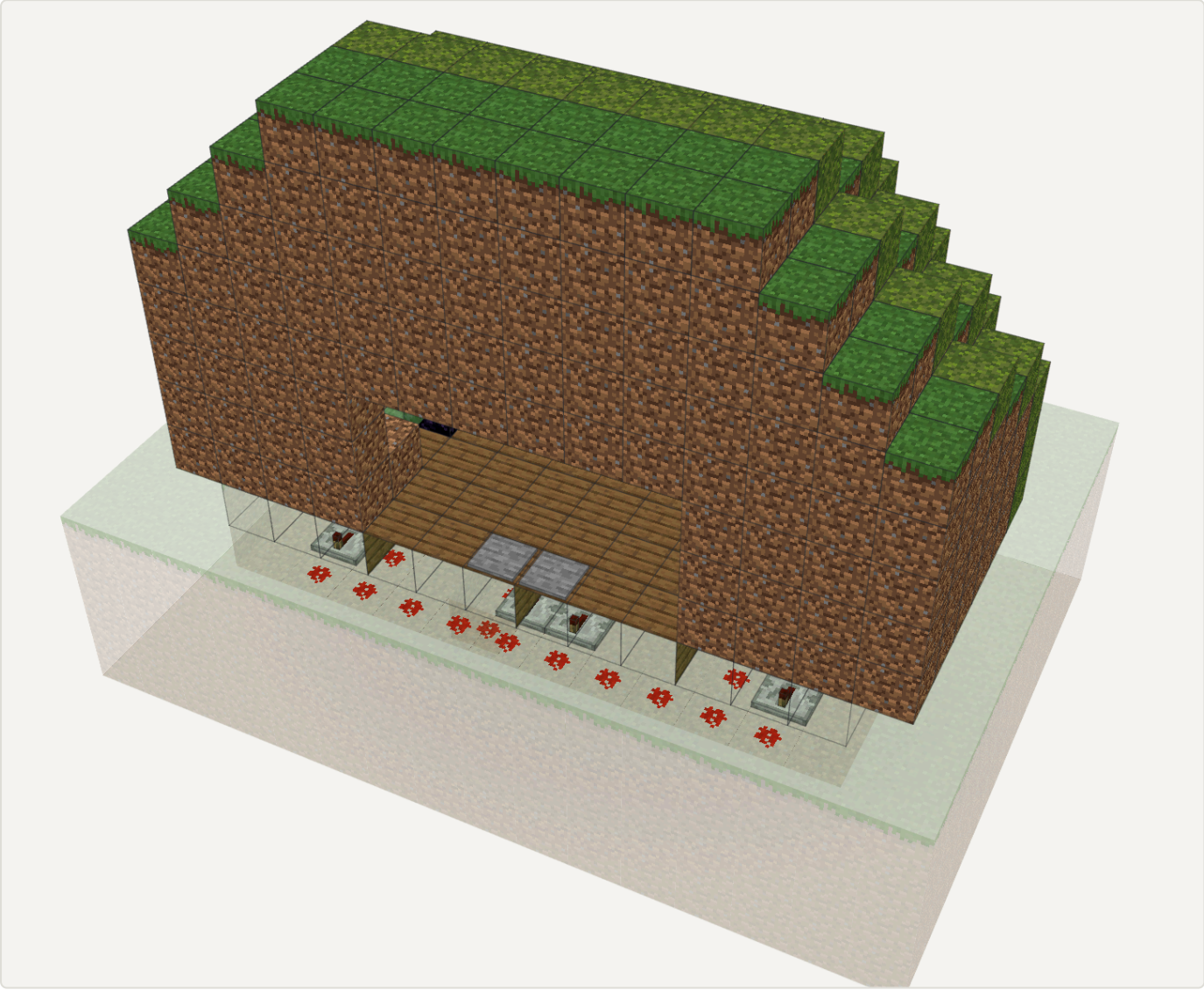
BUILD GUIDE · TECHNICAL ASSEMBLY MANUAL

# Circular Piston Door

Minecraft 26.3 · Blocksworth Tests, Build #6



**547 blocks** **34 steps** **21 different parts**

| | |
|---|---|
| 262× | Dirt |
| 70× | Moss Block |
| 54× | Spruce Planks |
| 42× | Grass Block |
| 24× | Cobblestone |
| 12× | Green Terracotta |
| 8× | Polished Andesite |
| 6× | Mossy Stone Bricks |
| 5× | Stone Bricks |
| 4× | Stone Brick Stairs |
| 2× | Obsidian |
| 2× | Rooted Dirt |
| 1× | Cracked Stone Bricks |
| 20× | Redstone Dust |
| 6× | Honey Block |
| 6× | Redstone Repeater |
| 6× | Redstone Torch |
| 6× | Slime Block |
| 6× | Sticky Piston |
| 4× | Stone Pressure Plate |
| 1× | Block of Redstone |

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# Inventory

Everything you need: 547 blocks

## BLOCKS

**262×**
Dirt

**70×**
Moss Block

**54×**
Spruce Planks

**42×**
Grass Block

**24×**
Cobblestone

**12×**
Green Terracotta

**8×**
Polished Andesite

**6×**
Mossy Stone Bricks

**5×**
Stone Bricks

**4×**
Stone Brick Stairs

**2×**
Obsidian

**2×**
Rooted Dirt

**1×**
Cracked Stone Bricks

## REDSTONE

**20×**
Redstone Dust

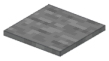
**6×**
Honey Block

**6×**
Redstone Repeater

**6×**
Redstone Torch

**6×**
Slime Block

**6×**
Sticky Piston



**4×**
Stone Pressure Plate

**1×**
Block of Redstone

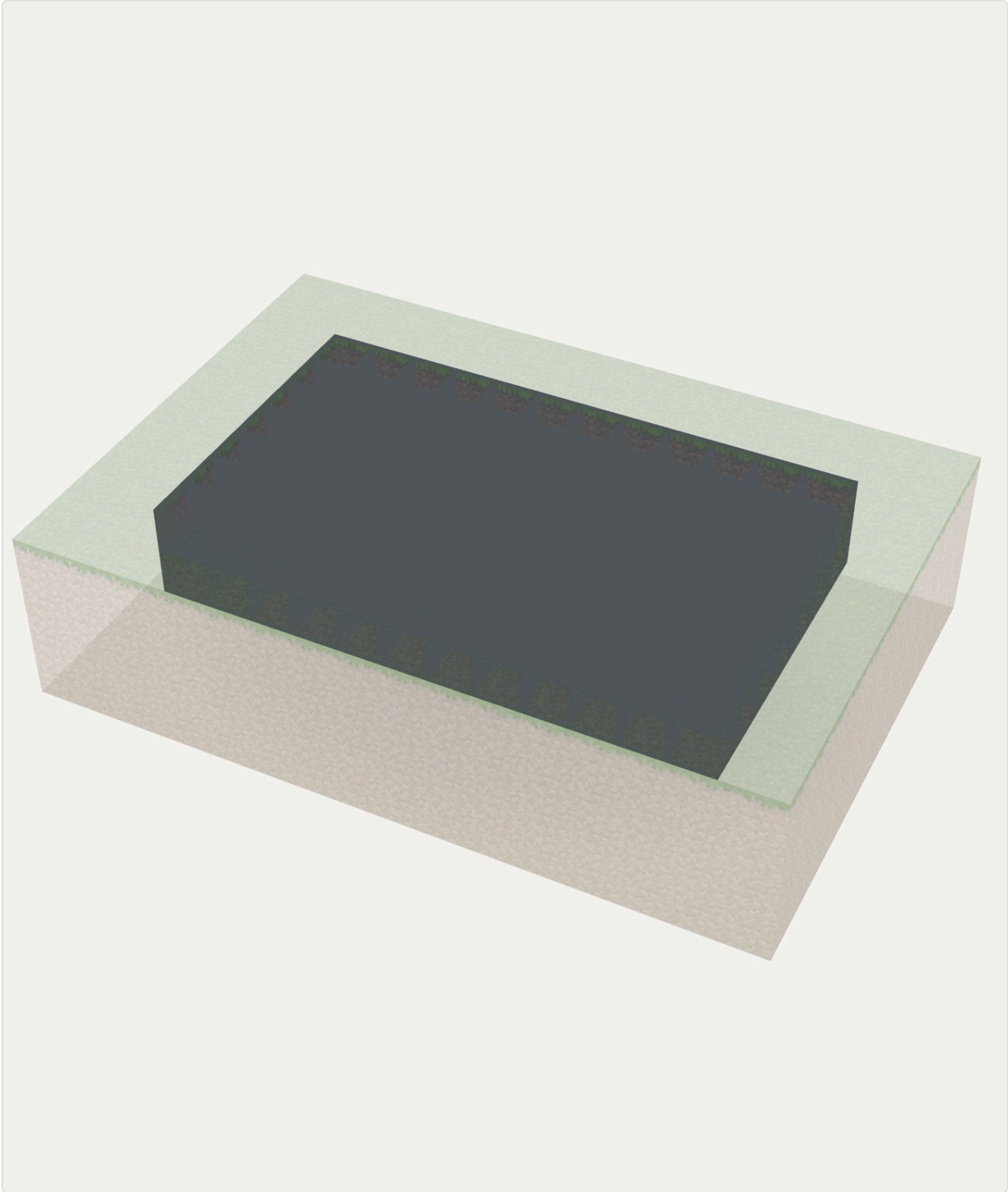
# 1

Cells to remove are outlined

**173×**
Dig out

## Dig the pit

12 wide along the wall line, 7 deep (from the outside plates to the inside plates), 2 down. Plus a 1-wide trench one deeper under the outer door column on the slime side, from the outside plates to just before the inside plates.



# 2

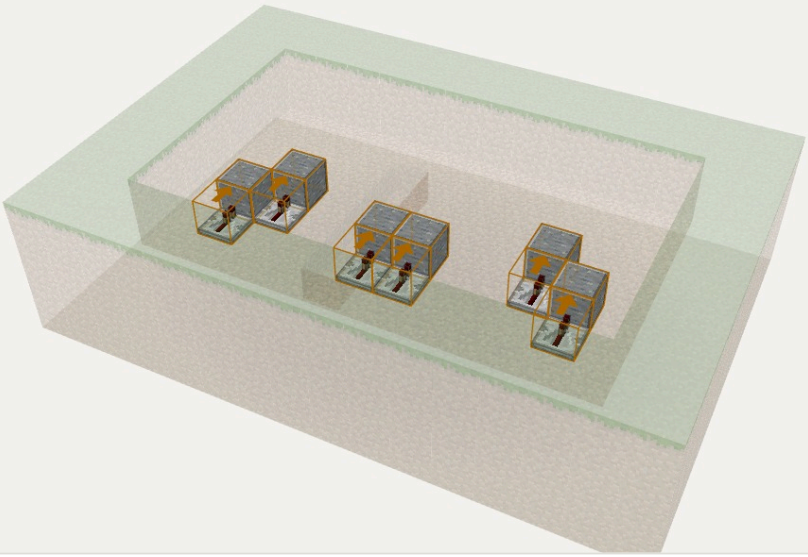
New blocks are outlined

6×
Polished Andesite

6×
Redstone Repeater

## Six blocks, six repeaters

Six blocks of any kind (the torches go on them) and a repeater pointing into each, all toward the door: follow the arrows. Leave every repeater on 1 tick for now.



