

3D PRINTING

Old Town Library

Winter Edition January - March 2024



TABLE OF CONTENTS

INTRODUCTION
3D Printing Overview
3D Printing Guidelines
Filament Colors
Quick Prints
QUICK PRINTS
Figures/Models/Toys
Assistive Tech, Gadgets, & Handy Stuff
Bookmarks
Fidget Toys & Puzzles
SEASONAL PRINTS
Winter Wonderland
Awards Season
Chinese New Year
Valentine's Day
St. Patrick's Day
FEEDBACK

3D PRINTING OVERVIEW

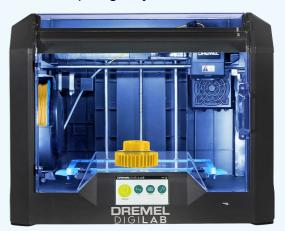
Libraries and 3D Printing

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?

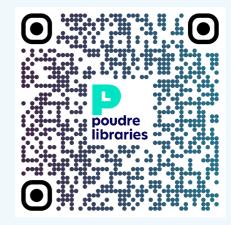
- 1. Visit our Resources page for modeling software, design libraries, and tutorials
- 2. Choose or create a 3D model to print
- 3. Save the model as .stl file or .3mf file (maximum size 50 MB)
- 4. Submit your 3D printing request

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.



FILAMENT COLORS



SILK

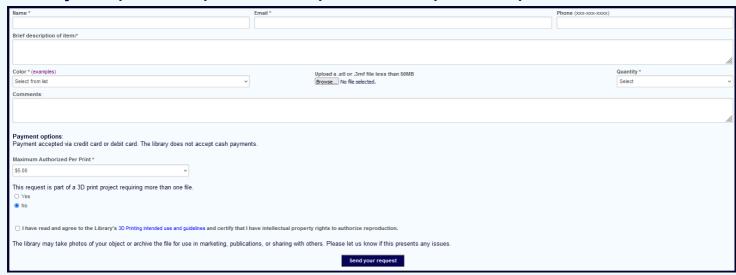


QUICK PRINTS!

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.



FIGURES/MODELS/TOYS



ARTICULATED ELEPHANT¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 90 mm X 42 mm x 32 mm

Weight: 27.38 g

Time to Print: 2h 32min Approx. Cost: \$2.74





FRIENDLY ARTICULATED SLUG²

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 89 mm X 24 mm x 23 mm

Weight: 15.22 g

Time to Print: 1h 35min Approx. Cost: \$1.52





ARTICULATED CAT³

Printables

PRINTING SPECIFICATIONS

Dimensions: 71 mm X 54 mm x 8 mm

Weight: 13.15 g

Time to Print: 1h 12min Approx. Cost: \$1.32





CHESS SET4

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: see footnote

Weight: 238.17 g (total, 16 pieces)

Time to Print: 23h 14min (total, 16 pieces)

Approx. Cost: \$23.82 (total)



^{2.} Friendly Articulated Slug by Isaiah is licensed under the Creative Commons - Attribution - Share Alike license.



^{3.} Articulated cat by Jacek Maryniowski licensed under a Creative Commons (4.0 International License) Attribution.

^{4.} Spiral Chess Set by BigBadBison is licensed under the Creative Commons - Attribution - Non-Commercial license.

a. Estimates based on printing one complete chess set (16 pieces). Must be submitted as separate jobs to fit within time limits. Our recommendation is to submit in 7 jobs (1 king, 1 queen, 2 rooks, 2 bishops, 2 knights, 4 pawns, & 4 pawns).

