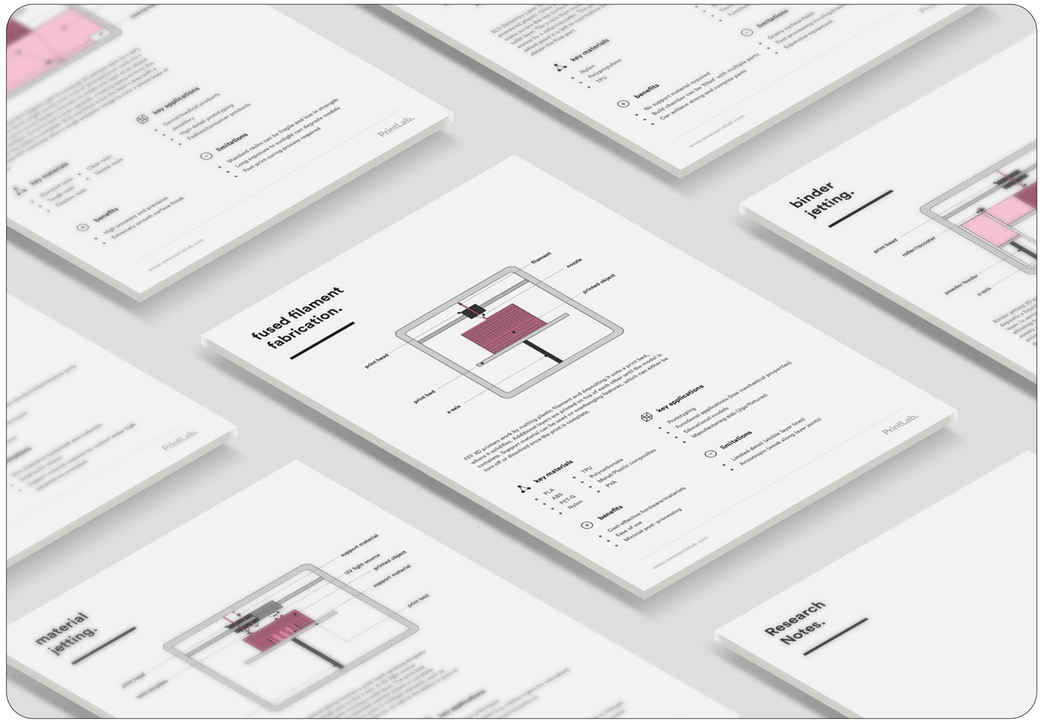
Hello! **We are** PrintLab

PrintLab is a learning platform that teaches students how to design custom products with 3D printing.

Our library is a toolkit of learning resources that fit into 3 categories - mini courses to build technical skills and knowledge; guided projects to show people how to design specific types of products through an iterative process; and live challenges where people can use everything they've learned to tackle open-ended briefs for real people and organisations.

Teachers can give students direct access to these resources using share links — no logins or accounts are required. Each link opens the course or project instantly, making it easy to integrate PrintLab into classroom lessons, virtual learning environments, or homework activities. See an overview of the platform in this video.

This guide outlines a suggested learning pathway through PrintLab resources to help your students prepare for the Make:able Challenge — developing the technical and creative skills needed to design meaningful 3D printed assistive devices. Each step is optional, allowing you to adapt the pathway based on the time available and your students' existing experience. If you're new to PrintLab, we recommend signing up for a free trial here as you explore the guide.

