DEPARTMENT OF EDUCATION

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COURSES *of* STUDY

for the

Elementary, High, Technical, and Normal Schools

of

BRITISH COLUMBIA

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COURSES OF STUDY.

COURSE OF STUDY PRESCRIBED FOR ELEMENTARY SCHOOLS.

NOTE.—Except in literature, no increase has been made in the work prescribed in the various subjects. It is expected, therefore, that, as was the case in the past, many pupils will be able to complete the course in six or seven years. The Department hopes to be able to give in greater detail, in the next issue of its Courses of Study, the requirements for each grade in the different subjects.

Grade I.

1. Reading.

Book I. of the Canadian Readers (a Primer and First Reader). Recitation and supplementary reading from authorized texts. Phonic drill.

2. Writing.

During the first year the pupils should be taught correct habits of posture and movement and the forms of all the small letters and figures and a few simple capitals. Letter and word formation must be taught from the blackboard before any attempt is made by the pupil to write with pencil. The lower part of the blackboard should be ruled with painted lines 2½ or 3 inches apart. By this means form, proportion, and slant are easily and quickly taught.

The first lessons should consist of instruction in position at the blackboard, motioning in the air, and "pretend" writing. This should be followed by lessons on chalk-holding and tracing of movement exercises—the direct and indirect ovals and the "push and pull" movement drills.

The aim of these lessons is to interest the pupils in blackboard-writing and to develop rhythmic movement and muscular control.

Lessons on individual letters and words as shown in Compendium No. 1 should then be taken up at the blackboard and taught by retracing methods. Form, speed, and rhythm are emphasized.

The seat-work during the first term should consist of profitable busy work of various kinds, but little, if any, pencil-writing should be done. The aim should be to develop correct writing habits. Pupils should be taught to sit in a healthful writing posture and to use a sliding-arm movement. In cases where it would seem necessary to suspend the arm to prevent finger movement, it should be raised very slightly above the desk and for a very short period in any one lesson.

During the second term, after form, rhythmic movement, posture, and pencil-holding have been thoroughly taught, the pupils should write on pencil paper with large pencils, having a soft black lead, all the letter forms and words which they have already learned at the blackboard. The sliding-arm muscular movement should be used with no separate finger movement or as little as possible. *Emphasis should be placed upon process rather than upon product.*

Compendium No. 1 of the MacLean Method of Muscular Movement Writing is to be used by the pupils. Teachers will use the Teachers' Manual as their guide.

All writing done by the pupils during the first two years should be under the supervision of the teacher. Arm movement should be used in all written work.

3. Manual Work (for Grades I. and II.).

PAPER FOLDING AND CUTTING.

To acquire dexterity and skill of hand by constructing and making objects; to gain a knowledge of the forms, triangle, square, oblong, etc.; to know right side, left side, front, back, edge, corner, angle; to know such terms as turn, fold, etc.; and, in short, to increase the vocabulary of the child and assist the language lesson.

The following book is recommended for the teacher's use: Educational Handwork, T. B. Kidner (Published by Educational Book Co.).

Suggested Syllabus from above Book.

Grade I.—First folding exercises, page 18. Stars, page 25. Frames, page 26.

Grades I. and II.—Second Key form, page 30. Pattern-making, 34, 35. Cutting leaves, fruit, and objects. Cut the crosses of St. George, St. Andrew, and St. Patrick.

Grade II.—Constructive work, page 42. Patterns 1, 2, 3, 4, 5, 8.

Use some of these exercises for drawing lessons. None of the measurements should be less than half an inch.

Paper Folding and Cutting Materials, No. 204. For Constructive Work, No. 219z, Milton Bradley Co.

PLASTICENE MODELLING.

The modelling of a sphere, cylinder, cone, cube, prism, and pyramid; and the turning of these type models into objects having similar forms.

MAT-WEAVING.

The following book is recommended for the teacher's use: Primary Work. By Wilhelmina Seegmiller. (Published by Atkinson, Mentzer & Grover, Chicago.)

Mat-weaving paper, No. 1110. Weaving-needles, No. 395. Milton Bradley Co.

4. Language Lessons.

In connection with the reading it is suggested that the pupils form oral sentences containing the new words used in the reading lessons; that there be frequent drills in enunciation, articulation, inflection, and emphasis; that oral and written spelling be begun in this grade; that the teachers hold with their classes frequent conversations growing out of observation of pictures, plants, animals, etc.; that there should be frequent oral reproduction of stories read or related by the teacher; that there should be memorization of selected passages; that prevailing errors of speech should be corrected at the time they are made; that the names of the days of the week and of the seasons of the year be taught.

5. Arithmetic.

Smith & Roberts, Arithmetic, Book I., pages 1–27 (for use of teacher only). Study of the numbers 1 to 9, inclusive; developing relation between object and symbol; oral counting to 100; placing a number of objects (not to exceed 36) into groups of twos, threes, fours, etc., and counting the number of groups; measuring with a foot rule; counting by twos to 20; combinations of numbers to 9 (this includes the teaching not only of addition, but also the application of the other three simple rules to these numbers).

6. Nature Lessons (to be correlated with the Language and Drawing Lessons).

AUTUMN (SEPTEMBER, OCTOBER, NOVEMBER).

General, Industrial, and Social.—The children's food-supply, clothing, and shelter; comparison of primitive with modern conditions; effects of approaching winter on plant and animal life and in people's activities.

Animal Life.—(*a.*) Children's pets and domestic animals—cat, dog, horse. (*b.*) Birds—canary, pigeon, robin. (*c.*) Insects—butterfly, larva and cocoon, beetle.

Plant-life.—(*a.*) Food-plants—local fruits and nuts; garden vegetables and grain. (*b.*) Wild plants—the maple tree, fall dandelion, fireweed. (*c.*) Garden flowers—nasturtium, sweet pea, sunflower.

WINTER (DECEMBER, JANUARY, FEBRUARY).

General.—Effects of cold; wind, clouds, snow.

Animal Life.—(*a.*) Domestic animals—the cow, our meat and milk supply; the sheep (clothing); rabbit. (*b.*) Wild animals—animal stories and pictures. (*c.*) Birds—sparrow, chickadee, bluejay.

Plant Life.—(*a.*) Food-plants—pop-corn, imported nuts. (*b.*) Wild plants—contrast of leafless trees, form of branches, and evergreen (Christmas tree).

SPRING (MARCH, APRIL, MAY, JUNE).

General.—The spring awakening; sun, wind, rain, weather chart, swollen streams, and new activities of the people.

Animal Life.—(*a.*) Pet and domestic animals—baby animals (calf, lamb, pig, chickens, ducklings). (*b.*) Birds—meadow-lark, crow, song-sparrow. (*c.*) Insects—Life history of moth or butterfly, housefly, an ant-hill.

Plant Life.—(*a.*) Wild flowers—dandelion, buttercup, dog's-tooth violet, trillium or spring beauty. (*b.*) Garden flowers—pussy-willows, pansy, bulbs (crocus, narcissus, and tulip). Window plants, seed-planting.

7. Music.

The music period should be one of pleasure and enthusiasm for both teacher and pupil. A careful and wise training will inculcate a love for good music, produce competency in sight-reading, and result in better singing.

A few children—far fewer than is generally supposed—have what is called a "bad ear" for music. That is, they do not readily distinguish between one musical sound and another; but it can safely be said that quite 99 per cent. of children can with patience and perseverance cultivate a "good ear" and learn to sing with pleasing voice.

Too much stress cannot be laid on the importance of "soft" singing. When the singing is soft, there is no risk of straining or injuring the voice.

Children should be trained to sing alone. It is a great mistake always to practise children collectively. If they were so taught to read and recite it would be hopeless to expect correct articulation and intelligent phrasing.

To sing intelligently it is necessary, first, to phrase correctly; secondly, to sing with expression. To phrase correctly, means, roughly speaking, to take breathing in the proper places. To sing with expression children must be encouraged to put themselves into their music; for if they sing what they feel, those who listen will feel what they sing.

First Term.—(1.) To imitate the teacher's pattern in sol-faing simple phrases of three or four notes to lah (individual work). (2.) To sol-fa from the hand-signs the tones of the Doh Chord in any order, and in several keys, this to be preceded by song-sentences. (3.) To sing sweetly and softly songs with and without action. (4.) Rhythm to be taught by swinging, clapping, etc. (5.) Singing games. (6.) Little rhythmic plays.

Second Term.—(1.) To imitate the teacher's pattern in sol-faing simple phrases of three or four tones to lah (individual work). (2.) To sing the Doh Chord by leaps and the other notes of the scale in step-wise succession by hand-signs. (3.) Song-sentences, including all notes of scale (individual work). (4.) Songs with and without action. (5.) Rhythmic games.

Grade II.

1. Reading.

Book II. of The Canadian Readers. Recitation and supplementary reading from authorized texts. Phonic drill continued.

2. Writing.

Compendium No. 2 to be used by the pupils. All new capital letters and words ould be first taught at the blackboard. The writing should be the same size as t shown in the Compendium.

e transition from sliding-arm to forearm muscular movement should be treated individual problem, but an endeavour should be made to have all pupils writing with forearm muscular movement by the end of the Second Grade. Pen and ink should be introduced when the child has developed a light touch and can write with a free forearm muscular movement.

3. Manual Work. (*See* Grade I.).

4. Language Lessons.

Work to be undertaken as outlined for Grade I. In this grade the pupils should learn the abbreviations and contractions found in the Reader. There should be frequent transcription and dictation exercises.

5. Arithmetic.

Smith & Roberts, Arithmetic, Book I. (for use of teacher only).

First Term.—Reading and writing numbers to 100; combinations to 20; study of the ten-unit; counting by fives and tens; e.g., 5, 10, 15, etc., and 10, 20, 30, etc.

Second Term.—Combinations and extensions to 100; multiplication tables to end of table of 5. Work, within number limit of 100, given in Smith & Roberts' Arithmetic, Book I. to end of page 90.

6. Nature Lessons and Geography (to be correlated with the Language and Drawing Lessons).

(*a.*) NATURE LESSONS.

Autumn (September, October, November).

General.—Materials and sources of same which enter chiefly into our clothing, building and furnishing of our homes, etc. Again contrast modern conditions with primitive; preparation of plants and animals for winter, seeds ripening, leaves falling, hibernation of animals, migration of birds.

Animal Life.—(*a.*) Domestic animals and pets; a comparison of familiar animals based upon observation along the following lines: method of eating and drinking, sleeping, running, playing, calling, fighting, etc. (*b.*) Wild animals—deer, bear. (*c.*) Insects—cabbage butterfly, grasshopper, collecting and storing of cocoons.

Plant Life.—(*a.*) Food-plants, more careful study of the corn and pumpkin. Food-storage. (*b.*) Wild flowers—daisy, yarrow, aster. (*c.*) Garden flowers—aster, cosmos, planting of bulbs. (*d.*) Trees and shrubs—alder, birch, vine-maple.

Winter (December, January, February).

General.—Winter conditions, value of ice and snow, sports, home duties. Heating our homes—fire, fuel, etc. Primitive methods compared with modern.

Animal Life.—(*a.*) Wild animals—fox, squirrel, chipmunk. How wild animals spend the winter. Stories of animals in the wild. (*b.*) Birds—woodpecker, owl, towhee. (*c.*) Insects—spider (in contrast with insects already studied).

Plant Life.—(*a.*) Food-plants—potato, onion, carrot, celery. Note part of plant used for food. (*b.*) Trees—evergreens (Douglas fir, spruce, or balsam); contrast with pine.

Spring (March, April, May, June).

General.—Seasonal characteristics as spring advances. Weather chart. Spring work and spring games.

Animal Life.—(*a.*) Domestic animals; visit to a farmyard; kindness-to-animals week. Stories of animal fidelity and the proper treatment of dumb creatures. (*b.*) Wild animals; small animals in the pond—frogs and toads. (*c.*) Birds—bluebird, wren, humming-bird, record of first appearance of species. (*d.*) Insects—life-histories continued; the cricket; distinguish moths from butterflies.

Plant Life.—(*a.*) Garden plants—plant seeds in gardens or window boxes, and observe development of germination. (*b.*) Wild flowers—flower calendar; marsh marigold, bleeding-heart, tree blossoms, such as maple, cherry, and horse-chestnut. (*c.*) Trees and shrubs—spring condition of species already studied; dogwood, flowering currant, and spiræa.

(*b.*) GEOGRAPHY.

(*a.*) *Direction.*—The cardinal points of the compass; these to be related to the rising and setting of the sun, the school-room, rows of desks, fences, and streets.

(*b.*) *Time.*—(1.) Sunrise to sunset; daylight and darkness. Teach morning or

sunrise, midday, evening or sunset, midnight. These terms related to the life of the child. (2.) The days of the week and the names of the months should be taught.

(*c.*) *Weather and Seasonal Changes.*—Pictorial records should be kept for the different months, showing such weather ideas as sunny days, cloudy days, rainy days. Note the direction of the wind.

7. Music. FIRST TERM.

(1.) *Voice-training.*—(*a.*) Simple breathing exercises. (*b.*) Simple voice exercises. Exercises to be sung softly, with pure tone, careful attention to vowel-sounds and pitch. Exercises to be taken to loo, moo, noo.

(2.) *Tune.*—(*a.*) To sol-fa from the teacher's pointing on the *Modulator* and from *hand-signs* the tones of the Doh Chord in any order, and the other tones of the major diatonic scale in step-wise succession. (*b.*) To sing *simple* exercises in the Staff Notation.

(3.) *Time.*—To know the values of the whole-note, half-note, and quarter-note. To monotone exercises to time-names and syllable "doh."

(4.) *Time and Tune.*—To sing short "study" songs to syllables, lah, and words.

(5.) *Ear-training.*—(*a.*) To recognize the notes of the Doh Cord. (*b.*) To imitate the teacher's pattern in sol-faing simple phrases of three or four tones (individual work).

(6.) *Song-singing.*—Songs may be patterned from Modulator occasionally.

(7.) *Rhythmic Writing.*

(8.) *Rhythmic Games and Dances.*

SECOND TERM.

(1.) *Voice-training.*—(*a.*) Simple breathing exercises (*b.*) Simple voice exercises. Attention given to soft, sweet tone, vowel-sounds, and pitch (individual work).

(2.) *Tune.*—(*a.*) To sing to the syllable "lah" from the Modulator exercises containing the tones of the Doh Chord in any order, and the other tones of the diatonic major scale in step-wise succession. (*b.*) To sol-fa from the Modulator exercises containing the Doh and Soh Chords in any order, and fah and lah in step-wise succession. (*c.*) To sol-fa from the Staff Modulator exercises in various keys.

(3.) *Time.*—(*a.*) To sing to time-names and to doh, exercises containing the whole-note, half-note, quarter, eighth, and rests. (*b.*) Time ear tests.

(4.) *Time and Tune.*—To sing to syllables and to lah, short "study" songs.

(5.) *Ear-training.*—(*a.*) To tell the name of any tone of the major scale sung to lah, the tones of the Doh Chord being first sol-faed by the teacher or by the class. (*b.*) To imitate and sing from dictation as in Grade I. and first term of Grade II.

(6.) *Theory.*—To answer any question on the notation and mental effects of tones taught.

(7.) *Songs.*—To sing to words in correct tune and time, with good expression, songs in unison.

(8.) *Rhythmic Games and Plays with Musical Interpretation.*

Grade III.

1. Reading.

Book III. of The Canadian Readers. Recitation and supplementary reading from authorized texts.

2. Writing.

Compendium No. 3 is to be used. All pupils in the Third Grade should use forearm muscular-movement in all their written work.

3. Drawing.

Blair's Canadian Drawing Series, Book I.

4. Language Lessons.

Work to be undertaken as outlined for Grade II.; the abbreviations and contractions found in the Reader; simple exercises in word-building; the significance of

simple prefixes and suffixes, as well as the common use of capitals and punctuation marks; drill for the formation of habits of correct expression.

Public School Speller (Western Canada Series), pages 1 to 26, inclusive (for use of teacher only).

5. Arithmetic.

Smith & Roberts' Arithmetic, Book I. (for teacher's use only).

Daily drill in combinations and extensions; multiplication tables to end of twelve times twelve. Work as outlined in prescribed text to end of page 123.

6. Nature Lessons and Geography (to be correlated with the Language and Drawing Lessons).

(*a.*) NATURE LESSONS.

(*See* note on Nature Study, page 20.)

Autumn.

General.—Earth materials and their uses to mankind in furnishing food, clothing, and shelter—soil, rocks, gravel, sand, peat, etc. Food-plants; review of locally produced foodstuffs, with processes and by-products.

Animal Life.—(*a.*) Domestic animals; review of local animals already studied and extend the study to take in their intermediate usefulness to man—food, clothing, labour, transportation, sport, etc. (*b.*) Wild animals—racoon, porcupine, skunk. (*c.*) Birds—Distinguish young from old birds; observe preparations for migration; examine abandoned nests of birds. (*d.*) Insects—the silkworm; collect cocoons of moths; examples of the work of insects.

Plant Life.—(*a.*) Food-plants; seed production of food-plants in field and garden—annuals, biennials, and perennials. (*b.*) Wild plants and weeds—thistle, burdock, observational study of how seeds travel. (*c.*) Trees and shrubs—local deciduous trees in woods, parks, or boulevards; shapes of trees, shapes and location of leaves, buds, and fruit.

Winter.

General.—The home grocery cupboard as representing foodstuffs of foreign production—samples, methods of production, countries and peoples involved, and transportation.

Animal Life.—(*a.*) Wild animals—wolf, coyote; animal-life stories continued. (*b.*) Birds—winter visitors, junco, grosbeak; plan and make bird-houses for spring use.

Plant Life.—(*a.*) Food-plants; study from samples all cereals grown in district and articles of food for man and beast made from each. (*b.*) Trees—evergreen trees not already studied, compare with those previously studied; study of winter buds on fruit-trees.

Spring.

General.—Water on the earth and its great value to mankind; source, forms, work, uses in daily life: (1) To all animal and plant life; (2) to people for daily use; for transportation, pleasure, sports, etc.

Animal Life.—(*a.*) Wild animals—beaver, musk-rat, mink; stories, pictures, value. (*b.*) Birds—bird calendar, feeding and nesting, habits of summer residents. (*c.*) Insects—the honey-bee, life-history; ants, work, social life, etc. (*d.*) Pond life; water-beetles, larvæ, etc.

Plant Life.—(*a.*) Garden and house plants; window boxes, house plants, seed germination, seed sowing and transplanting. (*b.*) Wild plants—flower calendar, the clovers, lupines, and broom; enemies (weeds) in the lawn. (*c.*) Trees and shrubs—study of fruit blossoms in tree and bush fruits.

(*b.*) GEOGRAPHY.

(*a.*) *Direction and Distance.*—Teach the semi-cardinal points of the compass. Give practice in locating objects, introducing the idea of distance.

(*b.*) *Time.*—Review and extend the work of Grade II.

(*c.*) *Weather and Related Phenomena.*—(1.) Pictorial records continued. (2.) How our home life is affected by seasonal changes. Note in this connection preparations for winter, spring activities, summer recreations, the beauties of autumn.

(*d.*) The study of some earth or water feature—a project.

(*e.*) *How We Live.*—(A study of our own home.) (1.) An Indian boy before the white man came. (2.) Our school district of to-day. 1. The teacher should make a survey of the district surrounding the school. (*a.*) Observation of the main land and water forms should be undertaken: e.g., a hill, a mountain, a valley, a river, a lake, a bay or strait; these to be studied from the human standpoint. (*b.*) Reproduction—by the sandboard model, the pencil sketch, in some cases written composition. Simple map-making and interpretation. 2. The occupations of the people. This should comprise a simple study of the industries, the trades, the transportation facilities, and methods of communication of the home district. In many districts a study of soil conditions will be found necessary.

7. Music.

(1.) *Voice-training.*—(*a.*) Simple breathing exercises. (*b.*) Simple voice exercises.—These exercises should be practised daily in accordance with the principles described in Grade II.

(2.) *Tune.*—(*a.*) To sol-fa from the Modulator, and sing to "lah" exercises containing any ordinary intervals of the diatonic major scale. (*b.*) To learn "fe" and "ta." (*c.*) Staff Modulator drill in all keys.

(3.) *Time.*—(*a.*) To sing to time-names and to doh, time exercises containing the whole-note, half-note, quarter, eighth, and dotted quarter with eighth. (*b.*) To have practice in putting in the bar lines to simple unbarred exercises, and in naming the time of passages sung to swinging. (*c.*) Time ear tests.

(4.) *Time and Tune.*—To sing to syllables and to lah, short "study" songs.

(5.) *Ear-training.*—(*a.*) To tell the name of any tone of the major scale and to write it on the blackboard. (*b.*) To imitate and sing from dictation, phrases of three or four notes.

(6.) *Theory.*—To answer questions on the notation.

(7.) *Songs.*—To sing in correct time and tune, and with good tone and expression, songs in unison.

(8.) *Rhythmic Work.*—The work of the previous classes should be carried on as far as possible.

Grade IV.

1. Reading.

Book IV. of The Canadian Readers. Recitation and supplementary reading from authorized texts.

2. Writing.

Compendium No. 4 is to be used by pupils of this grade. Healthful posture, free rhythmic movement, and the production of better form should be emphasized in all written work. Teachers will use the Teachers' Manual as their guide.

3. Drawing.

Blair's Canadian Drawing Series, Book 2, omitting examples 10, 15, 21.

4. Language Lessons.

Work to be undertaken as outlined for Grade III. The pupils should be taught to divide words into syllables and mark the accent. They should be required to give simple oral and written reproductions.

Public School Speller (Western Canada Series), pages 27–54, inclusive.

5. Arithmetic.

Smith & Roberts, Book I. to end of page 163 (for teacher's use only in graded schools).

6. Geography.

(*a.*) *How Other People Live.*—(1.) The Eskimo Home. (2.) A Japanese Home. (3.) A Desert Home (the Arabs). (4.) An Equatorial Home. (5.) The Dutch Home. These to be studied by the project method. A picture, a story, some article of dress or utensil may form the approach. The lessons should be conversational. The pupils themselves should work out the project, either on sandboard or by a series of pictures collected and mounted.

(*b.*) *The Earth as a Whole*, including a simple study of heat belts.

(*c.*) *How People are Clothed.*—(1.) Wool. (2.) Cotton. (3.) Linen. (4.) Silk. (5.) Leather. (6.) Rubber. These are arranged topically, but this order need not be followed; for example, silk may be studied in connection with the Japanese Home.

(*d.*) *How People are Fed.*—(1.) Bread. (2.) Rice. (3.) Sugar. (4.) Tea and coffee.

Further study of the earth as a whole—the position of the Equator, latitude, longitude, the Tropics, the Arctic and Antarctic, the relative position of the continents and oceans.

7. Nature Lessons. (*See* note on Nature Study, page 20.)

AUTUMN.

General.—The heavens month by month. The sun, changing length of day. Moon and its changing phases; north star and Big Dipper.

Animal Life.—(*a.*) Domestic animals—sheep and goat. Economic importance, similarities and differences, main uses, study of woollen manufacture (story of a sweater coat). (*b.*) Wild animals—mountain-sheep and mountain-goat. Compare with domestic species (pictures and museum specimens, heads, etc.). General topic —domestication of wild animals, stories. (*c.*) Birds—local water-birds, food and nesting habits. Bird-protection. Report on nesting-boxes. (*d.*) Insects—wild bees and wasps. Preparation of bees for winter.

Plant Life.—(*a.*) Food-plants—summary of food-plants grown in home or school gardens during the season and classification under following headings: (1.) Fruits—tree fruits, bush fruits, soft fruits. (2.) Garden vegetables—annuals, biennials, perennials. Food storage in leaf, stem, root, etc. Market value during season. How shipped and where. (*b.*) Wild plants and weeds—three or four of the common weeds of the garden and how propagated. (*c.*) Trees and shrubs—review in identification of the deciduous trees of the locality by leaves, buds, and bark. Make a school collection.

WINTER.

General.—The heavens month by month. Relation of sun, moon, and earth. More easily recognized constellations.

Animal Life.—(*a.*) Domestic animals—visits to a poultry-farm to study methods of handling poultry on a large scale. Make a census of breeds of poultry and number of birds in the district in each breed. Note market prices for eggs, method of export and destination, transportation, etc. (*b.*) Wild animals—recall characteristics of wild animals studied and observed locally and make an easy classification on the basis of resemblances to domestic animals, as, for example, the cat group, dog group, cattle group, and miscellaneous. Use pictures to help in identifying similar points; lantern-slides would be of great interest if available. Means by which these animals protect themselves.

Plant Life.—(*a.*) Food-plants—foodstuffs derived from plants not grown locally but used by poultry and live-stock men; e.g., meals and oil-cake, mashes, and provenders, alfalfa, hay, etc. Source from which obtained, prices, etc. (*b.*) Trees—collect and identify specimens of all evergreen trees in the district. Study products of British Columbia forests, pulp, making of paper, logging, rafting, and transportation to mills, kinds of lumber and dimension, timber produced locally, uses, prices, and particulars of export.

SPRING.

General.—Weather observations and easy records—prevailing winds, clouds and fog, rainfall, midday temperature, effects of weather conditions upon gardens and vegetation.

Animal Life.—(*a.*) Poultry study continued. Home projects in study and management of poultry or rabbits; poultry-raising competitions. (*b.*) Birds—identification of spring visitors; by size and plumage (male and female), songs, flights, etc., protection, resting habits, bird-boxes. (*c.*) Insects—insects of the garden and orchard, identification of a few common enemies such as cutworm, root-maggots, and aphis. (*d.*) Fish—observation of a local species.

Plant Life.—(*a.*) Garden and house plants—school and home projects in the raising of house and garden plants; early markets and the first appearance of local and important vegetables and fruits, prices. (*b.*) Wild plants—identification of wild flowers continued; conservation of our native wild flowers; how to make a beautiful bouquet. Weeds—first ones to come into flower, collection with dates. (*c.*) Trees and shrubs—flowers of evergreens; calendar of ripening seeds and how scattered; growing of trees and shrubs from seed.

8. Music.

(1.) *Voice-training.*—(*a.*) Breathing exercises. (*b.*) Voice exercises. These exercises should be taken daily. The "head voice" must be encouraged; the "forced chest voice" must not be allowed. Simple exercises on the good singing vowels should be taken individually.

(2.) *Tune.*—(*a.*) Sharp Modulator practice in all keys from the Staff Modulator, using syllables and lah. (*b.*) To sol-fa from the Modulator, exercises containing minor mode phrases introducing l se l; me ba se lah.

(3.) *Time.*—To sing to time-names and to doh, exercises containing the whole-note, half-note, quarter, eighth, sixteenth, dotted quarter with the eighth, and dotted eighth with the sixteenth.

(4.) *Time and Tune.*—Short "study" songs sung to syllables, lah, and words.

(5.) *Ear-training.*—To write or tell ear tests containing three or four tones, including easy leaps, on the tones of the Tonic Chord.

(6.) *Theory.*—Formation of scale, key, and time signatures.

(7.) *Songs.*—Unison songs to be committed to memory. Two-part exercises introduced.

(8.) *Major and Minor Chords.*

Major			′	′		Minor				′	
	s	d	r	s			l	t	m		
										′	
	m	l	t	m			f	s	d		
	d	f	s	d			r	m	l		

Grade V.

1. Reading.

Book V. (Part 1) of The Canadian Readers. Recitation and supplementary reading from authorized texts.

2. Writing.

Work of Grade IV. continued. Compendium No. 4.

3. Drawing.

Blair's Canadian Drawing Series. Examples 10, 15, and 21 of Book 2; also Book 3, omitting examples 10, 14, and 18.

4. Language Lessons.

Language lessons based on the reading lessons. Spelling, meaning, and pronunciation of words, with special attention to word formation.

The division of a composition into paragraphs should be studied from suitable models in the Reader, and the knowledge thus gained by the pupils applied to their own compositions, both oral and written. Special attention to oral reproduction in paragraphs. This should precede any written composition. Oral and written reproductions of substance of reading, geography, history, and nature lessons.

