3D PRINTING

Old Town Library

Spring Edition
April - June 2024

poudre libraries

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3D PRINTING OVERVIEW

Libraries and 3D Printing

Libraries have always been the great equalizer for information and computer access, and having a 3D printer available opens 3D technology to all ages and skill sets. 3D printing also supports people developing knowledge and skills in STEM activities (Science, Technology, Engineering, and Math), allowing community members to create, design and innovate in new and inspiring ways

What printers and materials do you use?

The Library currently has one Dremel DigiLab 3D45 3D Printer, located in the 2nd floor computer lab at the Old Town Library. The DigiLab can print objects up to 10" x 6" x 6.7" in a variety of single colors.

The Library uses plant-based, recyclable PLA plastic (#7). PLA does not contain BPA and is not heat resistant. Objects created on the 3D printer are not food safe.
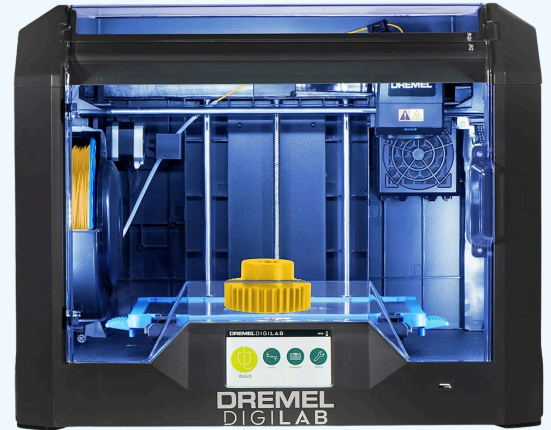
Can anyone use the 3D printer?

3D printing is available for all ages and open to the public. You do not need a library card to submit a 3D print or to watch items being printed on the 3D printer. However, only trained library staff will handle the 3D printer and associated equipment.

What does it cost?

3D printing cost is $0.10 per gram of filament used. Total cost is based on the estimate given by the printing software program (plus tax). Printing charges are collected at pickup. Most 3D print items cost $5 or less. When filling out a submission form, customers can select a maximum amount.

When will I get my 3D printed item?

Print times vary based on size, complexity, and the number of 3D prints waiting to be processed. Typically, 3D prints take between 5-14 days to be completed. For a current timeline estimate, please contact 3DPrinting@poudrelibraries.org

How do I start?

1. Visit our Resources page for modeling software, design libraries, and tutorials
2. Choose or create a 3D model to print
3. Save the model as .stl file or .3mf file (maximum size 50 MB)
4. Submit your 3D printing request

Contact Us

3DPrinting@poudrelibraries.org

3D Printing is available at:

Poudre River Public Library District
Old Town Library
201 Peterson Street
Fort Collins CO 80524
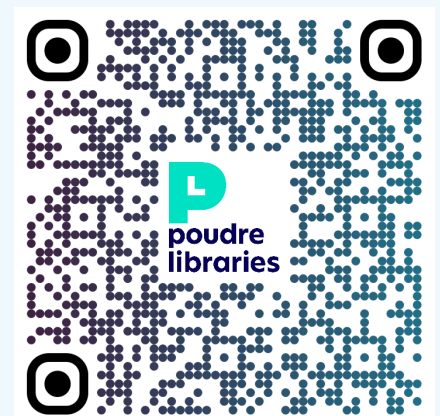
3D PRINTING GUIDELINES

Intended Use

The Library strives to offer community access to technologies that inspire creativity, learning and innovation. A 3D printer is available at the Old Town Library for library users to make three-dimensional objects using a design that is uploaded from a digital computer file. The Library's 3D printer may only be used for lawful purposes and be for objects appropriate for a public library.

Guidelines

1. Users will not be permitted to use the Library's 3D printer to create material that is:
   a. prohibited by local, state or federal law
   b. unsafe, harmful, dangerous, or an immediate threat to the well-being of others
   c. construed as having the intent to harm
   d. obscene or otherwise inappropriate for the Library environment
   e. in violation of another's intellectual property rights
2. The print must fit within the printer's volume.
3. Printed objects must not infringe upon any third party's intellectual property rights. By submitting content or objects, the user agrees to assume all responsibility for, and shall hold the library harmless in, all matters related to patented, trademarked, or copyrighted materials.
4. The library is not responsible for any damage, loss, or security of data arising from the use of its computers, equipment or network, nor for the functionality or quality of content produced on the 3D printer.
5. Responsibility for removing rafts and supports is up to the user. The library cannot guarantee model quality or stability, or confidentiality of designs.
6. Only designated library staff and volunteers will have direct access to the 3D printer. Customers are welcome to come watch the 3D printer in action in the Old Town Library computer lab during open hours.
7. The Library reserves the right to refuse any 3D print request.
8. Use of the 3D Printer is subject to Poudre River Public Library District Policies, including but not limited to the Library Facility Usage Policy.

