

Reflections
And Recommendations
From
Curriculum Development Advisory
For Research Schools
Grades 11/12



Curriculum Development Branch
Department of Education
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This document contains reflections on and recommendations for a number of subject areas and courses offered in grade 11/12 for those schools that are part of the research related to the to 5 credit semester.

The individual subject curriculum development advisory committees have reviewed the recommendations regarding curriculum reconfiguration that were developed at the Mactaquac meeting on April 21, 22, 1999. The CDACs have made their own suggestions and these have been received by the Provincial Curriculum Advisory Committee and endorsed by the Department of Education.

The content of this document provides strong guidelines and expectations for administrators and teachers in research schools. It is important for the validity of the research that all schools follow these recommendations.

The subjects are in order as follows:

- English
- Social Studies
- Math
- Sciences
- The Arts
- French
- Co-op Education
- Technology
- Evaluation of Research Project

A note on guidance is also included.

THE FOUR YEAR HIGH SCHOOL

The program for grades 9/10 has the following essential characteristics:

- it is outcome-directed
- it is student centered
- it has a common curriculum
- there is flexibility in scheduling

The 9/10 program articulates with the grade 11/12 program by offering a broad base of subject areas including specialties. This broad range of subjects will prepare students for compulsory course requirements and an increased range of electives in grades 11 and 12.

In grades 11 and 12, English and Mathematics will be 2-credit year long courses. A Science (or approved Technology course), Social Studies and Fine Arts/Life Role Development course are compulsories as is a one credit in grade 12 English.

The table overleaf outlines the compulsory subjects, courses and elective opportunities in grades 9 to 12.

THE FOUR YEAR HIGH SCHOOL

Grade 9	Grade 10	Grade 11	Grade 12
English (year)	English (year levels)	English (2 credits)	English
Math (year)	Math (year levels)	Math (2 credits)	Elective
French	French	Science (or approved Technology course)	Elective
Social Studies	Social Studies	History	Elective
Science	Science	Fine Arts/Life Role Development	Elective
90 hours	Minimum in	Elective	Elective
Each of	Art Music	Elective	Elective
Physical Education	Technology	Elective	Elective
			Elective
			Elective

*Fine Arts / Life Role Development Cluster

Visual Arts 110/120

Music 112/113/122

Fine Arts 110

Theatre Arts 120

Graphic Arts and Design 110

Family Living 120

Co-op Ed 120

Outdoor Pursuits 110

Health and Phys Ed 120

Entrepreneurship 110 (pilot)

RESEARCH SCHOOLS GRADES 11 AND 12

GENERAL INFORMATION

For students entering grade 11 in September 1999:

Compulsory courses:

Grade 11

English 11 (2 credits)

Math 11 (2 credits)

Science (or approved Technology Course) (1 credit)

Modern History 11 (1 credit)

Fine Arts/Life Role Development clusters (1 credit)

Grade 12

English 12 (1 credit)

8 compulsory credits from 20

17 credits (including compulsory courses) required

5 credits at the grade 12 level

For students entering grade 12 in September 1999

Compulsory Courses:

English 11 (1 credit)

Math 11 (1 credit)

Science (1 credit)

Modern History 11 (1 credit)

Fine Arts /Life Role Development (1 credit)

English 12 (1 credit)

Math 12 (1 credit)

Grade 11 is an 8 credit year and grade 12 is a 10 credit year.

7 compulsory credits from 18

15 credits (including compulsory courses) required

4 credits at grade 12 level

Course Codes

All course codes in the grades 11 and 12 will remain the same except:

Co-op Education 120 - EBCECT (3 credits)

Science 122 - ESSCB2

Math 111 - EMMDBI

Math 112 - EMMDB2

Math 113 - EMMDB3

English 111- ELEDBI

English 112 - ELEDB2

English 113 - ELEDB3

GRADE 11 ENGLISH IN RESEARCH SCHOOLS

The High School English Language Arts CDAC recommends that in research schools, the two-credit, grade 11 English, 180 hour course be offered to students as a full year program. The two credits will be granted on the basis of a year-end mark, 30% of which will be determined by a student's results on the Provincial Examination written at the end of the course. The 70% class mark will be determined by the individual teacher/school.

A year long, two-credit model fosters a teaching/learning situation strongly compatible with the principles and practices underlying the *Atlantic Canada English Language Arts High School Curriculum*. The language processes of speaking and listening, reading and viewing, writing and other ways of representing are not easily divided into two separate one-credit courses. The extended, ongoing opportunity for students to develop and refine these processes and skills is part of the rationale for offering English 11 over a full year.

The outcomes and program overviews for grades 9-12 are outlined in *the Atlantic Canada English Language Arts High School Curriculum* document. As the document states, differences in the grade 11 English courses (111, 112, 113) occur only in pace, scope, emphases, or resources; the same ten general curriculum outcomes apply to each. Differences in research schools from the rest of the province's high schools, will be marked by increased design flexibility and expanded cross-curricular possibilities and responsibilities. One of the advantages of a year-long course is the ongoing teaching/learning relationship, but the structure does not preclude team teaching, modular choices, or flexible grouping.

The 1998 *NB/Atlantic Canada* curriculum for grade 11 outlines the following areas for concentration:

- Emphasis in grade 11 continues to be strongly on writing and other ways of representing. Students learn through reading, and the teacher's modeling of writing, to develop a sense of style -- expanding and controlling their own use of language.
- Skill building in and through drama is one required area of oral development; participation in public speech, formal debate, and one additional public forum is expected.
- Media, visual and information literacies are areas of concentration to be included in the grade 11 course. Students are expected to become familiar with information technologies and demonstrate information literacy through research, synthesis, and presentation both in written and multimedia forms.
- A wide range of literary pieces must be available for students to explore and consider.

The CDAC members and interested others will prepare a list of recommended English Language Arts resources and will forward the list to schools along with suggestions for complementary cross-curricular materials (i.e. Social Studies, Guidance, Art). One copy of the resource, *Ideas that Work in Drama*, currently available through the Instructional Resources Catalogue, is being sent/given to each research school.

A copy of three poetry/painting resources being field tested to support the viewing outcomes and to help cross-curricular connections in Art and Social Studies will also be forwarded. Boxes of novels for independent reading (grades 11 & 12) will arrive in schools in September. District Offices have been given an allocation of money for purchasing additional grade 11 English or library resources. The total amount per research school is based on \$25 for each student entering grade 11 (using September '98 grade 10 enrollment figures), with a \$2500.00 minimum.

