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ABSTRACT

GRADES OR AGES: Grades 11, 12, and 13. SUBJECT MATTER: Geography. ORGANIZATION AND PHYSICAL APPEARANCE: The guide is divided into three sections, one for each grade. World geography is presented in two parts--grades 11 and 12--and Canadian geography is studied in grade 13. Each section is divided into several units. The guide is offset printed and staple-bound with a paper cover. OBJECTIVES AND ACTIVITIES: General objectives for each section are outlined at the beginning of the section. Each section contains lists of topics to be covered and suggestions for activities. Activities in sections 1 and 2 are primarily field and map work, whereas section 3 activities are mostly research. INSTRUCTIONAL MATERIALS: A one-page section at the end of the guide lists maps of Canadian regions. STUDENT ASSESSMENT: No mention. (RT)

ONTARIO DEPARTMENT OF EDUCATION

CURRICULUM 81

GEOGRAPHY
SENIOR DIVISION

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GRADE 11

WORLD GEOGRAPHY, PART 1

MAN AND THE CHANGING EARTH

The Grade 11 course — designed as a unit with the Grade 12 course — is intended to help students place the concepts of geography developed in the first ten years of school into a systematic framework. Students should develop a deeper and broader understanding of the world in which they live.

In an age when so much emphasis is placed on technology, when travel to many parts of the world is commonplace, we have a responsibility to help students appreciate the landscape around them and their own interaction with it. Within this framework, conservation of all resources is an important topic:

- the study of water resources and the widespread effects of their pollution
- the study of the complex atmosphere and the growing concern of its pollution in many urban and industrial areas
- the study of our soil resources and the loss of many productive acres through erosion and poor soil practices on the one hand, or by urban encroachment on the other

In studying these and other topics, the teacher should remember that, although this course deals with the principles of geography, he should not try to present all these principles His main concern is with the mental growth of the student. Along with the basic facts which form the framework of research, the student must acquire the ability to seek out new information and interpret it for himself. Only in this way, can the student's study of Geography illuminate the economic, social and political problems of different parts of the earth.

With this in mind, the teacher can utilize a variety of teaching techniques that will give students opportunity in inductive and deductive thinking, in discovering facts and ideas, in sorting and classifying data, in organizing information, and in presenting ideas in graphic and cartographic form.

The teacher should constantly bear in mind that Geography is an integrative subject — herein lies its unique contribution to the education of the youth of each generation. Geography takes its basic facts from Geology, Geomorphology, Climatology, Meteorology, Pedology, Biology, History, Anthropology, Sociology, Economics and many other subjects but it uses these facts in its own way to help in the understanding of the world.

PART A

BUILDING THE SCENERY OF LAND AND SEA

(16-18 weeks)

FIELD WORK, AIR PHOTOGRAPHS, AND LARGE SCALE MAPS

The Grade 11 student will already be familiar with these facets of geographic study — they are used in earlier grades and more will be done in the future. But in Grade 11, they are an integral part of the course.

The study of the topics suggested below should not be carried out as a separate unit, but should be used wherever appropriate throughout the whole course.

Field Work:

Students are required to spend some time in the field (rural and urban) observing, sketching, recording, reading maps and interpreting the local cultural and physical features of the landscape.

Field study is an essential part of a geography student's work, and the amount of time devoted to it will depend upon the particular activity — a period or two, a half day, a full day, and on occasion, two or three days. This work should, where possible, be undertaken on school days, so that all students benefit, and so that the experience is an integral part of the course.

Map and Photo Skills:

- Reading air photographs, relating photographs (oblique and vertical) to maps and to the actual landscape.
- Reading maps of various scales.
- Relating the map to the landscape.
- Use of stereographic photographs.
- Selecting data and recording on maps.

UNIT 1

THE EVERCHANGING LITHOSPHERE

In this unit the student should increase his understanding of the origin, age, and nature of the dynamic earth, of the complex forces which act upon its crust, and the distribution of the resulting landforms. More important, he should become more and more aware of the varied scenery about him, the importance of land and sea to life — all within the framework of a society that is increasingly industrialized and urban.

Geological Processes Operating on Rock Structures

These include degradation, aggradation, and tectonic processes. Included within the study of the first two processes is a consideration of weathering, erosion, and the building up of the land surface through deposition. In this introductory study of tectonic processes, the students will differentiate between diastrophism and vulcanism, but will leave detailed consideration until later.

Structural Landforms

Several landforms, widely distributed over the earth, have characteristics that are determined mainly by the structure of underlying rocks and not particularly by the type of erosional or depositional processes operating on them. These include landforms resulting from differences in rock strata, from rock folding and faulting.

Landforms of Volcanic Areas

A study of landforms associated with volcanic activity will show that they vary with the type of volcanic action — from the slow outpourings of lava to the enormous explosions. Likewise, the study will also show that the features of volcanic eruptions vary — from cinder and composite cones to shield cones and lava flows.

Planet Earth

In this unit, students will consider some theories of the origin and nature of the earth, and the structure of continents and ocean basins, in the light of geologic time and the record of earth history.

Study of mineral and rock specimens, classification of rocks by method of formation is to be done in detail in Grade 7 and in Grade 9 Geography. Some aspects are also learned in the Grade 8 Science Course.

Landforms Produced by Running Water

The study of a typical or theoretical river will give students the opportunity to study the work of running water, erosional and depositional features, the stream

cycle of erosion, and patterns and significance of drainage. A stream table or a visit to a nearby river will be very useful for student experimentation throughout the unit.

Landforms Produced by Ground Water

The action of ground water on areas of soluble rocks such as limestone, produces the distinctive features that are commonly associated with karst topography. Caves and caverns formed by the action of ground water are accessible for study in Southern Ontario.

Coastal Landform Features

Waves and currents along the margins of oceans, seas, and lakes, continually assist in the work of shaping the earth surface. Their erosional and depositional action produces distinctive types of landforms along coasts, and these have meaningful relationships to human needs and desires.

