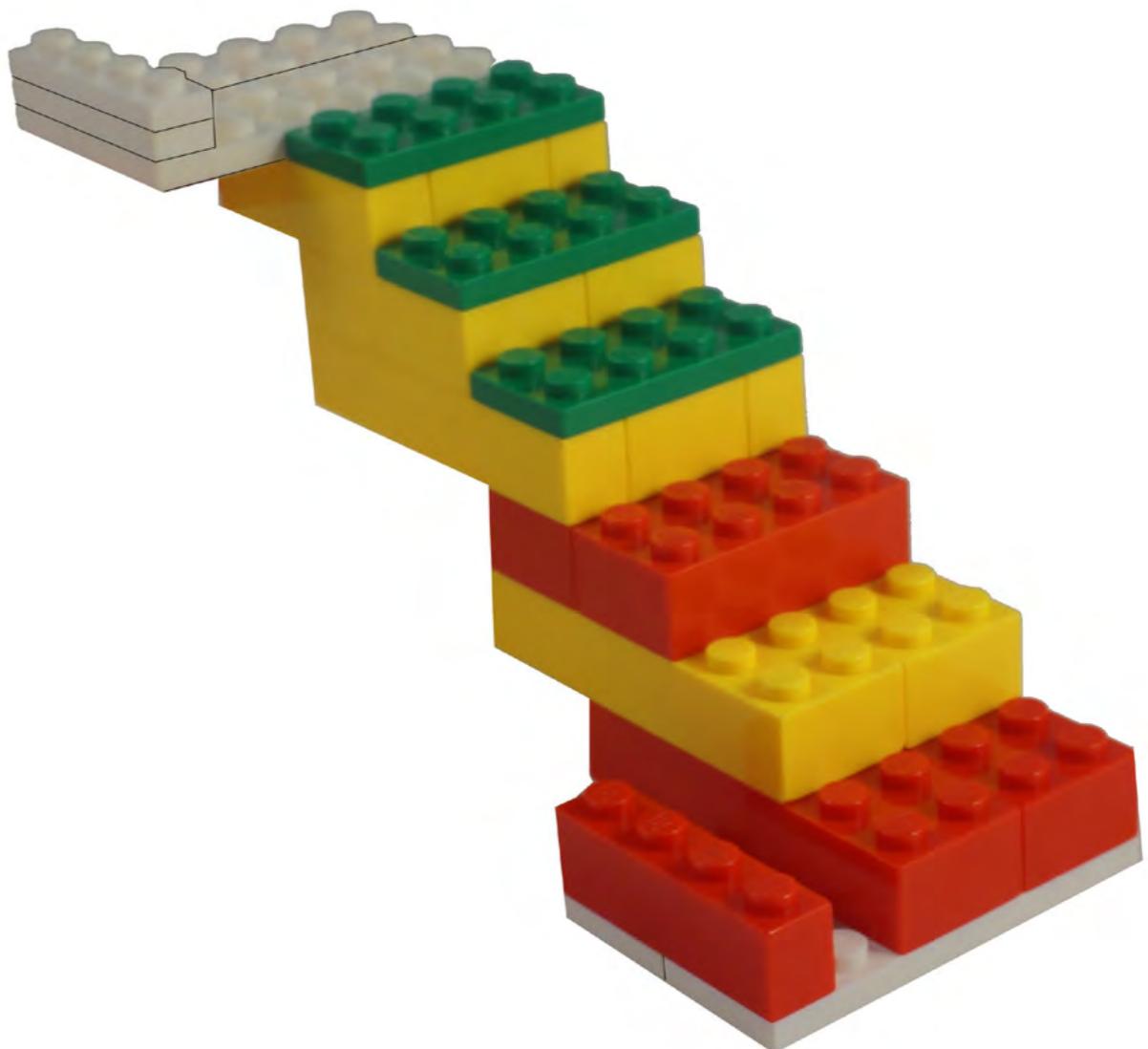


White 2x6
Plate

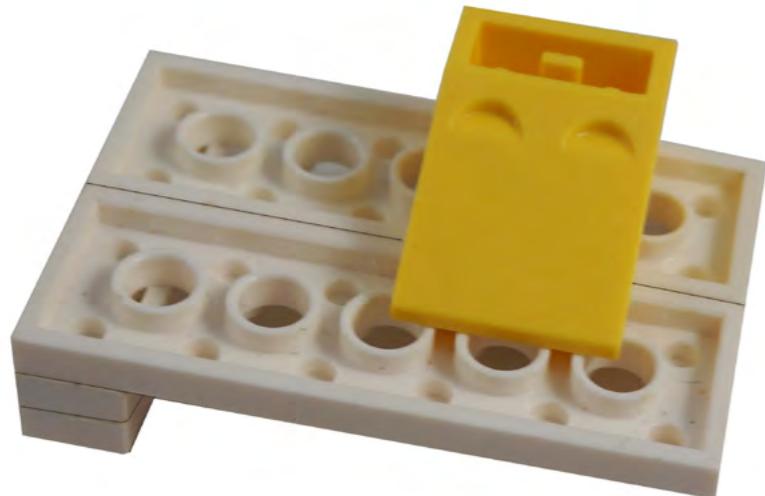
a. Top



b.