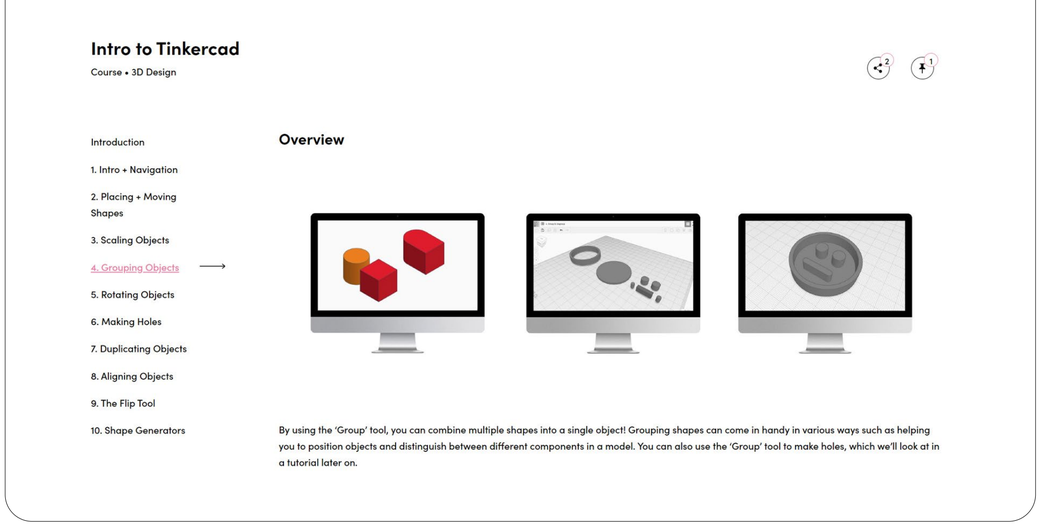


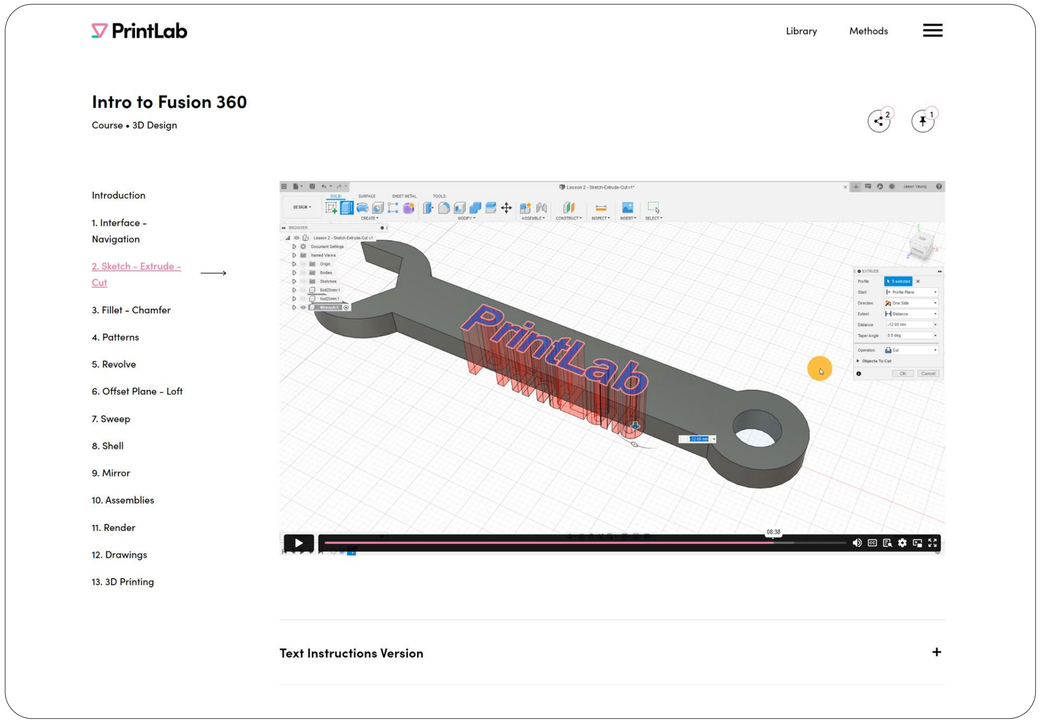
STEP 1 - Develop an understanding of the 3D printing industry and technologies.

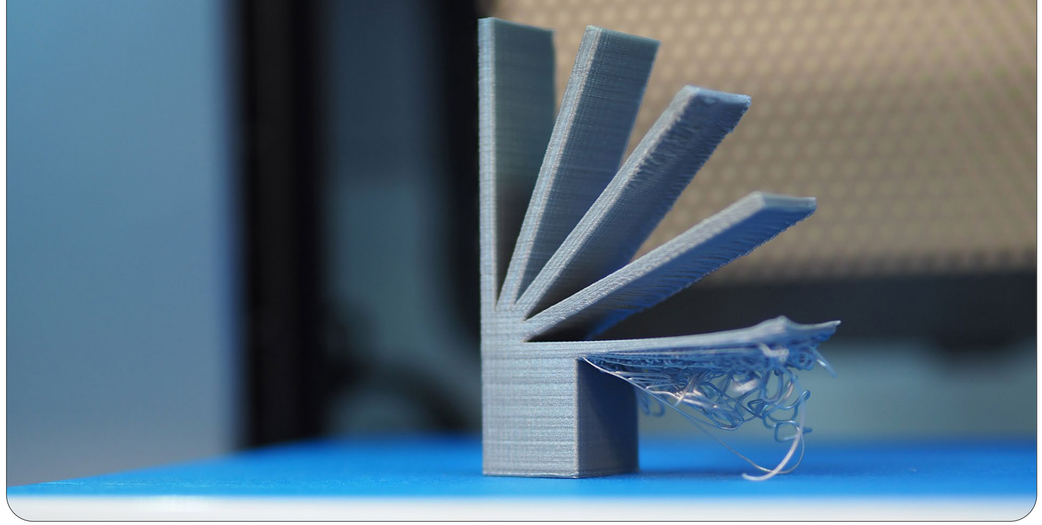
Begin by introducing your students to the 3D Printing Industry mini course, which explores key aspects of the 3D printing industry — from rapid prototyping and local manufacturing to customisation, sustainability, and global accessibility. Then guide them through the 3D Printing Technologies resource to help them understand six major types of 3D printing technologies.

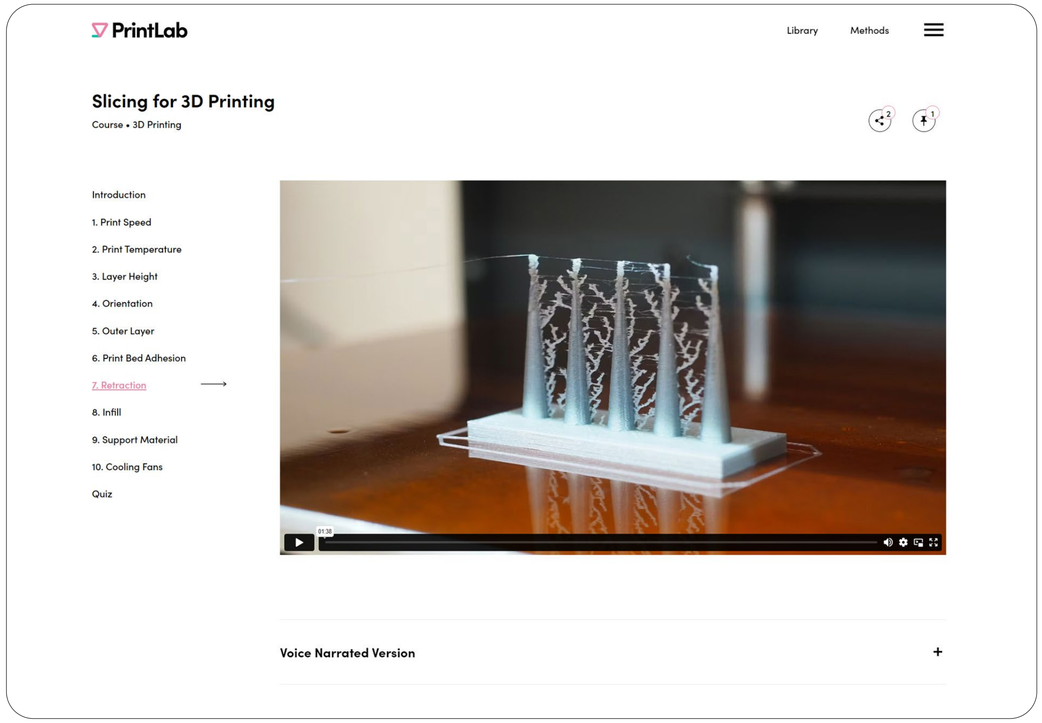
STEP 2 – Select a 3D CAD software and learn the basic tools and functions.

