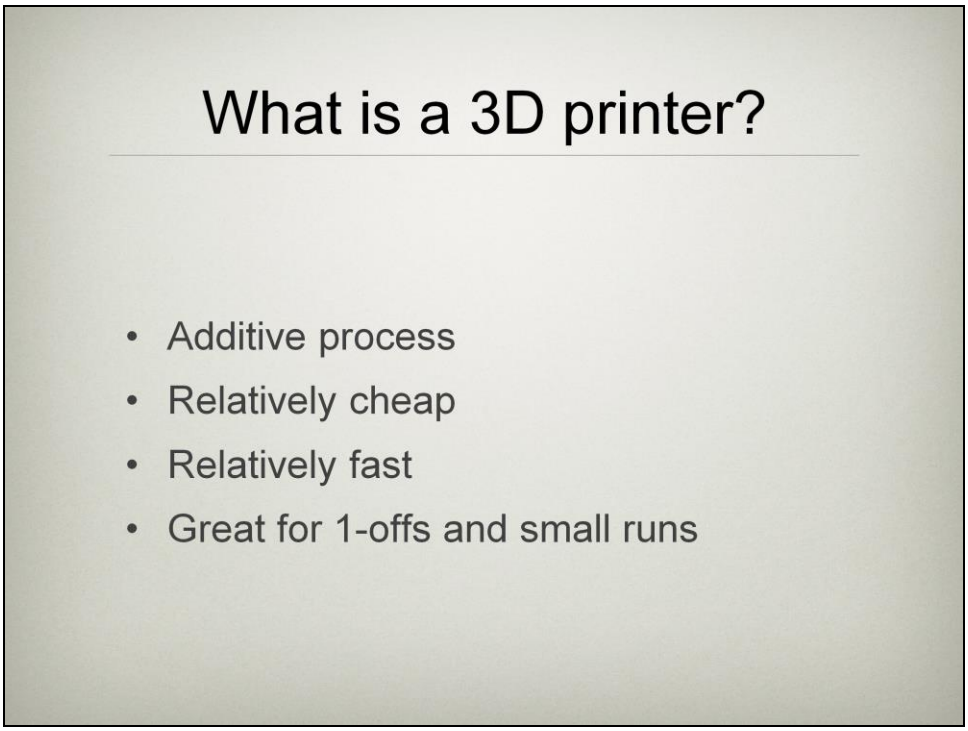
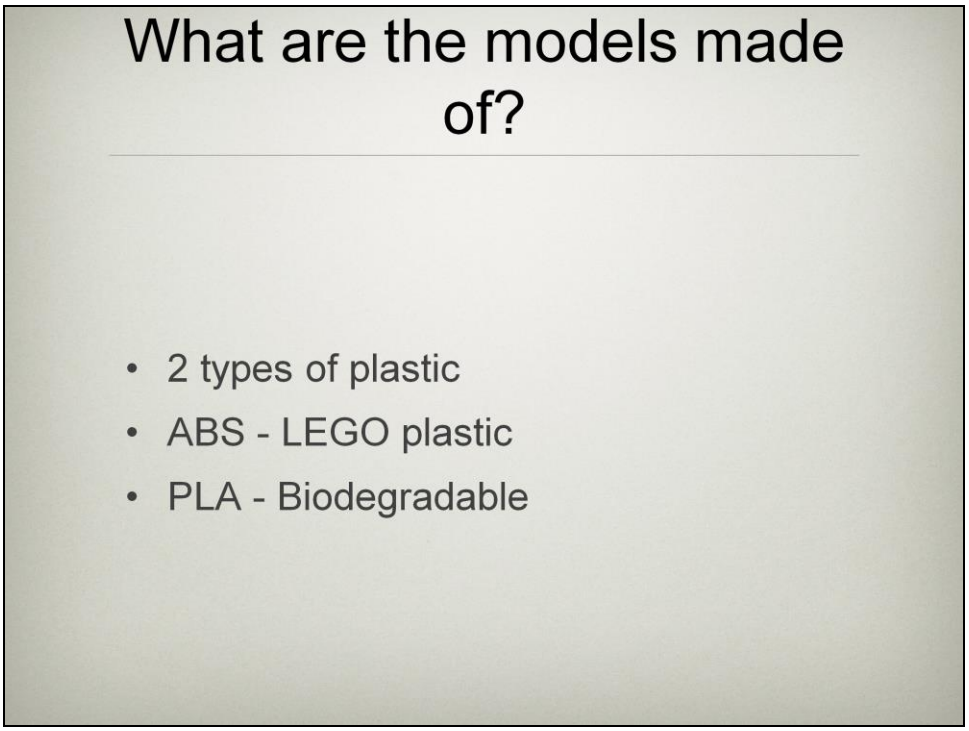
Vision Impaired Resourcing With a 3D Printer

