

Structures Design Exercise: A Table Underframe

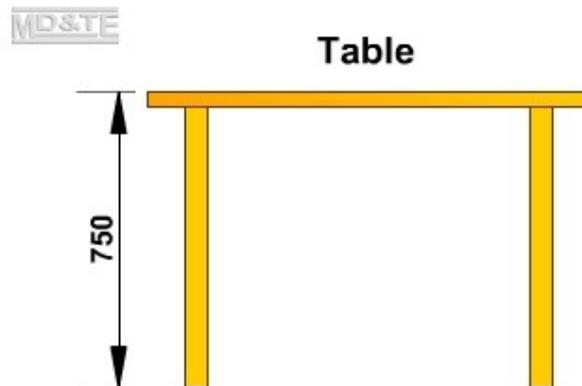
Learning Objective

To develop students' designing and problem solving capability by:

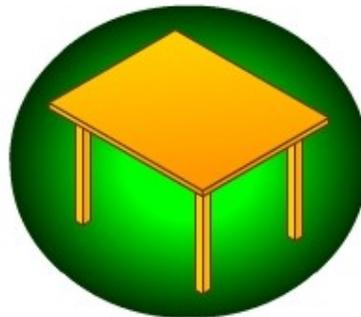
- designing a frame structure that will support a table top within the stated constraints
- choosing appropriate sizes for the various parts of the frame structure and the table top
- choosing appropriate joining methods for the various parts of the frame structure.

Design Brief

Design a wooden frame structure that will support a wooden table top.



Design a strong wooden frame structure that will support the table top.



Specification

- The top of the table must be 750mm above the floor.
- The table top supporting structure must be a rigid frame structure made from wood.
- The table frame structure must have four legs.
- The table top must be fixed to the underframe.
- The finished design must be safe to use.

What you must do

- Decide how long and how wide the table should be.
- Explain why four table legs fixed to a table top without any other support will form a very weak structure.
- Devise a frame structure that will support the table top. Use notes and sketches to illustrate your ideas.
- Decide how the various parts of the frame structure will be joined together. Use notes and sketches to illustrate the joining methods that should be used. State the reasons for your choice.
- Decide the sizes of the table legs and any rails that may be used in your design.
- Use notes and sketches to show how the table top will be fixed to the table underframe.
- Prepare a pictorial view of your design, either isometric or 2 point perspective drawing.
- Prepare a dimensioned orthographic drawing of your design.