Elementary Composition—Alexander & Mowat (W. J. Gage & Co., Ltd.), Part 1.

Public School Speller (Western Canada Series), pages 55 to 82, inclusive.

5. Arithmetic.

Smith & Roberts, Book I., to end of page 205.

6. Geography.

NORTH AMERICA.

(*a.*) Position—
- (1.) On the globe.
- (2.) In relation to other continents and to the oceans.

(*b.*) Size (comparatively).

(*c.*) Shape (triangular). Make some study of the coast-line, teaching some of the more important coast features.

(*d.*) Build—
- (1.) Teach important highlands:
  - (i.) Primary highlands.
  - (ii.) Secondary highlands.
- (2.) Teach the Great Central Plain:
  - (i.) The basin of the Mackenzie.
  - (ii.) The basin of the Nelson.
  - (iii.) The basin of the Mississippi.
- (3.) Teach basin of the St. Lawrence.
- (4.) Teach Atlantic Slope.
- (5.) Teach Pacific Slope.

(*e.*) A series of oral lessons taking the pupils in imagination through the different districts of the continent. In these they see the people at work, learn something of the climate and products of the different districts, and learn the names and location of the great commercial centres. No attempt will be made to teach much concerning the causes affecting climate, but from observation they will learn (*a*) that nearness to the Equator (latitude) affects climate; (*b*) that nearness to a large body of water affects climate; (*c*) that height of land above sea-level affects climate. They will learn the characteristic products of the different districts—wheat on the Canadian prairies; corn and cotton in the Mississippi Valley; lumber and fruit on the Pacific Slope, with tropical fruits farther south. In connection with these products a commercial centre will be taught. They will thus learn the location of such cities as Victoria, Vancouver, Edmonton, Regina, Winnipeg, Ottawa, Toronto, Montreal, Quebec, Halifax, St. John, New York, St. Louis, New Orleans, and San Francisco.

(*f.*) The political divisions—Canada, United States, Mexico, and Central America.

BRITISH COLUMBIA.

A careful study of the position of the Province in the Dominion of Canada, its size—build (drainage)—a general idea of its climate, and some of the industries, the chief cities, and some of the more important transportation routes. The drawing of the map from memory.

SOUTH AMERICA.

7. History (to be correlated with the Geography Lessons).

The objects of the teaching of History in Grades V. and VI. are: To create an interest in the subject; to cultivate a taste for reading it, and, incidentally, to make

the pupil acquainted with many of the facts of History that will be of value in his work in Grades VII. and VIII.

This method of treatment is suggested:—

1. The story told by the teacher.
2. Questioning by the teacher leading the pupil to organize and group the facts into paragraphs.
3. Oral reproduction.
4. Written reproduction.

Topics suggested for Grade V.:—

NORTH AMERICA.

1. Indian Tribes (giving a picture of life in North America before the coming of the white man).
2. Columbus (not to be taken before the pupil has sufficient knowledge of the relative position of the continents to enable him to understand something of the desire of the people of Western Europe to find a shorter path to Eastern Asia).
3. John and Sebastian Cabot.
4. Cortes and Montezuma (not a complete account of the Conquest of Mexico, but two or three stories to give a picture of the civilization of the Aztecs and of the Spanish gold-seekers).
5. Cartier.
6. Drake.
7. Champlain.
8. Hudson.
9. Pilgrim Fathers.
10. William Penn.
11. Jesuit Missions.
12. Marquette.
13. La Salle.
14. Verendrye.
15. Wolfe.
16. Lord Selkirk.

BRITISH COLUMBIA.

1. Capt. Cook.
2. Capt. Meares.
3. Nootka Affair.
4. Capt. Vancouver.
5. Sir Alexander Mackenzie.
6. Simon Fraser.
7. David Thompson.
8. The Gold Rush.

8. Nature Study and Elementary Agriculture. (*See* note on Nature Study, page 20.)

AUTUMN.

Animal Life.—(*a.*) Wild animals—seal, walrus, sea-lion. (*b.*) Birds—owls, hawks, eagles. (*c.*) Insects—grasshoppers, crickets, bugs.

Plant Life.—(*a.*) Weeds—shepherd's-purse. wild mustard, lamb's-quarter, pigweed, narrow-leaved plants in (ribgrass), wild sunflowers. (*b.*) Trees and shrubs—cypress ("cedar"), poplar, arbutus, oak.

Gardening and Elementary Agriculture.—Careful study of one or two types of annuals, biennials, and perennials, with special attention to food-storage (preparation for winter).

WINTER.

Animal Life.—(*a.*) Wild animals—cougar, wolverine, lynx, anl wild-cat (using pictures or stuffed specimens where available). (*b.*) Birds—woodpeckers, including flicker and nuthatch. (*c.*) Insects—dormant forms of insect-life.

Plant Life.—Trees—larch ("tamarack"), spruce; comparison of all evergreens studied.

Gardening and Elementary Agriculture.—Planning of school and home gardens; drawing of plans; description and stories relating to gardens and gardening.

SPRING.

Animal Life.—(*a.*) Birds—jays and magpies; nesting habits of birds studied in autumn and winter. (*b.*) Insects—flies, beetles, and wasps.

Plant Life.—(*a.*) Wild flowers—twin-flower, violet, false Solomon's-seal, wild bleeding-heart. (*b.*) Trees and shrubs—spiræa, red flowering currant, the poplars.

Gardening and Elementary Agriculture.—School and home gardening projects taken up as already planned.

9. Music.

(1.) *Voice-training.*—(*a.*) Breathing exercises. (*b.*) Voice exercises. Great care to be given to the development of the "head voice." Continue with exercises on the good singing vowels.

(2.) *Tune.*—(*a.*) Sharp Staff Modulator practice in all keys, using syllables and lah. (*b.*) To sol-fa from the Modulator, exercises containing minor mode phrases, introducing r se l; m se l.

(3.) *Time.*—As for Grade IV., giving as much variety as possible in the rhythmic grouping of notes.

(4.) *Time and Tune.*—"Study" songs to syllables, lah and loo.

(5.) *Ear-training.*—To write or tell ear tests containing four or five tones, including easy leaps.

(6.) *Theory.*—Formation of scale, key, and time signatures. Modulation to nearly related keys.

(7.) *Songs.*—Unison and easy two-part songs.

Grade VI.

1. Reading.

Book V. (Part 2) of The Canadian Readers. Recitation and supplementary reading from authorized texts.

2. Writing.

Pupils of this grade use the Senior Manual. Special attention should be devoted to freedom of movement, a more finished form, and greater rapidity in writing. Optional letter forms are presented in this grade. The essentials of business penmanship should be emphasized. Forearm muscular movement should be used in all written work. The teachers will use the Teachers' Manual as their guide.

3. Drawing.

Blair's Canadian Drawing Series, Book 3, and examples 4 and 5 of Book 4.

4. Language Lessons.

As in the first two paragraphs under Grade V.

Alexander & Mowat's Elementary Composition, Part II., Chapters I. to IV., inclusive.

Public School Speller (Western Canada Series), pages 83 to 112, inclusive.

5. Arithmetic.

Smith & Roberts, Book I., complete.

6. Geography.

Pupils of this grade will study the continents of Africa, Australia, Europe, and Asia, following the plan outlined for the study of North America in Grade V.

7. History. (*See* introductory note to work in History prescribed for Grade V.)

THE BRITISH EMPIRE.

In Africa.

1. Mungo Park.
2. The Dutch Settlements.
3. Livingstone.
4. Stanley.
5. Cecil Rhodes.
6. Lord Roberts.

In Australia.

1. Capt. Cook.
2. Explorations in Australia. (Stuart & Eyre. One or two lessons only.)

In Europe.

1. A Visit to the Early Britons.
2. The Coming of the Romans.
3. A Visit to Roman Britain.
4. The Coming of the English.
5. A Visit to an English Village.
6. The Introduction of Christianity.
7. The Vikings.
8. Alfred the Great.
9. A Visit to Normandy.
10. The Norman Conquest.
11. A Visit to a Norman Castle.
12. A Tournament.
13. Richard of the Lion Heart.

NOTE.—The teacher will find material for these lessons in "Highroads of History," Book 4; also in "The Story of the British People" (Copp, Clark Co., Toronto).

In Asia.

1. Clive.
2. Hastings.

NOTE.—No attempt will be made to deal exhaustively with the biographies and topics suggested. They must be presented in such a way as to arouse the interest of the children. In dealing with the various biographies, the aim will be, not so much to teach the facts connected with the man's life, but to present a vivid picture of the times in which he lived and thus cultivate the imagination of the child.

Throughout, wherever possible, the History and Geography of this grade must be correlated. Thus, while studying the basin of the Mackenzie River in Geography, the lesson in History will be on Sir Alexander Mackenzie, and while studying the basin of the Columbia River the History lesson will deal with David Thompson.

Although no formal text-book is prescribed for this grade, yet the use of a carefully selected supplementary Historical Reader, such as the *Highroads of History,* may be used with advantage after an interest has been aroused by the oral lessons.

The following books will supply the teacher with much of the material:—

Gateways of History (Edward Arnold, London).
Highroads of History (Nelson & Sons, London).
Canada: The Empire of the North—Laut (Ginn & Co.).
Johnson's French Pathfinders in North America.

8. Nature Study and Elementary Agriculture. (*See* note on Nature Study, page 20.)

AUTUMN.

Animal Life.—(*a.*) Wild animals—beaver, otter, musk-rat. (*b.*) Birds—divers (loon), swimmers (duck); adaptation of birds to environment. (*c.*) Insects—cabbage-butterfly, cabbage-aphis, tent-caterpillar.

Plant Life.—(*a.*) Wild flowers—cat-tail, arrowhead, water-parsnip, water-milfoil. (*b.*) Weeds—chicory, curled dock, sheep-sorrel, wild carrot. (*c.*) Trees and shrubs—mountain-ash; review of deciduous trees.

Gardening and Elementary Agriculture.—(*a.*) Harvesting crops of school and home gardens and estimation of yields; fall cultivation and preparation of gardens for winter. (*b.*) Soil studies—origin and classification of soils continued. (*c.*) Soil

experiments dealing with (1) determination of humus at different depths; (2) deposition of soil in water; (3) capillarity in soils; (4) water-holding power of soils; (5) use of the earth mulch; (6) testing soils for acid.

WINTER.

Animal Life.—(*a.*) Wild animals—skunk, marten; review and compare other fur-bearing animals previously studied, noting winter adaptations, hibernations, etc. (*b.*) Birds—scratching birds (grouse, quail, etc.), poultry types, and a few popular breeds of each; feeding and care of poultry. (*c.*) Insects—winter conditions of insects already studied.

Plant Life.—(*a.*) Weeds—collecting and identifying of seeds of varieties already studied. (*b.*) Trees and shrubs—yew, red cedar, and juniper.

Experimental Work relating to Natural Phenomena.—(1) Forms of matter—solids, liquids, gases; (2) change of state as related to temperature; (3) expansion in solids due to heat; (4) expansion in liquids; (5) expansion in gases; (6) thermometer; (7) physical properties of air, application of air pressure—barometer, common lift-pump.

SPRING.

Animal Life.—(*a.*) Wild animals—snake, lizard, earthworm. (*b.*) Birds—sparrows, swallows, and fly-catchers. (*c.*) Insects—review life-cycle of insects studied in the autumn; the honey-bee and honey production, an economic study.

Plant Life.—(*a.*) Wild flowers—skunk-cabbage, water-lily, or other available marsh plants. (*b.*) Trees and shrubs—cottonwood, June-berry or wild cherry.

Gardening and Elementary Agriculture.—Soil studies (continued): (1) Need of air-spaces and therefore of drainage; (2) temperature of drained soil as compared with undrained soil; (3) review of results of soil studies already made and related to subject of soil requirements for growing plants.

9. Hygiene.

How to be Healthy, Chapters I. to XIV., inclusive, and XVIII. to XXI., inclusive.

10. Music.

(1.) *Voice-training.*—(*a.*) Breathing exercises. (*b.*) Exercises on the singing vowels. Special attention to singing of vowels and consonants.

(2.) *Tune.*—Sharp practice on the Staff Modulator daily to "lah" in all keys.

(3.) *Time.*—A review of the work taken in the lower grades.

(4.) *Time and Tune.*—Short "study" songs for sight-reading.

(5.) *Ear-training.*—Phrases played or sung by teacher to be written in manuscript books.

(6.) *Theory.*—Written answers to questions relating to notation, key, and time signatures.

(7.) *Songs.*—Unison and two-part songs.

(8.) *Original Melodies.*

Grade VII.

1. Reading and Literature.

(*a.*) A Christmas Carol (Dickens) and King of the Golden River (Ruskin). (Copp, Clark Co., Ltd.). Publisher's price, 30c.

(*b.*) Golden Steps (Nelson & Sons, Toronto). Publisher's price, 25c.

(*c.*) The following selections from the Canadian Poetry Book (J. M. Dent & Sons, Toronto) (publisher's price, 30c.):—

1. The Wish—Isabell Ecclestone McKay.
2. Indian Summer—William Wilfrid Campbell.
3. Little Bateese—W. H. Drummond.
4. The Legend of Qu'Appelle—Pauline E. Johnson.
5. In Flanders Fields—John McCrae.
6. This Canada of Ours—Sir James Edgar.

7. Père Lalement—Marjorie Pickthall.
8. Quebec—Jean Biewett.
9. The Lamp of Poor Souls—Marjorie Pickthall.
10. Heat—Archibald Lampman.
11. In Apple Time—Bliss Carmen.
12. The Master of the Scud—Bliss Carmen.
13. Mr. Moon—Bliss Carmen.
14. The Fir Woods—Charles G. D. Roberts.

2. Writing.

Pupils will continue the course as outlined for Grade VI. Senior Manual to be used by pupils. Teachers will use the Teachers' Manual as a guide.

3. Drawing.

Blair's Canadian Drawing Series, Book 4, and examples 1, 6, and 7 of Book 4A.

4. Language.

British Columbia Public School Grammar (Lang) to end of Chapter IX. (No formal parsing is required, nor should the analysis of greatly involved sentences be undertaken.)

Alexander & Mowat's Elementary Composition, Part II., Chapter V., to Part III., Chapter III., inclusive, with Appendix A.

Compositions on topics selected from prescribed work and from other sources. (The work should be carefully discussed and planned in class before the pupils are asked to write. Unless this is done, and unless the subjects are well chosen, it is useless to expect good results.)

Pronunciation, spelling, and meaning of ordinary words of text-books, including marking of accents and vowel-sounds.

Oral and written reproductions of substance of reading, literature, geography, history, and nature lessons.

Public School Speller (Western Canada Series), pages 113 to 140, inclusive.

5. Arithmetic.

Smith & Roberts, Arithmetic, Book II. to end of page 136.

6. Geography.

Dominion School Geography, B.C. Edition. Physical Geography to page 45 (end of ocean currents). North America and South America, pages 72–180.

7. English History.

The first five chapters of the History of England for Public Schools, The Western Canada Series (The Macmillan Company of Canada, Ltd., Toronto), pages 1–111.

8. Canadian History.

The French period as in the prescribed text-book (Gammell), pages 1–106.

9. Nature Study and Elementary Agriculture. (*See* note on Nature Study, page 20.)

AUTUMN.

Animal Life.—(*a.*) Wild animals—gopher, badger; invertebrates—clam and crab. (*b.*) Domestic animals—the horse. (*c.*) Birds—waders (heron or bittern).

Plant Life.—(*a.*) Wild plants—vines (Virginia creeper, clematis, honeysuckle, and vetch). (*b.*) Weeds—Chickweed, Russian thistle, sow-thistle, collection of seeds for winter study. (*c.*) Trees and shrubs—wild fruits and nuts (wild blackberry, cranberry, blueberry, walnut, hazelnut, chestnut); budding.

Gardening and Elementary Agriculture.—(*a.*) Study of tree fruits of the district; comparison of varieties and habits of growth of cereals found in the district, such as wheat, oats, rye, and barley. (*b.*) School and home gardening projects.

WINTER.

Animal Life—(*a.*) Wild animals—weasel, porcupine. (*b.*) Birds—the pigeon. (*c.*) Insects—review winter habits of insects for this grade.

Plant Life.—(*a.*) Weeds—review; class-room study of seeds collected in the autumn. (*b.*) Trees and shrubs—review evergreens native to British Columbia; pruning and grafting. (*c.*) Improvement of plants by seed selection; plan a few definite plant-growing experiments and select seed for same.

Elementary Science—Physics.—Following topics treated experimentally: (1) Sources of heat; (2) transmission of heat—conduction, convection, radiation; (3) water—physical properties such as weight and pressure; (4) sources of water (relate to hygiene); (5) impurities in water and method of purification; (6) solvents and solutions.

SPRING.

Animal Life.—(*a.*) Wild animals—bat, field-mouse; invertebrates—snail, slug. (*b.*) Birds—night-hawk, humming-bird, kingfisher. (*c.*) Insects—cutworms, cabbage-root maggots, wireworms, spittle-bugs, woolly aphis.

Plant Life.—(*a.*) Wild plants—wild strawberry, bearberry; observe spring condition of vines studied in the fall. (*b.*) Weeds—Canada thistle and bull-thistle, wild buckwheat, wild morning-glory. (*c.*) Trees and shrubs—spring condition (blossoms, etc.) of species studied in the autumn; gooseberry, wild cherry, or wild crab-apple.

Gardening and Elementary Agriculture.—(*a.*) Carry out a few of the experiments in sections 1 and 3, page 3, of the Circular No. 4 ("Instructions to Teachers and School Boards with reference to School and Home Gardening"). (*b.*) For home project suggestions *see* page 6 of the same circular. (*c.*) Planting of gardens and window boxes.

10. Hygiene.

How to be Healthy, Chapters XV. to XVII., inclusive, and XXII. to XXXVIII., inclusive.

11. Music.

Voice-culture.—Continued practice on the singing vowels.

Songs.—Unison and two-part songs. A three-part song might occasionally be taken. Solo-singing to be encouraged.

Review.—A general review of and practice in all previous work.

Grade VIII.

1. Reading and Literature.

Poetry.—*One* of the following: (*a.*) Narrative and Lyric Poems, Third Series, British Columbia Edition (Copp, Clark Co., Ltd.) (publisher's price 25c.), and The Canadian Poetry Book (J. M. Dent & Sons, Toronto), omitting the selections prescribed for Grade VII.; publisher's price 30c. (*b.*) Scott's Lay of the Last Minstrel—Alexander (Copp, Clark Co., Ltd.). Limp cloth; publisher's price, 30c. (*c.*) The Lady of the Lake—Stevenson (Copp, Clark Co., Ltd.). Limp cloth; publisher's price, 30c.

Prose.—At least *two* of the following: (*a.*) Selections from Irving and Hawthorne, British Columbia Edition—Stevenson (Copp, Clark Co., Ltd.). Publisher's price, 30c. (*b.*) Scott's Ivanhoe, abridged and edited with introduction, notes, glossary, etc.—Fanny Johnson (Macmillan Co., Ltd., London). Publisher's price, 80c. (*c.*) Lamb's Tales from Shakespeare, with notes—Flather (Copp, Clark Co., Ltd.). Publisher's price, 30c. (*d.*) Treasure Island—R. L. Stevenson (Cassell & Co., Ltd.). Publisher's price, 75c. (*e.*) Sharp Eyes and Winter Neighbours, from the text entitled "Sharp Eyes and Other Essays"—Burroughs (Gage & Co.). Publisher's price, 25c.

2. Writing.

Pupils will continue the course as outlined for Grades VI. and VII. Senior Manual to be used by pupils. Teachers will use the Teachers' Manual as a guide.

3. Drawing.

Blair's Canadian Drawing Series, Book 4 (omitting enlargements of examples 8 and 14); also Book 4A (omitting solid geometry).

4. Language.

British Columbia Public School Grammar (Lang), Chapter IX. to end. (No formal parsing is required, nor should the analysis of greatly involved sentences be undertaken.)

Alexander & Mowat's Elementary Composition, Part III., Chapters IV. to IX., inclusive, with Appendices B and C.

Compositions on topics selected from prescribed work and from other sources. The work should be carefully discussed and planned in class before the pupils are asked to write. Unless this is done, and unless the subjects are well chosen, it is useless to expect good results.

Pronunciation, spelling, and meaning of ordinary words of text-books, including marking of accents and vowel-sounds.

Oral and written reproductions of substance of reading, literature, geography, history, and nature lessons.

Public School Speller (Western Canada Series), pages 141 to 168, inclusive.

5. Arithmetic.

Smith & Roberts, Book II., page 120 to end of book (omitting pages 160 to 168, inclusive; from beginning of section on "Quadrilaterals," page 180, to end of page 207, except problems relating to rectangles, circles, rectangular solids, and cylinders; from beginning of section on "Measures of Surface," page 211, to end of page 218. Omit also all problems in the Review Exercises not relating to principles given in the assigned limits).

6. Geography.

Dominion School Geography, B.C. Edition. This text will not be used after the present school-year.

7. English History.

Chapters VI.–XI., inclusive, of History of England for Public Schools, The Western Canada Series (The Macmillan Company of Canada, Ltd., Toronto), pages 112–328.

8. Canadian History.

The British period as contained in prescribed text-book (Gammell) (page 107 to end of book).

9. Nature Study and Elementary Agriculture.

AUTUMN.

Animal Life.—(*a.*) Wild animals—deer, elk, moose, and caribou (treated comparatively). (*b.*) Farm animals—types and common breeds of cattle. (*c.*) Birds in relation to agriculture; perchers—common forms, such as meadow-lark, the sparrow, vireos, and warblers. Keep records of identification. Special attention to food of species studied. (*d.*) Insects—common insect pests (continued); parasitic insects (those that destroy other insects), predaceous beetles.

Plant Life.—(*a.*) Wild plants—collect and study the ferns found locally. (*b.*) Weeds—couch-grass, squirrel-tail grass, wild lettuce, sheep-sorrel, dodder; collect and identify weed-seeds and preserve for winter study. (*c.*) Trees and shrubs—review deciduous trees of the district.

Gardening and Elementary Agriculture.—Legumes and common fodder grasses; cover-crops and crop rotation.

WINTER.

Animal Life.—(*a.*) Wild animals—mountain sheep and goat. (*b.*) Farm animals—sheep and swine; types and main breeds of each found in British Columbia. (*c.*) Birds—study of the birds found locally during the winter, with records. (*d.*) Insects; insects injurious to forests—bark-beetles, wood-borers, scale-insects; methods of control.

Plant Life.—(*a.*) Wild plants—kelp and one or two common seaweeds (in coast districts), moulds and yeast. (*b.*) Weeds—review methods of seed-dispersal; identification of weed-seeds in grain or garden seeds. (*c.*) Trees and shrubs—varieties suitable for planting in school and home grounds (Circular No. 6, "Trees and Shrubs: Their Planting and care").

Gardening and Elementary Agriculture.—Comparison of dry and germinating seeds and the food substances found in each.

Elementary Science—Physics and Chemistry.—Chemical composition of air, carbon dioxide; fuels and combustion; limestone.

SPRING.

Animal Life.—(*a.*) Wild animals—seasonal changes in hoofed animals already studied. (*b.*) Farm animals—special attention to dairy cattle, milk records, and the dairy industry. (*c.*) Birds in relation to agriculture and forestry—study feeding and nesting habits of birds already identified; special attention to those of greatest economic importance. (*d.*) Insects—water-insects; the mosquito and its control; continue life-history studies of species already observed; important insecticides.

Plant Life.—(*a.*) Wild plants—flowerless plants (continued); horsetails and mushrooms. (*b.*) Weeds—review of weeds of the district observed as seedlings. (*c.*) Trees and shrubs; elementary forestry—methods of conservation and protection; planting of seeds and seedlings.

Gardening and Elementary Agriculture.—Continue experiments in germination and growth of plants; gardening and agricultural projects for the season started (sections 2 and 4, page 3, Circular No. 4, also projects on page 6).

NOTE.—Teachers will have to exercise their own judgment as to the most opportune time for dealing with certain topics in the Nature Study Course. If any of the species of wild flowers, trees, or birds assigned are not to be found in certain districts, suitable substitutes should be made. Whilst many teachers will readily cover all of the topics assigned in this course, some may have difficulty in doing so, due chiefly to differences of method. It should be understood that real educational merit in teaching of nature study is not measured by the number and variety of topics treated, but rather by the amount of genuine interest aroused out of school as well as in the class-room in the natural objects and natural forces in the midst of which children live and must continue to live and with which they must adjust their lives. The recommendations with reference to nature study in ungraded schools should be adhered to. No definite time is assigned for the teaching of nature study in the different grades, but it should be understood that a period per day of from ten to fifteen minutes should be given to the subject in the first four grades and not less than three periods per week of from twenty to thirty minutes each in higher grades. The relationship of experience, which nature study so beautifully provides, is so fundamental to the proper teaching of every subject that that above all others should not be neglected.

General Assignments.—Obviously the major portion of the subject-matter which may properly be included in a Nature Study Course belongs in the biological field and can be designated under the headings "Animal Life" and "Plant Life." There are, however, many valuable topics which, if not in the strictest sense of the term true nature topics, are nevertheless closely associated with the daily life and experience of children. Weather phenomena, changes and effects of changes, for example, belong in this class. The response of children and of adults to changing climatic and weather conditions, food-supply, clothing, home-making materials, out-of-school activities, work, games, etc., and the varying forms and character of the earth itself as seen in the home region are all topics of immediate interest and of educational as well as practical value to children. They are topics which may be treated continuously throughout a whole season, or during one or more years. In this outline they are assigned as general topics. They serve to link up nature study as usually treated with local geography, and might even be regarded as forming an introduction to the study of geography.

10. Hygiene.

How to be Healthy. Review.

11. Music.

Songs.—Unison and two-part songs; also a few three-part songs if possible. Good tone and expression to be maintained.

Study.—Bass clef to be introduced to boys (sung an octave higher than written).

NEEDLEWORK COURSE.

Accuracy in each step must be the ruling thought in every grade. Insist on clean hands, keeping material clean and workboxes in good order. Avoid tedious descriptions of, and reasons for, mechanical processes.

A Needlework Course should be built up from the following and be preparatory to the Course in Cookery:—

Grade III.

Even basting, uneven basting, running stitch, chain stitch, cross stitch, blanket stitch. Free cutting from paper-folding method of simple garments of various sizes—e.g., caps, bonnets, bibs, etc.

Grade IV.

Stitching, back stitch, combination stitch, hemming stitch, overhanding stitch, French seam, flat fell seam, herringbone stitch, feather stitch. Free cutting from paper-folding method of simple garments for children of different ages.

Grade V.

Overhanding, buttonhole stitch, hemstitch, damask seam, flannel seam, making cookery outfit (pot-holder, towel, sleeves, apron, cap). Free cutting and making of garments.

Grade VI.

(Twenty-five hours during the school-year.) (In conjunction with work in Cookery.)

A selection of exercises from the following: Hemstitching, buttonholes, household sewing, pillow-slips, towels, etc. Making and repairing kitchen linen. Patching, darning. Free cutting continued. Knitting.

Grade VII.

(Twenty-five hours during the school-year.)

Draughting, free cutting, and making undergarments. Repairing, patching, and darning flannels, prints, and coloured goods. Knitting.

Grade VIII.

(Twenty-five hours during the school-year.)

Cutting and making undergarments or High School outfit. Repairing table linen, mending and darning of outer garments, gloves, etc.

LIST OF AUTHORIZED TEXT-BOOKS FOR PUBLIC SCHOOLS.

Readers, etc.

The Canadian Readers, Book I. (The Macmillan Co. of Canada, Ltd.), for Grade I.
The Canadian Readers, Book II. (Nelson & Gage), for Grade II.
The Canadian Readers, Book III. (Nelson & Gage), for Grade III.
The Canadian Readers, Book IV. (Nelson & Gage), for Grade IV.
The Canadian Readers, Book V. (Nelson & Gage), for Grades V. and VI.

English Literature for Grade VII.

