AN OUTLINE OF AN EARTH SCIENCE COURSE
FOR THE NINTH GRADE IN WINTerset COMMUNITY SCHOOLS

By
A Field Report
Presented to
The Graduate Division
Drake University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science in Education

by
Ralph R. Reeves
January 1965
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   Development of the outline for an earth science course
   The outline of earth science for the ninth grade

Approved by Committee:

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P. P. Harris

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Lawrence H. Miller

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<tbody>
<tr>
<td>Summary.</td>
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</tbody>
</table>
INTRODUCTION

I. THE PROBLEM

Statement of the problem. The problem of the writer was to develop an outline of a 36-week course in earth science for the ninth grade as one unit of the science curriculum of Winterset Community Schools. This course is to be a part of an integrated science program in Winterset Community Schools.

Purpose and need of the study. The purpose of the study was to develop an outline of an earth science course for the ninth grade to meet the needs of ninth grade students in their constantly changing world. It was intended that the changes in the ninth grade science curriculum would result in a more unified science program, beginning in the elementary grades and continuing through the secondary grades, preventing unnecessary overlapping and duplication of content in the various science offerings and assuring continuity of course content from one science course to the next.

Science in the Winterset Community Schools. In September, 1963, 1,603 students were enrolled in the Winterset schools.
set Community Schools. The school was organized on a 6-2-4 plan, with Grades 7 and 8 as junior high, but located in one of the elementary buildings. Grades 9-12 are included in Winterset High School, a separate building.

Enrollment in each of the secondary grades during the 1963-1964 school year was:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Enrollment</th>
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<tbody>
<tr>
<td>7</td>
<td>136</td>
</tr>
<tr>
<td>8</td>
<td>119</td>
</tr>
<tr>
<td>9</td>
<td>124</td>
</tr>
<tr>
<td>10</td>
<td>130</td>
</tr>
<tr>
<td>11</td>
<td>125</td>
</tr>
<tr>
<td>12</td>
<td>104</td>
</tr>
</tbody>
</table>

Since this report was concerned specifically with science in the secondary schools, the details of the elementary science program and enrollment were not included.

The following science courses were offered in the secondary grades during the 1962-1963 school year:

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
<th>Sections</th>
<th>Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eighth grade science</td>
<td>8</td>
<td>5</td>
<td>Yes</td>
</tr>
<tr>
<td>General science</td>
<td>9</td>
<td>4</td>
<td>No</td>
</tr>
<tr>
<td>Biology</td>
<td>10</td>
<td>4</td>
<td>No</td>
</tr>
<tr>
<td>Chemistry</td>
<td>11-12</td>
<td>0*</td>
<td>No</td>
</tr>
<tr>
<td>Physics</td>
<td>11-12</td>
<td>3*</td>
<td>No</td>
</tr>
<tr>
<td>Physical science</td>
<td>11-12</td>
<td>2</td>
<td>No</td>
</tr>
</tbody>
</table>

*Offered on alternate years
The above courses were taught by four science teachers. One was responsible for eighth grade science, one for general science plus one section of health and coaching duties, one for biology plus girls' basketball, and the fourth teacher, the writer of this report, was responsible for chemistry, physics, and physical science.

No specific science course was required of high school students, except that at least one science course must be successfully completed for graduation from high school. Continuity was often interrupted from one science course to the next.

Procedure of the study. A faculty committee representing all areas of science instruction in the Winterset Community Schools met preceding the 1962-1963 school year. The committee consisted of four elementary school teachers, who were primarily concerned with the elementary science curriculum, and four secondary science teachers, who were primarily concerned with the secondary science curriculum.

Two co-chairmen were selected, one an elementary school teacher, the other a secondary school teacher. The writer was co-chairman of this committee and was responsible for the work of the committee in the area of science in the secondary schools.

The committee held general meetings, with the writer as chairman, to consider the science curriculum as a whole.

1. That the curriculum guide for each subject be revised
2. List materials and resources more completely.
Later, meetings were held separately by the elementary teachers to consider problems in the elementary science curriculum and by the secondary teachers, with the writer as chairman, to consider problems in the secondary science curriculum.