FROM ABOVE

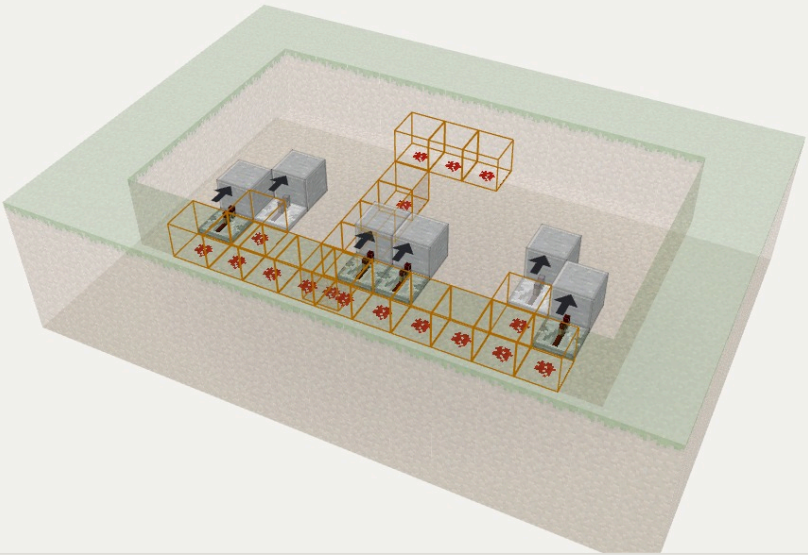
# 3

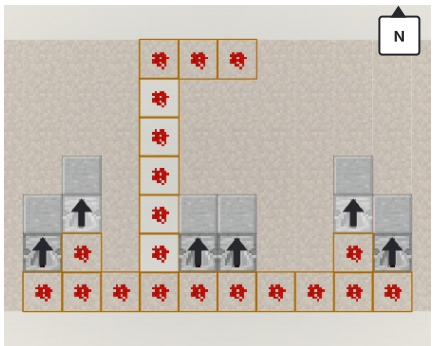
New blocks are outlined

20×
Redstone Dust

## Redstone dust

20 dust: under both outside plates, a line along the back under the inside plates that feeds the six repeaters, and down the trench to join them. No dust may touch a torch block.






FROM ABOVE · 2 LAYERS

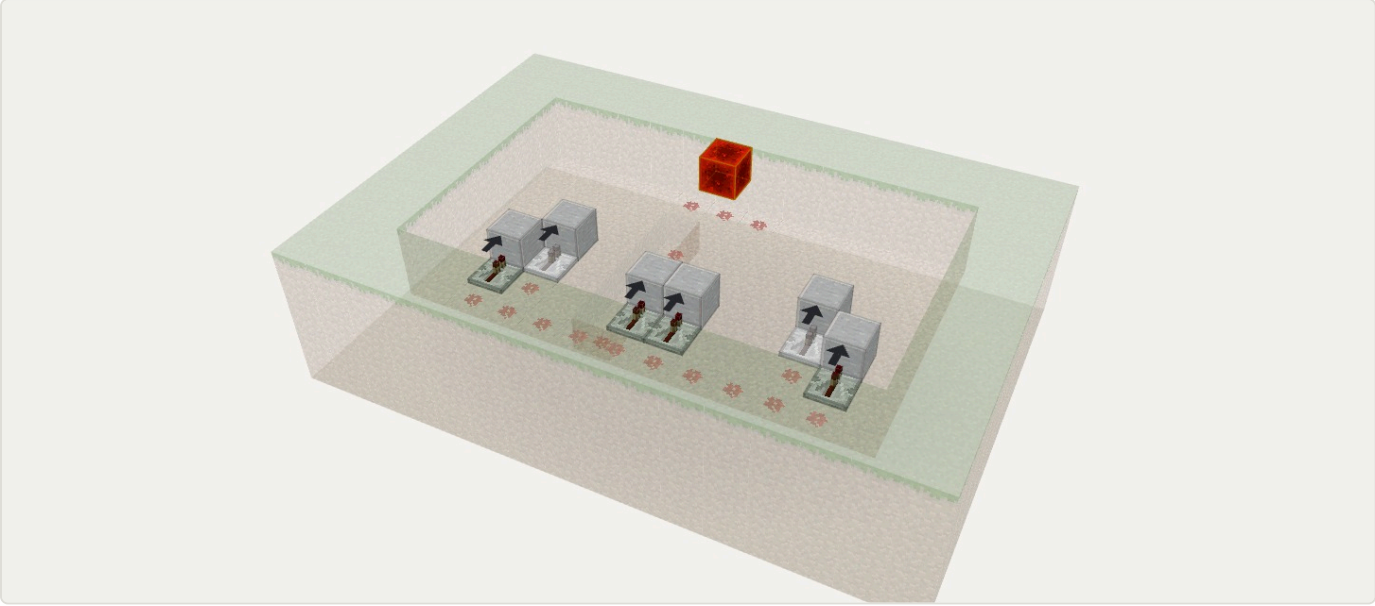
# 4

New blocks are outlined

1×
Block of Redstone

## A block of redstone, for now

Where an outside plate goes. It plays the pressure plate while you build, so the torches stay off and no piston fires early.



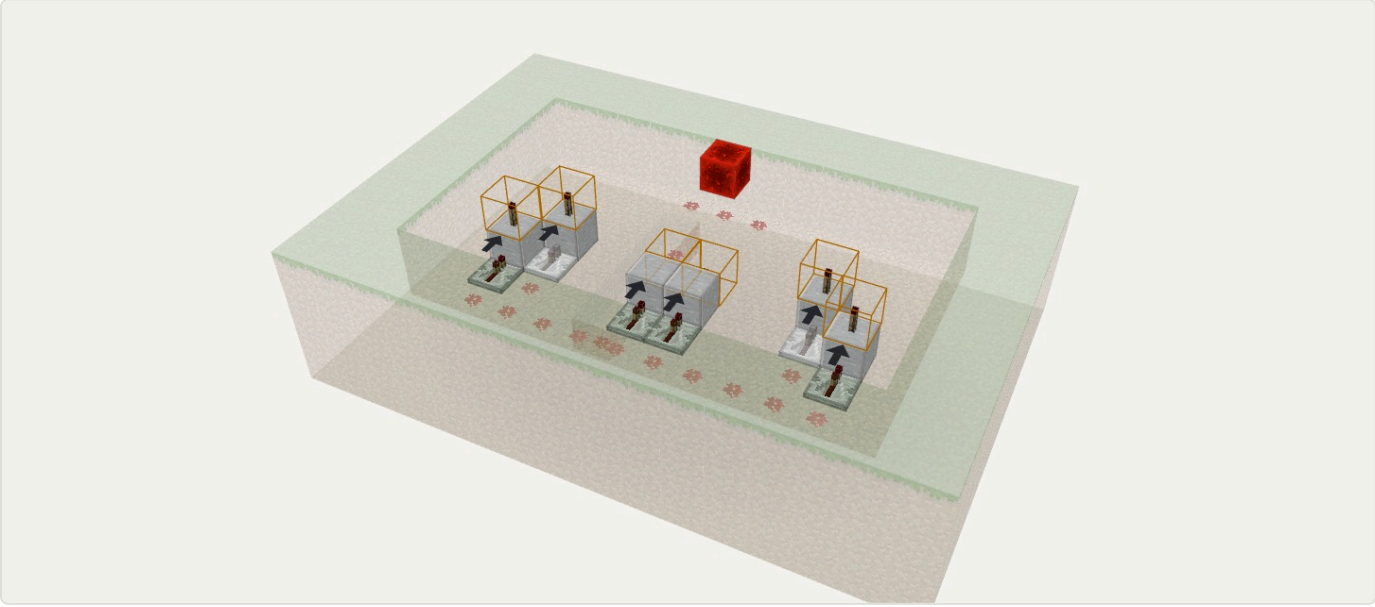
# 5

New blocks are outlined

6×
Redstone Torch

## Six torches

A redstone torch on top of each of the four side blocks, and one on the front face of each of the two middle blocks. While they're lit, the door stays shut. Place them before the bottom pistons.



# 6

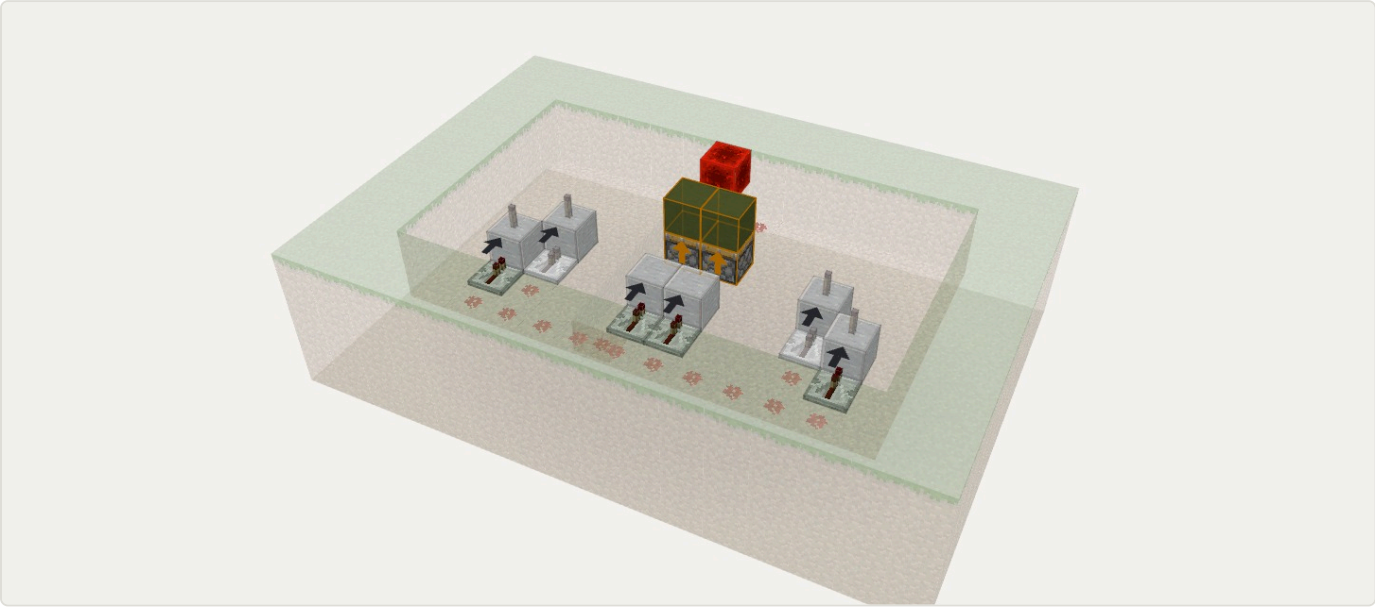
New blocks are outlined

2×
Sticky Piston

2×
Green Terracotta

## The bottom pair

Two sticky pistons facing up, right in front of the two wall torches, and a door block on each. They drop the bottom two door blocks into the floor.



