

PRE VOCATIONAL CURRICULUM GUIDE

INTERIM EDITION

1973

**CURRICULUM DIVISION
DEPARTMENT OF EDUCATION
PROVINCE OF NEWFOUNDLAND AND LABRADOR**

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C O N T E N T S

Section I

Introduction	1
Implementation	4
Guidance	4
Evaluation	5

Section II

Cluster Outlines	8
List of Options	9
Business Education	10
Power and Energy	11
Communications	13
Materials and Processes	15
Home Economics	18
Natural Resources	22

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SECTION 1

Introduction

This guide has been developed by a provincial curriculum committee organized by the Department of Education. Further additions are needed to make this guide complete but it is hoped that it will serve the immediate need generated by integration of academic and vocational education in some of our school systems. The material included in this guide has been designed for use with students who are beginning this kind of a program for the first time at the grade 9 level. This program will likely be offered initially in the District Vocational schools but it is hoped that increasing numbers of high schools will be in a position to conduct their own Industrial Arts - Pre Vocational courses. Schools able to offer a complete Industrial Arts - Pre Vocational program should integrate the first level of this new guide with the present Junior High course outline and then continue with the new program for grades 10 and 11. Schools teaching only a Junior High program should consult the first level of this guide for ways of improving the present course outline.

The Home Economics section in this guide is intended for use when this program is taught in the District Vocational Schools or when taught as one choice out of a possible two options. The present Home Economics Curriculum Guide continues to be recommended for high school programs. The Business Education course recommended by this guide is general and exploratory in nature providing understanding of the business world and perhaps some skills for personal use but it is not a vocational course nor is it intended to develop saleable skills.

With the exception of Home Economics and possibly Business Education this guide outlines content that is commonly defined as Industrial Arts and should therefore be consulted by schools building such facilities.

The following statements describe the philosophy of this program:

1. The educational program in the secondary schools of the province should provide a more comprehensive curriculum for all high school students, suited to a greater variety of interests and abilities, so as to encourage all students to continue through to graduation.
2. The program should be a continuing and broadening one of general education. It must be adapted to the interests, talents and future plans of the students served and aimed toward developing their full potential, as well as developing a maturing sense of social and civic responsibility.
3. In addition to providing a general education, the secondary school program should prepare a student to continue his education at university, college, or vocational school, or to pursue other educational goals.

The following objectives for this program are in addition to "The Aims of Public Education for Newfoundland and Labrador" which also apply to pre-vocational education:

1. To provide pre-vocational exploratory experience rather than attempt to develop knowledge and skills in a trade to the point where a high school graduate would be proficient enough to enter the work force directly.
2. To provide an introduction to the fundamentals of technology and a deeper study of those fundamentals for the student with technical orientation.
3. To provide opportunity for students to develop an interest in, and appreciation for, industry and commerce as integral parts of our economic system.
4. To provide exploratory experience with various operations, processes, tools and activities in families of clusters of occupations which are fundamental to broad technologies.
5. To provide an introduction to the multiplicity of career opportunities, and promote occupational guidance by helping the student assess his occupational potential, interests and capabilities.
6. To provide for individual student differences through a multi-activity organization allowing for a variety of talents, aptitudes, abilities and interests.
7. To provide for the application of scientific principles through laboratory and shop experiences and to reinforce the academic disciplines through manipulative type activities.
8. To provide an understanding of the interdependence among academic disciplines, among vocational disciplines, and between academic disciplines and vocational disciplines.

This type of program should provide both girls and boys in our schools with experiences leading to cultural and technical literacy. Exploratory learning situations and activities should be selected to provide an understanding and appreciation of industry and its workers. The program should deal with life's needs related to or created by our economic system and provide societal competencies essential to understand and participate in the production of goods and services. Outcomes would include appreciation of good design and craftsmanship, ability to select, purchase, and use wisely the products of industry, and development of desirable work and safety habits. The aim of occupational guidance should be met by providing the student with basic understanding of technical skills and occupational information so that he or she could assess occupational potential, interest, or capability. The greatest personal development and growth should be an overall

objective, would include avocational interests and hobbies and would lead to awareness of the problems confronting modern society.

Content should be organized so that learning activities are selected on the basis of student and community needs. Emphasis should be given to the study and use of industrial materials and processes through manipulative or operational activities. Our total economic system should be studied including labor, capital, distribution management, production of goods and services, natural resources, and the influence of this on our people and on the environment. Practical application of scientific principles (knowledge of practice) and occupational information about job requirements, working conditions, salaries, and securing employment should be given consideration.