Landforms of Dry Regions

Even though running water is relatively scarce in arid regions, it is still the major erosional force. Wind is also an active erosive agent. Because arid regions are almost devoid of vegetation, the erosional and depositional landform features are generally spectacular. The cycle of erosion in arid regions may be included along with the study of the landform features.

Glaciation and the Landform it Produces

Much of the surface of Canada was glaciated, and a great variety of landform features associated with glaciation are readily accessible for study. For ease of study, this topic might be divided into:

- formation and movement of glaciers
- landform features associated with alpine and continental glaciation.
- influences of glaciation in Ontario and Canada.

Field work is strongly recommended during this part of the work.

Teachers should take advantage of the student's knowledge of glaciation, established in earlier grades.

UNIT II

THE HYDROSPHERE

In this unit the students will examine the shape and relief of ocean basins in connection with currents, tides, tsunamis and other water movements. In addition, since water is a necessity of life, the global distribution of fresh and salt water will be significant.

Under the heading of fresh and salt water come factors increasing man's water supply (such as desalinization processes which will soon be economically feasible) and factors reducing the supply of fresh water (such as water pollution and increased demands).

UNIT III

THE ATMOSPHERE

The atmosphere enables man to live on earth, and helps produce the natural resources which sustain him. (At the Grade 11 level, the elementary weather work of more junior grades should be reviewed, in particular the significance of air masses, and of cyclonic development. Avoid needless repetition of elementary concepts.)

In our studies of the atmosphere, we are concerned with two things:

- the development,
- significance of weather

The variations in isolation received by the atmosphere create the atmospheric engine. This fundamental concept of energy imbalance is important, and students at this level should be able to synthesize the various ideas about temperature and precipitation learned in earlier grades and bring them to bear upon this larger concept.

Horizontal and vertical temperature and pressure gradients provide the basic wind and pressure systems which transport both heat and water vapour from one part of the world to another. Complex though the atmospheric pressure pattern is, simple models such as land and sea breezes can contribute much to a basic understanding of the atmosphere.

The study of climate should include global patterns of temperature, pressure, winds, and precipitation, as well as the classification and pattern of climatic regions. Students should study how climate classifications are made and, indeed, should attempt to produce a classification of their own.

UNIT IV

THE BIOSPHERE

This is the zone of interaction of land, water, and air, including the dynamic systems of flora, fauna, and soil. The distribution of any one may be understood in the light of the others. These systems tend to be similar in divergent areas if the interacting elements are similar in composition.

- The vegetation types and their patterns should be studied with reference to existing climate and, in some cases, soil and water conditions.
- Fauna
- Soils, as defined by the pedologist, strongly reflect climatic conditions, broad vegetation patterns, slope of land, and internal conditions of the regolith. These conditions help to produce the soil profile which should form the basis for geographical soil study.

Proper use and management of soil by man should be studied with these conditions in mind.

PART B

MAN'S USE AND DEVELOPMENT OF LAND, SEA, AND AIR

(14-16 weeks)

UNIT V

ECONOMIC ACTIVITIES

(1-2 periods are recommended for the first three sections)

What is a Resource?

A resource may be viewed in terms of man's requirements and social objectives, and it may be defined as a means of satisfying these requirements and objectives. That is, a resource is a means to attain a desired end, or something which is of value to man as it is or in a changed form. Therefore, earth materials are resources, but so, for example, are knowledge, labour, capital, political systems and transportation systems. Some of these resources are renewable, some are non-renewable; some tangible, others intangible.

Appraisal of Natural Environment

Man perceives and evaluates the natural environment on the basis of his needs, his desires, and his knowledge at any given time. If man uses natural materials to satisfy his needs and wants, then the natural environment has some resource value for him, and he is using a natural resource.

Resources Change

As human needs and wants, and the technology of production and transportation and the organization of an economy change, the resource endowment or inventory of an area will also change. In simple societies, there is a different kind of resource inventory than one under a more advanced society, even though the same area is under study. The flint for an axe is important at one technological level; iron ore for a hatchet is needed for another.

Use of Resources

Man gains his livelihood in many diverse ways: primary, secondary, or tertiary economic activities. These different categories are distributed in various regions for economic reasons, which can be explained to the student through the use of brief examples.

Any difficulty in distinguishing among the three kinds of economic activity can be easily explained: it shows how closely inter-related these three categories are.

Primary economic activities are those concerned with raw materials or the resources of the natural environment and include agriculture, forestry, mining, and fishing. Case studies of two contrasting agricultural regions or two other areas where primary economic activities are predominant should be undertaken.

Secondary economic activities consist of processing of primary materials, for example, manufacturing, and construction. In manufacturing, for instance, factors affecting industrial location include sources of power, raw materials, labour, capital, transport, markets, human element. This section should include a sample study of an industry of local or national importance, e.g., the Iron and Steel Industry of Canada, the Automobile Industry, the Petroleum Industry.

Tertiary activities refer to various services that are performed as supporting services for the other two economic activities and for the general public. These include transportation, trade, finance, operation of public utilities and various human services and repair services.

The study of transportation services, for instance would include:

- the role of transportation in modern economy — types and characteristics
- recent developments — technological changes
- Classification of villages according to function.

UNIT VI

SETTLEMENTS: RURAL AND URBAN

Rural settlements are closely related to the exploitation of primary natural resources. The pattern of settlement ranges from isolated homes to small agglomerations which take on trading functions in those areas where the economy has become commercialized.

- Definition of settlement.
- Dispersed and nucleated settlements — origins and characteristics.

• Influence of natural conditions — relief, soil, drainage, water resources.

• Influence of social conditions — defence, ethnic traditions, agrarian regime and economy.

• Influence of Technology — energy sources, transportation, population densities necessary to exploit a region.

• Use of topographic maps such as: (Altona 62H/4E), (Belocil 31H/11E), (Lunenberg 21A/8W), any other suitable sheet.

