

Incorporating 3D Printed Materials at All Levels and Abilities

Neal McKenzie

Assistive Technology Specialist, Sonoma County Office of Education

Leslie Edmonds

Teacher of the Visually Impaired, Sonoma County Office of Education

About Us



100+ VI Students

8 Teachers, 1 Brailist, 1 Assistive Technology Specialist

42 Districts within the County

Strong interest in Assistive Technology for VI students

Goal to **SHARE ideas and designs with districts**



There has been a surge of 3D materials that have come out in education.

Teachers of the Visually Impaired are finding out is that 3D printed materials are becoming an invaluable asset to our students.



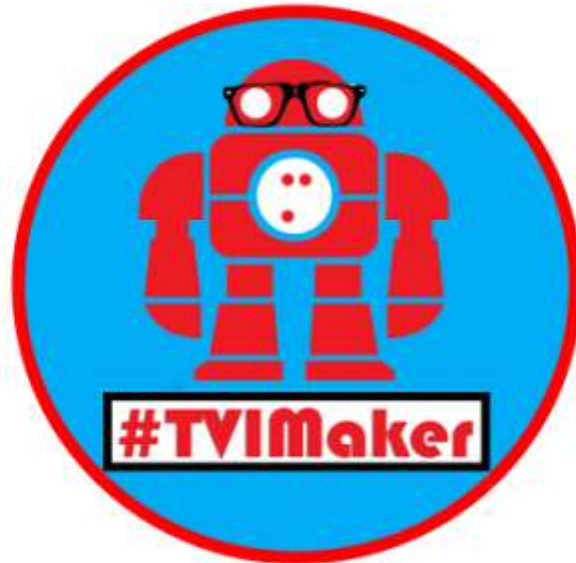
Anyone who works with a
blind/visually impaired student



A Room Full of TVImakers!

Last thing you adapted in order to make something accessible to your student?

A tactile representation/model that you are most proud of?



We are Not



CAD Engineers

3D printing professionals





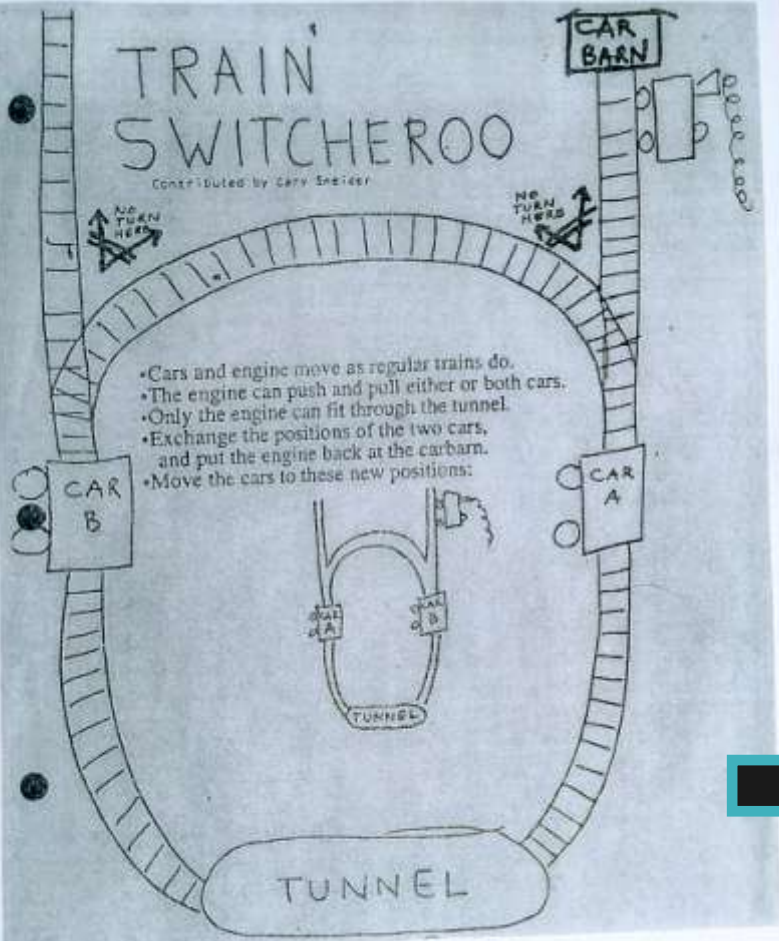
**Not always smooth sailing
- SCOE VI Team**





TRAIN SWITCHEROO

Conceived by Cary Speiser

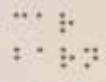


- Cars and engine move as regular trains do.
- The engine can push and pull either or both cars.
- Only the engine can fit through the tunnel.
- Exchange the positions of the two cars, and put the engine back at the car barn.
- Move the cars to these new positions:

Train Switcheroo



Car Barn



Directions

- Cars and engine move as regular trains do.
- The engine can push and pull either or both cars.
- Only the engine can fit through the tunnel.
- Exchange the position of the two cars, and put the engine back at the Car Barn.
- Move the cars to these new positions.