Guidance Counselors have been asked to make available to teachers of English any resources they might have to help with the writing aspects of the high school guidance outcomes. Teachers of English in grade 11 can take responsibility for seeing that students have completed an updated copy of their personal resume. Journal writing reflecting self-assessment and self-reflection is another area where teachers of English can help students meet the Personal Development and Career Planning outcomes for high school.

The two-semester English 11 course (111, 112, or 113) allows time for students to mature as learners and time for teachers to match learning experiences to individuals. It increases opportunities for teachers to arrange student support services or extra challenge as needed and to get to know and communicate with parents. With these advantages, the number of students who do not achieve success in grade 11 English could be lower than in the past (currently 10%).

The following options for struggling, repeating, or returning students are proposed to schools; they may choose among them, recognizing also that repetition of the full year course might be beneficial to a few students. The CDAC members strongly recommend that schools review on an individual basis each case where a student is struggling, is unsuccessful in completing the whole year grade 11 course or in achieving a passing final grade.

- Students struggling with English 112 (English 111) could switch to English 113 (English 112) during the school year.
- At the end of Semester 1, students struggling with grade 11 English could drop English and switch to another subject for Semester 2. They would need at some point to complete successfully the two-credit grade 11 course as well as the one-credit grade 12 English course.
- Interventions such as peer or adult tutoring have extra potential for success given that the pace of the grade 11 courses should be less frenetic. Alternative arrangements for students who do not cope well in the regular classroom setting might be considered.
- Two-course/credit English summer school or equivalent correspondence course, with a closing PE could be an option for those who had completed the regular school course but had been unsuccessful. In circumstances warranting this option, the same consideration could be made for students who had left late in the school year.
- Schools could work toward accommodating repeating or returning students within the next 180-hour course, with a view to the student meeting the English 11 outcomes and writing the PE after one semester.
- For purposes of scheduling flexibility, a school might consider offering the 180-hour course beginning in February and ending the next January (i.e., across two school years) - This has a major downside in that a two month break would occur in the middle and teacher continuity could easily be lost. If the above-mentioned course existed, a struggling student at the end of Semester I could possibly move over to the February course and restart.

Teachers of grade 12 English are encouraged to focus on breadth of language experience and literary exploration. They might diminish the length of time spent on any one or more pieces to accommodate the cut in hours from 110 to 90. The suggestion to have students read several novels but not formally study one received unanimous approval from English teachers around the table at Mactaquac II. Further suggestions will be developed and distributed regarding course design and recommended resources.

Each of the elective English courses in Research Schools will be affected by the cut in hours from 110 to 90. Journalism 120, Canadian Literature 120, Writing 120, Media Studies 120, Reading Tutor 120 are all fairly flexible in their design. Teachers will be able individually to adjust the number of units, assignments, or experiences to accommodate the cut. Information collected over the next two years from teachers of these electives in Research Schools will help with course outline revisions in the future.

Please contact me (444-4666 or dwm@gov.nb.ca) if you think I can be of assistance.
Cheers!

GRADE 11 SOCIAL STUDIES IN RESEARCH SCHOOLS

While the High School Social Studies CDAC has concerns about any reduction in time allotment to high school Social Studies courses, it supports the opportunity to work with research schools as they embark on this restructuring of the high school program. We support this proposal on the assumption that it will provide the required balance necessary to ensure a well-rounded education for New Brunswick students. We hope the proposal will, as its proponents suggest allow students to select a greater variety of electives in grade 12 and we will monitor developments accordingly over the next two years. We also see this research as an opportunity to examine the place of Social Studies in the high school curriculum, to review the social studies course offerings for 11-12 and to explore the best means of delivering Social Studies curriculum.

The Consultant with the CDAC will work closely with the research schools as they identify and implement which of the following suggested options they will follow to accommodate the reduction in time:

For the compulsory courses

History 112 - Each research school will accommodate the reduction in time in the compulsory History 112 by one of the following options:

- Reduce the content within each unit by applying the 15/5 model from the 1992 curriculum document to the 60-minute period instead of the 75-minute period.
- Maintain the curriculum for units 1, 2 and 3 and create an independent study unit for unit 4. The CDAC will supply one or more models of how this might be done.
- Work with the English teachers to identify areas where English and Social Studies teachers could cooperate and Social Studies could benefit from the expanded time in English. For example, identify novels, which if studied in English class, would broaden student understanding of selected historical periods. The CDAC will provide a support document that will give a variety of ideas on how this could be done.

History 113 - The History 113 curriculum has the greatest need of revision of all high school Social Studies courses and therefore we would expect to undertake a major review of the curriculum in the near future. In the meantime, we would suggest that schools concentrate on units 2-7:

- The Growth of Industrialization
- World War One
- Life in the 20s and 30s
- The Rise of Totalitarianism
- World War Two
- The Cold War

For the Elective Courses

Research schools will select from the following guidelines to accommodate the reduced hours of instruction for each of the electives that they will offer:

- Revise or remove all or part of one unit
- Reduce the content within each unit/section
- Accommodate by adapting methodology, assigning homework, independent studies, cross-curricular opportunities, etc.

The CDAC has asked that the provincial consultant gather information on choices that individual schools have made for the compulsory and elective courses.

In support of the research schools, the CDAC recommends the following actions:

1. The sharing of information on how each research school has opted to meet the reduction in time
2. Working with district and school officials to offer in-service workshops for Social Studies teachers in the research schools that would provide support to them and offer opportunities for sharing their experiences with each other
3. The development of a skills booklet for History 112-113 to reinforce the message that skills and process are still important in the reduced time frame
4. Supply one or more models of how independent study units can be done for Unit 4 of History 112
5. The development of a support document that suggests ways that Social Studies and English can work together

Over the two-year time span of this research the CDAC and the Consultant will monitor the delivery of Social Studies in the research schools with the following questions in mind:

- How well is this proposal supporting balance in the student's learning?
- Has there been an increase in the number of students selecting Social Studies electives? Does this proposal support increased student choice?
- What impact has the reduction in time in Social Studies had in terms of pedagogy and methodology? How has the reduction impacted on concept development in the various social studies courses? Has there been a change in the instructional approaches that social studies teachers use? To what extent have teachers been able to address skill development with the reduced time?
- What impact has the change had on teacher workload? What impact has the change had on student workload?