ASSISTIVE TECH, GADGETS, & HANDY STUFF



WEEKLY PILL CASE¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 76 mm X 76 mm x 20 mm

Weight: 51.06 g (total, 3 pieces)

Time to Print: 5h 23min (total, 3 pieces)

Approx. Cost: \$5.11 (total) https://www.thingiv



PULL-TAB CAN OPENER²

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 116 mm X 32 mm x 8 mm

Weight: 13.25 g

Time to Print: 1h 5min

Approx. Cost: \$1.33





EDUCATIONAL BRAILLE BOARD³

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 132 mm X 36 mm x 21 mm

Weight: 43.89 g Time to Print: 4h Approx. Cost: \$4.39





CABLE ORGANIZER CLIP⁴

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 56 mm X 43 mm x 25 mm

Weight: 11.40 g

Time to Print: 1h 7min

Approx. Cost: \$1.14



- 1. Weekly Pill Case / Organizer with Personalized Monogram Screw by Printfutura is licensed under the Creative Commons Attribution -Non-Commercial license.
 - a. Estimates are based on the 3 separate pieces (lid, base, screw) that need to be printed for this.
- 2. <u>Universal Ring Pull-Tab Can Opener</u> by <u>VegasGuy</u> is licensed under the <u>Creative Commons Attribution Non-Commercial No</u> Derivatives license.
- 3. Educational Magnetic Braille Board for Kids Learn Spelling and Braille by bigcharlton is licensed under the Creative Commons -Attribution - Share Alike license.
 - a. Estimates based on the basic braille set, not the letters & digraphs set (that one takes 8h to print and would need to be broken into multiple files).
- 4. Cable organizer clip with hinge by Plunderknabe is licensed under the Creative Commons Attribution license.

FIDGET TOYS & PUZZLES



CUBE PUZZLE QUARTET¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 63 mm X 52 mm x 20 mm

Weight: 19.87 g Time to Print: 1h 37min

Approx. Cost: \$1.99





FIDGET SPHERES²

Thingiverse

PRINTING SPECIFICATIONS

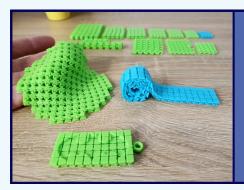
Dimensions: 41 mm X 41 mm x 32 mm

Weight: 22.60 g

Time to Print: 2h 11min

Approx. Cost: \$2.26





ARTICULATED PLATE³

Thingiverse

PRINTING SPECIFICATIONS

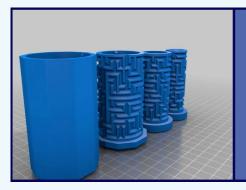
Dimensions: 87 mm X 79 mm x 6 mm

Weight: 29.18 a

Time to Print: 3h 19min

Approx. Cost: \$2.92





NESTED MAZE PUZZLE BOX4

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 55 mm x 48 mm x 84 mm

Weight: 145.23 g (total, 4 pieces)

Time to Print: 13h 9min (total, 4 pieces)



Approx. Cost: \$14.52 (total) https://www.thingive

- 1. <u>Cube Puzzle Quartet</u> by <u>mathgrrl</u> is licensed under the <u>Creative Commons Attribution Non-Commercial</u> license. a. Estimate is based on printing just the NOB puzzle.
- 2. Fidget spheres 2, 5, 7 by NOP21 is licensed under the Creative Commons Attribution Non-Commercial No Derivatives license. a. Estimate is based on printing only sphere 5 (medium-sized).
- 3. Articulated Plate No Support (Made with our easy software) by MumiNett is licensed under the Creative Commons Attribution Non-Commercial - No Derivatives license.
- 4. Russian Doll Maze Puzzle Box by 3DFabXYZ is licensed under the Creative Commons Attribution license.
 - a. Estimates are based on printing all four pieces (inner, center, outer, blank lid). Each piece must be submitted as a separate job in order to stay within time limits.