Removing Supports

Supports can be removed with many household tools. Using needle-nose pliers, butter knives or clam shuckers, cuticle trimmers, nail clippers, sandpaper, and small files is the easiest way to remove supports. Adults should help children use tools to remove supports on their 3D printed objects.

- Use a butter knife or clam shucker to loosen or pop off large sections of support structure.
- Remove large sections of support structure by prying them off with the pliers.
- Trim delicate sections with the cuticle trimmers or nail clippers
- File down rough spots with sandpaper or with small files. Using a Dremel/rotary tool works well, too.

3D PRINTING RESOURCES
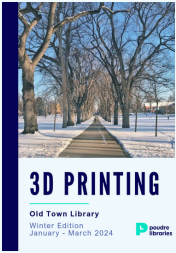
Ready-to-Print 3D Designs

Winter 3D Print Catalog - Poudre Libraries' 3D Print Catalog for Jan - Mar 2024. Fun, ready-to-go 3D print ideas recommended by the library's print staff.

Thingiverse - MakerBot's searchable design library community.

Printables - Prusa Resarch's searchable design library community.

MyMiniFactory - A curated social platform for 3D printable objects.

TechOWL 3D Print Catalog - Temple University's assistive tech-oriented design library.

Free 3D Modeling Software

Tinkercad - a browser-based 3D design platform, now part of Autodesk (free version available).

Sketchup - comes in free or pro versions. Get the Sketchup STL from the Extension Warehouse.

Blender - a free and open source 3D creation suite.

3D Modeling Tutorials

How to Fix and Repair Your 3D Files

How to Make Strong 3D Prints

Blender and Tinkercad tutorials are available through the library's access to LinkedIn Learning (previously Lynda.com)

3D Printers on the Cutting Edge

TED Talks on 3D Printing

SPOTLIGHT - MAKERS MAKING CHANGE

Makers Making Change is a program of the Neil Squire Society (a Canadian organization that strives to empower people with disabilities) that connects people with disabilities to makers who can build affordable assistive technology for them.

They have an extensive Assistive Devices Library that includes the option to download the files and 3D print them yourself OR to request a Maker to create it for you.

Additionally, if you're interested, you can volunteer to be a Maker and volunteer to help those in need of assistive technology.
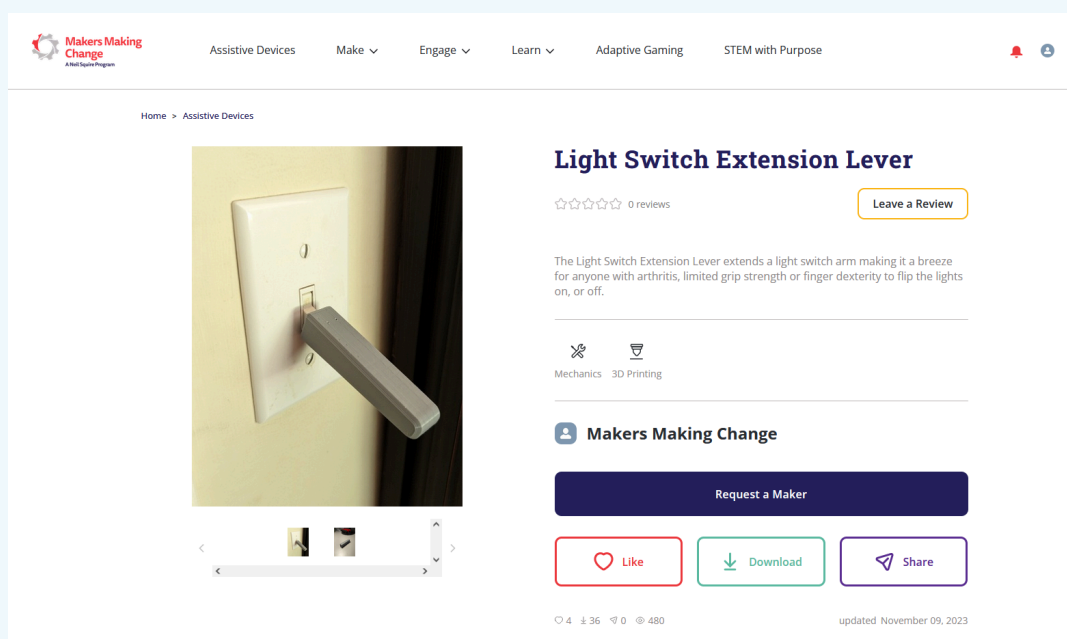
Interested in more Assistive Technology programs for Coloradans? Check out the Colorado Assistive Technology Act Program HERE.