- What evidence is there that the 60-minute period is more effective than the 75-minute period? Has there been an increase in interdisciplinary activities and how effective were they? What impact has the expanded time in English had in Social Studies classes?
- To what extent are Social Studies courses being delivered by teachers with a background in that field?
- What are the benefits to the five period days? What is the opportunity costs to this system?
- What features make it better than the four period, semestered system?
- What have we learned about specific curriculum changes that have been tried? What do these trials suggest about long-term revisions to particular Social Studies courses?
- How effectively have teachers been supported during these changes? What suggestions do teachers make for continued support for this proposal?

The data collected from the research will not only help determine the success of this new proposal but will help direct future Social Studies curriculum development as we examine the place of Social Studies in the High School curriculum, review the Social Studies course offerings for 11-12 and explore the best means of delivering Social Studies curriculum

**GRADE 11 & 12 MATHEMATICS
IN
RESEARCH SCHOOLS**

Graduation Requirements (grades 11 & 12)

Decisions regarding the extent and nature of the compulsory mathematics experience for students were generally based upon a) keeping compulsory hours in line with historical precedents, b) maintaining, to as great an extent as possible, equity between research and non-research schools and c) honoring the principle of increasing student choice in research schools.

Research Schools

- 2 credits (180 hours) compulsory (Math 111, 112 or 113)
- Math 122 becomes an elective course
- Math 122 is not a prerequisite for Adv. Math 120

Examples of Course Sequences (in Research Schools)

- 9/10 Program => Math 112* => Math 122 => Adv. Math 120 => Calc 120
- 9/10 Program => Math 112* => Adv. Math 120 => Calc 120
- 9/10 Program => Math 113* => Math 123
* last compulsory course

Non-research Schools

- 2 credits (220 hours) compulsory (Math 111, 112 or 113, and Math 121, 122, 123 or Adv. Math 120)
- Math 122 is not a prerequisite for Adv. Math 120

Examples of Course Sequences (in Non-research Schools)

- 9/10 Program => Math 112 => Math 122* => Adv. Math 120 => Calc 120
9/10 Program => Math 112 => Adv. Math 120* => Calc 120
9/10 Program => Math 113 => Math 123*
* last compulsory course

Question: What about entrance requirements at post-secondary institutions? (For example, some programs now require a minimum of Math 112 and Math 122. Will this requirement change?)

ONE -YEAR RESEARCH SCHOOL "GRANDFATHER" SCENARIOS (for students entering gr.12)

Since the grade 11 mathematics experience of students varies considerably, the CDAC has prepared specific "grandfather" scenarios for various student cases. These scenarios will be relevant in research schools for one year (i.e., during 1999-2000) only.

Case I - student has passed Math 112 and 122:

- No further compulsory courses required
- May take one or both of Adv. Math 120 and Calc 120 as electives

Case 2 - student has passed Math 112, but failed or did not take Math 122:

- Requires one additional compulsory credit
- May take Math 122, Math 123 or Adv. Math 120 for the second compulsory credit

Case 3 - student has passed Math 122, but failed or did not take Math 112:

- Required to take either Math 112 or 113 full year to complete compulsory credits
- May take Adv. Math 120 concurrently during 2nd semester

(Note: Since students in this situation will generally be weaker or less confident students of mathematics, providing a 90 hour Math 112 or 113 option would be expected to put many of them at risk.)

Case 4 - student failed or did not take any grade 11 or 12 math courses:

- Requires two compulsory math credits
- Required to take either Math 112 or 113 full year for these two credits

Curriculum Adjustments for Research Schools

The CDAC believes that the extension of grade 11 mathematics courses to 180 hours represents a unique opportunity for teachers to extensively adopt instructional practices supported by recent research in mathematical pedagogy and articulated by the National Council of Teachers of Mathematics. These instructional practices would include, but not necessarily be limited to,

- Using additional time to engage students in "constructivist" activities, i.e., making students "doers" of mathematics and "builders" of mathematical knowledge - This may be accomplished in many ways; examples include using CBLs and graphics calculators to build concepts and skills with respect to functions, and using the "Baker's Choice" resource to develop mathematical understandings around systems of equations
- Using additional time to explore technological approaches to mathematical problems - Examples include exploring transformations, and finding maximum and minimum values

- Using additional time to problem solve and connect mathematics to other disciplines This could include using problems to motivate the need to learn new mathematical techniques, exploring actual problems from other disciplines in the mathematics classroom, and researching the historical background of mathematical ideas - A specific example would be using a budgeting problem as a context and motivator for the study of earnings, deductions, loans, savings, interest, etc.
- Using additional time to explore a wider variety of assessment practices - These might include portfolio development, journal writing, the use of regular pretesting, etc.

(Note: To implement most of these changes probably implies a significant teacher development effort in many schools.)

More specifically, to accommodate changes in hours of instruction, the following adjustments are to be made to the curricula of mathematics courses in research schools.

9/10 Program

- Retain all of current outcomes
- Add "solve linear equations by graphing each side of the equation and finding the intersection point" as an additional outcome

Math 113 (180 hours)

- Retain all of current topics
- Focus on rewriting equations in "y =" form as part of "Equations and Formulas" unit (first part of 7' bullet from 123 "Co-ord Geometry" unit, p. 19, Math 123 guide)
- Move skills and concepts relating to Law of Sines and Law of Cosines to 113 (last 4 bullets from 123 "Trigonometry" unit, p. 24, Math 123 guide)
- Move "Income Tax" unit to 113 (all skills and concepts, p. 28, Math 123 guide)
- Move "Budgeting and Saving" unit to 113 (all skills and concepts, p. 30, Math 123 guide) to serve as a context for many of the skills and concepts developed in the 113 "Earning Money," "Spending Money" and "Calculating Interest" units

Math 123 (90 hours)

- Those topics, and parts of topics, not moved to 113 comprise the 123 course

Math 112 (180 hours)

- Retain all of current topics
- Add the entire "Quadratic Equations and Functions" unit from Adv. Math 120 (pp. 11 - 52, Adv. Math 120 guide)

Math 111 (180 hours)

- As described above in all bullets for Math 112
- Add the entire "Permutations and Combinations" unit from Adv. Math 120 (pp. 155- 173, Adv. Math 120 guide)
- Use additional time to stress the extensions/projects outlined in the Level One mathematics curriculum document
- Use additional time to work on problems from past math competitions and to compete in current competitions (e.g., Waterloo's Fermat contest)

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Math 122 (90 hours) - Shorten current 122 by

- Removing the "Geometry" unit - Note: The "Geometry of a Circle" unit remains.
- Removing the "Vectors" unit

Adv. Math 120 (90 hours)

- Retain all current units except "Quadratic Equations and Functions"

Calc 120 (90 hours)

- Retain "Complex Numbers" and "Conic Sections" units as at present
- Shorten treatment of differential calculus as necessary - Note: This shortening should not be at the expense of "brushing over" or ignoring the development of a conceptual understanding of differentiation

ONE-YEAR RESEARCH SCHOOL "GRANDFATHER" CURRICULA (for students entering gr. 12)

Since students entering grade 12 this year (i.e., 1999-2000) will have had a different mathematics experience than that of students in future years, the CDAC has prepared specific "grandfather" curricula for several courses. These "grandfather" curricula will be relevant in research schools for one year (i.e., 1999-2000) only.