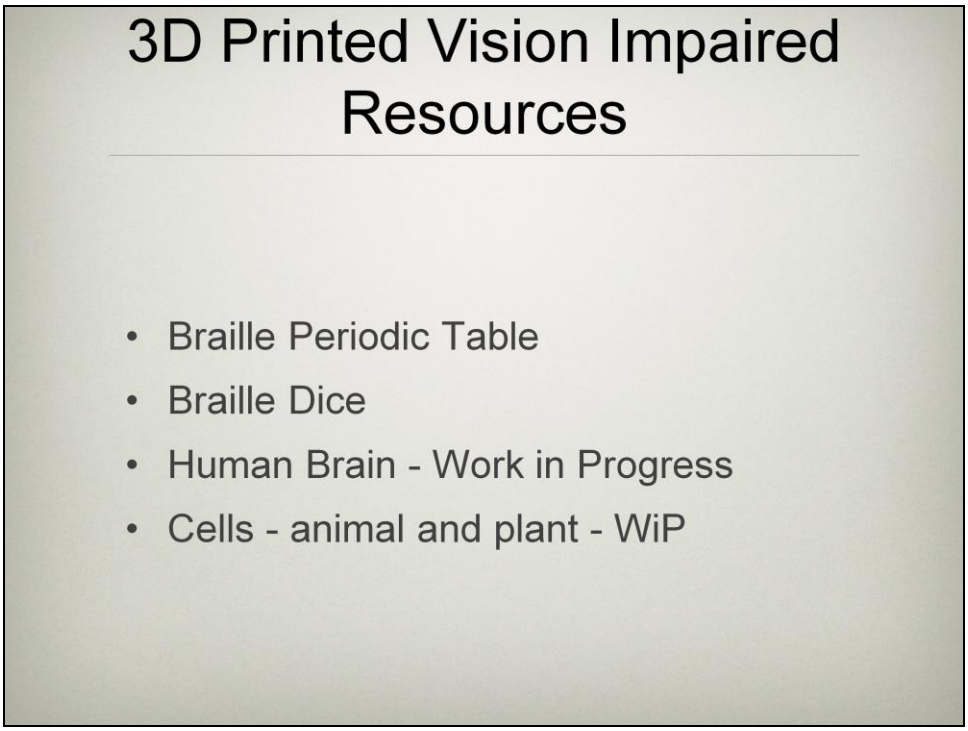
Stephen Elford



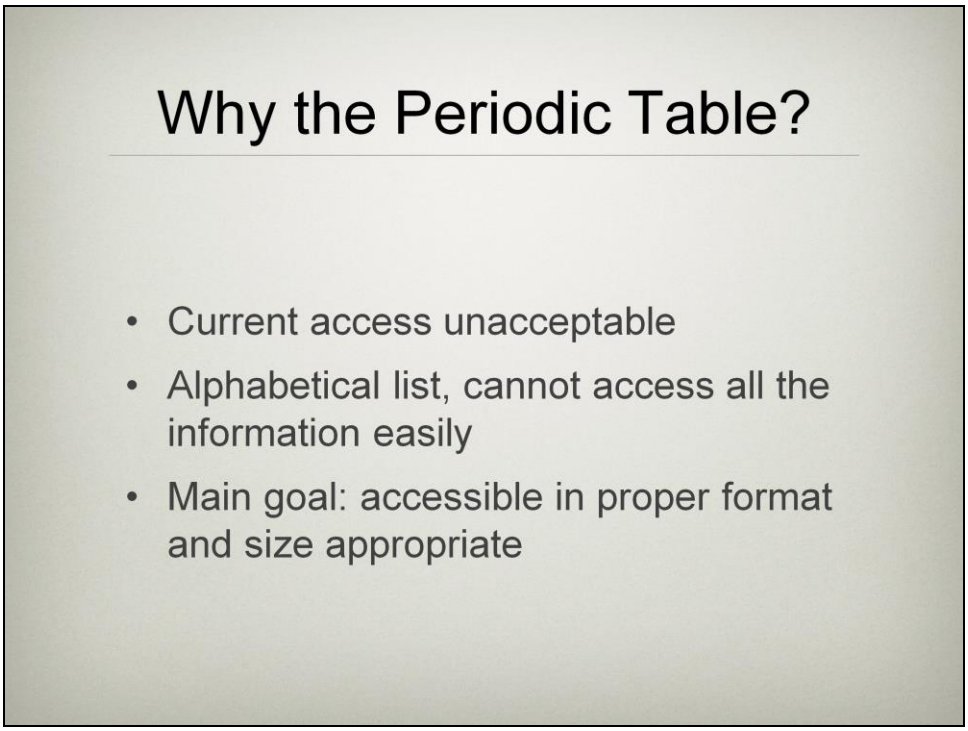
Show 3D Printer, show some of the models that have come off it. Becoming much more common in schools.