• Rural Service Centres — Hierarchy based on functions, distance, and size.

The Urban Scene

Great economic and social changes have resulted in more and more of the earth's population being concentrated in urban centres. As a result, cities have assumed a greater range of functions and have become very complex. Cities, as well as being related to the hinterlands which they serve, relate to one another so as to form a hierarchy of centres. Studies would include:

Local urban study based on field work

• characteristics of the urban area

• land use patterns and their distribution as influenced by site and situation

• relationships between the city and its hinterland

• need for planning

• problems — traffic, air pollution, water pollution.

Classification of cities according to dominant functions. Study of a Canadian city with multiple functions.

UNIT VII

POPULATION

The population of the earth is distributed unevenly, and is becoming more so — the densely-peopled areas are experiencing high rates of increase. To make matters worse, much of the present increase is taking place in the urbanized areas. This is the so-called population explosion which has seriously strained the food resources of the world.

The student of geography should appreciate the situations created and consider possible solutions and their significance. Topics considered in this section might include:

World map of population densities:

• Correlation of densities with physical environment and levels of technological development.

• Distribution of cities.

Factors of population change:

• Birth rate, death rate, immigration, emigration

• Trends in urbanization.

Problems of population distribution:

• Density

• Distribution of food and raw materials: surplus and deficiency areas

• Conservation of resources.

GRADE 12

WORLD GEOGRAPHY, PART II

MAN AND HIS WORLD, A GEOGRAPHY OF SELECTED REGIONS

The purpose of this course is to provide the student with in-depth knowledge of a number of areas of the world and to give him a deeper understanding of the method and values of regional studies. It supplements the Grade 11 course and provides a unified study of basic geographic principles.

Teachers should bear in mind that geography is a centuries-old discipline — it satisfies the inborn curiosity of mankind to know what is going on around him. Today this curiosity is even more important — it is actually a necessity if people of various parts of the world are going to understand each other, live together and survive. As the world grows smaller and society more complex, man is faced with the absolute necessity of understanding his neighbour.

Through Geography, the student will learn that he can understand people in other areas of the world by understanding the forces that make them what they are. One task of the geographer, then, is to describe and explain what places are like. In essence, this is regional geography.

The approach to regional geography has changed considerably in recent years. No longer can the teacher provide a standardized set of sub-headings which are applied to various regions in turn and mechanically filled in.

The key word of the new approach is "analysis". The student should approach maps and factual data with the view of analysing economic and social problems in each area and of tracing both the origins of current conditions and their possible development in the future. This in-depth study should include a variety of geographical methods — analysis of economic and industrial reports, and statistics, of descriptive accounts, documentary films, topographical maps and air photographs. All these methods would augment the class textbook and lead the student to evaluate data and form conclusions of his own.

A complete course shall consist of the following:

Introduction

Students will attempt to find out what regions are, and how geographers use them. The students will examine natural regions, human regions, and geographical regions; they will examine single factor and multiple factor regions. They will discuss the problem of defining regions and de-limiting their boundaries. They will also see that regions are dynamic and change with time.

Regional Units

At least *seven* regions shall be selected from the units listed and these should be chosen to illustrate some of the following themes:

- A study of a region with a rich agricultural base
- Man's experience in a different environment

- A region of rapid change
- Industrial development on a limited resource base
- Industrialization of a region with ample resources
- Political - Geographical problems
- Problems of over-population
- Functions of a mod[illegible] metropolis

In choosing units of study, the teacher should consider their place in the overall framework of the course. With a theme for each unit, the teacher will have a basis of evaluation at the end of each section — has the theme chosen helped the students to acquire a deeper understanding of the area in question and to fit it into the framework of his growing geographical knowledge?

Conclusion

Each student is required to use the principles of regional analysis by making an individual research study of an additional region. The research project should help the student to answer the question, "Has our study of different regions increased our ability to tackle problems and to understand the world about us?"

It is recommended that teachers consider the following allocation of time:

Introduction:	one week
Regional Units:	approximately one month per unit
Introduction:	three weeks

UNIT I

THE USA — PHYSICAL AND CULTURAL PATTERNS

Within the United States there is a rich variety of landscape, climate, vegetation, and soil combinations which enable the geographer to study in meaningful depth the relationships among these physical phenomena.

In a brief 300-year period of history, the United States has been transformed from the natural state into an intensively exploited and efficient economic domain. As such, it has provided a case book which includes well-documented records of man coping with his natural environment, mustering his resources, assimilating widely differing racial and ethnic groups, creating new political institutions, reducing barriers of time and space, and fostering a mobility that has rearranged whole population patterns. Along with numerous other processes, these have culminated in the advanced material culture which has come to be the US trademark. Students should map some of the significant patterns and assess to what extent these help in understanding the geography of the United States.

UNIT II

THE AMERICAN MANUFACTURING BELT

The complex interaction of a head start, rich and varied agricultural resources, concentrated deposits of coal and iron ore, and vast immigration of people of varied skills and culture has produced the world's foremost manufacturing region or group of manufacturing regions. It has also produced major problems:

- air and water pollution
- waste and exhaustion of natural resources
- urban congestion.

All of these are most notable within that unique phenomena — megalopolis. These problems can be studied profitably at this level.

UNIT III

THE GREAT PLAINS

The distinctive physical characteristics of the region could alone account for the strong feelings of sectionalism found in the plains. This proud land, however, reflects even more the decades of trial and error as men of humid, forested areas struggled to evaluate the potential of a strange environment, and to develop social and economic institutions suitable for its unreliable precipitation and unstable colonial-type economy. This sectionalism is further heightened by the relative isolation of its inhabitants and their knowledge that the processing and the profitability of their primary products is largely controlled outside their region.

