

## 3D PRINTING FOR BEGINNERS

The easiest way to start 3D printing is to download a pre-made design for free.

### HOW TO DOWNLOAD A 3D PRINTING FILE

- Use a website like: [Thingiverse.com](http://Thingiverse.com) or [MyMiniFactory.com](http://MyMiniFactory.com)
- Search for the type of item you want to print
  - **TIP:** Choose items that build up from a solid foundation and don't have any parts that overhang (with empty space beneath a part of the design)
- Once you choose your object, download the file. **Do not click** "Download All Files" but download the individual .stl file you would like to print.

### HOW TO PREPARE YOUR PRINT

Our 3D printer uses software called **Cura**. You can download **Cura** for free on your home computer by going to the Ultimaker website or you can use the software on a library computer.

#### **\*\*Use a USB Device to Save Your Print\*\***

- Open the Cura software.
  - Choose **Ultimaker 2+ Connect** as your printer if you are printing at Hespeler
  - From the top menu bar click on **Settings -> Printer -> Manage Printers**
  - Make sure **Ultimaker 2+ Connect** is selected from the **Preset Printers** list. Then click **Machine Settings**.
  - Make sure the **G-code Flavor** is set to **Griffin**. Then exit the menu.



- Open the file you would like to print.
  - Edit your design using the toolbar on the left-hand side
    - **Move:** Move the object on the build plate
    - **Scale:** Adjust the scale buttons on the left-hand menu to resize your model



- **Lay the Model Flat:** The second option in this list will try and lay the object flat against the build plate. The third option lets you choose the side you want to lay flat against the build plate. Choose the side that will make the object easy to print.
- Depending on how complex your object is, you may need to adjust **Support** settings or **Build Plate Adhesion**. These settings are found on the menu at the top right-hand side.
  - **Supports** are removable parts that are added underneath any overhanging parts of your object. If you want supports, choose **Touching Buildplate** as this is usually the best option.
  - **Build Plate Adhesion** will help your print stick to the bed and print without warping. Most prints will not need adhesion and you can choose **None**. Always choose the **Enable Prime Blob** option as it makes sure the filament is running smoothly before printing your object. Use a **Brim** if you have a flat, thin object.
  - Ask staff for help with these settings if you are new to 3D Printing.



## GETTING READY TO PRINT

- When you are satisfied with your settings, click **Slice**. This will prepare your file for the printer.
 
- Then save the file on a USB device by clicking on the **Save to Removable Drive** button. It should automatically detect your USB and save the file.
- Rename your file in the following format: **[Name of Object] - [Time of Print] - [Number of Grams]**. Example: Unicorn 1h 47 min 5g
  - Print jobs cost \$0.10 (ten cents) per gram to recoup the cost of material
  - Try and keep your print job between 1-3 hours. (You can reduce the length of time and the number of grams by changing the size of your design.)
- Once the file is ready, the Cura software will prompt you to **Eject** the USB.

## ORDERING YOUR 3D PRINT

- Bring your USB to a staff member. They'll add your object to our print queue. We will ask for your contact information and colour preference for your job. We may also ask about printing run time and number of grams.
- Staff will contact you when your object is finished and ready to pick up!

**ENJOY YOUR 3D PRINTED OBJECT!**