# 7

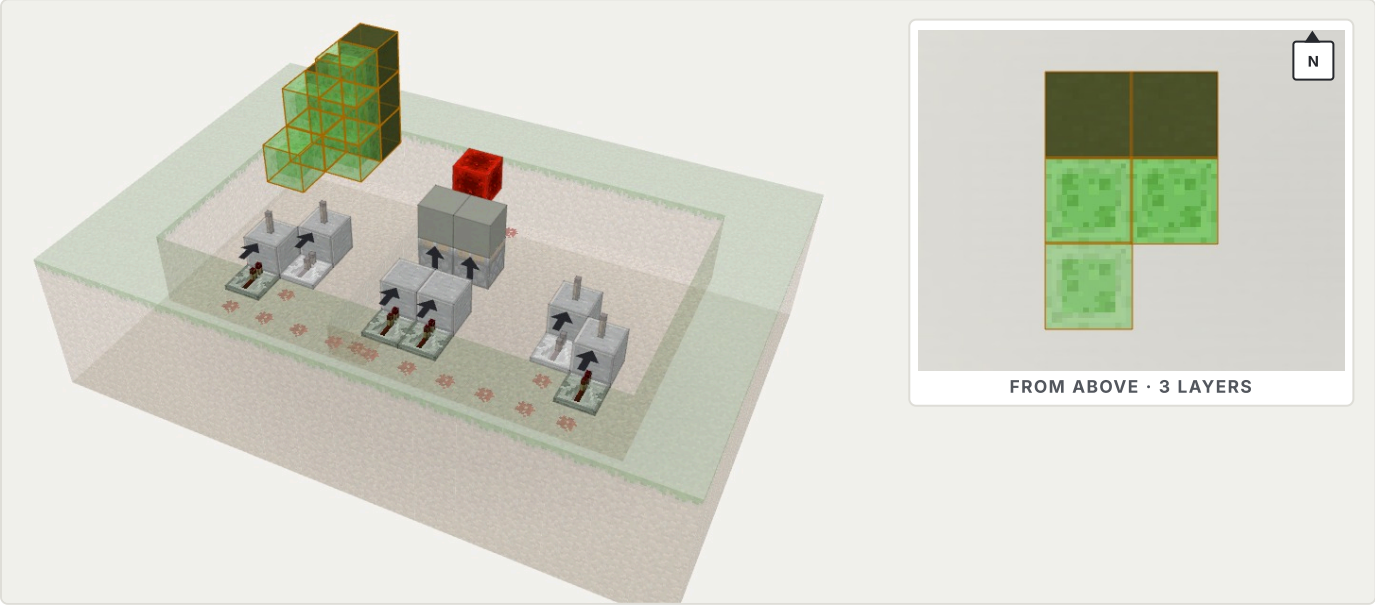
New blocks are outlined

5×
Green Terracotta

6×
Slime Block

## One half on slime

5 door blocks (a 2×2 plus one on top of the inner column) in their stored spot, two blocks beside the opening, with a slime block behind each, plus one more slime behind the lower outer slime.



# 8

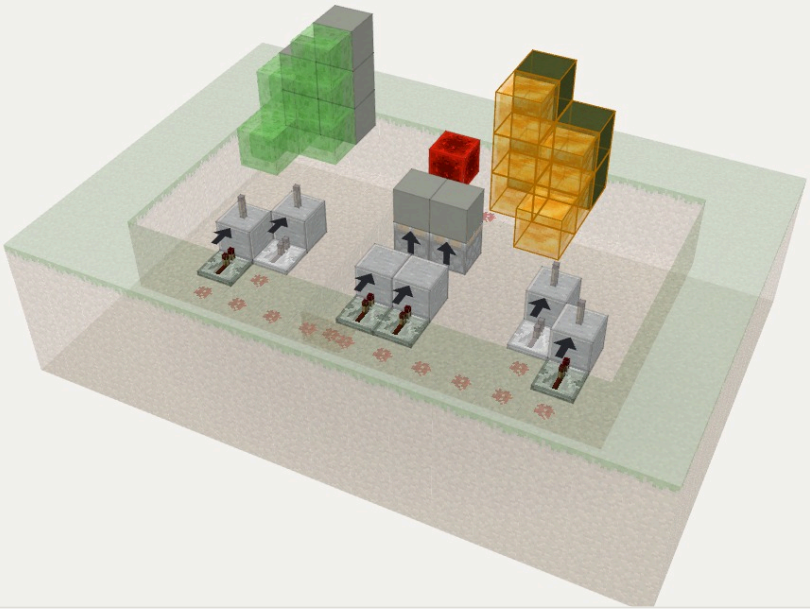
New blocks are outlined

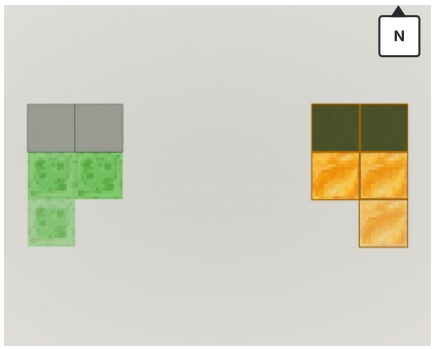
5×
Green Terracotta

6×
Honey Block

## The other half on honey

The mirror image with honey blocks. Honey doesn't stick to slime, so the door splits in two.






FROM ABOVE · 3 LAYERS

# 9

New blocks are outlined

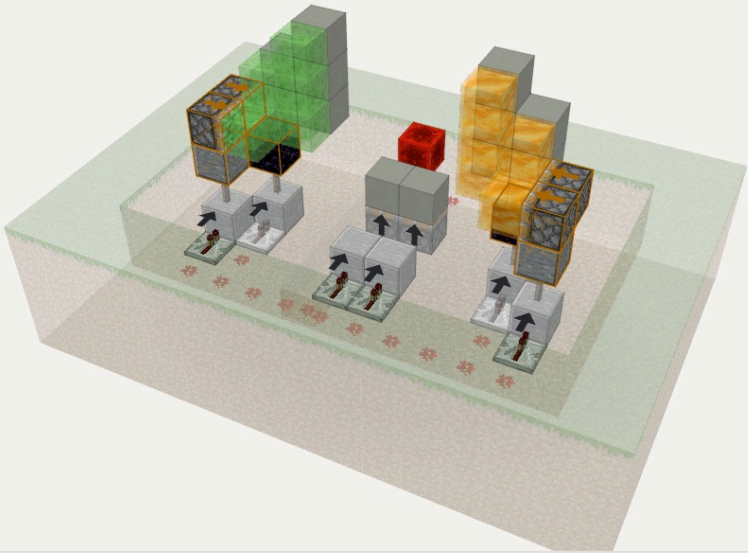
2×
Obsidian

2×
Polished Andesite

4×
Sticky Piston

## Two sticky pistons each side

Obsidian on the two front side torches (the slime slides over it: any other block would be dragged along), a block of any kind on the two back ones. Then per side two sticky pistons in the lower row, facing in, against the slime: the front one pulls the first block, the back one the second.

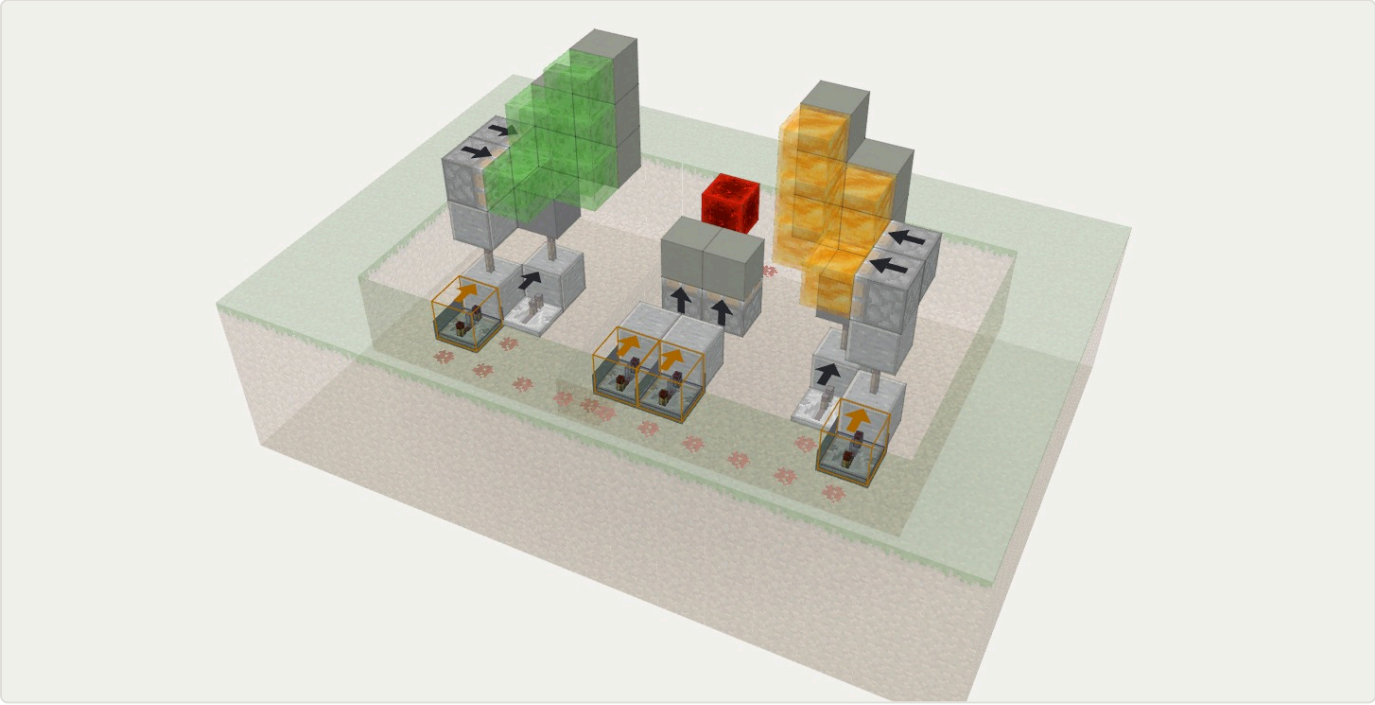


# 10

New blocks are outlined

## Back row: 4 ticks

Click the four back repeaters (the two back pistons and the bottom pair) to 4 ticks. Without it both pistons let go at once and the door stops halfway; with it the back piston waits for the front one.



