

3D Printing Workshop @ the Ōamaru Library's Maker Space

Objective: To print a 3D object as painlessly as possible!

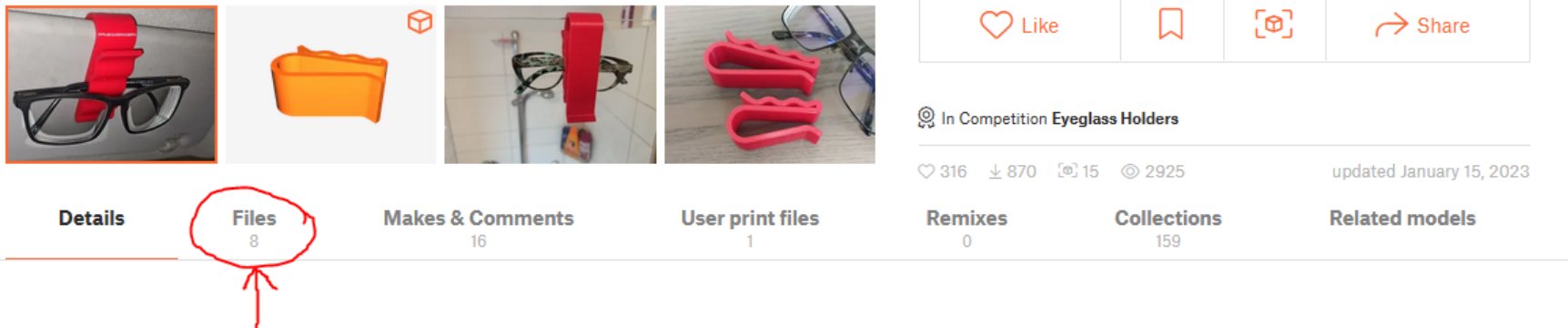


STEP 1: Do a Google search for “Printables.com” and find a design (my example is a glasses holder for a car’s sun visor) <https://www.printables.com/model/358728-glasses-holder-for-car-sun-visor/files>

STEP 2: Look at the detailed segments under the main picture of the object on the webpage (see picture immediately below). It’s good to familiarise yourself with the **Details, Makes & Comments**. For the model I’ve chosen, under “Description” in the **Details segment** (red arrow below), there is a suggestion to use PETG filament. We only stock PLA at the library which is why we suggest you bring your own filament for specific designs. If using PLA instead, I would print this at 100% infill because, as the description explains, it can get quite hot in the car. PLA filament is biodegradable, so the heat will affect it less if there is more of it.

The screenshot shows the Printables.com interface for the model 'In Competition Eyeglass Holders'. The main image is a red 3D printed holder on a car's sun visor. Below it are four smaller images: a yellow holder, a red holder, and two pink holders. The 'Details' tab is selected, with a red arrow pointing to it. The page includes interaction buttons for Like, Bookmark, Embed, and Share. The model is categorized as 'In Competition Eyeglass Holders' and has 374 likes, 1059 downloads, 16 embeds, and 3503 views. It was updated on January 15, 2023. The page also shows 0 remixes, 191 collections, and 8 related models.

On the topic of filament, please refer to our library website for a full range of colours and types: <https://www.waitaki.govt.nz/Libraries/Learn/Maker-Space>

