

MUSECON



2012



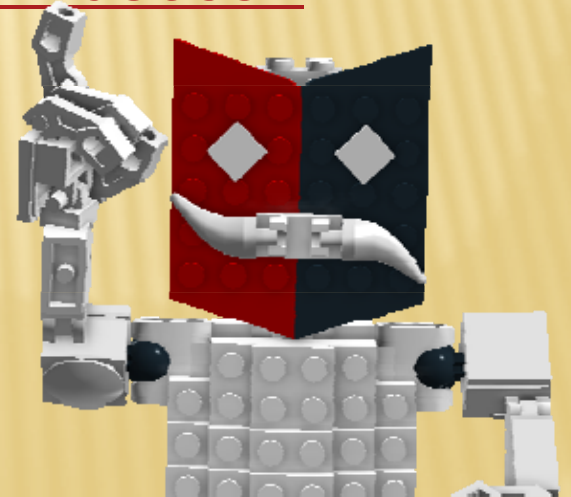
# MAKING THE MOST OF LEGO

Presented by Chris Doyle

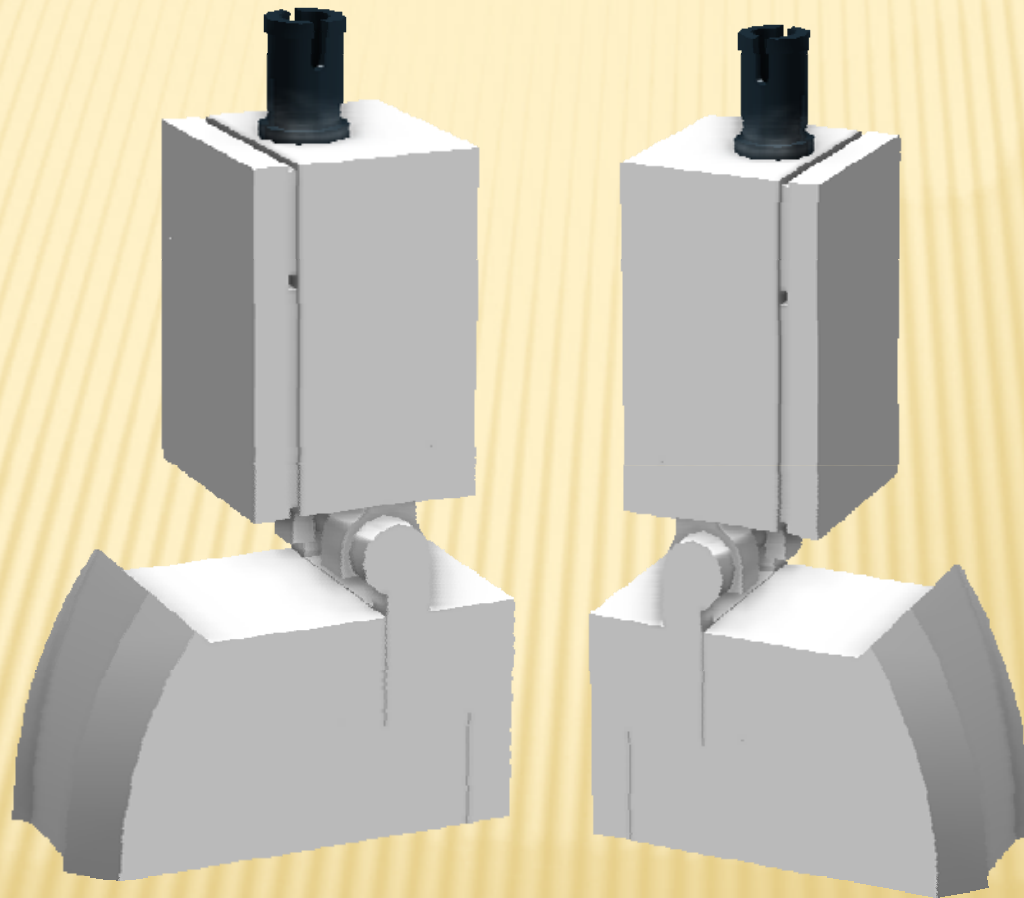
# CLASS OVERVIEW

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- ✘ Building a Mini Musecon Mascot
  - + 197 pieces
  - + We'll try not to rush it
  - + Hints and tricks as we go along
  - + Digital files available at <http://www.reasonablyclever.com/musecon>
  - + Let's get started, shall we?



# ASSEMBLY – THE LEGS





## Step 1

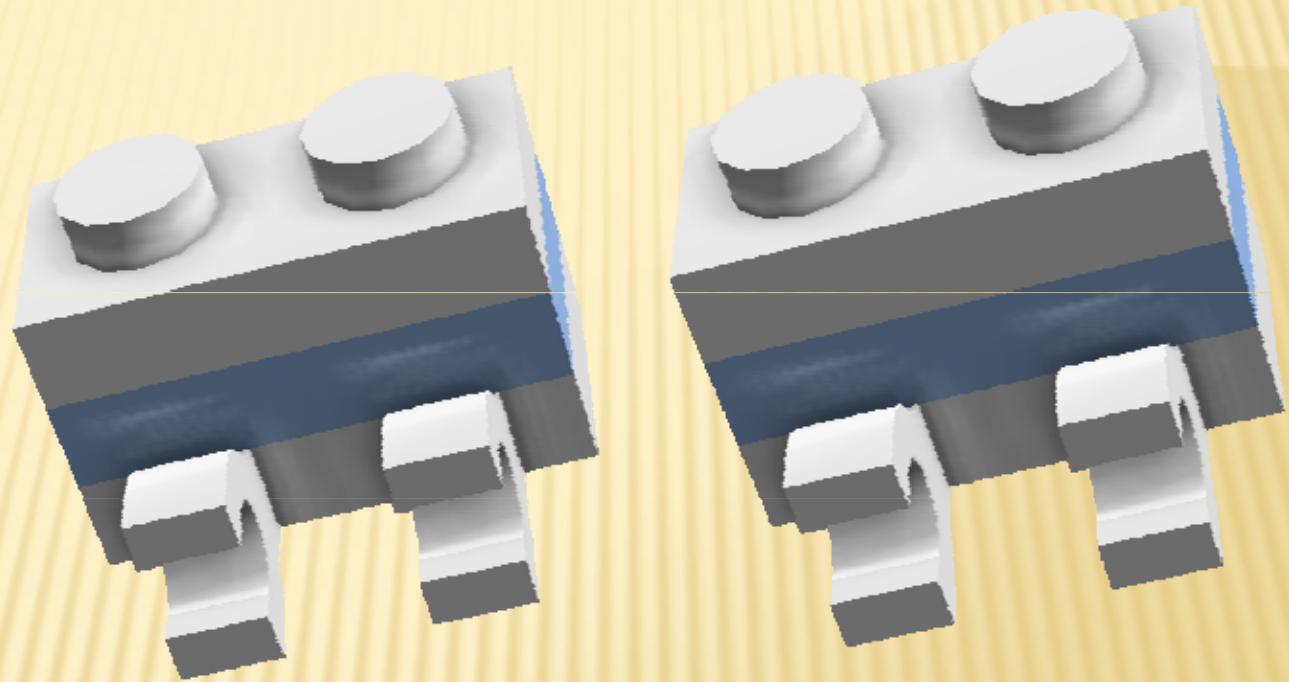
Parts needed  
for this step:



1x2 plate  
x4



1x2 plate  
with clips  
x2



Some parts shown in alternate colors for clarity



## Step 2

Parts needed  
for this step:



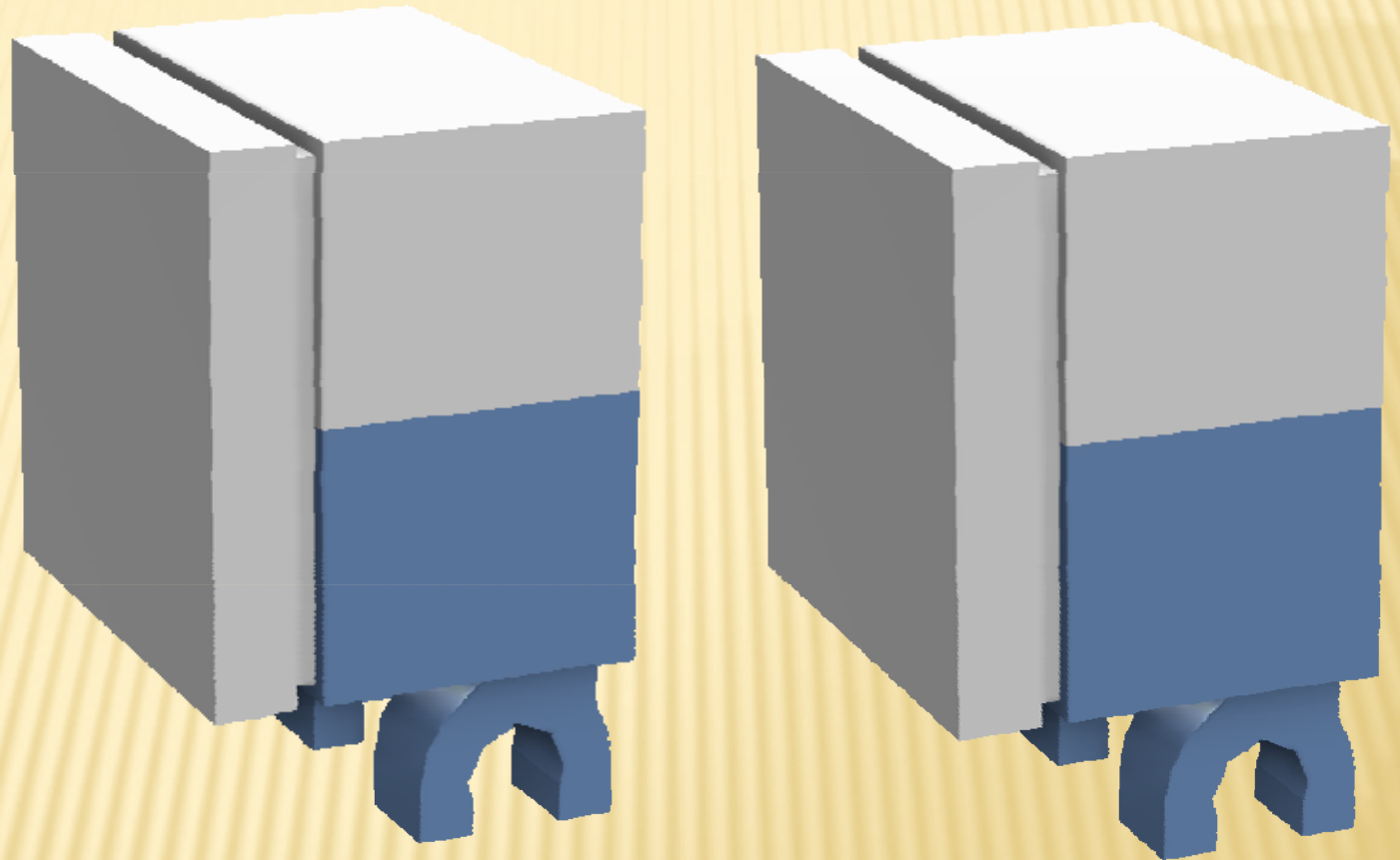
1x2 brick

x2



2x2 tile

x2




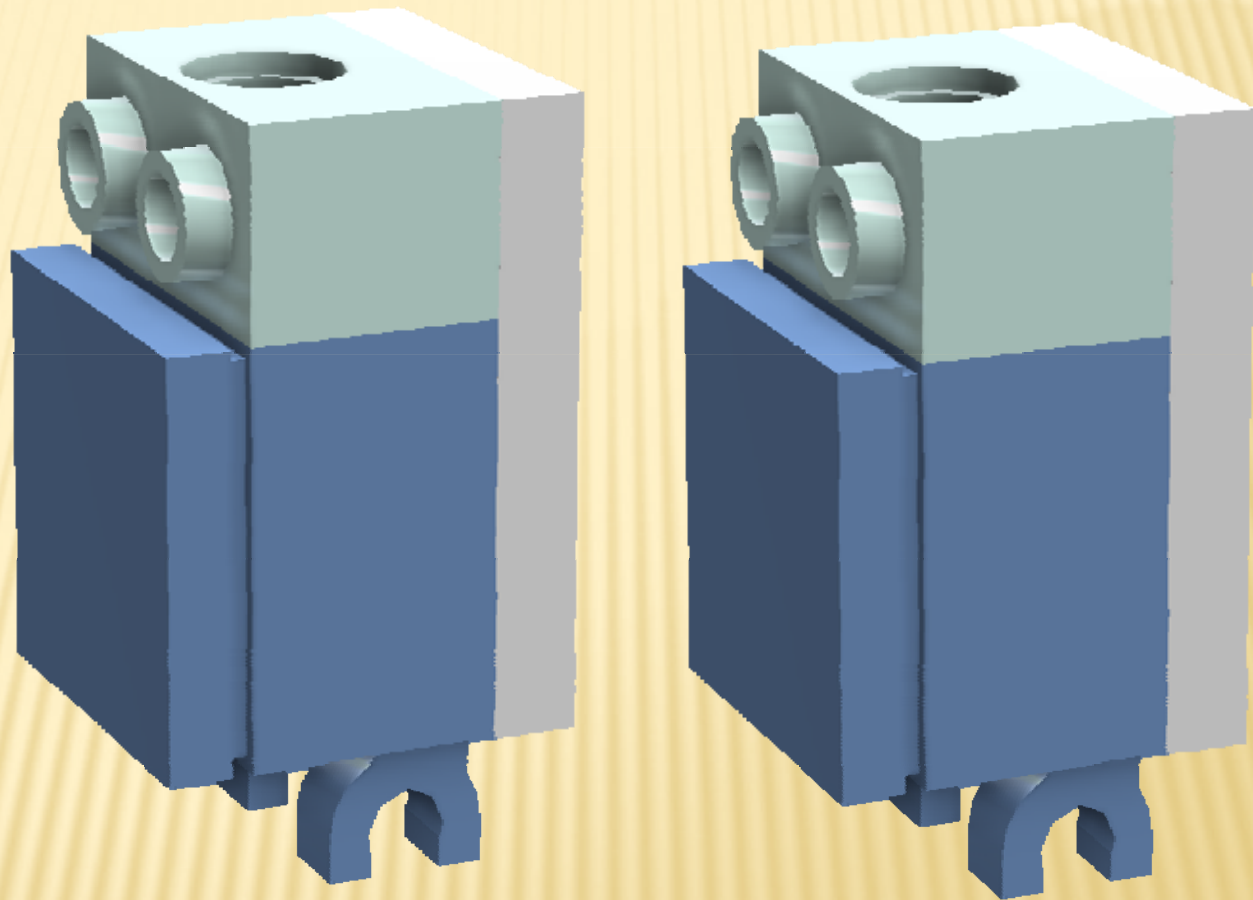
Some parts shown in alternate colors for clarity

## Step 3

Parts needed  
for this step:

 1x2 brick  
with hole  
x2


 2x3 plate  
x2



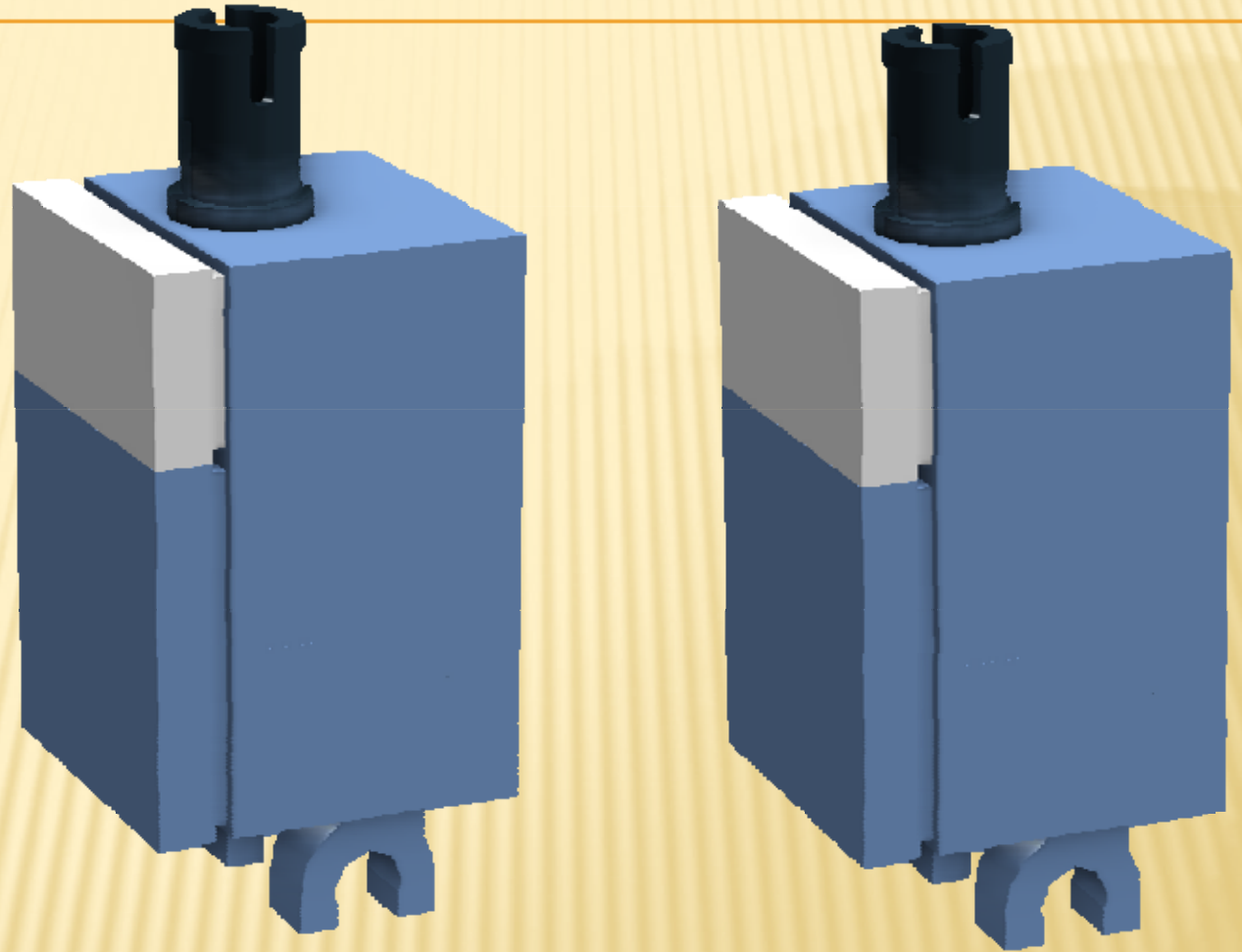
Some parts shown in alternate colors for clarity

## Step 4

Parts needed  
for this step:

 1x2 tile  
x2

 Technic pin  
x2



Some parts shown in alternate colors for clarity



## Step 5

Parts needed  
for this step:



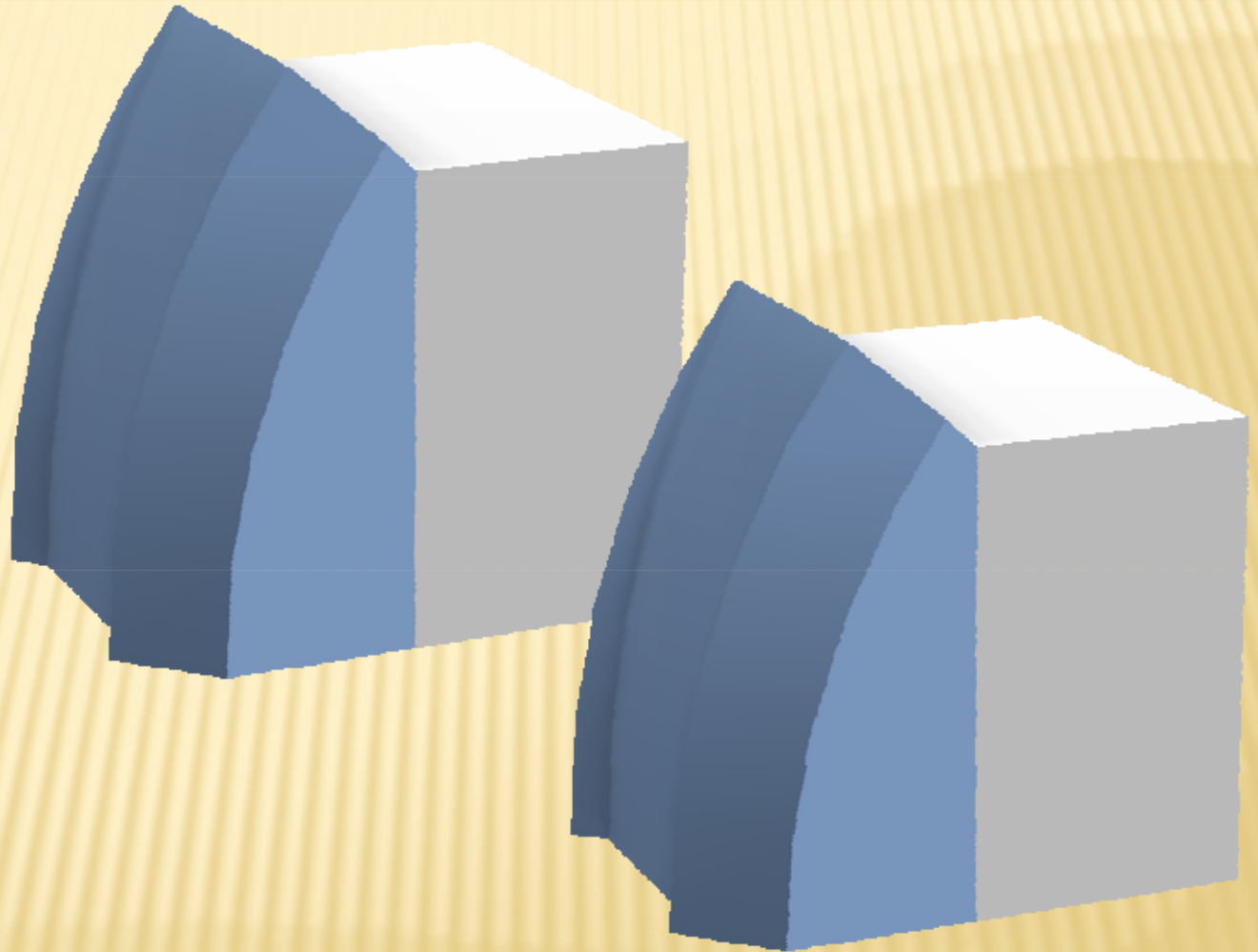
2x2 brick

x2



2x2 curved  
slope

x2



Some parts shown in alternate colors for clarity

## Step 6

Parts needed  
for this step:



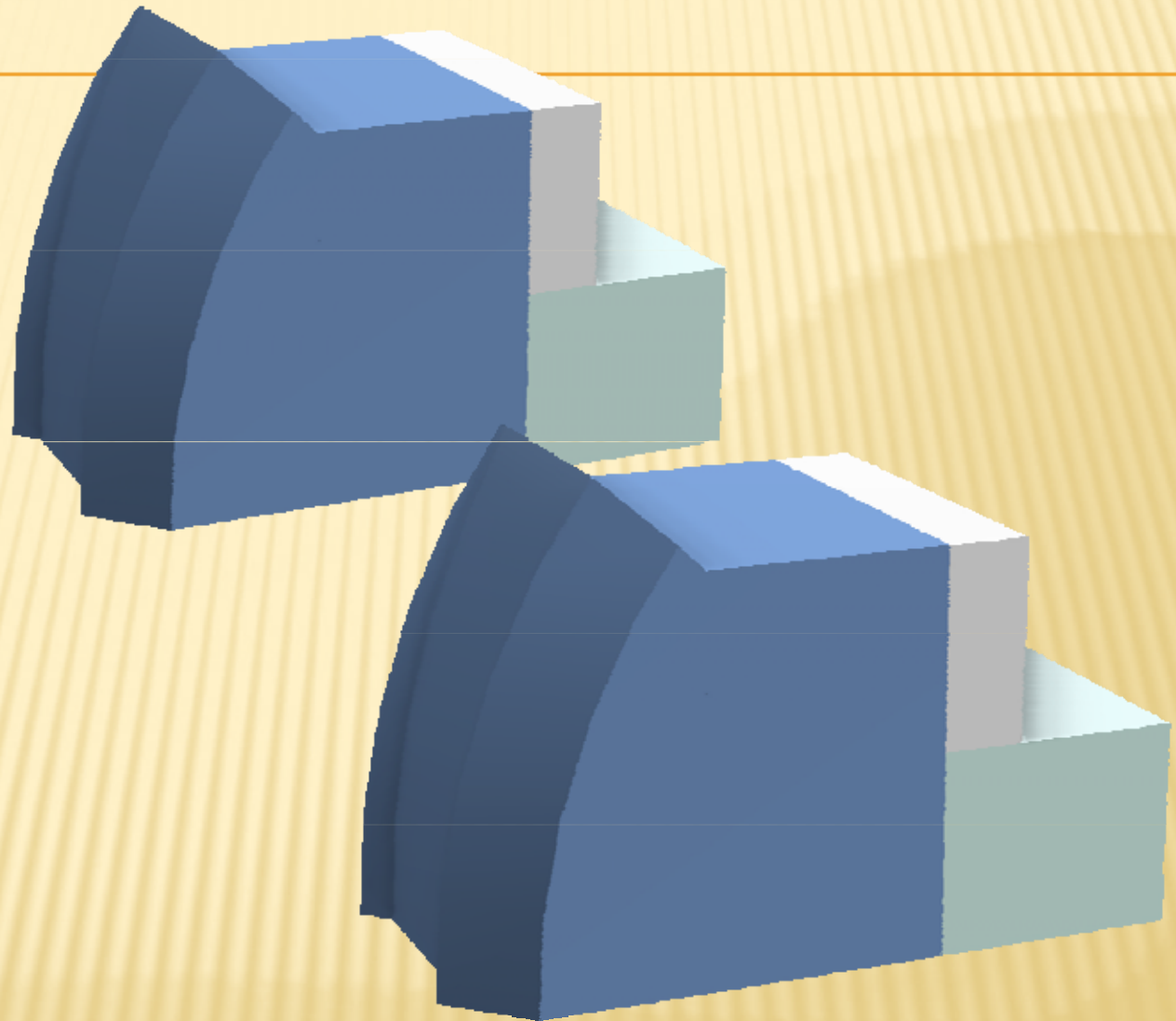
1x2 brick

x2



1x2 plate

x2



Some parts shown in alternate colors for clarity

## Step 7

Parts needed  
for this step:



1x2 plate  
with bar

x2



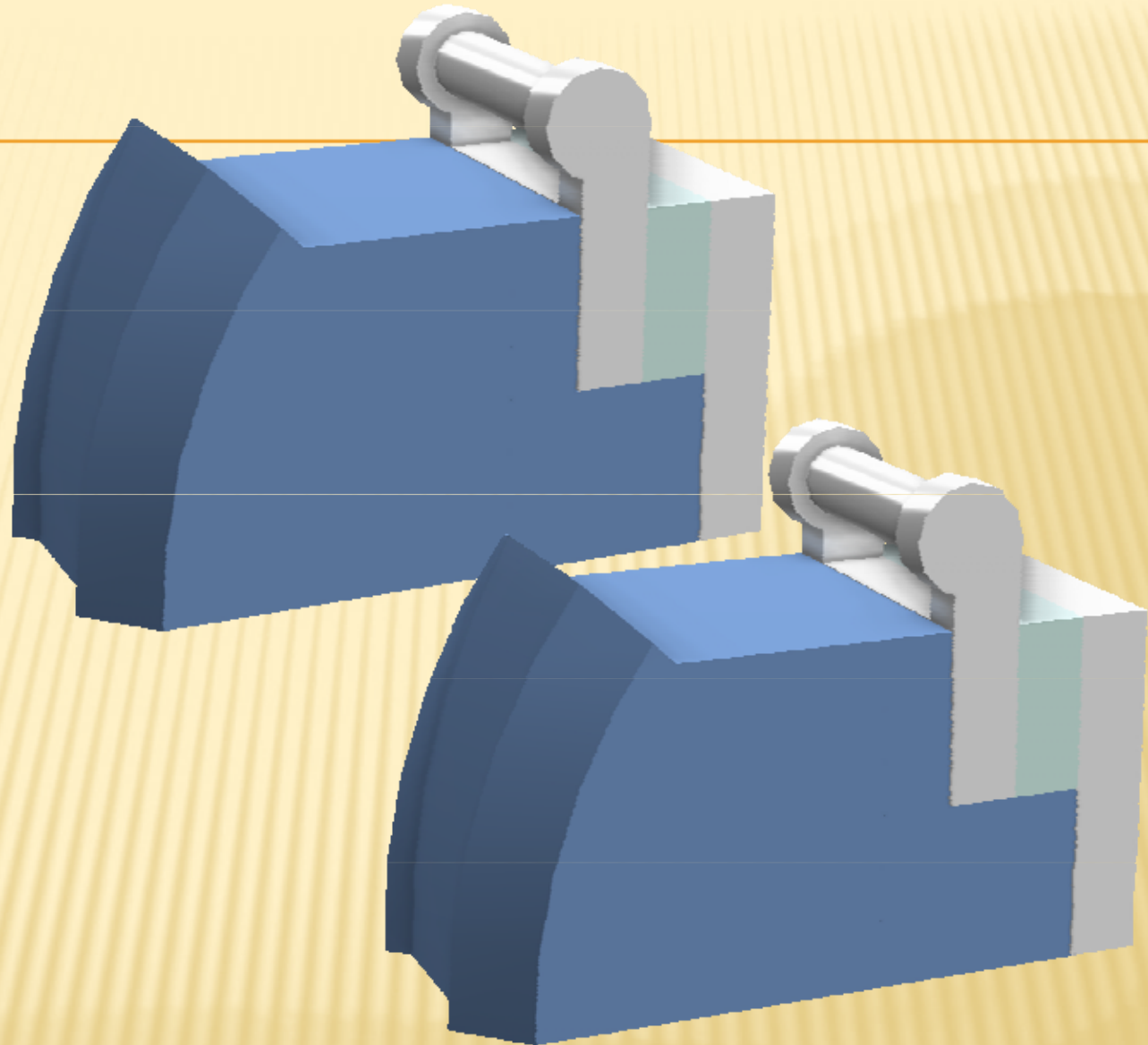
1x2 plate

x2



2x2 plate

x2



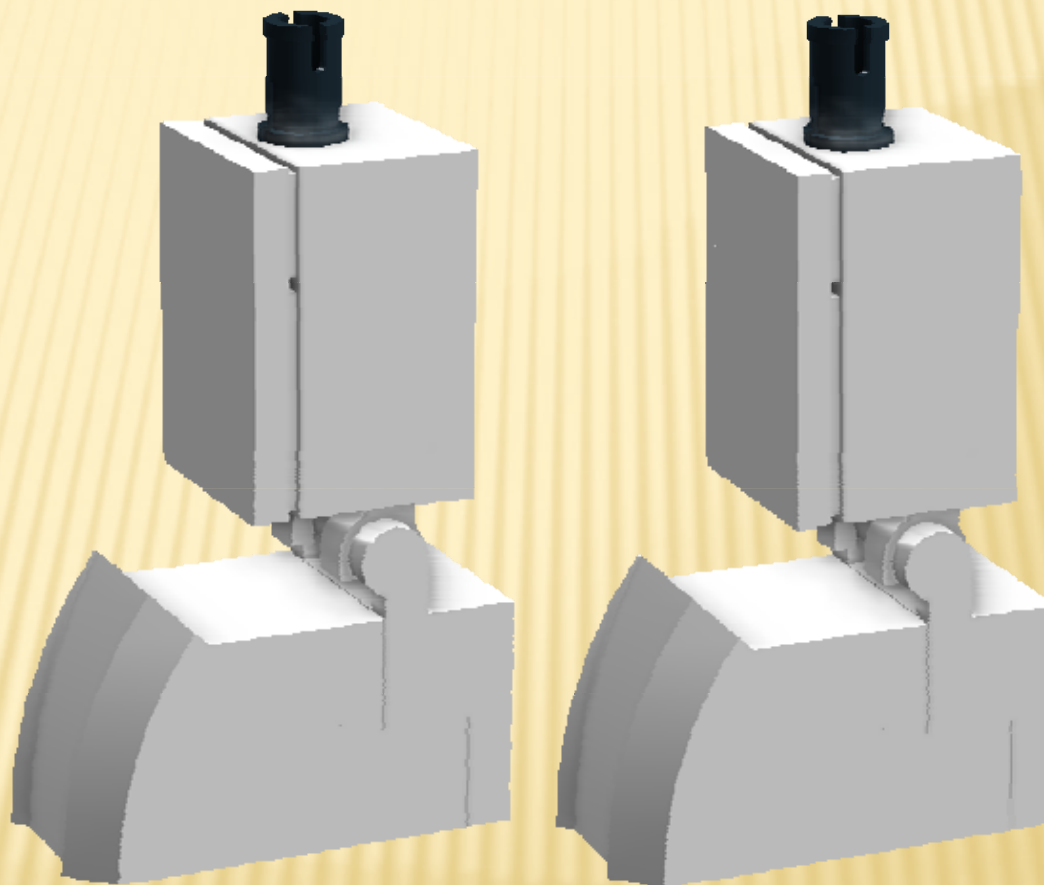
Some parts shown in alternate colors for clarity



Step 8

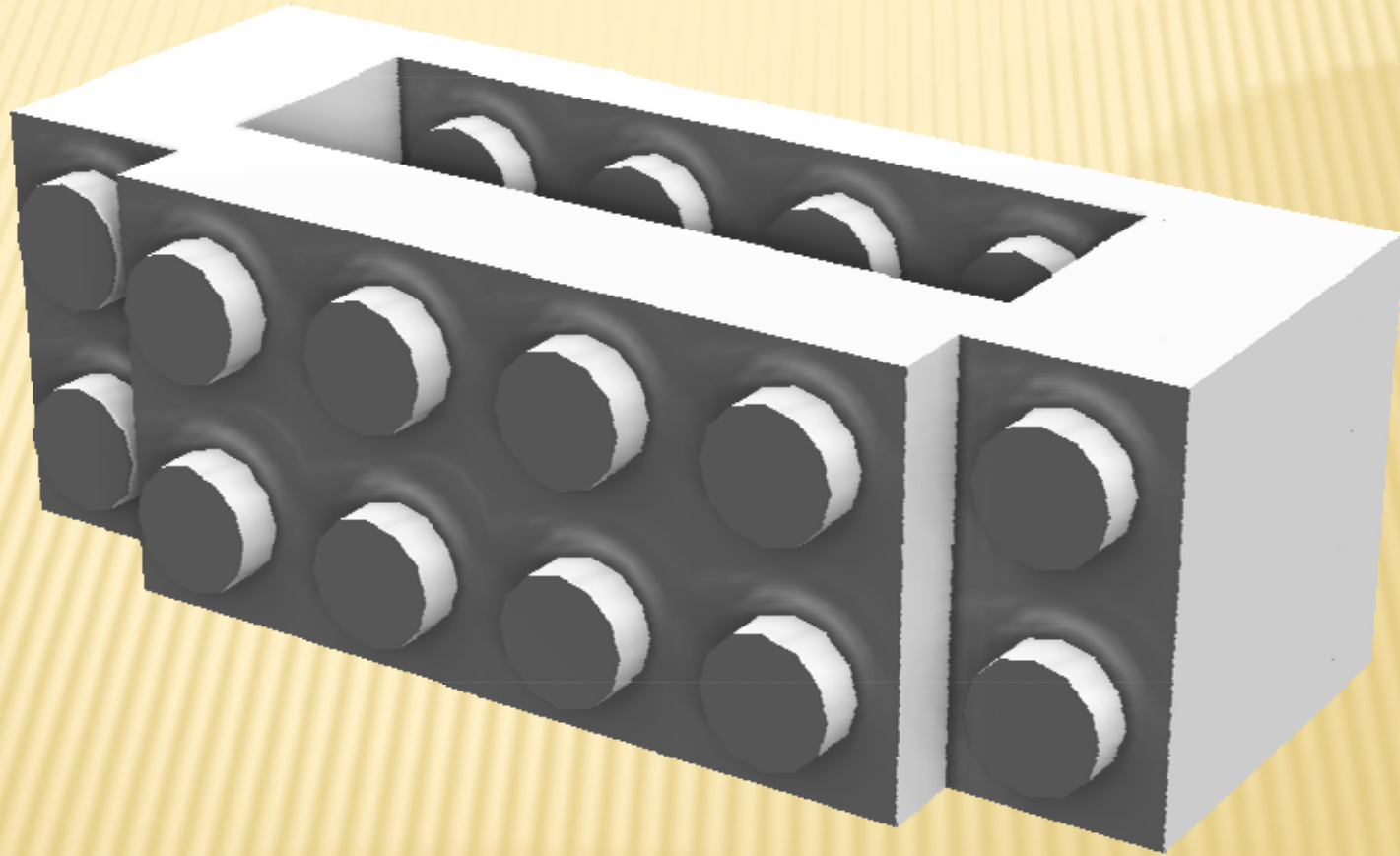
# ASSEMBLE THE LEGS

Parts needed  
for this step:



Some parts shown in alternate colors for clarity

# ASSEMBLY – HIPS



## Step 9

Parts needed  
for this step:



x2

1x2 brick  
with two  
holes



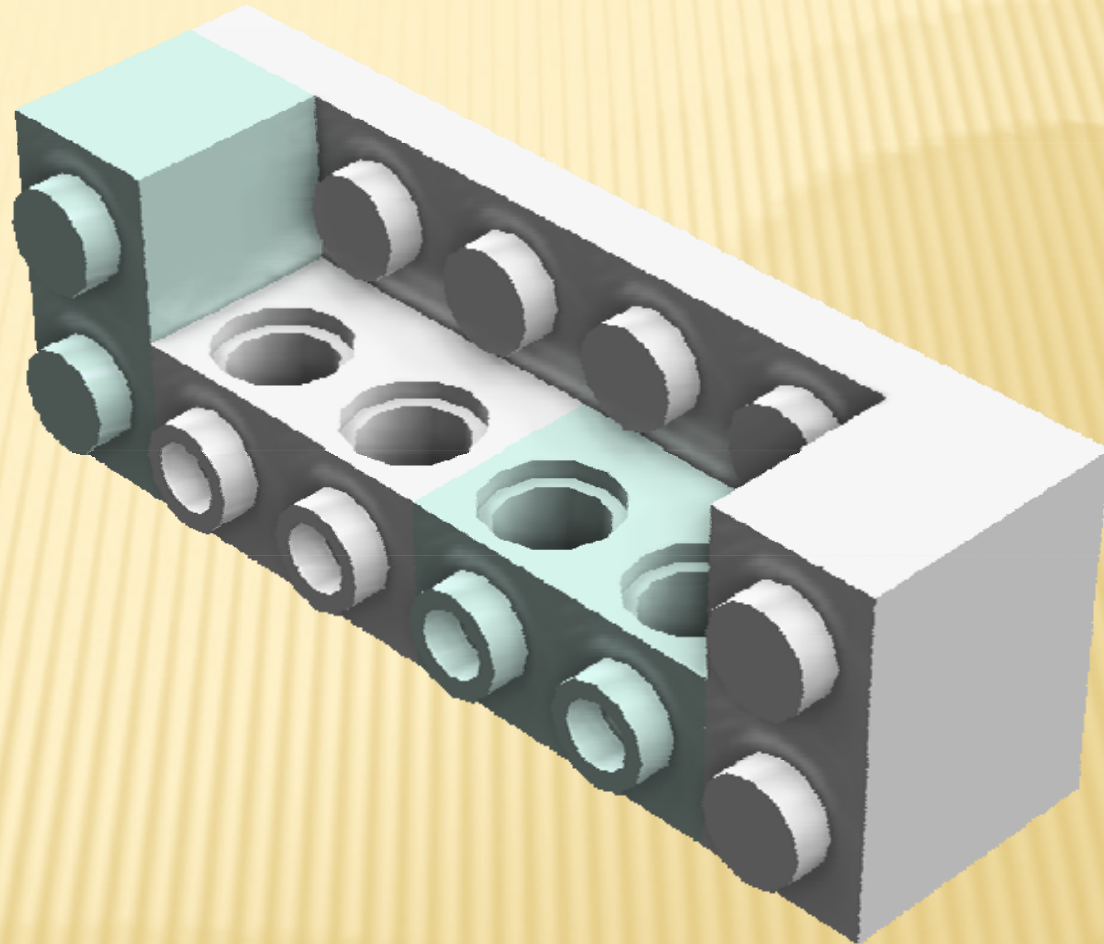
x2

1x2 brick



x1

2x6 plate



Some parts shown in alternate colors for clarity



## Step 10

Parts needed  
for this step:



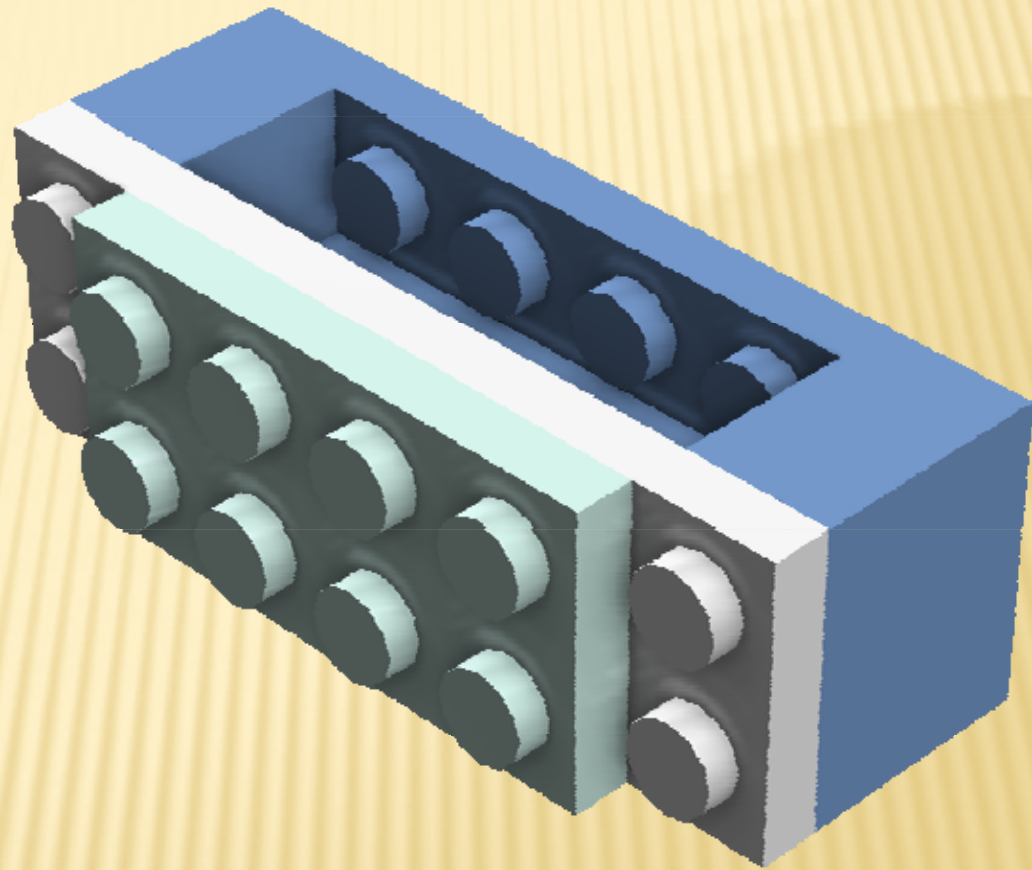
2x4 plate

x1



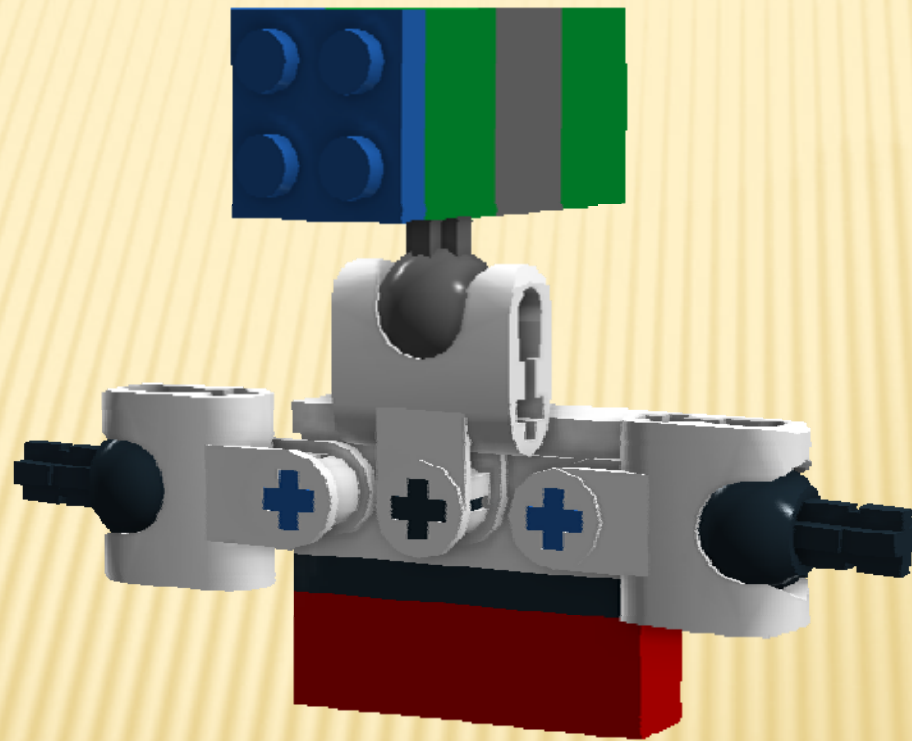
2x6 plate

x1




Some parts shown in alternate colors for clarity

# ASSEMBLY – NECK AND SHOULDERS



## Step 11

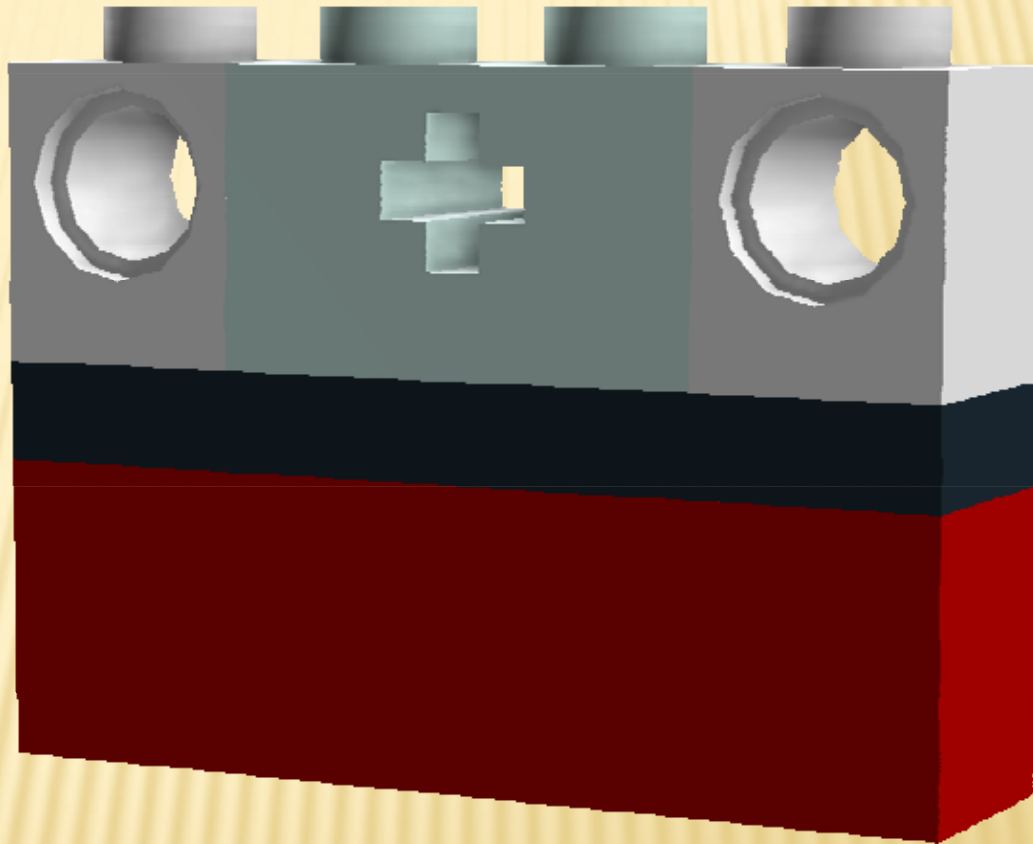
Parts needed  
for this step:

 1x2 brick  
with + hole  
x2

 1x1 brick  
with hole  
x2

 1x4 brick  
x1

 1x4 plate  
x1



Some parts shown in alternate colors for clarity



## Step 12

Parts needed  
for this step:



x2

Blue  
technic pin



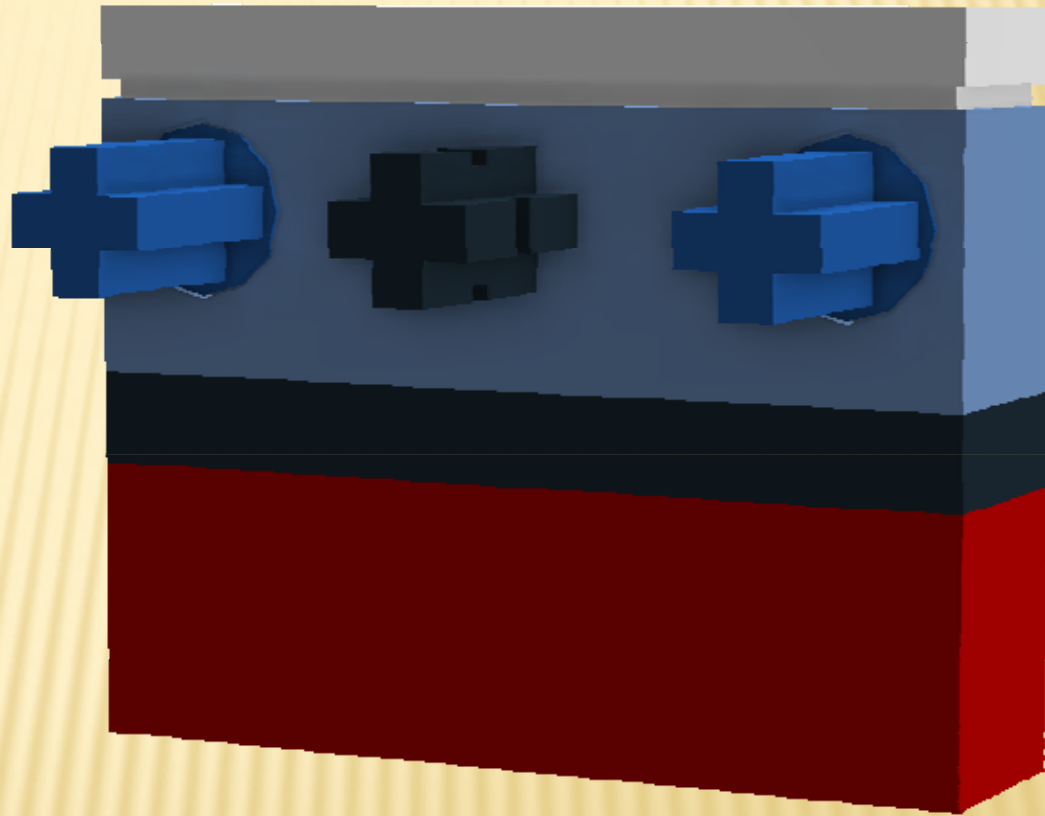
x1

2L Technic  
axle



x1

1x4 tile



Some parts shown in alternate colors for clarity

## Step 13

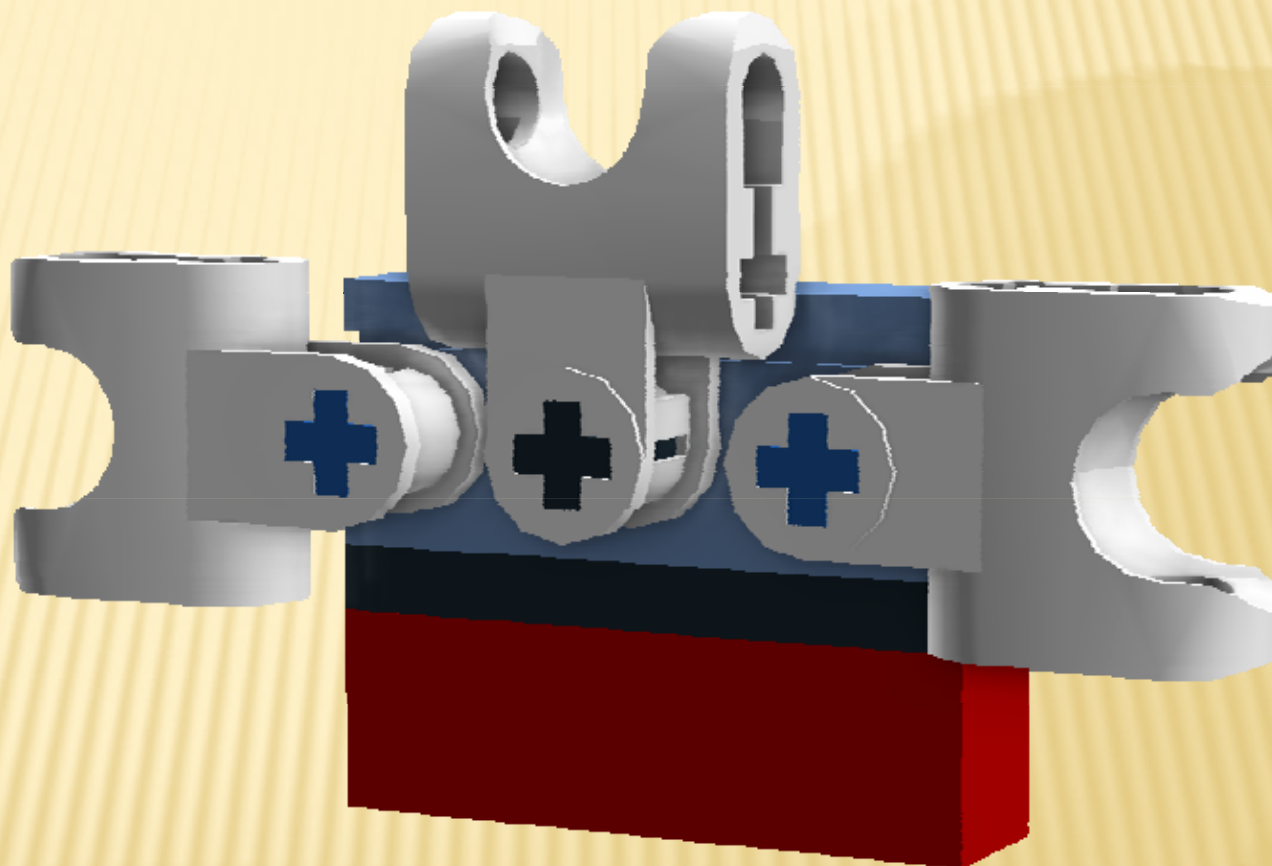
Note how the shoulder connectors have an extra range of motion

Parts needed  
for this step:



Ball-Socket  
connector

x3



Some parts shown in alternate colors for clarity

## Step 14

Tip: It's easier to assemble the ball and axles first and then clip them into the shoulders

Parts needed  
for this step:



x2

Voodoo  
ball



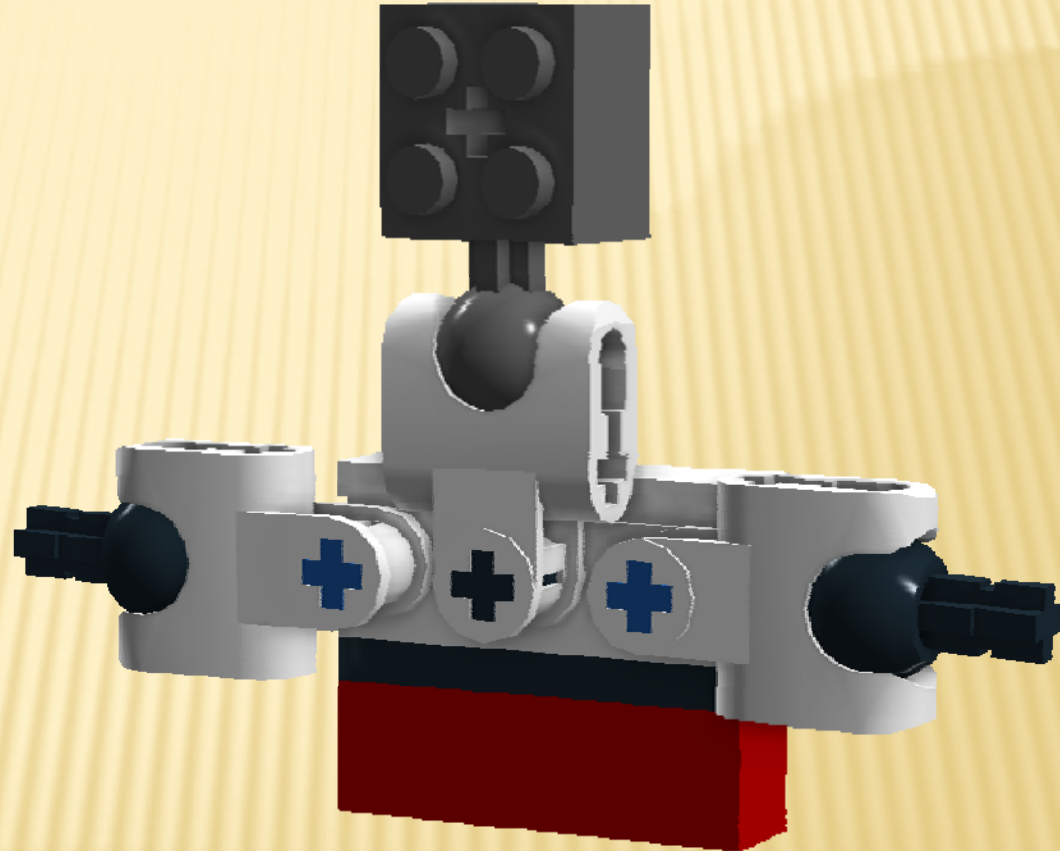
x2

2L Technic  
axle



x1

2x2 brick  
with ball  
joint



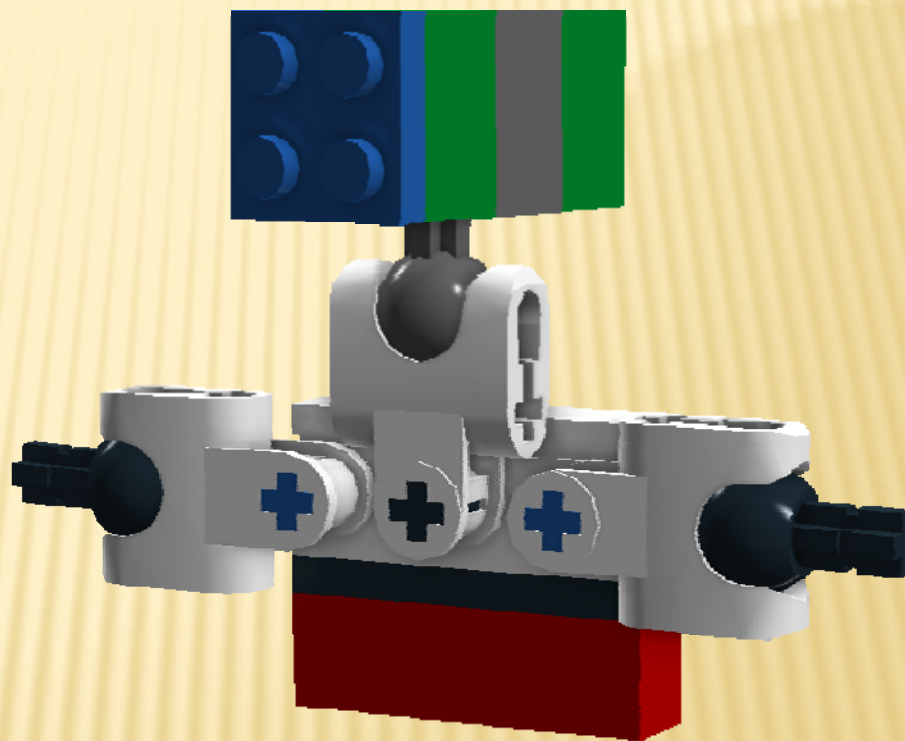
Some parts shown in alternate colors for clarity

## Step 15

Parts needed  
for this step:

 2x2 brick  
x2

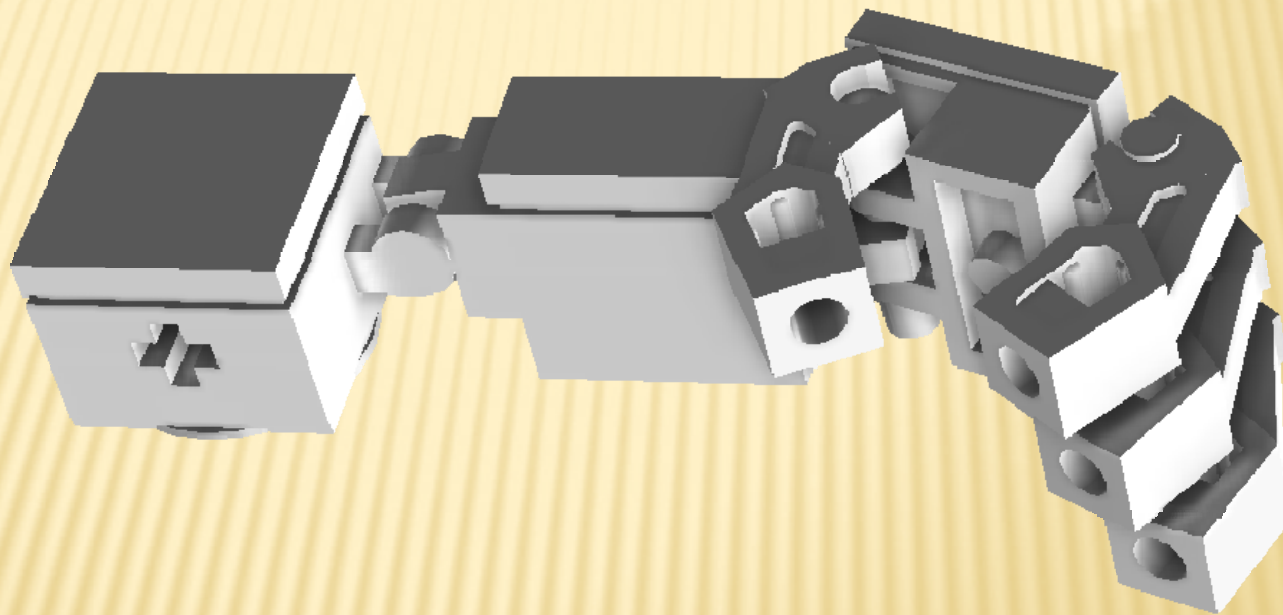
 2x2 plate  
x1



Some parts shown in alternate colors for clarity




# ASSEMBLY – LEFT ARM

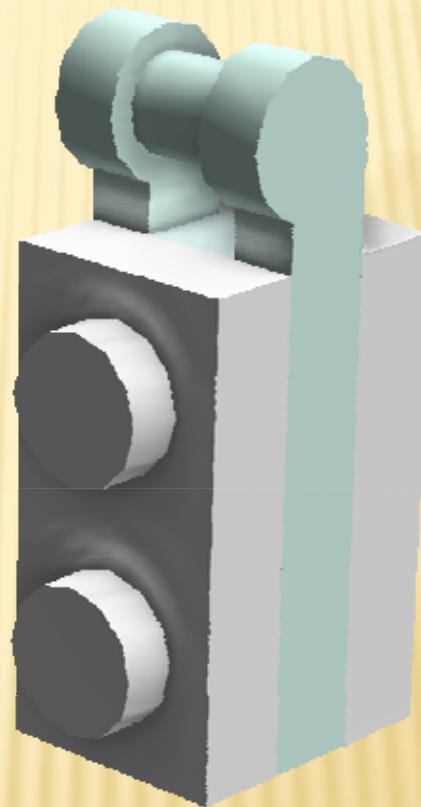


## Step 16

Parts needed  
for this step:

 2x1 plate  
with rod  
x1

 1x2 plate  
x2



Some parts shown in alternate colors for clarity

## Step 17

Parts needed  
for this step:



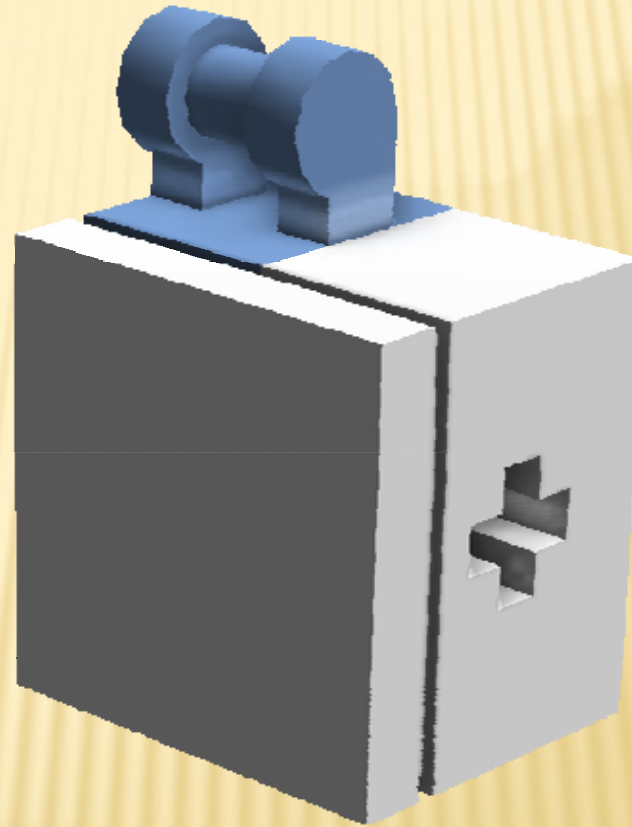
x1

1x2 brick  
with + hole



x2

2x2 tile



Some parts shown in alternate colors for clarity

## Step 18

Parts needed  
for this step:



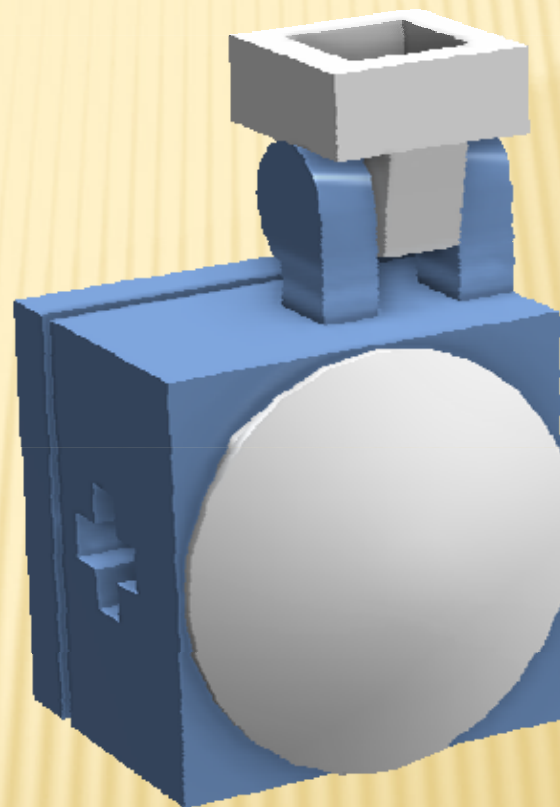
x1

1x1 clip  
plate



x1

2x2 slider  
tile



Some parts shown in alternate colors for clarity



## Step 19

Parts needed  
for this step:



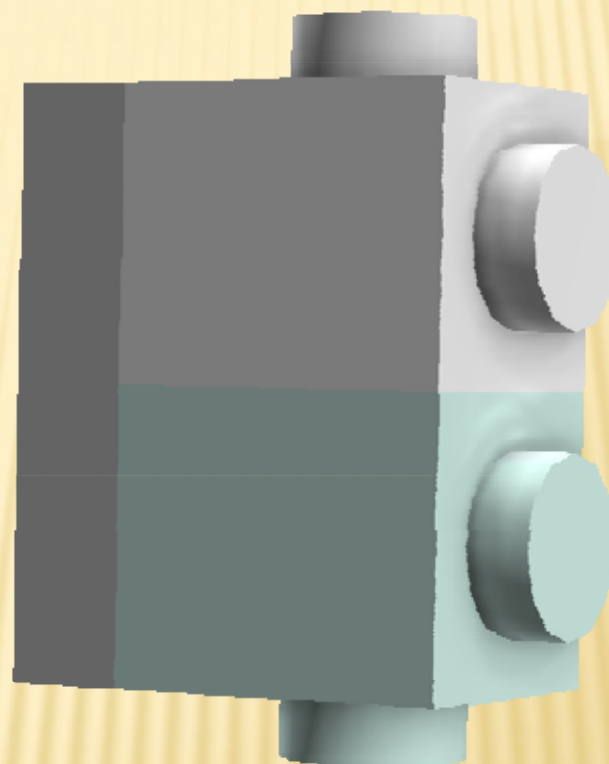
x2

1x1 brick  
with peg



x1


1x2 plate



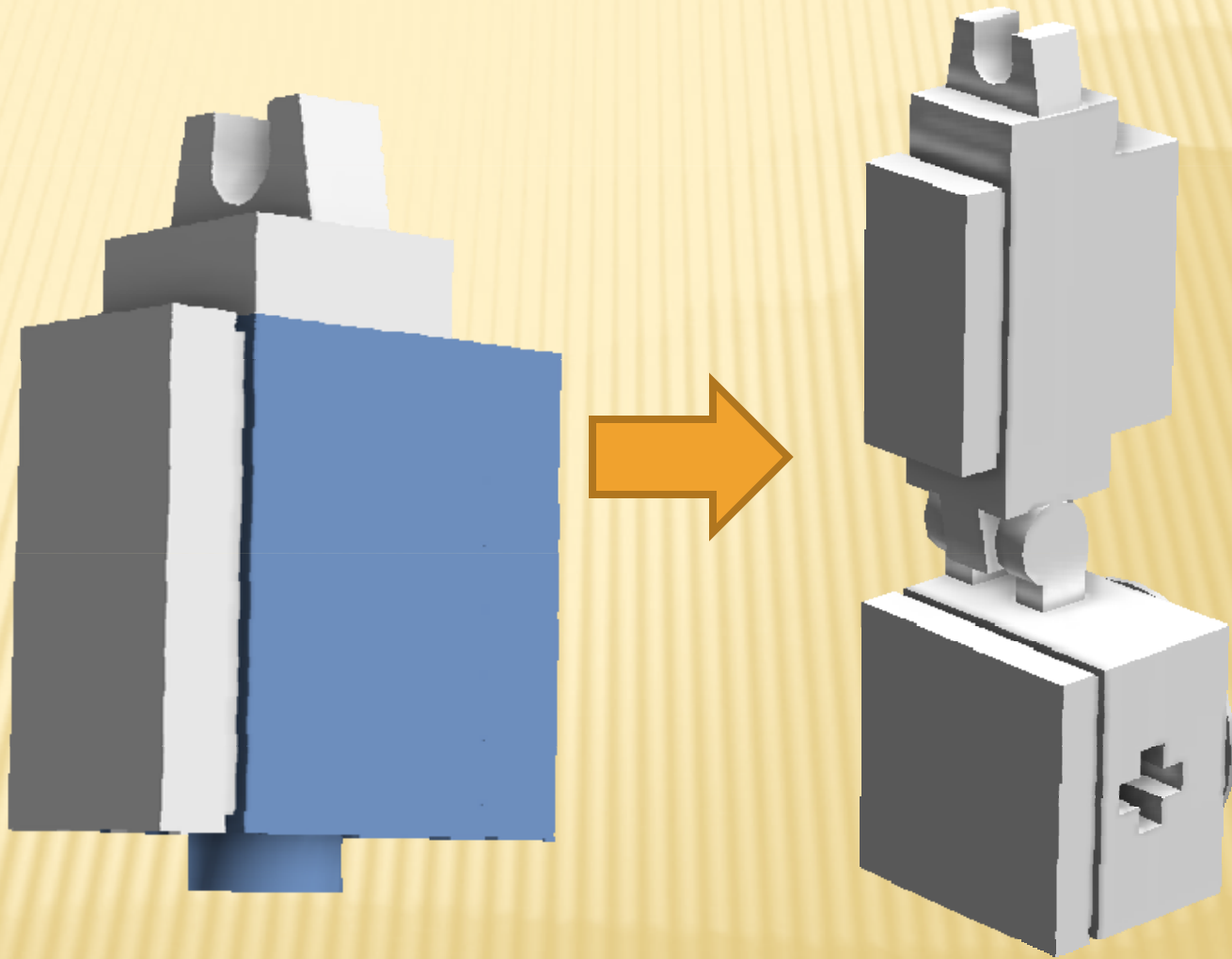
Some parts shown in alternate colors for clarity

## Step 20

Parts needed  
for this step:

 1x2 tile  
x1

 1x1 clip  
plate  
x1



Some parts shown in alternate colors for clarity

# Step 21

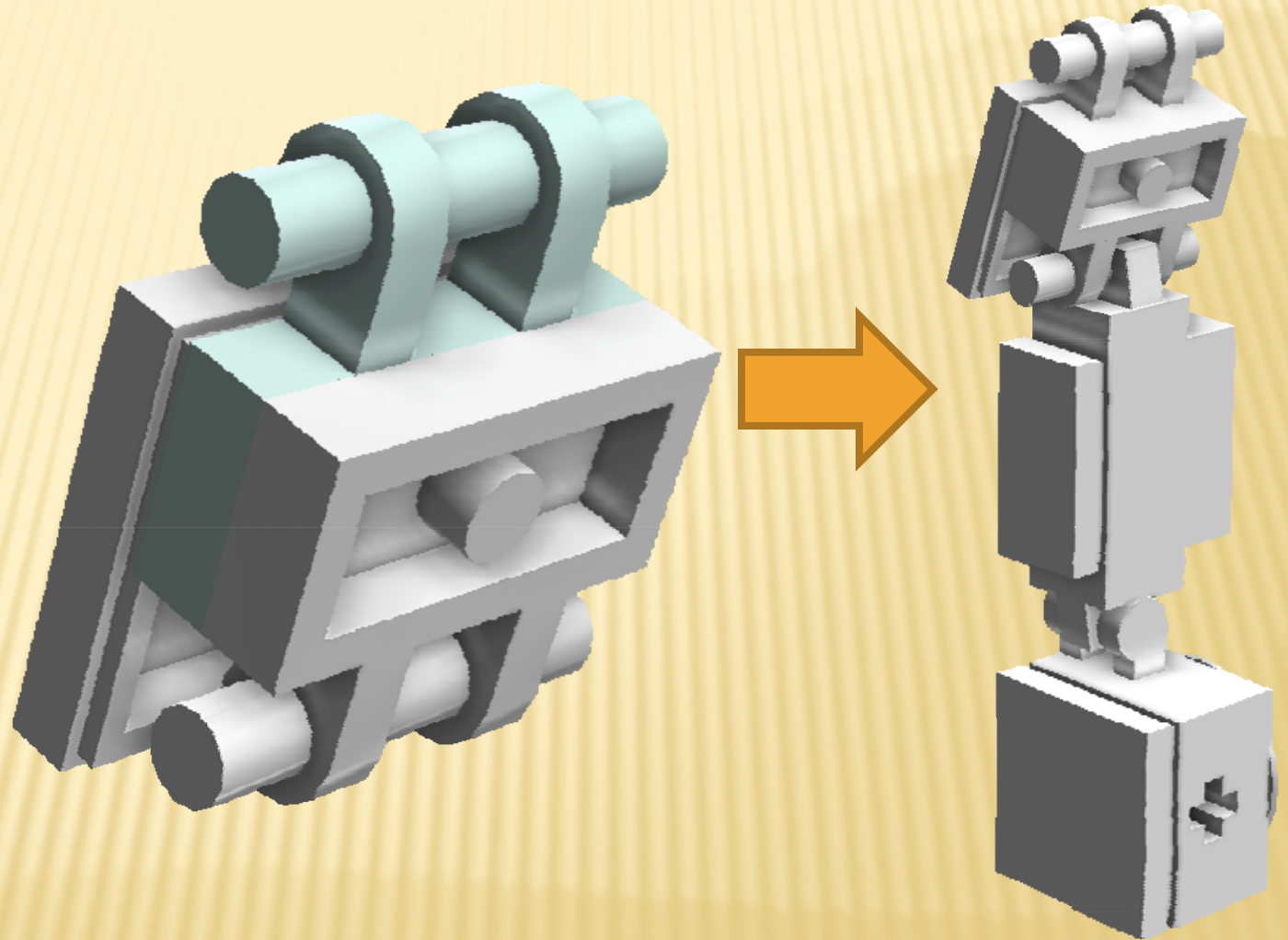
Parts needed  
for this step:



1x2 plate  
with rod  
x2



2x2 tile  
x1



Some parts shown in alternate colors for clarity

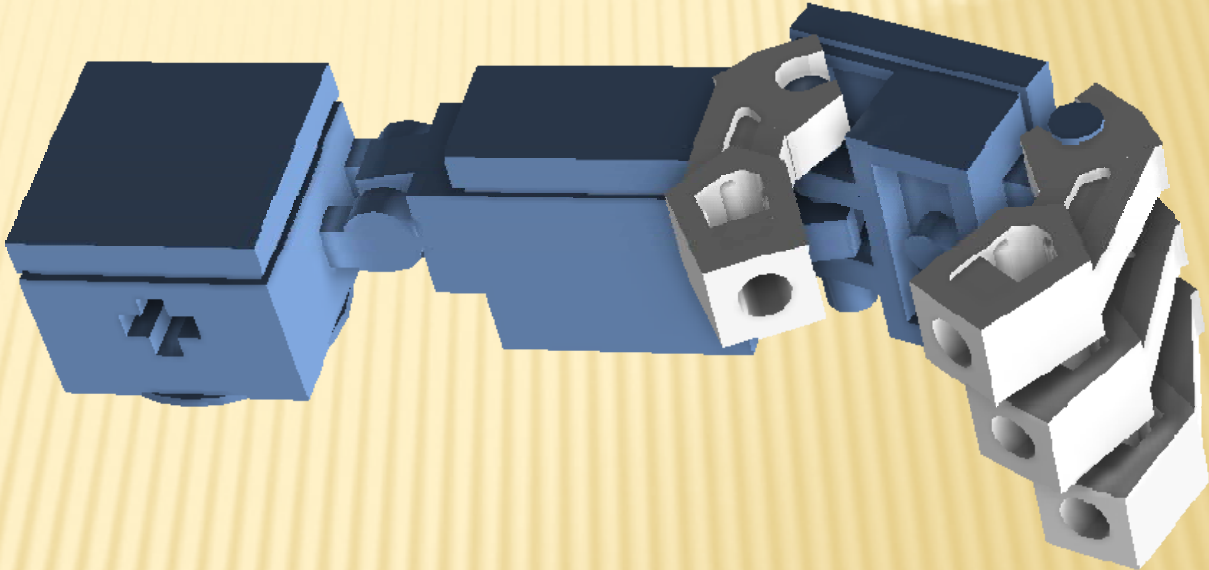
# Step 22

Parts needed  
for this step:



Robot Arm

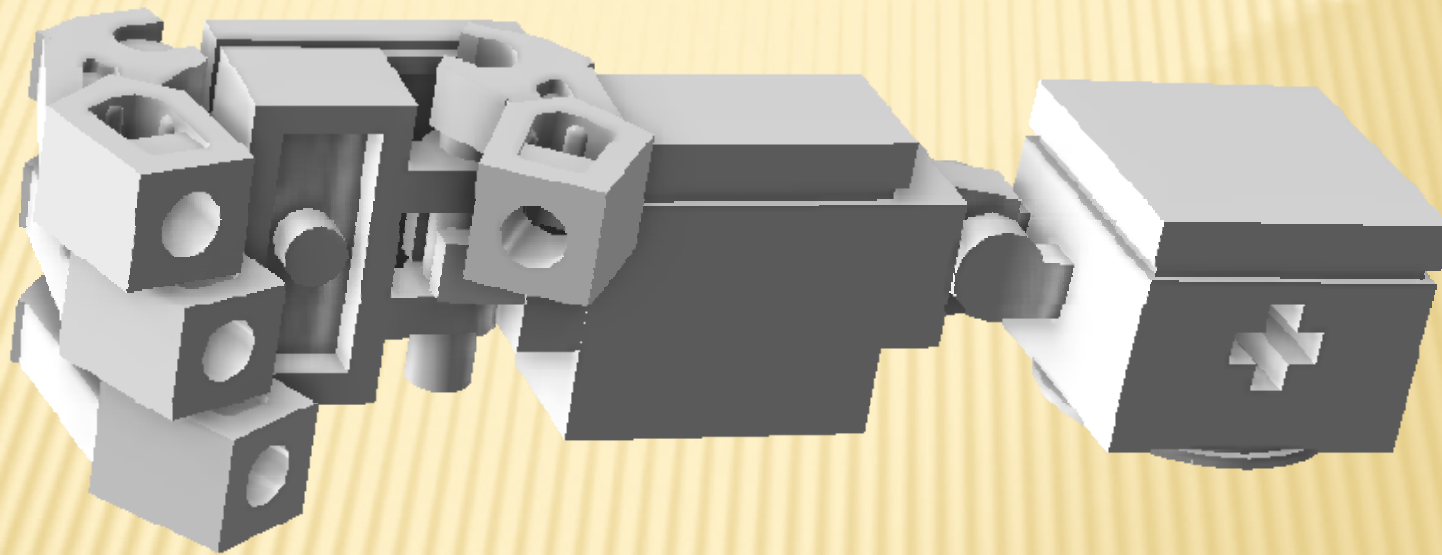
x4



Some parts shown in alternate colors for clarity



# ASSEMBLY – RIGHT ARM



## Step 23

Parts needed  
for this step:



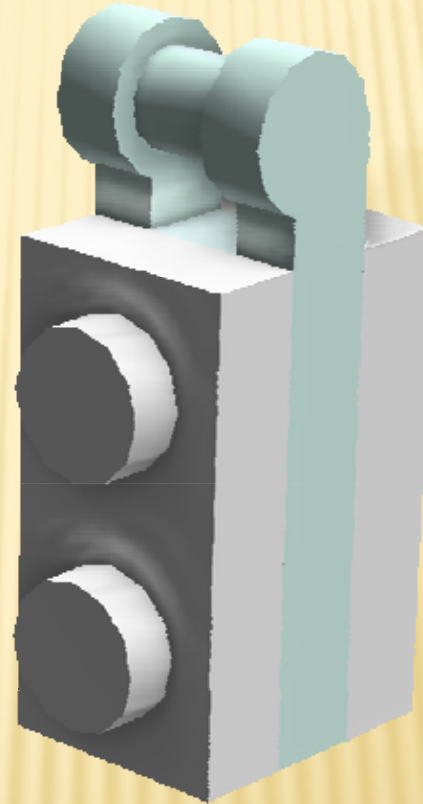
2x1 plate  
with rod

x1



1x2 plate

x2



Some parts shown in alternate colors for clarity

## Step 24

Parts needed  
for this step:



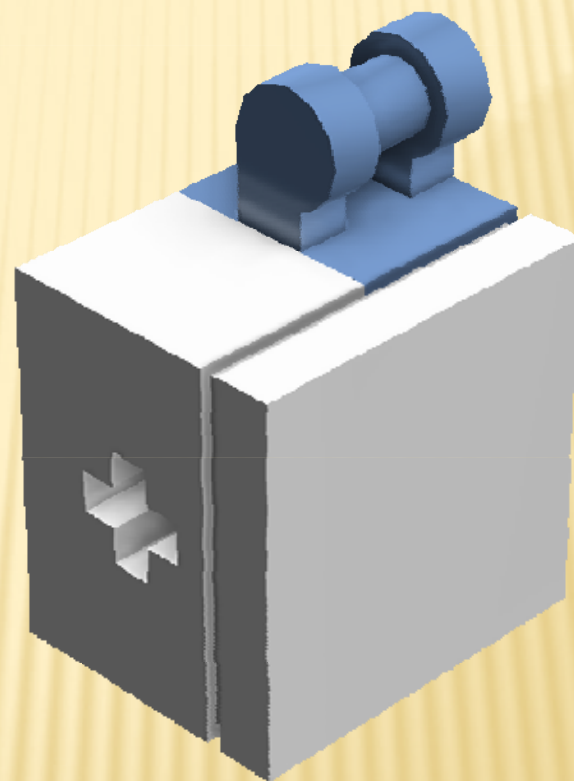
x1

1x2 brick  
with + hole



x2

2x2 tile



Some parts shown in alternate colors for clarity

## Step 25

Parts needed  
for this step:



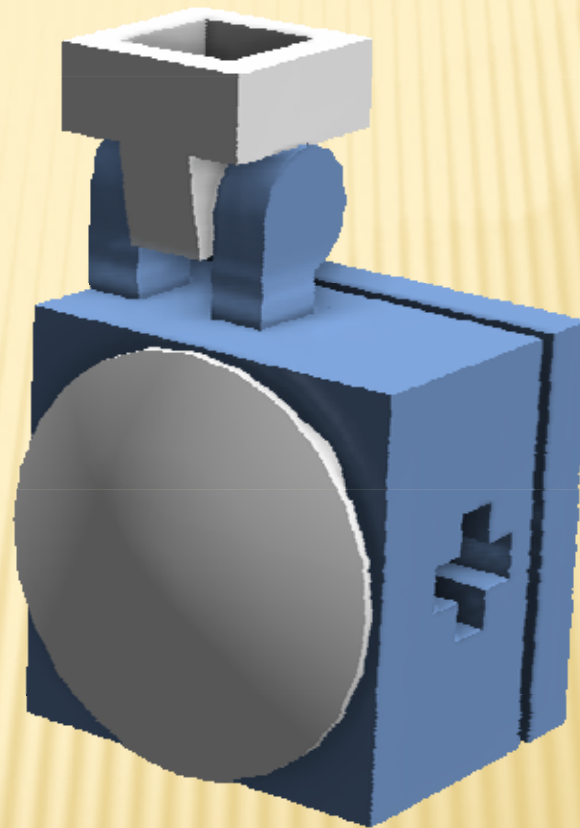
x1

1x1 clip  
plate



x1

2x2 slider  
tile



Some parts shown in alternate colors for clarity



## Step 26

Parts needed  
for this step:



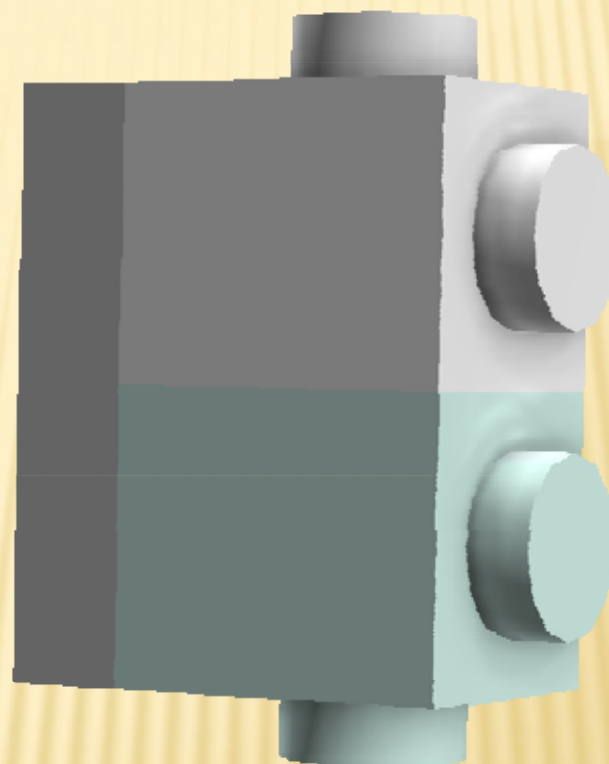
x2

1x1 brick  
with peg



x1


1x2 plate



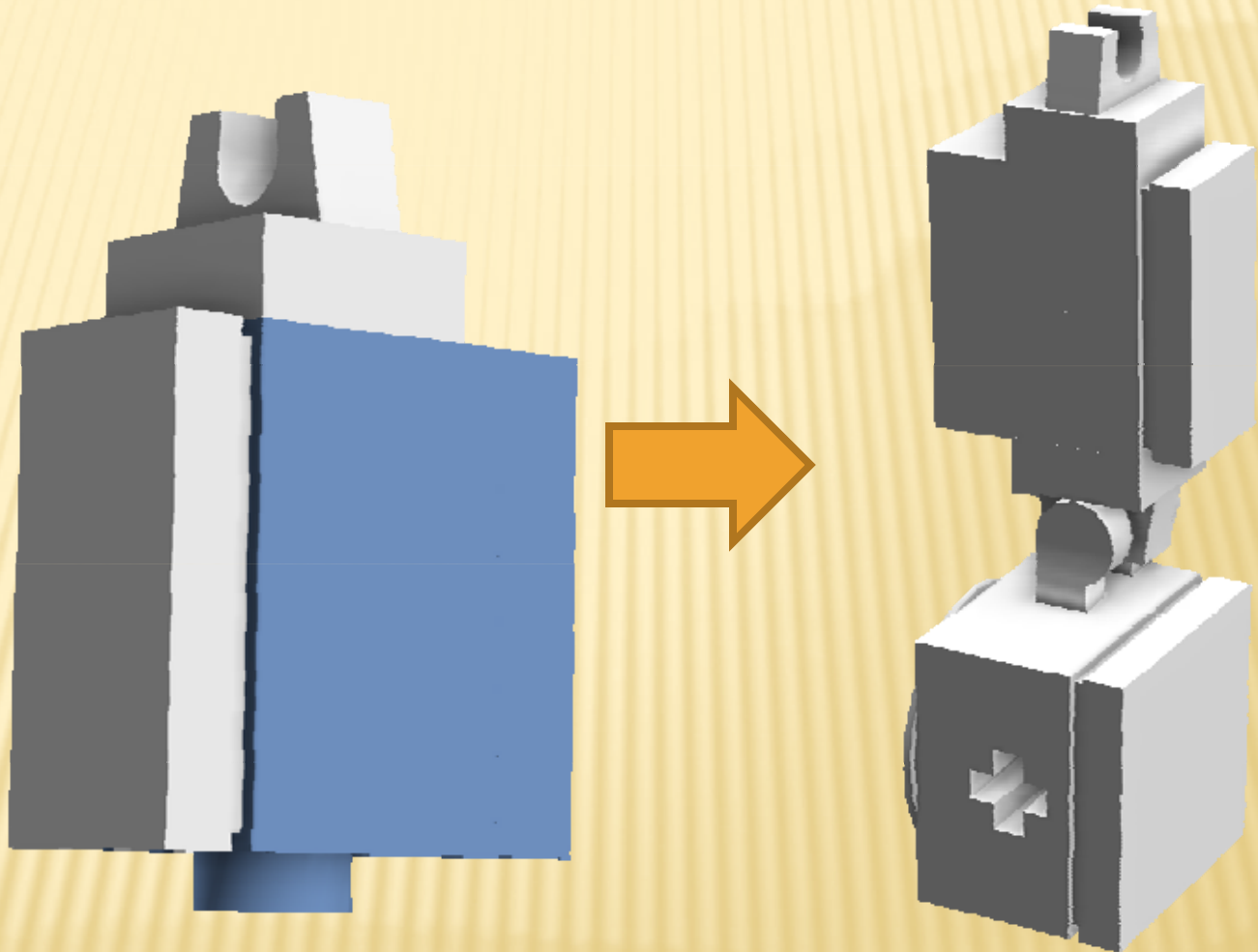
Some parts shown in alternate colors for clarity

## Step 27

Parts needed  
for this step:

 1x2 tile  
x1

 1x1 clip  
plate  
x1



Some parts shown in alternate colors for clarity

# Step 28

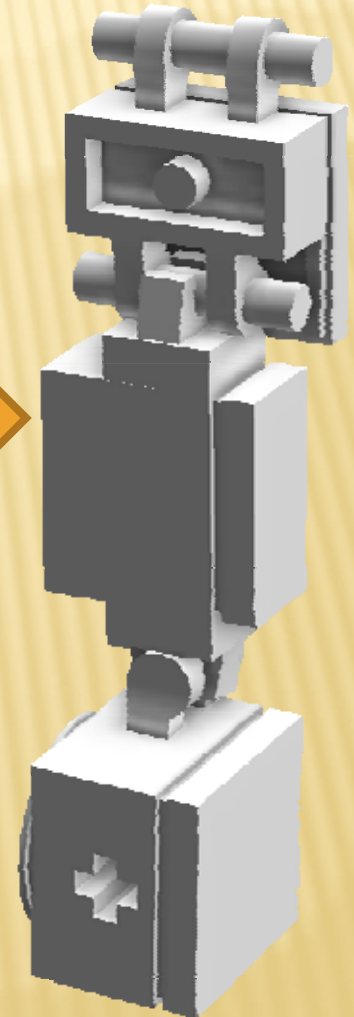
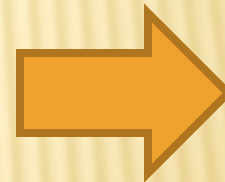
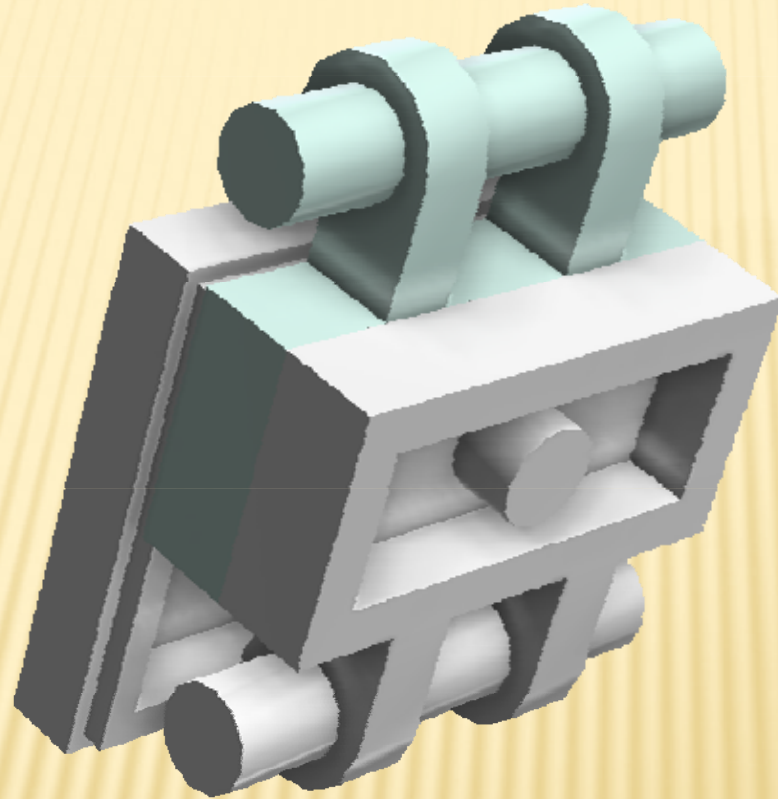
Parts needed  
for this step:



1x2 plate  
with rod  
x2



2x2 tile  
x1



Some parts shown in alternate colors for clarity

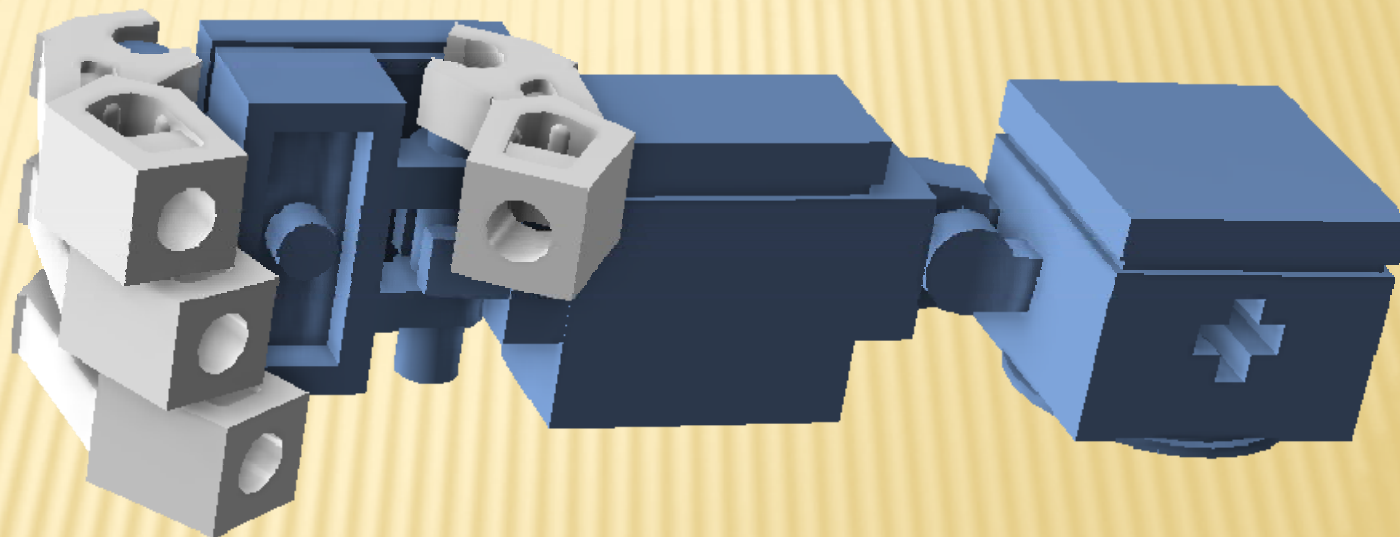
## Step 29

Parts needed  
for this step:



Robot Arm

x4



Some parts shown in alternate colors for clarity



# ASSEMBLY – MASK



## Step 30

Parts needed  
for this step:



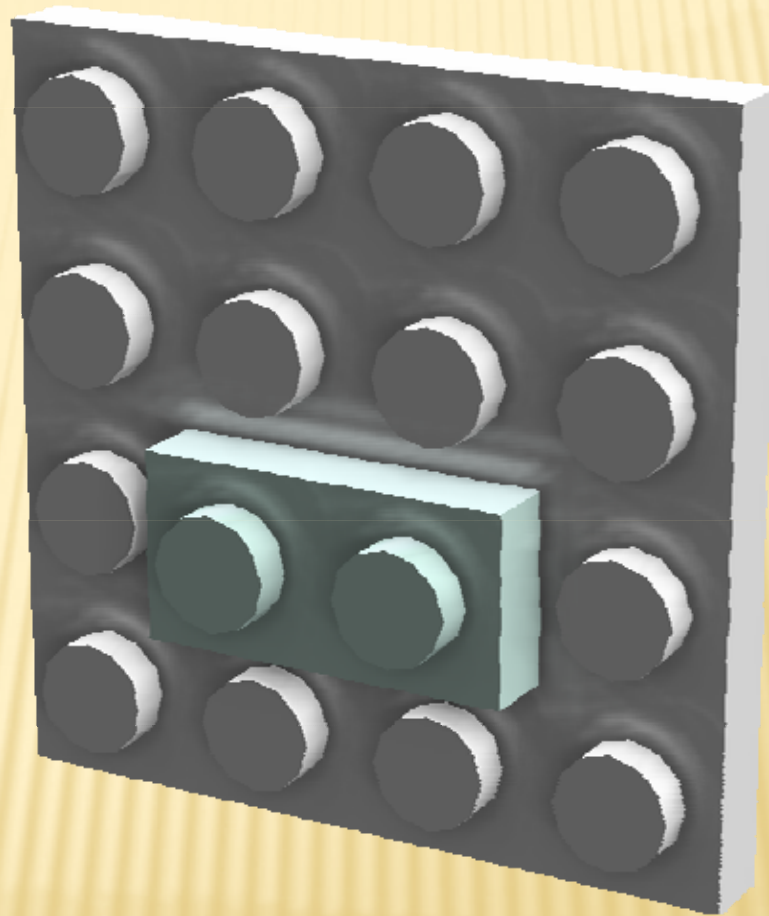
4x4 plate

x1



1x2 plate

x1



Some parts shown in alternate colors for clarity

## Step 31

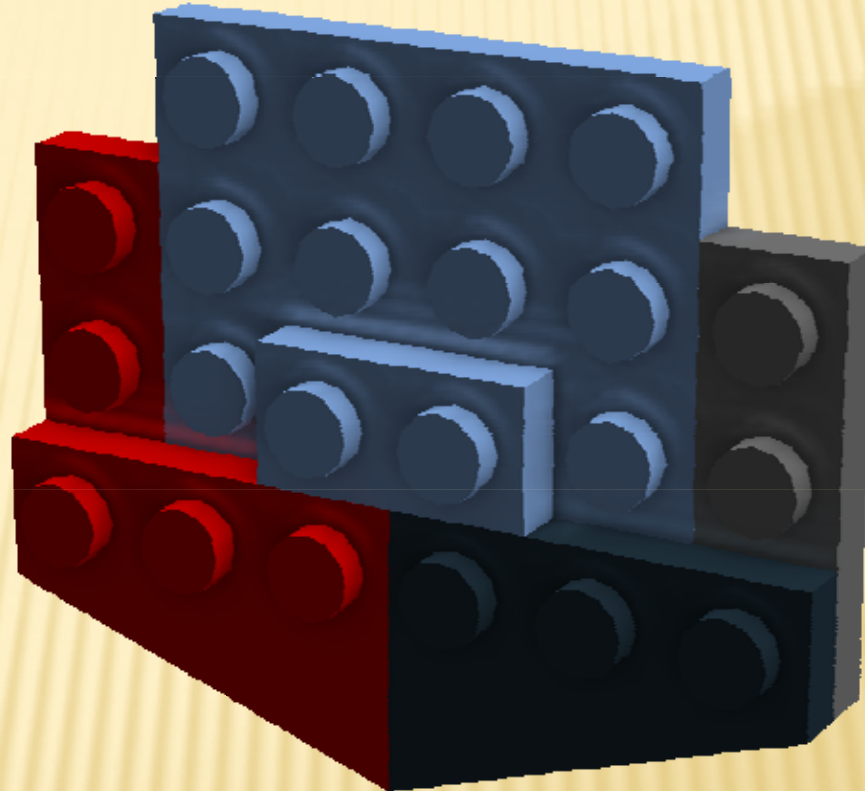
Parts needed  
for this step:

 2x3 wedge  
plate  
x1

 2x3 wedge  
plate  
x1

 1x3 plate  
x1

 1x3 plate  
x1



Some parts shown in alternate colors for clarity

## Step 32

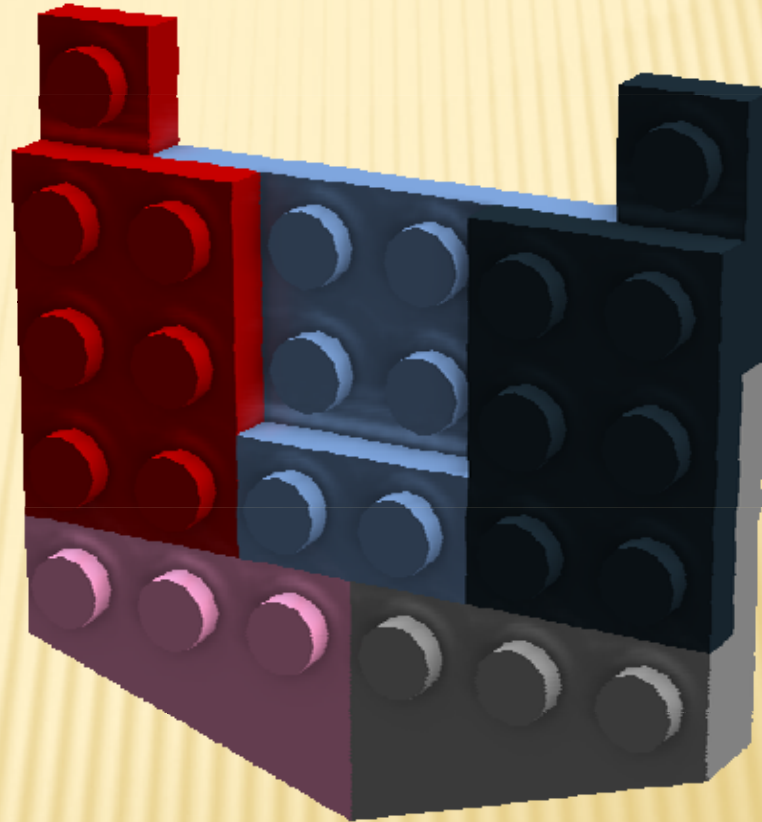
Parts needed  
for this step:

 2x3 plate  
x1

 2x3 plate  
x1

 1x2 plate  
x1

 1x2 plate  
x1



Some parts shown in alternate colors for clarity



## Step 33

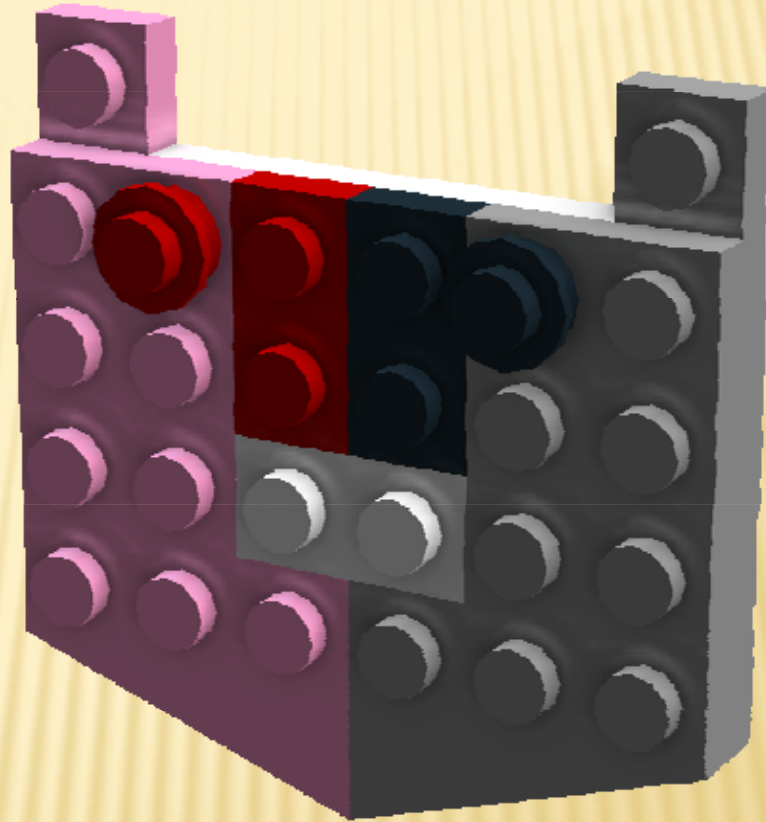
Parts needed  
for this step:

 1x1 round  
plate  
x1

 1x1 round  
plate  
x1

 1x2 plate  
x1

 1x2 plate  
x1



Some parts shown in alternate colors for clarity

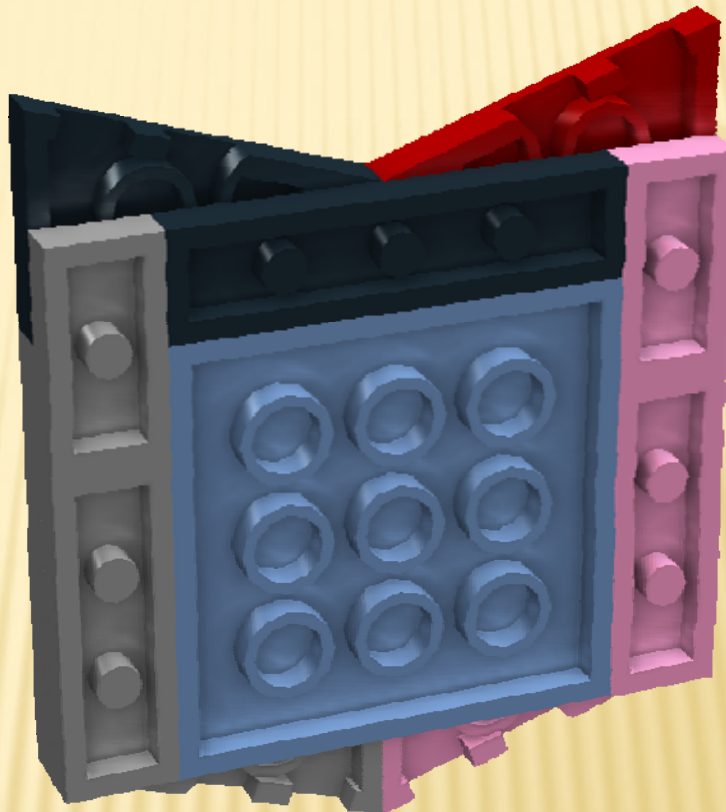
## Step 34

Parts needed  
for this step:

 2x3 wedge  
plate  
x1

 2x3 wedge  
plate  
x1

 1x4 plate  
x1



Some parts shown in alternate colors for clarity

## Step 35

Parts needed  
for this step:



x2

1x1 clip  
plate



x2

1x1 tile



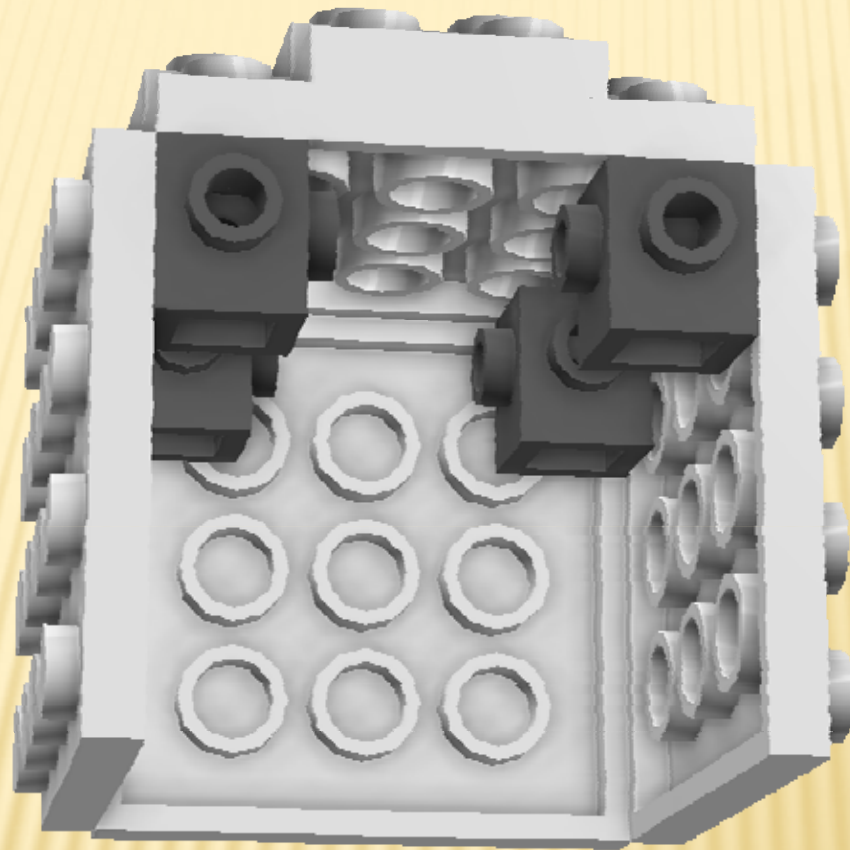
x2

Tooth



Some parts shown in alternate colors for clarity


# ASSEMBLY – BACK OF HEAD







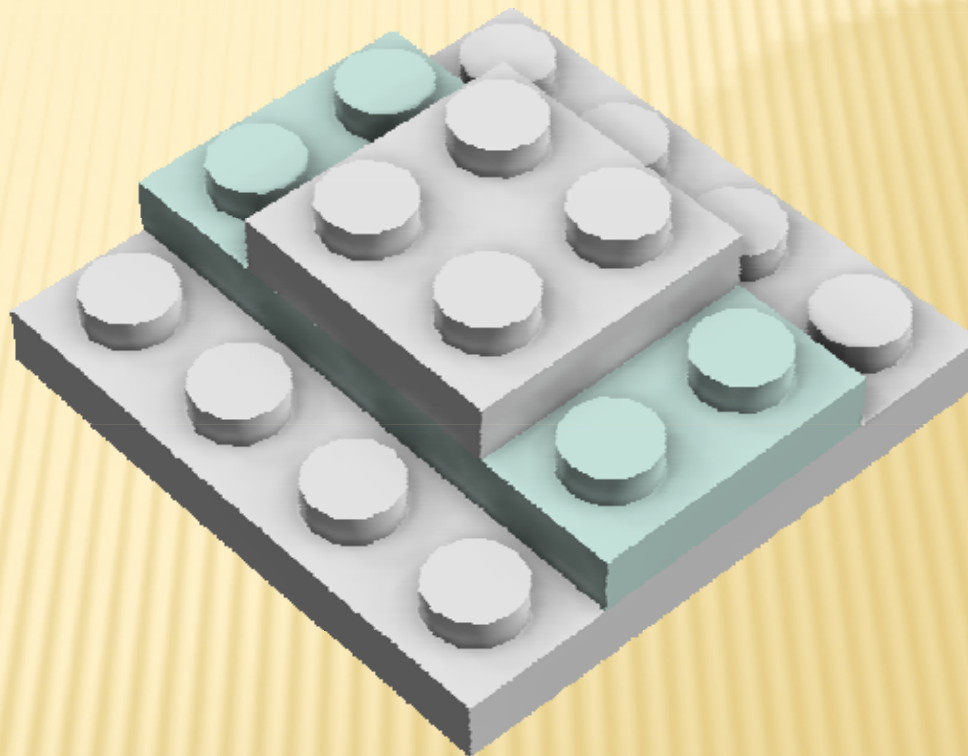
## Step 36

Parts needed  
for this step:

 4x4 plate  
x1

 2x4 plate  
x1

 2x2 plate  
x1



Some parts shown in alternate colors for clarity

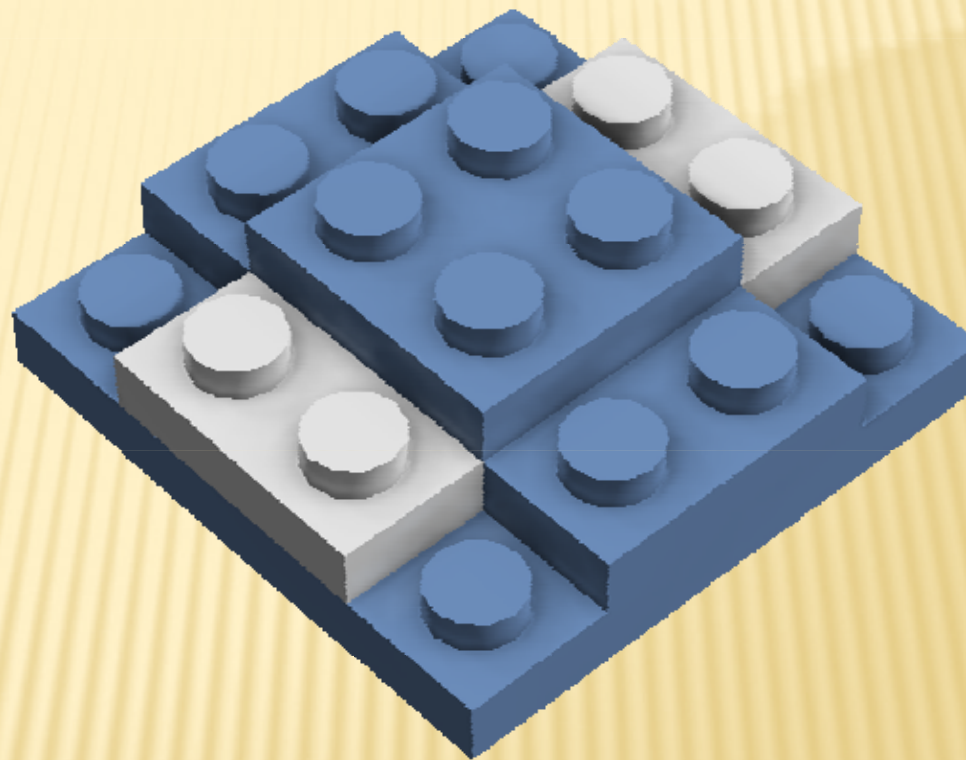
## Step 37

Parts needed  
for this step:



1x2 plate

x2



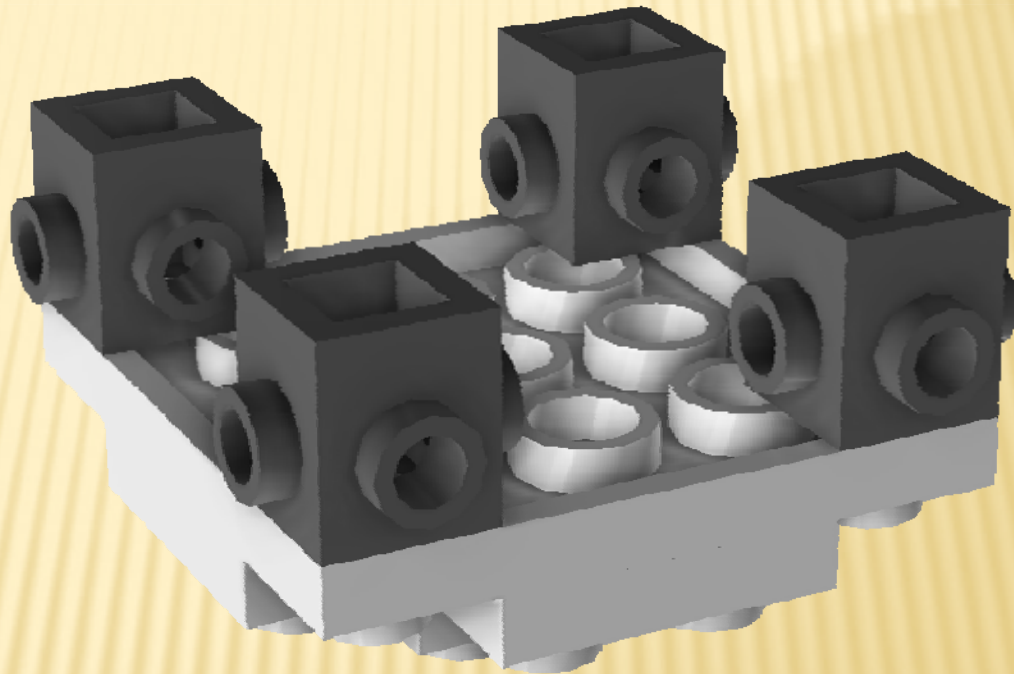
Some parts shown in alternate colors for clarity

## Step 38

Parts needed  
for this step:



1x1 brick  
with studs  
on 5 sides



Some parts shown in alternate colors for clarity

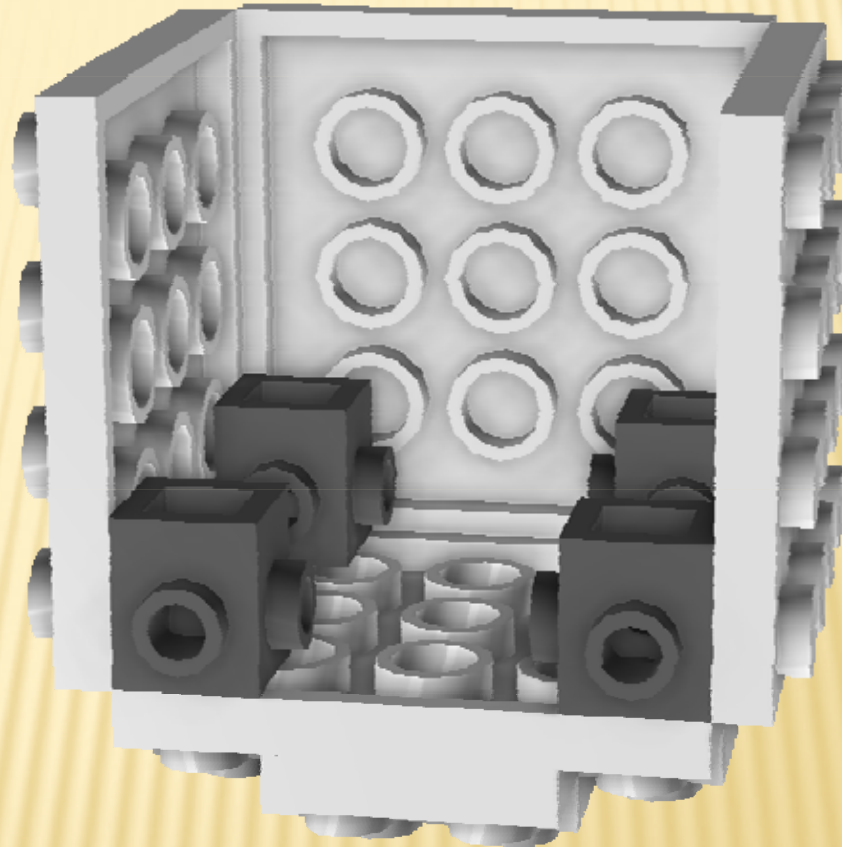
## Step 39

Parts needed  
for this step:



4x4 plate

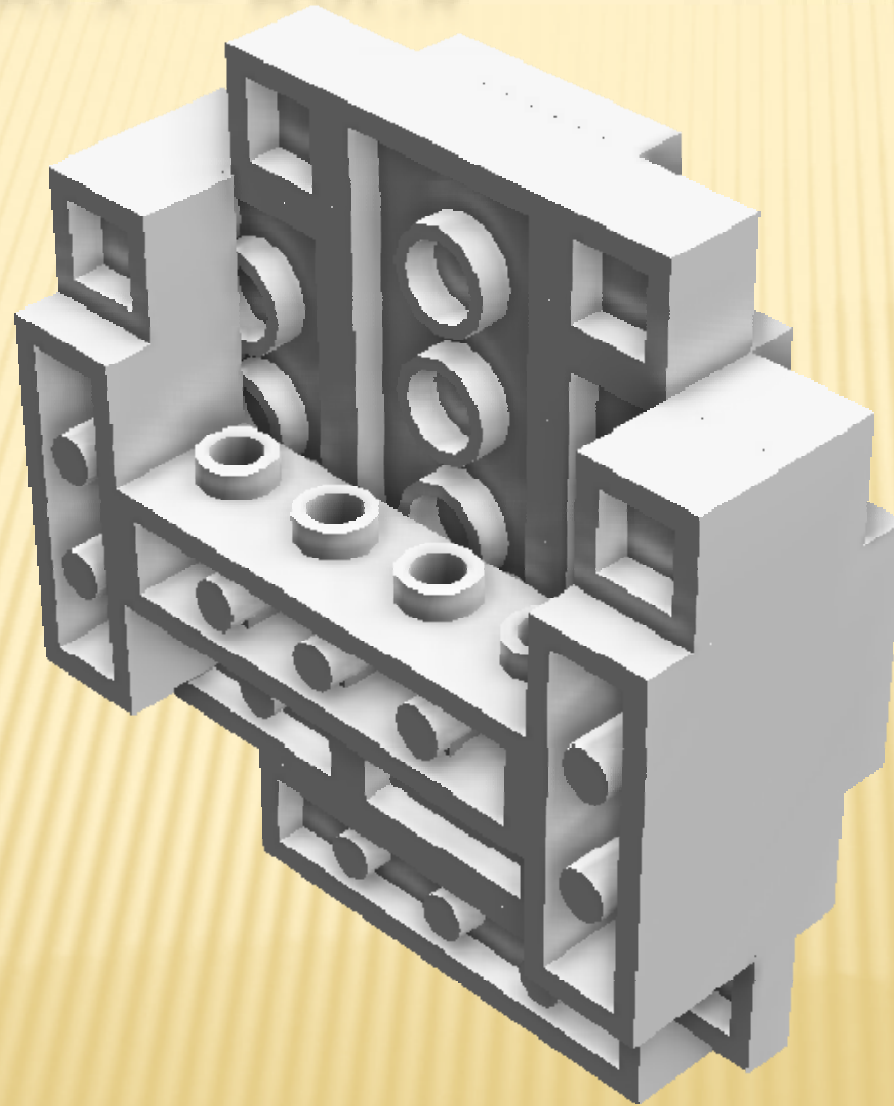
x3



Some parts shown in alternate colors for clarity



# ASSEMBLY – BACK



## Step 40

Parts needed  
for this step:



4x4 plate

x1



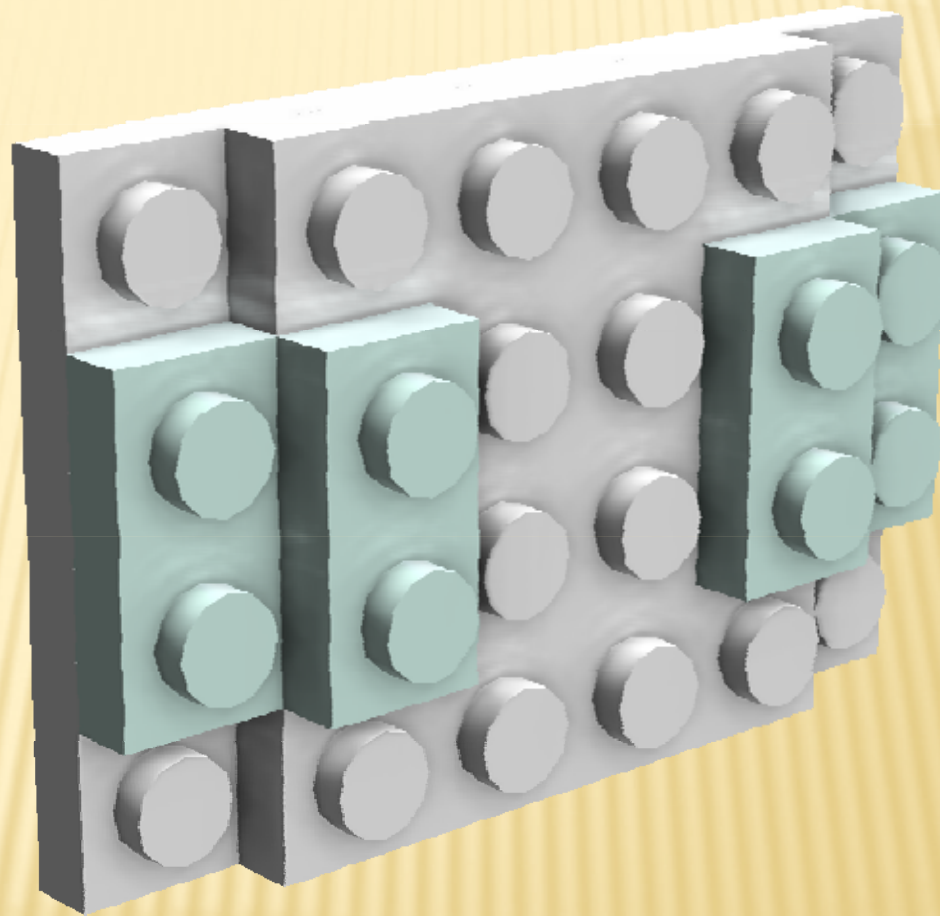
4x6 plate

x1



1x2 plate

x4



Some parts shown in alternate colors for clarity

## Step 41

Parts needed  
for this step:



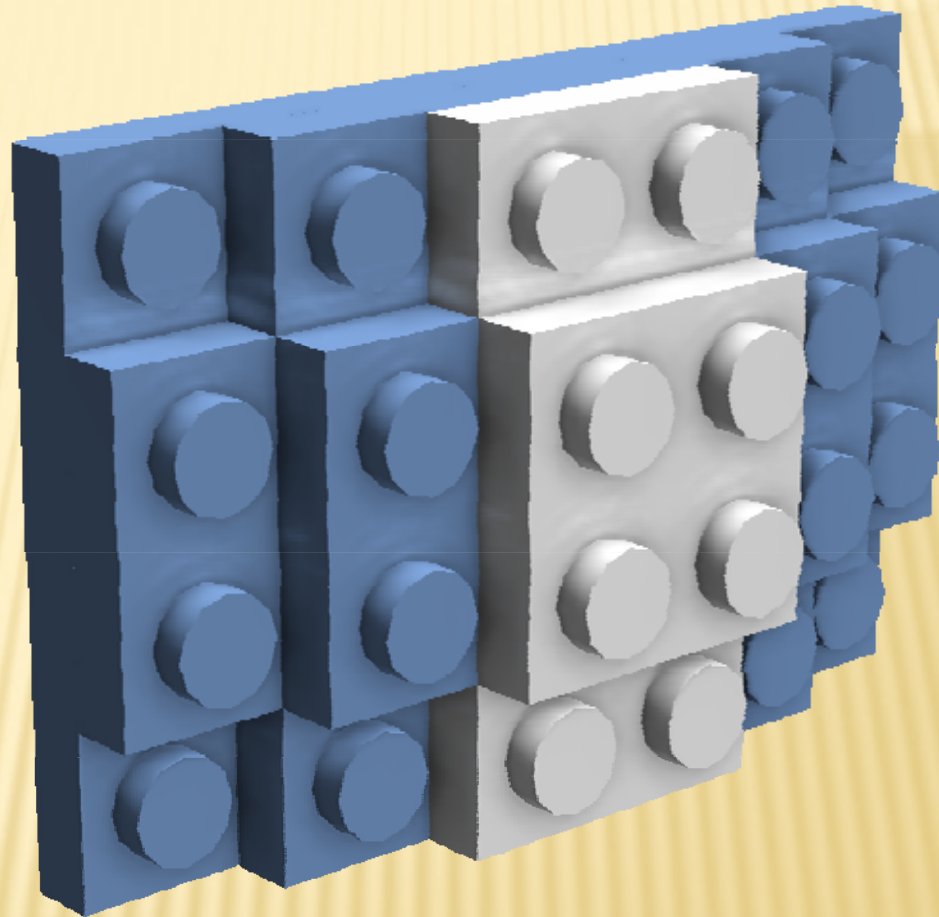
2x4 plate

x1



2x2 plate


x1




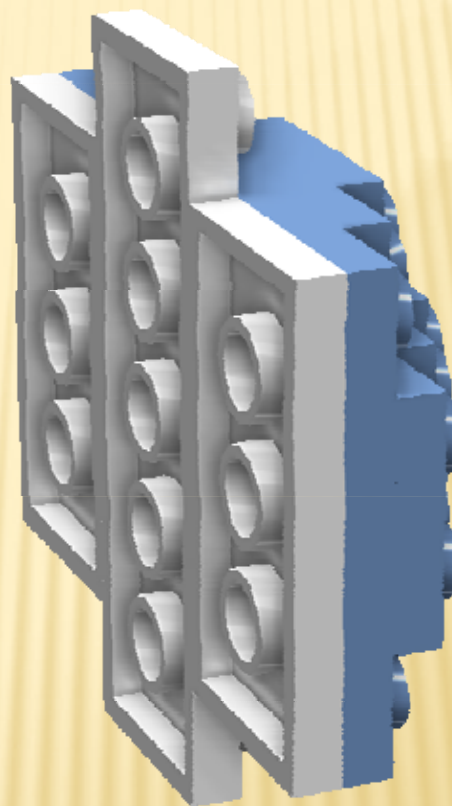
Some parts shown in alternate colors for clarity

## Step 42

Parts needed  
for this step:

 2x4 plate  
x2

 2x6 plate  
x1





Some parts shown in alternate colors for clarity

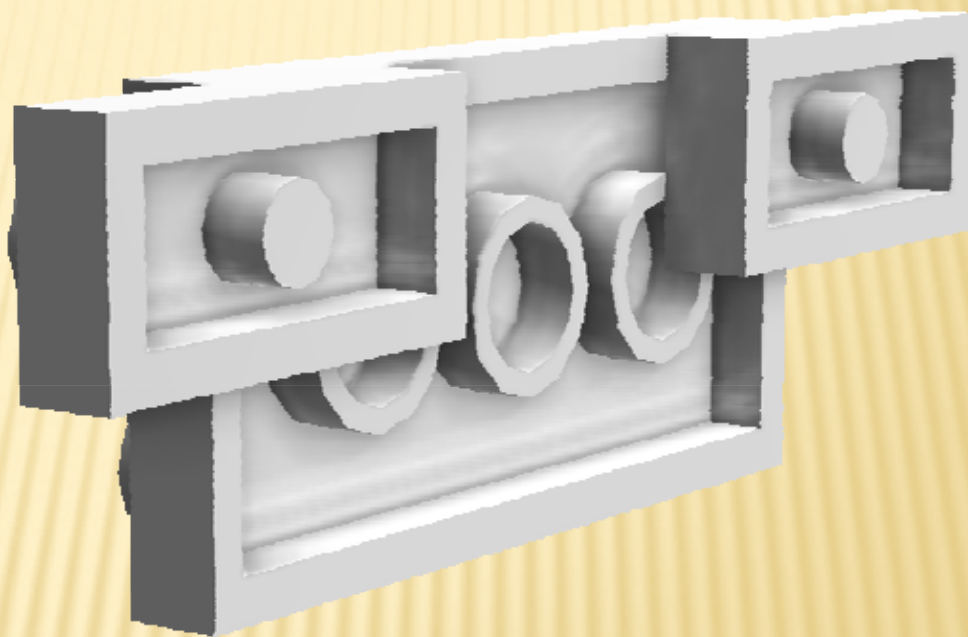


## Step 43

Parts needed  
for this step:

 2x4 plate  
x1

 1x2 plate  
x2



Some parts shown in alternate colors for clarity

## Step 44

Parts needed  
for this step:

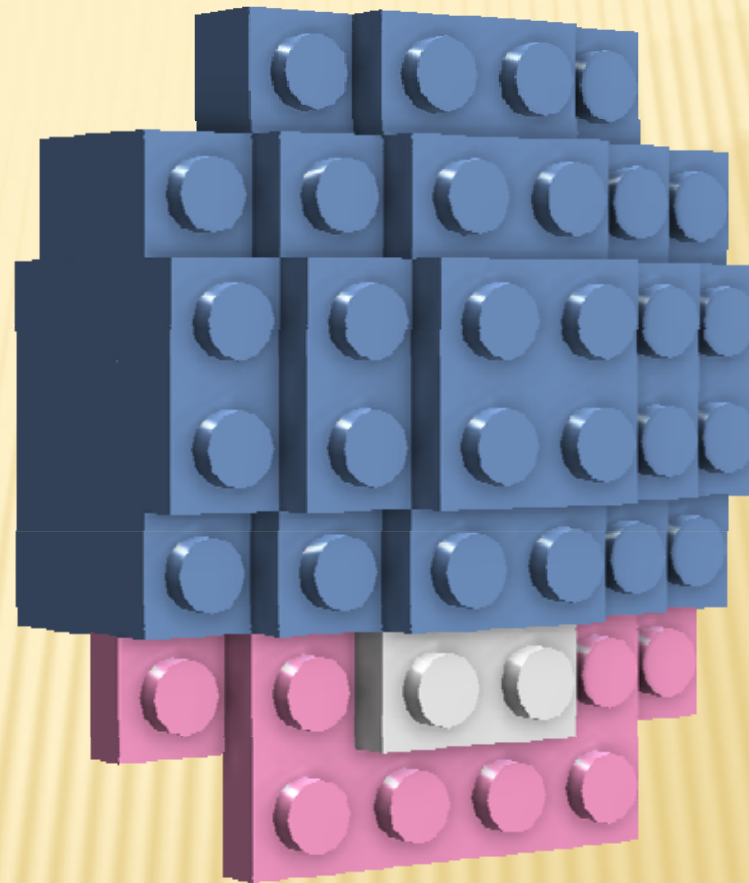


x1



1x2 plate

x1



Some parts shown in alternate colors for clarity

## Step 45

Parts needed  
for this step:



1x4 plate

x1



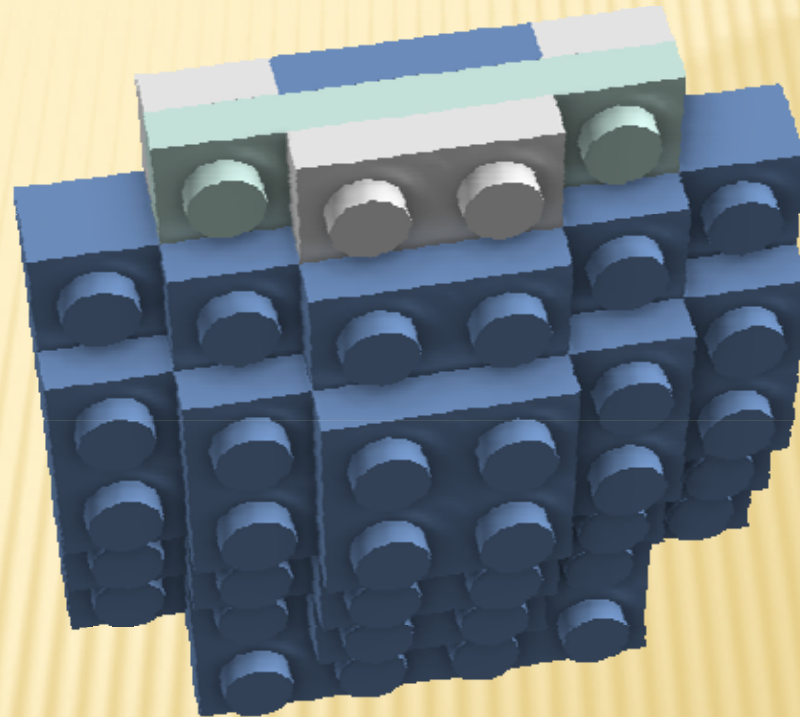
1x1 plate

x2



1x2 plate

x1



Some parts shown in alternate colors for clarity

## Step 46

Parts needed  
for this step:



1x4 plate

x1



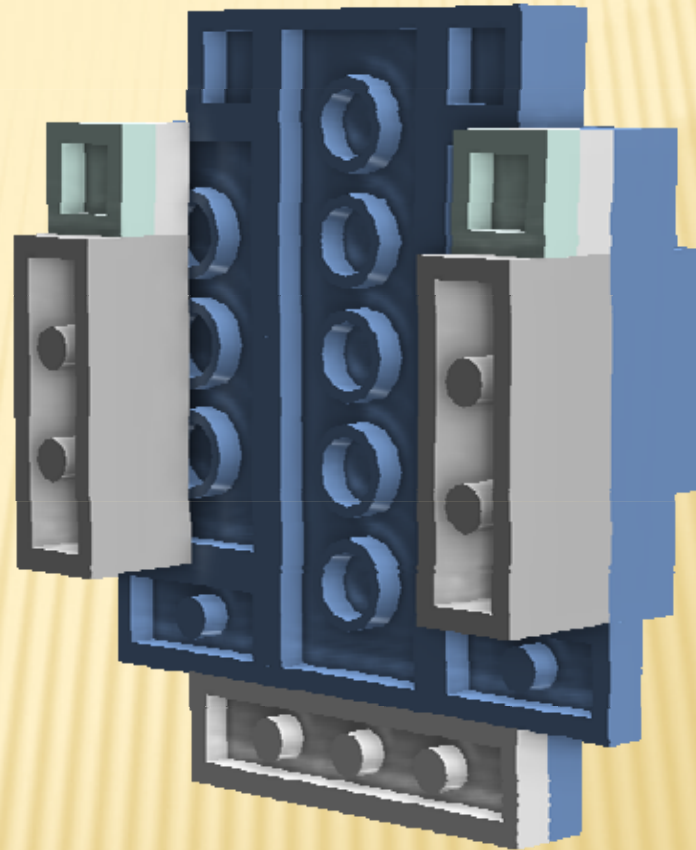
1x1 plate

x4



1x3 brick

x2



Some parts shown in alternate colors for clarity



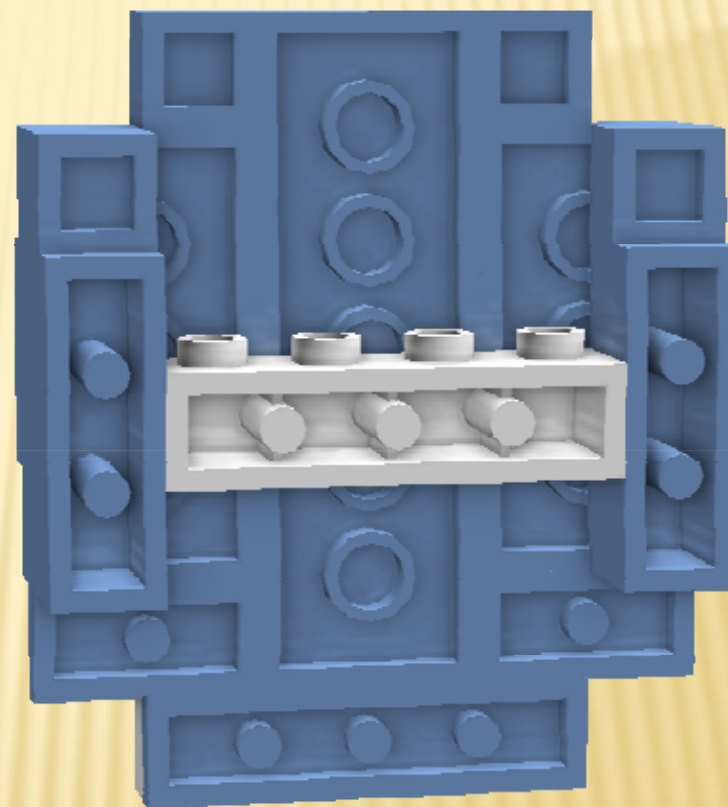
## Step 47

Parts needed  
for this step:



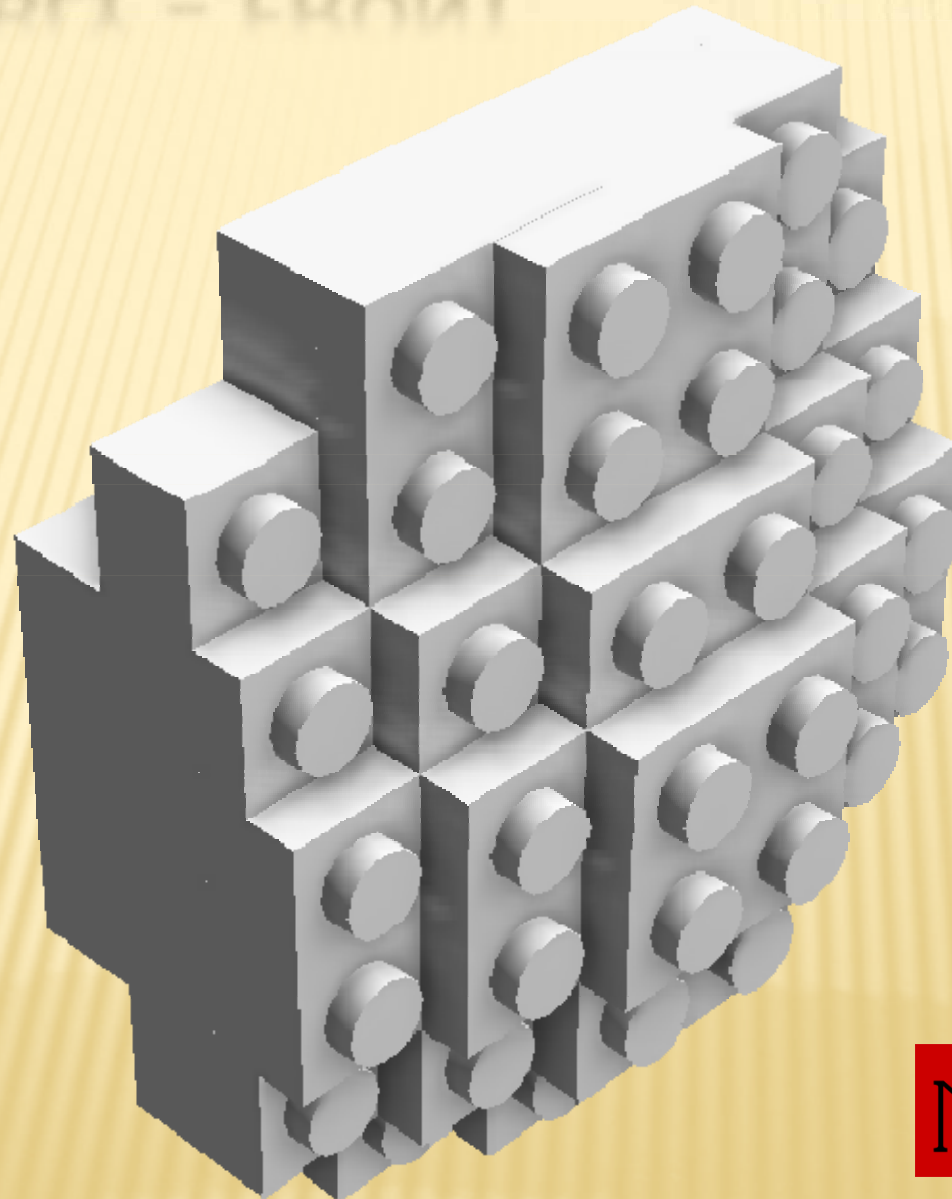
x1

1x4 brick  
with studs



Some parts shown in alternate colors for clarity

# ASSEMBLY – FRONT



## Step 48

Parts needed  
for this step:



4x4 plate

x1



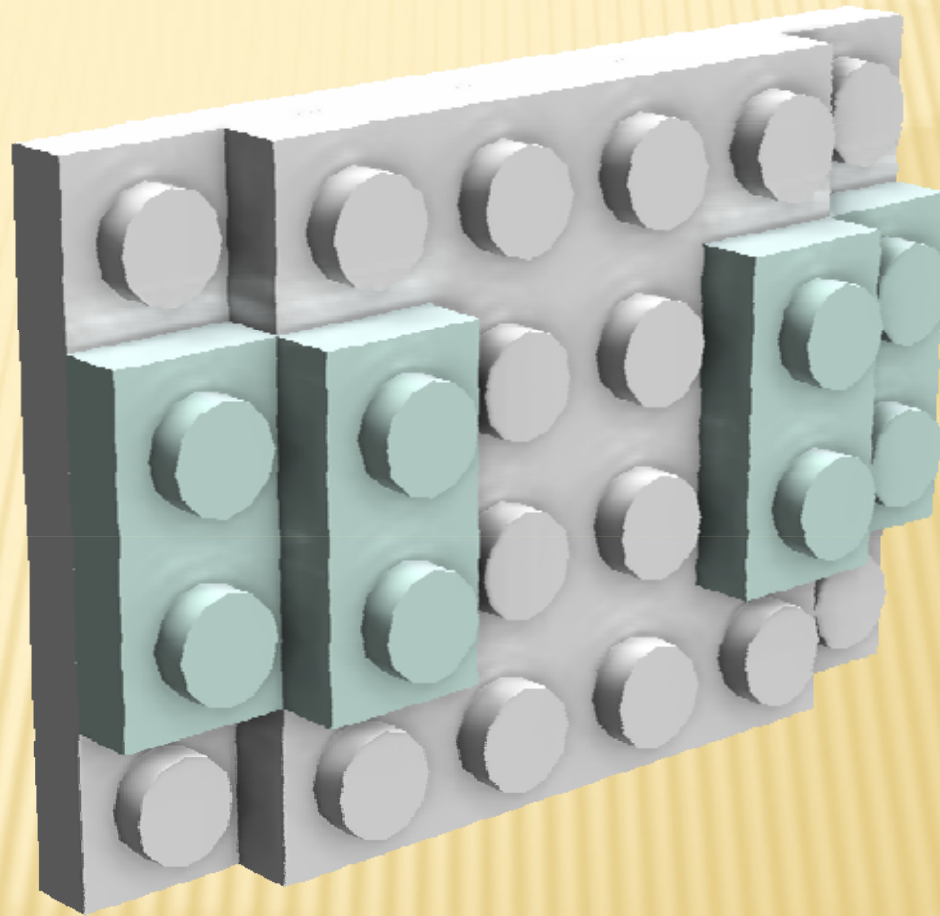
4x6 plate

x1



1x2 plate

x4



Some parts shown in alternate colors for clarity

## Step 49

Parts needed  
for this step:



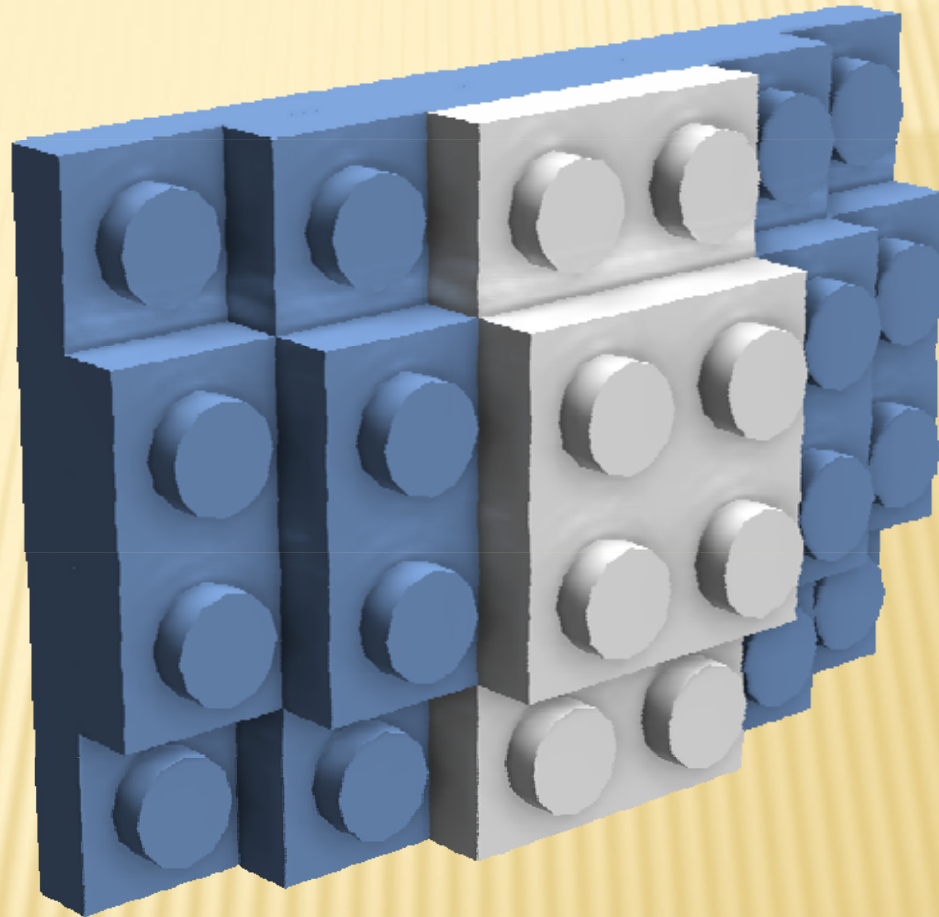
2x4 plate

x1



2x2 plate

x1



Some parts shown in alternate colors for clarity



## Step 50

Parts needed  
for this step:



2x6 plate

x1



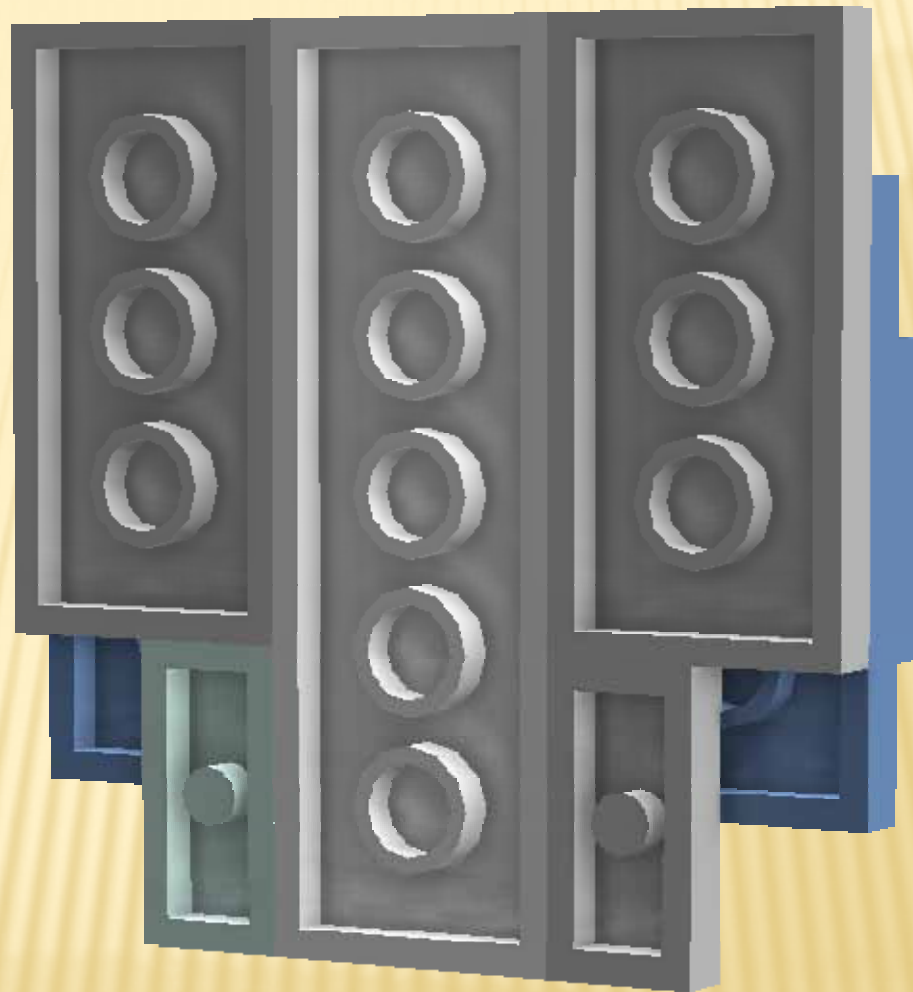
2x4 plate

x2



1x2 plate


x2




Some parts shown in alternate colors for clarity

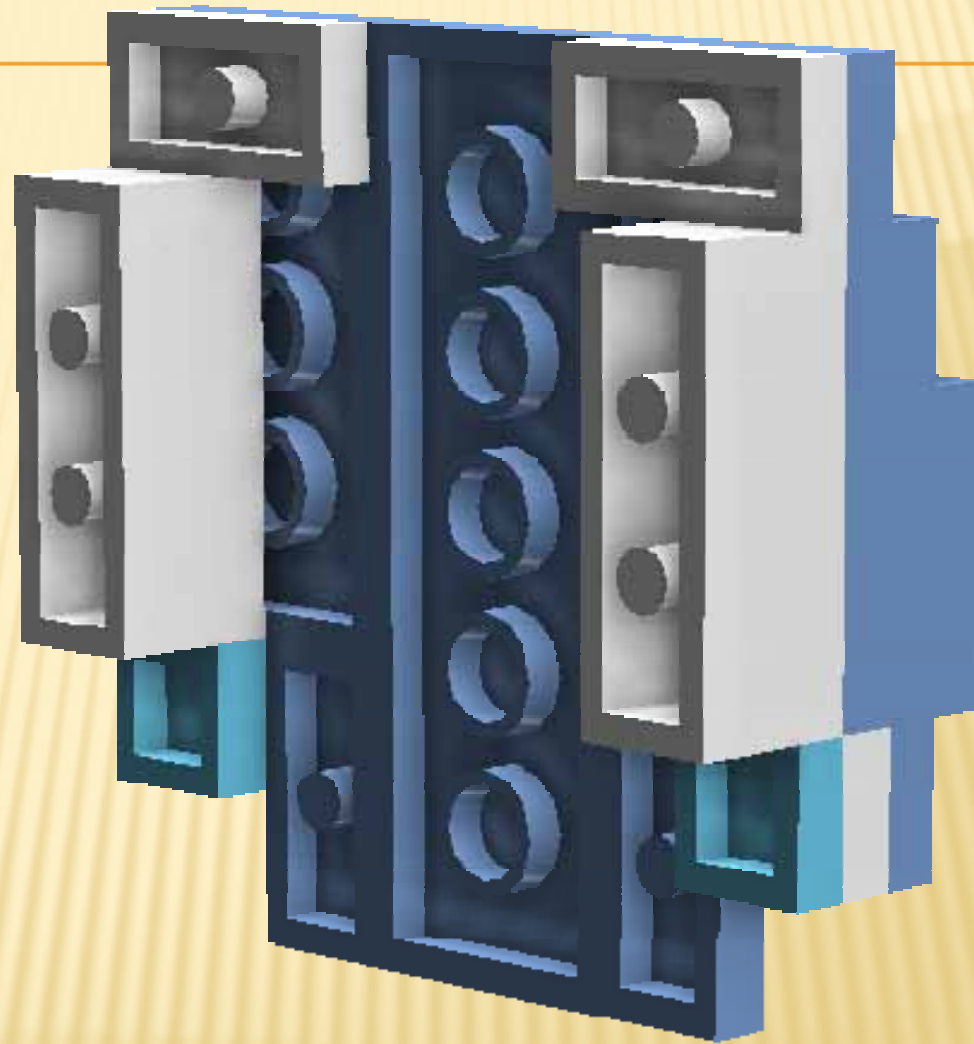
## Step 51

Parts needed  
for this step:

 1x1 plate  
x4

 1x3 brick  
x2

 1x2 plate  
x2



Some parts shown in alternate colors for clarity

## Step 52

Parts needed  
for this step:



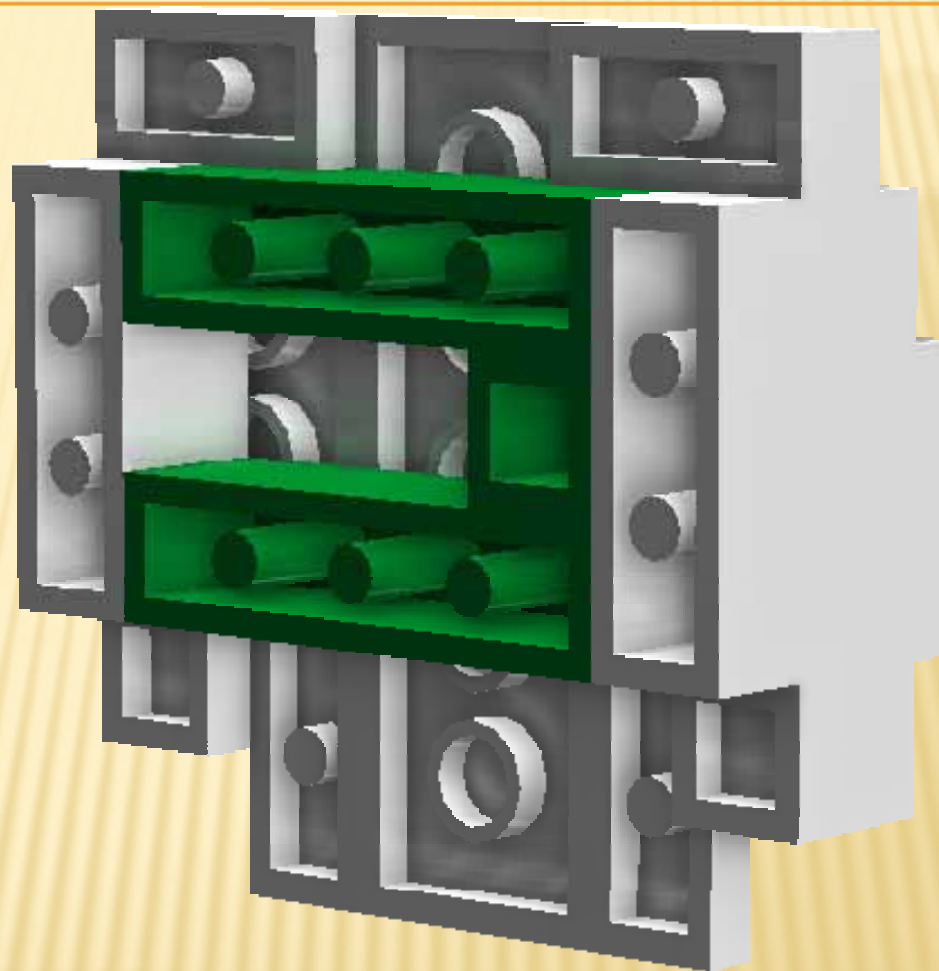
1x1 brick

x1



1x4 brick


x2



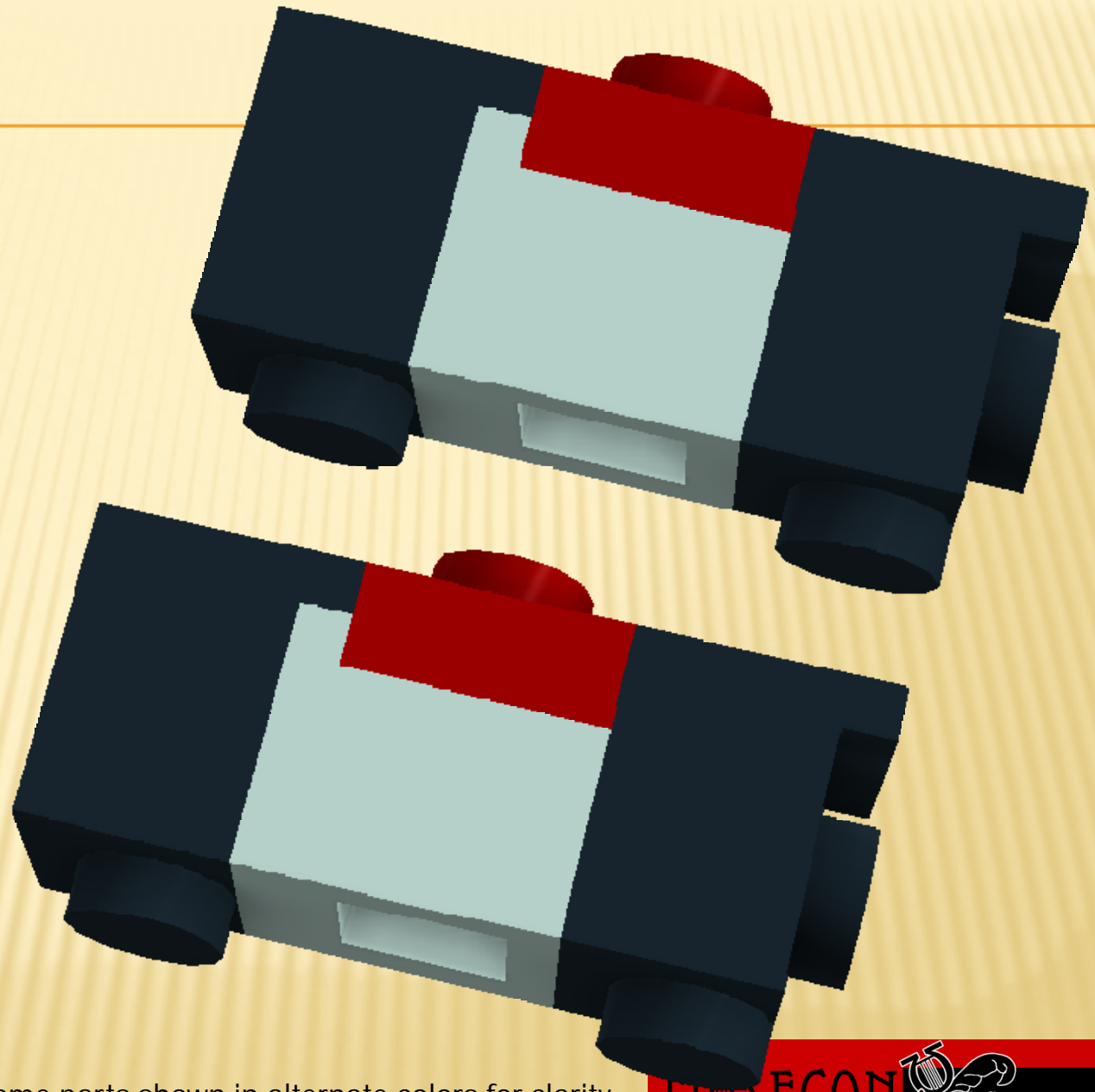
Some parts shown in alternate colors for clarity

## Step 53

Parts needed  
for this step:

 1x1 plate  
x2

 1x1  
headlight  
brick  
x6



Some parts shown in alternate colors for clarity



## Step 54

Parts needed  
for this step:

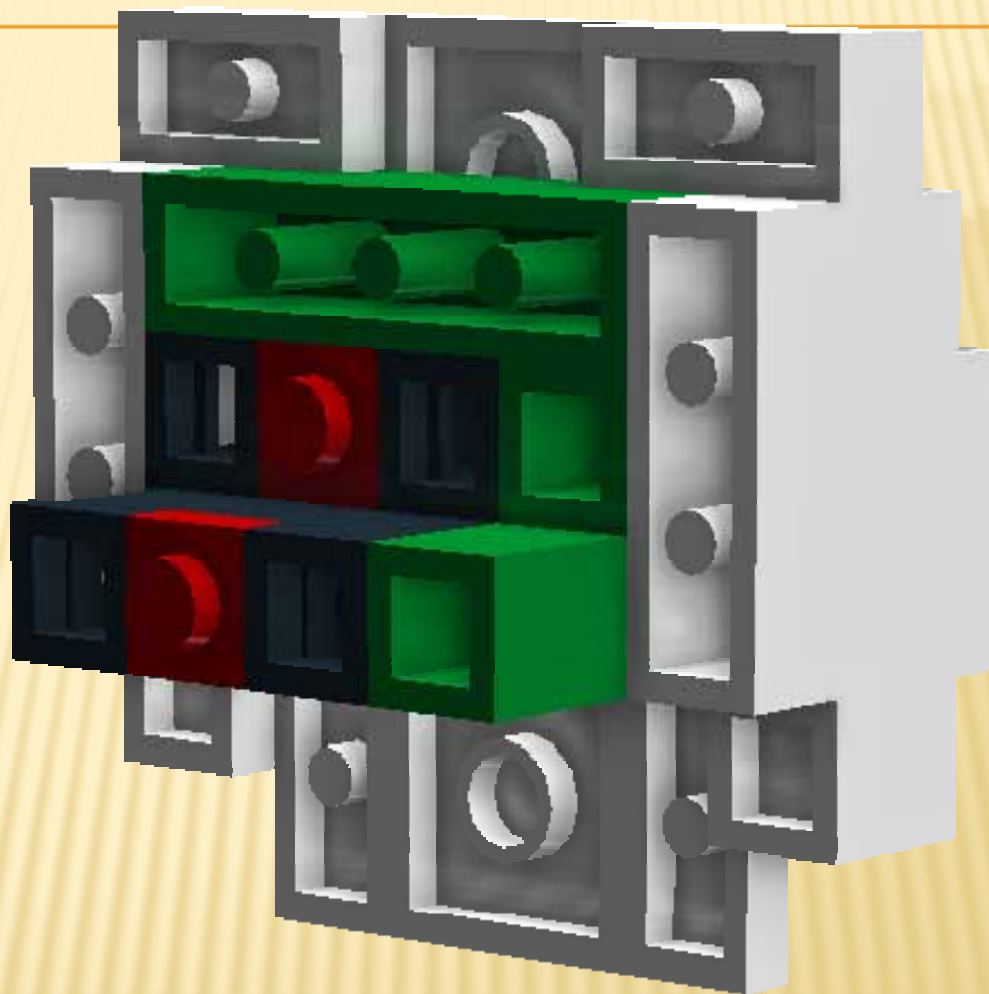


1x1 brick

x1



x2



Some parts shown in alternate colors for clarity

## Step 55

Parts needed  
for this step:



2x4 plate

x1



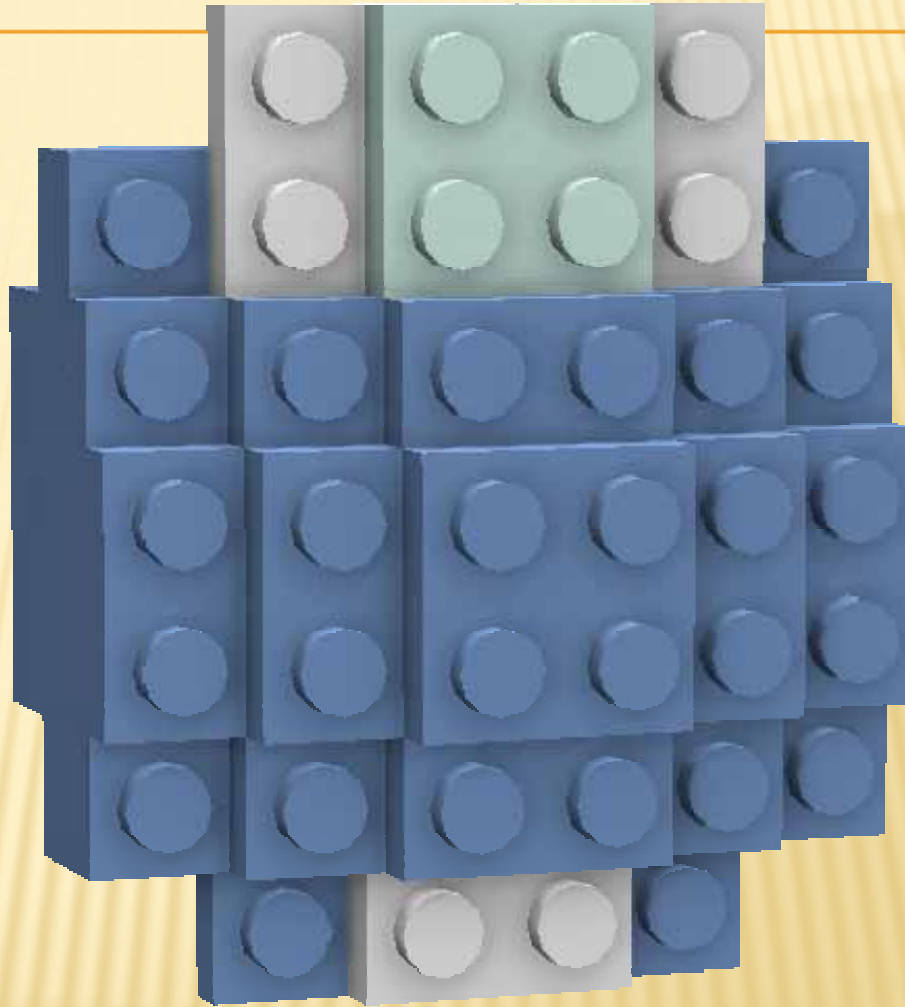
2x2 plate

x1



1x2 plate

x1



Some parts shown in alternate colors for clarity

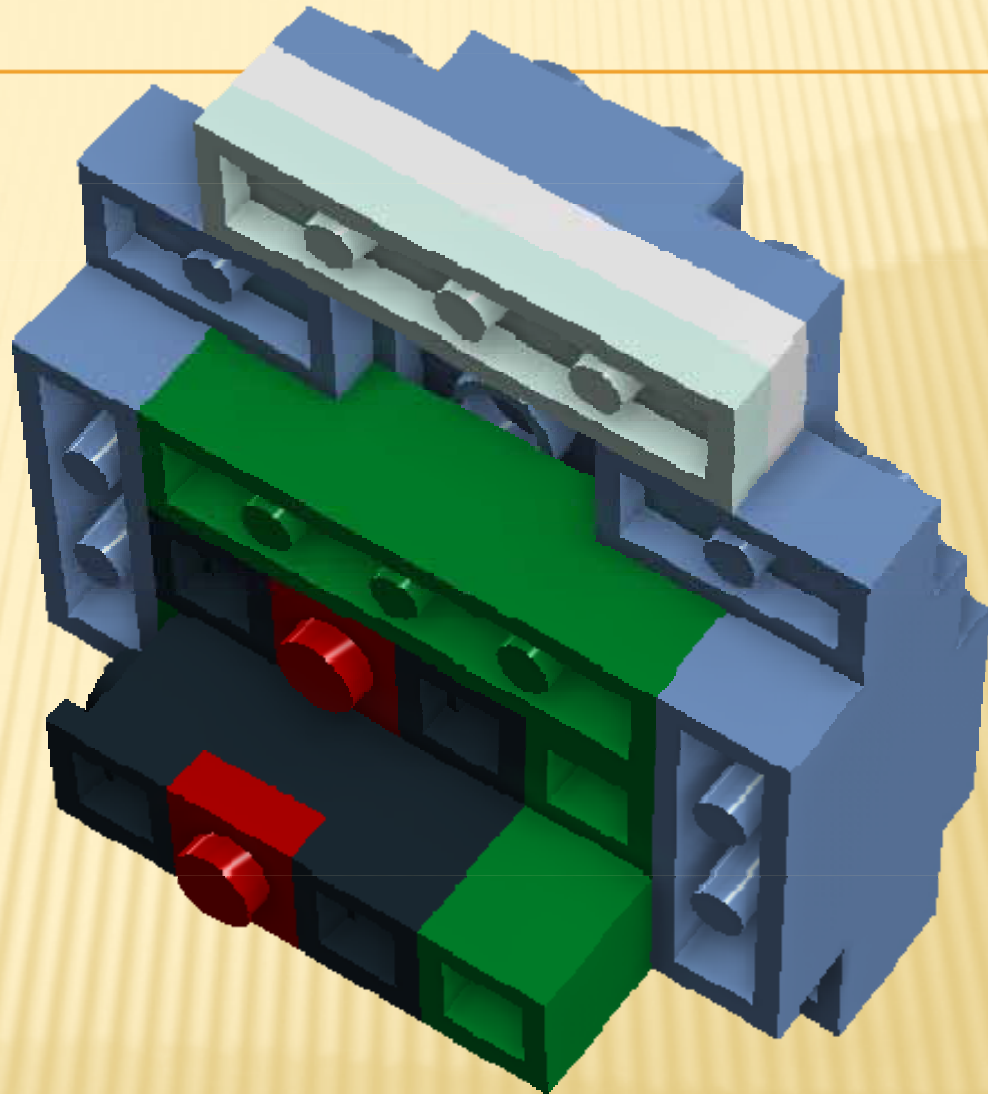
## Step 56

Parts needed  
for this step:



1x4 plate

x2



Some parts shown in alternate colors for clarity

# FINAL ASSEMBLY

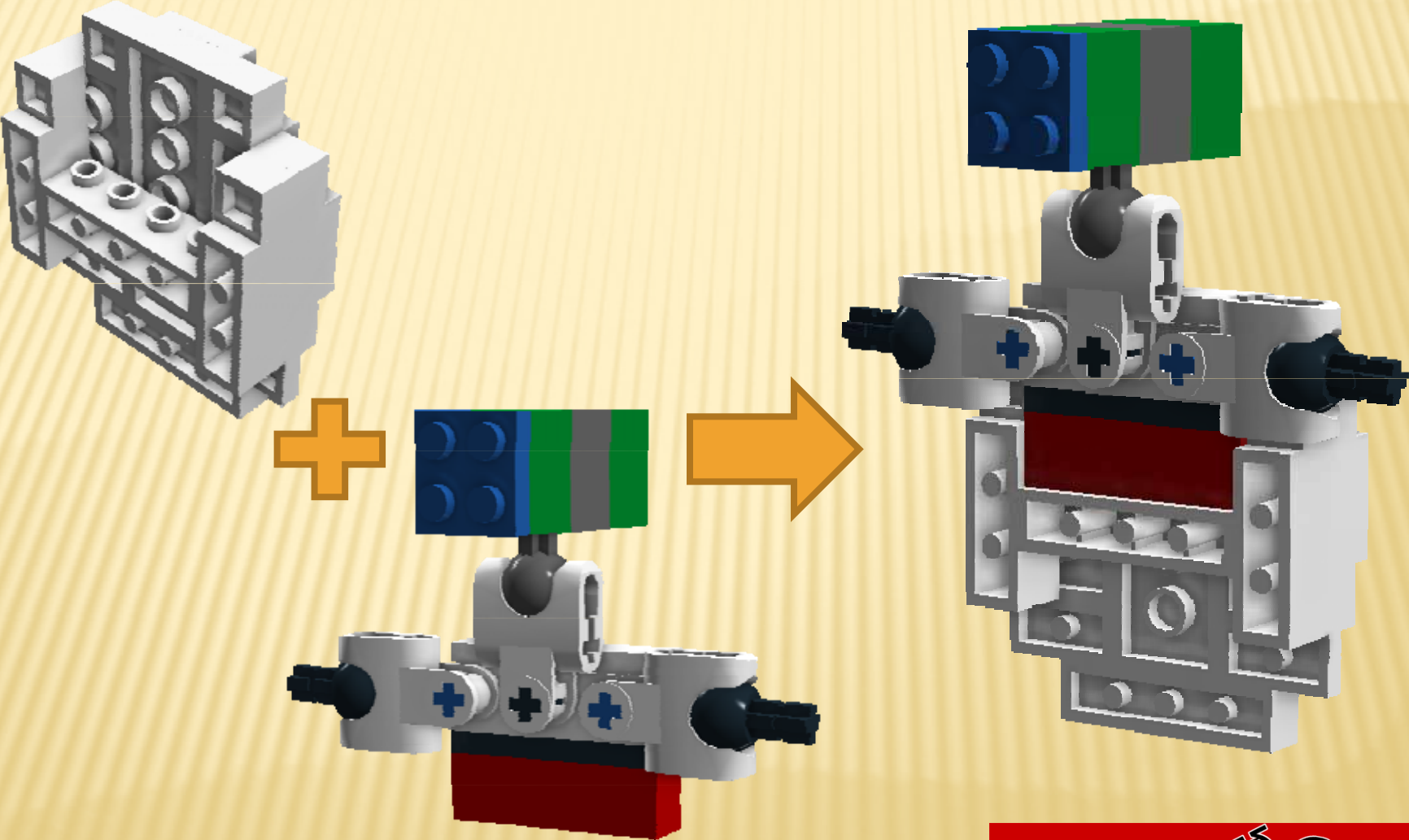
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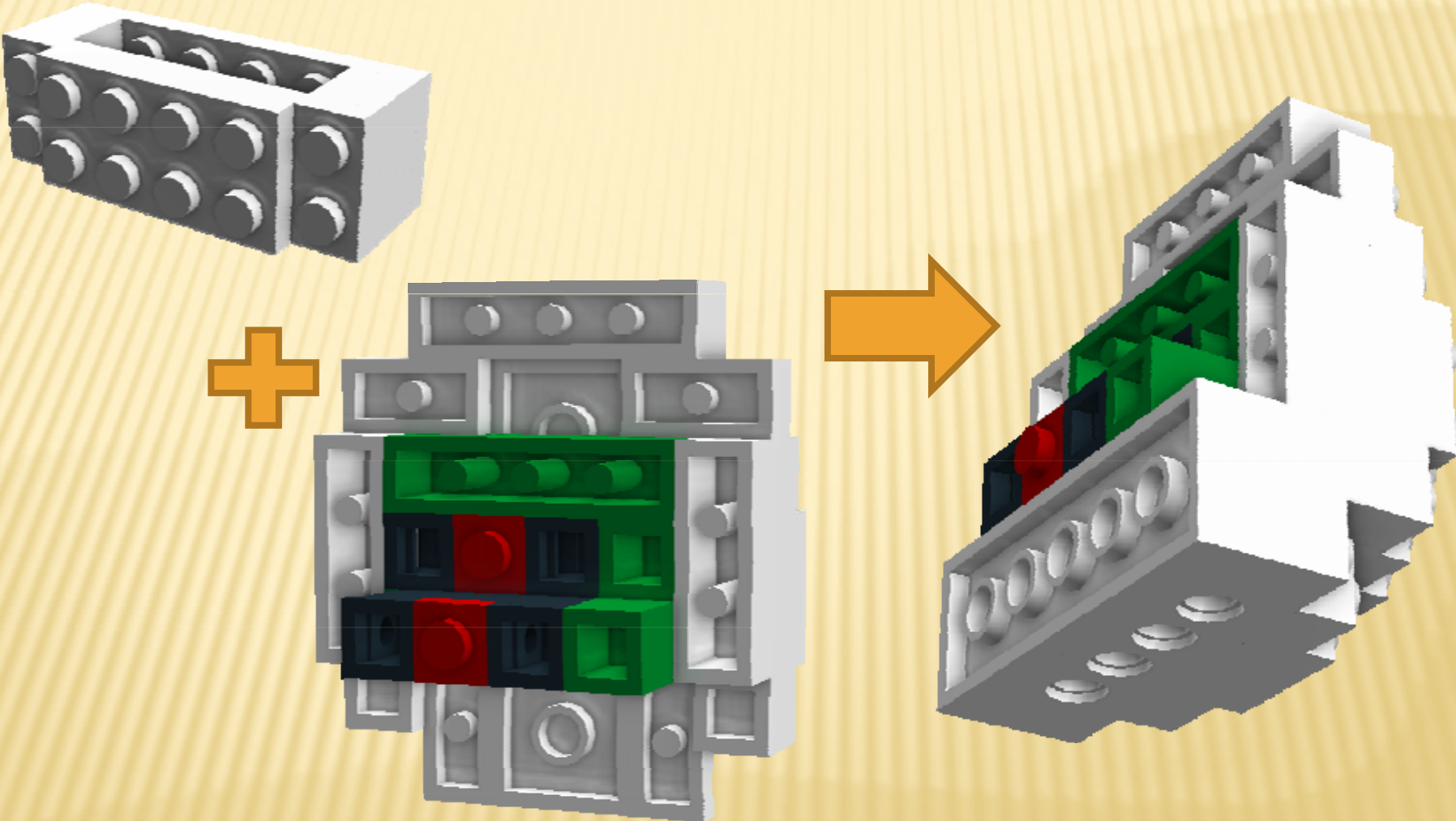
Step 57

Parts needed for this step: Shoulders and back



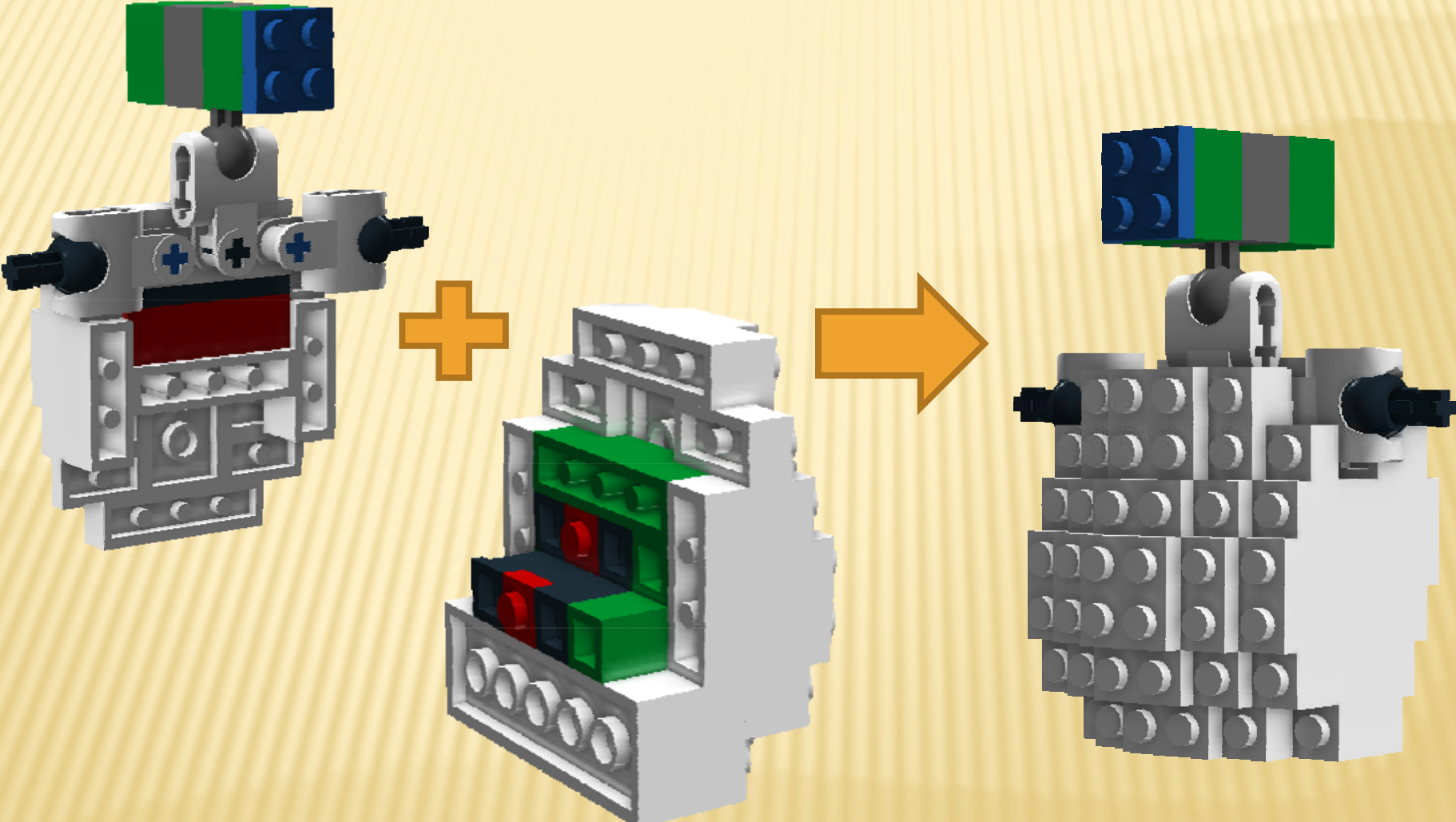
Step 58

Parts needed for this step: Hips and Front



Step 59

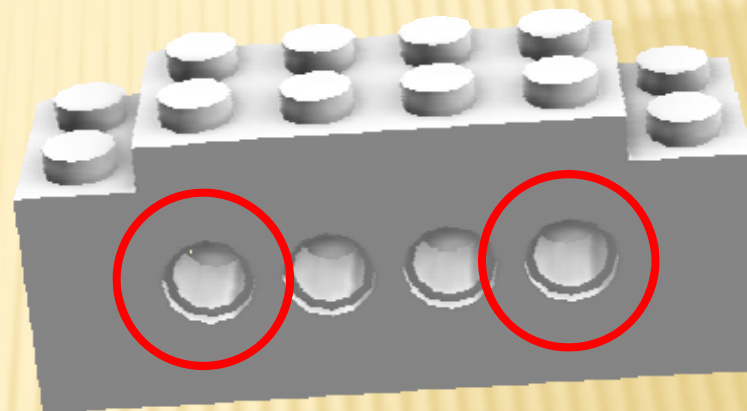
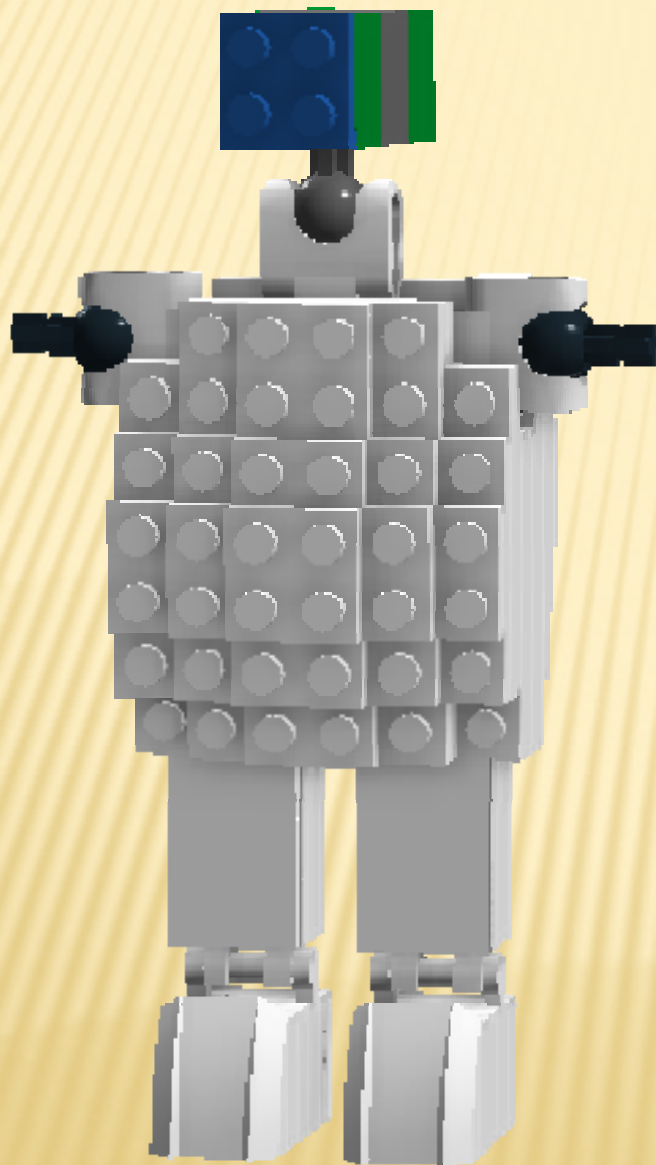
Parts needed for this step: Front and Back





## Step 60

Parts needed for this step: Body and Legs

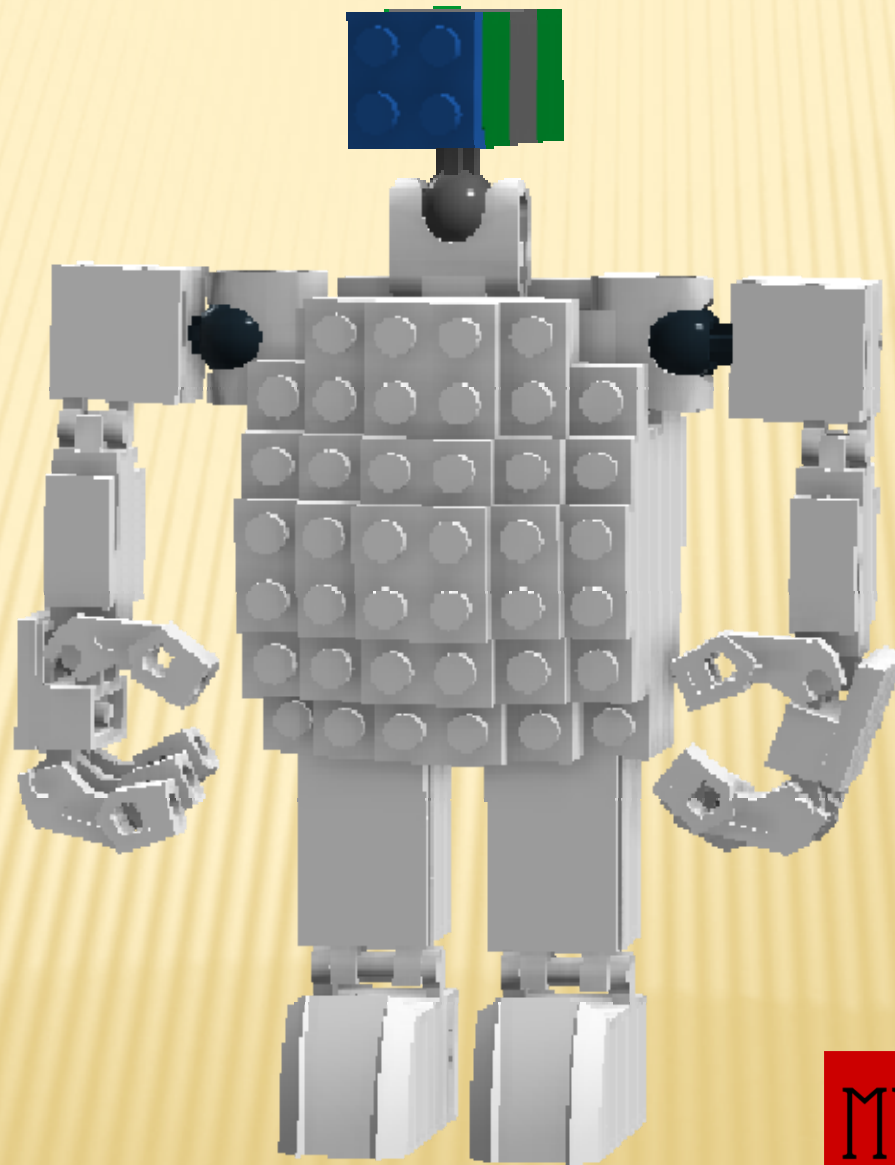


Leg pins fit into the two outermost holes in the hip assembly



Step 61

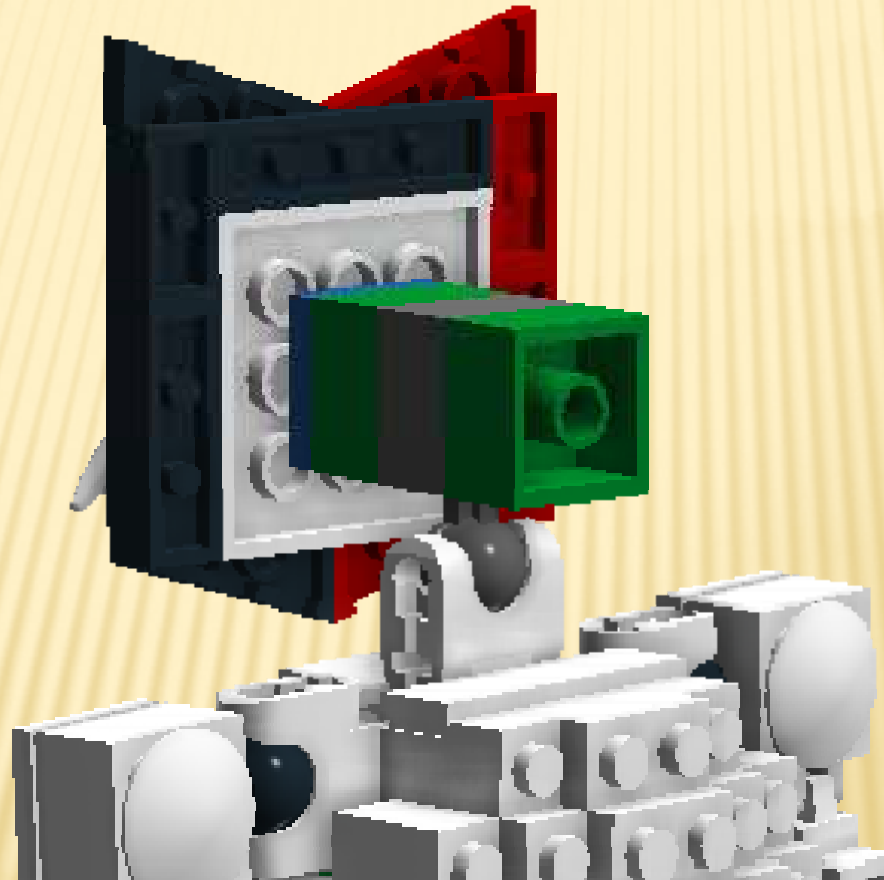
Parts needed for this step: Body and Arms



Step 62

Parts needed for this step: Body and Mask

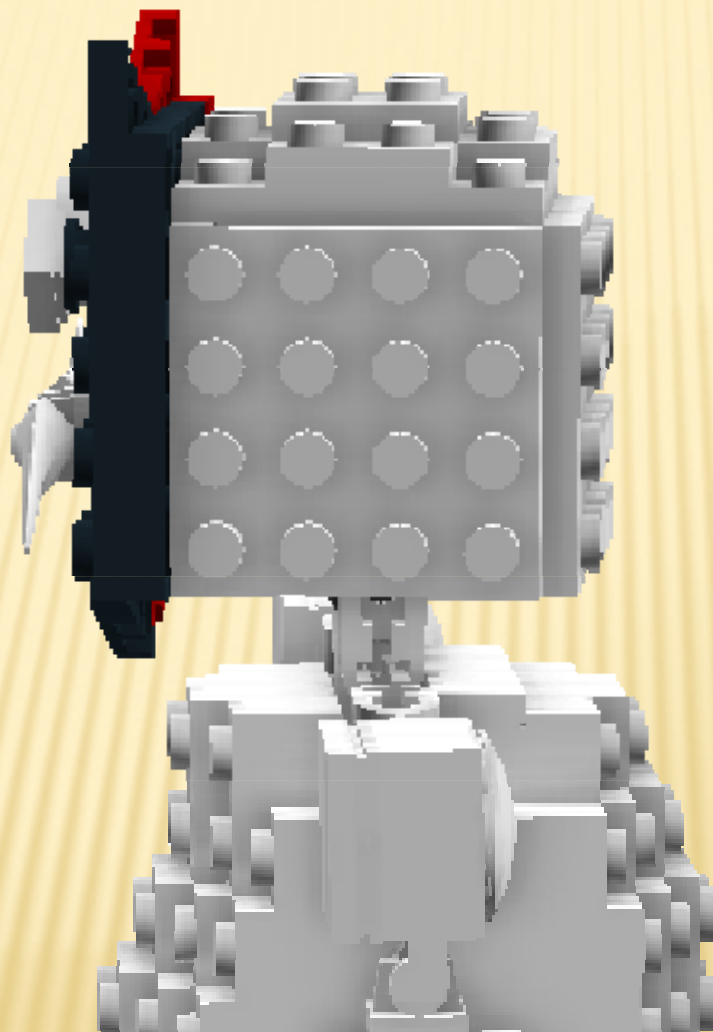
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## Step 63

Parts needed for this step: Body and Back of Head

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HINT: Grip the back of the head at the top where the connection bricks are – if you try and hold at the bottom edge it's more likely to pop apart.



ALL DONE!





# PARTS LIST – 1 OF 2

2 x		BRICK 1X1 - Dark Green	6 x		BRICK 1X2 - White	4 x		BRICK 1X3 - White
2 x		BRICK 2X2 - White	2 x		BRICK 2X2 - Dark Green	1 x		BRICK 1X4 - Bright Red
2 x		BRICK 1X4 - Dark Green	6 x		ANGULAR BRICK 1X1 - Black	4 x		BRICK 1X1 W. 1 KNOB - White
4 x		BRICK 1X1 W. 4 KNOBS - Dark Stone Grey	1 x		BRICK 1X4 W. 4 KNOBS - White	1 x		BRICK 2X2 W. BALL Ø 10.2 - Dark Stone Grey
2 x		TECHNIC BRICK 1X1 - White	2 x		TECHNIC BRICK 1X2, Ø4.9 - White	2 x		BRICK 1X2 M. 2 HOLES Ø 4,87 - White
3 x		BRICK 1X2 WITH CROSS HOLE - White	10 x		PLATE 1X1 - White	2 x		PLATE 1X1 - Bright Red
34 x		PLATE 1X2 - White	2 x		PLATE 1X2 - Bright Red	2 x		PLATE 1X2 - Black
1 x		PLATE 1X3 - Bright Red	1 x		PLATE 1X3 - Black	4 x		PLATE 2X2 - White

# PARTS LIST – 2 OF 2

1 x 	PLATE 2X2 - Bright Blue	4 x 	PLATE 1X4 - White	2 x 	PLATE 1X4 - Black
2 x 	PLATE 2X2 - White	2 x 	PLATE 2X3 - White	1 x 	PLATE 2X3 - Bright Red
1 x 	PLATE 2X3 - Black	10 x 	PLATE 2X4 - White	4 x 	PLATE 2X6 - White
7 x 	PLATE 4X4 - White	2 x 	PLATE 4X8 - White	1 x 	PLATE 1X1 ROUND - Bright Red
1 x 	PLATE 1X1 ROUND - Black	2 x 	SLIDE SHOE ROUND 2X2 - White	2 x 	RIGHT PLATE 2X3 W/ANGLE - Black
2 x 	LEFT PLATE 2X3 W/ANGLE - Bright Red	2 x 	FLAT TILE 1X1 - White	6 x 	PLATE 1X1 W. UP RIGHT HOLDER - White
4 x 	FLAT TILE 1X2 - White	1 x 	FLAT TILE 1X4 - White	6 x 	FLAT TILE 2X2 - White
2 x 	PLATE 1X2 W/SHAFT Ø3.2 - White	4 x 	PLATE 1X2 W. STICK - White	2 x 	PLATE 1X2 W. STICK 3.18 - White
2 x 	PLATE 1X2 W/HOLDER, VERTICAL - White	2 x 	FRONT, 2X2, SPORT - White	2 x 	TOOTH Ø3.2 SHAFT - White
8 x 	BAD ROBOT ARM - White	3 x 	2M CROSS AXLE W. GROOVE - Black	2 x 	CONNECTOR PEG W. FRICTION - Black
2 x 	CONNECTOR PEG/CROSS AXLE - Bright Blue	2 x 	VOODOO BALL Ø10,2 - Black	3 x 	BALL CUP 3M Ø10.2 - White