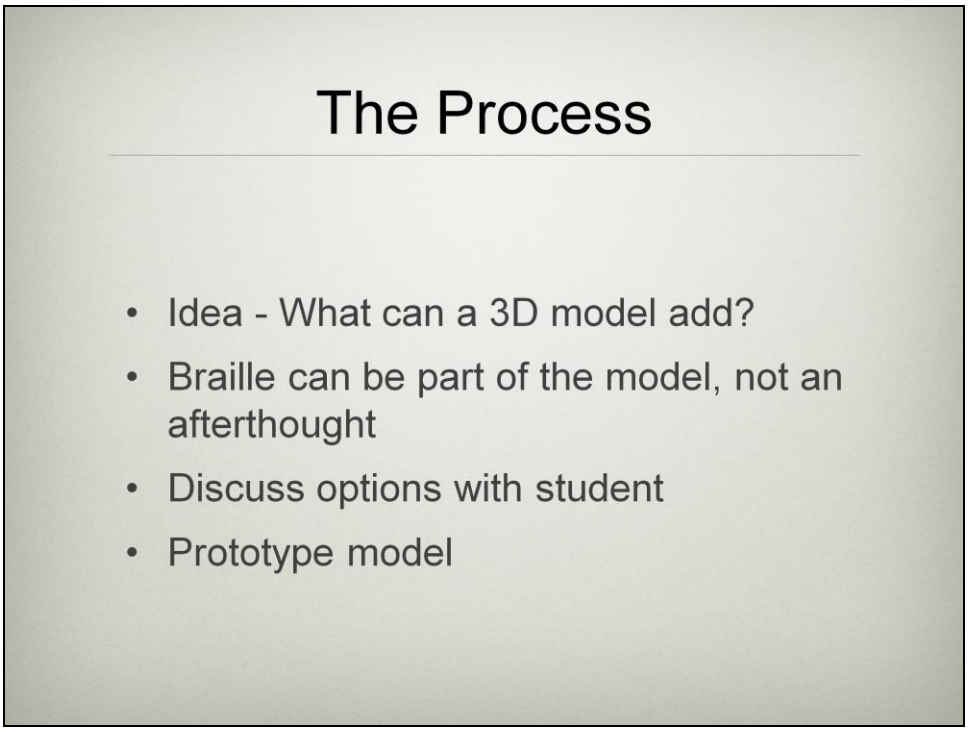
ABS - Hard, somewhat bendable, not biodegradable, bends then breaks, non-renewable.
PLA - Hard, decays with moisture, biodegradable, brittle, does not bend, shatters, renewable.



