NSW GOVERNMENT Education & Communities

Public Schools NSW

object AUSTRALIAN DESIGN CENTRE

3D Printing

Exploring the possibilities

What we've covered so far…

Session 1:

Object: Australian Design Centre

Annette Mauer, Head of Learning

http://www.object.com.au

- *What is Object: Australian Design Centre?*
- *What Object offers teachers?*
- *The Ctrl[P] 2013 exhibition*
- *Links with practising designers*
- *Designers using 3D printing in their process*

What we've covered so far…

Session 2:

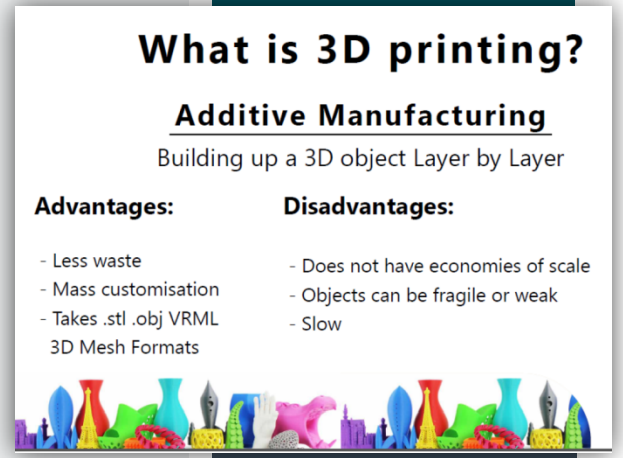
Industry representative

Angus Deveson, 3D Printing Studio

http://www.3dprintingstudio.com.au

What is 3D Printing?

- *Basic 3D printing process*
- *Different 3D printing technologies and materials*
- *3D printers from entry level to high-end industry standard*
- *CAD/CAM software*
- *3D scanning*
- *Outsourcing*



What we've covered so far…

Session 3:

Industrial Designer

Andrew Simpson, Vert Designs

http://www.vertdesign.com.au

- *Evolution of work and the impact of technology on design and production processes and end products.*
- *3D printing overview – comparison to paper printers.*
- *Utilisation of 3D printing as a design and production tool.*
- *Use of 3D printing at different stages of the development of a design - testing, modelling finished product.*
- *Advancements in technology → falling prices → cost effective option for more than just prototyping → shift in design thinking.*
- *Advantages of 3D printing – design modification, customised design.*
- *Appropriate use of 3D printing:*
  - *small parts/components*
  - *part of manufacturing process*
  - *low volume production*
- *Blending advancements in technology with traditional skills and techniques – the place of 3D printing in the design and production process.*

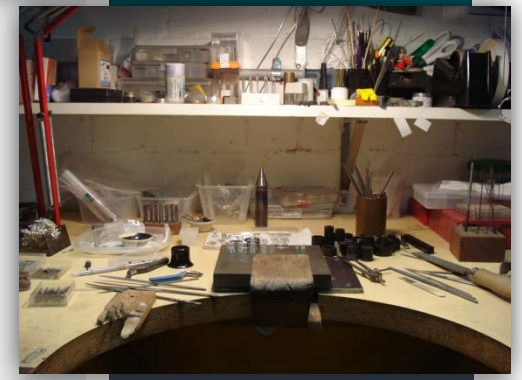
What we've covered so far…

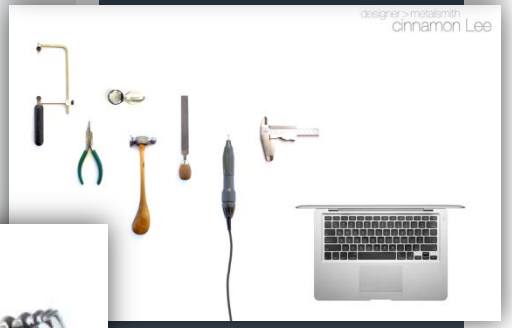
Session 2:

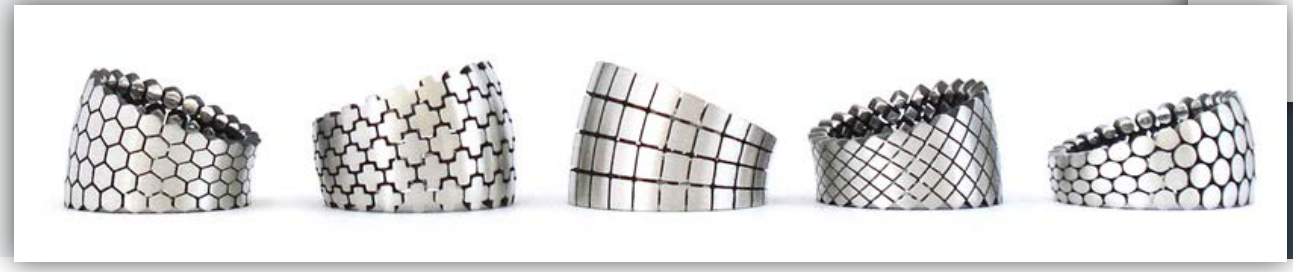
Jewellery Designer/Metalsmith

Cinnamon Lee *http://www.cinnamonlee.com/*

- *Evolution of work and the impact of technology on design and production processes and end products.*
- *Utilisation of 3D printing as a design and production tool.*
- *Use of 3D printing at different stages of the development of a design - testing, modelling finished product.*
- *Advantages and disadvantages of 3D printing.*
- *Blending advancements in technology with traditional hand fabrication skills and techniques.*
- *CAD software you used to create designs.*
- *Advancements in 3D printing processes that have incorporated into work.*







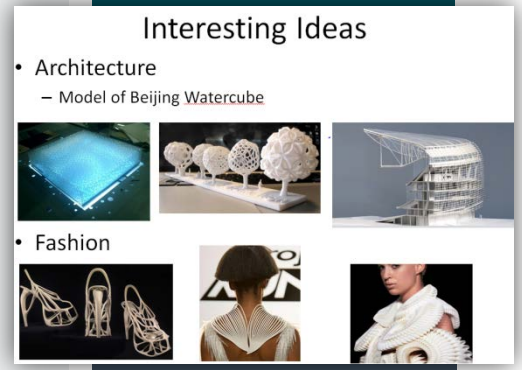
What we've covered so far…

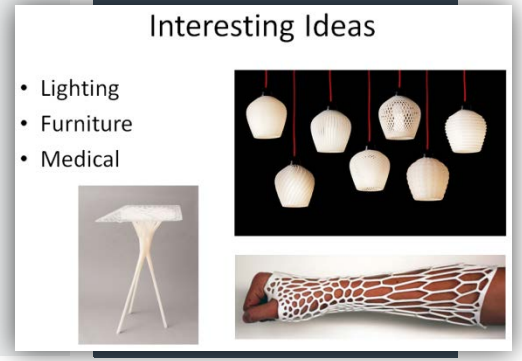
Session 2:

Highly experienced teacher

Ruth Thompson, Bossley Park High School

- *Why are schools buying 3D printers?*
- *How/where does 3D printing technology align with syllabus content?*
- *How can teachers program/develop a unit of learning incorporating 3D printing?*
- *Technology (Mandatory): Examples of design projects utilising 3D printing and where they fit within the syllabus (Area of Study, design specialisation/context).*
- *What should teachers be looking for when sourcing/buying a 3D printer?*
- *Functions and features of 3D printers we might use in a classroom situation.*
- *The process of 3D printing in the classroom.*
- *What problems might teachers encounter when using 3D printing with a class?*
- *Different 3D printing technologies - suitability to different processes.*
- *Suitable CAD/CAM software.*
- *Example of how CAD/CAM is taught within a unit of learning.*
- *Place/reason for outsourcing 3D printing?*
- *3D printing as a transition program tool to allow Stage 3- Stage 4 .*





Extending your knowledge

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http://tv.adobe.com/channel/how-to

3D printing

Show: Creative Cloud for Design

See Photoshop Product Manager, Stephen Nielson, demonstrate the powerful and exciting new 3D printing features in Photoshop CC. Visualize your 3D designs in the real world thanks to new support that allows you to easily create, refine, preview, and print your 3D designs directly to a locally connected 3D printer or online service.

Photoshop CC Overview January 2014

Show: Creative Cloud for Photographers

Photoshop Product Manager, Stephen Nielson, shares a quick overview of a handful of the exciting features in Photoshop CC including Camera Shake Reduction, Perspective Warp, linked Smart Objects, 3D printing, Adobe Generator, and more.

