Grade 9 Technology
Energy and Power
Course Description

Updated September 2011

Level of Instruction: Intermediate

Curriculum Overview:

This 26 hour module builds on the design and problem-solving knowledge and skills developed in the Communications Technology Module, Production Technology Module and Control Technology Module. In this module students will explore topics such as: the production, conversion and transmission of energy; consequences of energy consumption on society, new technologies for energy conservation; and the measurement of energy transmission. In addition, students will get a practical introduction to principles of physics related to work energy and power. Students will work in design teams to complete hands-on projects using the problem solving process. These projects will have them solve authentic problems in the generation and conservation of energy through alternative means.

Authorized Learning Resources:

Energy and Power Parts Kit
Solar Engine Kit
Solar Battery
Hobby type continuous drive servo motor
Equal Arm/Pan Balance
Soldering iron with replaceable tip
USB digital oscilloscope Spring Scales
500W Portable Halogen Work Floodlight
All print resources have already been resourced with other implemented intermediate Technology Education modules.

Unit Plan:

Unit 1 – Big Ideas
Topic 1: Mass and Force
Topic 2: Work Energy and Power
Topic 3: Sources Forms Conversion and Transmission of Energy
Topic 4: Sources of Energy for Electrical Generation
Topic 5: Career Connections

Unit 2 – Basic Skills
Topic 1: Energy Conversion and Transmission
Topic 2: Measuring Energy and Energy Transmission

Topic 3: Schematics and Pictorials
Topic 4: Fabrication

Unit 3 – Design Activity
Topic 1: The Design Team and The Design Portfolio
Topic 2: Identification of the Problem Situation
Topic 3: Development of the Design Brief
Topic 4: Investigation and Research
Topic 5: Identification of Possible Solutions
Topic 6: Selection of the Best Solution
Topic 7: Development of the Solution
Topic 8: Evaluation of the Solution
Topic 9: Presentation of the Report

Assessment:

Assessment in this course is governed by the *Assessment and Evaluation Policy* of the Eastern School District. This policy is located at http://www.esdnl.ca/about/policies/esd/I_IL.pdf. The regulations are located at http://www.esdnl.ca/aboutesd/policies/regulations.jsp?cat=I&code=IL

Assessment and Evaluation Plan for Grade 9 Energy and Power Technology:

Overall evaluation weighting for the entire Grade 9 Energy and Power Technology Module is as follows.

Unit 1. Big Ideas	20%
Unit 2. Basic Skills	20%
Unit 3. Design Activity	
- Design Process	6%
- Design Portfolio	24%
- Solution	18%
- Report	12%

Note: All evidence of learning shall be considered when determining a student's final grade. Averaging shall not be used as a sole indicator of a student's level of attainment of the course outcomes.

Resource Links:

Department of Education Curriculum Guide for Grade 9 Energy and Power Technology
http://www.ed.gov.nl.ca/edu/k12/curriculum/guides/teched/Energy_%20Power_June_25_09.pdf