At these meetings the following problems in the over-all science curriculum were recognized:

1. There was much overlapping and duplication of content in the various science offerings.

2. Continuity was often interrupted from one science course to the next.

3. The curriculum guides of some courses were not adapted to the textbooks presently used for those courses.

4. Many curriculum guides listed only a few of the materials and resources available for teaching the course.

5. The science teachers were often unacquainted with the content and objectives of other science courses.

Other meetings of the faculty science committee followed, at which a number of recommendations were developed. Two of these recommendations were:

1. That the curriculum guide for each subject be revised to:
   
a. List materials and resources more completely.
b. Fit any new textbooks that may have been adopted.

c. Assure continuity from one science course to the next.

d. Eliminate excessive overlapping.

2. That earth science be substituted for ninth grade general science because:

   a. The general science course duplicated much of the content of the science course offered in the eighth grade.

   b. The content of an earth science course would be useful and meaningful to the students.

   c. The ninth grade was the logical place to offer such a course.

The recommendation to revise the curriculum guides was accepted in September of 1962, and work was immediately begun on this project. From time to time the committee met and reviewed the progress of these revisions and coordinated the efforts of the science faculty in this area.

Major revisions of curriculum guides were completed by May, 1963, and the revised curriculum guides were used during the 1963-1964 school year. At the time this report was written, further minor revisions of science curriculum guides were being carried out by individual teachers.

As a result of the recommendation by the faculty
committee to substitute earth science for general science, the committee examined two available textbooks and selected one of these as most suitable for the teaching of earth science as a part of an over-all, integrated science program. Some references were also selected as suitable for the use in teaching an earth science course at Winterset Community High School.

In the process of examining textbooks and selecting references, the writer made an outline of the content of an earth science course that would be acceptable as a part of the over-all science curriculum in the secondary grades at Winterset Community School. The writer's experience in attending a Summer Institute in Earth Science during the summer of 1962 was of value in developing this outline. This Summer Institute was sponsored by Iowa State University and the National Science Foundation for the purpose of preparing teachers to teach earth science.

The recommendation that earth science be substituted for ninth grade general science was accepted in June, 1963. The text and certain references recommended by the faculty science committee were also selected for the earth science course in June, 1963. Following the decision to substitute earth science for general science, the writer revised the previous outline of an earth science course to closely follow the textbook
selected and participated in the selection of films, additional reference books, and magazines for the earth science course.

The writer, as co-chairman of the faculty science committee, was basically responsible for the planning of the earth science course. Constant consultations—several weekly—were carried out with the teacher of the earth science course, at which time use of visual aids, demonstrations, and content and organization of the course were discussed.

In January, 1964, the ESCP\(^1\) completed compilation of the first three of an open-end series of pamphlets relating to sources of information and teaching aids for earth science in elementary and secondary schools. The information in these pamphlets resulted in considerable modification of the outline of the earth science course previously developed by the writer.

The three pamphlets available\(^2\) at the time this report was written were:

1. **RS-1 Sources of Earth Science Information.**

---

\(^1\)Earth Science Curriculum Project, an interdisciplinary science program for secondary schools. Conducted by the American Geological Institute, with the support of the National Science Foundation, P. O. Box 1559, Boulder, Colorado 80301.

2. RS-2 Selected References for Earth Science Courses.

3. RS-3 Selected Earth Science Films.

Other aids in selecting reference books, filmstrips, films, and periodicals were Geology and Earth Sciences Sourcebook\(^1\) and Modern Earth Science,\(^2\) the text selected for the earth science course.

Requirements of Standard \(^4\) were effective in determining details worked out for all curriculum guides, including the curriculum guide for earth science. Standard 41 thus provided structure for the organization of materials for this report.