Math 123 (90 hours) - Shorten current 123 by

- Removing the "Polynomials and Rational Expressions" and "Perimeter, Area and Volume" units (one of which is currently required)
- Shortening the "Coordinate Geometry" unit to include only the skills and concepts on p. 19 of the 123 guide
- Doing one of the final three units, rather than two of them

Math 122 (90 hours) - Shorten current 122 as previously described.**Adv. Math 120 (90 hours)** - Shorten current 120 by

- Removing "Functions" as a "stand alone" unit - Note: Some skills and concepts from this unit will need to be dealt with in connection with one or more of the other units in this course

Calc 120 (90 hours) - Shorten current 120 as previously described.

AT GRADE 11: ONE 2-CREDIT COURSE

Why One 2-credit Course?

The CDAC gave much consideration to this issue. Ultimately, it was their conclusion that the advantages of "year-long" mathematics (which were a significant part of the rationale for developing the research school project) would, to a greater or lesser extent, be lost if the curriculum were broken into separate credits. More specifically, reasons for offering one 2-credit course include:

- Many of the topics are sequential - In particular, topics such as "Radicals and Exponents" and "Coordinate Geometry" are needed prior to the remaining topics in the course
- To be of as much value to teachers of science as possible, the "Trigonometry" unit should come early in the course
- Creating two 1-credit courses would tend to reduce inter-topic connections, thereby limiting one of the benefits, which the restructuring was intended to produce. In particular, the CDAC wishes to encourage teachers to engage students in mathematical tasks, which regularly require students to integrate mathematical concepts and skills from multiple units in the course. This pedagogical approach, which is supported by research in mathematics education, is restricted by segmenting curriculum into smaller pieces.
- Creating two 1-credit courses would make research comparisons of the effect on student achievement in mathematics of the restructuring more difficult

Possible School Level Accommodations to Reduce Potential Impact on Students

The CDAC recognizes that not all students will be successful in grade 11 mathematics during their first attempt. (Note: For the research project to be deemed successful, however, it would seem that the number of non-successful students should be significantly reduced.) The CDAC proposes the following as accommodations, which some schools might wish to consider, to minimize negative impact.

- Students struggling with Math 112 could switch to Math 113 at "any" point during the school year. (There would be limitations on how late in the school year this could reasonably happen, given that the 113 curriculum is significantly different from the 112 and has a PE at the end.)
- At the end of Semester 1, students struggling with grade 11 math could drop math altogether and switch to another subject altogether for Semester 2
- Highlight "normal" interventions (such as tutoring) - These have extra potential for success given that the pace of the grade 11 courses should be less frenetic
- Summer school, with a closing PE
- A supplementary PE, to coincide in August with the summer school PE (would need to be approved in principle by the Evaluation Branch before becoming a viable option)

- A compressed, 90-hour course for non-passing students (This option should be considered with care. A student who is unsuccessful in 180 hours may well have difficulty being successful when retaking the course in a compressed mode.)
- Repeating students to be accommodated within the next 180-hour course, with a view to their finishing and writing the PE after one semester (This could actually happen in either first or second semester.)
- For purposes of scheduling flexibility, a school might consider offering the 180-hour course beginning in February and ending the next January (i.e., across two school years) - This has a major downside in that a two-month break would occur in the middle. Also, a school would need to make a commitment to teacher continuity. (Note: This course would remain a 2-credit course; no credit decision would be taken at the end of June.)
- If the above-mentioned course existed, a struggling student at the end of Semester 1 could possibly move over to the Feb. to Jan. course and restart

Some Suggested Research Questions

The CDAC proposed several questions for research purposes, some of which have been previously aired and others, which are more specific to mathematics.

- Does extra instructional time make a difference vis-à-vis student achievement?
- Does the quality of student solutions to problems improve?
- Has teaching pedagogy changed (for the better)? If so, in what way(s)?
- How has the use of technology changed? (More? Less? New ways?)
- Does the PE continue to dictate what and how teachers teach?
- Is increased time at grade 11 math helping other disciplines?

GRADE 11 & 12 SCIENCE IN RESEARCH SCHOOLS

It is important to note that ALL members of the Science CDAC and subject area Working Groups were unanimous in supporting outcomes that place learning in societal contexts (in the Pan-Canadian Framework this is STSE - Science Technology Society & Environment) and outcomes which promote practical activities, applications and communication skills. In the adjustments described below you will see that it is "knowledge outcomes" which have been reduced, shifted or eliminated. The move toward "process" has been substantive in regional curriculum development and this will continue within the 90-hour course allocation.

There are two major recommendations in science curriculum at research schools:

- 1) That Biology 112 and Biology 120 become sequential courses. It is recognized that in small schools these may be offered in alternate semesters/years. If the courses are offered out of sequence teachers will need to consider placing **Unit X (Regulating Change)** where most effective. During the first year of research, care must be taken in adjusting Biology 120 as a single course for 90 hours.
- 2) A course named Science 122 (code ESSCC2) is available to offset the time constraints placed on courses in Physics and Chemistry by the new schedule. **(Science 122 should only be elected by students who plan to major in Physics, Chemistry or Engineering, in post-secondary education.)**

Normally students will have taken Chemistry 122 and Physics 122 prior to taking Science 122. In exceptional cases students may be permitted to take Science 122 having taken credits in Chemistry 112 and Physics 112.