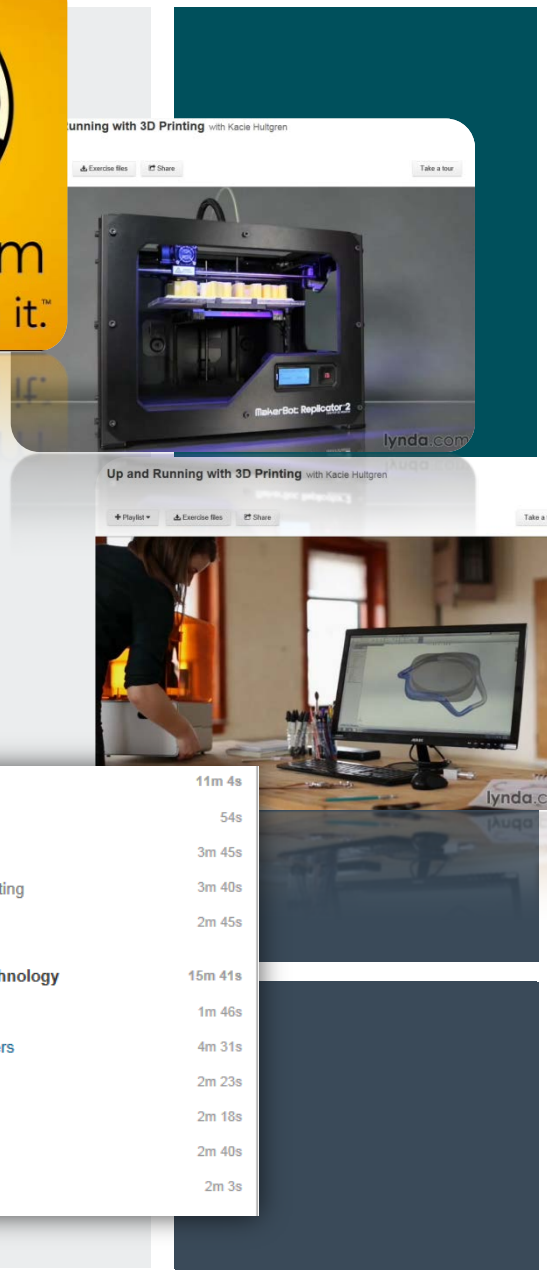
Extending your knowledge

www.lynda.com

Up and Running with 3D Printing

Topics include:

- What is 3D printing?
- What can you make with a 3D printer?
- Understanding the different 3D printing technologies
- Designing with 3D modelling and scanning
- Creating watertight 3D designs
- Repairing a 3D file
- Exporting your file



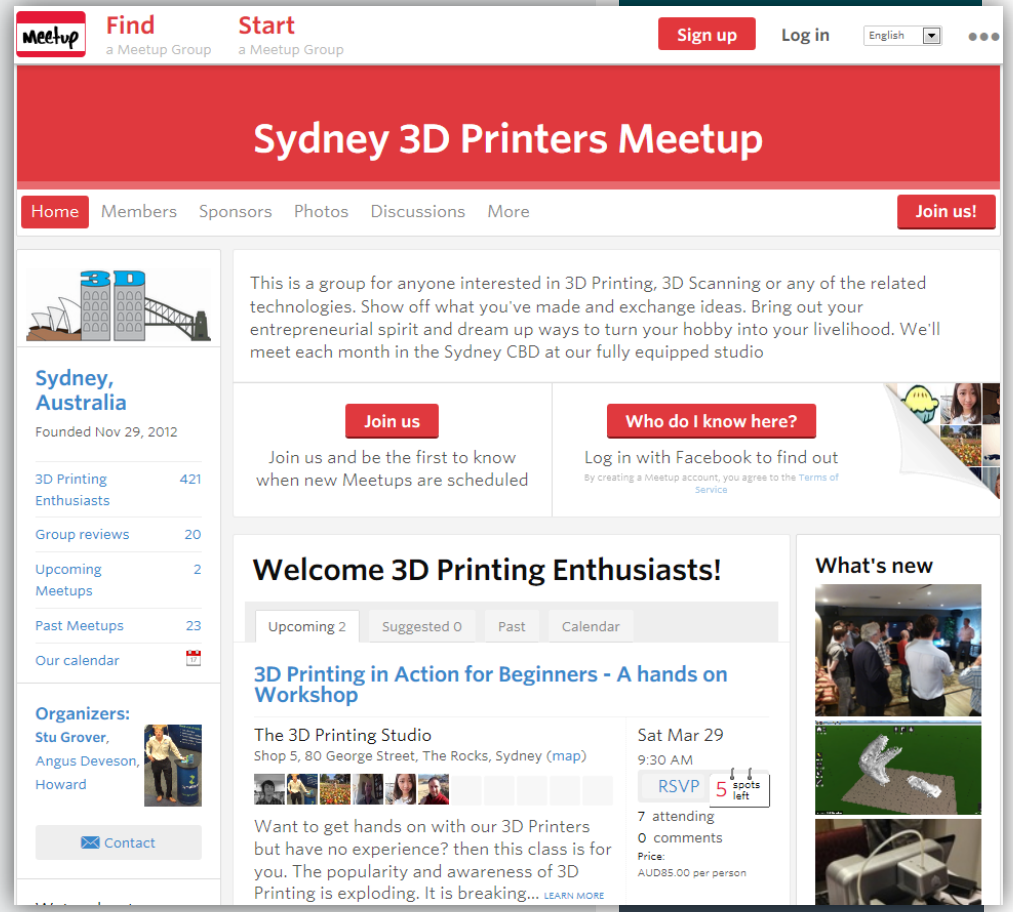
Subjects: 3D + Animation | Modeling | Prototyping | Product Design | CAD