As a result of the faculty science committee's work, the following science courses were offered in the secondary grades during the 1963-1964 school year:

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
<th>Sections</th>
<th>Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eighth grade Science</td>
<td>8</td>
<td>5</td>
<td>Yes</td>
</tr>
<tr>
<td>Earth Science</td>
<td>9</td>
<td>4</td>
<td>No</td>
</tr>
<tr>
<td>Biology</td>
<td>10</td>
<td>4</td>
<td>No</td>
</tr>
</tbody>
</table>


\(^3\)Standards for the Approval of School Districts, Circular No. 100a, revised (Des Moines: Department of Public Instruction, Summer, 1960).
<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
<th>Sections</th>
<th>Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>11-12</td>
<td>4*</td>
<td>No</td>
</tr>
<tr>
<td>Physics</td>
<td>11-12</td>
<td>0*</td>
<td>No</td>
</tr>
<tr>
<td>Physical science</td>
<td>11-12</td>
<td>1</td>
<td>No</td>
</tr>
</tbody>
</table>

*Offered on alternate years

Earth science was substituted for general science. Of 124 students enrolled in the ninth grade, 120 were enrolled in earth science. Though not required, earth science was strongly recommended to the students. For some students it was a terminal science course, since only one year of science was required for graduation.

The above courses were taught by four science teachers. One was responsible for eighth grade science, one for earth science plus one section of health and coaching duties, one for biology plus girls' basketball, and the fourth teacher, the writer of this report, was responsible for chemistry, physics, and physical science.

The faculty science committee was dissolved at the end of the 1962-1963 school year, having completed its work as a committee. The writer has continued with work on the earth science curriculum.

Development of the outline for an earth science course. The writer of this report selected a number of films on specific scientific topics. The outline of an earth science course comprises an introduction to the earth science course. Each unit of the earth science course is based on the major portion of Chapter II. It is an organization of:
1. Objectives of the science curriculum and of the earth science course. It was made to select three or four.

2. Course content. Films that covered various aspects.

3. Audio-visual aids. As many to avoid duplication of.

4. References. As selected. When a film was available.

The objectives for science in the Winterset Community Schools were adopted by the school as a whole. The specific objectives for the earth science course were products of the faculty committee working on the science curriculum.

The outline of course content was developed by the faculty committee. Available textbooks were studied and a selection was made. The units of the earth science course were then further developed by the writer of this report and oriented to the textbook selected, Modern Earth Science by Ramsey and Burckley, 1961.

The outline of earth science for the ninth grade:

Earth science films were selected from Selected Earth Science Films, ESCP Reference Series, RS-3. This pamphlet lists the best films available as aids to instruction in an earth science course at the secondary school level, according to the authors. RS-3 includes a critical summary of each film reviewed, the source of the film, and other pertinent information about the film.

The writer of this report selected a number of films for each unit of the earth science course on the basis of the critical summary included in the pamphlet. The entire curriculum as a whole and specific objectives of the earth
group of films selected were then listed by unit and further selection made. An effort was made to select three or four films per unit, including films that covered various aspects of the unit. An effort was made to avoid duplication of content in the films selected. When a film was available from more than one source, the nearby source was favored. When it was necessary to choose between similar films, the one from the nearest source was chosen.

References available from the City Library, High School Library, and the science room bookshelves were reviewed briefly by the writer of this report, and those thought to be of value as references for the earth science course were listed in the outline of an earth science course for the ninth grade in Winterset Community Schools.

The outline of earth science for the ninth grade.

The outline of earth science for the ninth grade was organized by the writer to contain information valuable to the earth science teacher. Therefore, film titles and references would facilitate the ordering of films from one section of the outline of earth science.

The objectives include objectives of the science curriculum as a whole and specific objectives of the earth
science curriculum.

The brief outline of earth science units includes the number and title of each unit and the time allotted to each unit. It was included for the purpose of providing in one place an over-all view of the earth science course and the time allotted to each unit.

Each unit of the earth science curriculum was organized on the pattern of (1) an outline of textbook and workbook assignments, (2) the film titles and sources, and (3) library references. The nine units of the earth science curriculum comprise the longest section of the outline of earth science.