SPRING COMPUTER & TECH CLASSES

Computer Comfort / Computación básica
- Wednesday, April 3rd at 6:00-7:30pm
- Old Town Library - Large Meeting Room Combo

Online Safety with a Crime Prevention Expert
- Thursday, April 4th at 3:00-4:30pm
- Council Tree Library - Large Meeting Room

Intro to CAD and 3D Modeling
- Tuesday, April 9th at 6:00-7:30pm
- Old Town Library - Large Meeting Room 1

Missed a class? Check out our website to view posted slides and handouts from classes!

https://www.poudrelibraries.org/classes/

Google Accounts / Cuentas de Google
- Wednesday, May 1st at 6:00-7:30pm
- Old Town Library - Large Meeting Room Combo

Accessibility Technology & You Panel
- Sunday, May 5th at 2:00-3:30pm
- Old Town Library - Large Meeting Room Combo

Excel I
- Tuesday, May 7th at 1:00-2:30pm
- Old Town Library - Large Meeting Room Combo

Accessible Tech on the Go
- Saturday, May 11th at 1:00-2:30pm
- Old Town Library - Large Meeting Room Combo

Excel II
- Tuesday, May 14th at 1:00-2:30pm
- Old Town Library - Storytime Room

Coding for Equality
- Sunday, June 30th at 3-4:30pm
- Old Town Library - Large Meeting Room Combo

Interested in a class? Find more information & register HERE!

poudre libraries

FILAMENT COLORS

PLA

Black **White** **Red** **Orange**

Yellow **Green** **Blue** **Purple**

Pink **Gold** **Grey** **Translucent**

NEW!

Matte Navy Blue **Matte Olive** **Matte Brown** **Matte Beige**

NEW! NEW! NEW! NEW!

SILK

Silk Gold **Silk Copper** **Silk Silver**

NEW! NEW! NEW!

6

QUICK PRINTS!

New to 3D Printing? Not sure what to print?
Check out some of our ideas to get started!

If you find a print you like, follow these easy steps to have it printed:

1. Click on the link or scan the QR code in the catalog.
2. Make sure to check the footnotes in the catalog to see if this print needs to be scaled down or submitted in multiple jobs.
3. Download the file(s) needed.
4. Head to the 3D print request form on our website: https://www.poudrelibraries.org/3dprinting/
5. Input your contact information & a brief description of the print.
6. Upload the .stl or .3mf file you got earlier. Indicate color and quantity needed.
7. If your print has additional specifications (needs to be scaled down, has multiple parts, etc), please make a note of that in the comments.
8. Finally, indicate a maximum price for the print and if the file submitted is part of a project.
9. If your print requires multiple files, repeat steps 2-8 for each file.

Name *

Email *

Phone (xxx-xxx-xxxx)

Brief description of item:*

Color * (examples)
Select from list

Upload a .stl or .3mf file less than 50MB
Browse... No file selected.

Quantity *
Select

Comments:

Payment options:
Payment accepted via credit card or debit card. The library does not accept cash payments.

Maximum Authorized Per Print *
$5.00

This request is part of a 3D print project requiring more than one file.
○ Yes
⦿ No

☐ I have read and agree to the Library's 3D Printing intended use and guidelines and certify that I have intellectual property rights to authorize reproduction.

The library may take photos of your object or archive the file for use in marketing, publications, or sharing with others. Please let us know if this presents any issues.

Send your request

FIGURES/MODELS/TOYS

FISH FOSSILS[1]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 83 mm x 30 mm x 9 mm
Weight: 10.83 g
Time to Print: 1h 4min
Approx. Cost: $1.08

https://www.thingiverse.com/thing:1276095
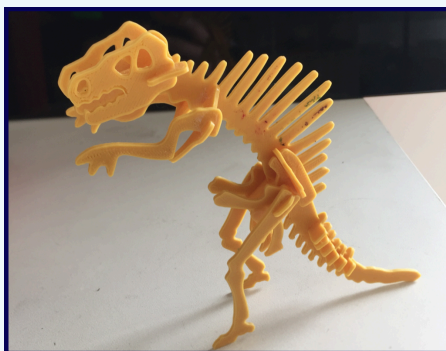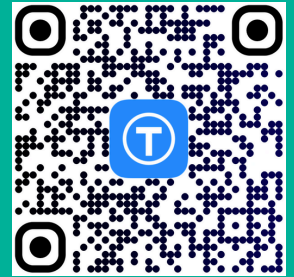
BUILD A T-REX[2]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 126 mm x 126 mm x 1.5mm
Weight: 15.64 g
Time to Print: 1h 45min
Approx. Cost: $1.56