The majority of PrintLab projects include tutorials in both Tinkercad and Fusion 360 (both free for educational and personal use), allowing you to choose which software your students will work with. We recommend Tinkercad for complete beginners and Fusion 360 for students who have some 3D CAD experience or wish to take on a greater challenge. You may wish to begin by introducing both options, then guide students to complete either the Intro to Tinkercad or Intro to Fusion 360 course.







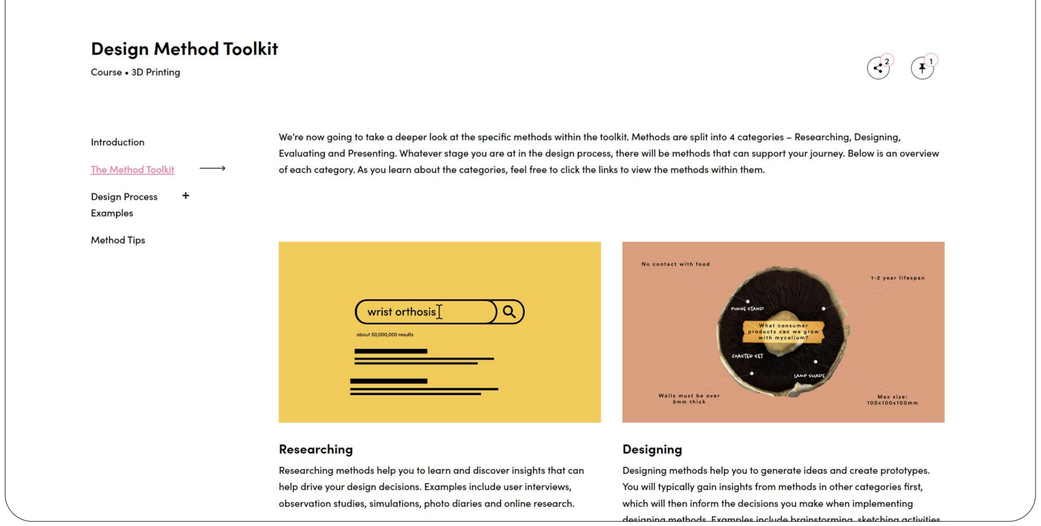


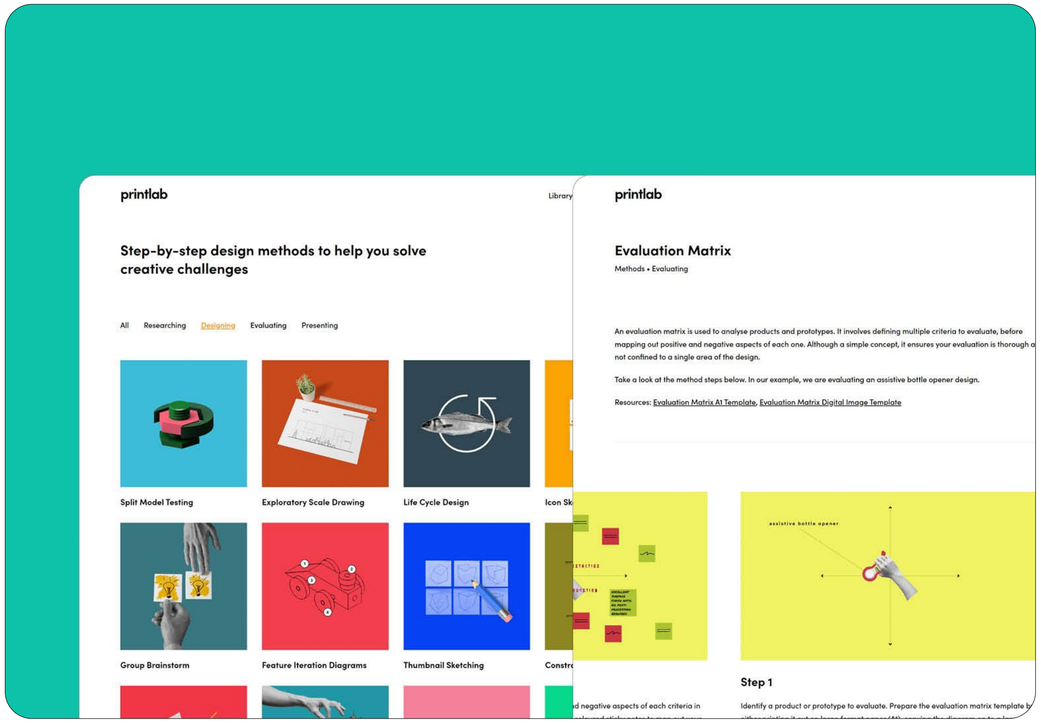
STEP 3 - Learn how to optimize 3D models and slicer software settings for quality 3D prints.

