

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: GENERAL SCIENCE (A)
CODE NO.: SCI 097-4 SEMESTER: I or II
PROGRAM: GENERAL ARTS St SCIENCE
AUTHOR: DAVID TROWBRIDGE
DATE: JUNE 199 3 PREVIOUS OUTLINE DATED: JAN. 1992

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NATURAL RESOURCES


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GENERAL SCIENCE (A)

SCI 097-4

COURSE NAME

COURSE NUMBER

TOTAL CREDIT HOURS: 64

PREREQUISITE(S): NONE

I. PHILOSOPHY/GOALS:

This is a preparatory course in General Science. It gives the student an understanding of how the scientist works and provides some specific knowledge of Life Science and Chemistry.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will be able to:

1. Be familiar with the scientific method and scientific law.
2. Be able to identify the characteristics that define life, hereditary traits and the functioning of the human body.
3. Be familiar with ecological concepts.
4. Be familiar with the properties and atomic structure of matter, the classifications of elements and basic chemical reactions.

III. TOPICS TO BE COVERED:

- 1) Introduction to Life
- 2) Heredity
- 3) The Human Body
- 4) Ecology
- 5) Distribution of Life
- 6) Properties of Matter
- 7) Atoms and Molecules
- 8) Chemical Elements
- 9) Chemical Reactions

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES:

LIFE SCIENCE (UNIT ONE
IN TEXT)

PROLOGUE: Introduction to
Science

1. Introduction to Life
(8 hours)

Complete Sections 1-1 to 1-8 in
the Activity Book.

1.1 Characteristics of Life

1.2 The Cell

1.3 One-Celled Organisms

1.4 Levels of Organization

1.5 Photosynthesis

1.6 Classification

1.7 Variety of Life

1.8 Viruses

Test 1

2. Heredity (6 hours)

Complete Sections 2-1 to 2-9 in
the Activity Book.

2.1 From Generation to
Generation

2.2 Mitosis

2.3 Asexual Reproduction

2.4 Sexual Reproduction

2.5 Dominant and Recessive
Traits

2.6 Genes and Chromosomes

2.7 DNA

2.8 Mutations

2.9 Plant and Animal Breeding

3. The Human Body (7 hours)

Complete Sections 3-1 to 3-7 in
the Activity Book.

3.1 Skeleton and Muscles

3.2 Circulatory System

3.3 Breathing

3.4 Digestion and Waste
Removal

3.5 Nervous System

3.6 Endocrine system

3.7 Alcohol, Tobacco and
Other Drugs

Complete assigned projects on
pg. 35 of the Activity Book.

Test 2

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES:

- 4. Ecology (6 hours)
 - 4.1 Ecosystems
 - 4.2 Food Chains and Food Webs
 - 4.3 Food Pyramids
 - 4.4 Populations
 - 4.5 Succession
 - 4.6 Habitat Destruction
 - 4.7 Endangered Species
 - 5. Distribution (6 hours)
 - 5.1 Adaptations
 - 5.2 Biomes
 - 5.3 Forest Biomes
 - 5.4 The Desert Biome
 - 5.5 The Grassland Biome
 - 5.6 Mountain Biomes
 - 5.7 Life Zones in the Ocean
- Test 3

Complete Sections 4-1 to 4-7 in the Activity Book.

Complete assigned projects on pg. 47 and 48 of the Activity Book.

Complete assigned sections and projects in Work Book.

CHEMISTRY (UNIT TWO
IN TEXT)

Properties of Matter
(7 hours)

- 6 Mass, Volume and Density
- 6 States of Matter
- 6 Solutions
- 6 Separating Mixtures
- 6 Elements and Compounds
- 6 Combustion

Complete Sections 6-1 to 6-6 in Work Book and assignment on Elements and Compounds and other assigned projects on Properties of Matter.

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES:

- 7. Atoms and Molecules
(7 hours)
- 7.1 Dalton's Atomic Model
- 7.2 Symbols and Formulas
- 7.3 Chemical Equations
- 7.4 The Atomic Model is Modified
- 7.5 Line Spectra
- 7.6 The Current Model of the Atom

Complete Sections 7-2 to 7-6 in Work Book and assigned projects in Chapter 7.

Test 4

- 8. Chemical Elements
(7 hours)
- 8.1 Metals and Non-metals
- 8.2 The Noble Gases
- 8.3 The Halogens
- 8.4 The Alkali Metals
- 8.5 The Periodic Table
- 8.6 Bonding Elements
- 8.7 Carbon

Complete Sections 8-1 to 8-7 in the Work Book and assigned projects and review on pg. 96.

- 9. Chemical Reactions
- 9.1 Energy and Changes of State
- 9.2 Energy and Chemical Reactions
- 9.3 Oxidation and Reduction
- 9.4 Electrochemical Cells
- 9.5 Acids and Bases
- 9.6 Rates of Reaction

Complete Sections 9-1 to 9-6 in the Work Book and assigned projects.

Test 5

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V. EVALUATION METHODS: (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS ETC.)

Class Participation	15%
a) Attendance - 80% required	
b) Punctuality in assignments	
Laboratory and Homework Assignments	15%
Tests	
Topic tests are of equal value	60%
Final exam	10%
	100%
Grades	
A+- 90 - 100%	
A - 80 - 89%	
B - 70 - 79%	
C - 60 - 70%	

The minimum passing grade is 60% this being a composite derived from the overall course assessment. Grades from 50% to 60% will allow a student the right to an overall course supplemental provided that the attendance requirement has been met, and all laboratory and homework assignments are complete and submitted. All lower grades or failure to meet other requirements specified above will result in a failure.

The instructor retains the right to modify the course content during the duration of the course.

VI. REQUIRED STUDENT RESOURCES:

TEXTBOOKS

- 1) Brockway, C.S.; Gardner, R.; Howe, S.F.; GENERAL SCIENCE, Allyn and Bacon, Inc., Prentice Hall.
- 2) Brockway, R.; Howe, S.F.; Husted, B.; Jones, H.; Rieck, G.W.; GENERAL SCIENCE (ACTIVITY BOOK), Allyn and Bacon, Inc., Prentice Hall

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VII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.