https://www.thingiverse.com/thing:4198101

ROBOT ACTION FIGURE[3]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 62 mm x 55 mm x 40 mm
Weight: 39.21 g
Time to Print: 3h 45min
Approx. Cost: $3.92

https://www.thingiverse.com/thing:539127
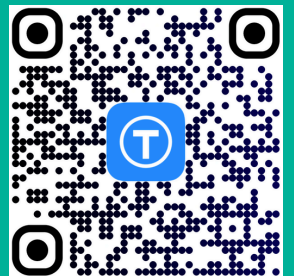
TOTORO FAMILY FINGER TOYS[4]
Printables

PRINTING SPECIFICATIONS

Dimensions: 122 mm x 47 mm x 60 mm
Weight: 48.59 g (total, 3 pieces)
Time to Print: 4h 49min (total, 3 pieces)
Approx. Cost: $4.86 (total)

https://tinyurl.com/printables-totoro-family

ASSISTIVE TECH, GADGETS, & HANDY STUFF

SPAGHETTI MEASURING TOOL[1]
Printables

PRINTING SPECIFICATIONS

Dimensions: 93 mm x 74 mm x 2 mm
Weight: 4.08 g
Time to Print: 26min
Approx. Cost: $0.41

https://tinyurl.com/printables-spaghetti-tool

3M COMMAND HOOK[2]
Printables

PRINTING SPECIFICATIONS

Dimensions: 64 mm x 24 mm x 17 mm
Weight: 5.90 g
Time to Print: 29min
Approx. Cost: $0.59

https://tinyurl.com/printables-command-hook

BAG CARRIER[3]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 122 mm X 100 mm x 15 mm
Weight: 54.03 g
Time to Print: 4h 40min
Approx. Cost: $5.40

https://www.thingiverse.com/thing:2701924

KEY TURNER[4]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 74 mm X 71 mm x 6 mm
Weight: 10.86 g
Time to Print: 1h
Approx. Cost: $1.09

https://www.thingiverse.com/thing:2802082

FIDGET TOYS & PUZZLES

KOBAYASHI FIDGET CUBE[1]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 81 mm X 41 mm x 20 mm
Weight: 45.74 g
Time to Print: 4h 3min
Approx. Cost: $4.57

https://www.thingiverse.com/thing:1790624
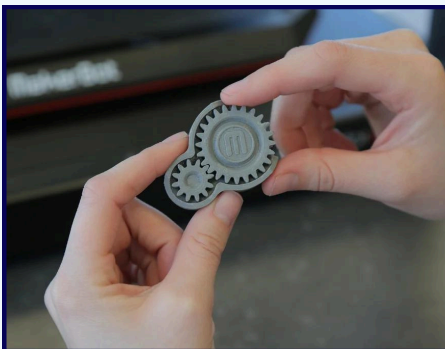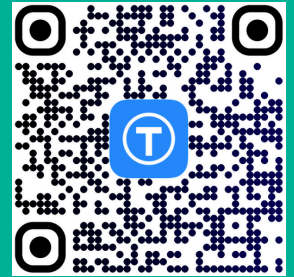
FIDGET GEAR[2]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 51 mm X 38 mm x 15 mm
Weight: 14.16 g
Time to Print: 1h 19min
Approx. Cost: $1.42

https://www.thingiverse.com/thing:2234364

BEE PUZZLE[3]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 146 mm X 135 mm x 1.35 mm
Weight: 11.86 g
Time to Print: 1h 23min
Approx. Cost: $1.17

https://www.thingiverse.com/thing:4909200
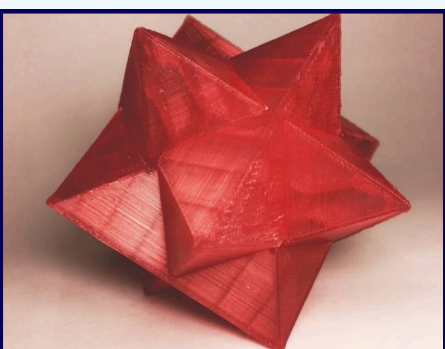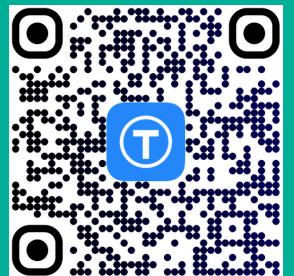
PUZZLE STAR[4]
MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 130 mm x 121 mm x 21 mm
Weight: 52.30 g
Time to Print: 4h 27min
Approx. Cost: $14.52 (total)

mmf.io/o/17733

BOOKMARKS

ANIMAL BOOKMARKS[1]