A black and white photograph showing a person's hands holding a large, rectangular sign made of folded paper or cardboard. The sign is held up in front of a blurred background of a crowd. The text on the sign is written in a thick, hand-drawn, sans-serif font. The sign is divided into four quadrants by a vertical and a horizontal fold line. The text is arranged in two lines: the top line contains the word "WHAT" and the bottom line contains the word "NOW?".

WHAT

NOW?

Step 1

Assess the Need for Materials

Are there materials out there that exist and will be enough for that student to have equal access to curriculum?

Is it practical to print the needed materials or manipulatives on a 3D printer?

Do I need to design it?

Will I need it again/similar?

Can I borrow it?

Step 2

Search for Designs that Meet the Need

There are open source (sharing of ideas/free) websites that AT professionals and teachers are using to share their designs.

www.thingiverse.com



www.tinkercad.com





Press esc to exit full screen

Step 3

Collaborate with those that have 3D Printers

This may be within your department or district, but if you do not have access, collaborate with neighboring organizations (colleges, local libraries, maker spaces) to print materials your student may need.



**WEAPONS OF
MASS CREATION**

Step 4

Picking out a 3D Printer

If you are finding that the 3D printer is an invaluable source, what are some attributes in a 3D printer should a district or county office look for to purchase?

- *Funding*
- *Ease of Use*
- *Product Support Research! research! research!*



FREE!

A stylized graphic of the word "FREE!" in a bold, yellow, sans-serif font. The text is set against a blue, jagged, starburst-like background that resembles a comic book explosion. The blue background is filled with a red halftone dot pattern. The entire graphic has a thick black outline and a slight 3D effect, giving it a dynamic and energetic appearance.



Ultimaker

3D Prints for Teachers of the Visually Impaired

Visually Impaired students can make great use of 3D prints to learn just about any subject, but their teachers need help making good models.

 Joan Horvath

Follow project

Like project



Makers making change

CONNECT. CREATE. MAKE ACCESSIBILITY.

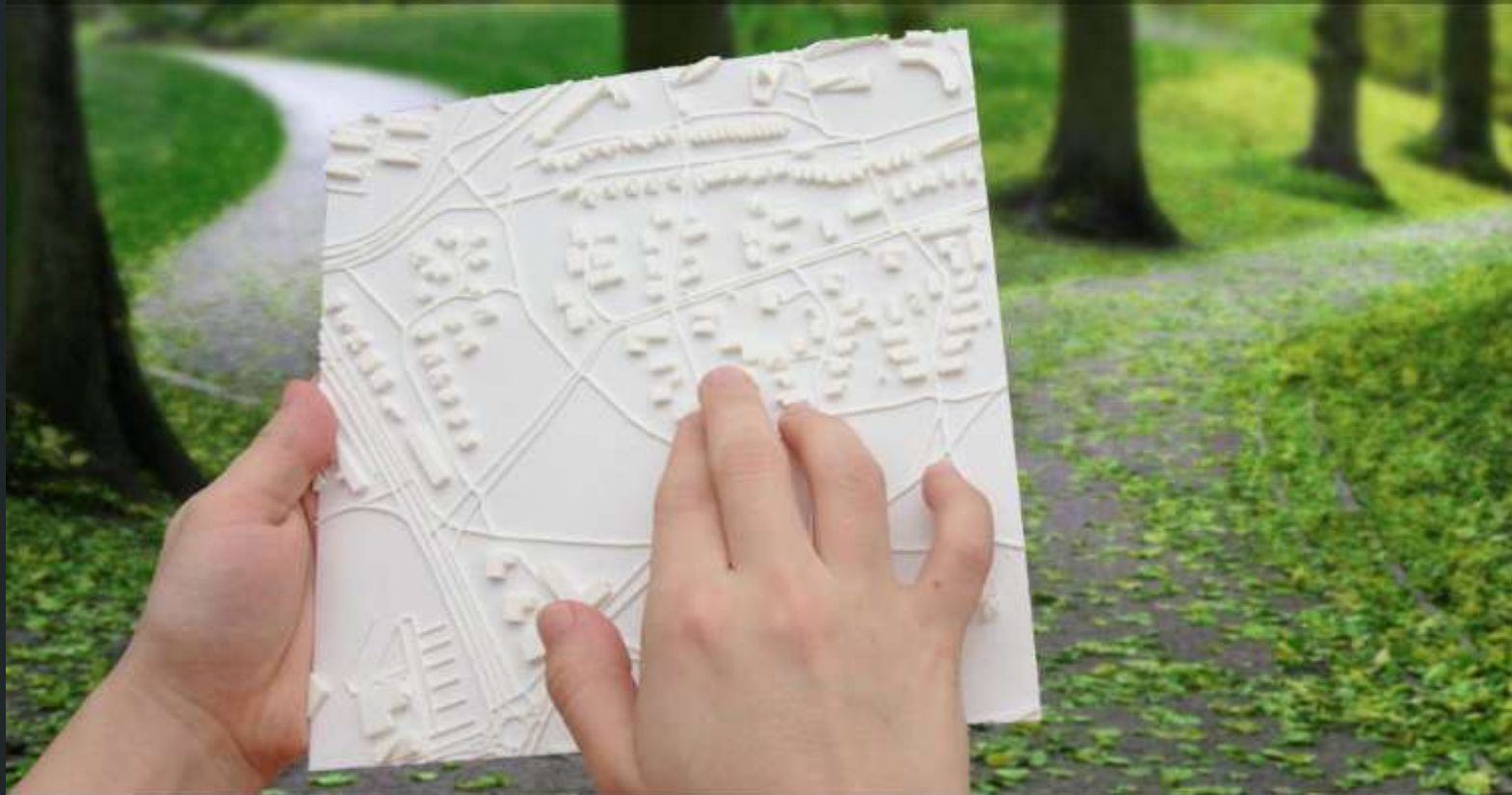
I wish that
was a
thing?



