

3D PRINTING FOR THE CLASSROOM

Where to Start?



AMERICAN
PRINTING
HOUSE





Presenters

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Learning Objectives

- Describe 3D printing and modeling.
- Differentiate a 3D printed item from a tactile image.
- Identify characteristics of a good image file for a student with a visual impairment.
- Select image files using popular resources.



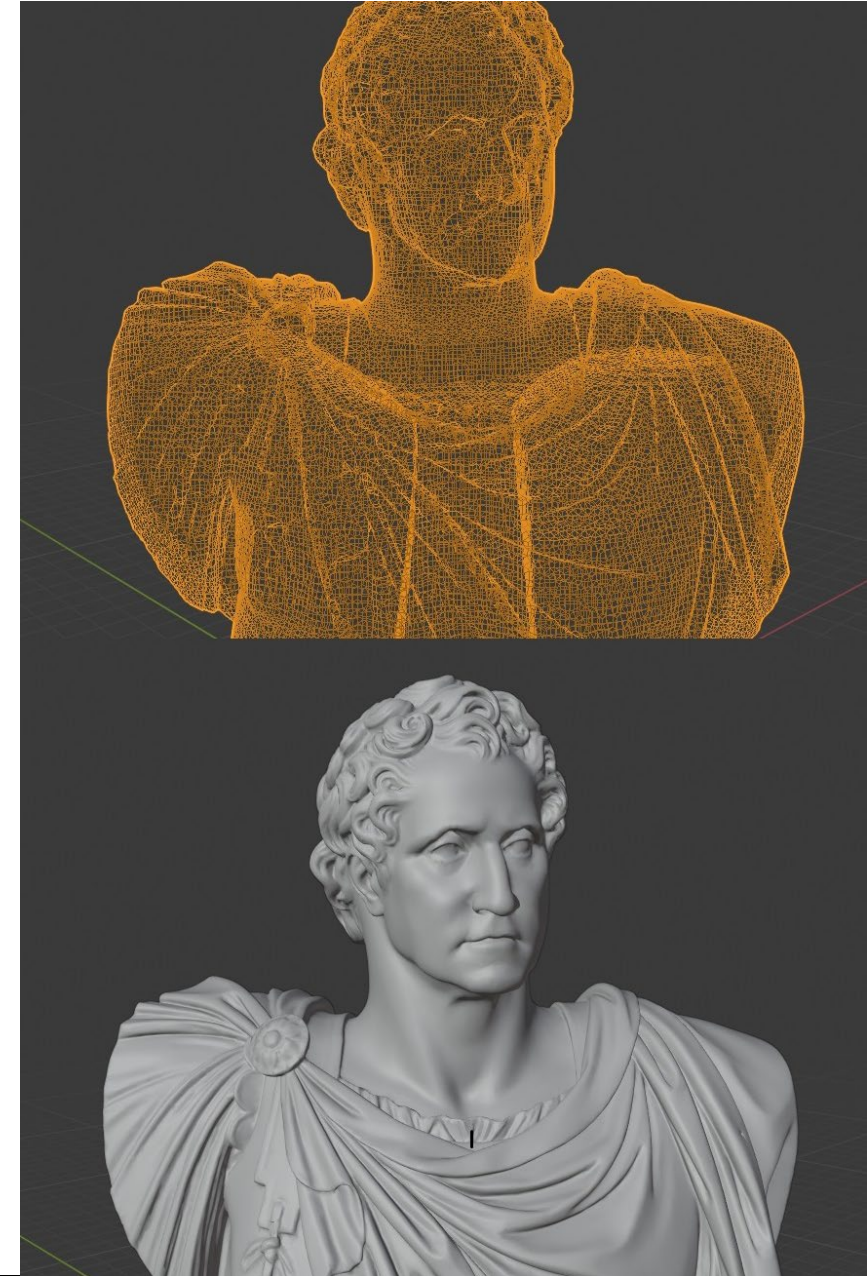
WHAT IS 3D PRINTING?

And why is it useful to me?