Printables

PRINTING SPECIFICATIONS

Dimensions: 82 mm X 64 mm x 1.4 mm
Weight: 4.59 g
Time to Print: 29min
Approx. Cost: $0.46

https://tinyurl.com/printables-animal-bookmarks
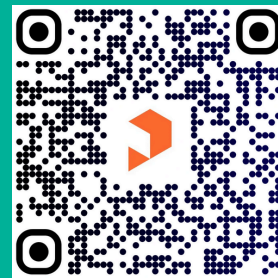
CACTUS BOOKMARK[2]

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 94 mm X 37 mm x 1.2 mm
Weight: 1.43 g
Time to Print: 11min
Approx. Cost: $0.14
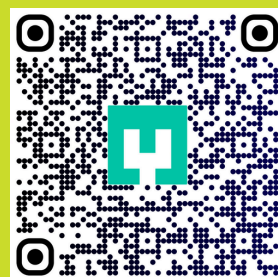
mmf.io/o/44193

GEAR BOOKMARK[3]

Printables

PRINTING SPECIFICATIONS

Dimensions: 90 mm X 26 mm x 1.5 mm
Weight: 2.28 g
Time to Print: 15min
Approx. Cost: $0.23

https://tinyurl.com/printables-gear-bookmark
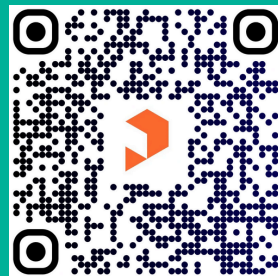
STITCH BOOKMARK[4]

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 79 mm x 29 mm x 2 mm
Weight: 2.00 g
Time to Print: 13min
Approx. Cost: $0.20

mmf.io/o/178926

GREAT FOR GIFTS

GIFT BOX[1]

Printables

PRINTING SPECIFICATIONS

Dimensions: 52 mm x 37 mm x 37 mm
Weight: 38.59 g (total, 2 pieces)
Time to Print: 3h 18min (total, 2 pieces)
Approx. Cost: $3.86 (total)

https://tinyurl.com/printables-gift-box

GIFT CARD BOX[2]

Printables

PRINTING SPECIFICATIONS

Dimensions: 77 mm x 90 mm x 21 mm
Weight: 85.21 g (total, 3 pieces)
Time to Print: 7h 30min (total, 3 pieces)
Approx. Cost: $8.52 (total)

https://tinyurl.com/printables-gift-card
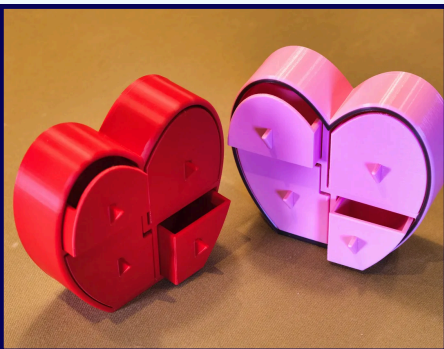
HEART STORAGE BOX[3]

Printables

PRINTING SPECIFICATIONS

Dimensions: 95 mm X 85 mm x 28 mm
Weight: 107.79 g
Time to Print: 8h 59min (total, 5 pieces)
Approx. Cost: $10.78

https://tinyurl.com/printables-heart-box
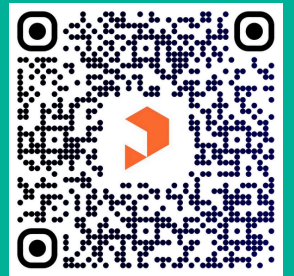
HEART VASE[4]

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 99 mm x 98 mm x 30 mm
Weight: 74.64 g (total, 2 pieces)
Time to Print: 6h 26min (total, 2 pieces)
Approx. Cost: $7.46 (total)

mmf.io/o/222972

SPRING HAS SPRUNG!