Instruction should be focused on basic generalizations (concepts) as the student progresses from broad understanding to specific units or components. Provision should be made for individual differences in ability and interest through multiactivity or multi-track organization and through the use of programmed instruction or individual progression at work stations. Learning tasks should be planned jointly between student and teacher or as a team of students working together. Students should make use of problem solving and research techniques as they undertake projects, experiments, or reports. Experimentation with and testing of industrial materials and processes should be a method employed in instruction.

Important overriding considerations for teachers of all pre-vocational areas to remember are:

1. The pre-vocational program outlined in this guide is in reality only one course concerned with business and industry.
2. Limited use should be made of the lecture method of teaching as learning should be activity centered.
3. Flexibility should be maintained within the course so that it can adapt to local needs and interests.
4. The various clusters suggested in this guide are not completely discrete units but contain a fair number of common elements.
5. This course is intended for girls and boys therefore all options should be open to both.
6. The ~~nature of~~ the course is exploratory and thus would encourage experimentation, individual and small group study.
7. Teachers should begin all study areas with a general overview of the topic including its importance to our society and our economy.
8. The kinds of occupations a particular field leads to and the way people in these occupations spend their time should receive attention in each study area at all levels.

IMPLEMENTATION

Pre-vocational clusters are to be given in a minimum of $\frac{1}{2}$ day per week (10% of school hours). Multi-activity laboratories are recommended although unit shops may be used on a rotational basis. Content in this grade is designed for the student beginning this program at grade 9 and then continuing to grade 10 and 11. However, provision should be made for students to study the grade 9 segment in grade 10 or 11 if he wishes to begin at that point. The grade 9 or first level is completely exploratory while some specialization takes place in grade 10 (second level) and further specialization result in grade 11 (third level). Student choice of clusters is to be required at all three levels with 2 options being the standard at each level. In some school systems the grade 9 (first level) segment may be conducted as an Industrial Arts program for junior high school and then the student may proceed directly to the grade 10 or second level.

Because the Pre-vocational program outlined on the following pages has to go through an initial period of establishment and growth many differences in program offerings are to be expected. It is not likely that many schools will be able to undertake a complete program. It is expected that all topics included in a cluster would be dealt with if that cluster was taught in a school however emphasis given to any topic of a particular cluster may differ from school to school. Some of the clusters outlined in this guide may seem to contain too many topics however it is understood that teachers will likely weigh items in accordance with local school capabilities and student needs and interests but will not likely totally exclude any particular item.

GUIDANCE - A MUST

It is true to say that the success or failure of any program in education depends to a large extent on the Guidance Program that the school offers to its students.

In our expanding system of education students must learn how to make proper and useful decisions. They must be able to choose what is best for them both for life in school and after they finish school. To make sensible and useful decisions, students must have access to Guidance services.

Guidance is a program of activities within a school for the purpose of helping students in decision-making processes regarding their personal, social and educational development.

Guidance is carried out in two ways:-

- (i) Small groups
- (ii) Individual interviewing

The former is very effective in terms of information giving and discussions pertaining to a common problem or topic - (eg. a group

wants to talk about vocational school as it compares to university.) The latter is more time consuming but is a necessity in many cases - (eg. where a student cannot express himself in a group.)

Guidance should begin formally in early Elementary School at the end of Grade VI. Obviously, the approach and the topics covered at this stage will be general and oriented towards decision making and growth processes. It is essential that students begin at this stage to think about life and all that it entails. (Such topics as career choosing and life in the world of industry are a must at this time so that students will have time to think about these in Junior High or High School, and not be suddenly exposed to a crash career decision making challenge in Grade X or XI.)

The working environment of the Counselor ought to be one that is not restricted by the administration of the school. The Counselor is not an administrator or Psychoanalyst, but a member of the school staff with similar status to that of a teacher. He has an amount of expertise in human learning and relationships and a good understanding of youth and their difficulties. It is in working with and through his fellow staff members that he/she can be most effective in dealing with everyday school difficulties.

Every school, especially one dealing with decision making in vocational and educational preferences, should have the facilities and personnel necessary for a full Guidance Program thus ensuring its students real and equal opportunity.

EVALUATION

Evaluation of pupil progress and achievement is always a difficult and time consuming task, but it is also one of the most important duties that a teacher performs. Because of the impact of evaluation on the decisions of students, parents, and teachers it is imperative that it be done in a conscientious and objective manner. Good evaluation is complicated by the fact that individuals differ in both physiological and psychological ways making it necessary for teachers to know their students individually. Evaluation of progress in laboratory type courses is even more difficult because of the lack of verbal evidence of learning and because of the multiplicity of activities engaged in by students. Then, too, the shop atmosphere is much different from the regular classroom environment because of the freedom with which students move about and the individual or small group nature of much of the work. Further complications result because this guide suggests a large variety of learning experiences, because of the practical impossibility of providing identical learning opportunities for all students in a course, and because options offered will differ from school to school depending on facilities and staff.