Bottom



Step 14

You will Need:



Black Pin

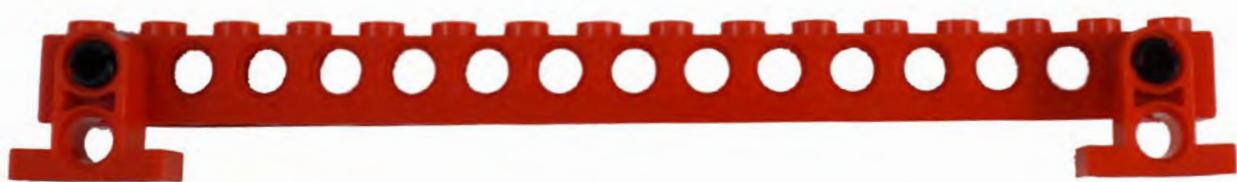
Black Pin

Red T-Plate

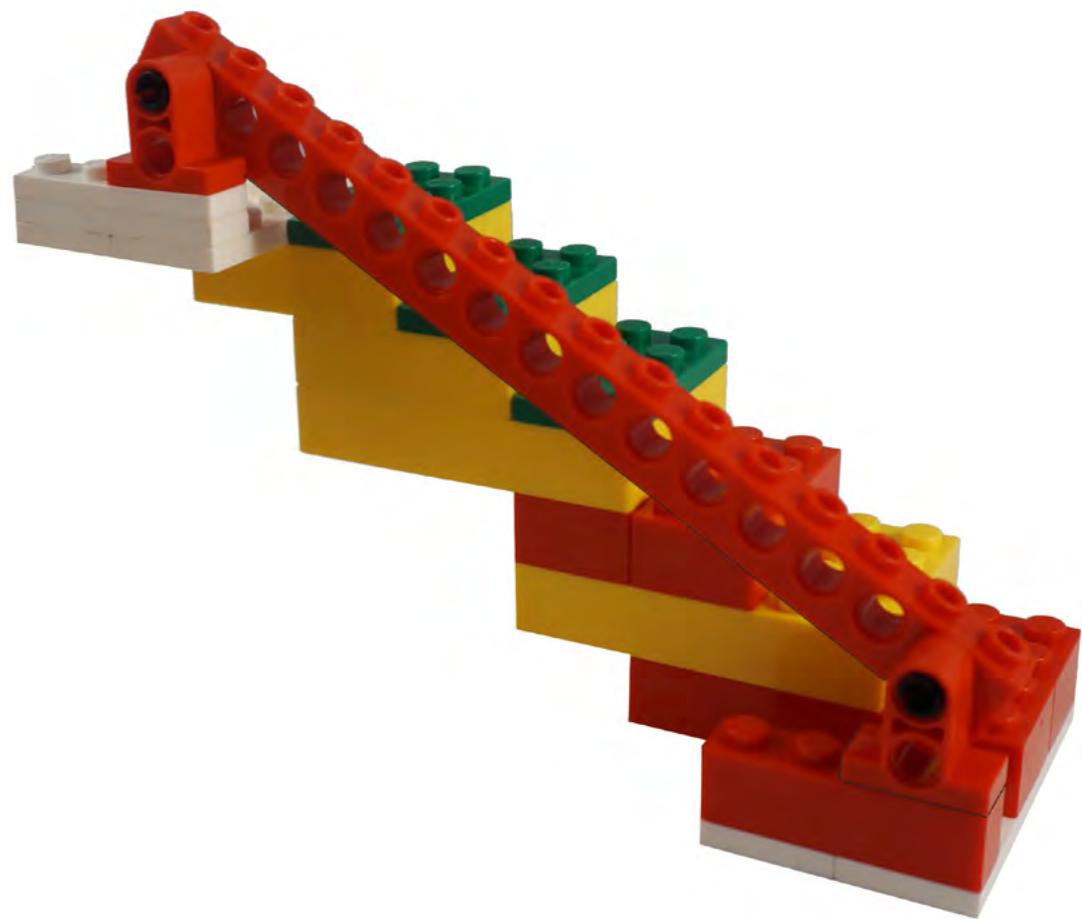
Red T-Plate

Red 1x16
with Holes

a.



b.



