MECHANICS

B. STRAND RATIONALE AND PHILOSOPHY

The movement of people and goods from one place to another has always been important to human existence. Over the last century, significant advances in modes of transportation have dramatically altered the way we live and make our living. However, the quick and convenient movement of people and goods is not risk free. The ever-increasing use of motor vehicles throughout the world and their reliance on fossil fuels has created major personal safety and environmental concerns. Because the transportation industry is large and diverse, there are many opportunities for rewarding careers, whether it is to design and build safer and more efficient vehicles or to service the ones that are already in use.

In Mechanics, a strand of Career and Technology Studies, students, through hands-on experiences, have the opportunity to increase their knowledge and skills related to the design and maintenance of transportation vehicles, and the impact they have on the environment and on their economic and social well-being. Whether a student plans to prepare for a work-related role in the industry or simply wants to be an informed owner/operator of a vehicle, the Mechanics strand should be viewed as an educational opportunity for all secondary students.

More specifically, the Mechanics strand will provide students with a broad base of experience and knowledge of systems related to the transportation field. Within the philosophy of Career and Technology Studies, *students* in Mechanics *will*:

- develop the knowledge, skills and attitudes within the context of the school and the community to achieve success in personal and work life
- apply effective and responsible decision-making strategies to the design, service and repair of transportation vehicles
- link the knowledge, skills and attitudes developed in other courses in meaningful and practical ways to the field of mechanics
- demonstrate flexibility, cooperative work behaviours and effective communication and leadership skills
- link theory and practice, using available resources, tools and materials responsibly, safely and efficiently
- develop estimating and reporting skills
- become better informed consumers

- develop manual and technological skills
- exercise safe work and environmental practices
- expand personal knowledge and appreciation of further education and career options, and opportunities related to the transportation industry
- determine the economic significance of the transportation industry in the local, national and global community.

STRAND ORGANIZATION

The Mechanics curriculum development model below has been developed around four themes, which relate specifically to the design, operation and care of transportation vehicles. These themes are integrated by a number of common topics, which provide a basic framework for study in each module. The context in which the learning takes place will vary according to the experience and intent of the learner. For example, the student might be interested in vehicle ownership and/or in the preparation for the workplace. As the learner is engaged in the learning activities, specific outcomes are anticipated. These outcomes take the form of basic, career-specific and personal goals.

THEMES

Each level of Mechanics has major themes on which modules have been developed:

- Vehicle Design and Ownership
- Propulsion Systems
- Guidance and Control Systems
- Suspension and Structural Systems.

INTEGRATING CONCEPTS

Integrating concepts, shown on the model, provide a basic framework for the study of each module. The context varies according to resources available and interest and intent of the student after completing modules in the strand.