UNIT IV

CALIFORNIA

(or one other region selected from North America)

This mild and sunny (but water-deficient) environment has combined with an influx of people imbued with dreams of material wealth and leisure living, to produce the California "mystique". Natural advantages and human ingenuity have created the most populous state and the nation's leading agricultural producer. But the "mystique" is fraught with problems as the fastest-growing state struggles to conserve the environment, to provide fresh air and fresh water, and to generate the social capital required for a society whose "good life" is founded on the automobile, the freeway and urban sprawl.

UNIT V

PARIS AND PARIS BASIN

The natural advantages of the site and situation must be analyzed to determine why Paris has become the most highly centralized of all the major national capitals. The city offers a prime opportunity to study urban functions, both in relation to site characteristics and in a regional and national context, while the diversity of the Paris Basin underlines the importance of a rich umland in the development of a great city.

UNIT VI

THE LONDON BASIN

(including an urban study of London)

London so dominates the London Basin that the economy of the basin is the economy of London, or almost so. The city offers an opportunity to study an English manufacturing region holding a focal position with respect to transportation facilities, an enormous local market, a concentration of labour, an unmatched flow of foreign and domestic goods through a port, and the prestige associated with a national capital form.

UNIT VII

THE RHINE BASIN

The Rhine Basin and the lands along its course provide an interesting field for students of physical and human geography alike. This area does not form a region in the sense that the Paris Basin does. It is, instead, an area where physical, climatic, economic, and social patterns are constantly varying. The youthful course of the Rhine is largely in the Swiss Alps, the deltaic lowland is in the Netherlands, but in between, the river passes through lands with distinctly varied characteristics. In this unit the students should try to understand why this river is

"The Highway of Europe", and why distinctly different economic and settlement patterns have developed in various sections of the river.

UNIT VIII

THE SCANDINAVIAN PENINSULA

Although the Scandinavian Peninsula (Norway and Sweden) cannot lay claim to major attention for the number of its inhabitants, it is significant in its productive ability, and in the economic and cultural standards achieved by its industrious and gifted peoples. In few other portions of the globe has man utilized the resources at his disposal so effectively. It is of interest to the geographer to study why the per capita incomes of Norway and Sweden are among the highest in the world. There are excellent opportunities to draw parallels with Canada, while analyzing the struggle of these two small nations to establish viable independent economic units, utilizing their harsh northern environment in competition and cooperation with their much larger and more powerful northern neighbours.

UNIT IX

THE MOSCOW REGION

The region is almost completely lacking in mineral resources, and its inadequate agricultural base cannot support the region's needs for food or industrial crops. However, one quarter of the Soviet Union's manufacturing output is centralized in the Moscow region. This is partly the result of powerful state planning and partly the result of transportation factors — Russia's best transportation network has focussed the productive might of the country on Moscow and its satellite towns.

UNIT X

SIBERIA

Siberia is a land of contrast and achievement. On the one hand are its immense difficulties: its severe natural environment and the vast distances over which its products must be shipped to the nearest markets. On the other hand are its achievements: it is one of the USSR's great suppliers of energy, timber and minerals. The Siberians have made great strides in establishing transportation systems by both land and water, in developing resources and in building cities. In a district such as the Kuzbas, there is even an advanced metallurgical complex.

Only the richest and the most accessible Siberian resources warrant exploitation today because of the distances to market, but it is the prospective developments which present the great challenges to the Soviet people and colour their attitude to the region. Like the North in Canada, Siberia is regarded in the USSR as a hinterland of great potential economic wealth which will require special efforts if it is to achieve a balanced development on a par with the rest of the country. Like the Canadian North, it is a region requiring a special brand of pioneering spirit and technology.

UNIT XI

THE UKRAINE

Economically, the Ukraine is one of the best-balanced areas in the world. Long the agricultural heartland of the USSR, it also has a healthy well-established industry based on its iron and fuel resources. Industrial growth may be more spectacular in other parts of the USSR, but the older Ukrainian industries have been making steady progress for years. They are not, however, threatening the farm land. Many of the industrial workers now swelling Ukrainian cities are being drained from nearby farms where state planners are emphasizing efficiency and reducing the number of farm workers needed. Thus the Ukraine, only two per cent of the USSR in area, is likely to continue its twin roles as both an agricultural and industrial supplier.

UNIT XII

THE YANGTZE BASIN

(or other selected river basin in South and East Asia)

The great rivers of the world are often focal points for settlement and development, the hub of their respective countries. In several ways the Yangtze Basin can be considered "China in miniature". Each section of the river is unique, and provides excellent material for comparison and contrast. Students could undertake a case study of Shanghai in order to understand some significant aspects of Chinese cities.

UNIT XIII

MODERN INDIA AND PAKISTAN:

Agricultural and Industrial Problems

India and Pakistan, like most Asian and African countries, are seeking economic development through industrialization. Nevertheless, their economy is still tied to agriculture which, at present, suffers from too little in the way of irrigation facilities and fertilizers, too much in the way of pests, salinity and water-logging. The farmers are conservative, the seed is poor and the implements are old. However, in spite of these difficulties, India and Pakistan need agriculture to support industry. Once established, the industries will need the raw materials produced by the farms. In turn, the farms will need the industries to produce agricultural machinery and fertilizers and to absorb some of the excess population now clogging the farm lands.

Another major problem in these countries is shortage of capital. The economies of these countries cannot hope

to "take off" without substantial investment and aid from the World Bank, USA, the Soviet Union, Canada, China, and other countries. The physical contiguity of India and Pakistan with China and the Soviet Union, and a long history of their relations with the West complicate their international relations. The extent of international economic co-operation thus depends on world politics. The two countries, in all likelihood, will have to rely more on their domestic resources in planning their economic development.

UNIT XIV

JAPAN

Japan's stake in world manufacturing and trade can be explained in terms of fundamental geographical concepts. With a population approaching 100,000,000 to be supported by natural resources that amount to little more than "rocks and water", Japan must sell her labour in the form of manufactured goods, which can only be produced with imported raw materials and energy (both food and fuel) To maintain her competitive position, Japan needs strong economic control at home (e.g., wage restrictions and land-use planning) and active participation in resource and market development abroad (e.g., fuels and ores from Western Canada).