A Christmas Carol (Dickens) and King of the Golden River (Ruskin) (Copp, Clark Co., Ltd.). Publisher's price, 30c.
Golden Steps (Nelson & Sons, Toronto). Publisher's price, 25c.
Canadian Poetr[illegible] J. M. Dent & Sons, Toronto). Publisher's price, 30c.

English Literature for Grade VIII. (Entrance Class).

Poetry.—*One* of the following:—

(*a.*) Narrative and Lyric Poems, Third Series, British Columbia Edition (Copp, Clark Co., Ltd.) (publisher's price 25c.), and Canadian Poetry Book (J. M. Dent & Sons); publisher's price, 30c.

Or

(*b.*) Scott's Lay of the Last Minstrel—Alexander (Copp, Clark Co., Ltd.). Limp cloth; publisher's price, 30c.

Or

(*c.*) Scott's Lady of the Lake—Stevenson (Copp, Clark Co., Ltd.). Limp cloth; publisher's price, 30c.

Prose.—At least *two* of the following:—

(*a.*) Selections from Irving and Hawthorne, British Columbia Edition—Stevenson (Copp, Clark Co., Ltd.). Publisher's price, 30c.

(*b.*) Scott's Ivanhoe, abridged and edited with introduction, notes, glossary, etc.—Fanny Johnson (Macmillan Co., Ltd., London). Publisher's price, 80c.

(*c.*) Lamb's Tales from Shakespeare, with notes—Flather (Copp, Clark Co., Ltd.). Publisher's price, 30c.

(*d.*) Stevenson's Treasure Island (Cassell & Co., Ltd.). Publisher's price, 75c.

(*e.*) Sharp Eyes and Winter Neighbours, from the text entitled "Sharp Eyes and Other Essays"—Burroughs (Gage & Co.). Publisher's price, 25c.

Supplementary Readers.

Art Literature Readers, The, Primer, First and Second Books (Gage & Co., Ltd., Toronto).

Britannia History Readers, Stories from British and Canadian History (The Copp, Clark Co., Ltd.).

Child Life Readers, The, Primer, First and Second Readers (The Macmillan Co., New York).

Country Readers, The, Books I., II., and III., edited by H. B. M. Buchanan (The Macmillan Co., New York).

Folk-Lore Readers, The, Primer and Book I. (W. J. Gage & Co., Ltd., Toronto). Price, 60c.

Heart of Oak Books, Books I. and II. (W. J. Gage & Co., Ltd., Toronto).

Highroads of Literature, The, Introductory Book, and Books One, Two, Three, and Four (Thomas Nelson & Sons, London).

Hiawatha Primer, The (Houghton, Mifflin & Co., Boston).

Infant Reader, The, and the Preparatory Reader of the Progress to Reading Series (Macmillan Co., Ltd.).

Literary Readers, Teachers' Manual and Books 1, 2, and 3—Field & Young (Ginn & Co., Boston).

Literature Readers, Books I. and II. (Thomas Nelson & Sons, London).

Little Red Hen, The, Book II. (Educational Publishing Co., Boston).

Just a Little Girl, for First Reader—Alice Ashworth (Frederick Warner & Co., New York).

Progressive Road to Reading, Books I., II., III., and IIIA. (Gage & Co., Ltd., Toronto).

Royal Prince Readers, Books I., II., III., IV., and V. (Thomas Nelson & Sons, London).

Stories from Grimm, Books I. and II. (Thomas Nelson & Sons, London).

Sunbonnet Babies' Primer (Gage & Co., Ltd., Toronto). Price, $1.

Winston Primer (Gage & Co.), for Receiving classes.

Free and Treadwell Primer (Row, Peterson & Co., Chicago), for Receiving classes.

Story Hour Primer (American Book Co., Chicago), for Receiving classes.

Story Steps (Progressive Road Series) (Gage & Co.) [illegible] Receiving classes. Price, 95c.

Cherry Tree Children (Blaisdell) (Little, Brown & Co., Boston), for Second Term classes.

Work-a-day Doings on the Farm (Silver, Burdett & Co.), for Second Term classes.

Winston Second Reader (Gage & Co.), for Third Term classes. Price, 70c.

A First Reader (Ed. Book Co., Toronto), for Third Term classes.

Ned and Nan in Holland (Row, Peterson & Co., Chicago), for Third Term classes.

Bunny Rabbit's Diary (Little, Brown & Co., Boston), for Third Term classes.

Robin Hood Reader—Reid (Clarke & Stuart Co., Ltd.).

The Great War in Verse and Prose, edited by Wetherell (Department of Education, Toronto).

Stories and Songs, The Temple Poetry Books (J. M. Dent & Sons), for Senior Grade pupils.

The Land We Love, The Temple Poetry Books (J. M. Dent & Sons), for Senior Grade pupils.

Verses New and Old, The Temple Poetry Books (J. M. Dent & Sons), for Senior Grade pupils.

The Laurel Crown, The Temple Poetry Books (J. M. Dent & Sons), for Senior Grade pupils.

School Days' Magazine (E. W. Reid, Seymour School, Glen Drive, Vancouver). (Published monthly; price 5c. per copy.)

Spellers.

Public School Speller, The (Copp, Clark Co., Toronto).

Writing.

Grade I.: Compendium No. 1 of the MacLean Method of Muscular Movement Writing.

Grade II.: Compendium No. 2 of the MacLean Method of Muscular Movement Writing.

Grade III.: Compendium No. 3 of the MacLean Method of Muscular Movement Writing.

Grades IV. and V.: Compendium No. 4 of the MacLean Method of Muscular Movement Writing.

Grades VI., VII., and VIII.: Senior Manual of the MacLean Method of Muscular Movement Writing.

Teachers' Manual.

NOTE.—It is desirable that pupils be supplied with writing materials which will enable them to do their best work, but it is not meant that preference should be given to supplies mentioned in the Writing Compendiums and Manuals.

Grammar and Composition.

British Columbia Public School Grammar—Lang (The Copp, Clark Co., Ltd.).

Elementary Composition—Alexander & Mowat (Gage & Co., Ltd.). Price, 50c.

The Highroads Dictionary (Thomas Nelson & Sons, London).

History and Geography.

History of Canada, with B.C. Supplement—Gammell (W. J. Gage & Co., Toronto).

Canadian Civics—for use of Teacher only (The Copp, Clark Co., Toronto).

History of England for Public Schools (The Macmillan Co. of Canada, Ltd.).

Dominion School Geography, B.C. Edition (W. J. Gage & Co., Ltd.). Price, $1.15.

*Royal Atlas for Canadian Schools (Thomas Nelson & Sons, London).

†Wall Maps (W. & A. K. Johnson, London).

Recommended for teachers' use and for supplementary reading for pupils' use:—

Highroads of History (Thomas Nelson & Sons, Ltd., Toronto).

Gateways of History (Edward Arnold, London).

Story of the British People (Thomas Nelson & Sons, Ltd., Toronto). Price, 60c.

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* Optional.
† Recommended for use.

The Story of Canada—Marsh (Thomas Nelson & Sons, Ltd., Toronto). Price, 50c. (Suitable for Intermediate Grade Pupils.)
Canada: The Empire of the North—Laut (Ginn & Co., Boston).
Pictures from Canadian History—MacPherson (Renouf Publishing Co., Montreal).
The Young Canadian Citizen—J. O. Miller, D.C.L. (J. M. Dent).
Flag and Fleet—Wood (Macmillan Co. of Canada, Ltd.).
French Pathfinders in North America—Johnson.
Finger-posts to British History (Thomas Nelson & Sons, Ltd., Toronto).
Canadian School Geography—Cornish (Dent & Sons).
The Canadian School Atlas—Cornish (Dent & Sons).
World Relations and the Continents—McIntyre (W. J. Gage & Co., Ltd.).
Geographical Readers—Carpenter (American Book Co., New York).
World and its People, The (Thomas Nelson & Sons, Ltd., Toronto).
Regional Geography—Reynolds (Adam & Chas. Black, London).
Our Home and its Surroundings (Macmillan Co. of Canada, Ltd., Toronto).
The Four Wonders (Cotton, Wool, Linen, Silk) (Rand, McNally & Co., Chicago).
Human Geographic Series: 1. Children Far Away. 2. Homes Far Away—Fairgriere & Young (Geo. Philip & Sons, Ltd., London).
Sea and Land (T. Nelson & Sons, Ltd., Toronto).
Teaching of Geography in Elementary Schools—Dodge and Kirchway (Rand, McNally & Co., Chicago).
Teaching by Projects—McMurray (The Macmillan Co., New York).

Arithmetic and Book-keeping.

Arithmetics, Books I., II.—Smith & Roberts (W. J. Gage & Co., Ltd.).
Recommended for teachers' use:—
School Arithmetics, Books One, Two, and Three—Wentworth & Smith (Ginn & Co.).

Nature Study and Elementary Agriculture.

How to be Healthy (Gage & Co., Ltd., Toronto).
Recommended for teachers' use:—
Elementary Agriculture and Nature Study—Brittain (Gage & Co., Ltd., Toronto).
Agriculture—James (The Macmillan Co. of Canada, Ltd., Toronto).
Nature Study and Fairy Tales—Dodd (Thomas Nelson & Sons, Ltd., Toronto).

Drawing.

Blair's Canadian Drawing Series (Third Edition), Books I., II., III., IV., IVA. (The Copp, Clark Co., Toronto).
Recommended for teachers' use:—
Graphic Drawing Books, The, Books 1–8 (The Prang Co., Chicago). Price, 20c. to 25c. each; per set, $2. Teachers' Manuals, per set, 50c.
Practical Notes on Colour-mixing for School Teachers (Reeves & Sons, London).
Schools Arts Book, The (monthly magazine) (School Arts Co., Boston).
Kingsway Series, The (Evans Bros., Ltd., Montague House, Russell Square, London):—
(*a.*) Book of School Colour Work, The, Vol. I. Price, 4s. 10d.
(*b.*) Second Book of School Colour Work, The. Price, 4s. 10d.
(*c.*) Book of Pencil Drawing, The. Price, 3s. 10d.
(*d.*) Imaginative Drawing, Vol. I. Price, 3s. 10d.
(*e.*) Imaginative Drawing, Vol. II. Price, 3s. 10d.

Manual Arts.

Recommended for teachers' use:—
Educational Handwork—Kidner (Gage & Co., Ltd., Toronto).
Primary Work—Seegmiller (Atkinson, Mentzer & Grover, Chicago).
Artistic Handwork in Paper and Cardboard—Rowland (George Philip & Son, London).

Music.

Canadian Music Series, The. Rote Songs & Singing Games (W. J. Gage & Co., Ltd.), for Grade I. and first term of Grade II.

School and Community Song Book—Vogt and Willan (W. J. Gage & Co., Ltd., Toronto). Price 50c.

New Educational Music Course, including the First and the Second Readers of the Canadian Edition (Ginn & Co., Boston).

Song Reader, The, Canadian Edition (Ginn & Co., Boston).

Physical Exercises.

Syllabus of Physical Training for Schools, 1919.

HIGH SCHOOL COURSES OF STUDY.

Grade IX. (Preliminary Course, Junior Grade).

A.—English.

1. Reading and Orthoepy.—Oral reading, with special attention to expression and pronunciation. Prescribed text, 20th Century Fifth Reader.

2. Writing and Spelling.—Legibility and precision in writing and accuracy in spelling will be required in manuscript-work of all subjects.

3. English Literature.—(*a.*) A careful study of the following selections in the Fifth Reader: On My Mother's Picture, Dora, Elegiac Stanzas, To a Brother, In Memoriam, Rosabelle, Crusader and Saracen, Cavalry Charges at Balaklava, The Ride to Aix, King Richard and Saladin, King Richard and Robin Hood, The English Language, The Apology of Socrates, The Death of Socrates, Thanatopsis, The Imitation of Christ, King Robert of Sicily, The Vision of Sir Launfal, Lady Clara Vere de Vere, Ode to Duty, The Tragedies of Birds' Nests, The Birds of Killingworth, The Blackbird, To a Skylark, To the Cuckoo, Ode to a Nightingale, The Song-Sparrow, The Whitethroat, The Canadian Song-Sparrow, The Death of Arthur, The Passing of Arthur, Sir Roger de Coverley, The Country Gentleman, Lord Chesterfield, Daniel O'Connell, The Italian in England, The Lotos-Eaters, Ulysses, Village Characters, The Angler, The Brook, The Sleeping Beauty, The Fairies, Lord Clive, Ode on the Death of Wellington, Canada and Great Britain, Canada and the United States, Canada and the Empire (both), The British Flag, The First Dominion Day, The Canadian Confederacy, A Song of Canada, Canada to Columbia, Canadians on the Nile, Hands all Round, Kin Beyond Sea. (*b.*) Stevenson's Kidnapped (McClelland & Stewart, Toronto. (*c.*) Lorna Doone, World's Classics (Oxford Univ. Press, Toronto).

4. Composition.—High School English Composition, Western Canada Series (Copp, Clark Co.), Chapters I.–IV., inclusive.

B.—Canadian History.

History of Canada—Wrong (The Ryerson Press, Toronto).

C.—Mathematics.

1. Arithmetic.—Pure and commercial arithmetic, as in Dominion High School Arithmetic (Gage & Co., Ltd.). The first ten chapters. Price, 90c.

2. Algebra.—The first sixteen chapters of Hall & Knight's Elementary Algebra.

3. Geometry.—Godfrey & Siddons' Elementary Geometry (The Macmillan Co. of nada, Ltd., Toronto).

Experimental Geometry.—Exercises 1–68; 85–104; 122–138; 152–182; 293–318, nclusive.

Theoretical Geometry.—Theorems 1–14, inclusive. Construction: Construction of a triangle given the three sides; construction of an angle equal to a given angle; bisection of a given angle; bisection of a given straight line; construction of perpendicular to a given straight line from a given point inside or outside the line.

NOTE.—In dealing with Experimental Geometry, teachers are not expected to make any attempt to do all the exercises with their classes, but to make such selections from the given list as may be necessary to give their students a sound knowledge of elementary geometrical ideas.

D.—Classics.

Students who choose the science option outlined in F must take one language; all other students must take two languages.

1. LATIN.—Robertson & Carruthers' Latin Lessons for Beginners, Lessons I.–XL., inclusive.

2. FRENCH.—Either Siepmann's Primary French Course, Part I.: (*a*) Lessons 1–14, i.e., pages 1–57, inclusive; (*b*) exercises on Lessons 1–14, i.e., pages 123–153, inclusive; or the new Fraser & Squair Elementary French Grammar, Lessons I.–XX., inclusive.

E.—Drawing.

Books V. and VA. of the prescribed series, Third Edition (The Copp, Clark Co., Ltd., Toronto).

NATURE DRAWING.

Flowers and plant form. Colour harmonies—primaries, secondaries, tertiaries. Conventionalizing nature forms. The design motive—scheme of colour to be made from every flower and insect drawn.

ART GEOMETRY.

Subdivision of space. Placing the mass (*a*) in border—principles: repetition; (*b*) in panel—variety, balance, symmetry. Connecting the mass—lines of growth. Contrasting features—variety.

Applied design: Using colour schemes and motives obtained in previous lessons. For practical application in stencilling; embroidery; appliqué; china-painting; stained wood; piercing; inlay; metal repoussé.

Object drawing for practice in reproduction (constructive); appreciation of artistic form; appreciation of tone; appreciation of texture; appreciation of colour.

Compose groups and apply to poster-work, advertisements, etc. Apply principles used in designing from plant forms.

ART APPRECIATION.

Talks on varied subjects: Art in the house; art in the street; art in the workshop and factory; picture study.

Scales and measured drawings to be carried out in conjunction with the manual work.

BOOKS FOR REFERENCE.

Applied Art—Pedro J. Lemos (Pacific Press Publishing Association, Mountain View, California).

Drawing from Models and Objects—John Carroll (Burns and Oates, London, Eng.).

Practical Geometry for Art Students—John Carroll (Burns and Oates, London, Eng.).

Pattern Drawing and Design—John Carroll (Burns and Oates, London, Eng.).

Lessons on Decorative Design—Jackson (Chapman and Hall, London, Eng.).

Studies in Line and Mass—E. A. Branch (Ralph, Holland & Co., London, Eng.)

NOTE.—In connection with the subject of Drawing, it has been decided that the so geometry contained in Book VA, shall be taught to the boys only, and not in the ordina class-room, but by the manual training instructors in the manual training workshops. In li of this solid geometrical drawing more attention should be paid in the class-room to t development of design, and where instruction is given in Household Economics pattern-drawi should be specially emphasized.

F.—Science (Optional).

Students may substitute General Science for one foreign language.

General Science.—Caldwell & Eikenberry, Revised Edition. (Any twenty chapters selected at the discretion of the teacher.) Pupils should also supply themselves with the accompanying Laboratory Problems in General Science by Caldwell, Eikenberry & Pieper, and should perform the suggested experiments and keep careful notes.

Grade X. (Advanced Course, Junior Grade).

A.—English.

1. Reading and Orthoepy.—Oral reading, with special attention to expression and pronunciation. Prescribed text, as in English Literature.

2. Writing and Spelling.—As in Grade IX.

3. English Literature.—Longer Narrative Poems—Jeffries (Macmillan Co. of Canada, Ltd.); and any *two* of the following: (*a*) Specimens of the Short Story—Nettleton (Henry Holt & Co.); (*b*) Scott, Quentin Durward (Thomas Nelson & Sons, Ltd., Toronto); (*c*) Shakespeare, Julius Caesar—Stevenson (Copp, Clark Co., Ltd.).

4. Composition.—High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), Chapters I.–VIII., inclusive. The examination on this subject, besides testing the pupil's knowledge of the prescribed text, will consist of an essay on one of four specified subjects, three of which will be from the English Literature prescribed for the year. Frequent and systematic practice in essay-writing throughout the year is imperative. The value attached to the examination paper will be apportioned by giving 25 per cent. to the questions on the work of the prescribed text and 75 per cent. to the essay.

B.—History.

Students proceeding to Junior Matriculation will study the period of history covered by West's Early Peoples, Canadian Edition (Allyn & Bacon). Students preparing for Normal Entrance will take High School History of England, Western Canada Series—Wrong (The Macmillan Co. of Canada, Ltd.), from the beginning to the close of the Elizabethan Age.

C.—Mathematics.

1. Arithmetic.—Dominion High School Arithmetic (omitting pages 247–268, inclusive, and miscellaneous problems bearing on the work taken up on pages 247–268, inclusive).

2. Algebra.—The first twenty-two chapters of Hall & Knight's Elementary Algebra.

3. Geometry.—Hall & Stevens' School Geometry, Parts I. and II., i.e., pages 1–138, inclusive (London Edition).

D.—Classics.

Students must take two foreign languages and one of the science options outlined in E or *one* foreign language and *two* of the science subjects. Students who choose the science option in the first year should continue the language already chosen.

1. Latin.—Robertson & Carruthers' Latin Lessons for Beginners, pages 1–324 (omitting the B exercises, both Latin and English, in Lessons XL.–LXXX., inclusive, and Reading Lessons VIII.–XV., inclusive), together with the following Supplementary Reading Lessons: Caesar's First Campaign in Gaul: (*a*) The Helvetian War, (*b*) The War with Ariovistus; and The story of Ulysses; also the Appendix.

Note.—With the view of securing uniformity of pronunciation, it is recommended that the Roman pronunciation be used.

2. French.—Either Siepmann's Primary French Course, Part I.: (*a*) Lessons 1–30, i.e., pages 1–121, inclusive; (*b*) exercises on Lessons 1–30, i.e., pages 123–195, inclusive; and Histoires et Jeux—Barnes (Ginn & Co.); or Fraser & Squair's New High School French Grammar, Lessons I.–LXVI., inclusive, together with Histoires et Jeux—Barnes (Ginn & Co.).

E.—Science.

Students who choose two languages must take *one* of the following science subjects: Agriculture, Botany, Chemistry, Physics. Those taking one language must take *two* of the following: Agriculture, Botany, Chemistry, Physics.

1. AGRICULTURE (FIRST YEAR).

Soil Study.—Origin, formation, and classification; physical analysis; necessity and value of drainage; levels and grades.

Plant and Seed Studies.—Field and laboratory studies in weeds (autumn); collection and mounting of specimens; identification of noxious-weed seeds; protective legislation.

Vegetable Gardening.—Choice and classification of garden varieties; preparation and management of hot-beds and cold-frames; garden practice.

Poultry.—Breeds, housing, feeding, and management; incubation and brooding; common pests, diseases, and treatment.

Live Stock.—History and study of types of cattle, horses, sheep, and swine.

Insect Study.—Identification and life-history of field, garden, and orchard insects; remedial measures.

Bee-keeping.—Relationships and life-history of the honey-bee; swarming; winter care; equipment.

Fruit-growing.—Selection of varieties; methods of propagation; pruning.

2. BOTANY.—In this course the nature-study method of presentation should be adhered to throughout. No text-book is prescribed for use of pupils. Each pupil should have a good note-book in which to record his or her observations and conclusions. Careful drawings of parts studied should be emphasized.

Emphasis is placed upon comprehension of principles rather than mastery of detail, and upon observation rather than book knowledge.

The following points should be studied, as far as possible, from plants belonging to families given below:—

Growth.—Germination, buds, growth movements in response to gravitation, light, water, contact (tendrils and the sensitive plant).

Nutrition.—Form and function of roots, stems, and leaves; their relation to each other and to the absorption and conduction of raw materials, and especially in regard to food manufacture. Modifications for storage of food—Tuberous roots, corms, bulbs, etc.

Reproduction.—(*a.*) Vegetative methods—suckers, runners, stolons, tubers, etc. (*b.*) Flowers—bracts, inflorescence, parts of flower, number of whorls, function of each, number and position of parts in each whorl, cohesion and adhesion of parts or whorls. Relation of structure to pollination and to classification of plants into families. To ensure completeness and accuracy of observation the construction of floral diagrams and floral formulæ of flowers examined is recommended. Fruits—modification for seed-dispersal. Seeds—modification for dispersal.

Classification of Plants.—Spermatophytes: (*a.*) Gymnosperms—(Conifers); study of leaves, cones, and general habit of two conifers. (*b.*) Angiosperms—familiarity with the local flora, particularly examples of the following families: (Monocotyledons)—Liliaceæ. (Dicotyledons)—Ranunculaceæ, Cruciferæ, Rosaceæ, Leguminosæ, Scrophulariaceæ, Compositæ. At least twenty-five plants should be studied and a collection should be made.

Plant Associations.—It is recommended that visits be made to different habitats to give pupils an opportunity of studying the flora and its relation to environment, differences of temperature, amount of available water, light, intensity, nature of soil, etc.

Economic Plants of British Columbia.—Weeds, medicinal and poisonous plants, especially those belonging to the above families.

REFERENCE BOOKS RECOMMENDED.

Practical Botany—Bergen and Caldwell (Ginn & Co.).

Beginners' Botany—L. H. Bailey (Macmillan, 1919).

A Guide to the Poisonous Plants & Weed Seeds of Canada and the Northern United States—Thompson and Sifton (University of Toronto Press, 1922).

Plant Relations—Coulter (Appleton, New York, 1905).

Flora of British Columbia—Henry (W. J. Gage & Co.).

3. CHEMISTRY.—A Text-book for High Schools—Cornish (The Macmillan Co. of Canada, Ltd.): Chapters I.–IV., inclusive; Chapter VI., sections 56, 57, 61, and 62; Chapter VII., the substance of sections 67, 68, and 69; Chapter VIII., section 71, the last paragraph of section 73, and section 76 to page 115; Chapter IX., sections 77, 78, 81, 82, 84, 85, and 89; Chapter X., sections 91 and 92; Chapters XI. and XII., omitting questions requiring numerical calculation.

The exercises in the Laboratory Manual in Chemistry (Cornish & Smith) covering the above work should be performed.

4. PHYSICS.—Merchant & Chant's High School Physics (The Copp, Clark Co., Ltd., Toronto): Chapter I.; Chapters X.–XIV., inclusive; Chapters XXIV.–XXIX., inclusive; Chapter XXXI.

The exercises in the Laboratory Manual in Physics (Merchant & Chant) relating to the above work should be performed, with the exception of No. 6.

Grade XI. (Junior Matriculation and Normal Entrance).

NOTE.—Students of Grade XI. who wish to enter Normal School in September, 1924, must take the prescribed course in English History and Civics and in Geography, the former in place of "General History" and the latter in place of a second science or second language. In other respects the requirements for Normal Entrance and Junior Matriculation are identical.

The subjects for Junior Matriculation are as follows:—

1. ENGLISH.
2. HISTORY AND HISTORICAL GEOGRAPHY.
3. MATHEMATICS (Algebra and Geometry).
4. FRENCH, or GERMAN, or LATIN.
5. (*a.*) The *two* languages in 4 not already taken.

Or

(*b.*) *One* of the languages in 4 not already taken and *one* of the following Sciences: Agriculture, Botany, Chemistry, Physics.

Or

(*c.*) *Two* of the following Sciences: Agriculture, Botany, Chemistry, Physics.

NOTE.—Greek may be taken in place of one science, but only by students offering Latin.

REQUIREMENTS IN EACH SUBJECT.

English.

1. COMPOSITION AND READING.—The principles of English composition as in High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), with short essays on a general subject and other subjects based on works prescribed for reading, as follows; (*a.*) Prose (two books to be selected)—Washington Irving, The Sketch Book (Macmillan, Oxford); Scott, Kenilworth; George Eliot, Silas Marner (Copp, Clark Co., Ltd., Macmillan, or Dent); Southey, Life of Nelson (Everyman's Library). (*b.*) Poetry (one to be selected)—Shakespeare, As You Like It (Macmillan or Copp, Clark Co., Ltd.); Tennyson, Gareth and Lynette (Macmillan).

The editions are merely recommended, not required.

The books to be selected should be read carefully, but the student's attention should not be so fixed upon details that he fails to appreciate the main purpose and beauty of the work.

Frequent practice in composition is essential.

2. LITERATURE (FOR CRITICAL STUDY).—Shakespeare, Merchant of Venice (Stevenson, Copp, Clark Co., Ltd.) *or* Henry V. (Junior School Edition, Blackie & Sons); Poems of the Romantic Revival (Copp, Clark Co., Ltd.), omitting the selections from Coleridge and Byron.

Candidates will be expected to memorize some of the finest passages.

Spelling will be tested by the candidate's papers in English. Examiners in other subjects will also take note of misspelled words and will report flagrant cases to the Board.

Two examination papers of two hours each—one on Composition, the other on Literature.

History and Historical Geography.

The essentials of European history, ancient, mediæval, and modern (to the eighteenth century), as presented by Breasted and Robinson in their Outlines of European History, Part I. (Ginn & Co.). The revised edition is entitled "History of Europe, Ancient and Mediæval" (Ginn & Co., 1920). Either edition may be used for 1923–24. Teachers should emphasize and develop the sections treating of British History.

The geography required will be that relating to the history prescribed.

It is expected that West's World Progress, revised and in part rewritten for use in Canadian schools, will be introduced in 1924.

One paper of two hours.

Mathematics.

1. ALGEBRA.—As in the first thirty-one chapters and the graphical work of Articles 411–428, inclusive, Hall & Knight's Elementary Algebra, omitting the articles in Chapter 29 marked with an asterisk. Questions may be assigned which will test the candidate's accuracy in the elementary processes of arithmetic, vulgar and decimal fractions, and square root.

One paper of two hours.

2. GEOMETRY.

A. Constructions.—Use of such simple instruments as graduated ruler, compasses, set-squares, and protractor, etc., in the accurate construction of figures; some leading propositions reached by induction as a result of these constructions.

To bisect a given angle, a given straight line.

To draw a perpendicular to a given straight line from a given point (*a*) in the line, (*b*) not in the line.

Locus of a point equidistant from two given lines.

To construct a triangle with sides of given length.

To construct an angle equal to a given angle.

Through a given point to draw a straight line parallel to a given straight line.

To divide a line into any number of equal parts.

To describe a parallelogram equal to a given triangle and having one of its angles equal to a given angle.

To draw a triangle equal in area to a given quadrilateral.

To describe a parallelogram equal to a given rectilineal figure, and having an angle equal to a given angle.