Biology: Biology 112 (Regional Curriculum)

Outcomes for skills and STS remain the same. Changes for knowledge below:

PRESENT COURSE (110h)	RESEARCH COURSE (90h)
<p><u>Unit 1</u> Biodiversity:</p> <ol style="list-style-type: none">1. Cells are basic units of life.2. Organizational systems provide conceptual frameworks.3. Unity and diversity exist in the biosphere.	<p><u>Unit 1</u> Biodiversity:</p> <p style="text-align: center;">SAME AS PRESENT COURSE</p>
	<p style="text-align: center;">PLUS</p> <ol style="list-style-type: none">1. Photosynthesis stores energy in organic compounds and respiration releases energy for cells to use (This outcome #2 from Unit 2 of present course)
<p><u>Unit 2</u> Cellular Matter & Energy Flow:</p> <ol style="list-style-type: none">1 The biosphere is characterized by a constant flow of energy and cycling of matter.2 Photosynthesis stores energy in organic compounds and respiration releases energy for cell use.3 Steady state equilibrium in the biosphere is due to a balance of energy matter exchange with living systems.	<p><u>Unit 2</u> is omitted in research schools. Note the inclusion of concept #2 in Unit 1</p>
<p><u>Unit 3</u> Energy & Matter Exchange...</p> <ol style="list-style-type: none">1 Digestive and respiratory systems exchange energy and matter with the environment.2 Excretory systems are responsible for the maintenance of internal homeostasis3 Circulatory systems transport energy to maintain equilibrium among systems and the internal/external environment.	<p><u>Unit 3</u> Energy & Matter Exchange...</p> <ol style="list-style-type: none">1. Same as 110h2. Omit this outcome.3. Same as 110h
	<p>(From Unit 1 Biology 122, 110h) <u>Unit X</u> Systems Regulating Change</p> <ol style="list-style-type: none">1. Human physiological processes are regulated by electrochemical controls.2. Human homeostasis is maintained through chemical control systems

Biology: Biology 120 (Regional Curriculum)

Outcomes for skills and STS remain the same. Changes to knowledge below:

PRESENT COURSE (110h)	RESEARCH COURSE (90h)
<p>Unit 1 Systems Regulating Change</p> <ol style="list-style-type: none">1. Life processes are based upon molecular change and equilibrium (If time permits)2. Human and other organisms regulate physiological processes by using electrochemical controls.3. Human and other organisms maintain homeostasis through the use of complex chemical control systems.	<p>Unit 1 is omitted in research schools. <Note it is moved to Biology 112> During the transition, if students in Grade 12 take ONLY Biology 120 this unit must be given consideration</p>
<p>Unit 2 Reproduction & Development</p> <ol style="list-style-type: none">1. Humans and other organisms have complex reproductive systems that ensure species survival.2. Reproductive success of organisms is regulated by chemical control systems.3. Differentiation and development are regulated by genetic, endocrine, and environmental influences.	<p>Unit 2 Reproduction & Development</p> <ol style="list-style-type: none">1. Same as 110h2. Same as 110h3. Same as 110h
<p>Unit 3 Chromosomes, Genes & DNA</p> <ol style="list-style-type: none">1. Cells divide to increase in number but must reduce their chromosome number before combining at fertilization.2. Genetic characters move from generation to generation in predictable patterns3. Genetics can be explained at a molecular level.	<p>Unit 3 Chromosomes, Genes & DNA</p> <ol style="list-style-type: none">1. Same as 110h2. Same as 110h3. Same as 110h
<p>Unit 4 Change in Populations, Communities and Species</p> <ol style="list-style-type: none">1. Genetic equilibrium and evolutionary change occur in population gene pools.2. Population change over time can be expressed in quantitative terms.(If time permits)	<p>Unit 4 Change in Populations, Communities and Species</p> <ol style="list-style-type: none">1. Same as 110h2. Omit this concept

Biology: Biology 113

This course is based closely on the recommended resource **Globe Biology**. There are compulsory units of study, which provide both a general concepts of Biology and particular applications to human anatomy and health. Optional units are intended for selection by staff and/or students, based on interest or local context. Approximately 70% of 110h was intended for the compulsory units. Moving to a 90h course will allow less opportunity for selecting optional units of study.

Developing skills through practical activities and relating biological concepts to daily life remain the basis of this course.

PRESENT COURSE (110h) Compulsory	RESEARCH COURSE (90h) Compulsory
<p>Unit 1 The Study of Life</p> <p>Unit 2 Simple Organisms</p> <p>Unit 6 Human Biology</p> <p>Unit 7 Human Health</p>	<p>THESE UNITS REMAIN THE SAME FOR 90H</p>
<p>Optional</p> <p>For the remaining 30% of the 110h select from the following units:</p> <p>Plants</p> <p>Invertebrates</p> <p>Vertebrates</p> <p>Heredity & Genetics</p> <p>Change Through Time</p> <p>Ecology</p>	<p>Optional</p> <p>As time permits, select optional topics from the list shown for the 110h course.</p>

Chemistry: Chemistry 112 (Regional Curriculum)

Outcomes for skills and STS remain the same. Changes to knowledge below:

PRESESENT COURSE (110 h)	RESEARCH COURSE (90h)
<p>Unit 1 Matter & Energy in Chemical Change</p> <ol style="list-style-type: none">1. Matter is classified on the basis of its properties.2. Matter has a well-defined underlying structure.3. Elements combine to form a vast array of compounds.4. Energy is involved when matter undergoes change.5. Matter is conserved in chemical changes.	<p>Unit 1 Matter & Energy in Chemical Change</p> <ol style="list-style-type: none">1. Minimal review from Science 102. Minimal review from Science 103. Minimal review from Science 104. Same as 110h5. Same as 110h
<p>Unit 2 Matter as Solutions and Gases</p> <ol style="list-style-type: none">1. Solutions are homogeneous mixtures of pure substances.2. A model of the gaseous state of matter provides insight into molecular behavior	<p>Unit 2 Matter as Solutions and Gases</p> <ol style="list-style-type: none">1. Same as 110h2. Do this <u>last</u> only as time permits
<p>Unit 3 Quantitative Relationships in Chemical Change</p> <ol style="list-style-type: none">1. Balanced chemical equations indicate the quantitative relationships between reactants and products.2. Relationships between amount of reactants and products in chemical changes are used in quantitative analysis.	<p>Unit 3 Quantitative Relationships in Chemical Change</p> <ol style="list-style-type: none">1. Same as 110h2. Same as 110h (<i>Leave gas stoichiometry to end and do with #2 Unit 2, as time permits</i>)
<p>Unit 4 Chemical Bonding in Matter</p> <ol style="list-style-type: none">1. Chemical bonding in matter results in the formation of compounds.	<p>Unit 4 Chemical Bonding in Matter</p> <ol style="list-style-type: none">1. Same as for 110h <p>(This unit provides a basis Electrochemical Changes now found in Science 122)</p>