Our Designing for 3D Printing course introduces students to best practices for designing specifically for 3D printing, while the Slicing for 3D Printing course explains ten essential slicer settings to help them achieve high-quality prints. Guiding your students through both courses will equip them with foundational knowledge that can be applied to all of their future 3D design projects.

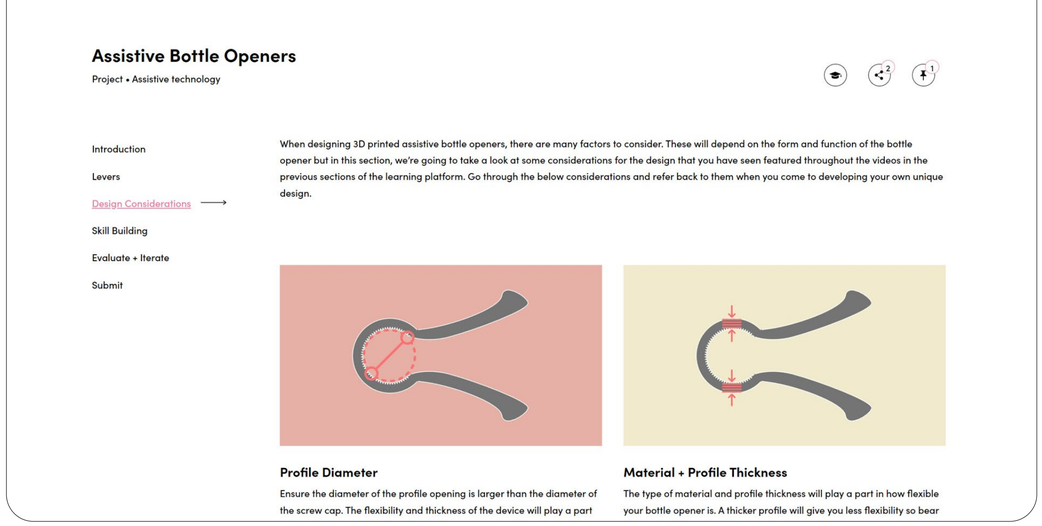
STEP 4 – Understand the full creative process and the tools available to you.

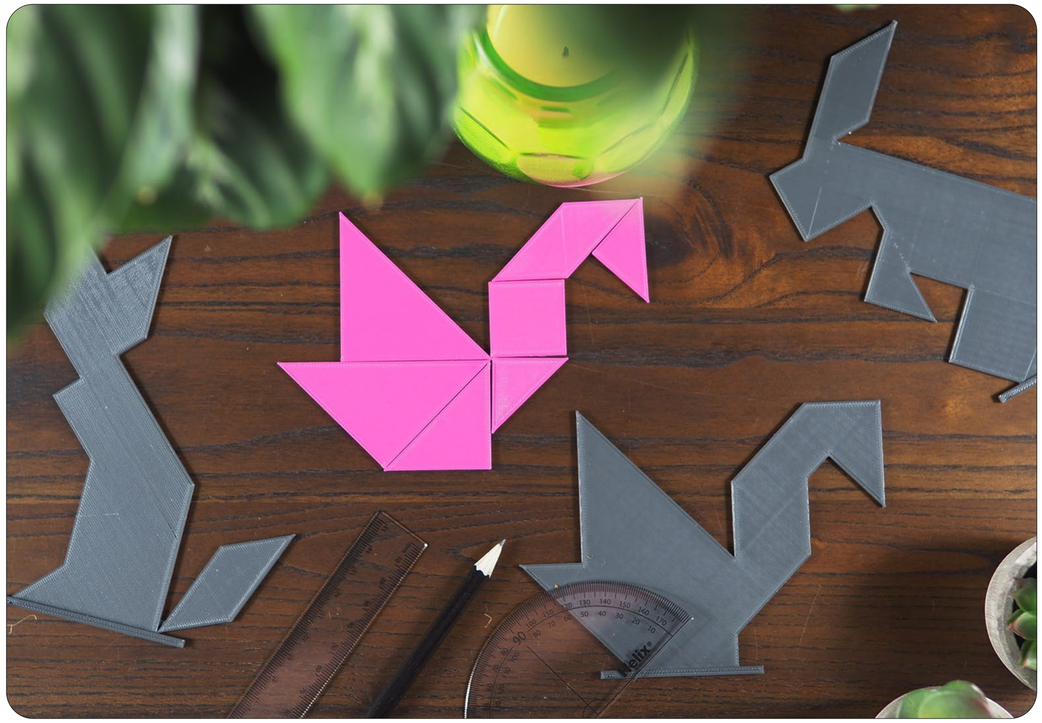
Before your students begin their design projects, it's valuable for them to understand how designers approach creative challenges and the techniques they use throughout the process. PrintLab's Design Method Toolkit provides a range of step-by-step activities for researching, generating ideas, prototyping, evaluating, and presenting work. By introducing your students to this resource, you'll help them plan and implement these design methods within their own projects.





At this stage, your students will have developed a strong foundation of 3D printing knowledge and skills, which they can now apply in a series of assistive technology design projects.



