Feilding High School

Level 3 Unit Standards Mechanical engineering.

Mini Bike Racing Competition. Year 13.

Situation:

- Later this year all successful mini bikes will take part in the inter schools mini bike Grand Prix. This Grand Prix will be run under strict rules so safety and construction standards are maintained.
- Brief:

You are to design build and race a mini moto GP race bike. The bike must be built within the specifications as set out by the NZ Mini Moto Racing Club.

Specification:

- Front to rear axles 650mm to 850mm.
- Seat height 500mm max.
- Width of completed machine 450mm max.
- Chassis steel. (Mild Steel Only)
- No suspension.
- Two wheels only.
- Wheel diameter 180mm.
- Brakes front and rear.
- Two stroke 38cc water cooled engines only.
- No gear box's direct drive only.
- Brake levers on handle bars only.

- Handle bars and foot rests must have Nylon /Alloy protection at the ends.
- No Chopper style bikes are acceptable.
- Mini bike construction must be finished by the end of Term 2, 2010.
- To show proof of function your Mini Bike needs to be raced at Manfeild in October. The National Schools moderator will be present.
  Complete course work by the end of October.

Note. The Mini bike project is intended to make engineering fun and teach you the relevance of engineering in an every day situation. The project is linked to a Level 2/3 Tools4Work qualification. The credits from this qualification will give you entry into a career in mechanical engineering if you so wish.

Research

1. Collect examples of mini bikes you can purchase and pictures of full size Moto GP bikes. This will help you decide on the final appearance of your design.
2. Weigh each piece of metal you intend to use on your bike. Ask your self. Can I make It lighter? Or do I need this component.
3. Do I have a firm understanding of the construction sequence. If not find out.
4. Are all my diagrams a true representation of what I intend to produce.

Course overview.

- U/S 7529. Test and Select materials for a design task. 5 credits.
- U/S 7530.Use, and care for, fixed machine tools in materials technology. 5 credits.
- U/S7531. Select apply and test jointing processes for materials technology. 5 credits.
- U/S 2430. L2. Draw and interpret engineering sketches under supervision. 4 credits.
- U/S.2432. L2. Construct engineering plane geometric shapes. 3 credits.
- U/S. 21905.L2. Engineering Trade Calculations.
- U/S21908. L2. Basic Engineering Mechanics.