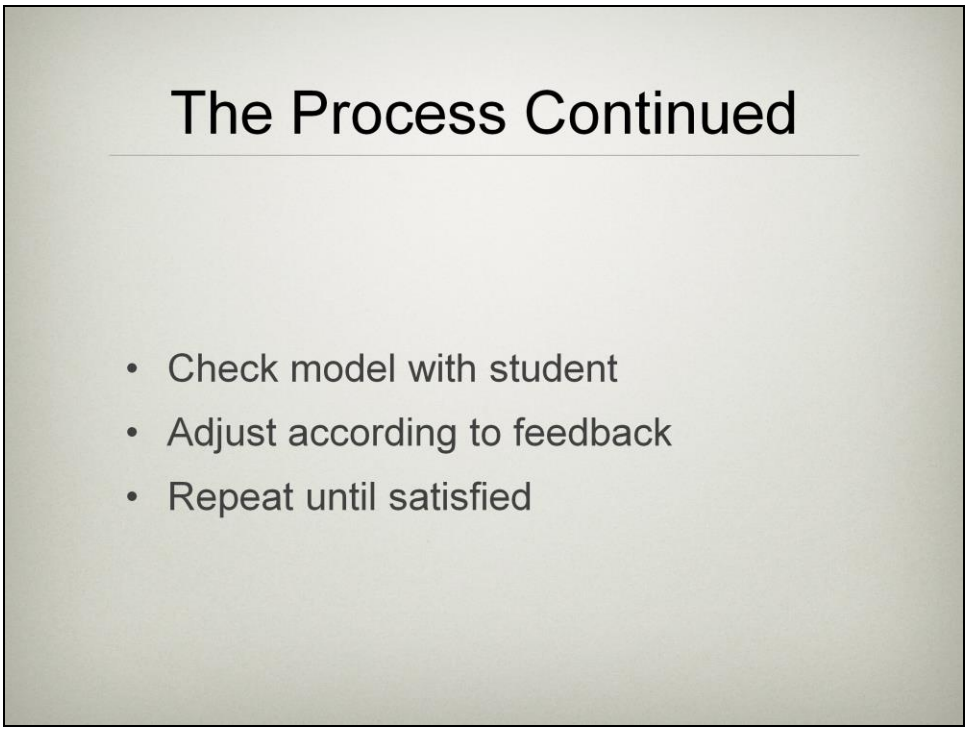
There are mine, I do not know of many more. What am I trying to explain by being here today. Not trying to sell you my models, trying to get people thinking about what 3D printing can do for them, I feel it could be a game changer for resourcing.