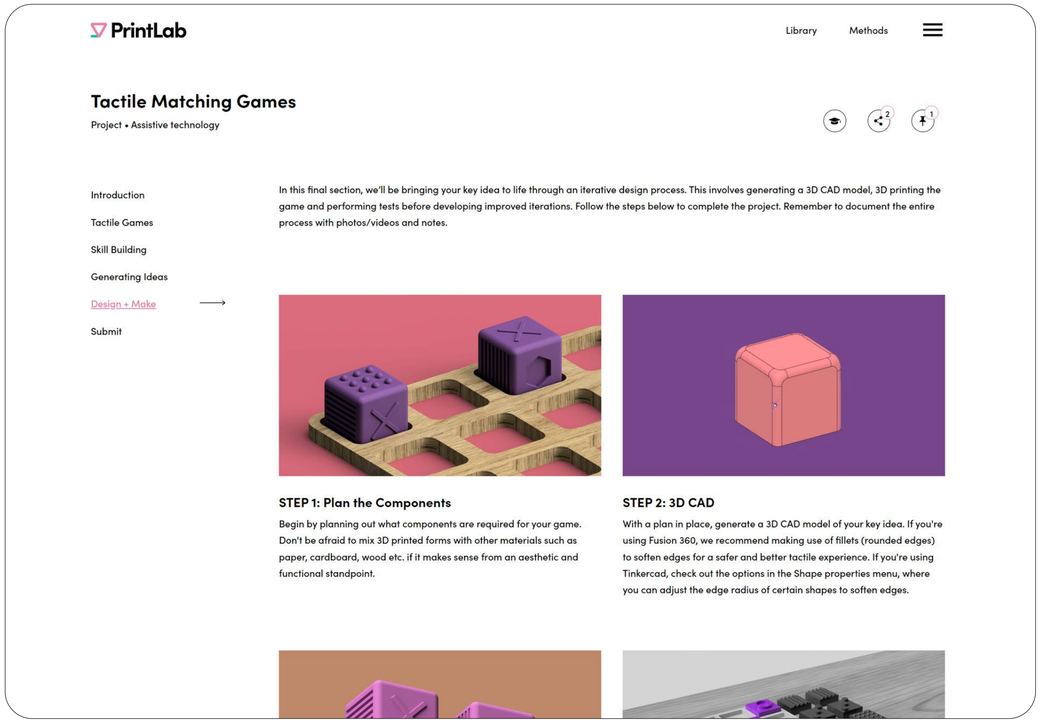


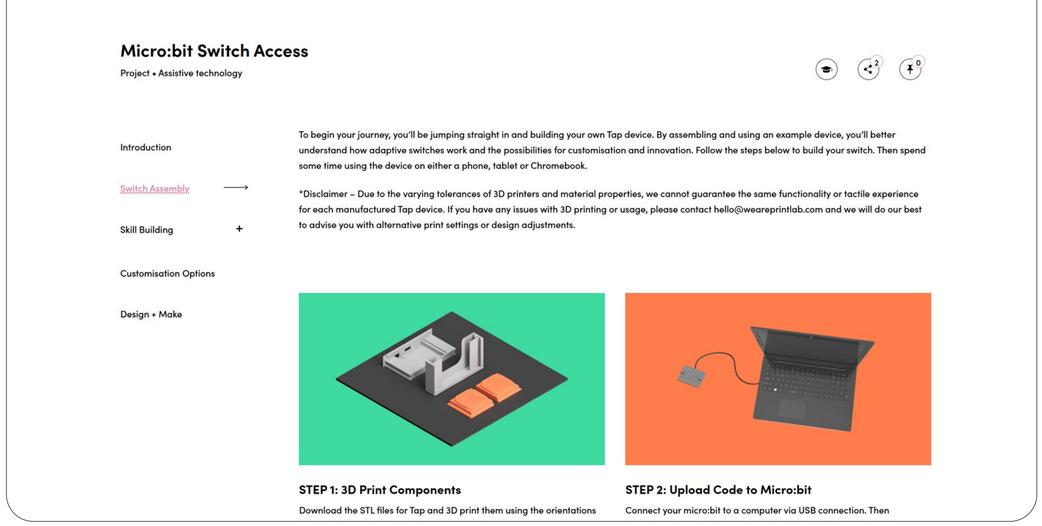
STEP 5 - Participate in beginner projects to adapt example designs.

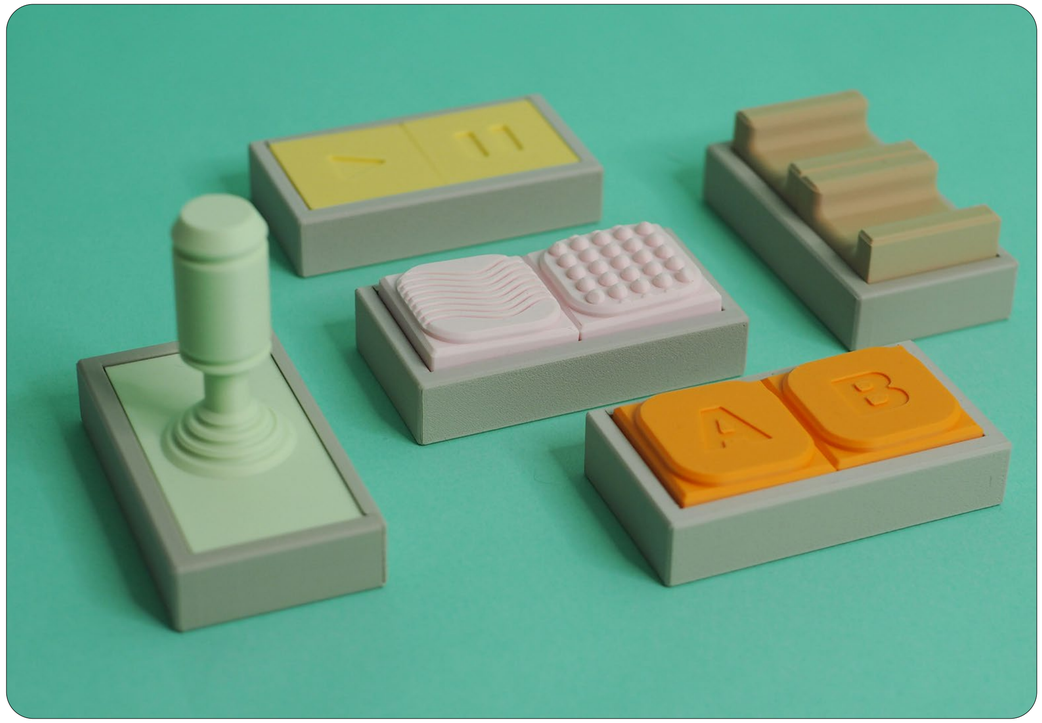
Our Assistive Bottle Openers and Tactile Tangram projects are ideal starting points for beginners. These resources guide students through the full design process as they adapt or modify existing designs, while introducing key design methods such as evaluation matrices and real-time prototyping. You may wish to select one or both projects for your students to complete at this stage.