Chemistry: Chemistry 122 (Regional Curriculum)

Outcomes for Skills and STS will remain the same. Changes to knowledge below:

PRESENT COURSE (110h)	RESEARCH COURSE (90h)
<p>Unit 1 An Introduction to Organic Chemistry</p> <ol style="list-style-type: none">1. Organic compounds are a common form of matter.2. Chemical changes for organic compounds are many and diverse	<p>Unit 1 <Becomes the 3rd unit> An Introduction to Organic Chemistry</p> <ol style="list-style-type: none">1. Same as for 110h2. Same as for 110h
<p>Unit 2 Thermochemical Changes</p> <ol style="list-style-type: none">1. There are energy changes associated with changes to matter.	<p>Unit 2 <This becomes the 1st unit> Thermochemical Changes</p> <ol style="list-style-type: none">1. Same as for 110h
<p>Unit 3 Acids & Bases in Chemical Changes</p> <ol style="list-style-type: none">1. Many factors affect the rate of chemical reactions2. There is a balance of opposing reactions in chemical equilibrium systems.3. Acids and bases have an effect on aqueous systems.4. Acid-Base chemistry involves proton transfer5. Acid and base systems are quantitatively described.	<p>Unit 3 <This becomes the 2nd unit> Acids & Bases in Chemical Changes</p> <ol style="list-style-type: none">1. <Only include if time permits>2. Same as 110h3. Same as 110h4. Same as 110h5. Same as 110h
<p>Unit 4 Electrochemical Changes</p> <ol style="list-style-type: none">1. Many chemical changes involve the transfer of electrons.2. Energy is involved in electrochemical changes.	<p>Unit 4 Electrochemical Changes <This entire unit transferred to transfer of Science 122></p>

Physics: Physics 112 (Regional Curriculum)

Outcomes for skills and STS will remain the same. Changes for knowledge below:

PRESENT COURSE (110h)	RESEARCH COURSE (90h)
<p>Unit 1 Waves Mechanical Waves There are 8 concepts in the curriculum guide for this section.</p>	<p>Unit 1 Waves Mechanical Waves ALL OUTCOMES SAME AS 110 h COURSE</p>
<p>Sound Waves There are 7 concepts in the curriculum guide for this section.</p>	<p>Sound Waves ALL OUTCOMES SAME AS 110 h COURSE</p>
<p>Light Waves There are 7 concepts in the curriculum guide for this section</p>	<p>Light Waves ALL OUTCOMES SAME AS 110 h COURSE</p>
<p>Unit 2 Electricity & Magnetism Static Electricity There are 4 concepts in the curriculum guide for this section</p>	<p>Unit 2 Electricity (ONLY) Static Electricity ALL OUTCOMES SAME AS 110 h COURSE</p>
<p>Current Electricity There are 5 concepts in the curriculum guide for this section</p>	<p>Current Electricity ALL OUTCOMES SAME AS 110 h COURSE</p>
<p>Magnetism There is 1 concept only in this section</p>	<p>< All outcomes for Magnetism and for Electromagnetism are moved to Science 122 ></p>
<p>Electromagnetism There are 4 concepts in this section</p>	
<p>Unit 3 Atomic & Nuclear Models There are 10 concepts in the curriculum guide for this section</p>	<p>Unit 3 Atomic & Nuclear Models <This entire unit is moved to Science 122 ></p>
	<p>Unit X <This becomes the 3rd Unit > Linear Motion (This unit moved from Unit #1 of Physics 122 (110h)). All 4 concepts of this unit to be studied. (It connects Science 10 with Physics 122.)</p>

Physics: Physics 122 (Regional Curriculum)

Outcomes for skills and STS remain the same. Changes for knowledge below:

PRESENT COURSE (110h)	RESEARCH COURSE (90h)
<p><u>Unit 1</u> Linear Motion</p> <ol style="list-style-type: none">1. Uniform motion involves equal distances traveled in equal times.2. Changing motion involves differing distances for equal times.3. A reference frame is necessary to fully describe motion4. Uniformly changing motion indicates constant acceleration.	<p><u>Unit X</u> Linear Motion</p> <p><This entire unit has been moved to become the last unit of physics 112 (90h)></p>
<p><u>Unit 2</u> Forces</p> <ol style="list-style-type: none">1. Forces can be measured and represented as vectors2. Newton's Laws summarize the effect of forces on the motion of an object.3. Forces cause properties of objects to change4. Forces of friction, adhesion, cohesion5. Properties of electromagnetic forces6. Properties of gravitational forces7. Unique characteristics of strong and weak nuclear forces.8. Field theory explains how forces exist and interact	<p><u>Unit 1</u> Forces</p> <ol style="list-style-type: none">1. Same as 110h2. Same as 110h3. Same as 110h4. Same as 110h5. Moved to Science 1226. Same as 110h7. Moved to Science 1228. Same as 110h
<p><u>Unit 3</u> Two-Dimensional Motion There are 5 concepts in the Physics 122 curriculum guide for this section</p>	<p><u>Unit 2</u> Two-Dimensional Motion ALL OUTCOMES SAME AS 110h COURSE</p>
<p><u>Unit 4</u> Impulse & Momentum There are 4 concepts in the guide for this section.</p>	<p><u>Unit 3</u> Impulse & Momentum ALL OUTCOMES SAME AS 110h COURSE</p>
<p><u>Unit 5</u> Work, Energy & Power There are 7 concepts in the guide for this section.</p>	<p><u>Unit 4</u> Work, Energy & Power ALL OUTCOMES SAME AS 110h COURSE</p>

ENVIRONMENTAL SCIENCES 122/123
IN
RESEARCH SCHOOLS

In its original format, for 110h, this curriculum indicates that Unit 1: Ecology is compulsory and will take approximately 70% of contact time. There is an option to use the remaining 30% of time and follow a sustainability theme through each of units 2, 3, 4, or to concentrate a study of the topics in two of the three options.

It is recommended that in the 90h course that Unit 1: Ecology remains compulsory and uses approximately 75h of contact time. Staff/students select **one** of the optional units for study in the remaining 25h.