BOOKMARKS



TOTORO BOOKMARK¹

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 73 mm X 101 mm x 7 mm

Weight: 6.52 g

Time to Print: 0h 39min Approx. Cost: \$0.65





STRETCHING CAT BOOKMARK²

Printables

PRINTING SPECIFICATIONS

Dimensions: 213 mm X 111 mm x 11 mm

Weight: 18.41 g

Time to Print: 1h 33min Approx. Cost: \$1.84



ttp://tinvurl.com/printables-cat-bookmark



BOOKSHARK³

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 116 mm X 34 mm x 4 mm

Weight: 1.72 g

Time to Print: 0h 14min Approx. Cost: \$0.17





PENGUIN BOOKMARK4

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 79 mm x 57 mm x 3 mm

Weight: 5.61 g

Time to Print: 0h 33min Approx. Cost: \$0.56



<u>mmf.io/o/355(</u>

- 1. <u>Totoro Bookmark</u> by <u>3rdimensionCreations</u> is licensed under the <u>Creative Commons Attribution Non-Commercial</u> license.
- 2. Bookmark by Lukáš Panský is licensed under a Creative Commons (4.0 International License) Attribution license.
- 3. The Bookshark Bookmark by blecheimer is licensed under the Creative Commons Attribution Non-Commercial Share Alike license.
- 4. Bookmark-Penguin by 3dexcel is licensed under the Creative Commons Attribution Non-Commercial license.

WINTER WONDERLAND



3D SNOWFLAKES¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 127 mm X 125 mm x 3 mm

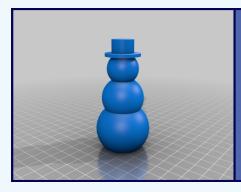
Weight: 12.82 g

Time to Print: 1h 20min

Approx. Cost: \$1.28



nttps://www.thingiverse.com/thing:6380890



SNOWMAN DECORATION²

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 98 mm X 68 mm x 13 mm

Weight: 25.92 g

Time to Print: 2h 17min

Approx. Cost: \$2.59



https://www.thingiverse.com/thing:5993254



WINTER LITTLE HOUSE³

Printables

PRINTING SPECIFICATIONS

Dimensions: 197 mm X 39 mm x 4.4 mm

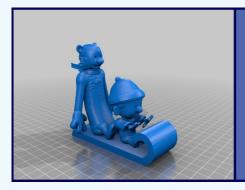
Weight: 10.10 g

Time to Print: 0h 57min

Approx. Cost: \$1.01



<u>ttp://tinyurl.com/printables-winter-little-house</u>



CALVIN & HOBBES SLED⁴

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 97 mm x 55 mm x 76 mm

Weight: 43.16 g

Time to Print: 4h 13min

Approx. Cost: \$4.32



https://www.thingiverse.com/thing:261374

- 1.3D Snowflakes (Slotted) by ProgressTH is licensed under the Creative Commons Attribution Share Alike license.
- 2. <u>Snowman decorations</u> by <u>243win</u> is licensed under the <u>Creative Commons Attribution</u> license.
- $3. \underline{\text{Winter little house}} \text{ by } \underline{\text{JanVolf 848952}} \text{ is licensed under the } \underline{\text{Creative Commons (4.0 International License)}} \text{ } \underline{\text{Attribution-ShareAlike}} \text{ license.}$
 - a. Our printer only prints in one solid color, so the white details must be painted on.
- 4. <u>Downhill ... Winter Edition</u> by <u>Chalter</u> is licensed under the <u>Creative Commons Attribution</u> license.
 - a. Estimates are based printing the complete file, scaled down to 80% of its original size to fit within the 5 hour time limit. If you didn't want to scale down, you could also submit the 3 separate files as different jobs.

AWARDS SEASON



EMMY AWARD¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: see footnote

Weight: 84.31 g (total, 8 pieces)

Time to Print: 7h 17min (total, 8 pieces)

Approx. Cost: \$8.43 (total) https://www.thingiverse.com/thing:457916





GRAMMY AWARD²

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: see footnote

Weight: 44.37 g (total, 3 pieces)

Time to Print: 3h 41min (total, 3 pieces)

Approx. Cost: \$4.44 (total) https://www.thingiverse.com/thing:4576709



ACADEMY AWARD (OSCAR)³

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 36 mm X 36 mm x 92 mm

Weight: 12.15 g

Time to Print: 1h 16min

Approx. Cost: \$1.22



ttns://www.thingiverse.com/thing:3247897



TONY AWARD4

Printables

PRINTING SPECIFICATIONS

Dimensions: 61 mm x 61 mm x 131 mm

Weight: 57.84 g (total, 3 pieces)