The plotting of points on squared paper.

The areas of rectilineal figures on squared paper.

To find the centre of a given circle.

To circumscribe a circle about a given triangle.

To draw a tangent to a given circle from a given point on or without the circle.

On a given straight line to construct a segment containing an angle equal to a given angle.

In a given circle to inscribe a triangle equiangular to a given triangle.

To inscribe a circle in a given triangle.

To draw an escribed circle of a given triangle.

About a given circle to circumscribe a triangle equiangular to a given triangle.

To find the fourth proportional to three given straight lines.

To divide a given straight line internally and externally in a given ratio.

To find the mean proportional between two given straight lines.

B. Theorems.—Definitions.

If two triangles have two sides and the contained angle of one respectively equal to two sides and the contained angle of the other, the two triangles are congruent.

The angles at the base of an isosceles triangle are equal, with converse.

If two triangles have the three sides of one respectively equal to the three sides of the other, the triangles are congruent.

Relations between angles formed by a transversal cutting two parallel lines, with converse.

The exterior angle, made by producing one side of triangle, equals the sum of the two interior and opposite angles; and the sum of the three interior angles is two right angles.

The greater side of a triangle has the greater angle opposite it, with converse.

If two triangles have two angles and a side of one respectively equal to two angles and the corresponding side of the other, the triangles are congruent.

If two triangles have two sides of one respectively equal to two sides of the other and have the angles opposite one pair of equal sides equal to each other, the angles opposite the other pair of equal sides are either equal or supplementary.

Any two sides of a triangle are together greater than the third side.

If two triangles have two sides of the one respectively equal to two sides of the other, but the contained angle in one greater than the contained angle in the other, the triangle which has the greater contained angle has the greater third side, with converse.

Straight lines which join the ends of two equal and parallel straight lines towards the same parts are themselves equal and parallel.

In any parallelogram the opposite sides and angles are equal, the diagonal bisects the area and the diagonals bisect each other.

Parallelograms on the same or equal bases and between the same parallels are equal in area.

Triangles on the same or equal bases and between the same parallels are equal in area.

If two equal triangles are on the same side of a common base, the straight line joining their vertices is parallel to the common base.

The complements of the parallelograms about the diagonal of any parallelogram are equal to each other.

Algebraic and geometric proofs of areas of squares and rectangles in connection with the segments of a straight line.

The square described on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the other two sides, with converse.

In an obtuse-angled triangle the square on the side opposite the obtuse angle equals the sum of the squares on the other two sides increased by twice the rectangle contained by either of these sides and the projection of that side on the other.

In any triangle the square on the side opposite the acute angle is equal to the sum of the squares on the other two sides diminished by twice the rectangle contained by either of these sides and the projection of that side on the other.

If from a point within a circle more than two equal straight lines are drawn to the circumference, that point is the centre.

Equal chords of a circle are equidistant from the centre, with converse.

Of two chords in a circle the one which is nearer to the centre is greater than the one which is more remote from the centre, with converse.

The angle at the centre of a circle is double the angle at the circumference on the same arc.

The angles in the same segment of a circle are equal, with converse.

The angle in a semi-circle is a right angle, in a major segment is acute, and in a minor segment, obtuse.

The opposite angles of any quadrilateral inscribed in a circle are supplementary, with converse.

The radius drawn to the point of contact of a tangent is perpendicular to the tangent; the perpendicular to the tangent at the point of contact passes through the centre; the perpendicular from the centre on the tangent passes through the point of contact.

If two circles touch one another, the centres and the point of contact are in one straight line.

The angles made by a tangent to a circle with a chord drawn from the point of contact are respectively equal to the angles in the alternate segments of the circle.

Triangles of the same altitude are to one another as their bases.

A straight line drawn parallel to the base of a triangle cuts the sides, or the sides produced, proportionally, with converse.

If the vertical angle of a triangle is bisected internally or externally, the bisector divides the base into segments which have the same ratio as the other sides of the triangle, with converse.

If two triangles are equiangular, their corresponding sides are proportional, with converse.

If two triangles have one angle of the one equal to one angle of the other, and the sides about the equal angles proportional, the triangles are similar.

If two triangles have two sides of one proportional to two sides of the other, and the angles opposite one pair of corresponding sides in the proportion equal, the angles opposite the other pair of corresponding sides are either equal or supplementary.

If two chords intersect within a circle, the rectangle contained by the segments of one is equal to the rectangle contained by the segments of the other.

If from a point without a circle a secant and a tangent be drawn, the square on the tangent is equal to the rectangle contained by the secant and the part of it without the circle.

The areas of similar triangles are proportional to the squares on corresponding sides.

NOTE.—Constructions and theorems on ratio and proportion are restricted to cases in which the ratios are commensurable.

At the examination, questions may be given in making the actual constructions in the prescribed course. Candidates will therefore provide themselves with a graduated ruler, compasses, set-square, and protractor.

One paper of two hours.

Text: Hall and Stevens' School Geometry.

Latin.

TEXTS.—Caesar, Book IV., Chapter 20 to the end; Caesar, Book V., Chapters 1–23, inclusive; Virgil, Aeneid II., lines 1–505.

GRAMMAR.—Knowledge of grammar will be tested by translation and composition, and by questions based on the specified texts.

TRASLATION AT SIGHT FROM LATIN TO ENGLISH.

COMPOSITION.—Translation into Latin of detached English sentences and easy narrative based on the prescribed portions of Caesar. Prescribed texts: Henderson & Little's Matriculation Caesar (Copp, Clark Co., Ltd.); Virgil, Aeneid, Book II. (Gage & Co., or Copp, Clark Co., Ltd., or Macmillan).

NOTE.—The Roman method of pronouncing Latin is recommended.

Two papers of two hours each—one on Composition and Grammar, the other on prescribed texts and translation at sight.

Greek.

Lessons 1–48 of White's First Greek Book (Ginn & Co.).

NOTE.—This course can be covered successfully in one year.

One paper of two hours.

French.

GRAMMAR.—Candidates will not be required to state grammatical rules in writing or to reproduce tables of verbs, regular or irregular. They will be expected to have a thorough *practical* knowledge of French accidence and such points of syntax as are of frequent occurrence in ordinary prose style.

This knowledge will be tested by asking candidates to modify sentences given, to fill in words necessary to complete sentences, or to change infinitives to the tense required by the context. They may be asked to form sentences from the elements given.

TRANSLATION AT SIGHT INTO ENGLISH of a French passage of moderate difficulty, dealing with French life, trades, industries, history, travel. A knowledge of useful words is required.

TRANSLATION INTO FRENCH of detached sentences—chiefly common idioms (not rare idioms and little-used proverbs) and an easy English passage. The latter may be a dialogue. It will be selected with a view to testing the candidate's knowledge of French, not of grammatical exceptions.

The text prescribed is Siepmann's Primary French Course, Part II. (Macmillan & Co., Canada); the first twenty lessons only. For supplementary work teachers are recommended to use Allen and Schoell, French Life (Henry Holt & Co.), sections: La Maison, L'Ameublement, Le Jardin, La Rue, Le Temps, L'Homme, À la Gare, Le Restaurant, L'Hotel, La Salle de Classe, Le Lycée, L'Université, Les Martins au Restaurant, À la Consultation, Chez le Coiffeur, Dans le Magasin. These sections need not be studied intensively.

Teachers will find the following text-book useful in teaching the French verb: Short Theory of the Conjugation of the French Verb (New Edition) by Charles-Edouard Muller (The Copp, Clark Co., Ltd., Toronto).

Two papers of two hours each.

German.

READING AND SPEAKING.—Candidates will be expected to have a fair knowledge of German sounds and pronunciation. They must be able to read with ease German prose or verse of ordinary difficulty and to answer correctly in German simple questions based on the reading prescribed.

GRAMMAR.—Candidates will be expected to have a thorough practical knowledge of German accidence and of such points of syntax as are of frequent occurrence in ordinary prose style. This knowledge will be tested by asking them to modify sentences given, to fill in words necessary to complete sentences, or to change uninflected words to forms required by context, etc.

TRANSLATION AT SIGHT INTO ENGLISH of a German passage of moderate difficulty, dealing with German life, ways, and customs. A knowledge of useful words will be required.

TRANSLATION INTO GERMAN of detached English sentences and of an easy English passage. A knowledge of simple idiomatic and colloquial German expressions will be required.

Books recommended: (*a*) Zinnecker: Deutsch fur Anfänger, Exercises 1–32 (Heath & Co.); (*b*) Haertel: German Reader for Beginners (Ginn & Co.).

NOTE.—Teachers should insist upon correct pronunciation and use the language as much as possible in class instruction.

Two papers of two hours each.

Agriculture.

SOIL STUDIES.—Origin and classification; water, air, and bacteria in soil; drainage; drainage surveys; physical analysis; composition; plant-foods; humus and fertilizers.

SOIL MANAGEMENT.—Tillage, manuring and rotation of crops; humid and dry farming.

VEGETABLE GARDENING.—Hot-beds and cold-frames; their preparation and use; selection of garden seeds; choice of varieties; cultural methods.

SMALL FRUITS.—Soil and cultural requirements; standard varieties; harvesting and marketing.

LANDSCAPE GARDENING.—Plans for beautifying home and school grounds; making and care of lawns, walks, and flower-beds; best adapted ornamental trees, shrubs, and flowering plants.

ORCHARDING.—Location, planting, and management; harvesting and marketing; standard varieties.

INSECT STUDY.—Identification and life-history of field, garden, and orchard insects; remedial measures.

FIELD CROPS.—Selection, cultivation, harvesting, and disposition.

LIVE STOCK.—Necessity of live stock in good farming; history, adaptability, and management of the principal classes.

POULTRY.—Breeds, housing, feeding, and management.

RURAL ECONOMICS.—Agricultural organizations and co-operative associations.

BEE-KEEPING.—Life-history, care, and management; equipment; recognition and treatment of diseases.

One paper of two hours.

NOTE.—Fifty per cent. of the possible total in the final examination will be awarded on the written paper and 50 per cent. on term-work, including certified laboratory note-books.

Botany.

In this course the nature-study method of presentation should be adhered to throughout. No text-book is prescribed for use of pupils. Each pupil should have a good note-book in which to record his or her observations and conclusions. Careful drawings of parts studied should be emphasized.

Emphasis is placed upon comprehension of principles rather than mastery of detail, and upon observation rather than book knowledge.

The following points should be studied, as far as possible, from plants belonging to families given below:—

1. GROWTH.—Germination, growth regions, buds, meristem, cambium, growth movements in response to gravitation, light, water, contact (tendrils, and the sensitive plant).

2. NUTRITION.—Form, structure, and function of roots, stems, and leaves; their relation to each other and to the absorption and conduction of raw materials, and especially in regard to food manufacture. Simple experiments to illustrate osmosis, photosynthesis, and transpiration. Modifications for storage of food—tuberous roots, corms, bulbs, etc.

3. REPRODUCTION.—(*a.*) Vegetative methods—suckers, runners, stolons, tubers, etc. (*b.*) Flowers—bracts, inflorescence, parts of flower, number of whorls, function of each, number and position of parts in each whorl, cohesion and adhesion of parts or whorls. Relation of structure to pollination and to classification of plants into families. To ensure completeness and accuracy of observation, the construction of floral diagrams and floral formulæ of flowers examined is recommended. Fruits—origin of parts, structure, texture, modifications for seed-dispersal. Seeds—origin, structure, embryo, nature, and position of food-store. Modifications for dispersal.

4. CLASSIFICATION OF PLANTS based on the increasing complexity of plant structure, development, reproduction, and life-histories. Essential characteristics of the four divisions: (1.) Thallophytes—characteristics of subdivisions Algæ, Fungi, Lichens. (2.) Bryophytes—life-history of Moss. (3.) Pteridophytes—life-history of Fern; characteristics of Horsetails and Club-moss. (4.) Spermatophytes: (*a.*) Gymnosperms—(Conifers); study of leaves, cones, and general habit of at least three genera. (*b.*) Angiosperms—familiarity with the local flora, particularly examples of the following families: (Monocotyledons)—Gramineæ and Liliaceæ. (Dicotyledons)—Salicaceæ, Ranunculaceæ, Cruciferæ, Rosaceæ, Leguminosæ, Umbelliferæ, Ericaceæ, Scrophulariaceæ, Labiatæ, Compositæ.

5. PLANT ASSOCIATIONS.—It is recommended that visits be made to different habitats, to give pupils an opportunity of studying the flora and its relation to environment, differences of temperature, amount of available water, light intensity, nature of soil, etc.

6. ECONOMIC PLANTS OF BRITISH COLUMBIA.—Weeds, medicinal and poisonous plants, especially those belonging to the above families.

On application teachers will be provided with a supplementary outline of the prescribed work.

TEACHERS' REFERENCE BOOKS.

Bergen & Caldwell: Practical Botany (Ginn & Co.).

Coulter, Barnes & Cowles: Text Book of Botany, Vols. I. and II. (University of Chicago Press).

Ganong: A Text Book of Botany (Macmillan, 1916).

Curtis: Nature and Development of Plants (H. Holt, 1915).

Henry: Flora of Southern British Columbia (Gage, 1915).

R. B. Thomson and H. B. Sifton: Poisonous Plants and Weed Seeds of Canada (University of Toronto Press, 1922).

One paper of two hours.

Chemistry.

As in Chemistry—Cornish, A Text-book for High Schools (Macmillan), and Cornish & Smith, A Laboratory Manual in Chemistry (Macmillan).

One paper of two hours.

Physics.

The general principles of physics as given in any standard text-book of High School Physics. The examination will be based on the Ontario High School Physics (Merchant & Chant) and The Ontario High School Laboratory Manual in Physics.

Measurement—Chapter I.

Hydrostatics—Chapters X., XI., XII., XIII., and XIV.

Sound—Chapters XVIII., XIX. (omitting sections 198 and 199), and Chapter XX. to the end of section 206.

Heat—Chapters XXIV., XXV., XXVI., XXVII., XXVIII., XXIX., and XXXI.

Light—Chapters XXXII., XXXIII., XXXV., XXXVI., XXXVII., and XXXVIII.

Magnetism and Electricity—Chapters XLI., XLII., XLIII., XLIV., XLV., XLVI., XLVII., and XLVIII. (omitting section 529).

Exercises as in the Laboratory Manual (omitting numbers 6, 33, 34, 36, 37, 39, 51, 52, 58, 69, 77, 78, 83, 96, 97, 99, and 107).

History and Civics (for Normal Entrance).

(*a.*) High School History of England, Western Canada Series, 1922—Wrong (The Macmillan Co. of Canada, Ltd.). From the close of the Elizabethan Age to the present time, as in Chapters XI.–XXII., inclusive.

(*b.*) Canadian Civics, British Columbia Edition—Jenkins (Copp, Clark Co., Ltd.).

It is recommended that one period a week be spent in reviewing and discussing important current events of world-wide interest.

This course is to be taken for Normal Entrance in place of the history prescribed for Junior Matriculation.

Geography (for Normal Entrance).

As in the Canadian School Geography—Cornish (Dent & Sons, Ltd.); and the Canadian School Atlas (Dent & Sons, Ltd.).

This course is to be taken for Normal Entrance in place of a second science or second language of Junior Matriculation.

Senior Matriculation.

Candidates must furnish evidence of having passed Junior Matriculation, or its equivalent.

Candidates who have been granted Junior Matriculation standing with supplementals will be permitted to sit for the Senior Matriculation Examinations, but will not be granted full Senior Matriculation standing until they have completed both Junior and Senior Matriculation.

A candidate who holds a Senior Matriculation diploma or its equivalent will be admitted to Normal School in September, 1924, to receive training for a First-class Teacher's Certificate.

The subjects for Senior Matriculation are as follows:—

1. English and History.

2. Mathematics (Algebra, Geometry, and Trigonometry).

3, 4, 5, Three of the following: Chemistry, Physics, French, German, Greek, Latin.

Requirements in each Subject.

English.

1. Composition.—Fundamental principles—words, sentences, paragraphs, the composition as a whole. Lomer & Ashmun: The Study and Practice of Writing English (Houghton, Mifflin & Co.) indicates the ground covered. Regular practice in Composition is essential.

2. Literature.—(1) Chaucer's Prologue to the Canterbury Tales; (2) Spenser's Faerie Queene, Book I.; (3) Milton's Comus (these can be obtained in Macmillan's Pocket Classics); (4) Halleck's History of English Literature, 1913 Edition (American Book Co.), pages 1–255, with such illustrations as time may permit. Suitable illustrative material will be found in Chambers' Cyclopedia of English Literature.

History.

The evolution of modern European society as interpreted by Robinson & Beard in their History of Europe, Our Own Times (Ginn & Co., 1921). This is the sequel to History of Europe, Ancient and Mediaeval.

Mathematics.

Algebra.—Equations, progressions, ratio, proportion, variation, surds, theory of equations, inequalities, maxima and minima, permutations, combinations, binomial theorem.

Text: Crawford's Senior High School Algebra (Macmillan) (omitting Chapters X., XIV., XV., XVI.), or the same subject-matter in similar text-books.

Plane and Solid Geometry.—As in Hall & Stevens' School Geometry.

Trigonometry.—Playne & Fawdry's Practical Trigonometry (Copp, Clark Co.), Chapters I.–IX., inclusive, or the same subject-matter in similar text-books. Wentworth & Hill's Five-Place Tables (Ginn & Co.).

Chemistry.

General Chemistry.—This course is arranged to give a full exposition of the general principles involved in modern Chemistry, and comprises a systematic study of the properties of the more important metallic and non-metallic elements and their compounds, and the application of Chemistry in technology.

Students must reach the required standard in both theoretical and practical work, and are required to submit a certified laboratory note-book.

Book recommended: Alexander Smith: General Chemistry for Colleges (Century Co.). Chapter XXXIX. may be omitted.

Physics.

A general study of the principles of mechanics, properties of matter, heat, light, sound, and electricity. The course has two objects: (1) To give the minimum

acquaintance with physical science requisite for a liberal education to those whose studies will be mainly literary; (2) to be introductory to the courses in Agriculture, Chemistry, Engineering, and Physics. Students must reach the required standard in both theoretical and practical work and are required to submit a certified laboratory note-book.

Text-books: Ontario High School Physics and Ontario High School Laboratory Manual in Physics.

Latin.

TEXTS.—W. J. Woodhouse: Cicero, Pro Lege Manilia (Copp, Clark Co.). Page: Virgil, Aeneid IV., Georgic IV. (Macmillan).

COMPOSITION.—Bradley: Arnold's Latin Prose Composition (Longmans & Co.), Exercises I.–XVIII.

HISTORY.—Pelham: Outlines of Roman History to 133 B.C. (Rivingtons).

Two papers of three hours each.

Greek.

TEXTS.—Bond & Walpole: Lucian, Extracts (Macmillan). Blakeney: Euripides, Alcestis (Bell's Illustrated Classics).

COMPOSITION AND GRAMMAR.—White's First Greek Book (Copp, Clark Co.).

HISTORY.—Cox: Athenian Empire (Longmans' Epoch Series).

French.

(*a.*) LITERATURE,—Molière: Le Bourgeois Gentilhomme. Bazin: Six Contes (Oxford Press). Allen & Schoell: French Life (Henry Holt).

(*b.*) LANGUAGE.—Revision of the essentials of French Grammar applied to the correct writing of French. Oral work from Weil: Leçons de Français (Delagrave).

German.

LANGUAGE.—Completion and Revision of Zinnecker: Deutsch fur Anfänger (Heath).

COMPOSITION based on texts read.

READING.—Moser: Der Bibliothekar (Ginn). Freytag: Die Journalisten (Ginn). Heine: Die Harzreise (Allyn and Bacon).

COMMERCIAL COURSE FOR HIGH SCHOOLS.

First Year.

1. Reading and Orthoepy.

Oral reading, with special attention to expression and pronunciation. Prescribed text, 20th Century Fifth Reader.

2. Penmanship.

The Commercial Edition of the MacLean Method of Muscular Movement Writing is to be used. Emphasis should be placed upon small, legible, rapid writing. Forearm muscular movement is to be used in all written work. Special attention should be given to the writing of business forms, as shown in the Manual. The teachers will use the Teachers' Manual as their guide.

3. Spelling.

Words in common use, technical terms of financial, commercial, manufacturing, and transportation business. Smith's Cumulative Speller (Shorthand Edition), first fifty lessons.

4. English Literature.

As prescribed for Grade IX. (Preliminary Course, Junior Grade).

5. Composition.

High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), Chapters I.–IV., inclusive.

6. Canadian History.

As prescribed for Grade IX. (Preliminary Course, Junior Grade).

7. Arithmetic.

Pure and commercial arithmetic, as in Dominion High School Arithmetic (Gage & Co., Ltd.). The first ten chapters.

8. Book-keeping and Business Forms.

Principles and practice of double entry, notes, drafts, cheques, invoices, bills and accounts, receipts, due bills, credit notes, deposit slips, requisitions, and bank drafts.

9. Typewriting.

Principles of touch system; speed, a rate of fifteen words a minute. Smith's Touch System.

10. Shorthand Theory.

Pitman's Short Course.

Second Year.

1. Reading and Orthoepy.

Oral reading, with special attention to expression and pronunciation. Prescribed text, as in English Literature.

2. Penmanship.

Principles and practice of muscular movement continued as in the Commercial Edition of the MacLean Method of Muscular Movement Writing.

3. Spelling.

Words in common use, technical terms of financial, commercial, manufacturing, and transportation business. Smith's Culminative Speller (Shorthand Edition).

4. English Literature.

Longer Narrative Poems—Jeffries (The Macmillan Co. of Canada, Ltd.); and any *two* of the following: (*a*) Specimens of the Short Story—Nettleton (Henry Holt & Co.); (*b*) Scott, Quentin Durward (Thomas Nelson & Sons, Ltd.); (*c*) Shakespeare. Julius Caesar—Stevenson (Copp, Clark Co., Ltd).

5. Composition.

High School English Composition, Western Canada Series (Copp, Clark Co., Ltd.), Chapters I.–VIII., inclusive. Letter-writing; special attention to business and social forms and correspondence. Essays and themes. The examination on this subject, besides testing the pupil's knowledge of the prescribed text, will consist of an essay on one of four specified subjects, three of which will be from the English Literature prescribed for the year. Frequent and systematic practice in essay-writing throughout the year is imperative. The value attached to the examination paper will be apportioned by giving 20 per cent. to the questions on the work of the prescribed text, 30 per cent. to letter-writing, and 50 per cent. to the essay.

6. Arithmetic.

(*a.*) General principles of arithmetic and mensuration, application to common problems of the arts and trades, estimates in carpenter work, lathing, plastering, roofing, fencing, excavating, masonry, paving, painting, papering, carpeting, time sheets, pay sheets, percentage, commission, duties and customs, taxes, insurance, interest, bank discount, trade discount, brokerage, exchange, partnership, settlements, partial payments, equation of payments, stocks and investments, debentures and sinking funds, annuities certain, tabular and graphical statistics, Dominion High

School Arithmetic, and Hamblin Smith's Arithmetic, revised edition, pages 1–204. The Metric System.

(*b.*) Rapid calculation.

7. Book-keeping.

Keeping of accounts, training in principles and practice of debit and credit, double entry book-keeping, with use of ledger and the preparation of financial statements therefrom, the journal as a classifier of entries, the introduction of cash book, bill book, invoice book, sales book, bank book, and the use of special columns as devices to secure better classification of records and to secure accuracy and save time and labour, subdivision of the ledger, principles of self-balance, monthly and annual statements, working account, profit and loss, assets and liabilities, special devices in special lines of business, merchandising, wholesale and retail, commission, manufacturing, single ownership, partnership and corporation, auditing.

8. Laws of Business.

Law, its divisions, the British North America Act, distribution of legislative powers, contracts, Statute of Limitations, negotiable papers, endorsement and consequent liability, discharge, dishonour, protest, negotiability, assignability, accommodation, chattel mortgages, mortgages, agency, laws relating to partnership and Joint-stock Company organization, guarantee and suretyship, receipts and releases, landlord and tenant, banks and banking.

9. Typewriting.

Touch system, use of various typewriters, copy work, plain and tabular, transcription of shorthand notes, speeding, a rate of forty words per minute, manifolding, use of letter press, filing and indexing.

10. Stenography.

Principles of Isaac Pitman's phonography, dictation, speed, transcription, writing of legal forms and business correspondence at a rate of one hundred words per minute, and transcription at a rate of fifteen words per minute.

Third Year.

1. Penmanship.

Continuation of the principles and practice of muscular movement; engrossing.

2. English Literature.

As prescribed for the Junior Matriculation Examination.

3. Arithmetic.

(*a.*) General review of commercial arithmetic; annuities, debentures, equation of accounts; logarithms; interest tables; mensuration.

(*b.*) Rapid calculation.

4. Business Correspondence.

Parts of a business letter; margins and spaces in typewriting; punctuation; various types of a business letter; circular letters; form letters and follow-up systems; manifolding and filing systems; telegrams, cablegrams. Text-book: Business Letter Writing (Warner).

5. Accountancy.

(*a.*) THEORY.—Classification of accounts; reserve and reserve funds; realization and liquidation accounts; suspense accounts; goodwill and depreciation; apportionments in partnership and executors' accounts; bonds, debenture and sinking funds accounts; cost accounts and division of costs between manufacturing, trading, and executive accounts; departmental and branch trading.

(*b.*) PRACTICE.—Joint-stock accounts; various systems of cost accounts in manufacturing, contracting, milling, shipping and transportation, publishing; use of

columnar cash-books and synoptic journals adaptable to various systems of accounts; self-balancing ledgers, and branch department accounting; loose-leaf, bill and charge, and duplication voucher; filing systems. Text-books: Expert Book-keeping (Fleming); Ontario High School Book-keeping (Ward).

6. Laws of Business.

Course of second year reviewed and extended to include laws of real property; laws of personal property; the Conditional Sales Act; laws of interest and Money Lenders Act; landlord and tenant; Land Titles Act and Torrens' system of registration; Mechanics' and Wage Earners' Lien Act; suits, attachments, and garnishments; wills, descent of property, laws of inheritance; Probate and Surrogate Court; the clearing-house system. Text-book: Digest of Commercial Law (Anger).

7. Statute Law.

Bills of Exchange Act; Dominion and British Columbia Companies Acts.

8. Elementary Economics and Civics.

Laws of supply and demand; growth of trade; production; land and natural forces; capital and labour; co-operation and business organization; distribution; money and mechanism of exchange; climate and topography and their influence on life; social conditions; manufacturing facilities; transportation facilities; financial conditions; various commercial products, natural and manufactured, of each country; markets and trade routes of the world; the Government, national, provincial, municipal; the franchise; the party system; the judicial system; parliamentary procedure.

9. Typewriting.

Speed practice up to sixty words a minute; legal documents; financial statements.

10. Shorthand.

Speed practice up to one hundred and thirty words a minute; legal and mercantile terms; evidence-taking and newspaper reporting.

Books prescribed for the Commercial Course in High Schools.

Arithmetic, New Method (Commercial Text Book Co., Toronto).
Book-keeping, Single and Double Entry (Commercial Text Book Co., Toronto). Price, $2.25.
Dictation Course in Business Literature—Raigner (H. M. Rowe Co., Baltimore).
Penmanship—Commercial School Edition of the MacLean Method of Muscular Movement Writing.
Shorthand, Century Edition—Isaac Pitman.

Books prescribed for the Use of Commercial Teachers in High Schools.

Business English—Hotchkiss & Drew (American Book Co., New York).
Effective Business Letters—Edward Hall Gardner (Ronald Press Co., New York).
Touch Typewriting, A New Practical Course in—G. M. James, B.A., LL.B. (Ontario Publishing Co., Belleville, Ont.).

Books recommended for Teachers.

Accountants, Manual for—Eddis.
Accountants, Joint Stock Co.—Hoskins.
Accounting, Municipal—MacPherson.
Accounting and Auditing, Corporation—Keister.
Accounting in Theory and Practice—Lisle.
Arithmetic, High School (The Macmillan Co. of Canada, Toronto).
Auditors, Duties of—MacPherson.
Auditing—Dicksee.
Book-keeping—Dicksee.