In exploratory subjects such as outlined by this guide continual reference to the objectives and comparison with student outcomes is important. Many student projects which would be very poor in the eyes of a tradesman may represent high achievement for the pupil. The purpose of the topics included in this guide is to have students experiment with many aspects of world of work and not to develop a high level of skill so if a student determines that he has no interest or ability in a particular area this may be all that can be expected of him.

Following is a list of testing devices that can be used as a basis for student evaluation:

Tests 1) pencil and paper	Drawings
2) performance	
3) oral	
Projects	Interviews
Observation	Field Trips
	Self Evaluation
Reports 1) Home Assignments	Anecdotal Records
2) Readings	
Notebooks	Check Lists
Plan Sheets	Progress Charts
	Rating & Ranking Scale

It is recommended that conscious effort be made by teachers to use a variety of these methods through out the school year to arrive at a more valid evaluation of student progress and development. Written tests are limited even when used conventionally in subjects having high levels of verbal content and are even more inadequate for use with activity centered learning as suggested by this guide. Discovery of particular student talents or achievements is more likely to result when numerous testing devices are used. Evidence of student development, interests or ability should also be better supported when various methods are employed. Objectivity is increased in accordance with the number of ways used for testing and measuring as a basis for student evaluation.

Considerable benefit for the student, the teacher, the school, and future employers can be derived by compiling a cumulative record for each student. This should include as well as information about the student, results of all tests, projects, assignments, and other evaluative devices used, and would continue through all the years of studying prevocational clusters. Such a record would be useful to the teacher when reporting to parents, determining grades, or assisting students with decisions about future educational progress. A cumulative record should help students determine their interests and abilities. A record of achievement far more comprehensive than the traditional single

percentage mark would thus be available for consideration by future employers or educational institutions.

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SECTION IICluster Outlines

Content for the pre-vocational program has been organized in the form of clusters of related materials. These are six in number; Communications, Materials and Processes, Power and Energy, Natural Resources, Home Economics, and Business Education. Each cluster has been further developed into three levels corresponding to high school grades 9, 10, and 11. The second and third levels each contain several sections from which choice can be made. Because students will be selecting clusters that they wish to study it is desirable to arrange school laboratories in the form of general shops or multi-activity centers. In this way, if learning activities are being conducted in several different clusters simultaneously, students will also acquire some knowledge of other areas while pursuing the one of their choice.

As suggested previously pre-vocational clusters require at least one half day per week or 10% of school hours. One half day per week makes a total classroom time of between 80 and 90 hours per school year. It is intended that each student study 2 options per year so the minimum time to be devoted to each option would be 40-45 hours. A first level option would consist of study of all of the topics outlined under the heading 1st level for that particular cluster. A second level option would be study of all of the topics outlined in one of the sections A, B, C, etc. under the heading 2nd level for any particular cluster. Similarly with third level options where only one section A, B, C, etc. is necessary for completion of an option.

The first page following this introduction contains a listing of the titles of the various options and the level at which they occur. This is followed by sections giving detailed outlines of each cluster.

Pre Vocational Options Outlined In This Guide - Minimum Classtime For Each Option 40-45 Hours
2 Options Required Each Year - 2 Options are Equivalent to 1 Course

<u>1ST LEVEL</u>	<u>2ND LEVEL</u>	<u>3RD LEVEL</u>
1. Communications	1. <u>Communications</u> A. Graphic Arts-Drafting B. Electronics	1. <u>Communications</u> A. Graphic Arts B. Drafting C. Electronics
2. Materials and Processes	2. <u>Materials and Processes</u> A. Machine Woodwork B. Metalwork C. Plastics-Ceramics	2. <u>Materials and Processes</u> A. Manufacturing B. Construction C. Machine Shop-Welding D. Basic Surveying
3. Power and Energy	3. <u>Power and Energy</u> A. Electricity-Mechanics B. Transportation	3. <u>Power and Energy</u> A. Aircraft Maintenance B. Automative Maintenance C. Refrigeration, Air Condition- ing and Heating
4. Natural Resources	4. <u>Natural Resources</u> A. Agriculture-Forestry B. Fishing	4. <u>Natural Resources</u> A. Fishing B. Forestry C. Agriculture
5. Home Economics	5. <u>Home Economics</u> A. The Family and Its Food B. The Family, Its Clothing and Use of Textiles	5. <u>Home Economics</u> A. Foods and Nutrition B. Clothing and Textiles
6. Business Education	6. <u>Business Education</u> A. Typing-Office Practice	6. <u>Business Education</u> A. Typing-Office Procedures B. Business Organization and Machines