STEP 6 – Move on to projects that allow for more creative freedom.

Our Assistive Clips and Tactile Matching Games projects build on the beginner resources introduced in Step 5. They guide students through the full design process using a range of design methods, but this time with greater creative freedom to develop their own unique solutions rather than adapting existing designs.



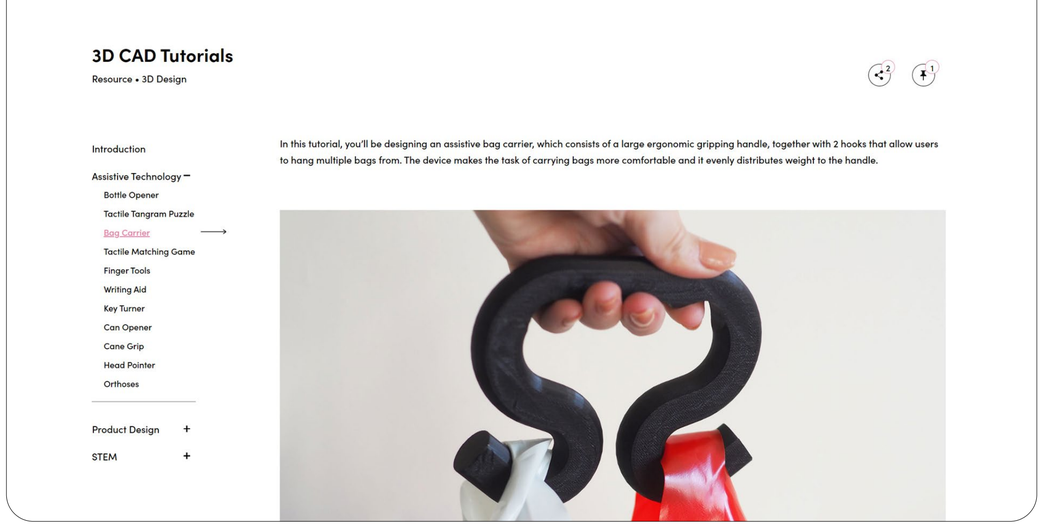




STEP 7 - Learn how to integrate electronics and coding into your designs.

The possibilities with 3D printed assistive technology are vast - but when you combine it with electronics and coding, the potential grows even further. Our Micro:bit Switch Access project guides students through the process of designing a Bluetooth dual-switch device that enables people with disabilities to control phones, tablets, and computers. Along the way, they'll develop practical skills in coding, electronics, and inclusive design — taking their creativity and technical ability to the next level.

After completing a series of projects, encourage your students to spend some time further developing their 3D CAD skills — enabling them to bring a wider range of creative ideas to life.