Book-keeping, High School—McLean (The Copp, Clark Co., Ltd., Toronto). Price, $2.25.
Money and the Mechanism of Exchange—Jevons.
Negotiable Instruments—Johnson.
Shareholders' and Directors' Manual—Warde.
Statutes of British Columbia.
Statutes of Canada.

Books recommended for Use of Pupils.

Accountant, Canadian—Johnson.
Dominion High School Arithmetic (W. J. Gage & Co., Ltd., Toronto).
Arithmetic—Hamblin Smith (W. J. Gage & Co., Ltd., Toronto).
Book-keeping, Expert—Fleming.
Book-keeping, Ontario High School—Ward (W. J. Gage & Co., Ltd.).
Book-keeping, Joint Stock Co.—Johnson.
Business Letter Writing—Warner.
Mercantile Law, Digest of Canadian—Anger.
Shorthand (1907)—Pitman.
Speller, Cumulative—Smith.
Spelling, Practical (Practical Text Book Co.).
Touch Typewriting, A Practical Course in—Charles E. Smith.
Typewriting (Practical Text Book Co.).

COURSES OF STUDY AND REGULATIONS FOR MANUAL TRAINING SCHOOLS.

1. Where Manual Training Schools are established, attendance is compulsory and must be continuous throughout the school-year, with one-half day's attendance per week for each child. The hours of instruction shall be as defined in Article 1 of the Rules and Regulations for the government of Public Schools. Boys from distant schools in attendance at the morning session may be dismissed at 11.45 a.m.

2. Manual Training Instructors shall be subject to the same general regulations as Public School Teachers.

3. The Principal of the Public School at which a Manual Training Centre is situated shall have supervision over the general discipline of all classes in attendance at that centre.

4. Instruction shall be given to pupils of Grades VI., VII., and VIII.

5. Attendance registers, visitors' book, and stock book must be kept and be open for inspection at all times.

6. A three-years' course of woodwork shall be taken in the Elementary Schools (compulsory), and in the High Schools a two-years' advanced course in wood or other material (not compulsory).

7. Where the pupil enters the High School before completing the Elementary School Course, he must, if required by the teacher, complete that course before commencing the High School Course.

8. In all school districts where there is more than one Manual Training Teacher employed, one of these shall be in charge.

9. Each teacher shall design and submit for the approval of the Department of Education a course of models based on the group scheme given below. The models should be arranged to suit the locality—urban or rural—as well as the equipment at the disposal of the boys.

10. An exhibit showing the finished course with working drawings should be on view at each centre, together with the following:—

(*a.*) A liberal number of alternative problems.

(*b.*) Projects showing stages of construction.

(*c.*) Teaching apparatus.
(*d.*) Illustrations of wood shrinkage, seasoning, etc.
(*e.*) Diagrams for teaching purposes, etc.

Elementary School Manual Training Syllabus.

1. Drawing.

Plans and elevations; section drawings; scale drawings; isometric drawing; copying of drawings; producing complete working drawings from dimensioned sketches; making drawings from models.

Measuring blank drawings when the scale is given.

Ruled and freehand sketching.

Supplying additional views.

Lettering. Graded thus: (1) Lower-case letters in script, slanting; (2) capitals, slanting; (3) vertical lettering.

Lessons in design, proceeding in easy stages, as applied to the outline and the construction of models.

The designing of complete models should rarely be attempted before the end of the fourth group.

2. Woodwork.

(1.) The exercises or tool operations in each group shall be covered by the models in that group and all the tools indicated shall be used.

(2.) The operations should be carefully graded and the progression should be very easy, especially in Groups 1, 2, and 3.

(3.) In designing the models, provision should be made for ample repetition, the aim being to repeat each new exercise in the two following models at least.

(4.) Easy progressive steps must also be observed in the Drawing lessons, and the models should be designed with that aim also in view.

(5.) The first group may be preceded by a simple preliminary course, such as strip-work, where in the opinion of the teacher such is necessary.

(6.) During the course, lessons should be given on grinding and sharpening chisels, plane irons, and saws.

GROUP SCHEME OF WORK.

Group 1, Models 1 to 6.

Rule: Measuring.
Knife: Marking out, chamfering.
Try-square: Squaring and testing.
Saws: Hand-saws for cutting out stock; tenon for fine sawing (squaring).
Plane (jack): Medium planing surface 2 to ¾ inches; narrow planing surface ¾ inch down; shooting ends.
Gauge (marking): Marking width and thickness.
Chisel: Vertical chiselling; horizontal chiselling.
File: Filing curved outline (end).
Brad-awl: Boring holes.
Brace and bits: Boring holes; bits not to include those mentioned in Group 3.
Glass-paper.
Nails: Nailing and setting (simple).

Group 2, Models 7 to 12. (Simple tool operation.)

Knife: Long cut, cross cut, concave and convex cut.
Saws: Bow-saws (curves).
Plane (jack): Broad planing 2 to 4 inches; planing cylinder.
Smoothing-plane.
Chisel: Cross paring (notching).
Gouge (inside): Scribing (vertical).
File: With grain, shaped outline, profile.

Spoke-shave: Profile.
Glue: Gluing, not necessarily a joint.
Joints: Half-lap; open housing.

Group 3, Models 13 to 18.

Planes: Wider planing, 4 inches and upwards; end planing; oblique planing; chamfering.
Gouge (outside): Horizontal (open ends).
Spoke-shave: Modelling.
Brace and bits: Countersink; expansion; Forstner.
Knife: Modelling.
Screws: Fixing with screws.
Other operations: Trenching.

Group 4, Models 19 to 25.

Gauge (mortise): In joint.
Gouge: Modelling (scooping).
Other operations: Glued and rubbed joint; mortise and tenon joint; stopped housing joint.

Group 5, Models 26 to 30.

Gauge (cutting): Easy dovetailing; mitreing; rabbeting; keying; more advanced mortise and tenon construction; more advanced dovetailing; more advanced exercises already mentioned.

3. Theory.

Lessons of general information on materials used with the object of encouraging observation.
Recognition of common trees by their leaves, flowers, and fruits.
Recognition of common woods by their markings, weight, smell, etc.
Growth of trees.
Seasoning and marketing of timber.
Products of trees; enemies of trees.
Material used in the construction of tools.

4. Practice.

(1.) Boys should provide themselves with aprons or overalls and should be encouraged in good habits of workmanship.
(2.) The working drawings should be kept by each pupil in a folder until the three years' course is completed.
(3.) Mistake-sheets or record-cards should be carefully filled in and kept until entering High School. Due regard should be paid to penmanship and spelling.
(4.) Models and drawings should have a maximum of 10 marks each.
(5.) Tests in theoretical work should also be given and marks awarded.
(6.) Both the English and the Metric system of measuring are to be used.
(7.) The boy may be allowed to submit an alternative model, provided it embodies the required exercises.

High School Manual Training Syllabus.

First and Second Years' Woodwork (where there is not provision for Metalwork), or a combined course of wood and other material.

A scheme of work to be sumbitted approaching the technical side of the subject based on the exercises taken in the Elementary School Course, but including larger and more complicated models, some of which might be class-work.

Wood-turning to be introduced. Grinding and sharpening of bench and lathe tools.

Metalwork.

A scheme of work to be submitted, based on the following:—

Models to be made, embracing—

(*a.*) Soldering.
(*b.*) Brazing.
(*c.*) Etching in copper, copper modelling, or kindred artistic treatment of metals.
(*d.*) Forge-work.
(*e.*) Bent-iron work.
(*f.*) Chipping and filling.
(*g.*) Turning.

Diplomas for Manual Training.

Diplomas will be awarded by the Department of Education to pupils who hold High School Entrance certificates and who obtain 66⅔ per cent. of the 600 marks possible in the woodwork and drawing of the Elementary School Course and have completed the first four groups of same. The percentage of marks gained in Woodwork, Drawing, and Theory will be entered on the diploma.

Text-books and Books of Reference for Manual Training Teachers.

Teaching Manual and Industrial Arts—Ira S. Griffith. Price, $2.
Essentials of Manual Training—Ira S. Griffith. Price, $1.25.
Furniture Making—Ira S. Griffith. Price, $1.25.
Problems in Furniture Making—Fred. D. Crawshaw.
Problems in Wood Turning—Fred. D. Crawshaw. Price, 64c.
Problems in Farm Wood Working—S. A. Blackburn. Price, $2.
Publisher, Manual Arts Press, Peoria.
Native Trees of Canada—Bulletin No. 61, Forestry Branch, Ottawa.
Elementary Forge Practice—Harcourt. Price, $1.50.
Elementary Machine Shop Practice—Palmateer. Price, $1.50.
Farm Blacksmithing—Friese. Price, $1.35.

DOMESTIC SCIENCE.

Rules relating to Domestic Science Centres.

1. Where Domestic Science Centres are established, attendance is compulsory and must be continuous throughout the school-year. The hours of instruction in Domestic Science shall be as defined in Article 1 of the Rules and Regulations for the government of Public Schools. Girls from distant schools in attendance at the morning session may be dismissed at 11.45 a.m.

2. A three-years' course of Domestic Science should be taken in the Elementary Schools.

3. All pupils in Grades VI., VII., and VIII. shall take Domestic Science.

4. When the forenoon and afternoon periods vary in length, the senior classes *must* take the longer period.

5. Attendance registers, records of lessons, an inventory of equipment, and a visitors' book must be kept open for inspection at all times.

6. Expense sheets for food and other materials, exclusive of heating, lighting, and permanent equipment, should be sent to the Secretary of the Board at the end of each month, also an attendance sheet.

7. Only one course of work will be recognized for all the schools in any one city.

8. Domestic Science Instructors shall be subject to the same general regulations as Public School Teachers.

9. The Principal of the Public School at which a Domestic Science Centre is situated shall have supervision over the general discipline of all classes in attendance at that centre.

10. Plans for Domestic Science buildings must be submitted to the Department of Education for approval.

11. All courses of work in Domestic Science must be submitted to the Education Department for approval. Needlework for Grades VI., VII., and VIII. must be included in the course.

The following is a suggested outline of work:—

First-year Course for Elementary Schools.

Needlework.

If previous sewing lessons have not been taken, *see* Needlework Course.

If the pupils have been taking needlework in the previous grades as suggested in the Needlework Course, see that the cap, apron, sleeves, towel, and pot-holder are completed, then follow on with:—

HOUSEHOLD SEWING—Pillow-slips, towels, etc. Making and repairing kitchen linen. Hemstitching, button-holes, patching, darning, knitting. Free cutting continued from previous grades.

Preparatory Lessons in Home Management and Personal Hygiene.

Washing dishes and saucepans. Care of white wood. Care and cleaning of metals in daily use. Care, cleaning, and disinfecting of sink. Waste and its removal. Construction, management, and cleaning of kitchen range, with simple study of combustion and use of wood and coal respectively. Sweeping and cleaning. Laying the table. Personal cleanliness, care of teeth, nails, hair.

Practical Cookery.

Definitions, tables, and rules of cookery to be taught by simple lessons selected from the following methods: Boiling, steaming, baking, roasting, shallow frying, sautéing, stewing, etc.

Theoretical Cookery.

As "practical application is the only mordant which will set things in the memory," principles should be taught in conjunction with the practice of cookery. Reasons for cooking food; effect of applying heat to food. Food principles; use of food to the body. Fuel foods and tissue-building foods. Carbohydrates, proteins, fats, mineral matter.

Reviews to take the forms of simple meals; for example, breakfasts for a tray. Develop quick, free, independent action in all lessons. Cooking must be active work, give the child an ability to do. Explanations should articulate the lessons as closely as possible to those done in other departments of the school. All written lessons should be short, carefully executed, and mistakes corrected by the teacher.

Second-year Course for Elementary Schools.

Needlework.

Draughting: i.e., free cutting and making undergarments. Repairing, patching, darning, flannels, prints, and coloured goods, knitting.

House Management.

Household brooms and brushes—choice, cost, and care. Cleaning painted, varnished, and polished wood. Various cleansing agents—use, economy, cost. Ventilation—value of fresh air, chimneys, doors, windows. Choice, cost, and care of linoleum and oilcloth. Water—source of supply, pipes, cisterns, storage, etc. Drainage—where pipes go, simple tests for faulty drains. Table setting and service.

Practical Cookery.

Recapitulation of the methods taught during the first year, with additions. Boiling, steaming, simmering, roasting, baking, broiling, stewing, sautéing, deep and shallow frying, braising, pot-roasting. Reviews to take the form of simple meals.

Theoretical Cookery.

More theory than in the first year. Foods and their use to the body. The perfect food. Proteins, carbohydrates, fats, mineral matter, vitamines. Importance of mixed diets, well balanced and varied. Need for forethought in planning meals. Planning, purchasing, cooking, and serving a luncheon for a family of four. Economy of the larder. Care of the meat-safe, cost, fixture, inexpensive substitutes.

Laundry-work.

Arrangement of household washing—washing, boiling, and plain ironing of household linens and underwear. Removal of stains and bleaching. Consideration of water, soap, soap powder, soda, borax, starch, and laundry blue.

Third-year Course for Elementary Schools.

Needlework.

Draughting: i.e., free cutting and making undergarments, or preparing High School outfit. Repairing table linen, mending and darning of outer garments, gloves, etc.

House Management.

Practical revision of two former years.

Practical Cookery.

Recapitulation of methods taught in the second year, with the addition of the following: Preservation of food. Reasons. Different methods. Dried foods and their value. Pickling, canning, preserving. Salads with simple dressing. Fruit salads. Marmalade. Poultry—choice, trussing, cooking. Beef cuts. Bread-making. Table service and table setting. Reviews to take the form of meals; for example, dinners.

Theoretical Cookery.

Emphasis to be placed on food values and the necessity for a well-balanced and varied diet. Digestion—its meaning, foods easy and difficult to digest. Digestion in the mouth, hard and soft foods, condition of teeth. Digestion from the alimentary canal to intestines. Suitable food for child from birth to dentition. Good and bad types of feeding-bottles. Cleansing of bottle. Sterilizing and pasteurizing milk, whey. The child under two years. Vegetarian diet, advantages and disadvantages.

Laundry-work.

Washing and finishing flannels, coloured garments, wool, cotton, linen, muslin, silk, and lace. The management of a small family wash. Soap-making from kitchen grease, soaps, acids, alkalies. Simple methods of softening water. Making and use of starch.

Diplomas for Domestic Science.

Diplomas will be awarded by the Department of Education to pupils who hold High School Entrance certificates and complete the Course prescribed for Domestic Science.

First-year Course for High Schools.

Dietetics, Cookery, and Table Service (Practical and Theoretical).

The science of nutrition, physical and chemical changes in matter. Chemical formulæ and equations. Air and combustion. Heat and cooking. Discussion of gas, coal, electricity. Paper-bag and fireless cookery. Classification of foods—carbohydrates, fats, protein. Inorganic food—water, mineral matter. Food preservation. Bread-making. Invalid cookery. Home nursing and hygiene. Table service.

Work to be correlated to general science. Air and ventilation. Barometer, thermometer, graphic readings, expansion of gases, etc.

Physiology.

The systems of the body and their functions. First aid to the injured.

Needlework.

Draughting and making underclothing. Estimating costs. Textiles relating to underclothing. History of their manufacture and development.

Second-year Course for High Schools.

Dietetics and Cookery (Practical and Theoretical).

Heat measurements. Heat and work. The calorimeter. Daily requirements as regards muscle-building. Energy-furnishing and body-regulator materials.

Balancing, occupation, climate, sex, age, etc., considered. Children's diets and special normal diets considered. Meals planned and worked out to meet requirements in food values, at varying costs.

Serving meals as worked out in dietary study. Work to be correlated to High School General Science (Chemistry and Physics).

Physiology.

Home nursing and home hygiene. Recapitulation of first aid to the injured.

Needlework.

Cotton skirts. Middies. Smocks and outergarments. Household linen and furnishing. Estimated costs. Textiles relating thereto.

Third-year Course for High Schools.

Dietetics and Cookery (Practical and Theoretical).

Revise work of the second year.

Food and its functions. Digestion of foods, foods of vegetable origin and animal origin. Meals planned and worked out to meet requirements in food values at varying costs.

All work to be correlated to High School General Science (Chemistry and Physics).

Household Chemistry.

Organic radicles, hydrocarbons, and alcohol; esters and fats, hydrolysis of esters; saponification; soaps—commercial soaps, foreign ingredients in commercial soaps, special soaps, and scouring powders. Solution and emulsification of fats. The cleaning of fabrics, chemistry of textiles, bleaching, bluing, and dyeing.

Household Physics.

Heat capacity, specific heat, latent heat; application of latent heat; refrigeration; freezing mixtures; artificial-ice machine; steam heating; steam cookers; distillation; evaporation; dew-point; boiling-point; why clothes dry; causes of cloud; rain, snow, and dew; changes in boiling-point.

Electricity in the home; household electrical appliances; electric bulbs; magnetism and electromagnet; the electric motor in the home; electric heating; cooking and lighting appliances; electric iron, coffee percolator, oven, etc.; the incandescent lamp. Electrical terms and measures; the ampere, ohm, volt, watt.

Light in the home; arrangement of lighting fixtures in the home; intensity of illumination; nature of light.

Reflection and refraction of light; laws of reflection; laws of refraction; lenses and optical instruments.

Colour: Composite nature of white light; the rainbow; theory of colour vision; pigments.

Sound: How sound is produced; nature of sound-waves; noises and musical sounds; pitch, music, and musical instruments.

Physiology.

Recapitulation of previous year's work in home nursing, home hygiene, and first aid to the injured.

Needlework.

Draughting, cutting, and making up dresses, etc. Millinery. Estimating costs. Textiles relating to personal wear. The personal budget. History of costume.

Text-books and Books of Reference for Teachers.

Elements of Cookery—Williams & Fisher (The Macmillan Co., Ltd., New York).
Dietetics—Alex. Bryce, M.D. (T. C. & T. E. Jack, London).
Ontario Sewing Manual (Department of Education, Toronto).
Bulletin No. 23, Clothing for the Family—Federal Board of Vocational Education, Washington, D.C.
A Text-book of Domestic Science for High Schools—Matilda G. Campbell (The Macmillan Co.).
The Boston Cooking School Cook Book—F. M. Farmer (Little, Brown & Co., Boston).
The Chemistry of Cookery—W. Mattieu Williams (Chatto & Windus).
Food. What it is and does—Edith Greer (Ginn & Co.).
Food and Dietetics—Hutchison (Wm. Wood & Co.).
Food and Feeding—Sir Henry Thompson (F. Warne & Co.).
The Laws of Life and Health—Alex. Bryce, M.D. (Melrose, London).
Food and its Functions—Knight (Blackie & Sons, London).
Diet in Relation to Age and Activity—Sir Henry Thompson (F. Warne & Co.).
Common Sense Cookery—Col. Kenny-Herbert (Arnold).
Fifty Breakfasts, Fifty Luncheons, Fifty Dinners—Col. Kenny-Herbert (Arnold).
Essentials of Health—Stowell.
Hints and Helps on Home Nursing—Cosgrave.
First Aid to the Injured—Dr. J. Cantlie.
Practical Domestic Hygiene—J. Lane Notter, M.A., M.D.
Physics of the Household—Lynde (The Macmillan Co.).
A Laboratory Course in Physics of the Household—Lynde (The Macmillan Co.).
Bacteria, Yeasts and Molds in the Home—Conn (Ginn & Co.).
Household Engineering—Frederick (American School of Home Economics).

HIGH SCHOOL TECHNICAL COURSE.

While the main object of this three years' course is to train students for specialized technical courses during the fourth, fifth, and succeeding years in the Technical School, yet students should have the privilege of being prepared for the University Matriculation Examination. These students, however, should be taught in a separate class, for while the content of both technical and matriculation courses may be similar during the first year, yet it is obvious that in the second and more especially the third year the subjects must be arranged in a different manner.

First Year.

English.

Reading and Orthoepy.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

Writing and Spelling.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

Literature.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

Composition.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

Supplementary Reading.—Biographies of Men of Science; Inventors and Captains of Industry; Short Stories from Modern Authors.

Citizenship and Economics.

As in prescribed text-book, Jenkins' Canadian Civics.

Reference books: Outlines of Economics—R. E. Nelson (G. Bell & Sons); How

We Pay Each Other—Wood (Macmillan & Co.); Common-Sense Economics—Le Mesurier (John Murray).

French (for students taking the course leading to Matriculation).

As prescribed for Grade IX. (Preliminary Course, Junior Grade).

Mathematics.

ARITHMETIC.—Simple rules; square root; fractions and decimals; weights and measures; rectangular areas. Board measure; metric system of units; mensuration of rectangular solid, circle, and cylinder; percentage and its applications; profit and loss; trade discount; duty taxes; fire insurance commission; simple and compound interest.

Text-book: Dominion High School Arithmetic.

ALGEBRA.—Simple rules; use of brackets; simple equations; simultaneous equations; simple binomial factors; square root; geometric representation of formulæ.

Text-book: Hall & Knight's Algebra.

EXPERIMENTAL GEOMETRY.—Exercises 1–68; 85–104; 122–138; 152–182; 293–318, inclusive.

THEORETICAL GEOMETRY.—Theorems 1–14. Constructions—construction of a triangle given the three sides. Construction of an angle equal to a given angle. Bisection of a given angle. Bisection of a given straight line. Construction of perpendicular to a given straight line from a given point inside or outside the line.

In dealing with Experimental Geometry, teachers are not expected to make any attempt to do all the exercises with their classes, but to make such selections from the given list as may be necessary to give their students a sound knowledge of elementary geometrical ideas.

Text-book: Elementary Geometry—Godfrey & Siddons (The Macmillan Co. of Canada, Ltd.).

BOOKS OF REFERENCE.

Mathematics, Science and Drawing—Castle (Routledge & Son, London).
An Introduction to Practical Mathematics—Saxelby (Longmans & Co.).
Elementary Treatise on Graphs—Gibson (Macmillan).
Vocational Mathematics—Dooley (D. C. Heath & Co.).

Mechanics.

As far as possible the principles of mechanics should be obtained by the students themselves in a series of well-graduated exercises, and no attempt should be made to introduce formulæ in the first year except such as are discovered by carefully trained students. Every note-book should show under the headings "Experiments" and "Observations" that a student knows what he is doing and what he sees, but the inferences to be drawn from such experiments may well be given as the result of careful summarization of the individual work of the student by the teacher. Illustrations in extension of principles may well serve as the basis of oral lessons by the teacher, but no attempt need be made in the first year to allow of the use of a text-book by the student, the object in all parts of the subject being training and not the acquisition of facts.

(*a.*) STATICS.—Force-work, horse-power; easy numerical examples. Levers; experiments with the three orders; mechanical advantage. Principle of moments; easy practical applications—viz., pincers, clawhammers, cantilevers, etc. The wheel and axle; velocity ratio; the principle of work; first and second system of pulleys; the triangle of forces; inclined plane without friction, with pull (*a*) parallel to plane, (*b*) parallel to base, to be treated at first graphically—i.e., apply triangle of forces. Wedge, application of the principle of the triangle of forces. Screw, application of the principle of the triangle of forces.

(*b.*). DYNAMICS.—Kinematics, time, space, change of position, relative motion, uniform and variable velocity. Relation between velocity, distance passed over, and

time. Numerous diagrams will be made by pupils to enable them to educe necessary formulæ. Acceleration, relation between time, distance, and acceleration shown by acceleration graphs. Formulæ derived from diagrams.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Applied Mechanics for Beginners—Duncan (Macmillan & Co., Ltd.).
Elementary Mechanics—Morley & Inchley (Longmans, Green & Co.).
Applied Mechanics—Jamieson (Griffin & Co., London).
Theoretical Mechanics—J. Edward Taylor (Longmans, Green & Co.).
Mechanics—Merchant & Chant (The Copp, Clark Co., Ltd., Toronto).

Physics.

Matter—nature of; molecules; molecular theory; states of matter. Properties of solids—tenacity; malleability; plasticity; elasticity; tempering and annealing. Properties of liquids—capillarity; buoyancy; surface tension; Archimedes' principle; flotation; Pascal's principle; hydraulic jack; hydraulic elevator and lift-lock. Properties of gases—expansive force; weight; buoyancy; principle of the dirigible; pressure of the air; the barometer.

Metric System.

Specific gravity and density of solids and liquids—laboratory work. Easy hydrostatics—fluid pressure at a point; total pressure on an area; cause of pressure—pumps, siphons, valves, air-pumps, exhaust and force. Compressed-air appliances—the door-check; pneumatic tires; air-cushions.

Heat.

What it is. Sources—friction; electricity; compression; percussion; chemical action; the effects, expansion of solids, liquids, and gases; coefficient of expansion; application of expansion. Thermometers, their scales and conversion; metallic thermometer; thermostat; rivets; boiler-plates; steam-pipes and expansion-joints; air thermometer; Charles' Law; change of state; fusion; vaporization; latent heats; specific heats; heat measurement, calorie, B.T.U.; laws of fusion and vaporization; crystallization; heat transference and application in the range, boiler, warm-air and hot-water furnaces, heating plants; exhaust steam; mechanical equivalent of heat; radiation and absorption.

TEXT-BOOKS AND BOOKS OF REFERENCE.

General Science—Caldwell & Eikenberry (Ginn & Co.). Price, $1.
Laboratory Manual for same. Price, 50c.
Elementary Practical Physics—Watson (Longmans, Green & Co.).
The Ontario High School Physics.
Laboratory Manual for same.

Drawing and Design.

(*a.*) FREEHAND SKETCHING.—To develop free and quick execution.

(*b.*) GEOMETRICAL DRAWING.—To master the instruments and learn the fundamentals of mechanical drawing.

(*c.*) ORTHOGRAPHIC PROJECTION, SECTIONS, AND THE DEVELOPMENT OF SURFACES.—To make working drawings.

(*d.*) LETTERING.—The cultivation of a clear, well-formed rapid style.

(*e.*) ELEMENTS OF DESIGN.—To see beauty in line, form, and colour.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Studies in Line and Mass—E. A. Branch (Ralph Holland & Co., London).
Lessons in Decorative Design—Jackson (Chapman & Hall, London).
Furniture Design—Crawshaw (Manual Arts Press).
Geometry for Art Students—Carroll (Burns & Oates, London).
Blair's Drawing Book V. and VA.
Geometrical Drawing for Schools and Colleges—C. H. McLeod, M.E. (Foster, Brown & Co., Montreal).

Shop-work.

(1.) WOODWORK.—Students will be expected to have completed the Elementary School Manual Training Course and have obtained a diploma in woodwork. They should then proceed with problems calling for exact draughtsmanship and the translation of the drawing into material of wood or metal.

Those students who have not had previous training in woodwork should follow an equivalent course which will permit them to proceed as rapidly and thoroughly as possible.

(*a.*) *Bench-work.*—The course should consist of such problems as will call for that fundamental knowledge which is expected in industrial life; draughtsmanship, craftsmanship, and taste.

Problems may consist of articles of furniture made by individual students or may be community problems carried out by groups of pupils. Such experimental apparatus as may be useful in emphasizing scientific principles may be made in this lesson period, provided the work does not conflict with the objects of the course.

(*b.*) *Making Working Drawings.*—It is desirable that all drawings should be made in accordance with good drawing-office practice, that parts should be lettered or numbered, and that schedules showing the name symbol, materials, and other particulars as necessary should be made on the drawings. The systems in vogue should be discussed by the teacher and the importance of symbols and scheduling in connection with costing and workshop procedure should be pointed out.

(*c.*) *Wood-turning.*—The fundamental exercises in lathe-work should first be taught in order that manipulative skill in correct handling of tools may be acquired. Skill in hand and eye are demanded from the wood-turner, and the student should aim at dexterous handling of the tools and at an appreciation of subtle form. The practice models can usually be put to valuable use in the work of mechanics. For instance, cylinders may be cut obliquely for examples in stability; long- and short-cut exercises when completed may be made very useful as examples in conic sections; parting-tool exercises may readily furnish many pieces which can afterwards be used as reels for resistance coils, etc.

