101 - Intro to 3D Modelling

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Acknowledgement

We acknowledge Aboriginal and Torres Strait Islander peoples and their continuing connection to land and as custodians of stories for millennia. We respectfully acknowledge the land on which we all meet today, and pay our respects to elders past, present and emerging.

Workshop presentation

The 3D modelling workshop has been created into a slide show for presentation and documentation purposes. Please feel free to download and use the guide and files as per our CC license in the footnote.

Some pages may link to other online workshops, tutorials or guides created at The Edge, you may require the internet to connect and view links.

[Admin view](#)

Public slides

Summary

Using the State Library 3D printers you can turn a digital 3D model into a solid plastic object.

In this workshop you will learn the basics of 3D design with Tinkercad and how to print your own model, including how to load it into the printer and cleaning up the product. You will also get a look at the basics of Blender.

101 skill development workshops give you the basic skills you need to start your new creative

journey. Each workshop is delivered by an experienced facilitator and no prior experience is required, just basic computer skills, a willingness to learn and a bit of ambition.

Skills Introduced

In this workshop we'll be

- **learning about the Prusa i3Mk3s** (the 3D printers we currently have for booking at The Edge - safety considerations, its major components and the workflow to take 3D model and prepare it for printing.
- **learning about Tinkercad** the entry level Computer Aided Design (CAD) software teach people to get started in 3D printing. In this we'll look at nagivating a virtual 3D space on a 2D screen, the tools in TinkerCad and some of the things you should consider when deigning for 3D printing
- **discussing finishing other ways 3D printing can be used** Some of the things you can to achieve a better finish your 3D prints and some of the ways 3D printing can be used in other processes including casting, vacuum forming and injection moulding.
- **Induction** - participants will complete the 3D printing Induction during this session.

Materials, Tools and Software

Participants will print in The Edge's standard PLA+ and may want to use some hand tools to remove support and clean up their finished print. PLA particles present an inhalation risk so we won't be using any abrasive tools for finishing in the workshop.

Computers used for this workshop require:

1. Web browser for TinkerCad and Inductions.slq.qld.gov.au
2. Prusa Slicer
3. USB port/SD card slot

Health & Safety

Running this workshop at The Edge?.. You should familiarise yourself and your participants with:

- DML Risk Assessment
- Innovation Lab Risk assessment
- 3D Printer (FDM) SOP
- Print bed cleanse with isopropyl SOP

Preparation

Before the workshop you will need to check that

- you have a set of sample prints for participants to take away (see files at the bottom of the page)
- have prints set up, established and paused to show participants at Part 4 of the workshop
- have an example SVG file ready to demonstrate "import and extrude SVG" function in tinkerCAD
- * the 3D printers are functional and available for use
- Enough filament is loaded on the machines for everyone to print
- you have enough SD card and Card readers