Business Education1ST LEVEL

1. Business and the Student
2. Business Fundamentals
3. Office Procedures, Standards, and Organization
4. Business, Law, and Government
5. Telephone
6. Letters
7. Mail Handling
8. Meetings and Interviews
9. Intercom systems

2ND LEVEL

Typing and Office Practice

1. Typing
2. Record Keeping
3. Filing Procedures
4. Duplicating

3RD LEVEL

A. Business Organization and Machines

1. Kinds of Businesses
2. Forms of Business Organization
3. Business Machines
 - a) adding
 - b) calculating
 - c) bookkeeping
 - d) billing
4. Data Processing
 - a) Manual Systems
 - b) Mechanical Systems
 - c) Electrical Systems

B. Typing and Office Procedures

1. Typing
2. Dictation
3. Transcribing
4. Basic Bookkeeping and Accounting
5. Sources of Information

Power and Energy1ST LEVEL

1. Energy Sources
2. Measuring Energy and Power
3. Controlling Energy and Power
4. Energy Conversion
5. Future Power Systems
6. Mechanical Power
7. Fluid Power
8. Electric Power
9. Small Engine Service

2ND LEVELA. Electricity - Mechanics

1. Basic Electricity
 - a) Motors
 - b) Generators
 - c) Ohms Law
 - d) Watt-Hour Meter
 - e) House Wiring
 - f) Appliance Repair
2. Automotive Care
3. Automotive Service

B. Transportation

1. Fundamentals of Flight
2. Basic Aircraft Power Systems
3. Steam Engines and Turbines
4. Diesel and Diesel/Electric Engines
5. Atomic Engines
6. Ship Control Systems
7. Material Conveyance Systems

3RD LEVEL

A. Aircraft Maintenance

1. Engines
2. Electrical Systems
3. Flight Controls
4. Propellers and Rotors
5. Landing Systems

B. Automotive Maintenance

1. Power Systems
2. Transmission Systems
3. Rear Drive Assembly
4. Electrical Systems
5. Suspension and Steering
6. Fuel Systems
7. Brake Systems

C. Refrigeration, Air Conditioning, and Heating

1. Forced Air Systems
2. Hot Water Systems
3. Refrigeration Systems
4. Humidification
5. Dehumidification
6. Ventilation systems
7. Air Cleaning Systems

Communications1ST LEVEL

1. Graphic Arts
 - a) Silk Screen Process
 - b) Relief Printing
 - c) Intaglio Printing
2. Drafting
 - a) Pictorial Sketching
 - b) Drawing Equipment
 - c) Measuring
 - d) 2 View Drawings
 - e) Blueprint Reading
3. Communication Systems
 - a) Telephone
 - b) Telegraph
 - c) Radio
 - d) Radar
 - e) Intercom
 - f) Doorbell

2ND LEVEL

A. Graphic Arts - Drafting

1. Kinds of Type
2. Composition
3. Distributing Type
4. Platen Press Operation
5. Working Drawings
6. Dimensions
7. Scale Drawing
8. Lines - Meaning and Use
9. Pictorial Drawings
10. Pattern Development

B. Electronics

1. Electron Theory
2. Volts, Amperes, Ohms
3. Electrical Measurement
4. Electric Circuits
5. Electromagnetism
6. Capacitance and Inductance
7. Basic Electronic Circuits
8. Basic Electronic Systems
9. Test Equipment

3RD LEVEL

A. Planographic Printing

1. Direct Image Plates
2. Photographic Plates
3. Copy Layout
4. Offset Press Operation
5. Paper Binding
6. Paper Making

B. Drafting

1. Lettering and Symbols
2. Geometric Construction
3. Orthographic Projection
4. Sectional and Auxiliary Views
5. Architectural Drawing
6. Principles of Design
7. Tracing and Copying

C. Electronics - Radio

1. Power Supply
2. Amplifier
3. Oscillator
4. Detector
5. Resistors
6. Capacitors
7. Inductance Coils
8. Tubes
9. Transistors

MATERIALS AND PROCESSES1st LevelBasic Operations

- 1) Elements of Industry
- 2) Project Planning
- 3) Hand Woodwork
 - a) Wood Products & Occupations
 - b) Measuring & Stock Layout
 - c) Sawing Wood
 - d) Planing and Chiseling
 - e) Boring and Drilling Holes
 - f) Wood Fastening
 - g) Wood Finishing
- 4) Plastics
 - a) Types and Properties
 - b) Forming and Molding
 - c) Cutting
 - d) Fastening
 - e) Finishing
- 5) Sheetmetal
 - a) Kinds and Sizes
 - b) Pattern Layout
 - c) Cutting
 - d) Forming
 - e) Fastening