Concepts of 3D printing

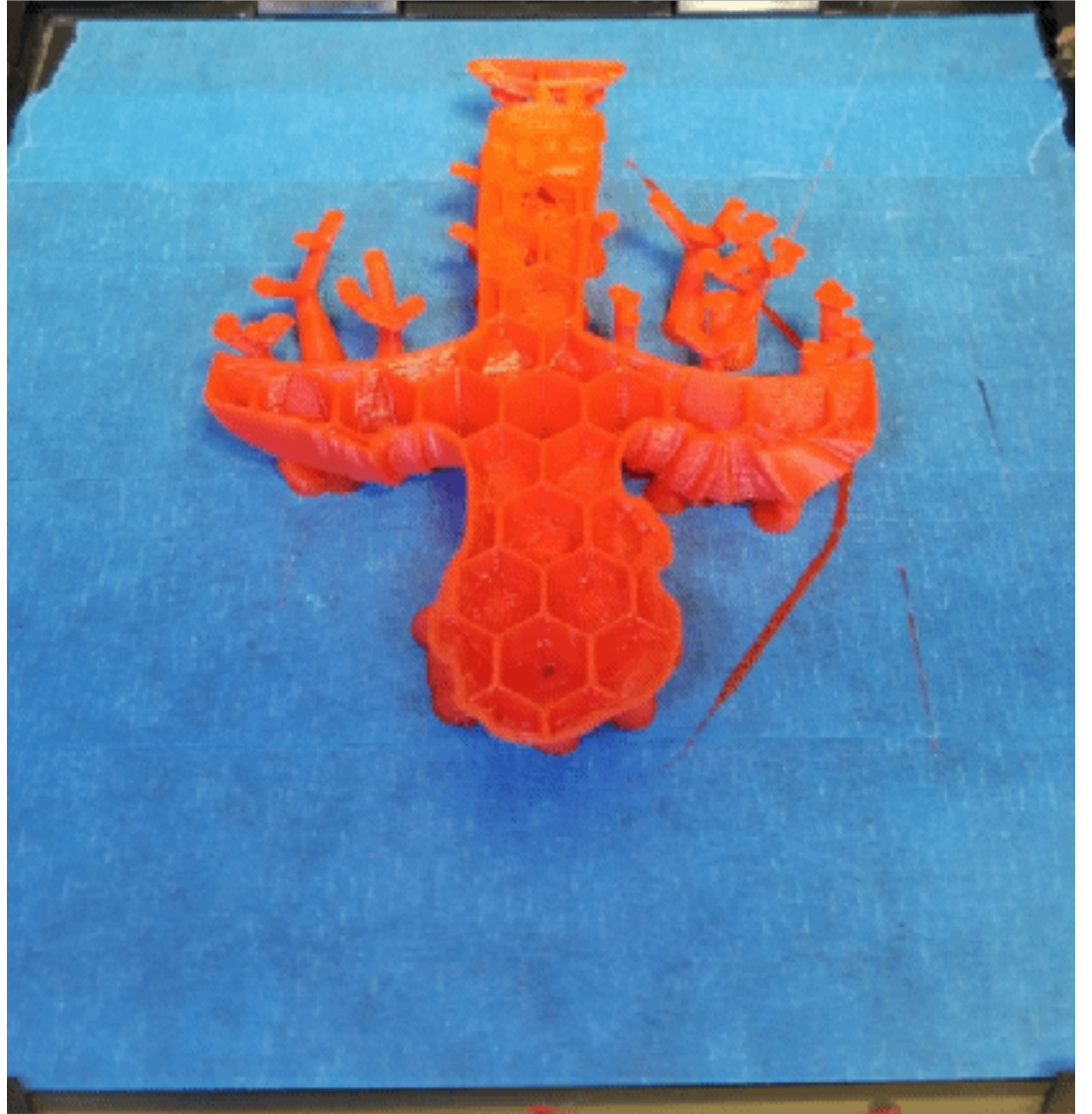
- A 3D model is a computer-generated shape with depth in three dimensions.
 - 3D printing, CGI (Computer Generated Images) and 3D animation in movies all use the same type of software.
- A 3D printer melts plastic to produce a physical version of the 3D model.



Concepts Continued

- A 3D printer prints from the bottom up, stacking layers of melted plastic until a 3D object is created.
- This process can take several hours depending on size, detail, and any printing errors.