References

PDF of Powerpoint presentation inc facilitator notes Powerpoint Presentation

3d_printing_101_tinkercad_prusaslicer.pdf

Blender Vase

Paint on supports in PrusaSlicer

Video

Support breakdown with Makers Muse
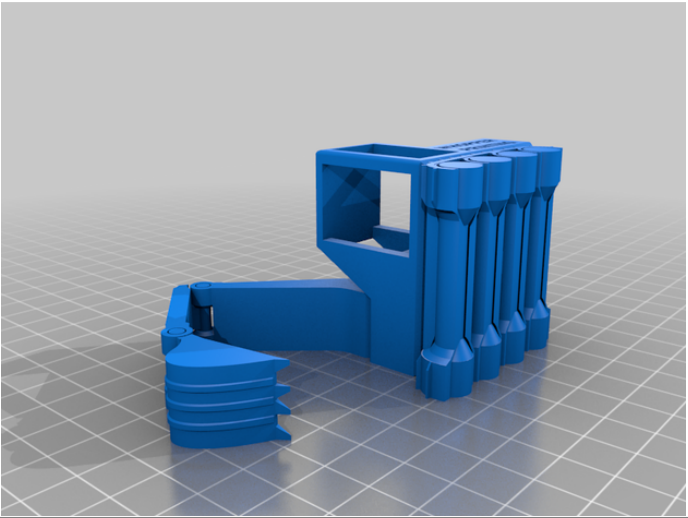
Video