2nd Level

- A. Machine Woodwork
 - 1) Sawmill Operations
 - 2) Jointer
 - 3) Thickness Planer
 - 4) Circular Saw
 - 5) Band Saw
 - 6) Disc and Belt Sander
 - 7) Shaper
 - 8) Wood Lathe
 - 9) Drill and Mortiser
 - 10) Portable Power Tools
- B. Metalwork
 - 1) Metals Industry
 - 2) Planning Metal Projects
 - 3) Bench Metal Layout
 - 4) Cutting Heavy Stock
 - 5) Tiling and Drilling
 - 6) Bending Metal

- 7) Threading Stock
- 8) Annealing and Harding
- 9) Tempering
- 10) Methods of Casting
- 11) Making patterns, cores & sand molds

C. Plastics - Ceramics

- 1) Industries
- 2) Decorating and Carving
- 3) Coloring
- 4) Fiber Glass Laminating
- 5) Vacuum Forming
- 6) Injection Molding
- 7) Blow Molding
- 8) Compression Molding
- 9) Foam & Expanded Bead Molding
- 10) Casting
- 11) Extruding
- 12) Welding
- 13) Industrial Ceramics
- 14) Cutting Ceramic Materials
- 15) Forming " "
- 16) Fastening " "
- 17) Finishing " "

3rd Level

A. Manufacturing

- 1) Board of Directors
- 2) Company Officers
- 3) Personnel Administration Dept.
- 4) Marketing Department
- 5) Production Department
- 6) Finance and Control Dept.
- 7) Research and Development Dept.
- 8) Class will form a company and produce a product.

B. Construction

- 1) Planning for Building
- 2) Obtaining and Developing the Site
- 3) Building Foundations
- 4) Building Frames
- 5) Heating Systems
- 6) Plumbing Systems
- 7) Electrical Systems
- 8) Exterior Finishing
- 9) Interior Finishing
- 10) Door and window Installation

C. Machine Shop

- 1) Role of the Machine Shop
- 2) Measuring Tools
- 3) Chuck Turning on Lathe
- 4) Turning Between Centres
- 5) Filing and polishing
- 6) Drilling and threading
- 7) Introduction to Welding
- 8) Setting Up Equipment
- 9) Making a Flat Weld

D. Basic Surveying

- 1) Surveying and the Surveyor
 - Purpose of surveying
 - Types of surveys
 - Profile of a surveyor
 - Employment opportunities
 - Introduction to surveying instruments
- 2) Distance Measurement
 - Instrumentation used and accuracy obtainable
 - Horizontal chainage
 - Errors in distance measurement
 - Field practice in chaining
- 3) Levels
 - Principle of a level line
 - Instrumentation and accuracy
 - Care of instruments
 - Notetaking and terminology
 - Fieldwork - differential levelling, profiles, contours
 - Problems and errors
- 4) Angle and Direction Measurement
 - Instrumentation
 - Angles, bearings, and azimuths
 - The compass
 - The vernier
 - The transit and theodolite
 - Field practice and notetaking
 - Problems and errors
 - Stadia

Prevocational Home Economics

1st Level

Home Economics at this first level should be a general basic course similar to that offered to the grade nine Home Economics pupils in high school. Four main areas are studied as follows:

1. Foods and Nutrition

Unit Title

- 1) Basic nutrition
- 2) Function and use of food in the human body - food groups
- 3) Planning of meals
- 4) Kitchen management
- 5) Food preparation, service and storage
- 6) Consumer Education concerning feeding the family
- 7) Careers in Food and Nutrition

2. Clothing and Textiles

Unit Title

- 1) Social and psychological aspects of clothing - grooming, personality development etc.
- 2) Fibres and Fabrics - origin, manufacture - care-selection.
- 3) Construction of Clothing - equipment-use of patterns etc.
- 4) Selection and care of Clothing - wardrobe planning-colour, design laundry-cleaning-storage, etc.
- 5) Careers in Clothing and Textiles
- 6) Consumerism of Clothing the Family

3. Family Relationships & Child Care

- 1) Understanding self sociological, physical, mental & emotional growth and development.
- 2) The Family - roles, function, cycle, concerns needs.
- 3) Understanding growth and development of young children.
- 4) Care and guidance of young children.
- 5) The Family and the community - trends in family living in Canada today.
- 6) The Adolescent within the family.
- 7) Careers in family relationships and child care.

4. Home Management and Interior Decoration
- 1) Managing family resources - money, time, energy skills, equipment, etc.
 - 2) Housing - types, choice of, renting, owing-house purchase etc.
 - 3) Maintenance of home facilities - cleaning, storage, work schedules, recreation.
 - 4) Decorating the home - selection & arrangement of furnishings - colour schemes etc.
 - 5) Careers in housing.

2nd Level

Students opting to take Home Economics at this level might do so without having Home Ec 1st level as prerequisite - however, I believe first preference should be given to 1st level applicants.