# 11

New blocks are outlined

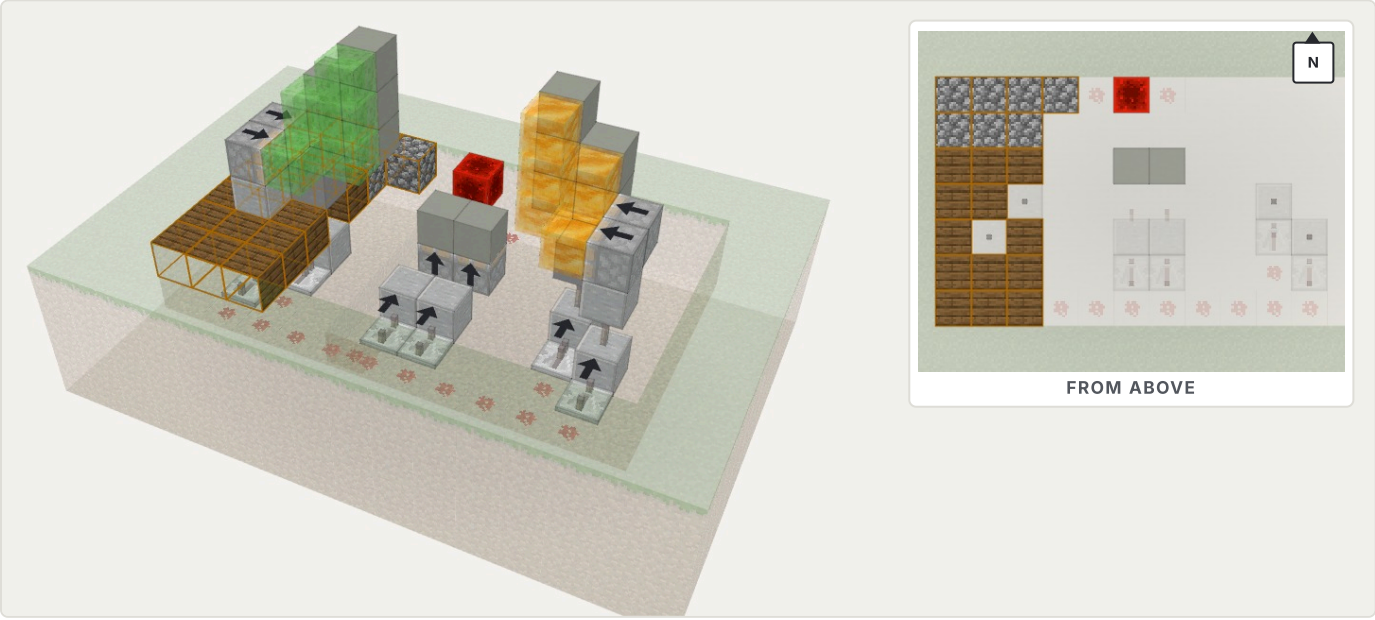
7×
Cobblestone

13×
Spruce Planks

PART 1/4

## The floor

Floor over the pit (any blocks), around the torches and the two bottom door blocks.



# 12

New blocks are outlined

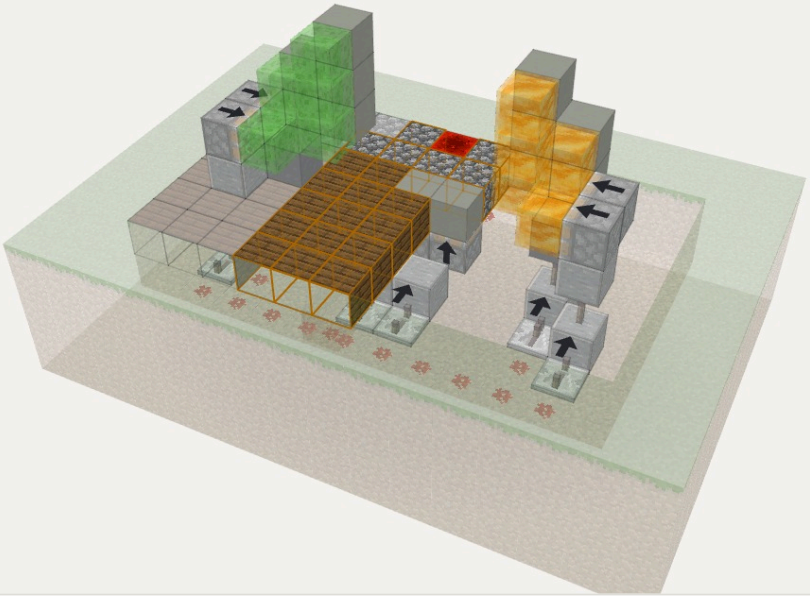
6×
Cobblestone

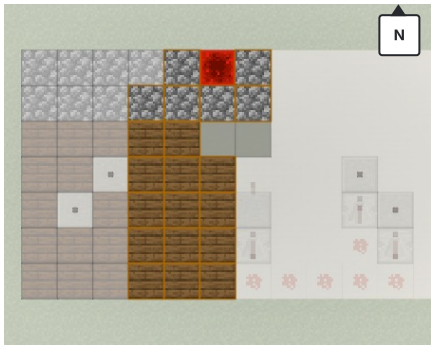
14×
Spruce Planks

PART 2/4

## The floor

Floor over the pit (any blocks), around the torches and the two bottom door blocks.






FROM ABOVE

# 13

New blocks are outlined

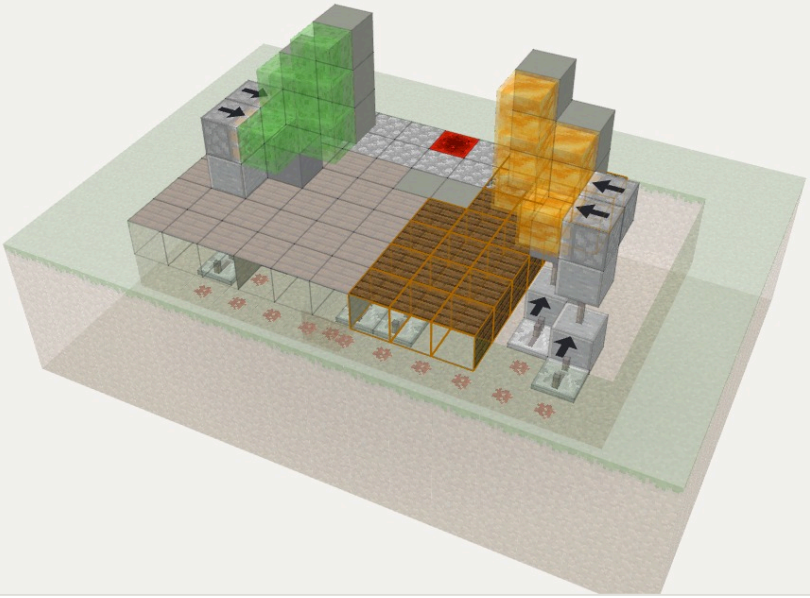
14×
Spruce Planks

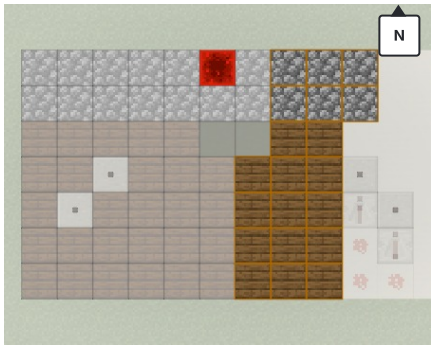
6×
Cobblestone

PART 3/4

## The floor

Floor over the pit (any blocks), around the torches and the two bottom door blocks.






FROM ABOVE

# 14

New blocks are outlined

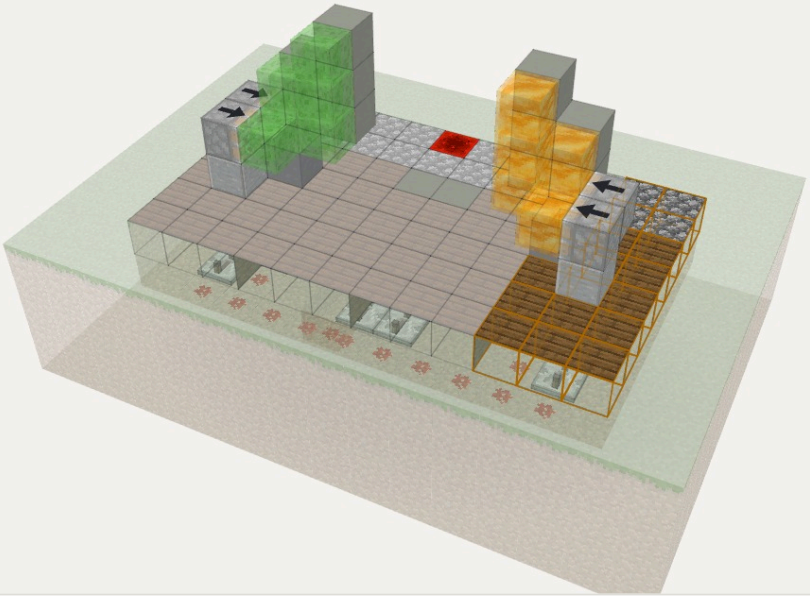
**13×** Spruce Planks

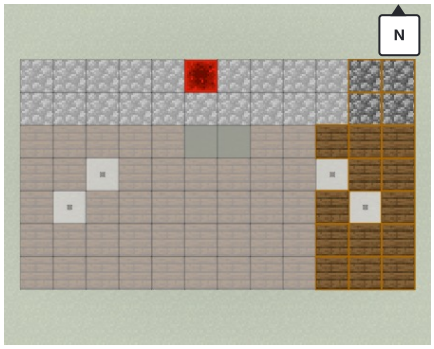
**4×** Cobblestone

PART 4/4

## The floor

Floor over the pit (any blocks), around the torches and the two bottom door blocks.






FROM ABOVE

# 15

New blocks are outlined

**5×** Stone Bricks

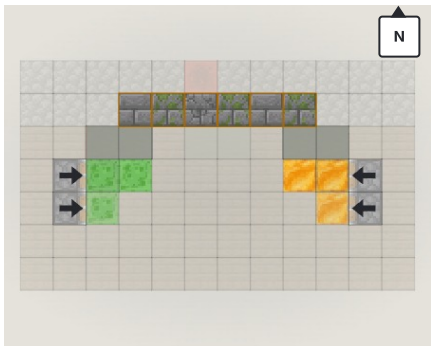
**6×** Mossy Stone Bricks

**4×** Stone Brick Stairs

**1×** Cracked Stone Bricks

## The round frame

In front of the door: a ring of stone bricks around the 12 door blocks, with stone brick stairs in the four corners of the opening so it reads round.




FROM ABOVE · 5 LAYERS

# 16

New blocks are outlined

6× Moss Block

2× Rooted Dirt

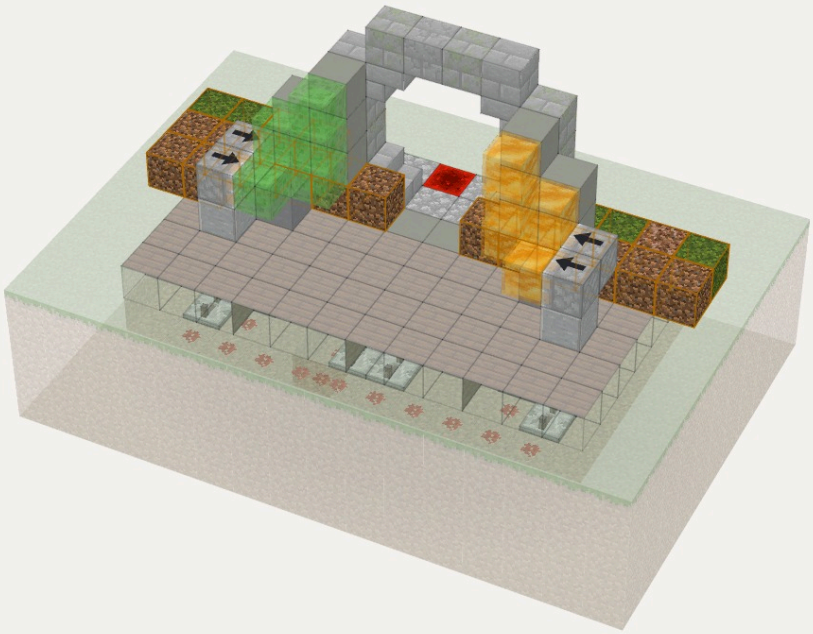
14× Dirt

PART 1/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.

