

New 3D Printers for Makersmiths

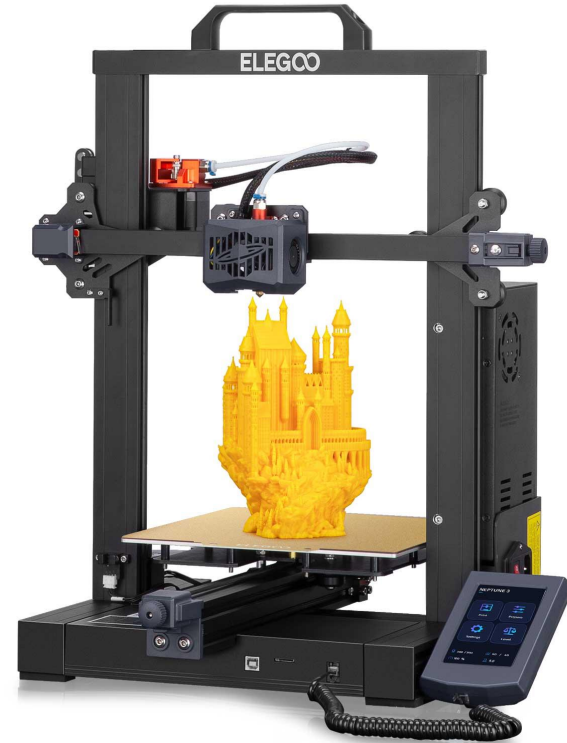
A visual presentation...

Elegoo Neptune 3 FDM Printer: \$209.99 a piece

- 8.5"x8.5"x11.5" build size
- 16 point self leveling using nozzle, not a probe.
- Filament runout sensor
- Resumes printing after power outage
- Can use Ender 3 printing profile and GCode (same printers we have in Leesburg)

We would like to put 2 in Purcellville and 2 in Leesburg for consistency and ease of teaching.

<https://www.elegoo.com/products/elegoo-neptune-3-fdm-3d-printer>



Longer LK5 Pro FDM Printer: \$369.95 a piece

- 11.8x11.8x15.7 inch build size
- newly upgraded cooling fans - dual blower kit which can promote quick cooling on the extruded filament. Especially useful in the summer in Purcellville.
- Resumes printing after power outage
- Also an Ender clone, so the mechanics are all the same.

We would like to put 1 in Purcellville and 1 in Leesburg for consistency and ease of teaching.

<https://tinyurl.com/3xew79rx>



Elegoo Jupiter SLA/Resin Printer: \$1300 currently / \$975 (kickstarter price with shipping)

- 10.939in(L)*6.144in(W)*11.811in(H) build size, Can do a full mask or helmet.
- One of the largest mid range resin printers on the market.

We would like to put 1 in the Leesburg basement and already have room for it.

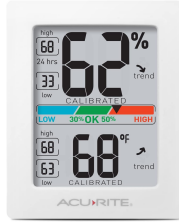
The jupiter has already arrived due to a miscommunication, but has not been unboxed yet. So that's why the kickstarter price is shown. Michael james paid for it already through Kickstarter and we'd like to reimburse him and keep it.



One-time Maintenance Costs and Prep.



