

3D Printer Escape Room: Program Outline

Summary

You and your friends are about to start a tour of 3D Tech Labs when you find out that Doctor Maker has a surprising secret. She has 3D printed a lock with a button inside. If the button is not pressed in exactly 45 minutes, a jail cell will be 3d printed all the way around the library, and you'll be stuck inside! You'll have to work together to solve the clues and 3D print the key.

Time: 45 minutes

Ages: 8+

Recommended number of players: 10 - 15

Materials Needed

- 4 digit number lock
- 3 digit number lock
- 5 letter combination lock
- 5 arrow combination lock
- lock and key (in addition to the 3d printed one)
- clasp
- usb key
- uv flashlight
- a 3d printer and computer with printer software (internet disabled)
- 2 boxes that can be locked with the clasp / the lock and key
- 5 small glass jars
- **Key Riddle** printed out on paper
- 3D model: **Tiny Secret Book by nullgel** (Creative Commons – Attribution – Non-Commercial)
 - Print 5 of these – the pages in white and the covers in any other colour.
- 3D model: **Low Poly Bear** by sryde (Creative Commons – Attribution – Share Alike)
 - Print 15 – 20 of these models, scaled down to a smaller size
- 3D model: **Fully Printable Padlock** by ttsalo (Creative Commons – Attribution)
 - This model requires some sanding before it is fully functional.
- 3D model: The arrow file from **Reddit Upvote/Downvote Button Enclosure** by TheNewHobbyist (Creative Commons – Attribution – Non-Commercial)
 - Print 5 of these **at 0.5 scale** in the following colours: orange, red, blue, green, and purple.
- 3D model: **Numbers 0 – 9** by karissafepl (Creative Commons – Attribution)
 - Print 10 times in 10 different colours. Then I removed the 4, 7, and 8 from one set.
- Any other random 3D models for decoration

Set Up

Room

- 15 chairs are set up facing the front of the room
- 3D printed padlock is locked and sitting on a table at front of the room
- A computer displays a 45 minute timer
- A screen at the front of the room shows the time lapse video on loop
- 3d printer and computer are set up on a table in the room
- large box is set up on a table in the room
- small box is hidden the room

Lock Codes

- Directional lock: up, down, up, up, down
- 3 digit lock: 478
- 4 digit lock: 9845
- 5 letter lock: BEARS
- key lock: key hidden in the room (could be taped inside of a 3d printed model)
- 3D printing padlock: key must be 3d printed to escape

Small Zippered Box

- locked with the key lock
- contains uv flashlight, riddle note, and 15 printed **Low Poly Bears**.

Large Box

- secured with the clasp and the following locks:
 - Directional lock
 - 5 letter lock
 - 3 digit lock
 - 4 digit lock
- Contains the USB stick, nothing else.

USB Stick

- Loaded with 5 stl files named:
 - Air (**Zelda Boss Key**)
 - Fire (**Tooth-paste / Paint Tube Key**)
 - Earth (**Borderlands 2 Vault Key**)
 - Water (**Customizable House / Padlock Key**)
 - Time (the key from the **Fully Printable Padlock**)
- **To increase difficulty, scramble the letters in the title of each file (eg: ira, fier, thear, tawer, miet)**

Poster

- Reads "In case of emergency: Turn machine off and on again"
 - This text can be changed, as it is just a distraction
- In UV ink, OR in yellow highlighter on yellow paper, the following code should be written:
 - Red
 - Orange
 - green
 - blue
 - purple

Secret Books and Arrows

- Glue one 3d printed arrow into the each of the secret compartments of the 3D printed books. Use super glue or a hot glue gun, and position them in the following order:
 - red – up
 - orange – down
 - green – up
 - blue – up
 - purple – down
- OPTIONAL: the arrow model prints 2 arrows of each colour. You can glue the second arrow of each colour to a piece of cardstock, all facing towards random diagonals. Write the text “FIND ME” on the cardstock.