FROM ABOVE



# 17

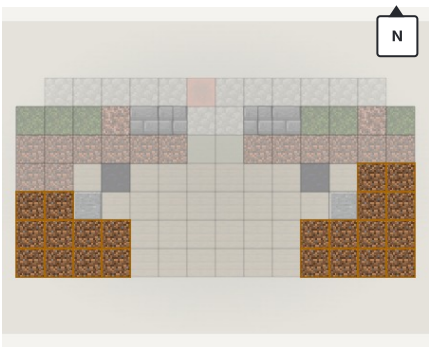
New blocks are outlined

22×
Dirt

PART 2/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE

# 18

New blocks are outlined

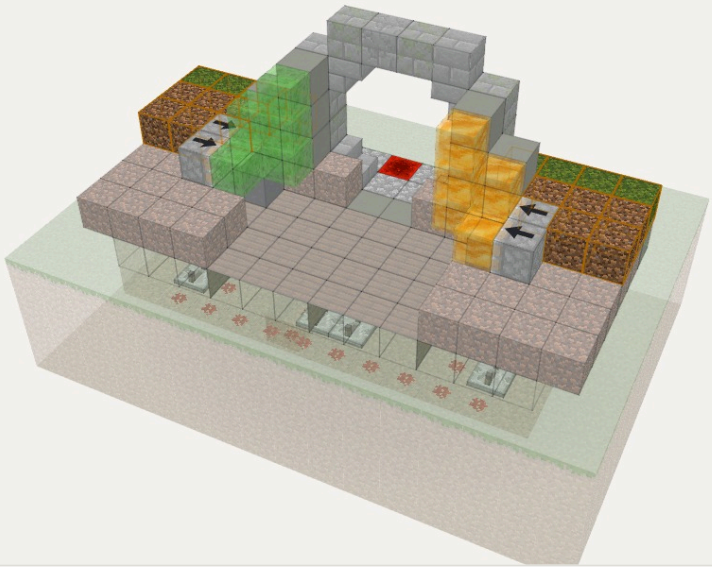
8×
Moss Block

10×
Dirt

PART 3/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.



FROM ABOVE

# 19

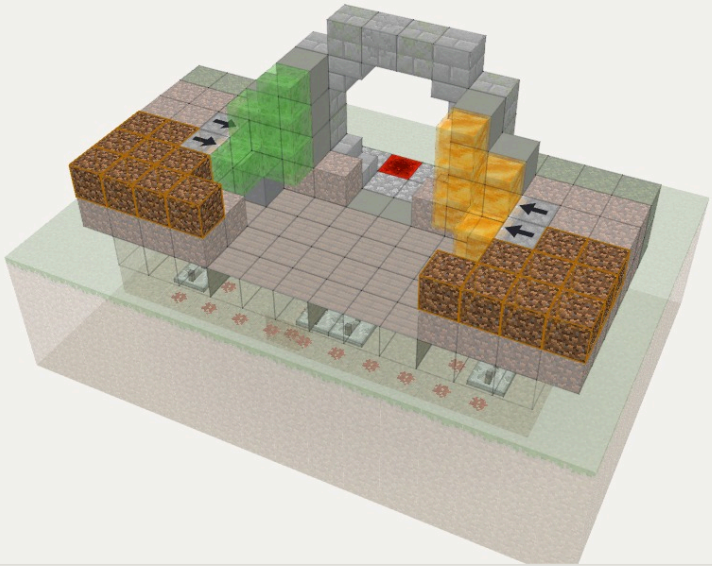
New blocks are outlined

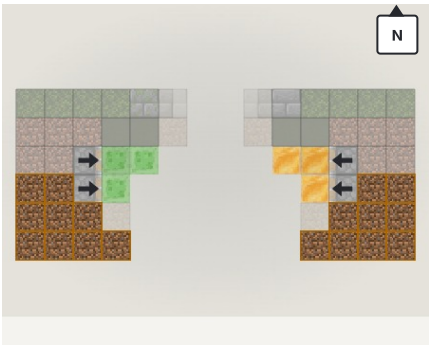
18×
Dirt

PART 4/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.






FROM ABOVE

# 20

New blocks are outlined

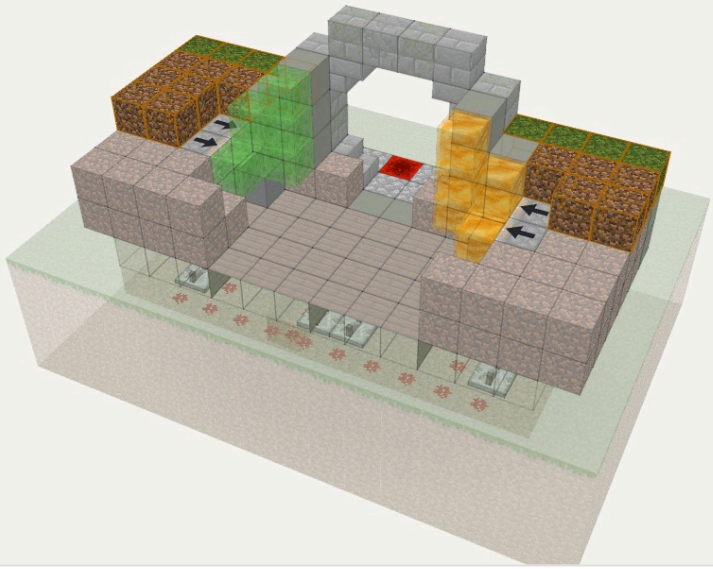
8×
Moss Block

12×
Dirt

PART 5/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.



FROM ABOVE

# 21

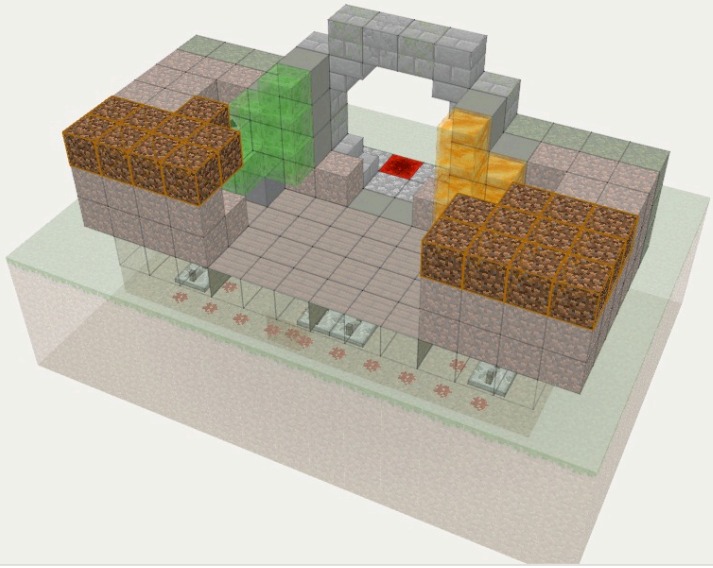
New blocks are outlined

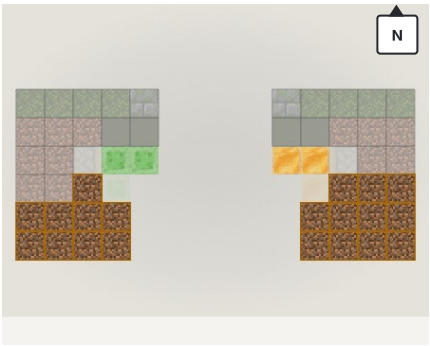
20×
Dirt

PART 6/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.






FROM ABOVE

# 22

New blocks are outlined

8×
Moss Block

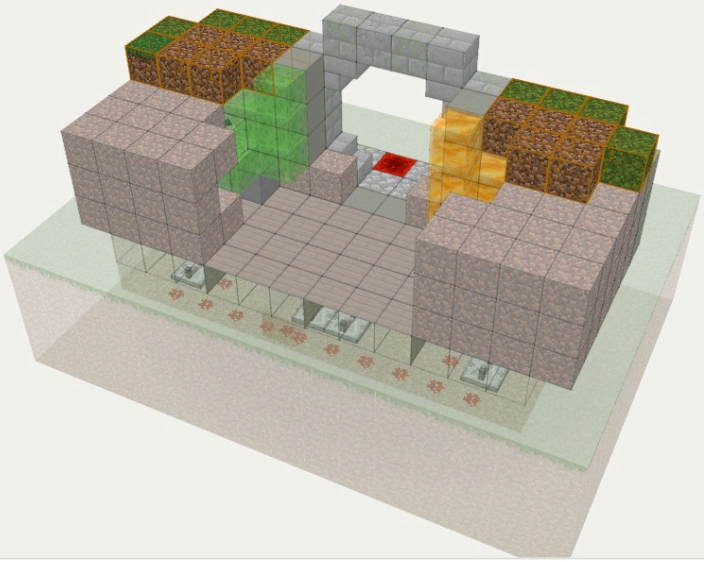
10×
Dirt

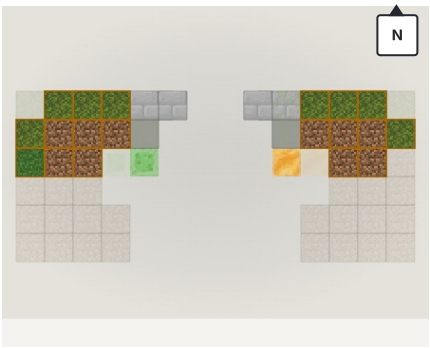
1×
Grass Block

PART 7/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.