SPRING LEGO WREATH[1]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: see footnote
Weight: 446.75 g (total, 21 pieces)
Time to Print: 41h 32min (total, 21 pieces)
Approx. Cost: $44.68 (total) https://www.thingiverse.com/thing:6418361
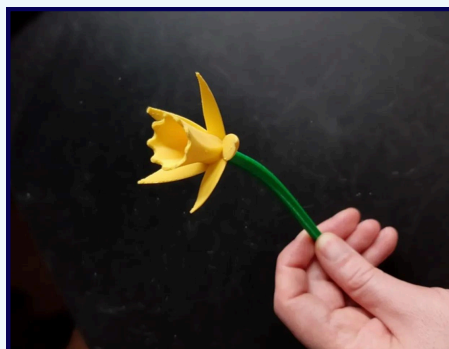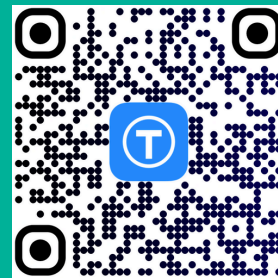
EASTER LILY[2]
Printables

PRINTING SPECIFICATIONS

Dimensions: see footnote
Weight: 7.87 g (total, 2 pieces)
Time to Print: 49min (total, 2 pieces)
Approx. Cost: $0.79 (total)

https://tinyurl.com/printables-easter-lily
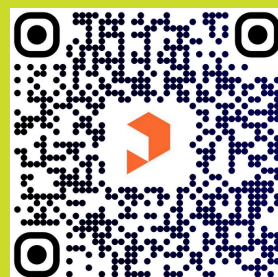
FLOWER POWER COASTERS[3]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 95 mm X 95 mm x 4 mm
Weight: 22.04 g
Time to Print: 2h 1min
Approx. Cost: $2.20

https://www.thingiverse.com/thing:3417174
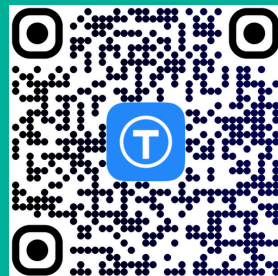
BUNNIES[4]
Printables

PRINTING SPECIFICATIONS

Dimensions: 162 mm x 93 mm x 3 mm (total)
Weight: 22.40 g (total, 2 pieces)
Time to Print: 2h 16min (total, 2 pieces)
Approx. Cost: $2.24 (total, 2 pieces) https://tinyurl.com/printables-bunny

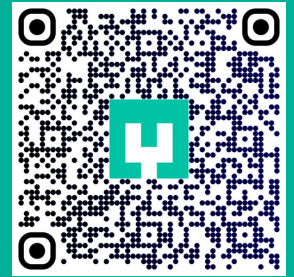# EARTH DAY - APRIL 22

EARTH DAY TOPPER[1]
MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 124 mm X 54 mm x 1 mm

Weight: 1.76 g

Time to Print: 14min

Approx. Cost: $0.18

mmf.io/o/171704

HAND FLOWERPOT[2]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 79 mm X 79 mm x 93 mm

Weight: 59.55 g

Time to Print: 5h 12min

Approx. Cost: $5.96

https://www.thingiverse.com/thing:2228062

NATURE STENCIL SET[3]
Printables

PRINTING SPECIFICATIONS

Dimensions: 63.5 mm X 63.5 mm x 2.5 mm

Weight: 7.50 g

Time to Print: 44min

Approx. Cost: $0.75

https://tinyurl.com/printables-nature-stencils
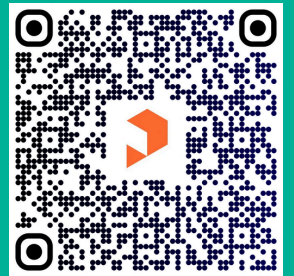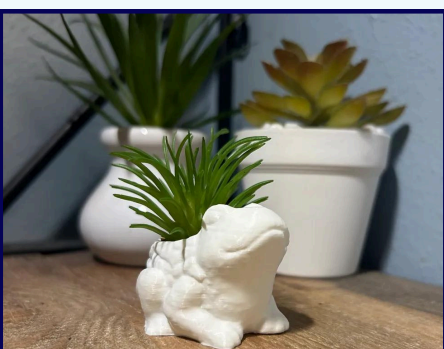
FREDDY THE FROG PLANTER[4]
Printables