Step 15

You will Need:



#3 Axle

Green Wheel

Green Wheel

Black Pin

Black Pin

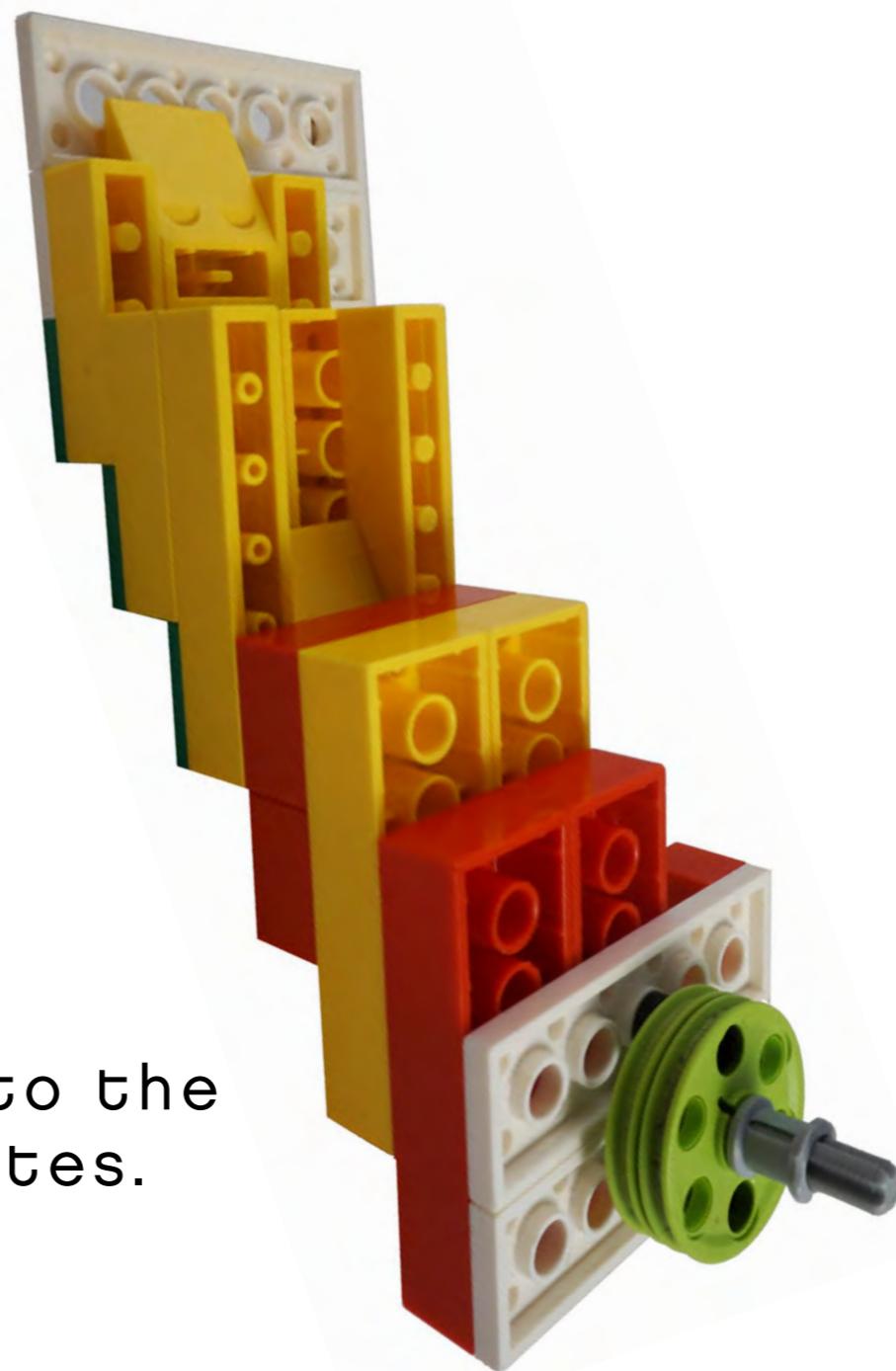
Bushing



a.

Line up the holes of
the Green Wheels.

b.



Push the Black Pins into the
holes on the White Plates.