New Course <OPTIONAL>: Science 122 (ESSCC2)

This course will include study of: magnetism; electromagnetism; force fields and their application; atomic & nuclear structure; redox reactions, and electrochemistry. Detailed descriptions of STS, Skills, and Knowledge outcomes will be found in the original curriculum documents. Sections to which you should refer are as follows:

Magnetism	Physics 112	Unit 2
Electromagnetism (and application to generators/motors)	Physics 112	Unit 2
Electromagnetic Forces	Physics 122	Unit 2
Atomic & Nuclear Structure	Physics 112	Unit 3
Strong & Weak Nuclear Forces	Physics 122	Unit 3
Redox & Electrochemical Changes & Quantum Theory	Chemistry 122	Unit 4

ARTS COURSES IN RESEARCH SCHOOLS

Recommendations for Art and Music from Mactaquac are listed on pages 14 & 15 of the *Record of Discussions* document. These recommendations have been shared with the High School Art and Music CDAC'S.

One of the main issues with teachers of both Art and Music is the variability of time given to those areas at grades 9 and 10. It is important for purposes of articulation with grade 11 courses that, students receive the 90 hours time allotment in each subject over the 9/10 years. As an example, entry into Graphic Art and Design 110 was originally premised on completion of Art 100. Students must take sufficient study in art in grades 9 and 10 to prepare for both Visual Arts 110 and Graphic Arts and Design 110. The same premise and assumptions apply to grade 11 Music courses.

Music

The High School Music CDAC recommends that for Music 111/2 pilot, Music 113, the new Music 112, and Music 122, the breadth of programming be maintained. That is all Music courses will continue to focus on the following three areas - performing and creating music, understanding and responding to music, and understanding music's social and historical context.

The selection of activities and experiences that students will undertake to meet the objectives of these broad strands will be chosen by teachers. Since less time is available in class, it is expected that teachers will reexamine their options with regard to the activities and experiences they choose for students. This is not anticipated to be a problem partly because of the quality and experience of Music teachers and secondly because the curriculum offers a fair selection of choice.

Visual Arts

Currently the following courses exist at grades 11 & 12 - Visual Arts 110, Visual Arts 120, Graphic Arts & Design 110. As with Music, the recommendations from Mactaquac stressed that curriculum reconfiguration should still honor the breadth of the Art program. That is, that in all courses art production, art criticism and art history are important and should continue to be part of the students experience. The High School Art CDAC supports these recommendations and notes that the above curricula have many suggested activities from which teachers may choose. Again the expectation is that Art teachers will reexamine their choice from the list of suggested activities with a view to making better use of time.

With regard to Graphics Arts & Design 110 the recommendation from Mactaquac, supported by the CDAC, is that there should be more and easier access to technological equipment which would allow for more student work.

The suggestions to keep the breadth of the program and examine the list of activities more closely are applicable to both Fine Arts 110 and Theatre -Arts 120.

FRENCH SECOND LANGUAGE PROGRAMS IN RESEARCH SCHOOLS

Core French

The main objective of the Core French Program is to develop a level of oral proficiency in French. At the Grade 11 and 12 level, the Core French curriculum proposes a number of modules or units, which the teacher may choose, based on student interest. These modules offer opportunities for students to practice their French in meaningful situations.

The reduction of hours in the Core French Program will mean that students will undertake one fewer unit/module.

A major point of interest is the nature of the impact of the reduction of hours on student achievement.

French Immersion Language Arts

At the Grade 11 and 12 level, the French Immersion Language Arts curriculum proposes a number of modules or units which the teacher may choose, based on student interest. These modules offer opportunities for students to practice their French in meaningful situations. In addition, students study various aspects of literature and culture.

The reduction of hours in the French Immersion Language Arts curriculum will mean that students may not study certain aspects of the curriculum at the same depth that they have done heretofore.

The curriculum guide (Grade 9 - 12) is being revised, and the working group in charge of this project has been asked to take into consideration the 90-hour configuration.

CO-OPERATIVE EDUCATION IN RESEARCH SCHOOLS

Co-operative Education is a well-established transition program offering in the New Brunswick Anglophone School system. It provides students an experiential learning opportunity in which in-school study is reinforced through workplace learning. Co-op offers students the opportunity to develop employability skills, explore career options, participate in the community, and helps to establish a measure of relevancy for in-school learning. It develops partnerships with the private and public sectors and serves to enhance school community relations by accessing community learning opportunities and resources. Co-operative Education 120 is recognized by the N.B. Community College system as related experience for entry criteria and is accepted by the University of New Brunswick as an admissions offering. The importance of Co-operative Education grows as the provincial government pays increasing attention to the school to work and/or post-secondary education transition of youth.

Co-operative Education 120 is presently offered to Grade 11-12 students. Its primary offering is as a two-credit elective. However, some schools offer a one-credit Co-op to meet individual student need and/or local circumstance and usually as a third credit after a normal two-credit program has been completed. The Department of Education's *Co-operative Education Policies and Procedures (840400)* document establishes the operational framework for course delivery and is supported by the *Co-operative Education 120 (842970) curriculum* document. As stated in the curriculum document, the minimum time allocations pertaining to the three course components, based on two credits, is as follows: Pre-employment-37.5 hours, Reflective Learning-12.5 hours, Workplace Training-150 hours.

With the implementation of a school day based upon five 60-minute periods, it is necessary to consider the impact upon Co-operative Education, its delivery model, hours of instruction and credit availability. The value and validity of Co-operative Education should not, in any way, be compromised by changes to the school day. Furthermore, in adopting this scheduling model schools should not, as the result, eliminate or reduce the availability of Co-op to students where it had previously been offered. In fact in consideration of the changes in high school graduation requirements, some schools may be now in a better position to offer Co-op.

It is understood that the move to 60-minute periods over the duration of one semester will result in the reduction of instructional time and reflect a course/credit of 90 hours. In considering a two-credit Co-operative Education offering, the proposed system would designate 180 hours for two credits based on two hours per day (two periods). As with other courses, the reduction in time requires some form of adjustment to what is presently being done. However, for Co-operative Education, an additional implication must be considered and relates specifically to the allocation of two hours for work-site participation.

Students participating in Co-op require time to travel to and from the work-site either departing from, or returning to the school. Some Co-op placements occur at considerable distances from the school. Any reduction in the time spent at the job site may well compromise the value of the placement in terms of time available to be on task. Furthermore, from an employer perspective, less than two hours may be perceived as hardly worth the effort on their part. It is not uncommon for students to travel from anywhere between 15 and 30 minutes (sometimes more) to a job site each way which could reduce workplace participation by as much as 30 to 60 minutes per day.