- A. The Family and Its Food
- 1) Survival of the Family - basic needs
 - 2) Food needs and Family life Cycle - babies, young school children -workers- aged-sick.
 - 3) Environmental Influence on Family & eating practices.
 - 4) Govt. regulations & Public services concerning - food and the family.
 - 5) Planning, preparation and service of family meals.
 - 6) Management of resources used in food production at home.
 - 7) World situations affecting the family's food supply.
 - 8) Recent advances in Nutrition - interpreted in terms of their implications for health and welfare of individuals and family groups, varying in social, economic and cultural backgrounds.
- B. The Family and its Clothing & Use of Textiles
- 1) Origin and evolution of clothing - influence of needs and environment on clothing behavior.
 - 2) Fashion and the garment industry
 - 3) Clothing needs and the Family Life Cycle.
 - 4) Fabrics and Textiles used in family living. - clothing-soft furnishings-household linen and equipment.
 - 5) Selection, care and construction of clothing
 - 6) Needlecrafts and textiles feature in family recreational activities.

3rd Level

Students at the third level in Home Economics should be required to have either Home Ec 1st or 2nd level or both. Students having both levels should be given first preference when being registered for level 3. Knowledge in chemistry, biology, and economics would fit the student for higher achievement at this level.

A. Foods and Nutrition1) The Nature of Food Materials

Classification, structure, chemical and composition, nutritional values, qualities and grades.

2) Management of Food Resources

production-supply consumption of food, consumer cost, consumer information and protection, decision making in the market, meal planning-selection, storage of fruits and vegetables, eggs and dairy product, meat, poultry, fish, cereal and cereal products, processed foods. Meal management and service. Large and small equipment used in food preparation including tableware, flat and hollowware & covers.

3) Principles of Food Preparation and Cookery.

Food Spoilage. Conservation of nutritional value in food processing. Sanitation. Management of time and energy and waste. Principles of cookery concerning starches, sugars, fats, and proteins as they occur in foods. Preservation of foods.

4) Nutrition. In depth study of nutrients, history of the science of nutrients, fats carbohydrates, proteins, vitamins, mineral elements, water, interrelationships of nutrients; Meeting nutritional needs, food guides & tables. Digestion, assimilation, metabolism of food in the body. Nutrition problems around the world.5) Food and Society

Human needs. Impact of malnutrition and hunger on personality development. Influence of poverty and affluence on eating patterns. Food fads and fallacies. Socializing through food. Cultural influences on food practices and menu planning. Entertaining and leisure hobbies in food preparation. Etiquette. Food service opportunities - industry (restaurants, hotels, hospitals, research, business and marketing, mass media, home making) transport and tourism, education.

B. Clothing and Textiles

- 1) Textile Fibres. Generic names and manufacture of textile fibres. Structure properties identification. Detailed study of protein, cellulose and man made fibres. Fibre blends. Fabric construction. Non woven and woven fabrics. Basic and figured weaves. Woven piles and napped fabrics. Double cloth, multicomponent and knit-sew fabrics. Finishes - mechanical additive and chemical, stablization, colour. Textile developments in recent years. Future trends in clothing and textiles.
- 2) Textiles For Everyday Living
 Overview of history on dress and textiles. Consumer information-laws and standards for textile products, retailing of clothing and textiles, customer services, responsibility of consumer, planning clothing needs and wants. Special clothing needs of children and adults. Planning for Household Textile needs. Choosing home furnishings and household textiles. Daily and occasional care of clothing and textiles. Creative expression through pattern designing clothing to suit personality, textiles used in interior decoration. Social change and fashion change. Conformity and individuality in dress. Illusion in dress. Accessories and adjuncts to attractive wardrobes. Vocations requiring clothing and textiles knowledge-retail selling, teaching, dressmaking & alternation, field home-economist in private business, dry cleaning business, design and production of theatre costumes, modelling, textile design, interior decorator, etc.
- 3) Sewing and Construction Skills
 Organization in construction. Terms used in sewing and tailoring. Sewing equipment. Patterns - size, alteration and flat pattern, pattern designing. Fitting patterns and garments. Fabric preparation. Using patterns. Selection maintenance and function of sewing machine. Hand skills. Pressing. Bias-cutting and using. Facings and bindings. Collars, Sleeves. Plackets, hems, altering ready made. Disposal of fulness - darts, pleats, gathers, and tucks. Pants. Dress-maker tailoring. Decoration in dress.