PRINTING SPECIFICATIONS

Dimensions: 69 mm x 57 mm x 48 mm

Weight: 34.20 g

Time to Print: 3h 10min

Approx. Cost: $3.42

https://tinyurl.com/printables-frog-planter

COLLEGE DECISION DAY - MAY 1

CSU RAM KEYCHAIN[1]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 32 mm X 32 mm x 3 mm
Weight: 2.37 g
Time to Print: 14min
Approx. Cost: $0.24

https://www.thingiverse.com/thing:2028729
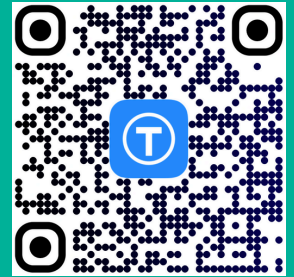
CU-BOULDER BUFF[2]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 83 mm X 61 mm x 10 mm
Weight: 26.82 g (total, 2 pieces)
Time to Print: 2h 30min (total, 2 pieces)
Approx. Cost: $2.68 (total)

https://www.thingiverse.com/thing:31132

SCHOOL OF MINES KEYCHAIN[3]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 100 mm X 99 mm x 21 mm
Weight: 56.37 g
Time to Print: 4h 17min
Approx. Cost: $5.64

https://www.thingiverse.com/thing:2772695
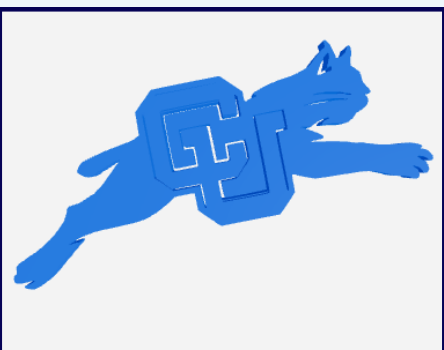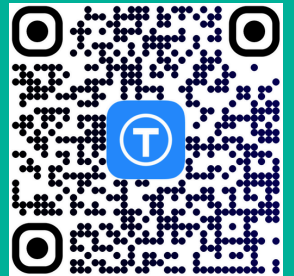
CU-DENVER LYNX[4]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 88 mm x 38 mm x 5.5 mm
Weight: 6.79 g
Time to Print: 44min
Approx. Cost: $0.68

https://www.thingiverse.com/thing:3699299

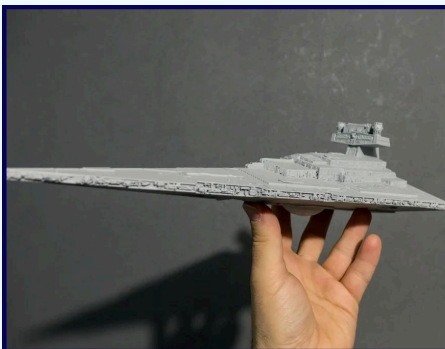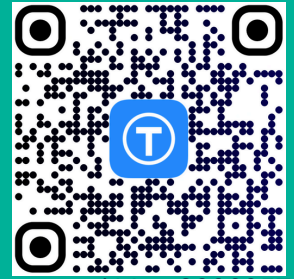# STAR WARS DAY - MAY 4

STAR WARS LOGO[1]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 99 mm X 66 mm x 27 mm
Weight: 60.40 g (total, 2 pieces)
Time to Print: 5h 11min (total, 2 pieces)
Approx. Cost: $6.04 (total)

https://www.thingiverse.com/thing:2006957

IMPERIAL STAR DESTROYER[2]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 152 mm X 84 mm x 41 mm
Weight: 56.96 g
Time to Print: 4h 53min
Approx. Cost: $5.70

https://www.thingiverse.com/thing:2802061

MOVEABLE R2D2[3]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 56 mm X 53 mm x 74 mm
Weight: 52.18 g
Time to Print: 5h 1min
Approx. Cost: $5.22

https://www.thingiverse.com/thing:970868
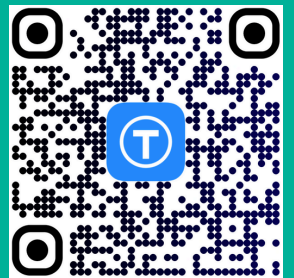
GREEDO BUST[4]
MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 36 mm x 39 mm x 54 mm
Weight: 14.34 g
Time to Print: 1h 21min
Approx. Cost: $1.43

mmf.io/o/16669

MOTHER'S DAY - MAY 12
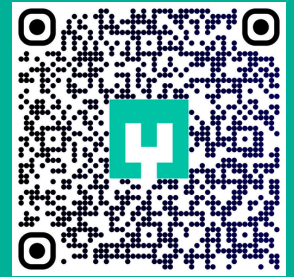
MOTHER'S DAY SCULPTURE[1]
MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 55 mm X 55 mm x 120 mm
Weight: 56.52 g
Time to Print: 4h 49min
Approx. Cost: $5.65