REFERENCE BOOKS.

Problems in Wood-turning—Crawshaw (Manual Arts Press). Price, $1.

Furniture Design for Schools and Shops—Crawshaw (Manual Arts Press). Price, $1.75.

Handcraft in Wood and Metal—Hooper & Shirley (Batsford). Price, $2.50.

(2.) SHEET-METAL WORK.

(*a.*) *Practice.*—Objects involving the development of the cylinder, rectangular prism, cone, and splayed work, introducing the following methods of fastening: Butt, lap, and lock seam joints. Soldering by means of soldering-copper. Simple wiring in the flat. The following machines may be used: Burring, turning, folding, and forming.

(*b.*) *Theory.*—Solder, its composition and manufacture; fluxes, kinds and choice. Manufacture of tinplate and galvanized iron. Grades, cost, calculation of stock. Mensuration of all objects constructed. Capacity of all containers. Designing containers to hold a given quantity of material. Cost of material and labour.

Text-book: Essentials of Sheet-Metal Working—Daugherty (Drake & Company).

(3.) FORGE-WORK.

The Forge.—Description; types; the proper building and care of the forge fire. Kinds of fuel; effect of excessive blast; scaling; oxidizing.

Projects.—Numerous exercises in drawing out and bending, using stock not heavier than ⅜-inch round. Practice in tool manipulation. Stakes, staples, eyebend, double eye, meat-hook, gate-hook, ring-bend, and such similar articles. Drawing-out exercises—square to square, square to round, round to round, round to cone.

A simple weld in ¼-inch round stock makes an interesting change and one easily within the range of a boy at the end of his first year. A chain-link is suggested as suitable.

Calculations for stock are most important and the exercises suggested afford every opportunity for the teaching of workshop mathematics. To find the cost of the object by calculating the time and material should form part of the instruction in this work.

Text-book: Exercises for Forge Shop Practice (Buffalo Forge Co., Buffalo, N.Y.). Price, 50c.

REFERENCE BOOKS.

Hand Forging—Wrought Iron—Googerty (Popular Mechanics Co., Chicago).

Forging of Iron and Steel—Richards (Van Nostrand).

(4.) MACHINE-SHOP WORK.

(*a.*) *Workshop Drawing.*—(1.) Instrumental drawings, use of different lines and their meaning. (2.) Notations—method of using and importance. (3.) Titles—various methods used; relation of component parts in detail drawings to assembly drawing.

(*b.*) *Shop Science.*—Spark tests for metals; the theory of polishing; methods of polishing; methods of fastening metals together; lathe and shaper mechanisms briefly outlined; threads—methods of representing, external, internal, right and left hand.

(*c.*) *Shop Organization and Methods.*—(1.) Simple outline of modern production methods. (2.) Making of simple chucking diagrams.

(*d.*) *Machine-work.*—Drilling: (1.) Locating holes in thin metal and drilling same. (2.) Simple countersinking. (3.) Drilling deep holes in round stock in lathe and drill-press.

Lathe-work: Straight chuck turning to one diameter, rough and finished turning; chuck turning to various diameters; knurling; polishing (use of polishing-head); drilling in lathe.

Limit measuring $^1/_{64}''$ + – – steel rule.

(*e.*) *Bench-work.*—Filing; rough filing; filing to a line; filing to an angle (template); draw-filing.

Drilling, tapping, and reaming: Laying out holes; tap-drill sizes; tapping with taper tap and tap-wrench; threading with stocks and dies; simple reaming in thin metal to enlarge holes.

Riveting: Fastening parts together with countersunk rivet.

Bending: Cold bending over mandrel.

Shop science: Methods of locating centres for cylindrical work; analysis of shaper mechanism; hardening and tempering for duplication; cutting compounds; friction, its effect on lathe centres.

Shop organization and methods: (1.) Types of gauges used to standardize production. (2.) Methods employed to duplicate parts.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Machine Sketching and Drawing for Night School Students (Copp, Clark Co.). Price, 37c.

Machine Shop Practice—Kaup (Wiley & Sons).

Principles of Machine Work—Smith (Industrial Education Book Co., Boston).

Machine Construction and Drawing—Ingham (Routledge & Sons, London).

A Manual of Machine Drawing and Design—Low & Bevis (Longmans, Green).

Machine Drawing, Books I. and II.—T. Jones and T. G. Jones (Heywood, Manchester, Eng.).

A Primer of Engineering Science—Ewart S. Andrews (James Selwyn & Co., London).

Second Year.

English.

READING AND ORTHOEPY.—As prescribed for Grade X. (Advanced Course, Junior Grade).

WRITING AND SPELLING.—As prescribed for Grade X. (Advanced Course, Junior Grade).

LITERATURE.—As prescribed for Grade X. (Advanced Course, Junior Grade).

COMPOSITION.—As prescribed for Grade X. (Advanced Course, Junior Grade).

SUPPLEMENTARY READING.—First-year Course continued.

Citizenship and Economics.

First-year Course continued.

PROVINCIAL AFFAIRS.—The Provincial Government. Municipal Government. Courts of Law. Education.

RIGHTS AND DUTIES OF THE CITIZEN.

Text-book: Jenkins' Canadian Civics.

REFERENCE BOOKS.

Outlines of Economics—R. E. Nelson (G. Bell & Sons).
How We Pay Each Other—Wood (Macmillan & Co.).
Common-Sense Economics—Le Mesurier (John Murray).

French (for students taking the course leading to Matriculation).

As prescribed for Grade X. (Advanced Course, Junior Grade).

Mathematics.

ARITHMETIC.—Commercial arithmetic; bank discount and interest; partial payments; present worth of stocks and bonds; exchange. Mensuration extended to the cone, sphere, and pyramid. Trigonometric ratios of sine, cosine, and tangent, and application of angles of 45 degrees, 30 degrees, and 60 degrees. Dominion High School Arithmetic.

ALGEBRA.—Factors; H.C.F. and L.C.M.; fractions; problems in simple and simultaneous equations; quadratics; simultaneous quadratics; simple graphs and interpolation use of logarithms. Hall & Knight's Elementary Algebra.

GEOMETRY.—Theoretical treatment of the work of Parts 1 and 2 of Hall & Stevens' School Geometry, on angles, triangles, and quadrilaterals; loci. The circle; symmetry, chords; angles in a segment; tangents, to page 178. Hall & Stevens' School Geometry.

REFERENCE BOOKS.

An Introduction to Practical Mathematics—Saxelby.
A Course in Practical Mathematics—Saxelby (Longmans & Co.).

Applied Mechanics.

Experiments and observations should precede the explanations, thus giving the pupils an opportunity of drawing their own conclusions without suggestion or anticipation. Neat sketches of the apparatus used should accompany the notes taken. The inferences or explanations will follow in proper sequence.

More difficult questions dealing with work and horse-power; diagrams for variable loads; levers; compound, bent, inclined forces; systems of parallel forces; centre of and resultant of parallel forces; couples. The different wheel and axle, Weston pulley, mechanical advantage, velocity ratio, mechanical efficiency, and theoretical advantage; revise inclined plane, screws, forms of screw-threads, right and left hand, single and double thread; screw and lever in combination, practical examples; worm and worm-gear, differential screw, conversion of motion and transmission of power, belts open and crossed, fixed and loose pulleys, friction-wheels, tooth-gears. The laws of friction, machine analysis.

GRAPHIC STATICS.—Forces in simple frames.

HYDROSTATICS.—The pressure of water, principle of Archimedes; Pascal's Law, examples; machines for raising water, pumps, lift-pumps, force-pumps.

PNEUMATICS.—Diving bells, caissons, the barometer, Boyle's and Charles' Laws.

DYNAMICS.

(*a.*) *Kinematics.*—Revision and amplification of first-year work.

(*b.*) *Kinetics.*—Newton's three laws, with a special emphasis on the second one. The unit of force—dynamical and gravitational. The fundamental kinetic equation P=mf. Energy; potential, kinetic.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Applied Mechanics for Beginners—Duncan (The Macmillan Co., Ltd.).
Applied Mechanics—Cryer & Jordon.
Applied Mechanics—Jamieson (Chas. Griffen & Co., London).
Elementary Mechanics—Morley & Inchley (Longmans, Green & Co.).
Theoretical Mechanics—J. Edward Taylor (Longmans, Green & Co.).
Mechanics—Merchant & Chant (The Copp, Clark Co., Ltd.).

Physics.

SOUND.—How produced; periodic and aperiodic vibrations; music *vs.* noise; transmission, wave theory; rate of transmission in solids, liquids, and gases; intensity and laws governing it; amplitude, reflection; echoes; speaking-tubes; acoustical requirements for auditoria; pitch, musical scales, vibrations of strings; plates, rods, and organ-pipes, with the production of overtones or harmonies; the guitar, violin, flute, cornet, French horn, bugle, clarinet, trombone, the human ear, the human voice.

LIGHT.—Nature; how propagated; reflection from plane mirrors; concave and convex mirrors; images; photometry; candle-power; intensity of illumination; candle foot; Bunsen's and Rumford's photometers. Refraction; index of refraction; total reflection; prisms, lenses, prismatic reflectors, luxfer prisms; images produced by lenses, real and virtual; determining focal length of lenses; the simple microscope; compound microscope; the camera; principles and practice of photography; human eye, binoculars, terrestrial and astral telescopes, dispersion, colour, colour values, spectroscope and its use; polarimeter and polarized light—principles involved.

MAGNETISM.—Natural and artificial magnet; permanent and temporary magnets, polarity, magnetic field; induced magnetism and methods of induction; retentivity, magnetic attraction and repulsion; terrestrial magnetism, mariner's compass, geographic and magnetic poles, inclination and declination, the dipping needle, isogonic and isoclinic lines.

ELECTRICITY.—Voltaic cells, simplest forms, current flow, nature of electrical current; conductors and non-conductors; polarization and methods of depolarization; some of the most common types of cell and the probable chemistry of these; galvanoscope; field of force about a conductor; galvanometer, electromagnet; electric bell; telegraph signals; voltmeter, ammeter; chemical effect of the current; electrolysis, electrolytes, electroplating, electrotyping, electrometallurgy; secondary and storage cells; electrical measurements, ohms, volts, amperes; tangent galvanometer; Wheatstone bridge and modifications; voltameters; heating effect; incandescent lamp; arc lamp; electric furnace; induced currents; laws of induction; induction-coil; spark-coil; direct-current dynamo; making models of same; the telephone, transformer; grouping cells and generators; problems.

TEXT-BOOKS AND BOOKS OF REFERENCE.

The Ontario High School Physics (Copp, Clark Co., Ltd.).
Elementary Practical Physics—Watson (Longmans, Green & Co.).
A Laboratory Course of Practical Electricity—Archbold (Macmillan & Co.).

Elementary Lessons in Electricity and Magnetism—Silvanus Thompson (Macmillan & Co.).

Library of Practical Electricity—Tyrell Croft (McGraw Hill Book Co.). Price, $14 per set.

Chemistry.

Solution, crystallization, filtration, saturation, natural waters, air in water, solids in water.

AIR.—Oxygen and nitrogen, mixtures and compounds, combustion, effect of plant-life on atmosphere, effect of combustion and animal life on air.

WATER.—Hydrogen, preparation and properties, chemical composition of pure water.

Drawing and Design.

(*a.*) Workshop sketching of machine parts.
(*b.*) Tracing and blue-printing.
(*c.*) Geometrical drawing.
(*d.*) Othographic projection, sections, and the development of surfaces.
(*e.*) Lettering.
(*f.*) Design.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Furniture Design—Crawshaw (Manual Arts Press).
Studies in Line and Mass—E. A. Branch (Ralph Holland & Co., London).
Copper Work—Rose (The Davis Press, Worcester).
Descriptive Geometry—H. F. Armstrong.
Geometrical Drawing for Schools and Colleges—McLeod (Foster Brown, Montreal).

Shop-work.

(1.) WOODWORK.—Individual projects of a more difficult nature than in first year. Community work on a larger scale. The problems should call for draughtsmanship, design, craftsmanship of a higher order than heretofore, and cost of material and time should be carefully calculated.

Lathe-work.—Projects which call for more modelling than in the first year. Face-plate and chuck turning. Finishing and polishing.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Furniture Design for Schools and Shops—Crawshaw (Manual Arts Press).
Handcraft in Wood and Metal—Hooper & Shirley (Batsford).
Carpentry—Griffith (Manual Arts Press).
Problems in Wood-turning—Crawshaw (Manual Arts Press).

(2.) SHEET-METAL WORK.

(*a.*) *Practice.*—Continue work of the first year, but with objects of increasing difficulty in development and construction; for instance, pipe-work involving intersections of cylinders at various angles. Conic sections should be studied. The following machines may be used: Wiring, setting-down, double-seamer.

(*b.*) *Theory.*—Solders and fluxes; calculation of stock; mensuration of all objects constructed; cost of material and labour.

Text-book: Essentials of Sheet-metal Working—Daugherty (Drake & Co.).

(3.) FORGE-WORK.—A little heavier stock may now be introduced, and in addition to first-year exercises, upsetting, punching, bending, twisting, and welding should be taken up, and a beginning made in tool-making.

(*a.*) *Upsetting.*—In preparation for bending in rectangular stock such as bracket; in preparing scarf for welding, etc.

(*b.*) *Punching.*—Expanded ring, clamps, etc.

(*c.*) *Twisting.*—Ornament for light tools such as scriber, brace for bracket.

(*d.*) *Welding.*—Several welds which do not require much tool manipulation, such as ring-weld, welded eye, pile or faggot weld.

(*e.*) *Tool-steel.*—Emphasis on careful handling and why; hardening and tempering of some light articles, such as punch, scriber, screw-driver.

Time and material should always be calculated in order to arrive at the cost of the article.

Text-book: Exercises for Forge Shop Practice (Buffalo Forge Co., Buffalo, N.Y.). Price, 50c.

(4.) MACHINE-SHOP WORK.

(*a.*) *Practice.*—Lathe-work; rough and finish turning between centres; taper turning with compound rest; turning with automatic hand-feed; knurling; simple forming to template.

Limit measurements, $^1/_{128}''$ + (Vernier gauge).

(*b.*) *Shaping.*—Planing parallel sides to thickness in vice attachment; squaring ends; use of automatic feed.

(*c.*) *Drilling.*—Locating and drilling holes accurately placed; use of centre drill and reamer.

(*d.*) *Bench-work.*—Accurately laying out metal and centre dotting; removing thin stock with chisel and vice; sawing a deep slot accurately; riveting by reducing; loose riveting; tapping and use of stocks and dies on long threaded work.

(*e.*) *Workshop Drawing.*—Limit systems of dimensioning; use of various finish symbols; detail and assembly drawings.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Principles of Machine Work—Smith (Industrial Education Book Co., Boston).
Machine Shop Practice—Kaup (Wiley & Sons).

Third Year.

NOTE.—Students who desire to pass the Junior Matriculation Examinations will take the regular course prescribed by the University of British Columbia.

English.

LITERATURE.—Same as for Junior Matriculation.

COMPOSITION.—Same as for Junior Matriculation.

SUPPLEMENTARY READING.—Heroes of Science, published by Society for Promoting Christian Knowledge; Short Stories from Modern Authors.

Citizenship and Economics.

NATIONAL AFFAIRS.—The Empire, the Dominion and Provinces, how laws are made, how Parliament does business, the Premier and Council, political parties, how elections are held, departments of government, taxation, money and banks.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Canadian Civics—Jenkins.
Outlines of Economics—R. E. Nelson (G. Bell & Sons).
How We Pay Each Other—Wood (The Macmillan Co., Ltd.).
Common-Sense Economics—Le Mesurier (The Macmillan Co., Ltd.).

Mathematics.

ARITHMETIC.—Contracted methods; approximations with small values; mensuration, using logarithms; commercial arithmetic.

Text-books: Saxelby's Introduction to Practical Mathematics; Dominion High School Arithmetic.

ALGEBRA.—Use of formulæ, quadratic equations, indices, surds, arithmetic and geometric progressions, ratio and variation, logarithms.

Graphs—interpolation, graph of quadratic and cubic functions, graphic solution of problems, maxima and minima, the linear law, polar co-ordinates, area of curves, mean ordinate.

Text-books: Hall & Knight's Elementary Algebra; Saxelby's Introduction to Practical Mathematics.

GEOMETRY.—The circle—tangency, constructions on the circle, circles and rectilineal figures, rectangles in connection with circles. Geometrical equivalents of algebraical formulæ, graphic solution of quadratics, proportion, similar triangle, problems, similar polygons, proportion applied to areas.

Text-book: Hall & Stevens' School Geometry (London Edition).

TRIGONOMETRY.—Trigonometrical functions, graphs of functions; the right-angled triangle, solution of triangles, compound angles, logarithms, solution of triangles.

Text-book: Playne & Fawdry's Practical Trigonometry.

BOOKS OF REFERENCE.

Harrison & Baxandall's Practical Plane Geometry.
Palmer's Practical Mathematics for Home Study.
Hawkes, Luby, and Touton's Second Course in Algebra.

Applied Mechanics.

The whole of the matter appearing in applied mechanics by Morley & Inchley, together with the matter enumerated below not appearing therein, including principle of work and its application to machines. Friction, static and kinetic, co-efficient. Angle of repose, work absorbed by friction, friction usefully applied by clutches and brakes. Dynamometers—Kelvin and Proney brake. Screws, belt-gears, tooth-gearing, various motions—quick returns, cams, ratchets, links.

The type of work undertaken should provide an opportunity for the student to turn his knowledge of mathematics to practical use.

Practice in machine analysis should be afforded.

STRENGTH OF MATERIALS.—Stress, strain, elasticity, Hook's Law, modulus of elasticity, factor of safety, strength of cylindrical vessels to resist fluid pressure, riveted joints.

GRAPHIC STATICS.—Perfect, deficient, and redundant frames, Bow's notation, reciprocal diagrams of roof-trusses, cranes and frame structures. Bending moment and bending-moment diagrams.

HYDRAULICS.—The fundamental principles of hydrostatics, water-pressure on dams, sluices, etc.

HYDRAULIC PRESS.—Accumulators, lifts, cranes, buoyancy, hydrodynamics, orifices, head, energy, flow, water-wheels, turbines, Pelton wheels, reciprocating pumps.

HEAT ENGINES.—Historical, Hero's, Savery's and Newcomen's engines, Watt's single and Watt's double-acting engine. Description of a double-acting engine. The D. slide-valve eccentric, etc. Relative positions of these parts. Lap, lead, angle of advance. Diagram of work. The indicator, I.H.P., Boyle's Law, Stephenson's link motion. Heat—specific heat, water equivalent, mechanical equivalent of heat, properties of steam, sensible and latent heat; wet, dry, and superheated steam. Internal-combustion engines; the four and two cycle.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Mechanics—Merchant & Chant (The Copp, Clark Co., Ltd.).
Elementary Mechanics—Morley & Inchley (Longmans, Green).
Applied Mechanics—Cryer & Jordan.
Applied Mechanics—Jamieson (Chas. Griffen & Co., London).
Theoretical Mechanics—J. Edward Taylor (Longmans, Green).
Heat Engines—Ripper (Longmans, Green).
Gas Engine Principles—Whitman (Appleton & Co.).

Physics.

Taken with Mechanics and Electricity. Work done by heat. Work done by steam. Co-efficient of expansion of solids, liquids, and gases. Charles' Law. Gas thermometer. Absolute temperature. Measurement of heat. Thermal capacity—specific

heat. Change of state. Determination of the heat of fusion of ice. Determination of heat of vaporization of water.

Electricity.

In addition to the topics taken in the first- and second-year courses the following new work will be included. The recapitulatory work, whilst under the same heads, will of necessity be of an advanced character and will lead to problems of a practical nature—e.g., in dealing with calculations under Ohm's Law, instead of confining the problems to continuous current, alternating-current problems dealing with both resistance, reaction, and capacity will be undertaken.

NEW TOPICS.—Electromagnets, generator and motor fields, D.C. and A.C. magnets—calculations on same; watt and power equations and problems. Electrical horse-power; kilowatt and kilo-volt; ampere.

Conductors; sizes, calculations, line drop. Line calculations, transmission and transmission lines.

Watt meters, indicating and integrating; single and polyphase meters; construction and use.

Magnets; permeability, induction, flux density, hysteresis, saturation, hysteresis losses. Induction, inductance, Lenz's Law.

Back E.M.F. computations of inductances. Transformers in detail.

Cycle, frequency, A.C. generators, meaning of the terms instantaneous, mean, average, and root-mean-square, voltages. Current in A.C. circuits. Ohm's Law in A.C. circuits—power factor. Lag and lead.

Alternating-current calculations, vector diagrams, circle diagrams.

Distribution, high and low tension, single and polyphase. Induction and synchronous motors.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Ontario High School Physics and Laboratory Manual.
Library of Practical Electricity—Tyrell Croft (McGraw Hill Book Co., New York).
Elementary Lessons in Electricity and Magnetism—Silvanus Thompson (Macmillan.)

Chemistry.

Carbon, carbon dioxide, carbon monoxide, coal, charcoal, coke, coal-gas, flame. Chalk, lime. Salt—common, sodium, and chlorine. Properties of spirits of salt. Bleaching-powder. Sulphur dioxide and sulphurous acid. Sulphur trioxide and sulphuric acid. Acids, alkalies, and bases.

Drawing and Design.

Workshop sketching, scale-drawing, tracing, blue-printing, tinting, drawing machine parts.

DESIGN.—Principles of design, spacing, proportion, appropriateness. Design for wrought metal, sheet metal, terra cotta, wood construction, decoration of woods.

ART GEOMETRY.—Pattern-drawing and planning out designs.

DESCRIPTIVE GEOMETRY.—Orthographic projection of points, lines, solids, sections, intersections of planes.

LETTERING.—A clear, well-formed style.

Lessons in art appreciation.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Descriptive Geometry—H. F. Armstrong.
Art Geometry—Carroll.
Lessons in Decorative Design—Jackson (Chapman & Hall).
Studies in Line and Mass—E. A. Branch (Ralph Holland, London).
Practical Wood-carving—Rowe (Batsford, London).
Artistic Craft Series (published by John Hogg, London).

Heraldry, bookbinding, silverwork, and jewellery, wood-carving, wood-block printing, writing and illuminating, stained glass.

Principles of Design—Batchelder (Inland Printing Co., Chicago).

Shop-work.

(1.) BENCH WOODWORK.—Application of principles in mechanics carried out in carpentry and joinery. Problems seen in framing a wooden building. Walls and partitions. Roof-framing. Construction of trussed girders and roof-trusses. Methods of calculating strains and stresses. Models constructed to scale. Use of the steel square as a shortcut to geometrical methods.

(*a.*) *Draughting.*—Problems in roofing solved geometrically. Orthographic projection and sections of solids—the ellipse, parabola, and hyperbola.

(*b.*) *Mensuration of Carpentry and Joinery.*—Revise square root. Areas. Graphical solutions. Figures bounded by curved lines, cubic measure.

(*c.*) *Mechanics of Carpentry and Joinery.*—Resultant of two or more forces. Parallelogram of forces. Triangle of forces. Inclined forces on one plane, but not acting through one point. Parallel forces. Loaded beams. Stress diagrams for roof-trusses. Stress and strain. Shearing stresses. Methods of arranging beams. Bending moments. Calculation of the transverse strength of wooden beams. Deflection pulleys. Specific gravity.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Modern Framed Structures, Vol. I.—Johnson, Bryan & Turneaure (Wiley).

Carpentry—Griffith (Macmillan).

Carpentry and Joinery—J. W. Wiley (Macmillan).

(2.) SHEET-METAL WORK.—Greater technical skill with the tools should now be demanded and flared articles involving triangulation should be introduced.

During the two previous years projects in tin have been developed and constructed, but in the third year articles may be made in copper and decorated by repoussé or etching.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Metal Craft—P. Wylie Davidson.

Copper Work—Rose (Manual Arts Press, Peoria).

(3.) FORGING.—More difficult operations than in the second year, but involving the same exercises. Shaping heavier articles, requiring the employment of a striker. Use of such tools as flatter, fuller, and set-hammer. Articles such as grab-hook, tongs, and small hammer-head may be attempted. Welds requiring manipulative skill, such as split weld. Welded ring on welded eye. Straight weld. Three- or four-link chain.

(*a.*) *Tool-making.*—Cold chisel, cape chisel, punches, etc. Brazing, case hardening. Calculation of time and material in order to obtain cost as in previous years.

(*b.*) *Art Metalwork.*—Additional projects demanding an exercise of taste and refinement should be undertaken. Twisting, scroll-work, spindle shape spiral, interlacings, leaves and other ornamentations.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Art Metalwork with Inexpensive Equipment—Payne (Manual Arts Press).

Practical Forging and Art Smithing—Googerty (Bruce Publ. Co., Milwaukee).

(4.) MACHINE-SHOP.

(*a.*) *Lathe-work.*—Turning various diameters to .002″ limit (micrometer); cutting external and internal threads; boring with boring-bar; forming to template, concave and convex; use of jigs for holding work.

(*b.*) *Shaping.*—Planing surfaces at right angles parallel and to .002″ limit; angular planing; hexagonal planing, use of jig.

(*c.*) *Drilling.*—Drilling holes in thick metal; holes accurated, located, in alignment, and properly spaced.

(*d.*) *Sawing.*—Student will use hand and power saw.

(*e.*) *Grinding.*—Student will grind and drill by hand. Student will grind chipping-chisels, lathe and planer tools.

(*f.*) *Bench-work.*—Chipping—use of cape and chipping chisel; cutting a keyway and chipping to a line. Fitting—filing and accurately fitting a key. Scraping a surface flat to a master-plate.

(*g.*) *Workshop Drawings.*—Belting and mechanical diagrams; further use of notations and shop standards. Student should be able to make a responsible working drawing calling for all necessary operations, using component reference numbers and title.

(*h.*) *Shop Science.*—Student can set up any simple or compound train on engine lathe; knowledge of functions of any part of lathe or shaper and name the parts; calculation of setover for taper-work; cutting speeds and feeds; principles of tool-grinding for lathe tools, planer tools, and twist drills; heat treatment of metals; the properties and recognition of common metals.

(*i.*) *Shop Organization and Methods.*—Limit system of production; standardization; the use of the special machine in rapid production; systems of inspection.

Text-book: Advanced Machine Work—Smith (Industrial Education Book Co., Boston).

HIGH SCHOOL HOUSEHOLD SCIENCE COURSE.

First Year.

I. English and History.

READING AND ORTHOEPY.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

WRITING AND SPELLING.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

LITERATURE.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

COMPOSITION.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

HISTORY.—As prescribed for Grade IX. (Preliminary Course, Junior Grade).

II. Latin *or* French.

As in Grade IX. (Preliminary Course, Junior Grade).

III. (*a.*) Algebra.

As prescribed for Grade IX. (Preliminary Course, Junior Grade).

(*b.*) Arithmetic and Mensuration.

As is Dominion High School Arithmetic (Gage & Co.). General principles of Arithmetic and Mensuration; application to common problems of the arts and trades. Book-keeping, business forms and usages; bills, receipts, cheques, household budgets and accounts; collection of accounts.

HOUSEHOLD PROBLEMS THAT REQUIRE A GIRL'S ATTENTION.

Enough practical measuring and weighing to be able to recognize quantities referred to in avoirdupois, liquids, dry and linear tables.

To quickly change one denomination or one fraction to another.

Capacity of household appliances—hot-water bottles, kettles, pails, baskets, coal-bins, jars, etc.; capacity and areas of rooms.

Wholesale and retail cost of materials; computation of lesson, cost per class, per pupil, etc.

Percentage discounts.

Comparison of cost of different fuels; reading of meters and familiarity with terms.

Insurance—house, life, accident, and industrial.

Comparison of foods; meats and their substitutes; home and factory produced foods.

Problems relating to customs duties; express parcel post; freight.

Household budgets and apportionment of income; keeping household accounts.

Various standard widths of common textiles considered in terms of cost as width varies.