Numbers

- You should have 10 sets of **numbers 0 – 9**, each in a different colour. Pick one set, and remove the numbers 4, 7, and 8. Make sure these 3 digits are not in the room. You can recycle them.
- Take 5 small jars, and number the lids 1 – 5 with permanent marker.
- Divide the numbers randomly in the 5 jars, mixing up sets. Ideally, each jar would have some of each set inside.
- Place jar #5 on a desk in the room, and hide the rest in different places around the room.
- You could tape them under tables or chairs, put them inside different drawers, behind some books, etc

3D Printer and Computer

- Your 3D printer should be set up and turned on in the room, ready to print
- A computer should be connected to the printer, with the software open and ready to print
- Disable the internet on the computer so that players can't search thingiverse for the model

Video

- A time-lapse video will need to be projected onto the wall, or playing on a tv or computer screen. Make sure it plays in a loop. The video is available [here on YouTube](#), however, you will need the file to set it to loop. **Contact me, and I will e-mail you the file.**

How to Escape

- Find the key and unlock the small box.
 - this will reveal the bears, the uv flashlight, and the riddle note
- Find all 5 jars and organize the numbers into sets
 - this will reveal the missing 4, 7, 8, which is the code for the 3 digit lock
- Watch the time lapse video and notice the numbers in file names in the corner of the screen.
 - This will reveal the 4 digit code: 9845
- Find the secret books and the arrows inside.
 - Use the UV flashlight to find the code on the poster: Red, orange, green, blue, purple
 - match up the directions of the arrows with the order of the colours
 - Reveals the code for the directional lock: up, down, up, up, down
- Examine the models inside of the small box.
 - Reveals the 5 letter code: BEARS
 - This one is deceptively simple. You could make it more difficult by creating a
- After opening the large box, they will find the USB stick
- Plug the USB into the 3d printer computer and reveal 5 stl files
 - Each title is a word: air, fire, water, earth, and time
 - Use the riddle on the note to find the answer “time”
 - Send the “time” model to the 3d printer
- Use the key to open the 3d printed padlock

3D Printer Escape Room Script

The escapees are let into the room, and asked to sit in the chairs provided.

Doctor Maker and Doctor Filament are in the corner of the room whispering intensely. Both are wearing ridiculous costumes: a lab coat, a jumbo pair of glasses, fake moustache, etc. Doctor Filament has a clipboard, and continually makes notes on it. Filament elbows Maker and gestures towards the group.

Doctor Filament: They have arrived for their tour, Doctor Maker!

Doctor Maker: Oh! You're here! Welcome to 3D Tech Labs – your one stop shop for everything 3D printing. I'm Doctor Maker, and this is my colleague Doctor Filament.

Filament: As I'm sure you know, 3d Tech Labs is known around the world as the best 3D printing factory in the history of 3D printing factories. We have machines that print robotic arms, machines that print cars, and even machines that print more machines! There's nothing we cannot print.

Maker: If you could have anything 3D Printed, what would you print?

take suggestions from the crowd, improvise answers, saying that 3D Tech Labs can print everything they suggest

after 4 or 5 suggestions, Filament nudges Maker and points dramatically to the clock

Maker: Oh yes, right. This tour is exactly 45 minutes long, and we shouldn't waste any of it dilly-dallying! In fact, if I don't unlock this lock *points to 3d printed padlock* in the next 45 minutes, a button inside will be activated, and the 3D printers will print a jail all the way around this building!

Filament: I still don't understand why you insisted on adding that feature... It's incredibly dangerous, and random, and unnecessary, and -

Maker: Oh come on, Filament, I think you need to loosen up and learn how to live a little! In fact, since it's your birthday today –

Filament: *deadpan* It's not my birthday. And we really need to get back to our tour -

Maker: - I've put together a little puzzle for you and our new friends here!

Filament: ...what are you talking about?

Maker: You will have to work together to solve the clues and unlock this here lock – otherwise we'll all be stuck inside a 3D printed jail forever! This should be fun. Well, I'm out. Have a great time!!! And happy birthday!

Maker leaves, starting the computer timer on the way out



**This thing all things devours:
Birds, beasts, trees, flowers;
Gnaws iron, bites steel;
Grinds hard stones to meal;
Slays king, ruins town,
And beats high mountains
down.**

