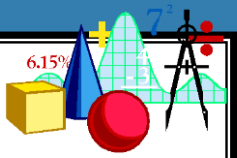
Mathematics, Grade 8
Unit VIII: Lesson 1

Table / Report: **Bike Racing Ratios**



The gears in a racing bike are designed and built according to mathematical principles. Review the concepts of ratios, proportions and circle geometry. Research the concept and application of torque.

Experiment with a bicycle and explain in a report the difference between the gears on a bicycle and their appropriate uses. Use a bike with more than one gear. Collect and arrange in a table the information necessary to determine the relationships between the number of times the pedal turns, the number of times the rear wheel turns, the distance the bike travels, and the number of teeth in each gear.

Demonstrate and explain to the class the relationships you discovered using your written report, your table, your calculations and the bicycle. Explain why the bicycle travels different speeds for different gears. Which gears would you use for climbing hills and why?

Extension: *If you were asked to design a gear for your bicycle for riding uphill that was easier than first gear, what size would you make it and how many teeth would it have?*