Evaluation of pupils' progress briefly states some suitable methods of evaluating the progress of pupils during the course and at the end of the course.

Under references were listed those sources that were thought by the writer to contain information valuable to the study of several of the units of the earth science curriculum. References referring to one or two units were listed with the units.

It was thought that summarizing the film titles and sources in one area would facilitate the ordering of films by the earth science teacher. Therefore, film titles and sources form one section of the outline of earth science.

Modern Earth Science, W. L. Ramsey and R. E. Burckley,
1961, Holt, Rinehart and Winston, Inc., New York, was the text selected for the course. The workbook selected was Workbook for Modern Earth Science, H. J. Floch, 1962, Holt, Rinehart and Winston, Inc., New York. The course and the units were organized to facilitate the use of this text and workbook.

It is recognized there will be variations among the students and classes, so this outline was not presented as a rigid pattern but rather as a recommended outline.

Limitations of the study. This study has been limited to the problems involved in developing an outline for an earth science course in the ninth grade in Winterset Community School. Certain projects, such as a survey of community resources for field trips, were not a part of this report but should be developed.

To develop a knowledge of certain laws and generalizations in the field of science helpful in understanding...

To develop an understanding and ability to apply scientific methods in the solution of problems.

To develop an objective attitude toward ideas and social problems that contribute to health and human welfare.
CHAPTER II

OUTLINE OF EARTH SCIENCE FOR THE NINTH GRADE

The outline of earth science for the ninth grade in Winterset Community Schools is presented in this chapter.

The outline was organized on the following pattern:

I. Objectives

   A. General Objectives of the Science Curriculum

      1. To develop an understanding of science equipment and ability to use it.

      2. To develop an understanding of the earth and its relation in the universe.

      3. To develop an understanding of the water supply of the world and its relation to human welfare.

      4. To develop an objective attitude toward ideas and social problems that contribute to health and human welfare.

II. Unit Titles and Time Allotted

III. Units of Study

IV. Evaluation of Pupils' Progress

V. References

VI. Summary of Films for Earth Science

A. General Objectives of the Science Curriculum

   1. To develop an understanding of certain laws and generalizations in the field of science helpful in understanding man's environment.

   2. To develop an understanding of science equipment and ability to use it.

   3. To develop an understanding of the earth and its relation in the universe.

   4. To develop an objective attitude toward ideas and social problems that contribute to health and human welfare.
5. To understand and practice the conservation of natural resources.

6. To appreciate the contribution of science and scientists to civilization.

7. To provide training which will enable students to become discriminating consumers.

8. To develop the ability to read, understand, and use accurate and appropriate scientific vocabulary in written and oral expression.

9. To help the student establish vocational and avocational interests through his knowledge of science.

B. Specific Objectives of the Earth Science Curriculum

1. To develop an understanding of the earth and its position in the universe.

2. To develop an understanding of the general nature of the earth as a planet.

3. To develop an understanding of the substances known to make up the earth's crust.

4. To develop an understanding of the role of chemistry in earth science.

5. To develop an understanding of the major landforms and their origins.

6. To develop an understanding of the earth's history as revealed by the fossil record.

7. To develop an understanding of the water supply of the
To develop an understanding of the atmosphere.

9. To develop an understanding of the causes and distribution of the world's climates and the importance of these climates in regulating the lives of the world's inhabitants.

II. UNIT TITLES AND TIME ALLOTTED

<table>
<thead>
<tr>
<th>Unit</th>
<th>Title</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>The Earth in the Universe</td>
<td>5 weeks</td>
</tr>
<tr>
<td>II.</td>
<td>The Earth and its Motions</td>
<td>4 weeks</td>
</tr>
<tr>
<td>III.</td>
<td>The Materials of the Earth's Surface</td>
<td>4 weeks</td>
</tr>
<tr>
<td>IV.</td>
<td>The Forces That Shape the Earth's Surface</td>
<td>4 1/2 weeks</td>
</tr>
<tr>
<td>V.</td>
<td>The Forces That Sculpture the Earth's Surface</td>
<td>4 weeks</td>
</tr>
<tr>
<td>VI.</td>
<td>The Record of Earth History</td>
<td>3 1/2 weeks</td>
</tr>
<tr>
<td>VII.</td>
<td>The Earth's Envelope of Water</td>
<td>3 weeks</td>
</tr>
<tr>
<td>VIII.</td>
<td>The Earth's Atmosphere</td>
<td>5 weeks</td>
</tr>
<tr>
<td>IX.</td>
<td>The Climates of the Earth</td>
<td>2 weeks</td>
</tr>
</tbody>
</table>