Time to Print: 4h 23min (total, 3 pieces)

Approx. Cost: \$5.78 (total)



http://tinyurl.com/printables-tony-award

- 1. Emmi Award by szczehoo is licensed under the Creative Commons Attribution license.
 - a. Estimates are based on printing all 8 parts (body, base, and 6 rings) at 65% scale. Pieces must be submitted as separate jobs. This will need to be assembled by the customer with glue.
- 2. <u>Granny Music Award statuette</u> by <u>szczehoo</u> is licensed under the <u>Creative Commons Attribution</u> license.
 - a. Estimates based on printing all three parts (base, head, tube) at 50% scale. Pieces must be submitted as separate jobs in order to fit within the printer. This will need to be assembled by the customer using glue.
- 3. Osca r by szczehoo is licensed under the Creative Commons Attribution license.
- 4. <u>Drama Award Tony Award Trophy</u> by <u>mattstudio</u> is licensed under a <u>Creative Commons (International License) Public Domain</u> license.
 - a. Estimates based on printing all 3 pieces (base, connector, medal). Pieces must be submitted as separate jobs in order to fit in the printer. This will need to be assembled by the customer using glue.

CHINESE NEW YEAR



TEALIGHT COVER¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 92 mm X 92 mm x 72 mm

Weight: 46.14 g

Time to Print: 4h 59min

Approx. Cost: \$4.61



nttps://www.thingiverse.com/thing:6384099



NEW YEAR COIN²

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 49.5 mm X 49.5 mm x 3 mm

Weight: 4.55 g

Time to Print: 0h 27min Approx. Cost: \$0.46

https://www.thingiverse.com/thing:639982



NEW YEAR DECORATIONS³

Printables

PRINTING SPECIFICATIONS

Dimensions: 243 mm X 120 mm x 2.5 mm

Weight: 37.93 g

Time to Print: 3h 44min

Approx. Cost: \$3.79



<u> http://tinyurl.com/chin-new-year-decor</u>



DRAGON INCENSE HOLDER4

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 141 mm x 54 mm x 69 mm **Weight:** 33.70 g (dragon) + 34.46 g (base)

Time to Print: 3h 55min(dragon) + 2h 52min(base)

Approx. Cost: \$3.37+ \$3.45 = \$6.82



mmf io/o/5476

- 1. Year of the Dragon Tealight Covers by C47 3D is licensed under the Creative Commons Attribution Non-Commercial No Derivatives license.
 - a. Estimates based on the SIM pattern file. PLA is NOT heat resistant. Please use an electric tealight.
- 2. <u>Year of the Dragon 2024 New Year Coin by two d man</u> is licensed under the <u>Creative Commons Attribution Share Alike</u> license. a. Our printer only prints in one solid color, so gold details must be painted on.
- 3. This work is licensed under a <u>Creative Commons (4.0 International License)</u> Attribution-ShareAlike.
 - a. Estimates based on the 50% scale file.
- 4. <u>Chinese New Year Dragon Incense Holder</u> by <u>ajerb123</u> is licensed under the <u>Creative Commons Attribution Non-Commercial license.</u>
 - on-<u>Commercial</u> license.

 a. Estimates based on the dragon unsupported file & base printed at 50% scale to fit on our printer. Dragon and base must be done as two separate prints to fit within time & size limits. PLA is NOT heat resistant, please burn incense with caution.