NATURAL RESOURCES1st Level

1. Mining

- a) Types of mining in Newfoundland
- b) Location of Minerals in Newfoundland
- c) Prospecting for minerals
- d) Proving a find
- e) Taking and Testing Samples
- f) Assaying
- g) Staking a claim
- h) Methods of extracting minerals
- i) Methods of concentrating ores

2. Forestry

The 1st level program should be a general information course. It will help develop an interest in forestry. The course should make the student aware of his importance in keeping the forest, as well as, the environment in a livable state for himself and other creatures.

a) Forestry

Describe a forest
Describe a tree
What is a Forester?

b) Describe a Tree's Growth - Life Cycle

Pollen, fertilization, and the ovary of the flower
Seed in shell
Seed on ground
Root Development
Tree growth

c) A Forest

Ours - a Boreal Forest
How a forest protects the trees in it

d) Enjoyment of Forest

Look for animals and other life
Colourful plants can be enjoyable
Stress leaving the forest as it was found - unpolluted
Film on Forest

e) Importance to Birds and Animals

Homes to them describe a. active
 b. feeding
 c. play
 d. sleeping area
 How animals use trees and need them.

f) Importance to Man (Forest)

Carbon dioxide to oxygen
 Wood
 Water and Soil Stabiliter
 For enjoyment

g) What To Look For In A Forest

Individual trees differences (tell ages of trees that were cut)
 Time of year to look for differences in forest (winter and summer)
 Signs of man's influence (i.e. cutting, fire, etc.)

h) Information on Trees and Flowers in Newfoundland

Big trees that form a major canopy
 Undergrowth (small plants that can be seen growing and flowering-most noticeable in summer)
 Native flower of Newfoundland "Pitcher Plant"- describe where found and how it lives

i) Have Class Pick Some Plants and Leaves for Identification

j) Films on Forestry

Plantations
 Wildlife use of forest
 How man's use of forest helps animals

3. Fishing

a) The Industry

Fish-producing areas of Province
 Species caught
 Fishing methods
 Markets and marketing arrangements

b) The Vessel - trap-boats and longliners

Hull features and terminology
 Tonnage - displacement, deadweight, gross, net
 Main engine - fuel and cooling systems

Electrical installations
 Pumping arrangements
 Deck machinery and gear-handling arrangements
 Navigating equipment

c) The Fishing Operation

Operation of gill nets
 Operation of long-lines
 Handling, storage and discharge of fish

d) Seamanship/Navigation

Charts and related publications
 Navigational equipment
 Course, distance and speed
 Elementary position-fixing
 "Rule of the Road"
 Canadian Buoyage System
 Safety Equipment
 Knots and splices

e) Gear Construction and Repair

Fishing gear materials
 Mesh-size and hanging ratios
 Assembly of gill-nets, trawls
 Buoyancy of floats
 Simple net repair

f) Processing and Management

Freezing
 Salting
 Smoking
 Canning

4. Agriculture

It is intended that a part of the Natural Resources cluster will be a study of agricultural science. This will be developed and distributed at a later date.

2nd Level

A. Forestry

a) Forest Biology

Definition of Life (plant and animal) and Biological practices
 The cell (i) Structure and Shape
 (ii) Cell physiology, i.e. Metabolism, movement of substances through membrane

Cell duplication, heredity and principles of
Film

b) Botany

Vascular Plants

Annual growth in trees and shrubs (factors that influence)

Development of plant

The root, stem, leaf, and flower of plant, purpose and function

Types of reproduction of plants (i) Asexual and sexual
(ii) Demonstrate reproductive cycle

c) Forest Fire Protection

Necessities of fire: fuel, oxygen, heat; How weather helps the fire triangle

Kinds of forest fires, differences in large and small forest

Describe the index ratings; rating large fires normally occur under.

Fires direct effect on (i) trees various species
(ii) animals
(iii) soil

Fire weather; season, hazardous days, effect on fuel

Film (i) Smoke and weather

(ii) How weather helps us

d) Silviculture and Silvics

Definition and objectives of Silviculture

Definition of a site and measurements of site quality

Definition of even or uneven aged stands (their advantages and disadvantages)

Composition of stands pure and mixed (their advantages and disadvantages)

B. Fishing

a) Industry

Regulatory bodies affecting provincial fishery

Species caught by Canadian Fishermen

Methods of fishing in Canadian Industry

Production and marketing of Canadian Industry

b) Fishing Vessels - multipurpose

Typical layout of combination 55' - 65' vessels

Main and auxiliary power supplies; bollard-pull

Fuel, fresh-water and lubrication systems and capacities; pumping arrangements

Deck machinery and gear-handling arrangements

Navigating and fish-detection equipment

Basic stability - Centre of Gravity; Centre of Buoyance;