FROM ABOVE

# 23

New blocks are outlined

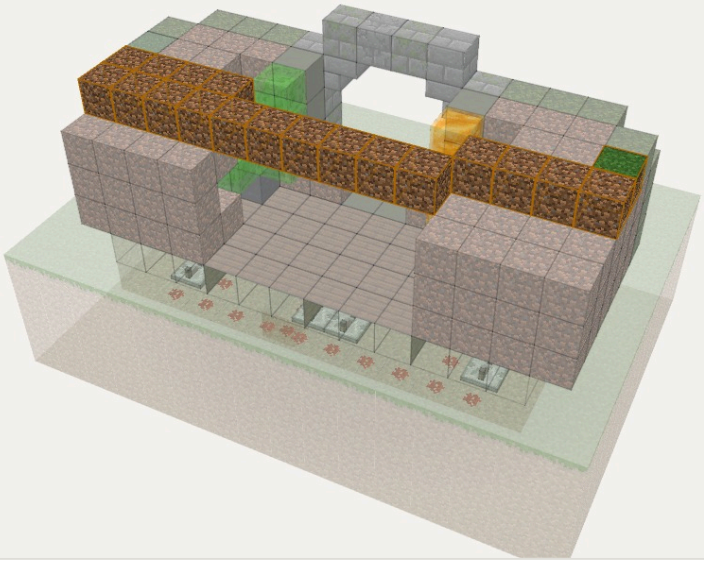
1×
Grass Block

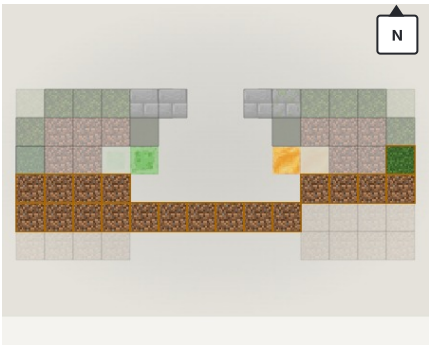
18×
Dirt

PART 8/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.






FROM ABOVE

# 24

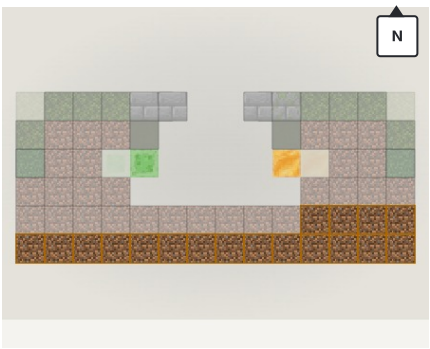
New blocks are outlined

**18×**
Dirt

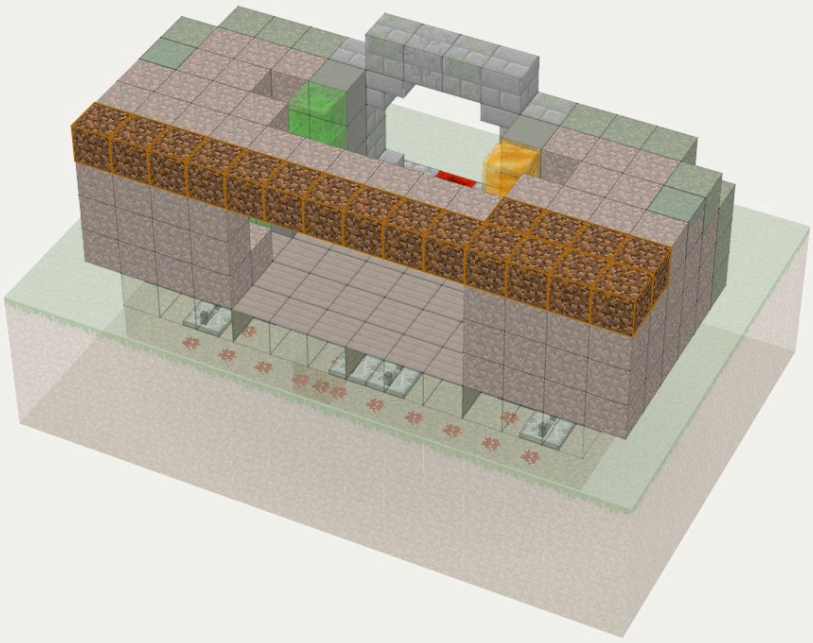
PART 9/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE



# 25

New blocks are outlined

8×
Moss Block

13×
Dirt

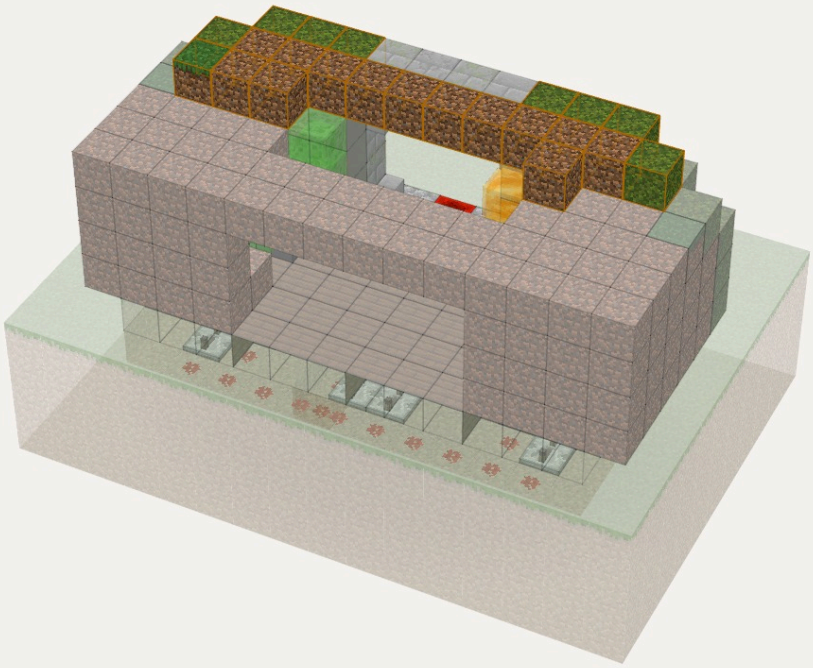
1×
Grass Block

PART 10/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.

FROM ABOVE



# 26

New blocks are outlined

**18×** Dirt

**2×** Grass Block

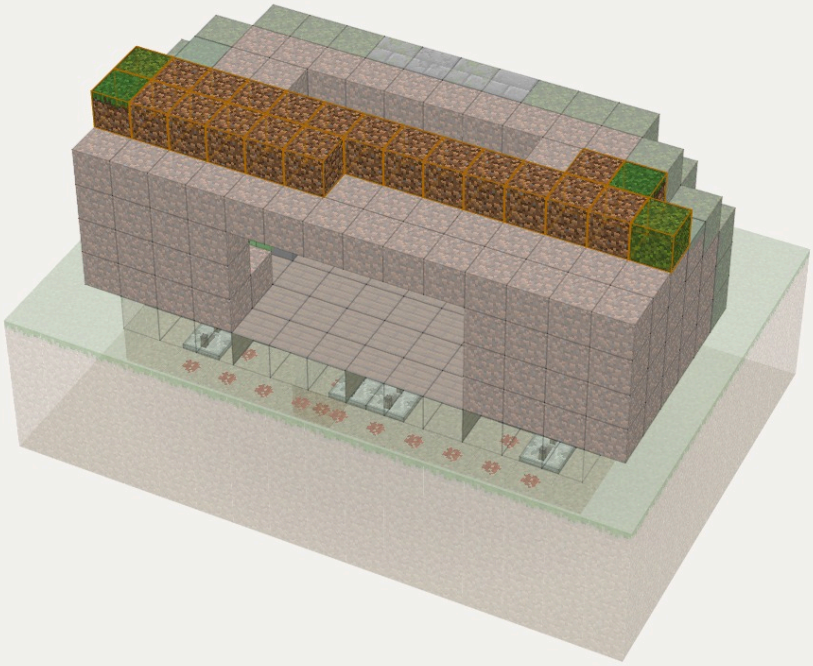
**2×** Moss Block

PART 11/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.

FROM ABOVE



# 27

New blocks are outlined

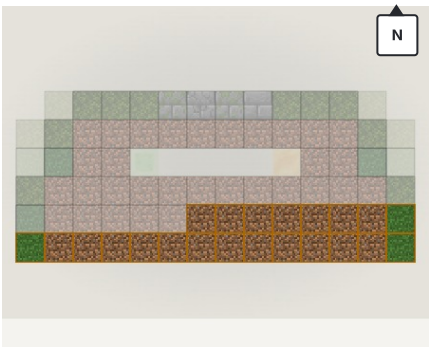
**19×** Dirt

**3×** Grass Block

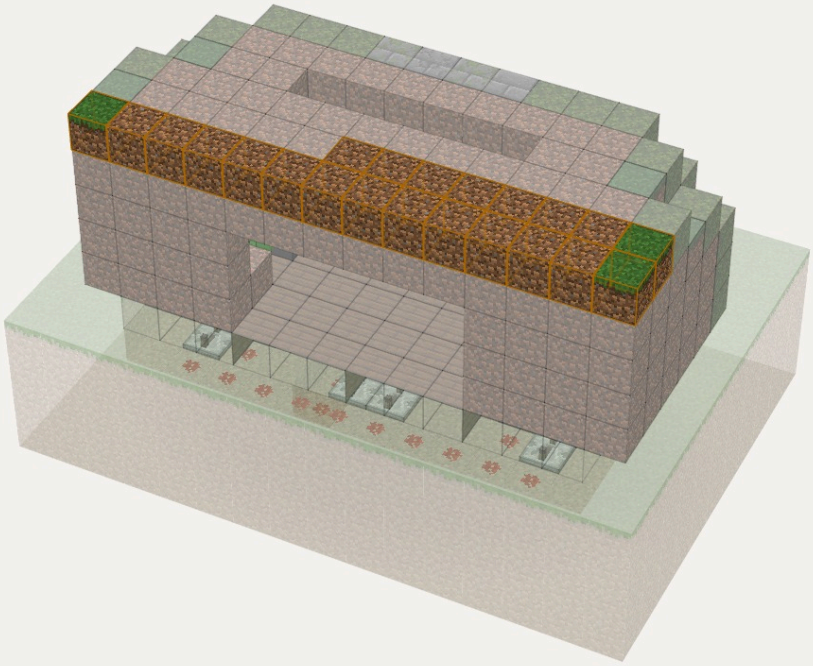
PART 12/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE



# 28

New blocks are outlined

10× Moss Block

11× Dirt

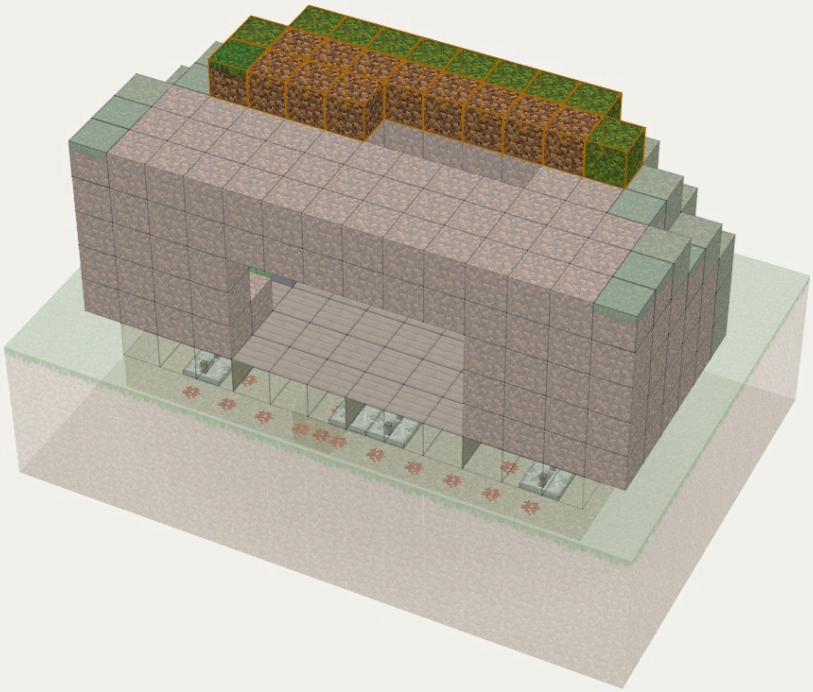
1× Grass Block

PART 13/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.

