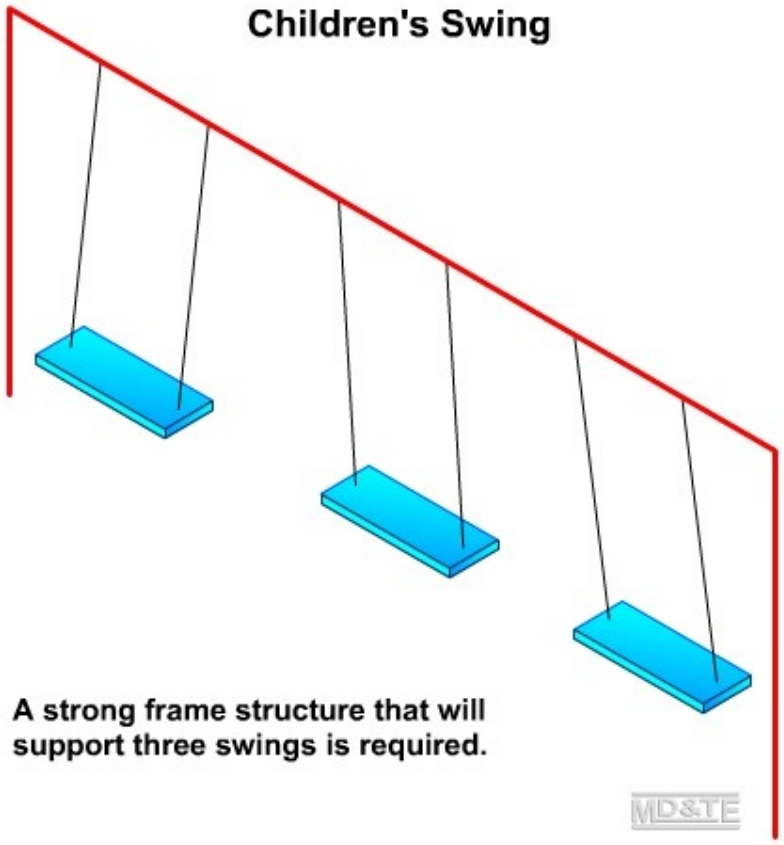
Playground Swing



Design Brief

An outline diagram for a swing that will be used in public parks is shown above.

A detailed design for a swing based on the given diagram is required. The swing will be made from steel box section. It will be painted to prevent the steel from rusting.

The frame structure that supports the three swings must be capable of supporting 3 large adults. A factor of safety must be included in the design. Each of the three swings must be capable of supporting the weight of 3 large adults. The structure must not move, bend, break or tip over in use. The parts of the frame structure must be permanently fixed together. The structure must be as "vandal-proof" as possible.

Exercise

- Analyse the design brief and pick out 10 important features that the swing must have.
- Explain what is meant by "a factor of safety".
- Use your analysis to write a design specification for the swing.
- Use notes and sketches to illustrate your design for the swing, in particular:
    - the shape of the steel structural section(s) used in your design
    - the shape of the frame structure and how the parts are permanently fixed together
    - how the rope/steel cable/chain is attached to the seat and to the frame structure
    - approximate sizes of the various parts of the design
    - the finishes applied to the various parts of the swing (to stop the parts from rusting and to make the parts look attractive).
- Evaluate your design:
    - State whether your design meets all the requirements of your design specification.
    - Ask the students in your class how they think that your design could be improved.
    - Write your findings at the end of your evaluation.