Raspberry Pi Fans
4-pack
 $\$11.99 \times 2 = \22.98



Hygrometer &
Thermometer
 $\$13.52 \times 2 = \27.04



Feeler Gauge
\$14.99



Filament
Dehydrator
\$62.99



Air tight
plastic tubs
\$44.99



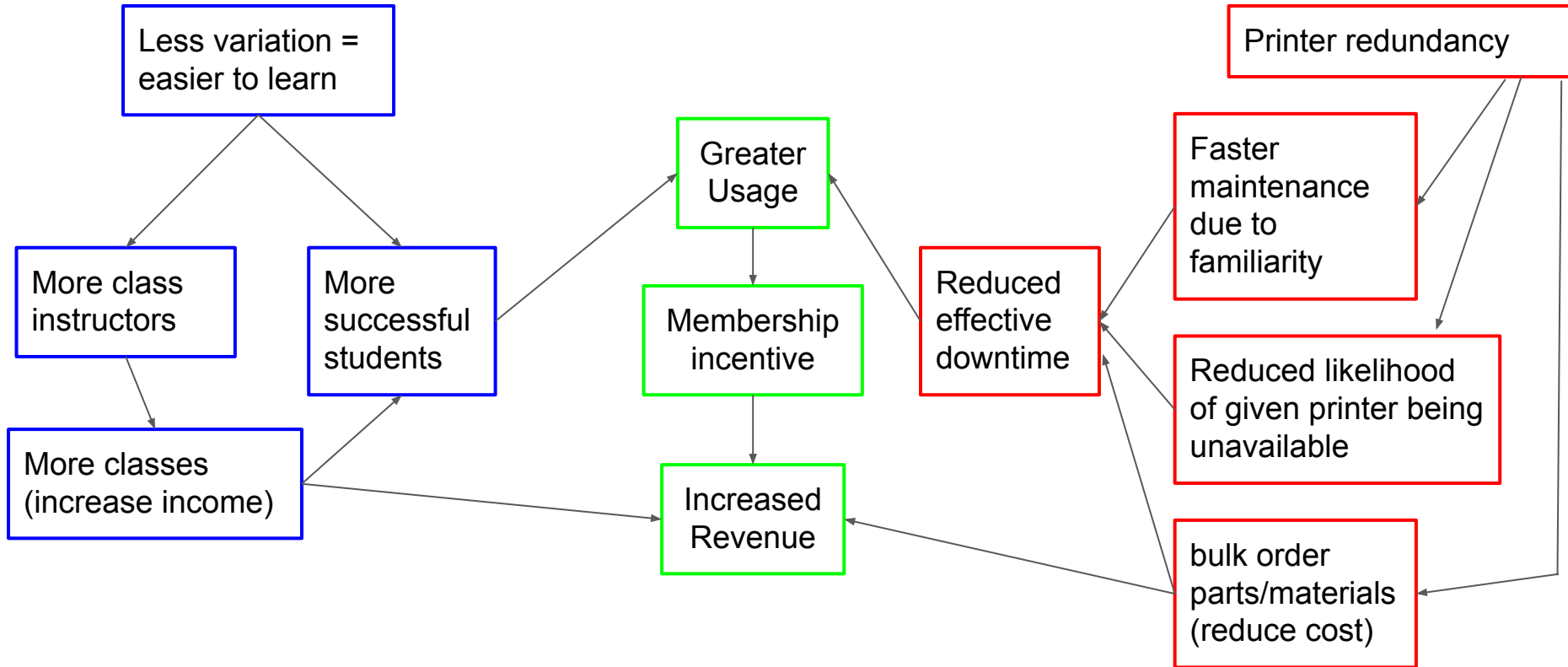
Air Purifier (safety)
\$89.99



Infrared
Thermometer
\$27.99

Total:
\$290.97
/ \$320 with
“wiggle room”

The Business Case for Standardization



Standardization: The Math

of current active instructors: 3

of classes offered/month (avg): 2 - 4

Income from 1 class: \$25pp, max \$150

General interest in 3D printing on open house nights (anecdotal): High when working**

Maintenance/month: ~\$120

Predicted maintenance/month: ~\$138***

Materials cost per month: \$0.00

Approx sell-off of old printers*:

—Lulzbot Mini: \$400

—Replicator 2: \$150

—XYZ Davinci Pro: \$500

Cost of standardizing: $\$2845.83 - \$1050 = \underline{\$1795.83}$

Current revenue: ~\$375 a month

Prediction: Standardization will pay for itself in 4.75 months.

The Business Case for Purcellville Printers

- Standardization between locations confers identical benefits as standardization within locations
 - Familiarity -> Increased Classes/Use
 - Redundancy -> Decreased maintenance costs and downtimes
- Increased offerings at Purcellville = Higher draw for Purcellville location
 - Potential members
 - Potential members who visit Purcellville first with an interest in 3D printing are more likely to stick around than take a risk on visiting Leesburg
 - Members who know Leesburg has 3D printing but live closer to Purcellville may not be willing to make the trek out to Leesburg regularly
 - Increased new-membership interest in Purcellville = more revenue coming in via Purcellville
 - Current members
 - Incentivizes members who live near Purcellville and are interested in 3D printing to use that space
 - Incentivizes Leesburg-based members to visit Purcellville for 3D printing if Leesburg printers are already all in use
 - Increased membership-interest in Purcellville space = Volunteer work at Purcellville

Additional notes:

- **Currently the 3D Printing steward has decided to have people bring their own filament when printing on any of the FDM printers at either location. We do not provide filament.**
 - We do buy a spool for class use only that is kept in locked lockers. One in Purcellville and one in Leesburg.
- **However, we do have to charge for resin for the resin printers...**
 - By charging for resin, we can control what goes in the printer and how many people are cleaning out the vats. The resin vats have a clear film on the bottom that can be easily damaged, so by not having to switch out the resin all the time, the film (or FEP sheet) lasts longer and the machine is up and running more often.
 - We currently pay \$40 per 1000ml of resin. We charge \$0.10 per ml for usage. **This has the potential of bringing in \$60 per bottle used on top of class income.** Which should cover cost of use, failed prints, damaged FEP sheets, etc with some revenue too.
 - Currently any payments for prints have been going through STRIPE and can be tracked.

Additional notes cont.:

- **Up until June, we were having 2-4 3D printing classes a month, and now with a new steward we hope to start having them at that consistency again.**
 - Each class is \$25 a person, with a max limit of 6. **So each class has potential to bring in up to \$150** at a time. Most classes were fully attended and more are being requested weekly.
 - We already have plans to have one resin, and two filament classes each month starting in September. **If each class is filled, we could potentially offset the cost of these machines within 6.5 months**
- **To make room for new printers, and to offset costs even more, we will be selling off some of our older printers either in full or for parts.**
 - Members will get first dibs and then we will try marketplace or ebay.
 - We will not be selling off the Ender 3's we bought last year, but we will be taking one of them to Purcellville to even out what is available.

Additional notes cont.:

- **Having new machines in Purcellville will be a great benefit for the membership base, since the current machines are unreliable.**
 - This entire proposal started because Jessee was tired of seeing the frustration people were having with the printers in Purcellville and wanted to find a way to better the situation.
- **By having larger printers, we will have machines on hand that are hard to have at home. This is a draw for new members with a potential income that I have no data to back up.**

Please pass on any other questions to Jessee Maloney, Scott Silvers or Jason Gilligan!