Extending your knowledge

http://www.meetup.com/Sydney-3D-Printers-Meetup

Sydney 3D Printers Meetup

- Organised by 3D Printing Studios
- Regular meetups to exchange ideas with other enthusiasts
- Workshop opportunities



Resources

Dr Martin Leary from the School of Aerospace, mechanical and manufacturing Engineering at RMIT University gives an introductory level explanation of 3D printing and it's many applications. (2:08 minutes)

What is 3D printing and how does it work?
Excellent high speed demonstrations, great examples of output. Examines outsourcing and links 3D printing to industry as a scalable option for designers. Explores intellectual property and the challenge designers face from this emerging technology. What does the future hold? (7:22 minutes)

Don't underestimate the value of YouTube

Resources

Ideas to Prototypes to Production. Stratasys is the industry leader in 3D printing technology. This presentation shows the possibilities from student use through medical technologies to high end manufacturing. (2:08 minutes)

Autodesk 123D Design is a free, powerful yet simple 3D creation and editing tool which supports many new 3D printers.

3 Ways to use 123D Design:

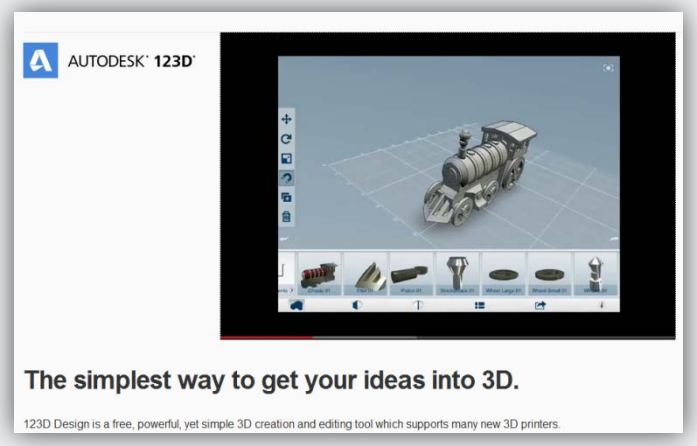
Launch the web app

Use the 123D Design web app on any computer with access to the internet.
Launch 123D Design online

Free for iPhone and iPad

Enjoy creating designs and playing around with shapes right on your iPad.
Available on the App Store

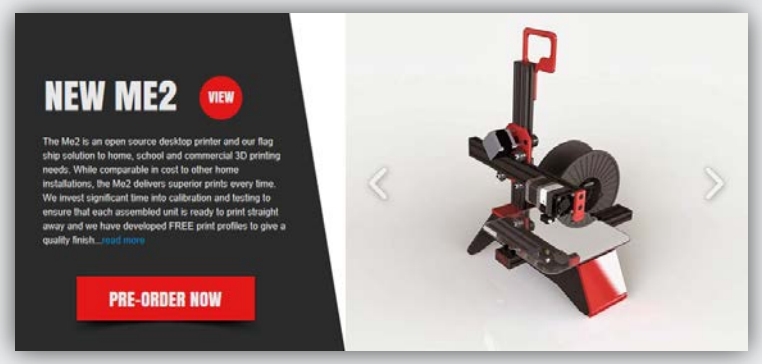
Free for your PC or Mac



Resources

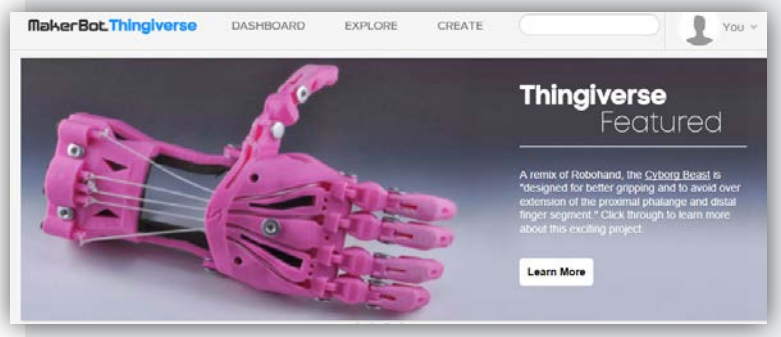
Makerbot: the 3D Printing Robot. This one was uploaded way back in 2009 – the original 3D printers in kit form - how things have progressed since then! Worth watching to show advancement in technology and change in thinking in the last 5 years.