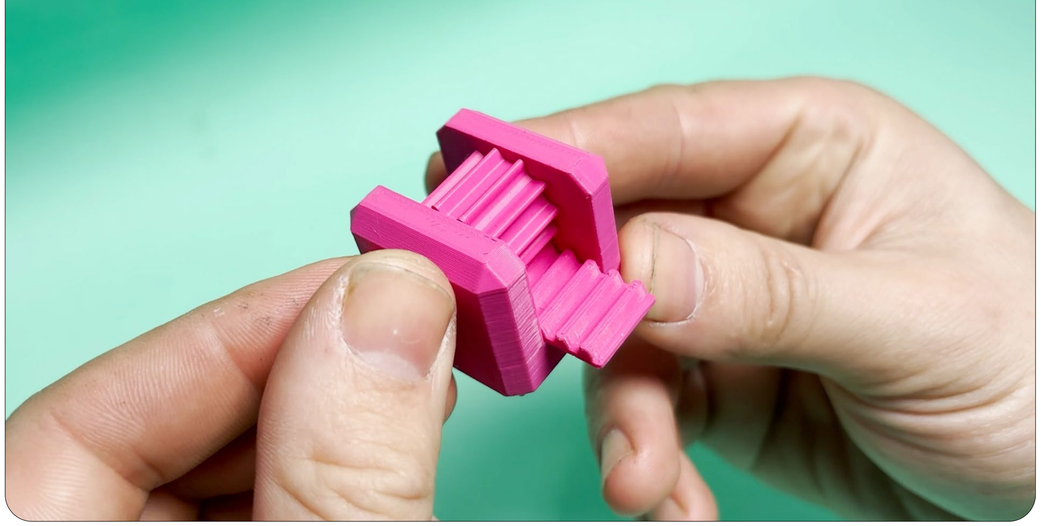


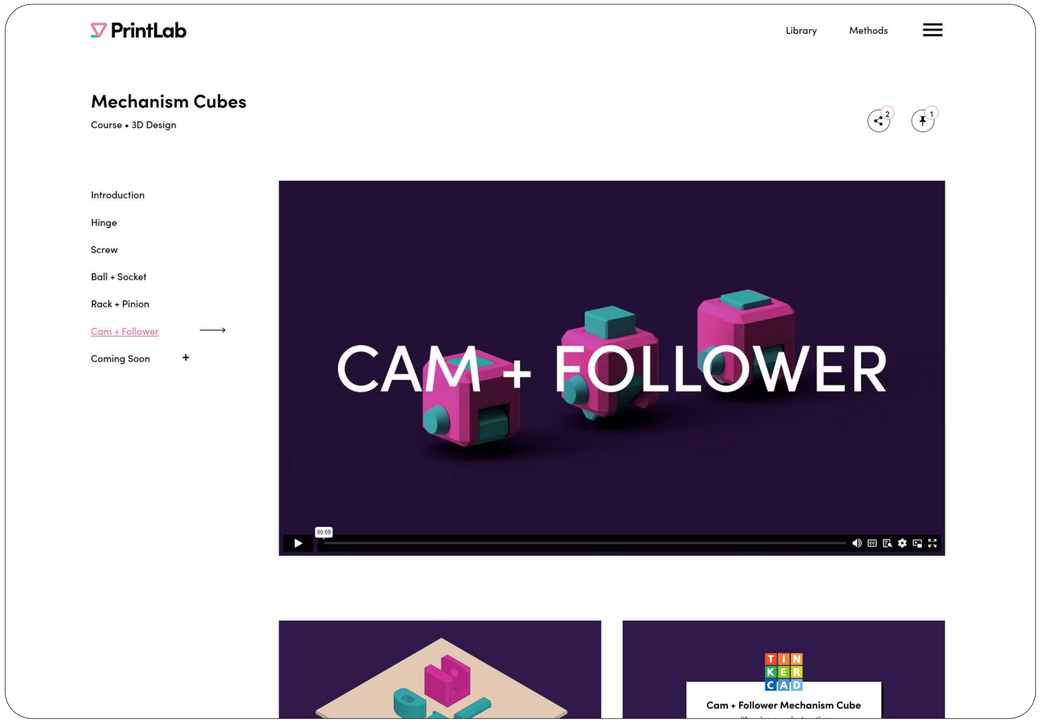
STEP 8 – Engage in additional assistive device CAD Tutorials

If your students began with Tinkercad, you may wish to introduce them to the more advanced 3D CAD software, Fusion 360. This can be achieved through the Tinkercad to Fusion 360 or Intro to Fusion 360 courses. You can also guide students to explore additional 3D CAD tutorials in the Tools Library, including a range of assistive device tutorials they may not have completed yet.

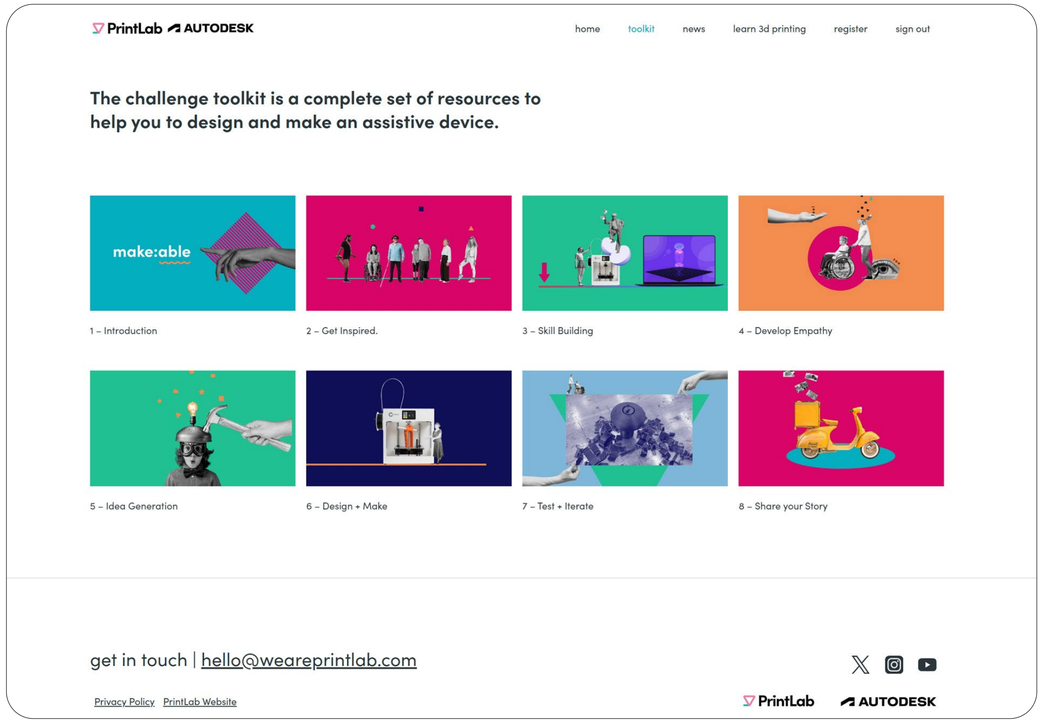
STEP 9 – Learn how to add connections and movement to your 3D models.

Our Mechanism Cubes course is an intermediate-to-advanced resource that introduces students to the fascinating world of 3D-printed mechanisms. The creative learning materials teach them how to add connections and movement to their 3D models — unlocking new and innovative design possibilities.





As this learning pathway concludes, your students should now be ready to apply their skills to design an assistive device that improves the life of a real end user.