UNIT XV

ISRAEL

Israel is a new nation developed by a people unified by ancient religious beliefs and more recent political promises. Born in warfare and existing amidst continuing religious and political rivalries, Israel, with the financial assistance of Jewish people from many parts of the world, has turned a dry, poor, eroded country into a land with adequate supplies of fresh water, filled with abundant food, "western" goods, and tourists.

UNIT XVI

INDONESIA AND MALAYSIA

Indonesia and Malaysia, recently created independent states, are characterized by extreme geographic fragmentation and diversity, out of which economic, social, and political problems arise. Students will find it interesting to examine the question of whether or not these new nations can achieve any real unity in the face of these difficulties.

UNIT XVII

One significant region in Latin America

or

One additional region in Asia

UNIT XVIII

One significant region in Africa,

or

One additional region in Europe

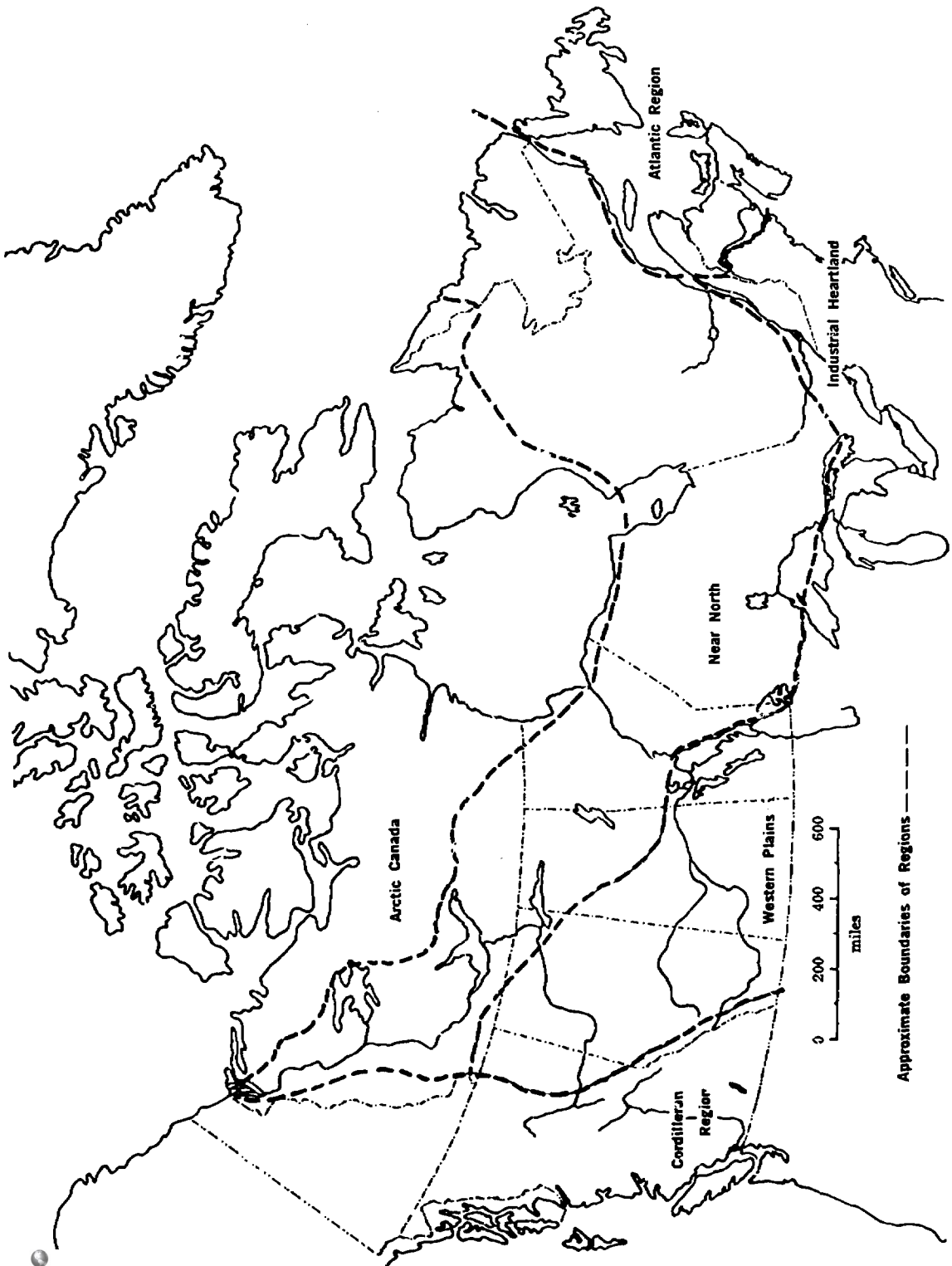
UNIT XIX

One significant region in Australia

or

A series of significant geographical problems of current interest.

REFERENCE MAP



GRADE 13

THE GEOGRAPHY OF CANADA

AIMS, GUIDING PRINCIPLES AND PRACTICAL CONSIDERATIONS

In this course the student will learn about his own country and its problems. He will gain a deeper understanding of Canada's internal workings and also a feeling for its place in the world community.

Before beginning the Grade 13 course, however, the student should have a firm grasp of geographic principles from earlier grades. His powers of observation and reasoning will be further developed through the study of his own country's geographical problems and he will build upon what he has already learned of the fundaments of physical, human, economic, and urban geography. He must also know the basic research methods of geography — map and air photo interpretation, elements of cartographic and graphic representation, field methods and use of statistics.

A second requirement for the Grade 13 course is adequate provision of both time and facilities. The student must have the means for field and laboratory work and for individual research work.