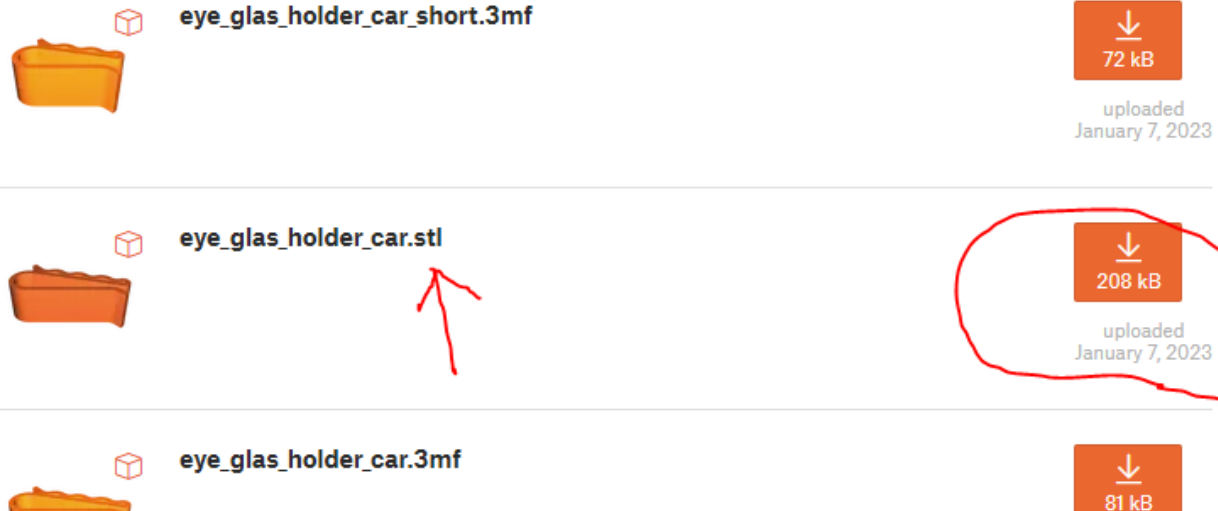


STEP 3: Now that you've familiarised yourself with the details of the design, go to **Files** (circled above in red).

STEP 4: Scroll down to find the **.stl file** - usually under **Model files** - take a look at the screenshot below:

Model files

↓ ALL MODEL FILES (317 KB)



STEP 5: Click on the orange rectangle (circled above) to download the file

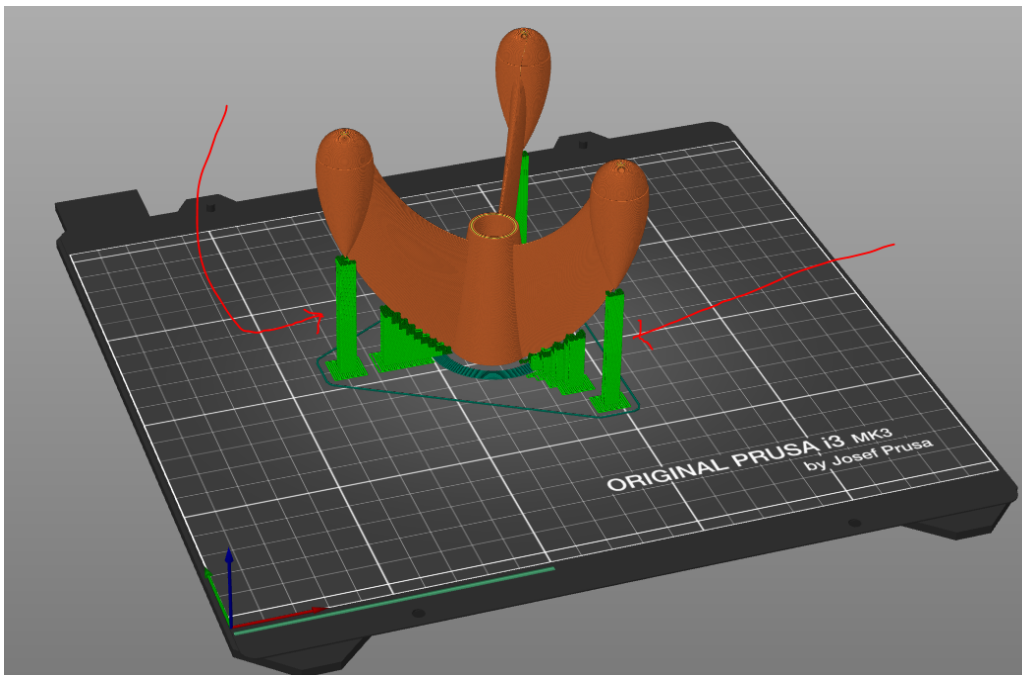
STEP 6: Save the file onto your desktop (or leave it in the download folder).

