# Lesson 25 – 3D Design – CAD Software

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| The Big Picture – Why Is This Relevant? | Learning Objectives |
| * Understanding how designs are visualised * Understanding how designs can be realised through the use of rapid prototyping machines | * Represent 3D objects using computer aided design software * Represent a design in 3D using 123Design (or equivalent) * Design a plaque with your team name * Design a box to keep your car in |
| Engagement – How Can I Engage Learners? | Assessment for Learning |
| * Using a 3D printer to model the Learners work or even having a single print running during the lesson to show how designs can be realised will motivate Learners | **Expected progress:**   * Learners create a plaque for the team using 3D modelling software   **Good progress:**   * Learners design a case to protect and store the Bit:Bot   **Exceptional progress:**   * Learners attempt/achieve at least one Stretch Task |
| Key Concepts | Key Words |
| * 3D Modelling | * Modelling * CAD * Slicing * Rapid Prototyping |
| Differentiation | Resources |
| Some Learners will struggle to visualise objects from different angles and will need solid shapes to look at. | * Lesson 24 ppt * Lesson 24 Activity Sheet * Lesson 24 Keyring Tutorial * PC * Internet access for research * Access to 3D modelling software eg 123Design * Access to 3D slicing software eg Cura * 3D printer if available |
| Lesson Flow | |
| * Introduce the Learning Objectives * Explain what CAD is and how it can be used to create 3D visualisation models of objects * Discuss the use of 3D printers and rapid prototyping machines that can create physical versions of these models before mass production * Video example of 3D printer in action on Slide 4 * Share the tutorial for 123desgn – video of this tutorial on Slide 6 * Share the Lesson Activity Sheet * Encourage Learners to attempt the Stretch Tasks * If possible, use 3D printer to create examples of Learners work | |
| Making | |
| * Printed designs if 3D printer is available | |