



Merchant Venturers School of Engineering
Outreach Programme

Minecraft Redstone

Part 1 of 2: Answers

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1 Introduction

Questions

1. What kind of block is the Redstone ready world made from?

Sandstone

2. How many blocks vertically downwards are there till you reach the bedrock?

55 (may vary if inside certain structures)

2 Placing and Powering Redstone

2.1 Boosting power

Questions

3. Which side of a repeater accepts power in?

Side with the slot / slider.

4. Which side of a repeater outputs power?

Side with the fixed-position stick.

5. How far (counted in blocks) does power travel out of a repeater?

16

3 Redstone Torches

3.1 Torch on a block

Questions

6. What would happen if you powered a block using a wire from a torch placed on the same block?

Feedback loop causing rapid on/off switching. Eventually the torch burns out i.e. stops working.

7. When you power on the wire, is there a delay before the torch on the block switches off?

Yes - 1 tick

3.2 NOT and NOR gates

Questions

8. What happens when you power the input of the first NOT gate?

Feedback loops causes flickering. Eventually, the torch "burns out" i.e. stops working.

9. Is two NOT gates in a row like this, the same as a repeater?

Yes but two tick delay not one tick and takes up more space.

Questions

10. What combination of inputs makes the lamp switch on?

All inputs must be off.

11. What combinations of inputs makes the lamp switch off?

One or more inputs being on.

12. If you wire all three inputs together, then put them into the block, is it the same thing?

Yes. Wire together is an OR gate. The block and torch forms a NOT gate. Combined as OR followed by NOT, they make a NOR gate.

Questions

13. What is the output of a NOT gate if its input is on?

Off.

14. What is the output of a NOR gate, if it has three inputs of which two are on and one is off?

Off.

4 Using NOR gates

4.1 AND gates

Questions

15. Which inputs to an AND gate have to be on to make the output (i.e. the lamp) switch on?

Both inputs must be on.

16. Which inputs to an AND gate can be off to make the output (i.e. the lamp) switch off?

Either or both can be off.

4.2 Locked doors

Questions

17. What is the delay between switching the levers and the door opening and closing?

(May depend on what circuit they've actually built). For the intended circuit: Min=5 ticks, Max=6 ticks

18. Can you work out what is causing this delay?

Delay is caused by torches on blocks i.e. the NOT/NOR gates and the door has a 1 tick switching delay

19. Here's a tricky one for you: Can you make the circuit smaller?

Yes. Can be compacted to one NOT gate per "on" lever and one combining NOR gate (no need for repeater). Can be made either 3 blocks wide, 1 high or 3 blocks high and 1 wide.

20. Lastly: Does making the circuit smaller reduce the open/close delay?

Yes. Min=1 gate between levers and door=2 tick delay, Max=2 gates between levers and door=3 tick delay - twice as fast!