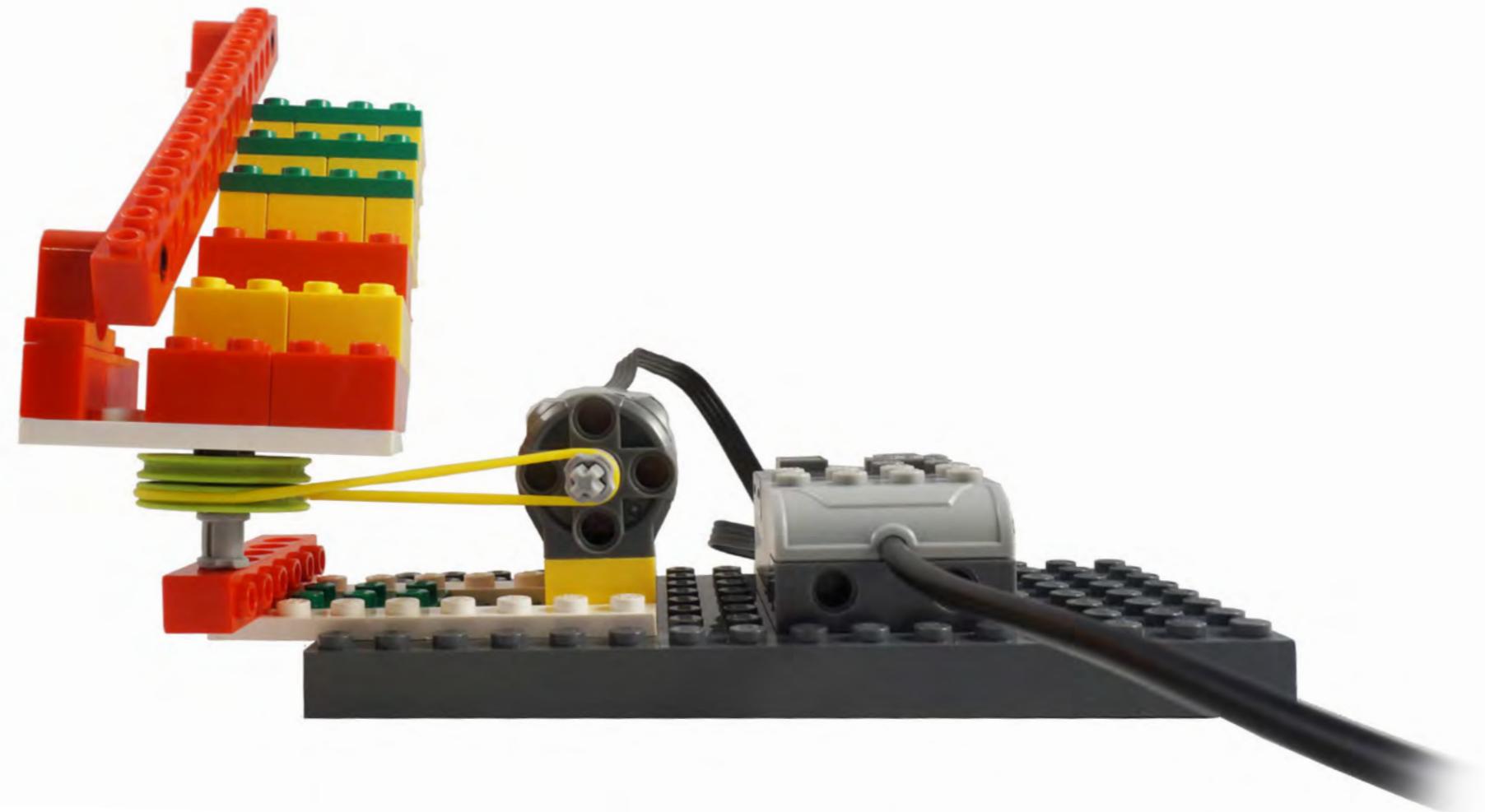
Step 16

You will Need:



Rubber Band

- a. Put the Rubber Band around the Green Wheel.
- b. Put the stairs into the hole or the Red 1x6.
- c. Put the Rubber Band on the bushings.



Step 17

You will Need:



Green Round
Brick



6 Axle



Red Bow

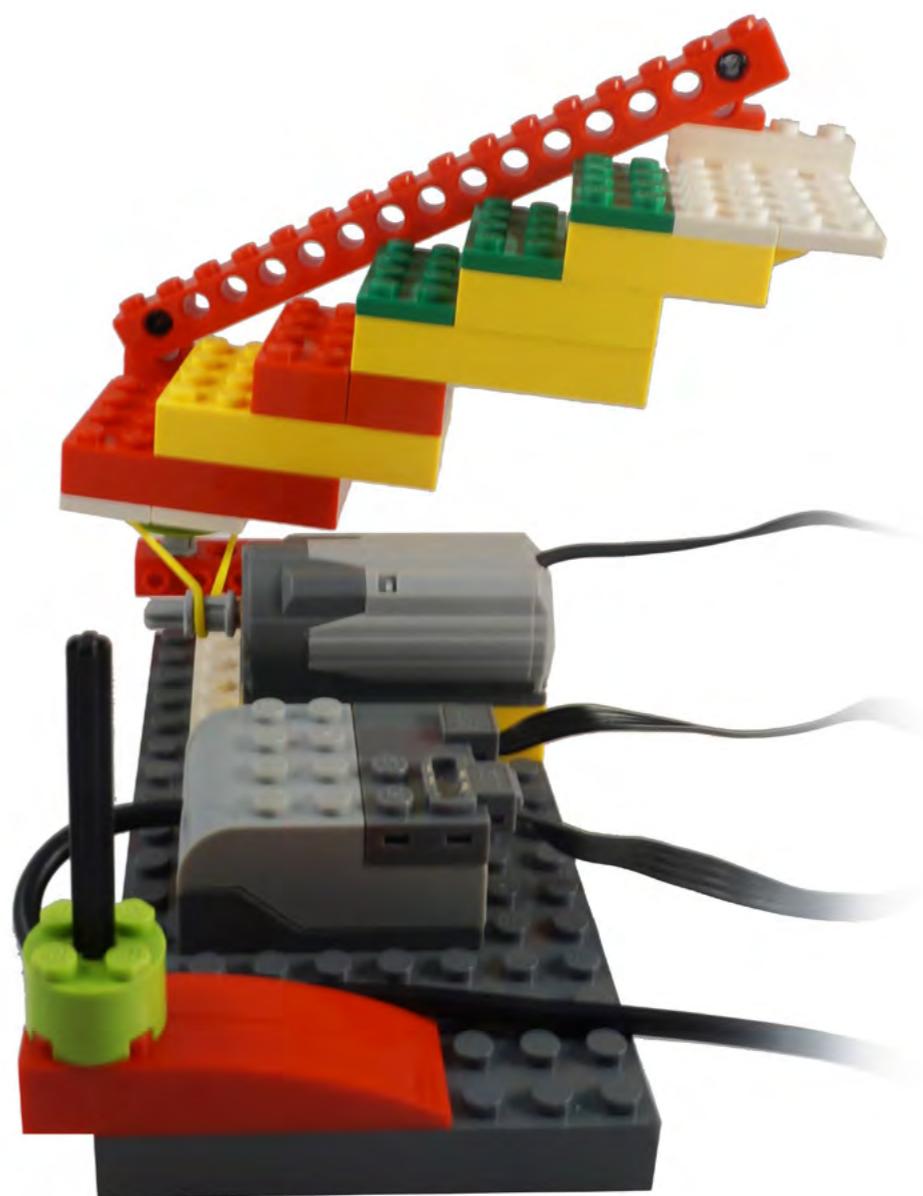


Red Bow

a.



b.



Step 18

You will Need:



Grey 1x2
with Pin



Grey 1x2
with Pin



Red 1x16
with Holes



Step 19

You will Need:



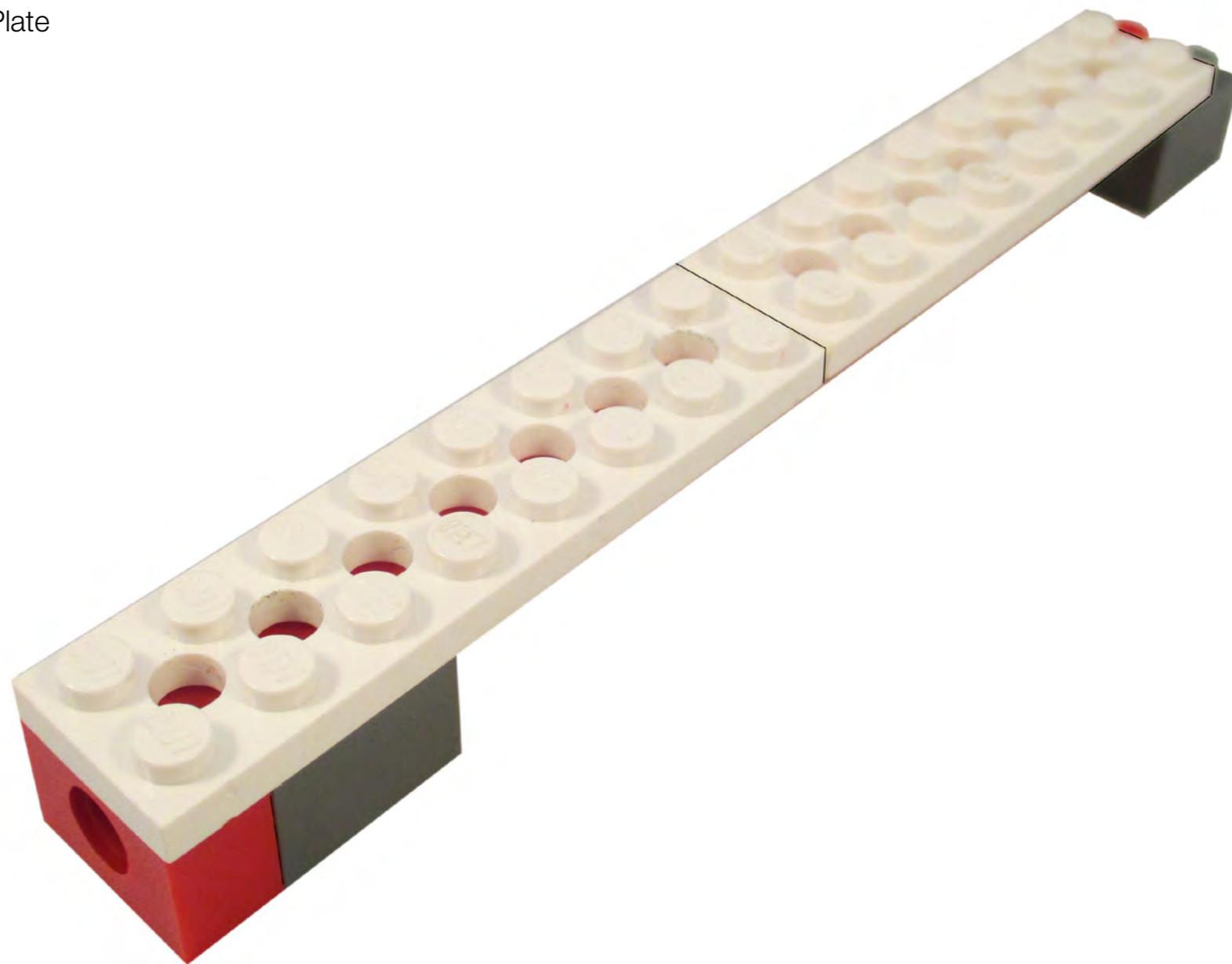
Red 1x2
with Hole



White 2x8
Plate



White 2x8
Plate



Step 20

You will Need:



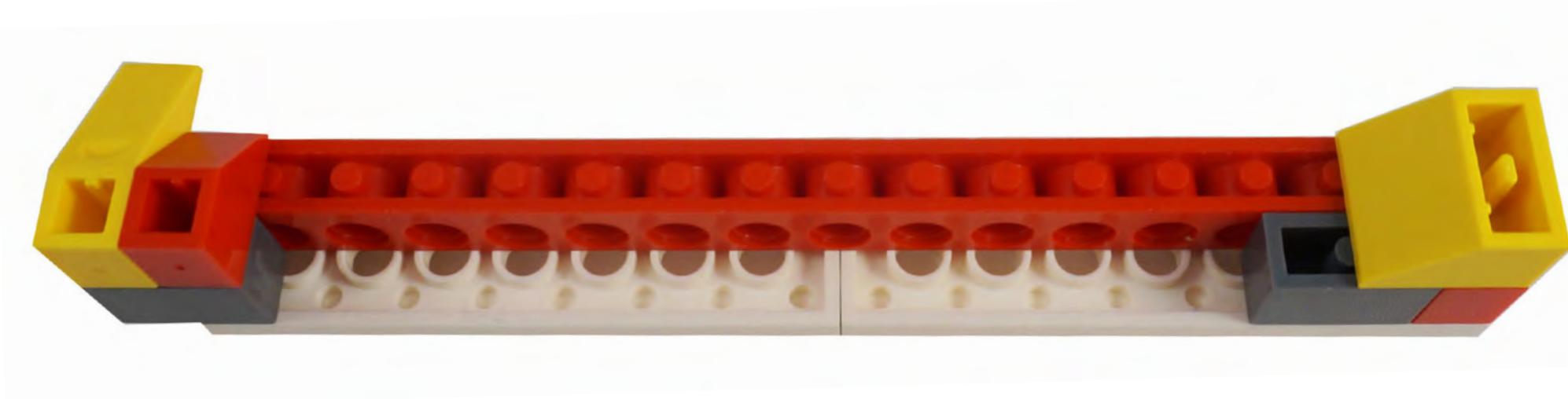
Red 1x2
Wedge



Yellow 1x3
Inverted
Wedge



Yellow 2x2
Inverted
Wedge



Step 21

You will Need:



Red 1x8
with Holes



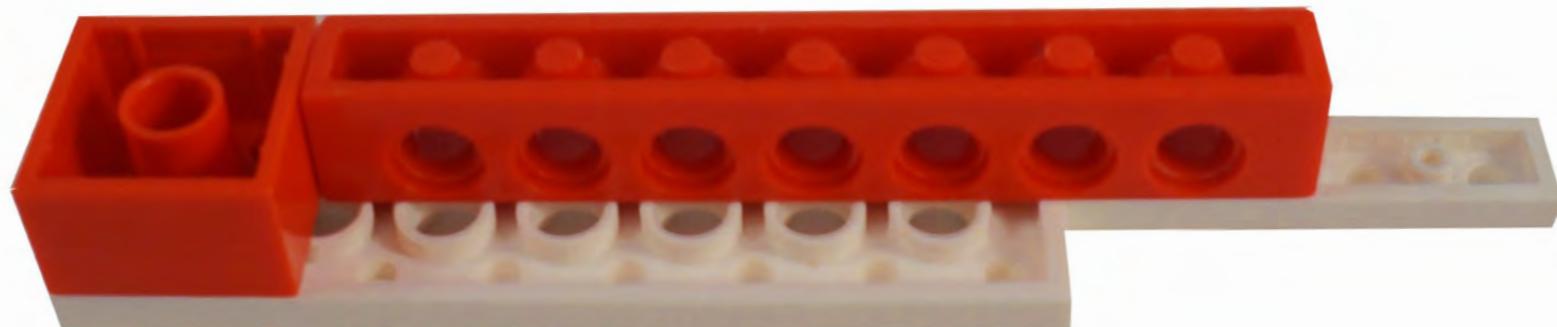
Red 2x2
Brick



White 1x4
Plate

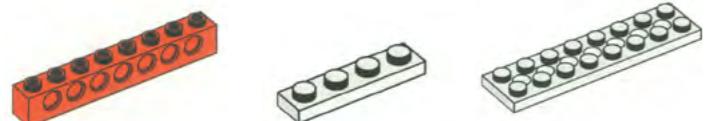


White 2x8
Plate



Step 22

You will Need:



Red 1x8
with Holes



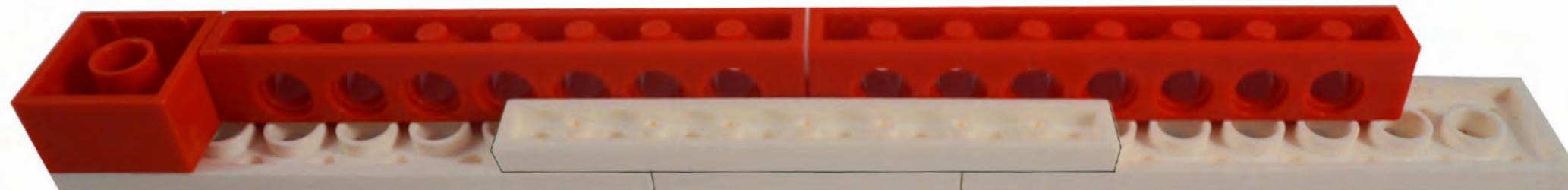
White 1x4
Plate



White 2x8
Plate



White 1x8
Plate



Step 23

You will Need:



Yellow 1x3
Inverted
Wedge

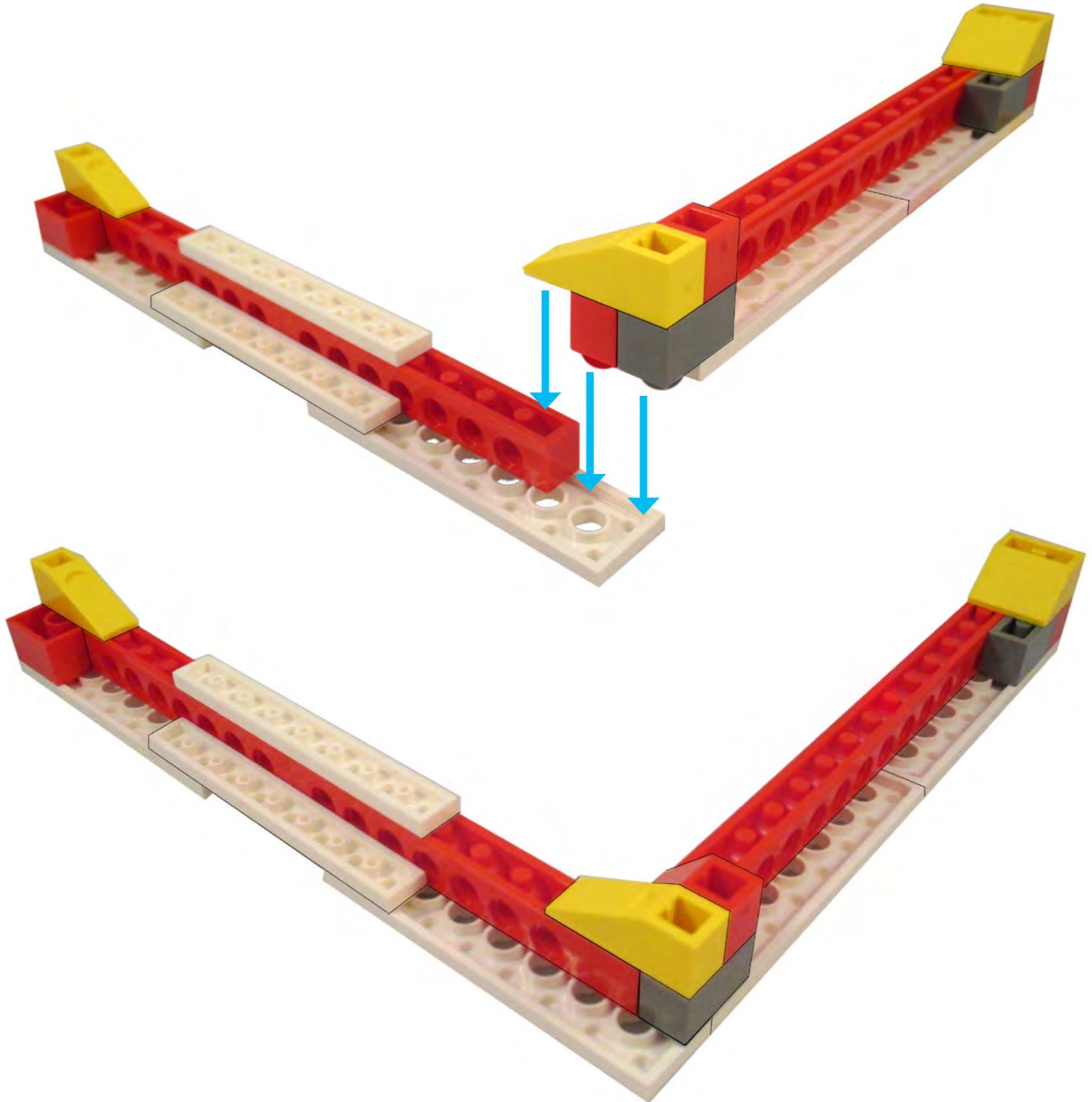


White 1x8
Plate



Step 24

Combine the 2 assemblies from the previous steps.

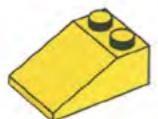


Step 25

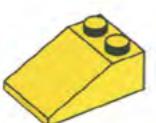
You will Need:



Green Round
Brick



Yellow 2x3
Wedge



Yellow 2x3
Wedge



#8 Axle

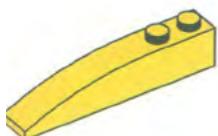


Step 26

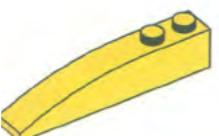
You will Need:



Green Round
Brick



Yellow Bow



Yellow Bow



#8 Axle



Step 27

Combine all of the assemblies from the previous steps.