mmf.io/o/56060

MOTHER'S DAY GIFT BOX[2]
Printables

PRINTING SPECIFICATIONS

Dimensions: 109 mm X 83 mm x 30 mm
Weight: 71.35 g (total, 2 pieces)
Time to Print: 6h 3min (total, 2 pieces)
Approx. Cost: $7.14 (total)

https://tinyurl.com/printables-mothers-box

MOTHER'S DAY PLANT STAKE[3]
Printables

PRINTING SPECIFICATIONS

Dimensions: 101 mm x 75 mm x 1.7 mm
Weight: 1.97g
Time to Print: 15min
Approx. Cost: $0.20

https://tinyurl.com/printables-plant-stake
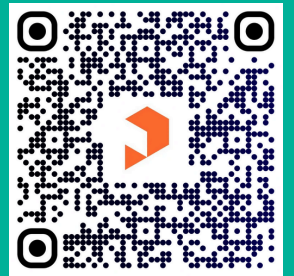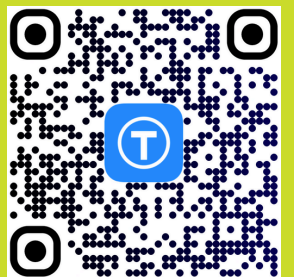
MOTHER'S DAY FLOWER[4]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: see footnote
Weight: 17.04 g (total, 4 pieces)
Time to Print: 1h 35min (total, 4 pieces)
Approx. Cost: $1.70 (total)

https://www.thingiverse.com/thing:2899408

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PRIDE MONTH - JUNE

PRONOUN BADGES[1]
Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 35 mm X 19 mm x 7 mm
Weight: 2.50 g
Time to Print: 14min
Approx. Cost: $0.25

https://www.thingiverse.com/thing:2397276
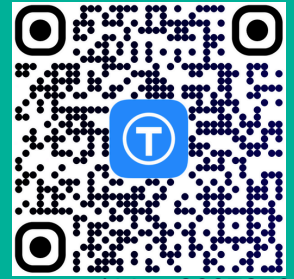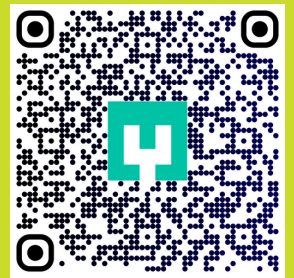
PRIDE RAINBOW[2]
MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 70 mm X 35 mm x 20 mm
Weight: 35.49 g (total, 2 pieces)
Time to Print: 3h 4min (total, 6 pieces)
Approx. Cost: $3.55 (total)

mmf.io/o/180498

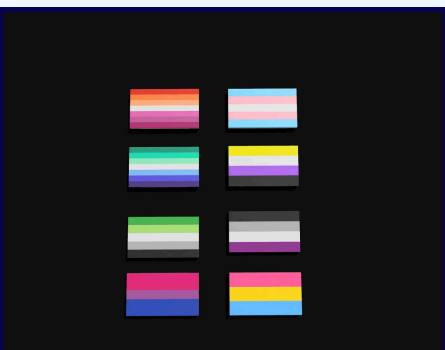## PRIDE KEYCHAINS[3]
Printables

PRINTING SPECIFICATIONS

Dimensions: 36 mm X 33 mm x 3 mm
Weight: 1.81 g
Time to Print: 11min
Approx. Cost: $0.18

https://tinyurl.com/printables-keychains

PRIDE FLAGS[4]
Printables

PRINTING SPECIFICATIONS

Dimensions: 140 mm x 80 mm x 10 mm
Weight: 75.6 g
Time to Print: 6h 38min
Approx. Cost: $7.56

https://tinyurl.com/printables-pride-flags

1. Pronoun Badges by meanderingwhale is licensed under the Creative Commons - Attribution license.
   a. Estimates based off printing the "They" badge.
2. Pride Rainbow by wafflecart is licensed under a Creative Commons (4.0 International License) Attribution—Noncommercial—Share Alike license.
   a. Estimates based off printing all 6 pieces of the rainbow (one of each size/color).
3. Queer Pride Keychains by heartbreakballer licensed under a Creative Commons (International License) Public Domain license.
   a. Estimates based off printing the gay pride keychain.
4. Pride Flag Collection for the Qube 500 by CZoliver_1307946 is licensed under a Creative Commons (4.0 International License) Attribution—Noncommercial—Share Alike license.
   a. Estimates based off printing the base and five stripes for the trans flag.

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