Metacentre; Metacentre Height

c) Fishing Operation

Groundfish trawling
Shrimp-trawling
Crab-potting
Scallop-dredging
Drift-net
Purse-seine

d) Seamanship/Navigation

Compass deviation
Running fix; horizontal angles
Problems involving current
Position finding by radar and D/F
Echo-sounding equipment
Maintenance routines - hull, engine and equipment
Corrosion
Breaking strain of ropes and wires

e) Gear construction and repair

Design of groundfish trawls, shrimp trawls, drift nets and
purse-seines
Calculation of tapers
Joining sections of different mesh size
Continuation of net repair

f) Processing and Management

Individually quick frozen (I.Q.F.)
Portions
Blocks
Breeding
Gourmet Dishes

3rd Level

A. Forestry

A course of forestry should contain enough specific information to make the student well prepared for any other course he may plan to take in forestry, but it cannot go any deeper than the prerequisite and related courses allow. In forest mensuration, statistical approaches cannot be used. Dendrology courses should stress common rather than specific names and the local plants of Newfoundland. Forest utilization should remain very general. Importance must be placed on the scope of work one can do in forestry rather than dwell on one or two specific courses.

a) Botany

Ecology and Conservation

Definition of Ecology and conservation.
 Factors influencing.
 Plant succession and plant associations.
 Natural cycles, daily, seasonal, yearly.

Plant Evolution

Evidence and theory of evolution.
 Taxonomy, relating to plant kingdom.
 Algae, bacteria, fungi.
 Bryophytes, vascula plants, gymnosperm, angeosperm.

b) Pathology and Entomology

Definition of Pathology and some common types of diseases in Newfoundland forests.
 What to look for in diseased trees and forest stands.
 Definition of Entomology - some common forest insects of Newfoundland and general life history of an insect.
 Common methods of controlling insect outbreaks, spraying - virus injection of insects, better management of forest.
 Forest management to control some types of diseases and insect outbreaks.

c) Dendrology

Definition of species, large units, simple classification.
 Study of leaves, general features, arrangements, composition, etc.
 Flowers, parts and arrangements.
 Fruits - development from flower - types of.
 Description of some gymnosperms in Newfoundland Pinus, larix, picea, abies.
 Description of some angeosperms of Newfoundland, Salix, Poplars, Betual, acer.

d) Forest Protection

Control of Forest Fires.

(i) Prevention, causes, occurences, preventive programs
 (ii) Fire suppression method, factors and mopup
 Water, chemicals and types of equipment and machinery used fire fighting and employment of each.
 Uses of fire for silviculture and fire prevention.
 Use for Wildlife Management, and other - case histories of prescribed burning.

e) Forest Mensuration

What is cruising? Methods of cruising advantages and disadvantages of plot over cruise lines.
 Measurement of living trees using form height classes and DBH measurement.

Measure of felled trees in pens, cord, solid content and weight. Note factors affecting each.
 Main reasons for measuring forest, note permanent sample plots and continuous forest inventory.
 Problem period involving use of tally sheets; to determine volume of wood in growing stand.

f) Forest Management

Explain sustained yield management?
 Stability of enterprises related to sustained yield and concept of managing forest for multiple use.
 Growth and mortality in forest.
 Structure and growth of even and uneven aged stands.
 Selection of trees or stands to be cut in cutting cycle.

g) Forest Utilization

Properties of wood; common; characteristic properties and variations within species.
 Economic resources and importance to Newfoundland
 Wood products (physical)
 Roundwood timbers
 Lumber industry
 Veneer and plywood
 Chemically derived products
 Pulp and paper
 Cellulose derived products (rayon, film, etc.)
 By products non-destructive
 Maple sugar
 Wildlife uses
 Recreational uses

B. Fishing

a) Industry

Major fisheries and fishing nations of the world
 International legislation and control of fisheries
 World's major markets and suppliers
 Factory-ship and fleet operations

b) Fishing vessels - large purse-seiners and stern-trawlers

Typical arrangements of stern-trawlers and purse-seiner
 Main and auxiliary power supplies; bollard pull
 Fuel, fresh-water and lubrication systems, pumping arrangements
 Deck-machinery and gear-handling arrangements
 Navigating, ship-handling and fish detection equipment
 Refrigeration Systems
 Stability - effect of moving, loading and discharging weights

c) Fishing Operation

Purse-seining
Bottom-Trawling
Midwater-trawling

d) Seamanship/Navigation

Electronic Navigation Systems
Position-finding by means of same
Search and Rescue Organization
Emergency procedures
Correct use of communications equipment
Shiphandling
Tackles

e) Gear Construction and Repair

Relationship between vessel and gear
Design of large bottom and midwater trawls
Design of large purse-seines
Continued practice in net-repair and assembly

f) Fisheries Management

Major Fishing Grounds
Sea temperature
Methods of Conservation
Major pollutants of ocean
Spawning, growth, feeding and migration patterns of our fish