a.



b.



Your Staircase is Built!...

Time to Program it!



Programming

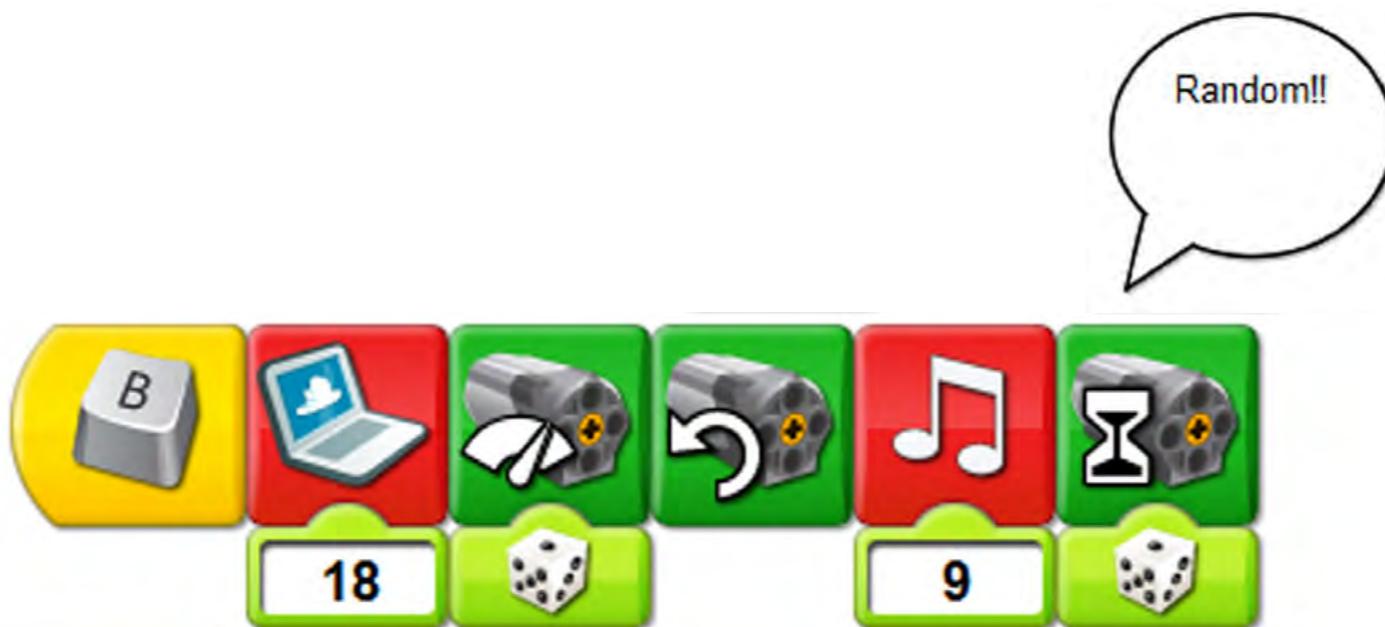
These programs turn the motor in different directions which moves the Staircase left and right.



1. Minimize these instructions and open the LEGO® WeDo® software.
2. Program your robot with the program above.
3. If you finish, open the instructions and continue to the extension activities!

Extension 1

This program uses the Random command to move the stairs randomly.



Extension 2

This set of programs uses the Tilt Sensor as a remote control to move the stairs.



Extension 3

Add these two programs to vary the speed and direction to the way your stairs move.