STEP 7: Attach this file in an email to Debbie dpriceewen@waitaki.govt.nz OR Martin mbratina@waitaki.govt.nz OR, save to a USB stick and leave this with one of us

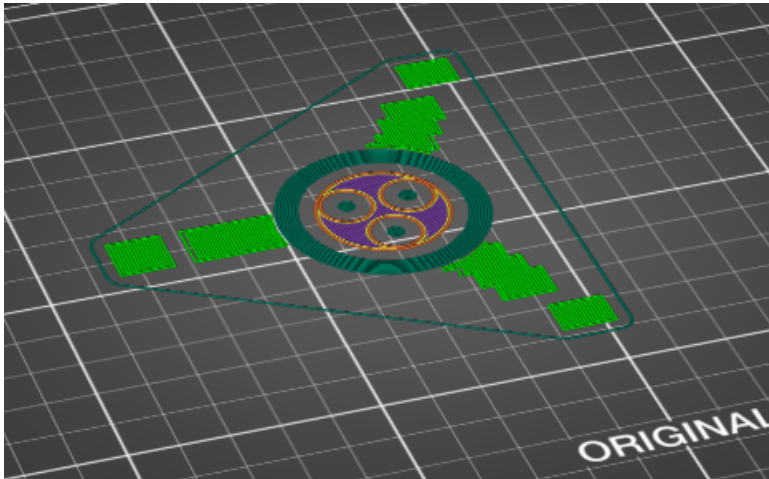
Debbie or Martin will then “slice” the job on their computer to turn it into G-code* and then export the sliced file onto the 3D printer’s SD card and load the card into the 3D printer.

Things to look out for:

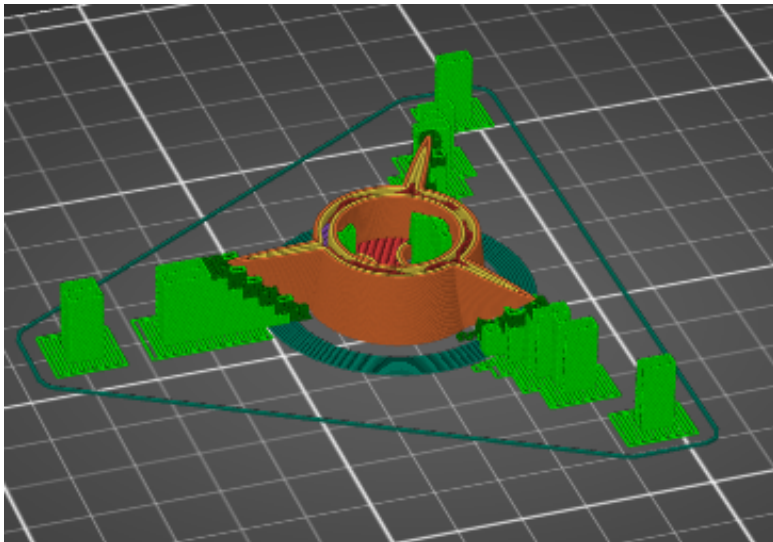
Scaffolding requirements: Scaffolding is often required in more complicated designs. Take a look at the green supports required to create the tail of this rocket base:



Scaffolding is required when there is nothing for the printer to build onto. The printer builds up the object using layer upon layer of filament. Here is the very first layer of the rocket's tail base - the light green layer is the first layer of the scaffolding. :



A few minutes into the build, the sharp angle of the tail (coloured orange) starts to jut out at an angle. If the scaffolding is not in place, the filament will just start to dangle in mid air, as it has nothing to grab onto.



***FOR THE GEEKS:** G-code is also known as RTS-274 or Computer Numerical Control (aka CNC) - a programming language that tells the computer that controls the 3D printer how far to move and at what speed.

YOUR NOTES