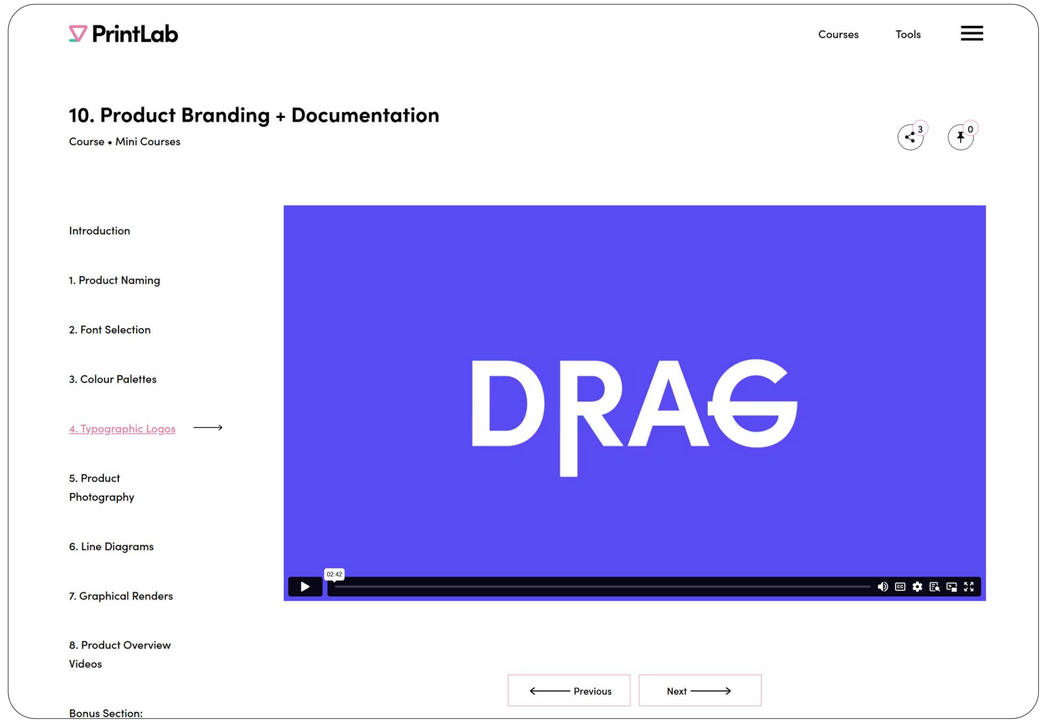


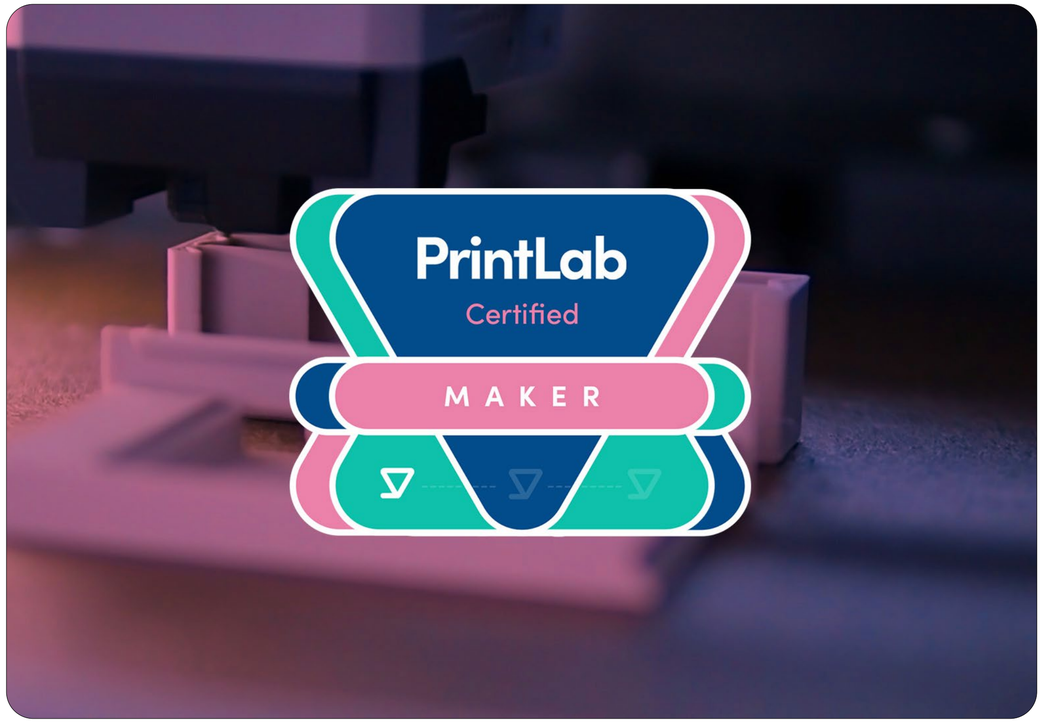
STEP 10 – Participate in the Make:able Assistive Technology Challenge

Now that your students have completed the learning pathway, they're ready to put their skills into practice by developing their assistive devices for the Make:able Challenge. As the teacher, you'll need to register on the Make:able platform to gain access to the challenge toolkit and receive a unique access code for your students. Once registered, share the code with your students so they can access the toolkit. Guide them as they explore the process of developing empathy, generating ideas, and prototyping their concepts — helping them create meaningful solutions for real end users.

STEP 11 – Develop professional branding skills to launch open source devices.

After your students complete the Make:able Challenge, you may wish to extend their learning through the Product Branding + Documentation course. This resource teaches them how to name their designs, build a simple visual identity, capture strong photography, create diagrams and renders, and prepare their projects for open-source release — enabling their work to be used and adapted by people all around the world.





Did you know that by completing the learning pathway, you can obtain PrintLab Certifications?

As your students progress through this learning pathway, they can submit their mini course certificates, project portfolios, and challenge submissions to earn industry-recognised digital badge certifications. These verifiable micro-credentials are ideal for sharing on email signatures, résumés, or digital portfolios — helping them showcase their 3D design and assistive technology skills. Learn more on the PrintLab 3D Printing Certification page.

We hope your students find value in this learning pathway. Remember that PrintLab is an ever-growing platform so keep an eye out for new resources every month!

www.weareprintlab.com