The Grade 13 student will need access to a large body of literature including many studies prepared by various bureaux and agencies of the Government of Canada. These reliable studies, which embody sound scholarship and careful research, give valuable assistance to both teacher and student.

On the basis of these pre-requisites, the student will be able to make an intensive analysis of the physical, economic, political and social factors which produce the patterns of Canadian geography. The course provides for individual research and local or regional surveys. Such studies include observation, collection, evaluation and organization of data and presentation of report. Through this course, the student should be able to recognize and understand the major problems facing the Canadian nation — and to appreciate the difficulties involved in solutions that have been proposed.

PART A

THE PHYSICAL ENVIRONMENT OF MAN'S ACTIVITIES IN CANADA

(approximately one month)

Study of the geography of Canada involves, in the first instance, an appreciation of the physical setting in which Canadians live. A study of the natural patterns of the geological foundation, the influence of climatic factors, and the pattern of natural vegetation and soils provides the framework within which more detailed investigation and analysis may take place but without which many facts have little meaning. The student should realize the potentialities of this environment and the need for the development and conservation of its resources.

Throughout this course of study some suggested topics for essays and/or seminars are included at the end of sections. These are in no way intended to be compulsory nor do they, by any means, indicate more than a partial selection of many possible topics.

Historical background of Canada's political boundaries:

- **Canada's position, shape, and size**

Relative location: relation of Canada to North America and the world

Shape and Size: comparison of size with other countries; ramification of size

- **Geological divisions and drainage systems**

Major geological divisions: Canadian Shield, Appalachian area, interior Plains (Western Canada, St. Lawrence lowlands, Hudson Bay lowland), Cordilleran area, Arctic Islands.

Principal characteristics of the general physiography and the major drainage systems

Significance of glaciation in relation to the general terrain (Relate to study of glaciation in Grade 11)

SUGGESTED RESEARCH TOPICS

- River flow regimes using information from The Hydrographic Survey
- Characteristics of landscape in selected areas through study of air photos and topographic maps

- **Climate**

Climatic controls: latitude, air circulation, masses and fronts, distribution of land and water, elevation, relief barriers, ocean currents

Principal characteristics: temperature and precipitation

Major climatic divisions: the major vegetation patterns of Canada should be related to these divisions.

SUGGESTED RESEARCH TOPICS

- The study of water deficiency in Canada (using Thornthwaite's evapotranspiration techniques)
- The seasons of the local community or nearby community (provided that weather statistics are available)
- The geography of snow. What are the costs of living in a cold climate?
- Calculation of the growing seasons across Canada using statistics and preparing a distribution map

- **Soil zones of Canada**

Soil groups related to climate and vegetation

Soil groups: Podzols, gray brown podzolic soils, chernozem soils, chestnut and brown soils, tundra soils.

PART B

GEOGRAPHICAL REGIONS OF CANADA

(approximately five months)

Geography consists of more than the mere distribution of men and things in the landscape. Such distributions become geographically significant only as they function in the mutual relationship of mankind to natural environment. The reality for the individual is his particular location within a regional context, and the power of the regional pattern whether cultural, economic, or physical, or a synthesis of all three, may prove to be the key to the more immediate understanding of the Canadian scene and its impact on world affairs.

In each of the regional studies that follow, students must grasp the dominant features that characterize an area and differentiate it from others. Brief summaries will help teachers and students establish guide lines for further study. They are to be used as the themes for regional analysis in order to avoid cataloguing. Teachers should feel free to select other themes to help give coherence and purpose to the regional studies. In the time available most teachers will choose the home region and perhaps one other for detailed study leaving other regions for more extensive study. However, the student will make a detailed study on his own of at least two sub-regions. These individual studies can form the basis of either essays or seminars.

Students could choose one sub-region of Ontario for an essay topic — and one from a different part of Canada, preferably one with quite different characteristics and problems from the sub-region selected in Ontario.

Also within the context of the regional studies, intensive treatment through seminars, essays and class discussion should be given to at least *three* major cities of Canada.

Urban studies should be an integral part of the course and, in addition to topics suggested with each region, teachers may wish to select several of the following for introduction in appropriate parts of the course.

SUGGESTED RESEARCH TOPICS

- The flow and volume of traffic in a city
- Study of the movements of people within a city
- Study of a small service town, e.g. Bancroft, the changing function of a rural village
- Functional areas of a local town or school district
- A study of railway commuter services to a large metropolitan area
- Problems of urban growth in a large Canadian city, or local community
- An historical geographical study of a town
- The study of an urban satellite of Toronto and its interaction with Toronto

ATLANTIC REGION

A region of "cultural diversity and unity, matched by physical variety and integration". This region, dominated by the sea, is distinguished from its neighbours by having fewer developed natural resources relative to population and a lag in economic development. Recent efforts by both government and industry have improved the situation somewhat, but significant problems still remain.

SUGGESTED RESEARCH TOPICS

- Problems in the coal industry
- Efforts to overcome the economic inertia of the Atlantic Provinces
- Regional Studies: Cape Breton Island; Prince Edward Island; the Annapolis Valley; the St. John Valley; the Bay of Chaleur Region.

THE LOWLANDS

Southern Ontario and Quebec, the Industrial Heartland

An area which forms the most intensely farmed and highly industrialized section of Canada; a section rich in local differences based on people and soil, with a wide range of occupations and activities. In this region where almost three-quarters of the Canadian population live are the largest English-speaking and French-speaking groups. While variety is life, the region is caught up into an over-all unity. Here is a region uniquely situated between the mineral, power and forest resource-producing area to the north and the most highly industrialized and most densely populated part of the United States to the south. Here is the link between the coast and the interior, between the eastern and western provinces — made more effective by the St. Lawrence Seaway. Here is the nation's highest development of finance, trade and manufacturing, the chief concentration of population and capital.

Because this is the home region for many students the suggested topics are strongly oriented to local geography.

