

# Reusable 3D-printed adult face mask

## Fabrication instructions

### 1. DOWNLOAD FILES

Download the STL files for the masks and filter housing:  
[rowan.edu/mask](http://rowan.edu/mask)

There are three mask sizes (S,M,L). The same filter housing fits all three.

### 2. IMPORT FILES

Import your mask size and the filter housing. You may need to rotate the mask and filter to print front down. Do not print with support.

### 3. PRINTING STRATEGIES

You know your printer best, however, we recommend:

- 20% infill with 0.3mm layer height and 2 shells
- PLA filament w. extruder temp (200°C – 215°C) and bed temperature (0°C - 40°C)
- Print with a skirt and turn a fan on after the first layer

### 4. REMOVING PRINTED MASK

Pry off your prints using your hands or a flat tool like a paint scraper. Make sure to angle the scraper shallow and tap lightly so you don't damage your print bed.

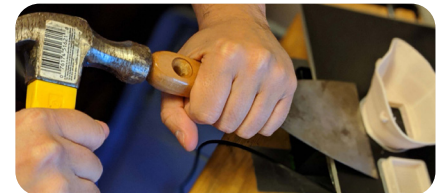
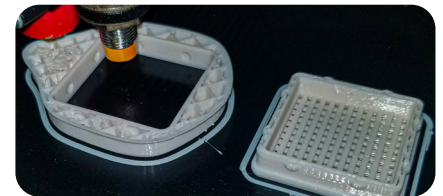
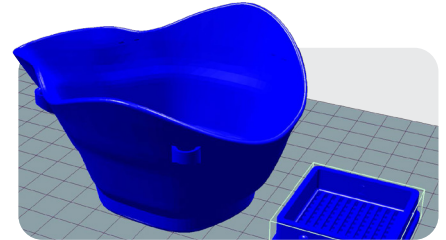
### 5. QUALITY CONTROL

Check the quality of your print, looking out for:

- Sturdy mask that doesn't crack or break when held firmly
- Solid surface with little or no gaps
- Filter slides into mask with slight pressure and can be removed by pushing against the grid from the other side
- Sand the sides of your mask to help with comfort

### 6. BAD PRINT?

- Is your hot end or bed too hot?
- Slow down your printer speed. Are there still issues?
- Apply an adhesive such as hairspray or glue stick to your bed before printing to hold it to the bed
- Try a different spool of filament; they can go bad



For instructions on assembling the mask for use and proper care, please visit: [rowan.edu/mask](http://rowan.edu/mask)

#### Important

This mask is provided "as-is" and primarily acts as a mechanical barrier. **It is not a replacement for N95 masks.**

#### Questions or comments?

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#### Questions or feedback?

Please visit our survey site:  
[go.rowan.edu/3Dprintedmasksurvey](http://go.rowan.edu/3Dprintedmasksurvey)  
or scan the QR code



## Reusable 3D-printed face mask

Rowan University engineering and medical students are prototyping durable, lightweight, reusable face masks to augment the supply of face masks during the current shortage of PPE. This mask is provided “as-is” and primarily acts as a mechanical barrier. **It is not a replacement for N95 masks.**

Developed in collaboration with medical professionals, the mask prototype may serve in clinical and field use. The replaceable nonwoven filter materials recommended for the filter housing are widely available. Users will supply the elastic or cord. If printed, used and maintained correctly, the mask provides a durable, reusable mechanical barrier.

Disclaimer and License Information

### Disclaimer

The mask information is provided as research information only and has not been tested for commercial use. The design and masks made from the design have NOT been tested or approved pursuant to FDA, OSHA, or NIOSH standards. The mask information is experimental in nature and the safety or efficacy for use in humans has not been proven or tested. Users should make every effort to use an available N95 mask if feasible.

This design is for an adult mask.

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