3D Bust Printing

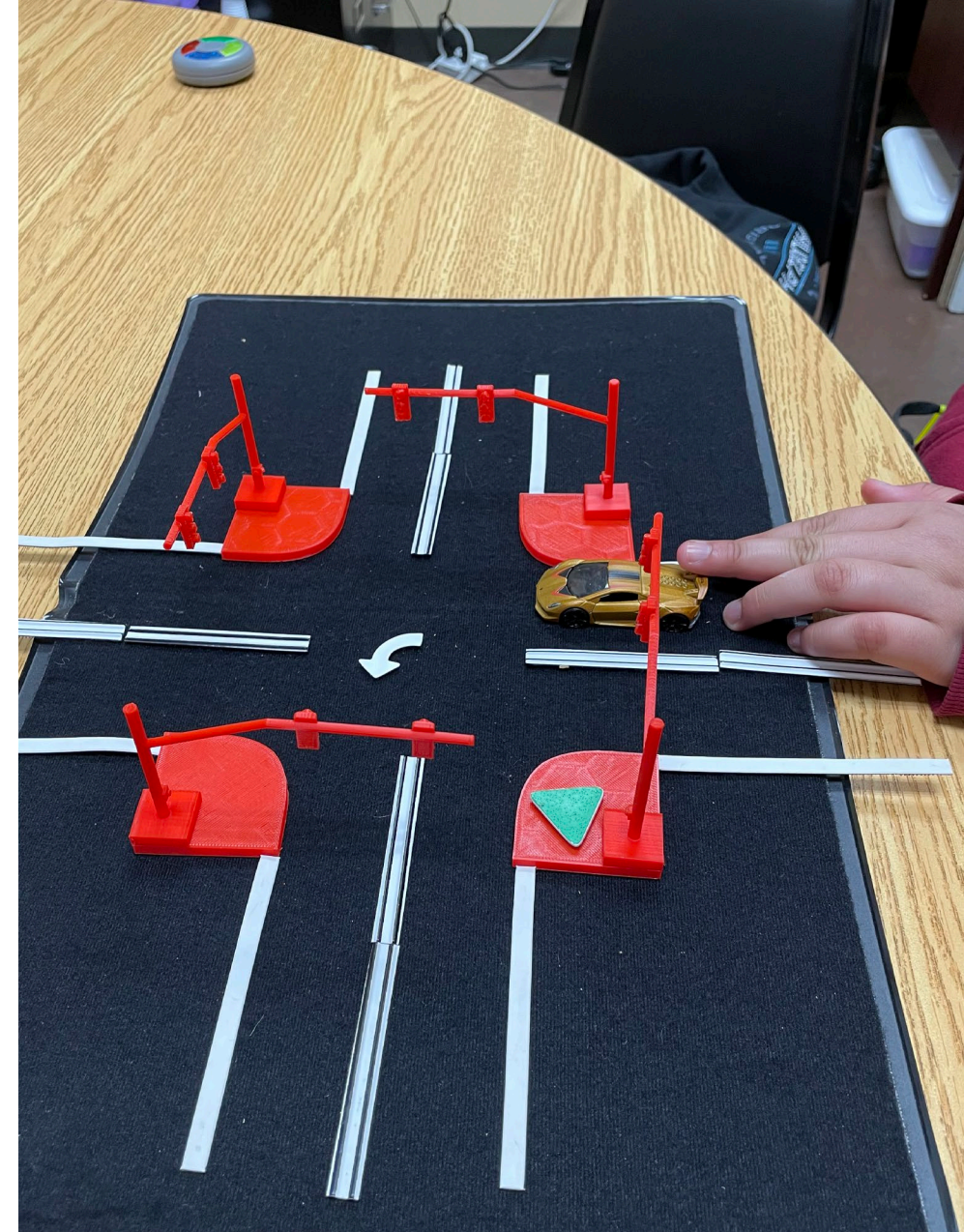


Why are 3D Printed Tools useful?

- Your students may benefit from interacting with manipulatives
- A tactile graphic may not portray a 3D object well
- You may need multiple sides of an object
- You might be recreating an item on a smaller scale