FROM ABOVE



# 29

New blocks are outlined

18×
Dirt

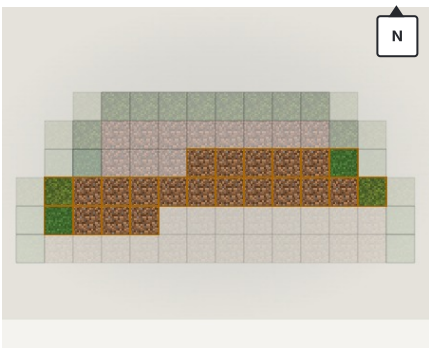
2×
Grass Block

2×
Moss Block

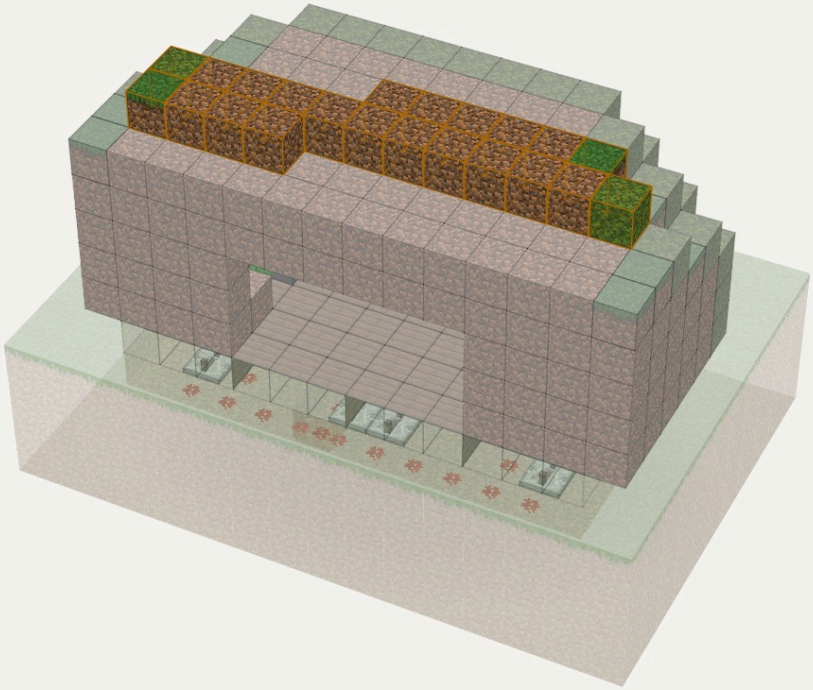
PART 14/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE



# 30

New blocks are outlined

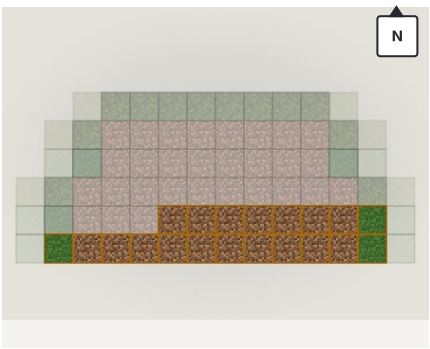
17×
Dirt

3×
Grass Block

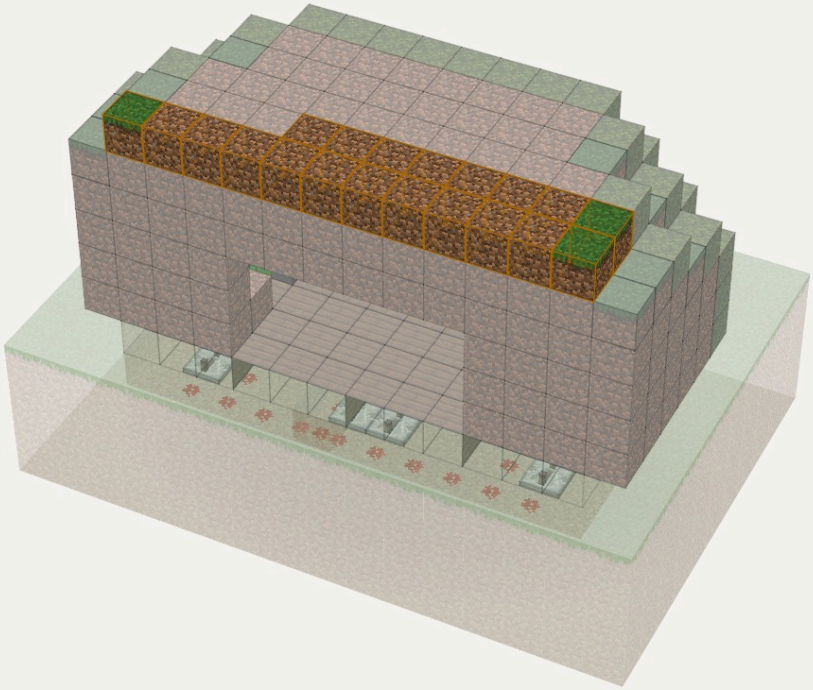
PART 15/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE



# 31

New blocks are outlined

9×
Moss Block

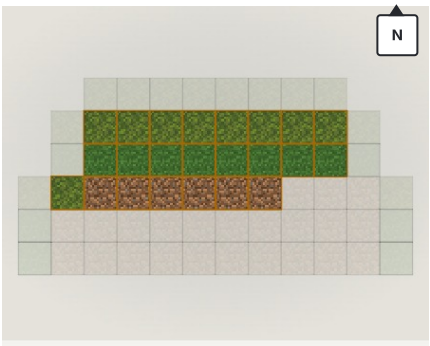
8×
Grass Block

6×
Dirt

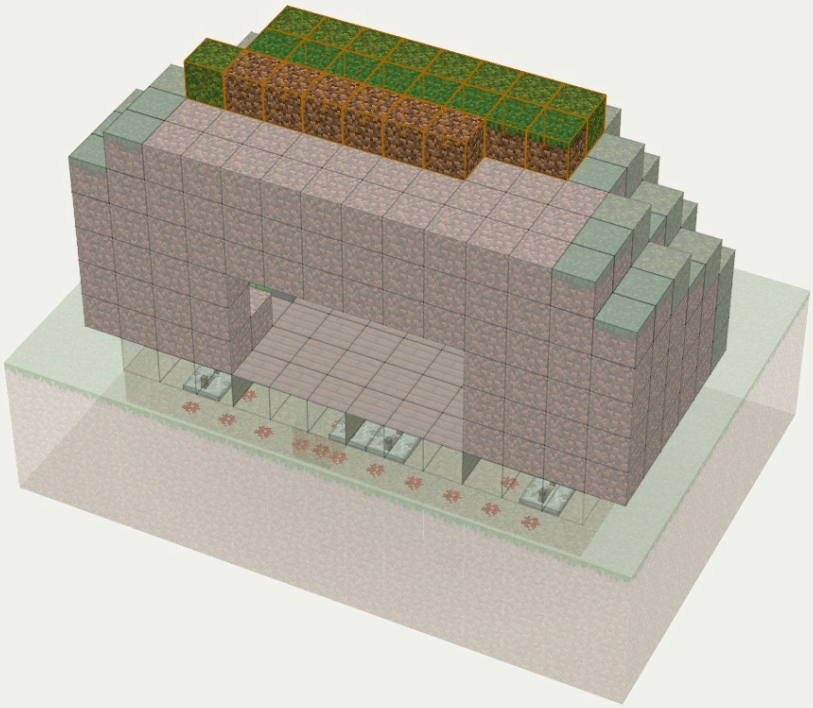
PART 16/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE



# 32

New blocks are outlined

**18×** Dirt

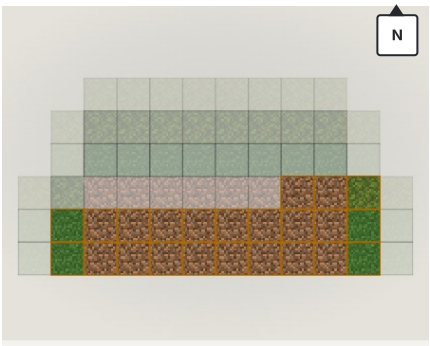
**1×** Moss Block

**4×** Grass Block

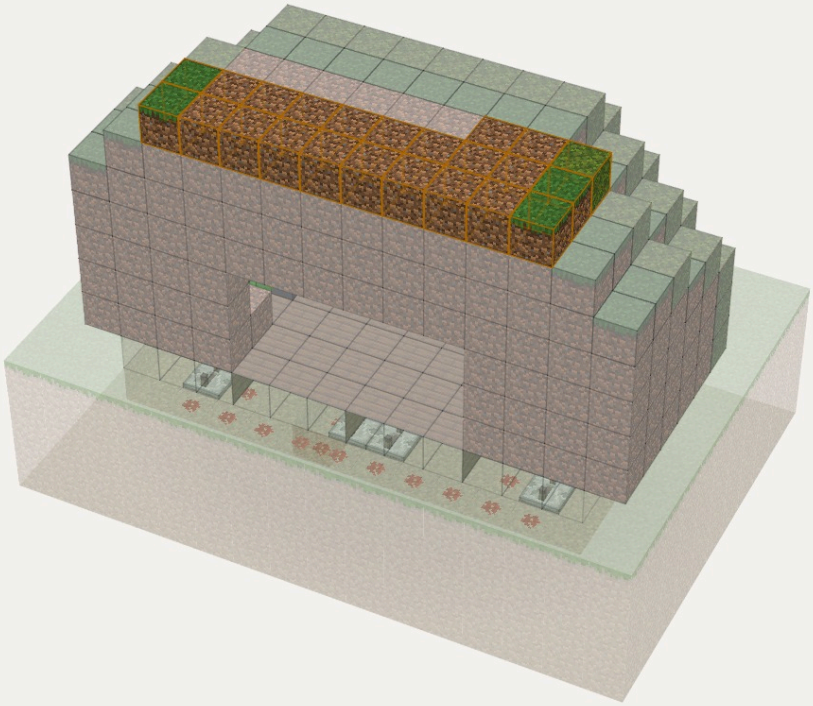
PART 17/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE



# 33

New blocks are outlined

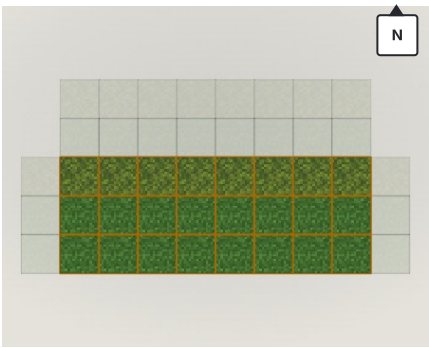
8×
Moss Block

16×
Grass Block

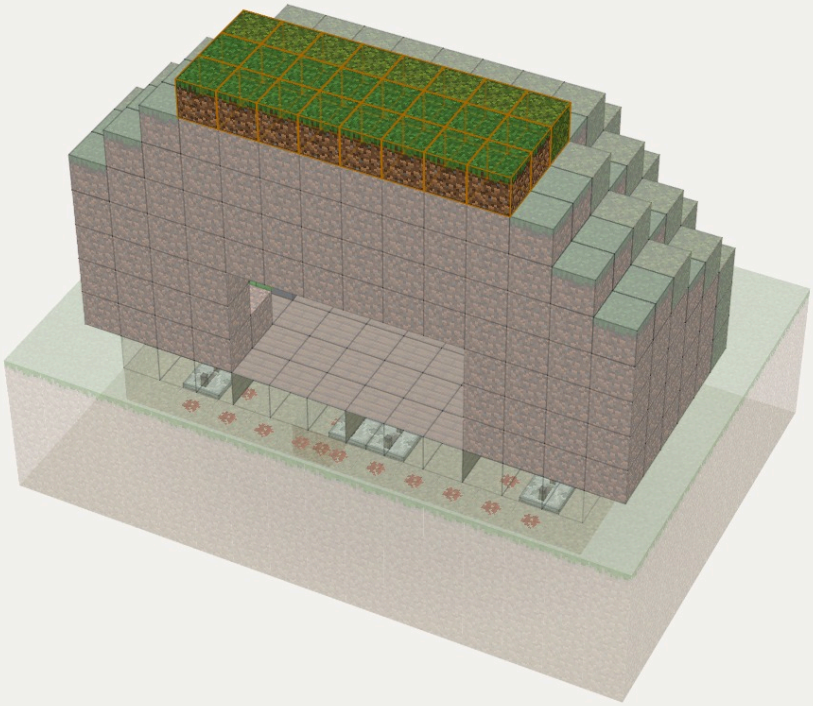
PART 18/18

## Your hill around it

Any blocks around and over the door. Keep air next to every slime and honey block and along their paths: anything touching them gets dragged along, and one block too many stops the door.




FROM ABOVE



# 34

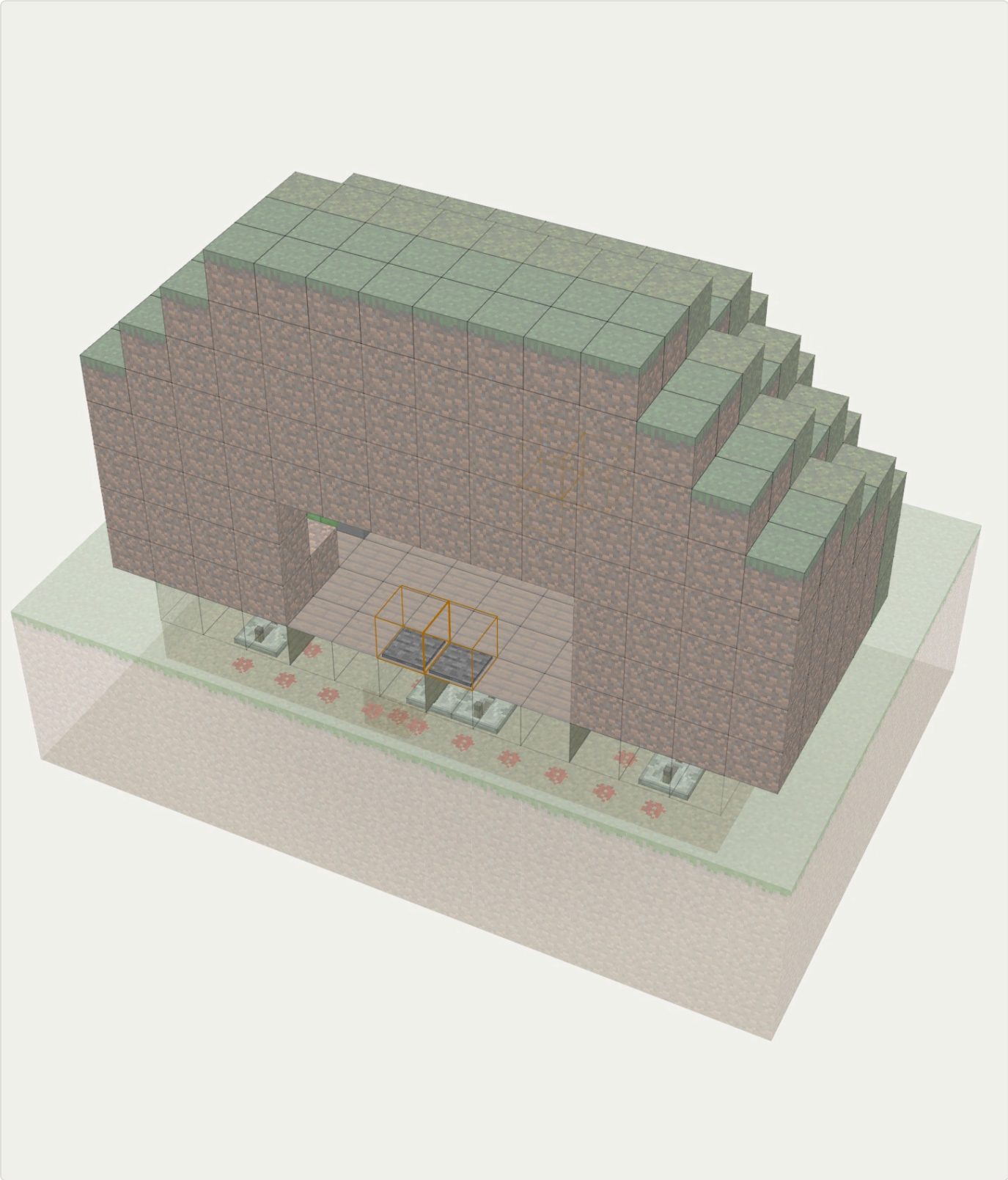
New blocks are outlined

1×
Cobblestone

4×
Stone Pressure Plate

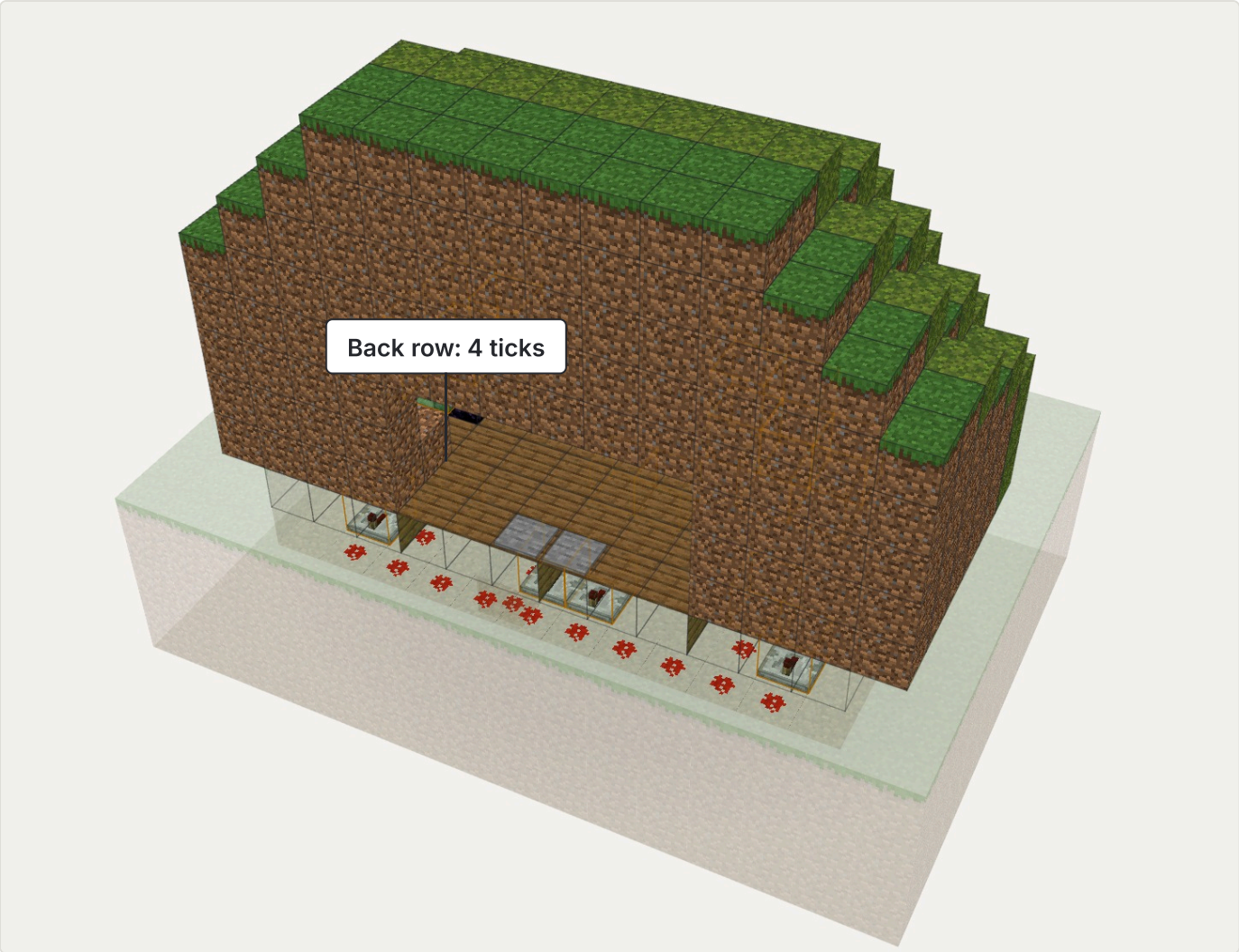
## Plates on both sides

Swap the block of redstone for a floor block: the door closes, round. Then 2 stone pressure plates outside and 2 inside.



# Finished!

## How it opens




Shown as you place it: open, the two halves stored in the hill. The opening is 4×4 without its corners, 12 door blocks. Honey and slime don't stick to each other, so the door splits: 5 door blocks on slime on one side, 5 on honey on the other, and the bottom two drop into the floor. Step on any plate and the six torches under the floor go out: first the front piston on each side pulls its half one block, then (the back row of repeaters waits 4 ticks) the back piston pulls it the second block; the front piston is now touching the slime and gets pushed along. Step off and it runs backwards: the back piston pushes the half in and drags the front piston onto its obsidian, the front piston pushes it home. With every repeater on 1 tick both pistons let go at once and the door stops halfway. Each half plus its front piston is 12 blocks, the most a piston can move: nothing else may touch the slime or honey. Tested in Java 26.3: 160 clean open/close cycles, 40 from each plate; the doorway is clear 0.6 s after you step on, it shuts 2 s after you step off. One quirk: step back on exactly half a second after it starts closing and it stays shut once; step off and on again.

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