Questions relating to floors, walls, and roofing; covering walls with paint and paper, floors with carpets and linoleums.

City problems—cost of street-cleaning, lighting, etc.

The metric system; weights and measures; standard units; household measurement.

IV. Chemistry and Physics.

(*a.*) Work in Chemical Laboratory.

(*b.*) Work in Cookery Laboratory.

Two periods per week (50 minutes each).

1. Weights and Measures.—Use of balance and principles of measuring.

2. (*a.*) Air.—Occupies space, has weight, exerts pressure. The barometer. Readings of and construction. Warm air lighter than cold. Convection in air and water. Heating and refrigeration (convection currents). Ventilation and ventilators. Vacuum, sealing of fruit-jars and mechanical devices to assist same. Vacuum cleaner.

2. (*b.*) Air.—Its relation to fire, draughts, coal-range or gas-range. Usual impurities—dust, bacteria. The microscope and a very simple history of bacteriology. Bacteria, yeasts, moulds, and sterilization in relation to food preservation. Harmful and harmless preservation of food, wood, metal, etc. Effect of fresh air, sunshine, drying, and cold storage.

3. (*a.*) Heat.—Effects of heat—changes in size, state, temperature in solids, liquids, gases. The thermometer; boiling and freezing points, variation in boiling-point due to altitude (pressure).

3. (*b.*) Temperatures in moist and dry heat in cooking processes.

4. (*a.*) Water.—Density and how determined. Buoyancy. Lactometer. Water as a solvent (solids, liquids, gases). Other solvents. Chemical and physical change. Matter held in suspension. Filtering and decanting. Saturation. Crystals and crystallization. Evaporation. Solids in water, rain-water. Condensation. Distillation. Maximum density of water. Freezing. Latent heat of water and steam. Calorie and calorimeter.

4. (*b.*) Water.—Its relation to cookery, cleanliness, and health.

Laboratory practice to prove theories taught.

Text and Reference Books.

General Science—Caldwell & Eikenberry (Ginn & Co.).

Physics of the Household—Lynde.

Elementary Household Chemistry—Snell.

The Science of Common Life—Coppock (Allen & Co., London).

The Chemistry of Housecraft—Hall & Grünbaum (Blackie & Co.).

V. Physiology (including Hygiene, Child-welfare, and Home-nursing).

Study of the structure and function of the systems of the human body and their relation to one another.

Structure.—The cell. The digestive, circulatory. and respiratory systems. The proper care of each to maintain a normal condition of health.

Food.—Its general composition and how it is used in the body.

As much practical and laboratory work as possible.

Text and Reference Books.

Essentials of Health—Stowell.

Anatomy and Physiology—Kimber.

The Human Mechanism—Haigh & Sedgewick.
Personal Hygiene—Pyle.

VI. Dietetics and Cookery.

MARKETING.—Foodstuffs, sources and preparation; varieties; cost; choice and tests; visit to market, grocery, and meat stores, dairies, and manufactories.

FOODS.—The food essentials. Food value. Weighing and measuring commercial food quantities and reduction to kitchen quantities in order to lead up to providing meals at certain costs.

Practice in the application of the principles of cookery to as wide a range of problems as possible in house quantities.

Personal responsibility in use of equipment, ovens, etc. Fireless cookery.

Canning of fruits, vegetables, meats, etc.

HOME MANAGEMENT.—Care of kitchen, pantry, and equipment. Dining-room, table-setting, decoration, and service.

LAUNDRY-WORK.—General care of kitchen linen.

TEXT AND REFERENCE BOOKS.

Food Study—Wellman.
Successful Canning, Preserving—Powell.
The Boston Cooking School Book—Farmer.
Housewifery—Balderson.
Good Housekeeping Magazine.

VII. Needlework—Garment-making and Textiles.

(*a.*) PROJECT: NIGHTDRESS.

Practical Work.—Measures; study of pattern; draughting; cutting; pinning; tracing; basting; machine and hand stitching; rolling hem; joining and sewing on lace.

Thought Content.—Habits of neatness and accuracy; care and use of tools; care and use of machines; comparison between hand and machine stitching.

Materials: Choice of material; cotton or linen; suitability; durability.

Trimmings: Suitability; quality; width and name; amount required.

Selection of pattern: Qualities of material; washing and laundering.

(*b.*) PROJECT: PRINCESS SLIP.

Practical Work.—Taking measures; cutting from pattern; fitting; tracing; marking and folding hem; simple original design in embroidery; finishing placket.

Thought Content.—Talks on the manufacture of clothing; hygiene in connection with underwear; knowledge of cotton cloth; material suitable for underwear, widths and prices; increase in ability to sew neatly; comparison between factory-made and home-made garments.

(*c.*) PROJECT: LINEN CASES FOR TABLE-LINEN.

Practical Work.—Button-holes; initial embroidery.

Thought Content.—Economy in buying and cutting; study of cotton.

(*d.*) PROJECT: CURTAINS.

Practical Work.—Hemstitching and hanging.

Thought Content.—Production and manufacture.

(*e.*) PROJECT: BED-LINEN FOR HOSPITAL BED.

Practical Work.—Folding and stitching hems and marking linen.

Thought Content.—Care in construction of garments; different ways of finishing off the tops of garments.

(*f.*) PROJECT: TOWELS.

Practical Work.—Folding narrow hems.

Thought Content.—Neat and accurate work; economy of time.

(*g.*) PROJECT: CORSET-COVER OR DRAWERS.

Practical Work.—Cutting from standard pattern; cutting and joining bias strips; placing bands.

Thought Content.—Different ways of joining lace and embroidery; study of cotton fibre; its growth and manufacture.

TEXT-BOOKS.

Dressmaking—Jane Fales (Scribner, New York).
Dresscutting and Making—E. & M. Wallbank (Pitman, London).
French Pattern Modelling for Professionals—Amy J. Reeve (Longmans, Green & Co.).
Clothing for Women—Baldt (J. B. Lippincott Co.).

VIII. Drawing, Design, and Household Art.

Work to be correlated with that of the Sewing and Dressmaking classes, as well as that of the care and decoration of the home.

Consideration to be given to the economic value of beauty and to the development of a reliable taste and appreciation of colour, form, and arrangement.

TEXT AND REFERENCE BOOKS.

Practical Geometry for Art Students—John Carroll (Burns & Oates, London).
Lessons in Decorative Design—Frank G. Jackson (Chapman & Hall).
Drawing for High Schools—Prang.
Needlecraft in the School—M. Swanson.
Needlework in School—Swanson & McBeth (Longmans, Green & Co.).

IX. Vocal Music.

VOICE-CULTURE.—The voice, its use and preservation; breathing and breathing rules and exercises. Vowels and consonants, their treatment. Rhythm, expression, interpretation, phrasing. Vocal exercises for daily practice for the attainment of agility and evenness of tone. Sight-singing and ear-training. Knowledge and use of the modulator and stave. Songs, two- and three-part. Criticism and appreciation of the work of the great masters.

X. Physical Culture.

Second Year.

I. English and History.

READING AND ORTHOEPY.—As prescribed for Grade X. (Advanced Course, Junior Grade).

WRITING AND SPELLING.—As prescribed for Grade X. (Advanced Course, Junior Grade).

LITERATURE.—As prescribed for Grade X. (Advanced Course, Junior Grade).

COMPOSITION.—As prescribed for Grade X. (Advanced Course, Junior Grade).

HISTORY.—High School History of England, Western Canada Series—Wrong (Macmillan). From the beginning to the close of the Elizabethan Age, Chapters I.–X., inclusive.

II. Latin *or* French.

As prescribed for Grade X. (Advanced Course, Junior Grade).

III. (*a.*) Algebra.

As prescribed for Grade X. (Advanced Course, Junior Grade).

(*b.*) Arithmetic and Mensuration.

As in Dominion High School Arithmetic.

Review problems of the first year; metric system; measures and equivalents.

Measurements of temperature, percentage, interest, discount, banking, household accounts, fractions.

IV. Chemistry and Physics.

(*a.*) Work in Chemical Laboratory.
(*b.*) Work in Cookery Laboratory.
Two periods per week (50 minutes each).

(*a.*) Composition of air. Composition of water. Decomposition and combination. Preparation of oxygen and hydrogen. Properties of hydrogen and oxygen. Combustion. Relation to heat. Heat of combustion. Spontaneous combustion. Fuels—solids, liquids, gases. Light and illuminants—gas, acetylene, electric lighting.

Acids and salts, acid salts, alkalies, bases and basic oxides. Reaction of acids with bases and with basic oxides.

Metals, rusts, rust-stains on fabrics.

Ionization, strong and weak acids and bases. Hydrolysis of salts. Hard and soft water and water-supply. Softening of water. Ammonia; the ammonium radicle.

(*b.*) Methods of lightening flour mixtures. Baking-powder and laboratory practice to prove theories taught.

TEXT AND REFERENCE BOOKS.

Physics and Chemistry, Books I., II., III.—Gregory & Simmons.
Physics of the Household—Lynde.
Elementary Household Chemistry—Snell.
The Science of Common Life—Coppock (Allen & Co., London).
The Chemistry of Housecraft—Hall & Grübaum (Blackie & Co.).

V. Physiology.

Recapitulation of first-year work.

Introduction to First Aid and Home-nursing begun in problems relating directly to the following: Choking, drowning, and common accidents.

Continuation of study of muscular, skeletal, and nervous systems. Excretions.

Simple laboratory-work on the organs of animals.

TEXT AND REFERENCE BOOKS.

As in first year, with addition of:—
Practical Nursing—Pyle.

VI. Dietetics and Cookery.

MARKETING.—Continued as in first year whenever possible.

COOKERY.—Heat measurements. Heat and work. The calorimeter and one hundred caloric portion. Daily requirements—fuel, protein and protective foods considered for muscle-building, energy-furnishing, and body-regulating material.

Meals planned and served to meet above requirements at varying costs. Students as guests. Table decoration and service.

HOME MANAGEMENT.—When no servant possible. Laundry-work—general care of the household linen. Consideration of water, soaps, removal of stains, etc., as taught in the course of Chemistry.

TEXT AND REFERENCE BOOKS.

Food Study—Wellman.
Chemistry of Food and Nutrition—Sherman.
Table Service—Allen.
The Newer Knowledge of Nutrition—McCallum.
Pure Food Magazine.

VII. Clothing—Dressmaking, Millinery, and Textiles.

(Students supply their own materials subject to the approval of the Instructor.)

(*a.*) PROJECT: FALL OR WINTER HAT.

Practical Work.—Taking measures; making paper patterns; cutting buckram; different stitches used in millinery; cutting and sewing-on of wire; covering, trimming; making folds, ruches, and simple hand trimmings.

Thought Content.—Good lines; good colour combinations; study of lines of face in their relation to lines of hats; good taste in hats; choice of trimming; choice of style; economy in buying and cutting; durability of different kinds of trimming; neat and accurate work; care and use of tools; care of work.

(*b.*) PROJECT: DRAFTING.

Practical Work.—Taking measures; drafting shirtwaist and skirt; developing dress from draft.

Thought Content.—Accuracy in execution; lines and form studied; hygienic nature of dress; appropriateness; necessity of economy in clothing.

(*c.*) PROJECT: SIMPLE WOOLLEN DRESS.

Practical Work.—Sponging; cutting; fitting; stitching; pressing; finishing; application of trimming; braid or embroidery.

Thought Content.—Textile study in relation to choice of materials for dress; adulterations in wool; economy in buying good material; good taste in colour and design; choice of style; suitability; use of pattern; care in cutting; marking; making; finishing and pressing; neat, accurate work; economy of time and material through wise planning.

(*d.*) PROJECT: COTTON DRESS.

Practical Work.—Made from standard pattern; alterations made if necessary; designing; buying; cutting; fitting; finishing and trimming.

Thought Content.—Texture of material; suitability; durability; amount of goods required; comparison of ready-to-wear and garments made at school or at home; relation of money spent for dress to that of other clothing; ethics of shopping; keeping accounts and cost of wardrobe; wool and woollen fabrics, collection of samples, widths, and prices.

(*e.*) PROJECT: HOUSEHOLD DECORATION—MAKING AND HANGING DRAPERIES.

Practical Work.—Selection of material and trimming; cutting; folding; embroidering bands; hanging.

Thought Content.—Colour scheme for curtains, draperies, and rugs; good designs, suitability and cost; artistic and hygienic draperies.

VIII. Drawing, Design, and Household Art.

Designing and the making of patterns. Embroidery, applique, stencilling, etc. Artistic principles involved in the clothing of the person; the proportions of the human form; true use of line, form, texture, colour, harmony, contrast. in obtaining effects.

Study of historical styles in dress. Costume-designing.

IX. Vocal Music and Elocution.

MUSIC.—More advanced training than first year, with increased difficulty in part songs, glees, and madrigals.

ELOCUTION.—The elements of elocution. The voice as a musical instrument. The breath; breathing and gesture exercises; nose-breathing; breath-pauses and throat-rests; the breath-sounds of speech; phonation; vocal consonants; vowels; resonance; voice-production exercises; register; flexibility; distinctness; selections for declamation.

Musical and dramatic appreciation; consideration of the work of the great masters.

X. Physical Culture.

Third Year.

I. English and History.

LITERATURE.—As prescribed for Junior Matriculation.

COMPOSITION.—As prescribed for Junior Matriculation.

HISTORY.—High School History of England, Western Canada Series—Wrong (Macmillan). From the close of the Elizabethan Age to the present time, Chapters XI.–XXII., inclusive.

II. Latin *or* French.

As prescribed for Junior Matriculation.

III. (*a.*) Algebra.

As prescribed for Junior Matriculation.

(*b.*) **Arithmetic and Mensuration.**

Problems in measures and equivalents. Measurements of temperature, percentage, interest, discount, banking, household accounts, fractions.

IV. Chemistry and Physics.

(*a.*) Work in Chemical Laboratory.

(*b.*) Work in Cookery Laboratory.

Four periods per week (50 minutes each).

(*a.*) Organic radicles. Hydrocarbons and alcohols. Esters and fats. Hydrolysis of esters. Saponification. Soaps—commercial soaps, foreign ingredients in commercial soaps, special soaps and scouring-powders. Solution and emulsification of fats. the cleaning of fabrics. Chemistry of textiles. Bleaching, bluing, dyeing. The general composition of foods—carbohydrates.

(*b.*) The function of food; the digestion of foods; foods of vegetable origin and of animal origin.

PHYSICS.—Elementary electricity and magnetism. Application to household appliances—lighting, heating, electric toaster, percolator, iron, stove, electric bell. Fuse-plugs. Meter and reading of meter. Telephone. Electric motor. Light—reflection and refraction. Laws of reflection and refraction. Composite nature of white light. The lens and optical instruments.

Laboratory practice to prove theories taught.

V. Physiology (including Hygiene, Child-welfare, and Home-nursing).

FIRST AID.—Common injuries to the muscular and bony system and the skin. Simple bandages and their use.

HOME-NURSING.—The sick-room; bed-making; baths; taking temperatures, pulse and respiration. Symptoms and treatment of common diseases—application of poultices, etc. Invalid diet.

CHILD-WELFARE AND CARE OF THE BABY.—Care of food and dress of the infant and small child. Visits to hospitals.

TEXT AND REFERENCE BOOKS.

First Aid to the Injured—Cantile.

Home Nursing—Cosgrave.

The Care and Feeding of Children—Holt.

CONSIDERATION OF THE HOME.—Design, construction, decoration, and care. Work to be correlated to the courses given in Art and Science. The construction of a house, from the standpoints of site, foundation, materials. Convenient and inconvenient arrangement of space. Water-supply and drainage. Finishing and decoration of floors, walls, and ceilings.

Labour-saving equipment for the home.

LAUNDRY-WORK.—From the hygienic standpoint. Visits to commercial laundries. As much practical work as possible.

TEXT AND REFERENCE BOOKS.

The Care of a House—Clarke.

House and Community Hygiene—Broadhurst.

VI. Dietetics and Cookery.

MARKETING.—As much as possible, visits to markets, stores, factories, etc. Written reports on market.

FOODS.—Costs, fuel value, protein balance, and vitamine content of foods. Criticism of food advertisements, recipes, etc.

Meals planned and served to paying guests. Invalid and children's diets The lunch-box.

Home management and the duties of servants. Laundry-work carried out in conjunction with the lessons in Chemistry.

As much practical work as possible.

TEXT AND REFERENCE BOOKS.

As in second year, with addition of:—

Housewifery—Balderson.

Home Economics Journal

VII. Clothing—Dressmaking, Millinery, and Textiles.

(*a.*) PROJECT: WINTER COAT OR TAILORED CLOTH DRESS OR SUIT.

Practical Work.—Choice of style; choice of material; cutting; marking; tailor basting; fitting; pressing; setting in pockets; finishing seams; shrinking and placing of canvas finishings.

Thought Content.—Selection of material; choice of colour; suitability to wearer; suitability to other dress; general utility coat; simplicity in style emphasized and care in buying; texture and durability to be considered; comparison to be made with ready-to-wear coats; good lines and careful, neat finishings; adjustment of sleeves, collars, and linings.

(*b.*) PROJECT: DRAFTING.

Practical Work.—Measurements and drafting of tight-fitting waist.

Thought Content.—Proportions of human figure; lines of draft; fitting, where and how; appearance of properly fitted garment; economy of time; economy of buying and cutting.

(*c.*) PROJECT: SPRING OR SUMMER HAT.

Practical Work.—Making wire frame, use of tie-wire; shaping hat; covering; sewing braids; covering with lace or net; making bows, flowers, etc.; renovating silk, ribbon, or velvet.

Thought Content.—Choice of design, colour, and trimming; harmonizing with the dresses to be worn; straws or braids, their prices and wearing qualities; effect of sun on the hat; simplicity; power to do original thinking and planning in reference to trimming.

(*d.*) PROJECT: SIMPLE EVENING DRESS.

Practical Work.—Buying; cutting; drafting; fitting; making; finishing.

Thought Content.—Economy in dress; economy in buying; economy in time, in planning of work; simplicity; good lines; beautiful colour combination and suitability to wearer; healthful, comfortable clothing; care of clothing; cleansing of silk and woollen goods; study of silk fibre; samples of different kinds, widths, and prices; personal budget; cost of High School girl's wardrobe for three years.

(*e.*) PROJECT: BABY'S DRESS OR SLIP.

Practical Work.—Cutting; fitting; making; finishing.

Thought Content.—Use of patterns; construction of garments; hygienic qualities and suitability; cost of child's wardrobe; good lines and careful, neat finishings denote the beauty of dress.

VIII. Drawing, Design, and Household Art.

Designing and the making of patterns.

Work of the second year amplified.

IX. Vocal Music anl Elocution (Voice Exercises).

MUSIC.—Solos, part-songs, glees, madrigals.

ELOCUTION.—Development of ease, freedom, and distinctness in articulation; flexibility of the organs of speech; creative processes as opposed to imitative methods; stimulation as opposed to coaching; literary appreciation *versus* technical analysis.

Musical and dramatic appreciation; consideration of the work of the great masters.

X. Physical Culture.

NATURE STUDY COURSE IN FOODS.

FOR RURAL SCHOOLS WHERE THE COOKING OF HOT LUNCHES IS UNDERTAKEN.

Forty half-hour lessons during the school-year—A to be followed by B the same week. To be given in a class-room as an ordinary lesson.

Equipment.

Set of 15 food charts (Superintendent of Documents, Washington, D.C., U.S.A.)	$1 00
Registry of Foods, by R. W. Goldsbury (Whitcomb & Barrows, Huntington Chambers, Boston, U.S.A.)	1 10
1 enamel plate	10
1 small spirit-stove or oil-stove	35
1 enamel cup and saucer	25
1 small enamel saucepan and lid	25
1 vegetable-knife	10
1 tablespoon, 1 teaspoon, 1 fork	15
	$3 30

Many of these the students might donate to save expense, also flour-bags to act as dish-towels. A bowl for washing up would be a convenience.

Samples of the following would greatly assist: Tea, fermented and unfermented, of different grades; coffee, similarly, and cocoa; cereals of all kinds, whole and ground, etc.; dried fruits, sugars of all kinds; milk in its component parts.

The price of all food materials used should always be discussed, including the relative cost of 1 cup of flour, sugar, oatmeal and other cereals, butter, etc.

A.—Water.

Sources; appearance; taste; hard and soft; detergent power; impurities; different forms (ice, etc.). (Sugar, salt, cold water.)

B.—Water.

Amount needed per day; uses in body; how taken; foods rich in water; effect of heat on water; simmering and boiling; boiling as a means of purifying and softening; water rate in local city; country and city water supplies. (Saucepan, cold water, heat to turn all water to steam, examine residue.)

A.—Tea.

Source; where grown; how prepared for sale; various kinds and varieties; cost. (Tea of various kinds and preparation.)

B.—Tea infusion.

Method of preparing; properties of infusion; when well and ill prepared; use of tea in dietary, people for whom suitable; tea infusion on leaves 3, 6, and 12 minutes, respectively, to be tasted and results noted. (Tea; boiling water.)

A.—Milk.

Milk as a food for babies and calves; food principles illustrated by milk and chief use of each; separated or skim milk, its food value; cost of milk, separated milk; cream; absorbability of milk; diseases from milk; care of milk in dairy, transit, and home. (Milk, onions, milk exposed to dust, milk in its component parts.)

B.—Milk and Junket.

Review—composition and food value; digestibility of milk; illustrate by babies; explain rennet and its action on milk, compare with processes in human stomach; make junket; deduce why milk should be sipped slowly, not taken quickly. (Milk, sugar, junket tablet, nutmeg.)

A.—Cocoa.

Source; nature; how prepared for sale; composition; food value; chocolate and cocoa prepared; pictures of cocoa trees, pods, and cocoa powder in process of manufacture. (Cocoa samples.) Price.

B.—Cocoa (Beverage).

Review composition; method of preparing cup of cocoa; need for boiling; comparison of tea and cocoa for food value and preparation. (Cocoa, sugar, milk, boiling water.)

A.—Fruits (Acid and Salt-supplying).

Classification; test for sugar, water, cellulose, and acids; dietary value; three methods of preserving fruits. (Fresh fruits, dried fruits, canned fruits, jam, jelly.)

B.—Fruits.

Review composition; digestibility of raw and cooked; cellulose; effects of cooking; methods of preparing and cooking fresh and dried; prepare an orange; stew prunes previously soaked. (Orange, six prunes, water, sugar, lemon, or fruit salad.)

A.—Cereals (Quick Fuel-supply).

Name explained; kinds; sources; products; test for starch (sugar when chewed); cellulose; use of cereals to the plant. (Samples of whole grain, ground—coarse and fine—grains, other preparations of grains; a whole ear of corn or barley; plate with small samples of flour, salt, cornmeal, baking-soda, corn-starch, etc., and iodine.)

B.—Cereals.

Review composition; explain digestion of starch; need for long cooking; make lumpy and smooth porridge, turn on to a plate and compare; make smooth last and continue to cook same for ½ hour, compare for taste with that cooked 5 minutes; methods of preparing and cooking. (Fine oatmeal, boiling water, salt.)

A.—Starch.

Sources; nature, use in body; effect in cold and boiling water; use in laundry-work. (Starch, cold water, boiling water.)

B.—Starch Sauces (Fuel Foods).

Review porridge; three methods of separating starch grains; thickening properties; make three sauces of varying thickness; effect of boiling; time to boil, need of boiling, sweet and savory sauces. (Starch, sugar, butter, cold and hot water.)

A.—Wheat (Fuel, Muscle and Bone Builder).

Part of plant; storehouse; structure of grain; various grades and kinds of flour; food value of these (whole wheat and various kinds of flour from it.)

B.—White Flour.

Test for starch and gluten; nature, use in diet, use in bread-making of gluten. (Flour, cold water, starch from flour, a good gluten-ball, well cooked.)

A.—Sugar (Fuel Food).

Sources; manufacture; kinds; use in body; effect of too much sugar on appetite. (Pictures of sugar cane and beets; or various grades of sugar.)

B.—Sugar.

Review composition and uses; effect of heating to charring point; make small quantity of fudge; discuss when candy to be eaten; home-made *vs.* bought candy. (Brown sugar, milk, butter, flavouring.)

A.—Cheese (Fuel Food and Tissue-builder).

How prepared; various kinds; value in diet. (Rennet, sour milk, different kinds of cheese.)

B.—Cheese.

Composition; food value; digestibility; effect of dry and moist heat on cheese; methods of cooking; make cottage cheese. (Sour milk, salt, pepper, cheese-cloth.)

A.—Eggs (Tissue-builder).

Seven parts of an egg; food value of an egg; illustrate by little chick (2 eggs); cause of eggs decaying; preservation of eggs.

B.—Eggs.

Review composition; effects of heating out of shell by dry heat and moist; eggs cooked in shell three ways; deduce directions for cooking eggs (4 eggs).

A.—Vegetables (Salt-supplying).

Classification as to parts of plant; food value; test for starch; test for sugar; test for cellulose and water. (Vegetables of all kinds.)

B.—Fresh Vegetables (Salt-supplying).

Review composition and uses; preparation of various kinds of cooking; methods of cooking discussed. (Carrots, turnip, beet, onion, cabbage, green beans.)

A.—Dried Vegetables (Tissue-builders).

Legumes; storehouse of food; composition; food value; contrast with greens and roots; cost of legumes; foods to combine with legumes. (Legumes of various kinds.)

B.—Potatoes (Salt and Fuel-supplying).

Composition; food value; methods of preparing and cooking; cooked in skin and without; test water for starch. (Two potatoes, boiling water.)

A.—Green Vegetables (Salt-supplying).

Composition and value in diet; discuss vegetable gardens; kinds which may be grown. (All kinds of greens, wild and cultivated.)

B.—Salads.

Kinds of vegetable cold salads, cooked and uncooked, their preparation; prepare a simple salad and dressing. (Salad material, cream, sugar, vinegar, salt, pepper.)

A.—Meat (Tissue-builder).

External structure; rules for selecting; care of meat; tender and tough meat, where found. (Diagram of ox and sheep; borrow a good joint, if possible.)

B.—Meat.

Internal structure of lean meat; contents of meat-tubes; connective tissue; apply dry heat to meat. (Scraped meat in cold water, piece of boiled meat, heat meat-juice.)

A.—Fish (Tissue-builder).

Classification; local kinds available; structure; compare with meat; cost compared with meat; rules for selecting; care of fish. (A whole fresh fish.)

B.—Fish.

Composition; compare with meat for food value and digestibility; soak fish in water; apply dry heat to fish and boil a piece of fish; compare with meat; discuss methods of cooking; steam small piece of fish. (Small piece of cooked meat, raw fish.)

A.—Yeast (Raising Agent).

Nature; growth; activity; four essentials for growth; result of growth; use of yeast in bread-making; test for good compressed yeast. (Dry and compressed yeast, fruit-juice fermenting.)

B.—Yeast.

Review former lesson; three forms of yeast; perform eight experiments to show the best conditions for fermentation by yeast-plant in bread-making. (Yeast, flour, sugar, cold and hot water, boiling water, salt.)

A.—Soda and Cream of Tartar (Raising Agent).

Sources; nature; manufacture; texture; cost; effect of uniting and adding moisture; baking-powder. (Soda, cream of tartar, cold and hot water.)

B.—Soda and Acids.

Review their effect on each other; use of carbonic-acid gas in cookery; six experiments to illustrate how to use to produce most CO_2. (Soda, cream of tartar, sour milk, molasses, vinegar, cold and hot water.)

A.—Table-setting.

Things required for general and personal use for dinner; how to set table; illustrate on blackboard. (Ask students to bring these for next lesson.)

B.

How to set and wait at table; table etiquette; how to clear away after a meal. (Table linen, silver, cutlery, china, flowers.)

A.—Menus.

Directions as to the choice of dishes for one day's meals.

B.—Flowers arranged for Table Decoration.

(High and low vases for long and short-stalked flowers, wild and cultivated.)

NOTE.—A preliminary course might be given on the above plan dealing with choice, manufacture, cost, at one lesson, and cleaning and care at the next lesson of the following: Sink, floor, windows, silver, cutlery, white wooden utensils, finished woodwork, tin, enamel, and aluminium ware, furniture, hair and household brushes, kitchen range, soap, scouring agents.