VALENTINE'S DAY



CONVERSATION HEARTS¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 96 mm X 88 mm x 10 mm

Weight: 20.85 g

Time to Print: 1h 45min

Approx. Cost: \$2.09 https





FLEXI REXI WITH HEART²

Printables

PRINTING SPECIFICATIONS

Dimensions: 98 mm X 68 mm x 13 mm

Weight: 25.92 g

Time to Print: 2h 17min Approx. Cost: \$2.59

http://tinyurl.com/printables-flexi-rex



HEART PUZZLE³

Printables

PRINTING SPECIFICATIONS

Dimensions: 134 mm X 120 mm x 3.5 mm

Weight: 32.88 a

Time to Print: 3h 12min Approx. Cost: \$3.29

<u> ttp://tinyurl.com/printables-heart-puzzle</u>



ROSE4

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: see footnote

Weight: 23.83 g

Time to Print: 3h 1min

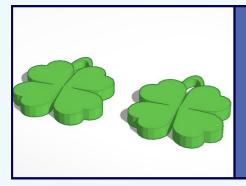
Approx. Cost: \$2.38



https://www.thingiverse.com/thing:67376

- 1. <u>Conversation Hearts</u> by <u>3Dziner</u> is licensed under the <u>Creative Commons Attribution</u> license.
- 2. Valentine Flexi Rex with Heart, NO supports by stlDenise is licensed under the Creative Commons Attribution ShareAlike license.
- 3. Valentine's Day Puzzle Heart by Marsupilami78 is licensed under the Creative Commons Attribution license.
 - a. Estimates are based only on the puzzle heart, not including the insert (which must be printed separately if desired).
- 4. Rose with Stem & Thorns & Sepals & Hip for Valentine's Day by kresty is licensed under the Creative Commons Attribution Non-Commercial license.
 - a. Estimates are based on printing the open rose, sepal, and 1 color stem w/ thorns. These are 3 separate prints that must be glued together to assemble the rose. The dimensions of the rose are 47 mm x 45 mm x 43 mm and the stem length is 129 mm.

ST. PATRICK'S DAY



FOUR LEAF CLOVER EARRINGS¹

Thingiverse

PRINTING SPECIFICATIONS

Dimensions: 70 mm X 37 mm x 4 mm

Weight: 5.41 g

Time to Print: 0h 30min Approx. Cost: \$0.54

https://www.thingiverse.com/thing:721679



POT OF GOLD²

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 91 mm X 86 mm x 68 mm

Weight: 72.04 g (total, 2 pieces)

Time to Print: 6h 29min (total, 2 pieces) **Approx. Cost:** \$7.21 (total, 2 pieces)



mmf.io/o/59832



LEPRECHAUN HAT³

Printables

PRINTING SPECIFICATIONS

Dimensions: 113 mm X 113 mm x 65 mm

Weight: 76.29 g (total, 4 pieces)

Time to Print: 6h 52min (total, 4 pieces)

Approx. Cost: \$7.63 (total)



<u> nttp://tinyurl.com/printables-leprechaun-hat</u>



TRIQUETRA KEYCHAIN⁴

MyMiniFactory

PRINTING SPECIFICATIONS

Dimensions: 54 mm x 53 mm x 7 mm

Weight: 6.31 g

Time to Print: 0h 41min Approx. Cost: \$0.63



mmf io/o/10339

- 1. St. Patrick's Day Earrings by Airscrew is licensed under the Creative Commons Attribution Non-Commercial No Derivatives license. a. Earring hooks not included.
- 2. Pot of Gold by miaka618 is licensed under the Creative Commons Attribution Non-Commercial license.
 - a. Estimates are based on the pot and cap files printed at 90% scale to fit within time limits. Pot and cap must be printed separately.
- 3. <u>St. Patrick's Day Hat</u> by <u>ClarasLittleArtworks</u> is licensed under a <u>Creative Commons (4.0 International License) Attribution—Noncommercial—Share Alike</u> license.
 - a. Estimates based off printing at 80% of original size. This hat is composed of four different files, which must be printed separately to fit within limits. Customer must assemble with glue.
- 4. <u>Triquetra keychain</u> by <u>timothys1</u> is licensed under the <u>Creative Commons Attribution Non-Commercial</u> license. a. Key ring not included.

FEEDBACK FORM



Please take a few moments to provide us with feedback on this catalog! Responses are anonymous & will be used to improve future editions.

If you'd like to provide more direct feedback, feel free to reach out to

arodriguez-marshall@poudrelibraries.org.