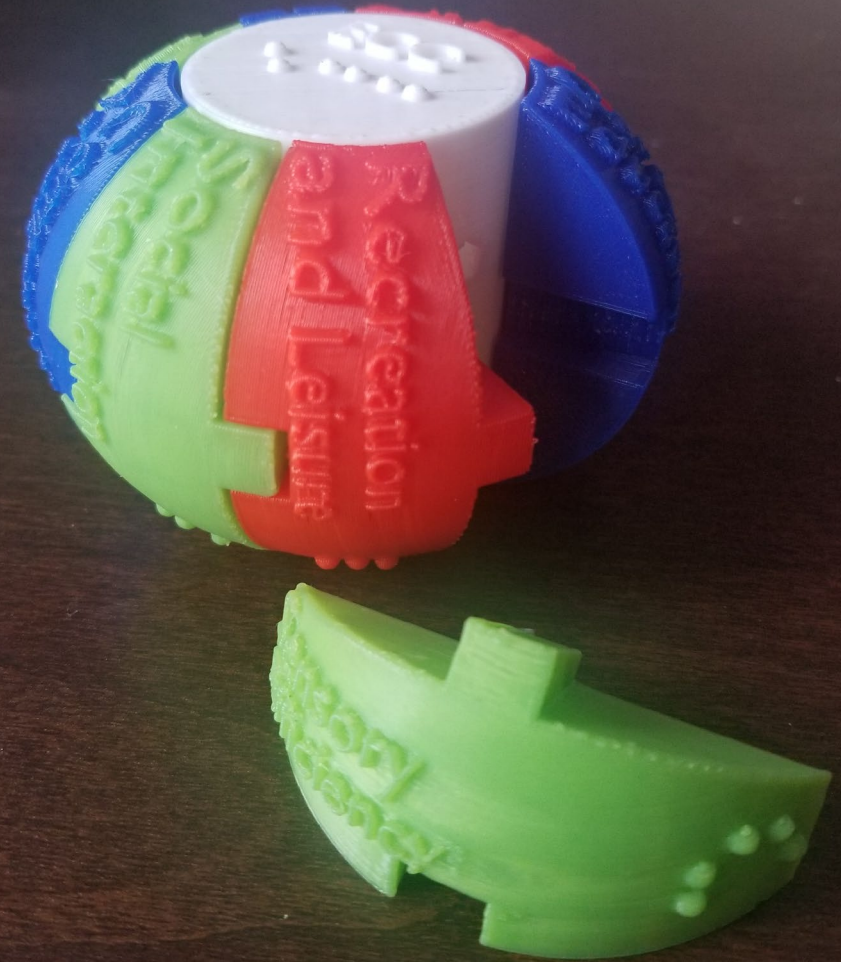
Traffic Lights for O&M

- Created with distinct texture to feel the curb, accessible pedestrian signal, and traffic light box
- Useful in teaching concepts like left green arrow turns with traffic
- Works well with a Tactile Wheatley Board that doesn't already have traffic lights



ECC Puzzle

- Useful for conceptualizing how the puzzle pieces fit together to access the general curriculum
- Multiple colors, and braille was added for braille readers
- A fun tactile manipulative for a student to put together during a lesson



What wouldn't I want to 3D Print?

- A 2D image that could be a tactile graphic
- Something that needs a distinct texture
- An abstract, intangible concept
- Something made easier or cheaper elsewhere

Student-Specific 3D Tools

3D Printing **should be** used for uncommon or specific needs a student is encountering – you may have tools you can only use with one student.





HOW TO GET YOUR ITEMS

Resources for finding and making your tools



3D Printing Resources

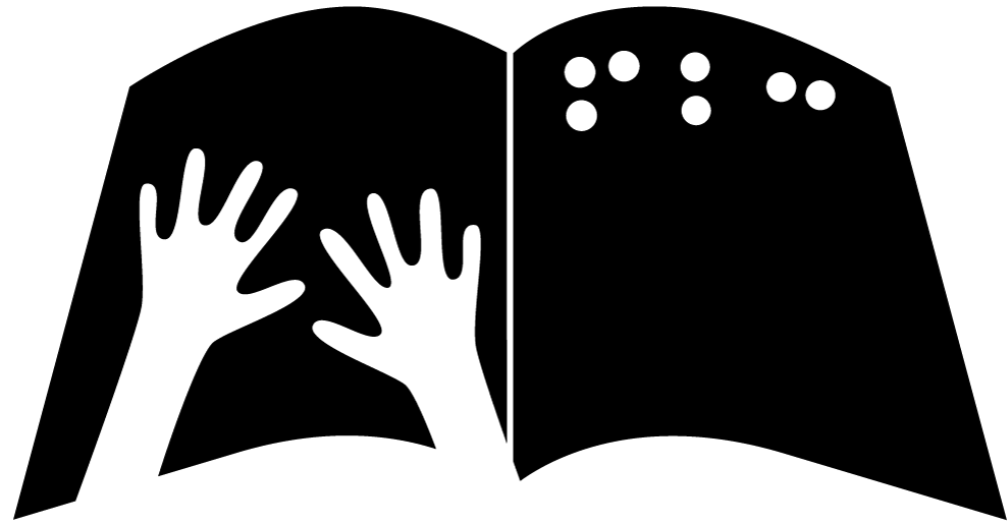
- [Thingiverse.com](https://www.thingiverse.com) – The original general 3D Model website.
- [Youmagine.com](https://www.youmagine.com) – Another general 3D Model website.
- [SketchFab \(Creative Commons\)](https://sketchfab.com) – Cultural and Historical 3D Models from Museums and similar institutions
- [The National Institute of Health](https://www.nhlbi.nih.gov/3d) – Biology, Chemistry, and health-related 3D models.
- [TGIL](#) – APH's Curated 3D Library

Where do I print?

- Ask your Instructional Resource Center.
- Public Libraries
- Universities
- High School Engineering Labs
- A 3D Printing Service

Credits

- [Polyhedral Dice – DOTS RPG Project](#)
- [DNA Helix – ingstefano](#) (Thingiverse)
- [Braille Writer Finger Guide – Jim Allan, Texas School for the Blind and Visually Impaired](#)
- [George Washington Bust – The Smithsonian Institution](#)



Foundation for Blind Children

Contact Information

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