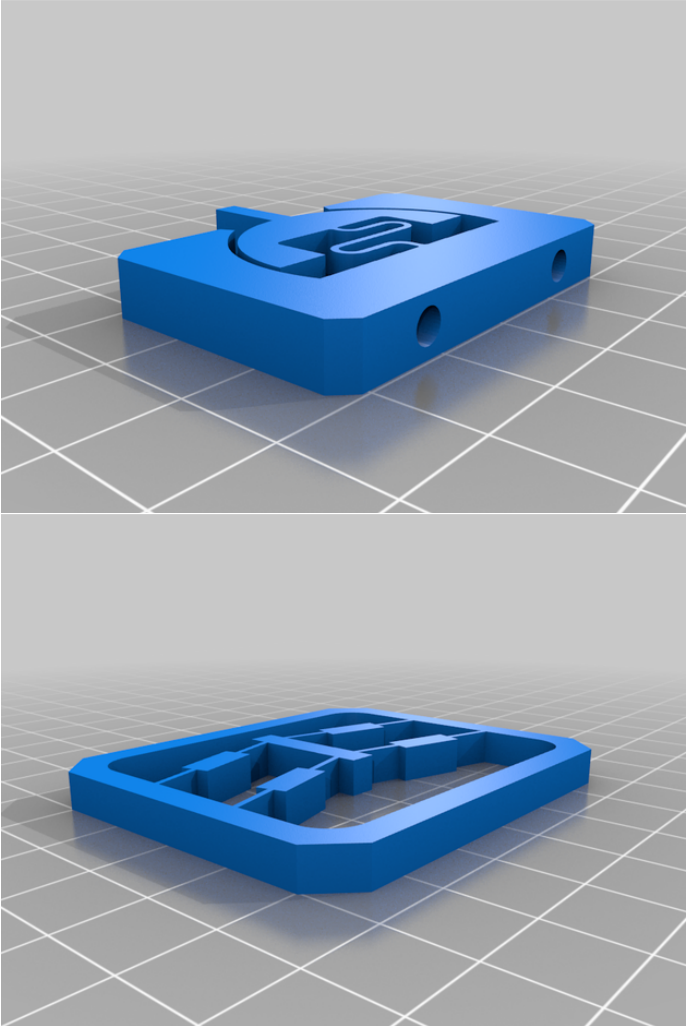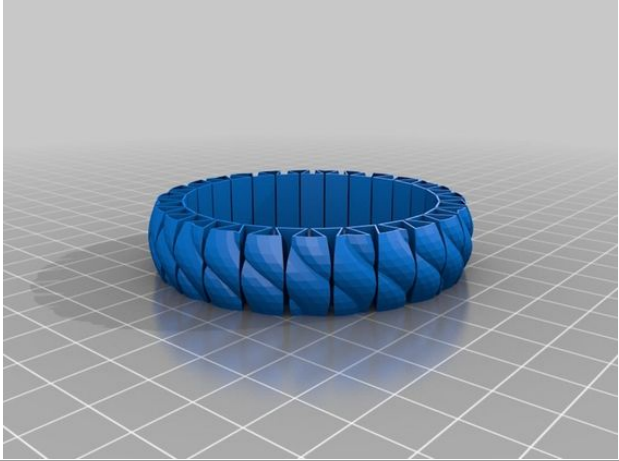
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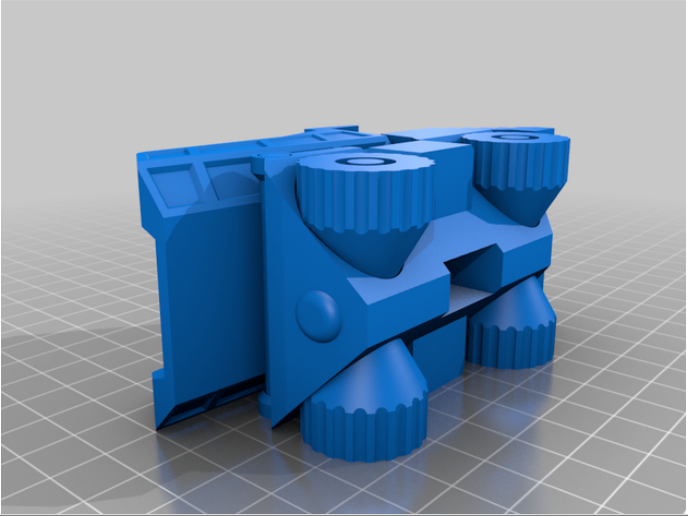
Video
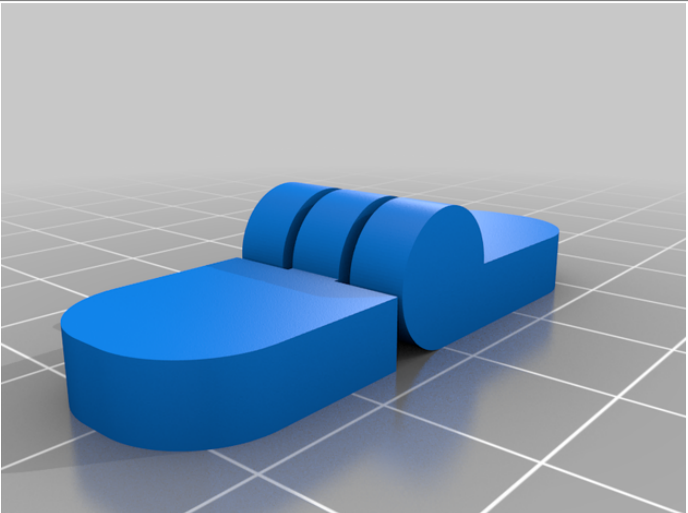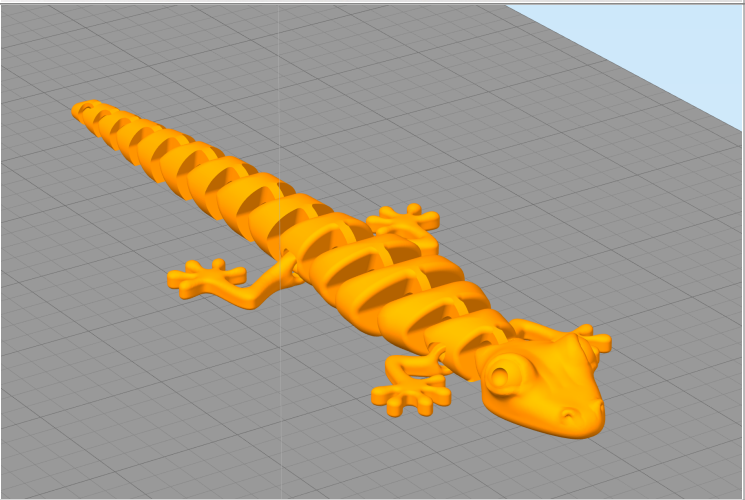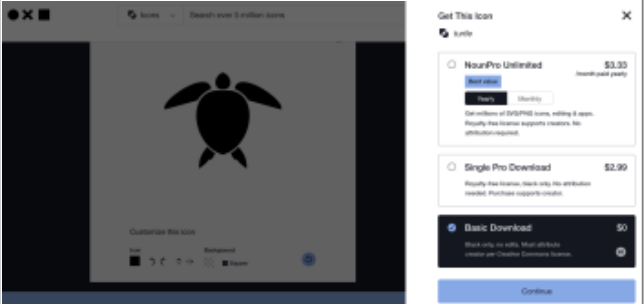
Downloads