III. UNITS OF STUDY

UNIT I

The Earth in the Universe

Time: 5 weeks

Lessons

A. The Stars. Chapter I.
2. Workbook exercise #1. "Exploring the Universe."

B. The Sun. Chapter II.


C. The Solar System. Chapter III.


D. The Moon. Chapter IV.


E. Space Travel. Chapter V.


F. Unit Review and Test.
Audio-Visual Aids

Film title | Source
---|---
1. Our Mr. Sun | Bell Telephone
2. Universe | ISU
3. The Story of Palomar | SUI
4. The Moon | SUI

References, School Library


References, City Library


UNIT II
The Earth as a Planet

Time: 4 weeks

Lessons

A. The Earth and Its Motions. Chapter VI.


Film Board of Canada


B. Location. Chapter VII.


C. Time. Chapter VIII.

1. How a Year is Measured. Pp. 100-104.


D. Maps and Map Reading. Chapter IX.


2. Topographic Maps, Summary. Pp. 120-128.


E. Unit Review and Test.

Audio-Visual Aids

<table>
<thead>
<tr>
<th>Film title</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The Impossible Map</td>
<td>National Film Board of Canada</td>
</tr>
</tbody>
</table>
2. Global Concept in Maps

References, School Library


References, City Library


UNIT III

The Materials of the Earth's Surface

Time: 4 weeks

Lessons

A. Earth Chemistry. Chapter X.


5. Workbook exercise #17. "Decomposition."


B. Minerals. Chapter XI.


C. Rocks. Chapter XII.


2. Workbook exercise #23. "Igneous Rocks."


D. Unit Review and Test.

Audio-Visual Aids

<table>
<thead>
<tr>
<th>Film title</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>National Film Board of Canada</td>
</tr>
<tr>
<td>Nahanni</td>
<td>National Film Board of Canada</td>
</tr>
</tbody>
</table>
4. A Story of Copper

5. How Rocks Are Formed

References, School Library


References, City Library


UNIT IV

4 1/2 weeks

Lessons

A. Diastrophism. Chapter XIII.
1. The Language of Landforms, Rise and Fall of the Crust.  

B. Mountains.  Chapter XIV.
2. Workbook exercise #27. "Block Mountains."

C. Plains and Plateaus.  Chapter XV.

D. Volcanism.  Chapter XVI.
2. Workbook exercise #32. "An Inactive Volcano."
E. Unit Review and Test. #19. "Erosion."

Audio-Visual Aids

<table>
<thead>
<tr>
<th>Film title</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Men, Steel and Earthquakes</td>
<td>Modern Talking Picture</td>
</tr>
<tr>
<td>2. Paricutin Volcano</td>
<td>University of Nebraska</td>
</tr>
<tr>
<td>3. The Hidden Earth</td>
<td>ISU</td>
</tr>
<tr>
<td>4. Volcanoes in Action</td>
<td>ISU</td>
</tr>
</tbody>
</table>

References, School Library


References, City Library


UNIT V

The Forces That Sculpture the Earth’s Surface

Time: 4 weeks

Lessons


A. Weathering and Erosion. Chapter XVII.

2. Workbook exercise #34. "Weathering."


B. Running Water. Chapter XVIII.

2. Workbook exercise #37. "Karst Topography."

C. Glacial Ice. Chapter XIX.

2. Workbook exercise #44. "Continental Glaciation."

D. Wind and Waves. Chapter XX.

2. Workbook exercise #47. "Wind Action."

E. Review and Test.

Audio-Visual Aids

<table>
<thead>
<tr>
<th>Film title</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>The Caves of Pierre Saint-Martin</td>
<td>Film Images</td>
</tr>
</tbody>
</table>
2. The River. Chapter XXI.