English

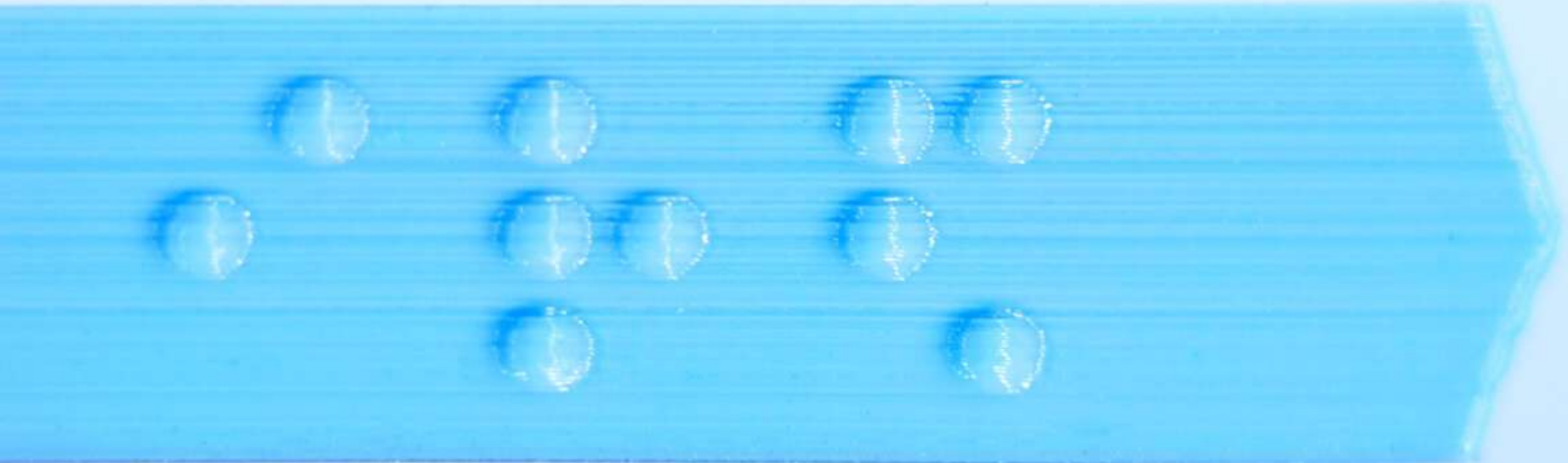
Help

Create tactile maps easily for any address





TouchSee.me





<https://goo.gl/BltvK8><https://goo.gl/BltvK8>



Q and A