SUGGESTED RESEARCH TOPICS

- Small urban land-use survey
- Local problems: town planning, traffic and parking, water supply
- Study of an agricultural area enclosed by survey roads (more than one farm)
- Weather trends in the Toronto (or other selected place) region during the past century
- Rural land-use planning including urban encroachment
- Micro-economic study — cheese factory, industrial plant — in order that students see all the stages from input to output
- Small watershed study
- Areas of economic disadvantage, e.g., Lanark County
- The Trent Canal and its effect upon the development of Southern Ontario
- Water problems in the Great Lakes
- Recreation in Southern Ontario (or other designated area): e.g., ski resorts
- Dairying in Southern Ontario
- Small regional studies: Niagara Peninsula; Golden Horseshoe; Kent-Essex plain; Holland Marsh; etc.

THE NEAR NORTH

That part of Boreal Canada which has been effectively tapped economically by settled Canada. The economy is associated with primary resource development — principally with forestry, mining, and the smelting and refining of metals. Transportation facilities are vital to the development of the resources of this region. It is crossed by transcontinental railways, air routes, and highways, and the use of the hinterland for recreational purposes is becoming increasingly important. The relative importance of the Ontario and Quebec sections of the Shield will become evident.

Because this is the home region for students in Northern Ontario, many of the local geography studies suggested under "Lowlands of Southern Ontario and Quebec" may be applicable here.

SUGGESTED RESEARCH TOPICS

- The concept of the pioneer fringe
- Small urban land-use survey
- Micro-economic study — pulp and paper mill; processing plant; integrated mining operation
- Problems associated with a single resource base, e.g. where a community such as Elliot Lake is based almost entirely on uranium mines whose production must be curtailed. How can we prevent such communities from becoming ghost towns?
- Small regional studies

WESTERN PLAINS

A landbound region with a challenging environment and a changing geography, a region boasting large farms, extensive ranches, and mushrooming cities. Until recently this area had a monolithic economy based on agricultural production, exposing people to sharp fluctuations of income when there were variations in world markets and climatic conditions. Other primary resources — petroleum, natural gas, potash, and the manufacturing and recreation industries play an increasingly important role and are producing a more balanced economy. The population is mixed, since settlement was late and rapid, and people came from many different lands. This rapid and large-scale mixing of people with different background has enriched Canadian life.

SUGGESTED RESEARCH TOPICS

- The changing resources of the Prairies from the time of the first European contact to the present
- The effect of drought on the Prairies
- Economic study: the potash industry; the petroleum industry
- The role of government in agriculture
- Irrigation on the Prairies
- Irrigation versus dry farming
- The changing urban pattern on the Prairies
- Regional studies: Manitoba lowlands, Regina plain, Peace River country

THE CORDILLERAN REGION

This is a dynamic area of Canadian development in this decade. A sense of optimism is matched with an almost explosive place of development. This is a land of great potential natural resources which require great amounts of capital and large organizations for exploitation. This is an area where labour organizations are strong. Resource exploitation patterns, location of settlements and transportation facilities are closely related to distinctive natural patterns. One of the great metropolitan centres of Canada is developing on the west coast. Although the growth of prosperity has depended largely upon the development of international markets, "there is a strong effort to direct feeling more strongly to other parts of Canada and to link themselves more closely to potential markets and suppliers of raw material in the Prairies. Of special concern have been pipelines for oil and gas, improved highways, and a rapid expansion of tourist and 'retirement' attractions of Canada's 'California'."

SUGGESTED RESEARCH TOPICS

- The logging industry of British Columbia
- The Columbia River scheme
- Ranching on the interior plateau of British Columbia
- Regional Studies: Okanagan Valley; the Saanich Peninsula of Vancouver Island; the Prince George section of British Columbia; the Queen Charlotte Islands.

ARCTIC CANADA

(approximately one week)

Arctic Canada, though still empty and quiet, is waking up and being developed. It is acquiring recognition as a region with its own problems and opportunities. The North exemplifies the problems of Canadian development in extreme form: great spaces, few people and almost inaccessible potential resourses, to which are added the problems rising out of the meeting of different cultures. Government has been playing an important role in all aspects of northern development. It is relatively straight forward to arrange for the exploitation of inert materials, but it is a much more complex and difficult task to create a new and better habitat for man, especially when the peoples occupying an area have different cultural mores.

SUGGESTED RESEARCH TOPICS

- Making Arctic Canada liveable
- The problems of transportation in Arctic Canada
- Permafrost and its effect upon development in the North
- The Eskimo — a society in transition
- Regional studies: Mackenzie lowlands, Arctic islands (specify), Northern Canada.

PART C

THE NATIONAL WEALTH OF CANADA:

DEVELOPMENT, UTILIZATION, AND CONSERVATION

(approximately two months)

Part A of this course gives the student an opportunity to study the geographical foundations of Canada, and Part B enables him to undertake a more detailed study of the major geographical regions of Canada.

The student now is in a position to develop a synthesis of the material which he has studied in detail. The outline for Part C has been elaborated in order to enable him to achieve this result.

At the conclusion of the course, the student should have acquired an intelligent over-all view of the geography of Canada.

The population of Canada

- Population density and reasons for the population pattern
- Forces affecting the number and distribution of people
- Possibilities of future growth
- Population change across Canada (using census statistics)
- Comparison of the natural increase in population with the total increase

TRENDS IN CANADIAN DEVELOPMENT

Fish and Forestry

- major fishing areas and their relative importance: contrasts between east coast, west coast and inland fisheries; problems of production, marketing, and conservation
- importance of forests in the national economy: factors contributing to rapid forest depletion and the consequences of depletion; sustained yield management as the key to the forest conservation; timber products in relations to national and international markets
- conservation of renewable resources

Agriculture

- climate and soil as limiting factors in Canadian agriculture: accepted estimates of arable land and possible extension of the agricultural area
- character and variety of Canadian agriculture: crops and livestock
- reasons for shift in the types of farming
- problems of production and marketing: importance of foreign markets

SUGGESTED RESEARCH TOPICS

- Levels of farm income across Canada
- Carrying capacity of Canada's agricultural resources

Minerals

- the relation of mining areas to the geological map
- relation of producing areas to processing centres and consuming markets
- conservation of non-renewable resources
- mineral development studies: in connection with conservation, at least *three* minerals should be studied as examples

Hydrographic Factors

- water power, water resources
- major uses of water: domestic, agricultural, industrial, water power, transportation, wildlife and fish, recreation
- water problems: control of run-off, stream pollution, river valley development, use of water power resources
- principles in the multiple use of water including international aspects, e.g, NAWAPA Scheme.