EXAMINATIONS AND PROMOTION OF PUPILS.

Elementary Schools.

There must be in all Elementary Schools a general classification at the end of each term. Pupils should be transferred to a higher or lower grade whenever it appears that their individual interests require it, without regard to the periodical reorganization of classes.

Examinations held for the purpose of classifying the pupils of a graded school shall be oral for classes below the Fourth Grade, but in all classes the judgment of the teachers who have respectively taught the pupils during the preceding term should chiefly determine the promotion list.

Examinations for admission to High Schools will be held on the last three teaching-days in June at all places where High Schools are in operation, and at such other centres as may be determined and announced by the Department from year to year.

The Department will promote, on the recommendation of the principal, the most proficient of the pupils of Grade VIII. attending an Elementary School of seven or more divisions. The other pupils of the school who desire to obtain Entrance Certificates must take a written examination on Penmanship, Dictation and Spelling (one paper); Grammar and Composition (one paper); Arithmetic; Geography; Drawing. To be successful a candidate must obtain an average of 60 per cent. in these five papers. Those taking the examination (the lowest in rank) must comprise at least 40 per cent. of the pupils of Grade VIII. who have covered the prescribed course satisfactorily in all subjects and are reported by the principal as fit to undertake High School work. All other candidates for Entrance must take the written examinations in the above-mentioned subjects and satisfy the Department that they have a good knowledge of the prescribed work in English Literature, British and Canadian History, and Nature Study and Hygiene.

Pupils of Elementary Schools in a school district having a High School, after passing a satisfactory examination and being declared eligible for promotion from an Elementary School to a High School, shall not be received as pupils in the graded schools of such district.

All pupils of British Columbia schools (both public and private) must hold High School Entrance Certificates before they are eligible for admission to a High School. Any pupil holding a High School Entrance Certificate obtained in another Province or country may be admitted to a High School in this Province on probation, subject to the approval of the Department.

High Schools.

The principals of all High Schools shall hold promotion examinations at the end of the school-year or during the school-year, or at both times. These examinations should take the form of either oral or written tests. The promotion lists should, however, be largely determined by the assistant teachers who have taught the pupils.

Pupils who fail to do well in part of their examinations should not be required to repeat the year's work in those subjects in which they have shown a marked degree of proficiency, but should be allowed to proceed to the next year's work in such subjects.

Towards the end of June each year the Department will conduct examinations for promotion from Grade IX. to Grade X. and from Grade X. to Grade XI. These examinations are obligatory in the case of pupils attending Superior Schools, but not in the case of pupils attending High Schools. Private School pupils who pass the Departmental Examinations for Grade IX. may enter Grade X. of a High School and those who are successful in the Departmental Grade X. Examinations will be admitted to Grade XI.

Written examinations will also be given by the Department on the following courses: Junior Matriculation, including Normal Entrance, Senior Matriculation, Third-year Commercial, Third-year Household Science, and Third-year Technical. Examination time-tables will be forwarded to each examination centre early in June.

In the High School Examinations candidates to be successful must make at least 40 per cent. on each subject and not less than an average of 50 per cent. on all subjects.

Fees for High School examinations are as follows:—

For Grade IX. and Grade X. examinations	$5 00
For all other examinations	5 00
For a supplemental examination, per paper	2 00
For a supplemental examination, for three or more papers	5 00

Fees are to be forwarded to the Registrar of the Department at least one month before the commencement of the examination.

TEACHERS' CERTIFICATES.

1. **Academic Certificate,** entitling the holder to teach in an Elementary School or in a High School.

Qualifications—

(*a.*) A Degree in Arts, in Science, or in Literature of recognized British, Canadian, or Colonial Universities.

(*b.*) A Diploma of the Provincial Normal School, or of other Normal School or Training College approved by the Council of Public Instruction.

2. **First-class Certificate,** entitling the holder to teach in an Elementary School or in a Superior School.

Qualifications—

(*a.*) A Senior Matriculation Certificate for this Province or its equivalent.

(*b.*) A Diploma of the Provincial Normal School, or of other Normal School or Training College approved by the Council of Public Instruction.

3. **Second-class Certificate,** entitling the holder to teach in an Elementary School.

Qualifications—

(*a.*) A Junior Matriculation Certificate or Third-year Household Science Certificate for this Province. (After June 30th, 1924, applicants must hold a B.C. Grade XI. (Normal Entrance) Certificate instead of a Junior Matriculation Certificate.)

(*b.*) A Diploma of the Provincial Normal School, or of other Normal School or Training College approved by the Council of Public Instruction.

4. **Third-class Certificate,** entitling the holder to teach in an ungraded Elementary School or to fill the position of assistant in any graded Elementary School. (Certificates of this grade are no longer issued by the Department.)

5. **Temporary Certificate,** valid until the end of the school-year in which it is issued, entitling the holder to teach temporarily in any school.

6. **High School Commercial Teachers' Certificates.**

A. High School Assistant Commercial Teacher's Certificate (Temporary).

Candidates who hold an Academic Certificate or a First-class Teacher's Certificate for this Province, or its equivalent, and who have passed the examination set by the Department of Education on the subjects specified hereunder, will be granted a High School Assistant Commercial Teacher's Certificate (Temporary).

(*a.*) **Stenography (Theory):**

The principles of the Isaac Pitman system as covered by the main text-book of that system, The Phonographic Instructor.

(*b.*) **Stenography (Practical):**

The writing from dictation at a speed of not less than *eighty* words per minute from matter having a syllabic intensity of 1.5 with typewritten transcript at a rate of not less than twelve words per minute.

(*c.*) **Typewriting (Theory and Practice):**

The mechanism and manipulation of the standard machines, with ability to write at a rate of *forty* words per minute for at least ten minutes from standard test material.

(*d.*) **Book-keeping (Theory)—Single and Double Entry:**

General merchandising, commission and manufacturing businesses; single proprietorship, partnership, and corporation accounts; changing the form of ownership; plant, labour, material, and department accounts; costs accounting as far as covered

in say 20th Century Book-keeping; treatment of bank, discount, freight, bad debts, depreciation, and similar accounts; columnar journals; self-balancing ledgers; various forms for various businesses; manufacturing, trading, profit and loss accounts, and balance sheets; statements of income and expenditures, receipts and disbursements; savings and current accounts; collection and exchange; statements of banks and other corporations.

Text-books covering syllabus: Accounting, Theory and Practice—Lisle; Joint Stock Book-keeping—Hoskins; Canadian Modern Accounting—Sprott.

(*e.*) **Book-keeping (Practice):**

Making proper records and financial statements from given data; single proprietor, partnership, and corporation accounting.

Text-book: 20th Century Book-keeping.

(*f.*) **Business Practice and Statute Law:**

(1.) Business papers, receipts, releases, promissory notes, chattel and lien notes, draft bills of exchange, orders, due bills deposit slips, cheques, bank pass-books, bills, invoices, bank drafts, draft requisitions, deposit receipts, credit, notes, accounts, monthly statements, warehouse receipts, bills of lading, freight bills, debentures, leases, instalment scripts, stock certificates, stock transfers. Bills of Exchange Act; Dominion Companies Act; B.C. Joint-stock Companies Act.

(2.) Business Law: Negotiable paper, endorsement, acceptance, discharge, dishonour, protest, negotiability and assignability, accommodation papers; statutes of limitations and frauds; interest; legal tender, payments, collections; laws of partnership and companies; insurance; liability of partnership, shareholders, directors, agents, endorsers; contracts; property; mortgages; guarantee and suretyships; shippers and carriers; mechanic's lien; principal and agent; master and servant; landlord and tenant; wills and succession; copyrights, trade-marks, and patent rights.

Text-book covering syllabus: Digest of Canadian Mercantile Law—Anger.

(*g.*) **Penmanship (Theory and Practice):**

Theory and practice of penmanship; position and movement; principles of letter formation; graceful, legible business writing, ledger heading, figures, marking.

Text-book covering syllabus: Commercial Edition of the MacLean Method of Muscular Movement Writing.

(*h.*) **Arithmetic of Commerce and Finance:**

Interest, discount, commission, duties and customs, stocks and investments, partnership settlements, partial payments, equating or averaging accounts, compound interest, exchange, practical measurements, the metric system; compound interest, annuities certain, sinking funds and depreciation, formation of interest and annuity tables, the application of logarithms, and the valuation of bonds.

Text-books covering syllabus: Dominion High School Arithmetic; New Method Arithmetic; Theory of Finance—King; Interest and Bond Value—McKenzie.

(*i.*) **Economics and Economic Geography:**

Principles of production, distribution, and exchange; economic theories of value, rent, wages, profits and interest; land, labour, and capital; industrial combinations, extent, dangers, and advantages; socialism.

National and local finance; public debts, methods of extinction and conversion; sinking funds; public demain—lands, forests, minerals; principles of taxation.

Physical geography in its economic relation to the natural resources of the chief countries; the raw material of commerce—foodstuffs, textile fabrics, building material or materials for use in the arts.

Text-books: Industrial & Commercial Geography—J. Russell Smith; Outline of Economics—Ely.

B. Commercial Specialist's Certificate (Permanent).

Candidates who hold High School Assistant Commercial Teachers' Certificates and pass the examinations set by the Department on any *four* of the subjects specified hereunder will be granted a Commercial Specialist's Certificate for this Province.

(*a.*) Auditing:

Object, scope, and advantages of an audit; preliminary steps; instructions to the book-keeper before an audit; continuous and complete audits; vouchers; trial balance and balanced books; individual partnership and company ownership methods of accounting; different classes of audits, as commercial, mining, financial; valuation and verification of assets and liabilities; depreciation, discounts, bad and doubtful debts, reserve funds, etc.; preliminary expenses, directors' fees, etc.; foreign exchange; nature of profits; forms of accounts and balance sheets; auditors' reports, recommendations, and certificates.

Text-book covering syllabus: Auditing: Theory and Practice—Montgomery.

(*b.*) Business Finance:

Theory of money, its history and functions; credit; mechanism of exchange, nature and function of banks, management of reserves, note issue, redemption fund, leading banking systems of the world, especially those of Canada and the United States; clearing houses, savings banks, trust and loan companies; balance of trade, meaning and effect on exchange; the provisions of the Bank Act, the Currency Act, and the Dominion Notes Act.

Text-books covering syllabus: Money and the Mechanism of Exchange—Jevons; Money and Banking—Scott; Elements of Foreign Exchange—Escher.

(*c.*) Office Practice and Organization:

The principles of office administration, location, lay-out, and equipment; methodizing the means of communication, control of correspondence, the work of business departments, training and developing office workers, wages and incentives to efficiency.

Text-book: Management—Lee Galloway.

(*d.*) History of Commerce and Industry:

Ancient and mediæval commerce; the influence of Venice; the Crusades; the mediæval guilds and their relation to modern trade unions; commercial significance of the great geographical discoveries of the fifteenth century; the Dutch commercial ascendancy; struggle of the English, French, and Dutch for the first place in commerce; the English industrial revolution; commercial significance of the Napoleonic wars; England's industrial and commercial supremacy; French industry and commerce since the overthrow of Napoleon; the German Empire and its commercial position; recent economic growth of Russia; the Balkan States; and the commercial position of South America, Africa, Asia (especially the influence and growth of the Japanese and Chinese nations), and Oceania.

Text-book: History of Commerce—Clive Day.

(*e.*) Commercial Correspondence and Filing:

The various kinds of commercial letters, including circular letters, form letters, booklets and catalogue planning, follow-up systems, etc.; office routine and secretarial work.

Vertical filing—numerical, geographical, subject, direct name, and follow-up systems, card record systems, document and check filing; the card ledger and stock-keeping systems.

(*f.*) Commercial French or Spanish:

Commercial correspondence, invoices, bills of exchange, bills of lading, commercial papers, and commercial terms.

(*g.*) **Shorthand:**

A speed of *one hundred and twenty* words per minute from matter having an intensity of 1.5 words per minute.

(*h.*) **Typewriting:**

A speed of *sixty* words per minute from standard test material.

(*i.*) **Two Years' Approved Business Experience.**

N.B.—Examinations in commercial subjects for Teachers' Certificates will be held either at the close of the Summer School session of the University of British Columbia or at such time as may be determined by the Department of Education.

A candidate will be granted a certificate of credit on any subject of the syllabus when he meets the requirements of the Department in that subject.

7. Domestic Science Teachers' Certificates.

Every Instructor in Domestic Science must hold a British Columbia Instructor's Certificate of Qualification. Each applicant for this certificate must have had approved training and must hold a diploma from the training class for Domestic Science teachers in British Columbia, or from one of the recognized training colleges in Canada, the United States, or the United Kingdom; and also hold a Public School Teacher's Certificate or have had other approved professional standing. Every application for a certificate must be accompanied with the usual fee of $5 and a satisfactory testimonial certifying to the good moral character of the applicant.

8. Manual Training Teachers' Certificates.

Every Instructor in Manual Training must hold a British Columbia Instructor's Certificate of Qualification.

The following Instructors' Certificates are granted by the Department of Education:—

(*a.*) Temporary Certificate, valid until June 30th next after date of issuance.

(*b.*) Permanent Certificate to teach in Elementary Schools.

(*c.*) Permanent Certificate to teach in High Schools.

Every applicant for a Temporary Certificate must have had approved experience in manual work and hold a Public School Teacher's Certificate or have had other approved professional training.

Every applicant for a Permanent Certificate to teach in Elementary Schools must hold a First-class Manual Training Certificate and must hold a Public School Teacher's Certificate or have had other approved professional training. Every applicant for a Permanent Certificate to teach Manual Training in High Schools must possess the British Columbia Manual Training Teacher's Diploma and hold a Public School Teacher's Certificate or have had other approved professional training. Every application for a certificate must be accompanied with the usual fee of $5 and a testimonial certifying to the good moral character of the applicant.

Certificates from institutes similar to the following will be recognized for the Permanent Certificate to teach in Elementary Schools:—

Swedish Diploma (Nääs).
German Diploma (Leipsic).
City and Guilds of London Institute (England).
Guelph College (Ontario).
Macdonald College (Quebec).

Further practical tests will be required from holders of such certificates who desire the British Columbia Diploma qualifying them to teach in High Schools.

A training class is conducted by the Department of Education for men who desire to become Manual Instructors in Elementary Schools and who wish to obtain the Elementary School Teacher's Manual Training Certificate.

SYNOPSIS OF HOURS.

Craftsmen.	Hours.	Public School Teachers.	Hours.
A.—1. General Education or proof of accomplishment B.—1. Craftsmanship or proof of same...	200	A.—2. Proof of Training and successful teaching experience B.—2.	275
C.—1. Bench-work Course in Manual Training—Woodwork	75	C.—2. Bench-work Course in Manual Training—Woodwork	
D.—1. Drawing—Lettering Plane Geometry Solid Geometry Developments Design Blackboard	120	D.	120
E.—1. Theory—Education—General Manual Training Teaching Methods Manual Training Class-management	60	E.—2. Manual Training Teaching Methods Management Tools and apparatus	60
F.—Lighter Forms of Hand-work	60	F.	60
G.—Manual Training Practice	60	G.	60
Complete three years' course in Manual Training, projects to be drawn and made	200		200
	775		775

REQUIREMENTS FOR A MANUAL TRAINING TEACHER'S DIPLOMA TO TEACH IN HIGH SCHOOLS OF BRITISH COLUMBIA.

1. Furniture-making:
2. Wood-turning:
} Use and care of wood-working machinery.
3. Sheet-metal hand-work:
4. Art-metal work:
5. Elementary machine-shop practice—Bench-work:
} Science relating to wood and metal work.
6. Design: Art relating to wood and metal work.

Each of above units will embrace the following divisions: (*a*) Drawing; (*b*) practical work; (*c*) technical theory.

Educational methods and class-management.

8. Course of work for 1, 2, 3, 4, and 5.
9. Thesis on the subject of Manual Training.

9. Technical Teachers' Certificates.

Every Instructor in a Technical School must hold a Technical Teacher's Certificate, or a certificate permitting him to teach special subjects.

Applicants, before passing the necessary tests in subject units, will be obliged to pass an examination in English, Mathematics, and Drawing.

SUBJECT UNITS FOR TECHNICAL TEACHER'S CERTIFICATE—METALWORK.

1. Sheet-metal work:
2. Art-metal work:
3. Forging:
} Science relating to metalwork.
4. Design: Art relating to metalwork.

Each of the above units 1, 2, and 3 will embrace the following divisions: (*a*) Drawing; (*b*) practical work; (*c*) technical theory; (*d*) time-tests.

5. Course of work for 1, 2, 3, and 4.
6. Thesis on the subject of Technical Education and Vocational Training.
7. Theory of Education and problems of class-management.

SUBJECT UNITS FOR TECHNICAL TEACHER'S CERTIFICATE—SCIENCE AND ENGINEERING.

1. Magnetism and electricity.
2. Principles and practice of the gasolene-engine.
3. Mechanics.

Each of above units 1, 2, and 3 will embrace the following: (*a*) Diagrammatic sketching and illustration; (*b*) practical work; (*c*) technical theory and mathematics; (*d*) time-tests.

4. Course of work in 1, 2, and 3.
5. Thesis on the subject of Technical Education and Vocational Training.
6. Theory of education and problems of class-management.

SUBJECT UNITS FOR TECHNICAL TEACHER'S CERTIFICATE—SCIENCE AND BUILDING CONSTRUCTION.

1. Carpentry and joinery.
2. Building construction.
3. Mechanics.

Each of the above units 1, 2, and 3 will embrace the following: (*a*) Draughting; (*b*) practical work; (*c*) technical theory and mathematics; (*d*) time-tests.

4. Course of work in 1, 2, and 3.
5. Thesis on the subject of Technical Education and Vocational Training.
6. Theory of education and problems of class-management.

SUBJECT UNITS FOR TECHNICAL TEACHER'S CERTIFICATE—SCIENCE AND MACHINE-SHOP PRACTICE.

1. Machine-shop practice.
2. Mechanics.

Each of the above units 1 and 2 will embrace the following: (*a*) Draughting; (*b*) practical work; (*c*) technical theory and mathematics; (*d*) time-tests.

3. Course of work in 1 and 2.
4. Thesis on the subject of Technical Education and Vocational Training.
5. Theory of education and problems of class-management.

10. Art Teachers and Supervisors.

Every Instructor must hold a British Columbia Instructor's Certificate, Grade A or Grade B.

Qualifications for Grade A Certificate—

(*a.*) A Public School Teacher's Certificate or other approved professional training.

(*b.*) An Art Master's Certificate of Great Britain or its equivalent from any institution recognized by the Department of Education.

Qualifications for Grade B Certificate—

(*a.*) A Public School Teacher's Certificate or other approved professional training.

(*b.*) An Art Teacher's Certificate of Great Britain or its equivalent from any institution recognized by the Department of Education.

Every application for a certificate must be accompanied with the usual fee of $5 and a recent testimonial certifying to the good moral character of the applicant.

11. Music Teachers and Supervisors.

Every Instructor in Music must hold a British Columbia Instructor's Certificate of Qualification. This certificate will be granted to applicants who have the following qualifications:—

(*a.*) A Public School Teacher's Certificate or other approved professional training.

(*b.*) A satisfactory diploma from a recognized training college in Canada, the United States, or Great Britain.

Every application for a certificate must be accompanied with the usual fee of $5 and a satisfactory testimonial certifying to the good moral character of the applicant.

12. Teachers of Agriculture.

A university graduate in the Science of Agriculture who is the holder of a Provincial Normal School Diploma or has received other approved professional training will be granted a special certificate entitling him to teach Agriculture and other science subjects in a High School.

Every application for a certificate must be accompanied with the usual fee of $5 and a satisfactory testimonial certifying to the good moral character of the applicant.

All applicants for Teachers' Certificates must be at least eighteen years of age. A registration fee of $5 must be forwarded with the application for a certificate.

FORM OF APPLICATION FOR TEACHER'S CERTIFICATE.

(Post-office Address.)
(Date.)

SIR:

Being of the full age of eighteen years, I hereby make application for a British Columbia First (*or as the case may be*) Class Teacher's Certificate.

I enclose herewith certificate of moral character and fee of $5, and under separate cover am forwarding to your address my High School and Normal School Certificates.

I am,
Yours truly,

.....
(Name in full.)

To the Superintendent of Education,
Victoria, B.C.

PROVINCIAL NORMAL SCHOOLS.

Location and Establishment.

Provincial Normal Schools are situated in Vancouver and Victoria. The Normal School in Vancouver was established in 1901, and that in Victoria in 1915.

Attendance at Normal School.

In the matter of attendance the Province is divided into two districts. Every student whose home is east of Yale or whose home is on Vancouver Island shall attend the Provincial Normal School at Victoria. Students from other parts of the Province shall attend the Provincial Normal School at Vancouver. In both cases exception may be made when students have relatives with whom they may live while attending Normal School.

Admission.

Candidates for admission to the Provincial Normal Schools are required to hold a Junior Matriculation Diploma for this Province or its equivalent. In September, 1924, candidates for admission must hold a Normal Entrance Certificate for this Province or its equivalent.

Each applicant for admission is required to pass a medical examination by an officer appointed by the Department of Education before being finally accepted.

Application for admission must be made on a form obtained from the Principal. This form must be filled in and returned to the Principal at least ten days before the commencement of the session, and must be accompanied by a satisfactory certificate of good character dated within three months of the time of application.

Length of Session.

The session has a continuous duration of thirty-six school weeks. It commences in September on the Tuesday after Labour Day and extends till the last Friday in May.

The holidays during the session, the Christmas and the Easter vacations are the same as provided by the Rules and Regulations of the Council of Public Instruction for the schools of the Province.

Fees and Travelling Expenses.

The sessional fees are as follows:—

First term (payable to the Principal before enrolment in September)	$20 00
Second term (payable to the Principal before enrolment in January)	20 00

Travelling expenses of students at the Normal Schools, calculated at the rate of 5 cents per mile to and from the institution, will be paid to them by the Superintendent of Education at the completion of the session on the certificate of attendance and mileage signed by the Principal.

Management.

1. The Regulations of the Education Department shall apply to the teaching staff of the Normal School, subject to any changes that may be made by the Council of Public Instruction from time to time.

2. The Principal of the Normal School shall be responsible for the discipline and management of the students. He shall prescribe the duties of the staff, subject to the approval of the Council of Public Instruction. The staff shall carry out the instructions of the Principal with regard to discipline, management, methods of study, and all matters affecting the efficiency of the Normal School and the progress of the students.

3. The Principal of the Normal School shall have supervision over the methods employed in the Model School in teaching the course of study prescribed by the Education Department.

4. Students shall attend regularly and punctually throughout the session and shall submit to such discipline and direction as may be prescribed by the Principal.

5. Students shall take all examinations prescribed by the Principal. Such examinations will be conducted by the staff of the Normal School. The examiners shall have power to reject any candidate who shows deficiency in scholarship.

6. The students of the Normal School shall be required to supply themselves with a complete set of the books authorized for use in the Public Schools of the Province in addition to the special text-books prescribed for use in the Normal School.

7. No student shall lodge or board at any house disapproved of by the Principal.

8. If, in the judgment of the Faculty of Instructors, the capacity, attainments, or progress of any student are not such as to warrant his or her longer attendance at the Provincial Normal School; or if in their judgment the manners, habits, temperament, sentiment, or character of the student are not such as to fit him or her to have charge of children, it shall be the duty of the Principal to report such judgment to the Superintendent of Education, who, on being satisfied of its correctness, may require such student to withdraw from the institution.

Standards for Awarding Diplomas.

Diplomas are not awarded solely upon the ability of those in training to pass written examinations, although they may be required to satisfy any such tests from time to time. Each member of the Faculty shall observe closely and record the general behaviour, attitude, attendance, scholarship, progress, and aptitude of each teacher-in-training. An accurate record shall be kept of criticisms made by the Normal School staff and by teachers of the affiliated Public Schools on lessons taught by those in training.

Upon all these standards the Faculty of the Normal School shall base its recommendations to the Department of Education for the awarding of diplomas.

Teachers' Certificates.

A Teacher's Certificate may be granted by the Department of Education on presentation of :—

(1.) A Normal Diploma.

(2.) Non-professional certificates satisfactory to the Department of Education.

(3.) A certificate of good moral character, and a fee of $5.

NOTE.—A more complete syllabus of Regulations and Courses of Study for the Normal Schools of the Province is issued in pamphlet form.

NIGHT-SCHOOLS.

(UNDER SECTIONS 127, 128, AND 129, "PUBLIC SCHOOLS ACT.")

A portion of the instruction provided in any school district may, if deemed desirable by the Board of School Trustees, be through the medium of night-schools, subject to the following regulations:—

1. Night-schools are public schools under the immediate charge of the Board of School Trustees, just as are the day-schools, except that the sessions are held at night. No night-schools shall be started by a School Board, however, without the approval of the Council of Public Instruction, nor where they will directly or indirectly interfere with the efficient administration of the day-schools. The regulations for the government of day-schools shall, as far as possible, apply to night-schools established under sections 29, 139, 151, "Public Schools Act."

2. Night-schools shall be for the instruction of persons of the age of 15 years and upwards who may be debarred from attendance at the day-schools. No person shall be admitted who could conveniently attend a day-school.

3. Any such night-school shall be in session two hours. The prescribed register shall be kept, and the regular monthly and annual reports made in the form directed by the Superintendent of Education.

4. Night-schools shall be graded according to the attainments of the pupils, but owing to the diversified attainments of the persons likely to seek admission, the Council of Public Instruction does not think it expedient to lay down a precise course of study.

5. No portion of the cost of maintaining night-schools shall be paid from the Provincial Treasury, unless taught by the holders of Provincial Certificates or other certificates acceptable to the Council of Public Instruction. In all cases the Council would greatly prefer that the teachers of night-schools should be other than teachers of day-schools; but where this may not be practicable, the Board of School Trustees may permit the teacher of a day-school to teach two evenings in the week.

6. For further information respecting the operation of night-schools, application should be made to the Organizer of Technical Education, Education Office, Victoria.

CORRESPONDENCE COURSES IN ARITHMETIC, COAL-MINING, AND SURVEYING.

For some years past the Department of Education has conducted night-schools for men engaged in the coal-mining industry in order to provide the requisite training for the examinations held by the Department of Mines.

The conditions of the shift system under which miners work have hitherto militated against the complete success of the venture. In order to overcome this difficulty, as well as to bring the opportunity of advancement within reach of a greater number of men, it has been decided to conduct the classes through the medium of correspondence.

The proposed courses of study will, as before, consist of subjects having a direct bearing on the work which must be mastered by those who seek certificates as shotlighters, overmen, and mine-managers.

A preparatory course leading up to the examinations referred to will also be provided for boys who have just left day-school to engage in work at the mines. It is thus hoped during the waiting or probationary period, which closes at the age of 23, not only to give these lads valuable training, but also to foster their ambition for promotion to responsible posts.

Six courses are provided, as follows:—

No. 1. Preparatory Mining Course for boys who have left school.

Section A, „ B, „ C, „ D, „ E - - - $5 per section.
„ F - - - $10.

No. 2. Preparatory Course in Arithmetic	$10
No. 3. Course for Fireboss, Shiftboss, or Shotlighter's papers (Third Class)	15
No. 4. Course for Overman's papers (Second Class)	25
No. 5. Course for Mine Manager's papers (First Class)	35
No. 6. Course in Mine Survey work	35

All fees payable in advance. For full particulars write for Bulletin No. 2, Department of Education, Technical Branch.

CORRESPONDENCE COURSES IN ELEMENTARY SCHOOL SUBJECTS.

The Department of Education has organized a Correspondence Course for children living in isolated districts beyond the reach of an Elementary School.

The purpose of this course is to give such children assistance in all the subjects taught in Grades I.–VIII. of Elementary Schools.

Lessons are sent to each pupil to be worked, and on completion are then returned to the Instructor for correction.

Tuition is free; also school-books issued by the Free Text-book Branch are provided free of charge.

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