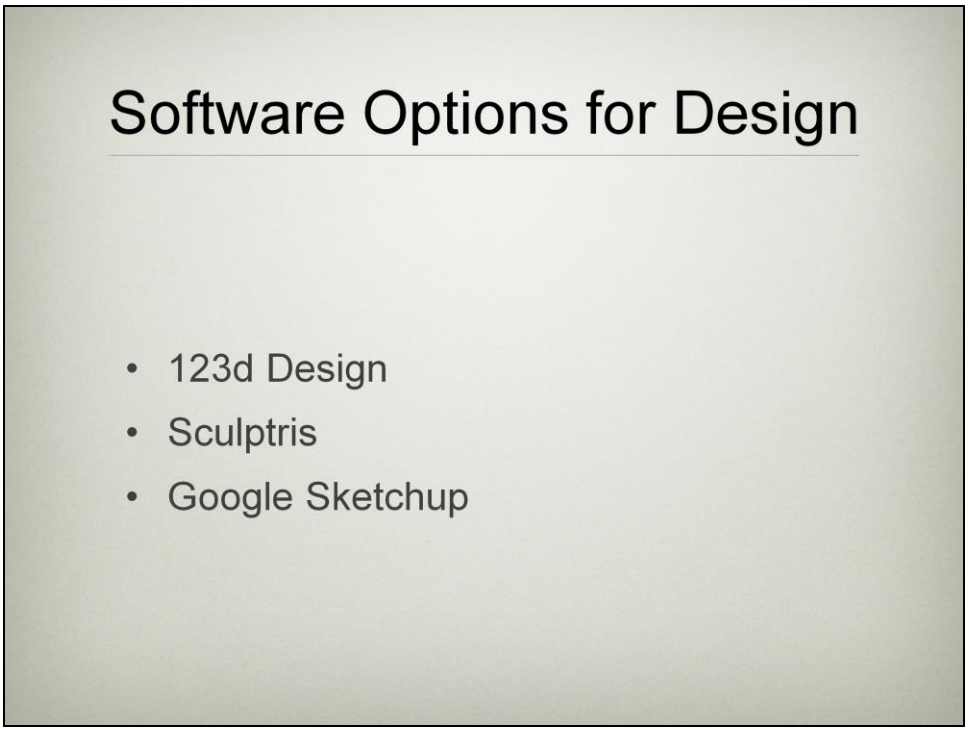
Had 3D printer, asked staff members what we could use it for, Chemistry teacher flippantly suggested a periodic table for Brad. Discussed with Brad/aide/teacher, came up with plan.



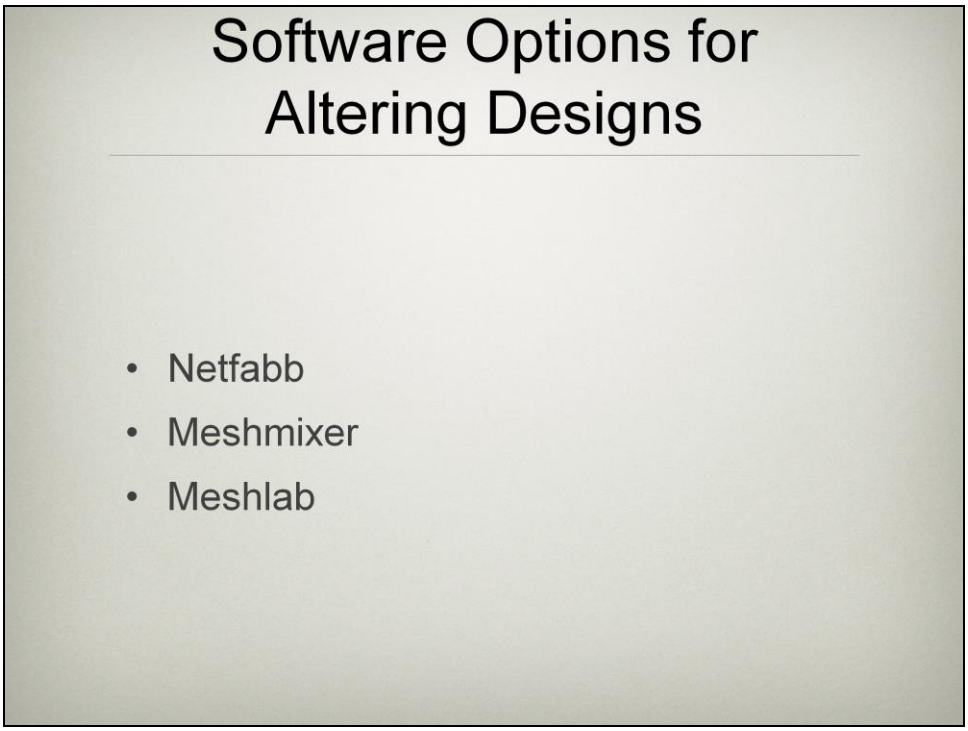
Share example of new cell model, was going to do 9 slices moving up through the cell, but how is this different to current access? No different to 9 piaffed diagrams, so how can I make it ‘better’ than that.