Manufacturing

- factors affecting industrial location in Canada: sources of power, raw materials, labour, capital, transport markets
- major Canadian manufacturing areas

SUGGESTED RESEARCH TOPICS

- Industrial expansion since 1940
- Industrial studies: The steel industry of Canada, the pulp and paper industry, aluminium and textile industries.

Transportation and Communications

- main lines for rail, highway, and air transportation; major transportation centres
- main river, lake and canal routes, coastal shipping, major lake and ocean ports
- main pipelines and important power grids
- telecommunications: telegraph, telephone, radio, television
- new developments
- the necessity of an extensive and varied system of transportation and communication for Canadian unity: patterns of commercial activity

SUGGESTED RESEARCH TOPICS

- The changing function of railways in Canada
- Air transport in the 1960's

Canadian Trade

- domestic, external (emphasis on trade with the United States and Great Britain)
- problems of Canadian production and trade
- the role of tariffs in altering Canada's geography

SUGGESTED RESEARCH TOPICS

- Biculturalism and bilingualism
- Metropolitanism — is Canada functionally organized through various metropolitan centres into a geographical unit?
- Canada as a state
- The role of Government in the geographical development of Canada
- Has Canada a "colonial" economy?
- The importance of disparities in income levels across Canada
- Canada's relations with the U.S.A. — the impact of our geography

TEXTS

Innis, D. Q., *Canada, A Geographic Study,* McGraw-Hill

Putnam, D. F. and Kerr, D. P., *A Regional Geography of Canada,* Revised Edition, Dent

Tomkins, G. and Hills, T., *Canada, A Regional Geography,* Gage

Krueger et al, *Regional and Resources Planning in Canada,* Holt Rinehart and Winston.

Gentilcore, R. L., *Canada's Changing Geography*

REFERENCE BOOKS AND ATLASES

Blair, C., *Canada's Natural Wealth,* McGraw-Hill, 1964

Camu et al, *Economic Geography of Canada,* Macmillan, 1964

Paterson, J. H., *North America,* Oxford University Press

Chapman and Putnam, *Physiography of Southern Ontario,* University of Toronto Press

Taylor, G., *Canada,* Methuen, 1949

Waterpowers of Canada, Queen's Printer

Watson, W., *North America, Its Countries and Regions,* Longmans

The Canada Yearbook, 1966 and previous editions, Queen's Printer

Nicholson, N., *The Atlas of Canada,* Queen's Printer

Pleva, E. G., *Canadian Oxford School Atlas,* Oxford University Press

The Financial Post

Suggested List of Topographic Maps for Selected Regions.

Lac St. Jean		
Hebertville		1:50,000
Arvida		1:50,000
Bagotville	22D/7W½	1:50,000
Chicoutimi	22D	1:250,000
Robervale	32A	1:250,000
The Peace River Area		
Peace River		1:50,000
Grimshaw		1:50,000
Dawson Creek		1:50,000
Grand Prairie	83M	1:250,000
Dawson Creek		1:250,000
Northwestern Ontario		
Jarvis River		1:50,000
Twin Cities		1:50,000
Thunder Cape		1:50,000
Quetico	52B	1:250,000
Niagara Peninsula		
Niagara East	30M/3E	1:50,000
Niagara West	30M/3W	1:50,000
Beamsville	30M/3c	1:25,000
Welland/Port Colborne	30L/14F	1:25,000
St. Catharines	30M/3g	1:25,000
Queenston	30M/3L	1:25,000
Niagara Falls	30M/3a	1:25,000
Fonthill	30M/3c	1:25,000

Note: Topographic maps may be used during the study of each region. A representative list is included.

Holyrood, Nfld.	(1 N/6)E
Bridgetown, N.S.	(21 A/14)
Lunenberg, N.S.	(21 A/8)W
Berwick, N.S.	(21 H/2)E
Port Hawkesburg, N.S.	(11 F/11)W
Beloeil, P.Q.	(31 H/11)E
Hamilton, Ont.	(30 M/5)W
Niagara, Ont.	(30 M/3)W
Long Point, Ont	(40 I/9)E
Bolton, Ont	(30 M/13)E
Ramore, Ont.	(42 A/8)W
Normandine, P.Q.	(32 A/15)
Virden, Man.	(62 F/15)
Medicine Hat, Alta.	(72 L/2)E
Lake Louise, Alta.	(82 N/8)W
Peoria, Alta.	(82 M/9)E
Weirdale, Sask.	(73 H/6)W
Revelstoke, B.C.	(82 L/16)
Vernon, B.C.	(82 L/6)W
Hazelton, B.C.	(93 M/5)E
Salmon Valley, B.C.	(93 J/2)E
Merganser Cove, P.Q.	(24 N/S)W
Sulphur Springs, N.W.T.	(85 B/11)W
Capal, N.W.T.	(96 E/3)
McQuestion Lake, Y.T.	(106 D/3)
Whitehorse, Y.T.	(105 D/11)E

(When ordering these maps, prepayment to the Receiver General of Canada at the rate of $ .30 each is necessary. Orders should be addressed to the Map Distribution Office, Department of Energy, Mines and Resources, 601 Booth Street, Ottawa, Ontario, and made payable to the Receiver General.)