Next check out the new **Makerbot Mini Replicator**



And now for the latest – Brand new, Australian designed and made, the **Me2** will be released in April 2014. it's slightly bigger than the UP Plus. Very affordable but may be safer to wait for reviews of V1. More information at http://www.me3d.com.au

Resources



Thingiverse – if you need inspiration or you want to try out your new 3D printer but you don't have a test file to print, Thingiverse may be what you're looking for. A collaborative community site which encourages the sharing of digital designs.

Will 3D Printing Change Everything? This one explores interesting future possibilities of 3D printing in medical and health care fields.

3D Print Food The Foodini is a 3D printer which eliminated the need to cook.
The printer is set to go on sale in Britain for £835 next year. The video in this article shows 3D printing of ravioli, pizza and burgers. May need work – they don't look very appetising!

Jewellery casting and CAD/CAM services (Sydney):

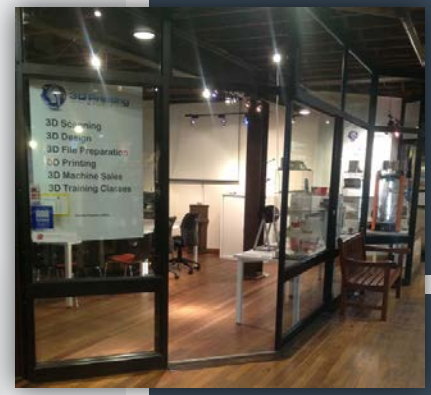
Palloys
http://palloys.com.au
8-10 Meeks Road
Marrickville
NSW 2204
P: (02) 9212 1222
Email: info@palloys.com.au

Chemgold
http://www.chemgold.com
Unit 37 / 34-36 Ralph St
Alexandria NSW 2015
P: (02) 9698 8500
Email: sales@chemgold.com

EBS & Associates
http://ebsrefinery.com/contact-ebs
PO Box 268
Marrickville 1475
NSW Australia
P:1300 889 063 (Australia)
+61 2 9550 5499 (International)
Email: service@ebsrefinery.com

Rapid Prototyping Services
http://www.rapidprototype.com.au
36 Albert Street
St.Peters NSW 2044
P: (02) 9557 9468
Email: info@rapidprototype.com.au

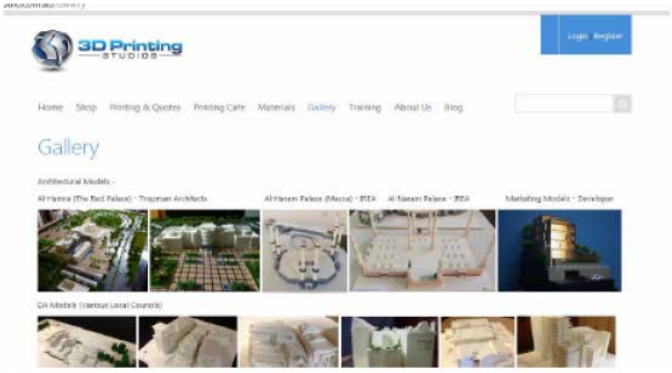
3D Printing Studio
http://www.3dprintingstudio.com.au
Shop 5, 80-84 George St
The Rocks, Sydney
P: 61 2 8007 6107
Email: info@3dprintingstudio.com.au



Resources

3D Printing Services

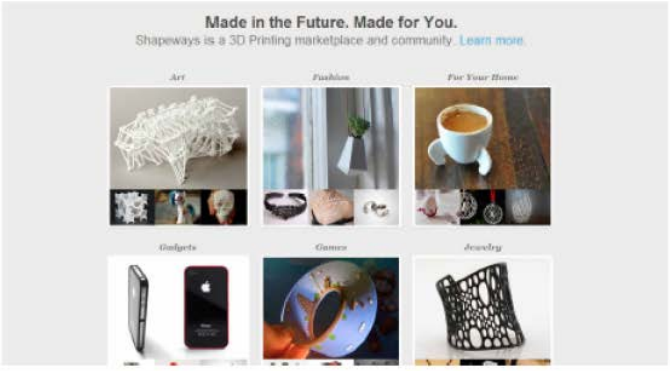
3D Printing Studio



Sydney CBD

http://www.3dprintingstudio.com.au/

Shapeways



New York

http://www.shapeways.com/

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