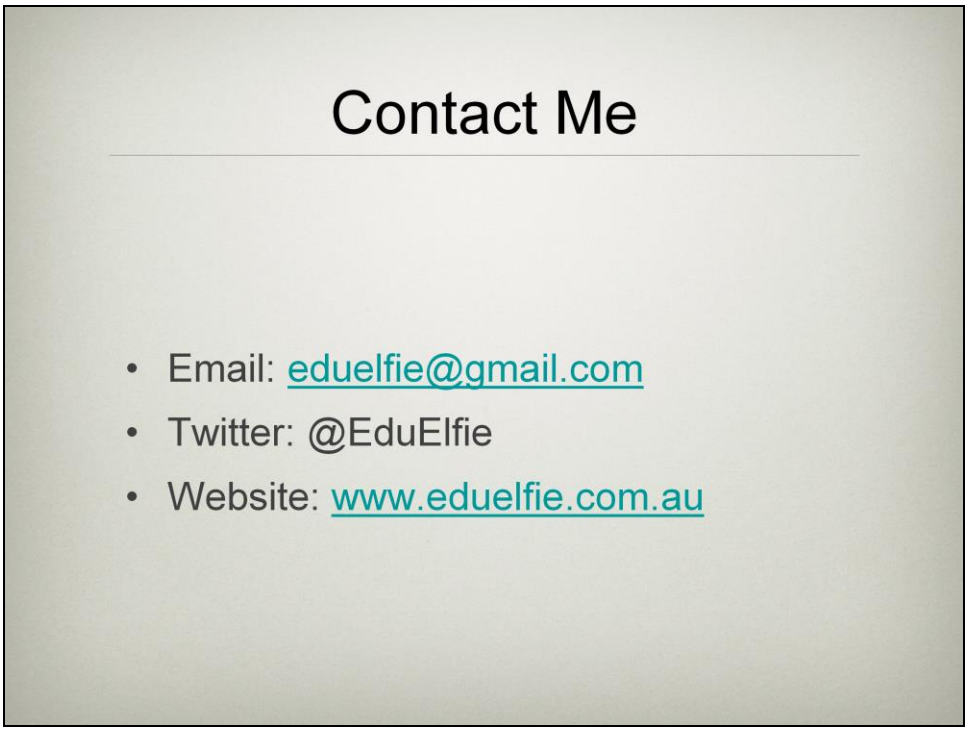
Important to work with student, they are the ones using it. It takes time, but the end result is access to something that was missing or incomplete. Well worth the time invested.



123d - mathematical design, add solids and adjust them to suit needs.
sculptris - ‘artistic’ design, virtual ball of clay to mould.
sketchup - mathematical design, but IMO clunkier than 123d.



Going from base model, eg cell moulded in sculptris and adding parts, need to use other software. These 3 are ‘mesh’ adjusters/combiners/cutters or converting from one format to another to be read by the printer or other software.



Feel free to contact me with any questions, queries or even requests for models. Main goal here is to improve education for vision impaired students in a cost effective manner. All my models are cost price. eg PT $30 of plastic and 12hrs print/prep time=$150, new version probably more expensive due to increased size. Initial estimates for cell are <$200. ‘set’ of dice ~ $40, $5 plastic, 4hrs print, >2hrs prep.

Thanks for your time and attention.

Any questions?