Sample Prints from Thingiverse
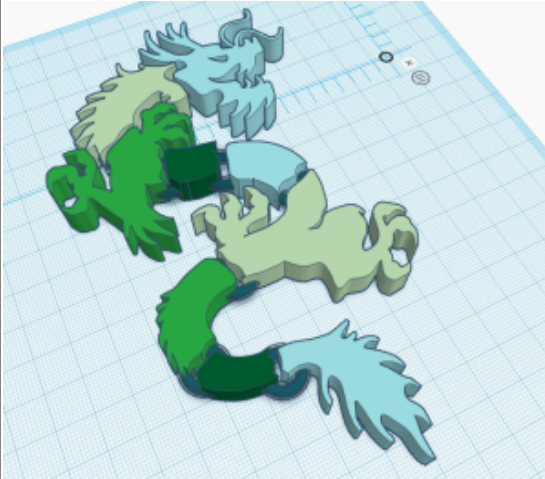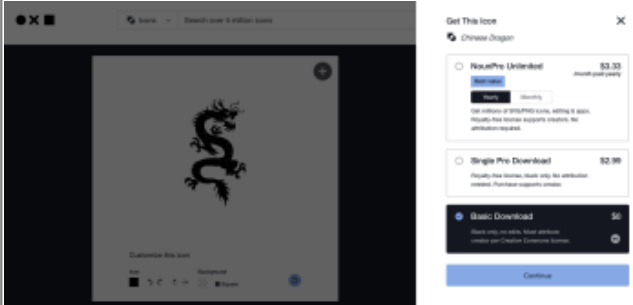
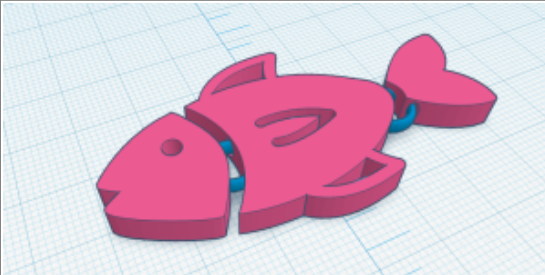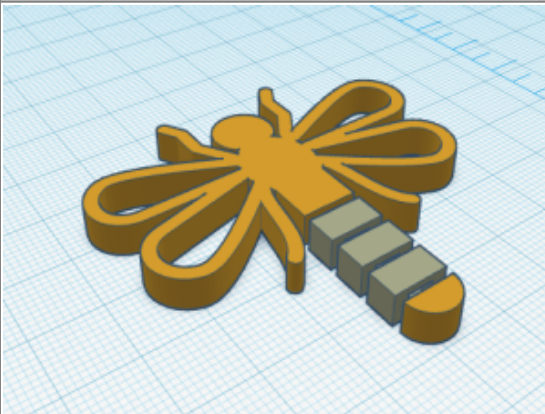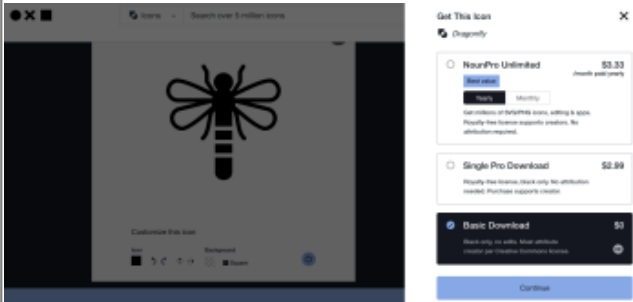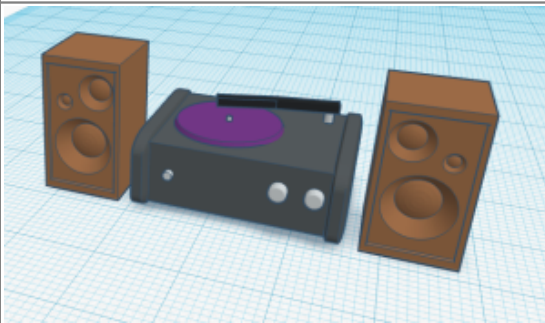| Description	Files	Image
Demo of compliant mechanisms - handy for designing 3D printed switches and latches	compliant_mechanisms_rotational_joint_planar_translator_5872685.zip	
Vase Mode stretchy bracelet	stretchy_bracelet_13505.zip	
Print-in-Place flexible chainmail	hex_chain_scale_mail_255924.zip	

Description	Files	Image
Print-in-Place dumptruck	print-in-place_dump_truck_5697698.zip	
Print-in-Place digger	print-in-place_excavator_5449036.zip	
Parametric butt hinge generator on Thingiverse	my_customized_parametric_hinge_5869950.zip	

Description	Files	Image
Incredibly strong (considering) screw clamp	hand-screw_clamp_2403756.zip	
Articulated Lizard	articulated_lizard_v2_3505006_2.zip	

Sample Prints from from Mick

Description	File	Source Material
Articulated turtle	 turtle.stl	

Description	File	Source Material
Articulated Dragon	 dragon_2_.stl	
Articulated Fishy	 fishy.stl	
Articulated Dragonfly	 dragonfly_3_.stl	
Record Player	 record_player_1_.stl	

Vases

Blender Vase 01

Blender Vase 02

Tinkercad Vase 01

Blender Vase 02