To insure Co-operative Education remains a valuable experience for youth, continues to be supported by the community, maintains integrity in relation to the Pre-employment and Reflective components, and allows students and employers to benefit from a daily schedule worthy of their investment, **it is recommended that Co-operative Education be offered as a two-credit and/or three-credit course option.**

Although there is a scheduling implication for the move to a three credit Co-op, for some schools, the conversion of a lunch period to a Co-op period and the use of a class period for lunch by Co-op students will allow for more flexible scheduling. Another implication is the possible increase in interest in Co-op as the result of the expanded work experience opportunity as students react to the increase in choice under the 20-credit system.

Although Co-operative Education has been offered in limited circumstance as a one-credit course, the move to a 60-minute period seriously compromises the amount of workplace and in-school component time available. In consideration of this time reduction, **it is further recommended that a one-credit Co-op course not be available as an offering in research schools.**

At the present time, Department of Education policy places no formal restriction on the total number of credits that may be earned through co-operative education. However, it is expected that normally a student could obtain a maximum of four credits. **This option has been maintained.** Co-operative education therefore, will continue to better serve those students having chosen to directly enter the workforce upon graduation; more fully explore a potential career area; or access a unique workplace arrangement. **In research schools, students may earn two, three, or four credits through Co-operative education.**

Curriculum

Curriculum is organized around three major components: the Pre-employment component, the Reflective Learning component, and the Workplace or Out-of-School component which is governed by the development of a training plan. Changes in the minimum hours for all components are reflected in the chart below. Specific recommendations follow.

Co-operative Education 120 (minimum hours)

Program Components	Pre-Employment	Reflective Learning	Workplace	Total*
Two-Credit	30 hours	10 hours	125 hours	165
Three-Credit	39 hours	15 hours	195	249

*Total minimum hours allow for loss of instructional time due to school-based function requiring attendance

In-School Curriculum Component

The In-School component hours, consisting of pre-employment and reflective learning sessions, have been changed to reflect the 60 minute period format of research schools in both the two and three-credit offerings. In both cases, the existing curriculum document (842970) provides the course specifics to be maintained. For students accessing four credits through co-operative education, the pre-employment component may be adjusted to suit the specific circumstances of the student and work placement. Participation in the reflective learning component will continue to be required.

Pre-Employment: The two-credit offering will require the identification of curriculum (7.5 hours) which will require assumption of responsibility by the student through self-directed learning. This will result in maintaining a pre-employment block of 15 days. The three-credit offering will require the expansion of the existing curriculum through extension activities identified by the teacher (1.5 hours) and will result in a pre-employment block of 13 days.

Reflective Learning: The two-credit offering will be reduced to 10 hours and the three-credit offering will expand to 15 hours. In both cases, the five in-school session format will be maintained. The increase in individual session time will be used to further the integration and reflection process employed in these sessions.

The Out-of-School Curriculum Component

The workplace component, in both two and three credit offerings, will continue to be governed by the training plan. Developed in consultation with the workplace supervisor, the training plan reflects the objectives and specific skill development aims of the work placement, which are expected to be obtainable over the duration of the program.

TECHNOLOGY EDUCATION IN RESEARCH SCHOOLS

Technology Education for New Brunswick is currently at a crossroads in the ongoing process of its own regeneration. The separate curriculum areas of Vocational, Business and Home Economics are being rationalized and revitalized through a unifying K12 Technology Education curriculum continuum. This effort parallels the Atlantic Provinces' Educational Foundation's (APEF) plans to circulate, in the fall of 1999, a validation draft of a Technology Education foundation document for Atlantic Canada. Consequently, all current courses under these traditional banners are under review.

The New Brunswick "Research" High Schools, moving to a 60-minute, five- period day obviously have a distinct opportunity in designing 90-hour semestered Technology Education courses. Any review of current offerings can be made meaningful within the context of the already revisited and refined General Curriculum Outcomes (OCO) and their corresponding Key Stage statements provided by the APEF and NB Technology Education draft documents. Moreover, the NB *Advanced Technology Studies'* (ATS) program, for grades 11 and 12, provides the framework to guide collaborative decisions related to the design and implementation of engaged learning strategies, appropriate to each school. The ATS program encourages the continuous improvement of innovative, integrated, instructional design as the most effective means to ensure that all students benefit from the wealth of opportunities provided by a relevant Technology Education.

EVALUATION OF HIGH SCHOOL RESEARCH PROJECT

Results from the High School Research Project will help inform decisions to continue, revise, expand, or curtail the initiative. The general question to be pursued might be: "What has been the impact of the change upon the form and quality of education in the participating high schools?" Based on input from participants, there have been identified five major areas for which information would be useful and which lend themselves to systematic investigation. These are framed as general questions that can be refined and developed:

1. *Has the character of student programs in the participating high schools altered?* This might take into account the range and availability of choice in course selection, as well as the ideas of breadth and balance in student programs.
2. *Has there been any change evidenced in the levels of literacy and numeracy of students in the participating high schools? Has there been any change in the performance of students in the other subjects?*
3. *Has there been any change in the learning environment?* This question could be used to track the impact of the change upon factors that positively affect the quality of the learning environment. The perception surveys recently developed by the Evaluation Branch could provide some climatic data in this regard.
4. *Has there been any change in the assignment, responsibilities, and interactions of the teaching staff?* Input from participating schools suggests that the change will result in "better human resource allocation". This line of investigation will examine this hypothesis.
5. *In what ways has the change affected attention to the required graduation outcomes?* There could be attention to the range and depth of outcomes and associated subject matter.

Specific processes to be followed and measures to be used in evaluating the research project will be determined in due course.

GUIDANCE

The guidance outcomes at the 11/12 level are included in the *Personal Development and Career Planning, K-12 Curriculum Document*. The outcomes are intended to be facilitated by all classroom teachers, counselors, advisors, mentors, etc. There is also an expectation that some of the outcomes will be initiated by the students themselves. At this level, although it is our intent that the outcomes be met, we recognize that there is insufficient time for guidance to appear as a separate subject. Outcomes which require actual writing assignments may be included as part of the English course.

Employability Skills Posters and accompanying *Employability Skills Teacher Handbooks* have been distributed to all teachers in the province. The skills are fundamental to all curricular outcomes.

Students in grade 11 in September 1999 will be expected to continue updating their individual copies of *Linking to the Future: Career and Educational Planning Portfolio*. The portfolios are intended to be updated by students under the mentorship of parents, all teachers and counselors. This is an ongoing process, as students progress through the middle, 9/10 and high school years.