References, School Library


References, City Library


UNIT VI

The Record of Earth History

Time: 3½ weeks

Lessons

A. The Rock Record. Chapter XXI.

1. The Pattern of the Past, Interpreting the Record.
   Pp. 368-376.

2. Workbook exercise #51. "Geologic History." Source


B. Geologic Time. Chapter XXII.


C. The Fossil Record. Chapter XXIII.


D. Unit Review and Test.

Audio-Visual Aids

<table>
<thead>
<tr>
<th>Film titles</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fossils, Clues to Prehistoric</td>
<td>SUI</td>
</tr>
<tr>
<td>Times</td>
<td>&quot;Oceanic Telemetry.&quot;</td>
</tr>
<tr>
<td>2. The Fossil Story</td>
<td>ISU</td>
</tr>
<tr>
<td>3. Hunting Animals of the Past</td>
<td>University of Nebraska</td>
</tr>
<tr>
<td>Filmstrip title</td>
<td></td>
</tr>
<tr>
<td>1. The Story of Fossils</td>
<td>School</td>
</tr>
<tr>
<td>Workbook exercise #55.</td>
<td>&quot;Ocean Currents.&quot;</td>
</tr>
</tbody>
</table>
References, School Library


References, City Library


UNIT VII

The Earth’s Envelope of Water

Time: 3 weeks

Lessons


B. The Oceans. Chapter XXV.


3. Workbook exercise #56. "Oceanic Profile."


C. Waves, Tides, and Currents. Chapter XXVI.


3. Workbook exercise #57. "Ocean Currents."

D. Unit Review and Test.

Audio-Visual Aids

<table>
<thead>
<tr>
<th>Film title</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Beaver Dam</td>
<td>Nat'l Film Board of Canada</td>
</tr>
<tr>
<td>2. Science of the Sea</td>
<td>SUI</td>
</tr>
<tr>
<td>3. Speaking of Models</td>
<td>US Army Corps of Engineers</td>
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<td>4. Ocean Tides--Bay of Fundy</td>
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References, School Library


References, City Library

UNIT VIII

The Earth's Atmosphere

Time: 5 weeks

Lessons

A. The Air. Chapter XXVII.

B. The Winds. Chapter XXVIII.

C. Water in the Atmosphere. Chapter XXIX.
2. Workbook exercise #60. "Evaporation and Condensation."

D. Weather Changes. Chapter XXX.
E. Weather Prediction. Chapter XXXI.

3. Workbook exercise #63. "Station Models."

F. Unit Review and Test.

Audio-Visual Aids

UNIT II

Film title: Climates of the Earth

Source

1. Snow
National Film Board of Canada

2. The Weather
ISU

3. The Inconstant Air
SUI

4. Weather
Filmstrip title: Bell Telephone Co.

Source: 574-578

UNIT III

Weather Fronts and Forecasting

References, School Library


UNIT IX

The Climates of the Earth

Time: 2 weeks

Lessons

A. Elements of Climate. Chapter XXXII.

   - Written test composed of questions from quizzes and
   - Workbook exercise #64. "Temperature Variations."


3. Workbook exercise #65. "Climate Classification."

B. Climatic Regions. Chapter XXXIII.


3. Workbook exercise #66. "Climate Classification."

C. Unit Review and Test.

Audio-Visual Aids

Film title: Earth's Adventure. New Source

1. The Face of the High Arctic
   - Film title: The Face of the High Arctic. Chicago:
   - Source: Audio-Visual Aids, 1942.

References, School Library

IV. EVALUATION OF PUPILS' PROGRESS

A. During the course

1. At least one quiz per chapter, largely objective, often with diagrams and drawings appropriate to the chapter.

2. The workbook exercises may be graded.

3. Occasional written reports should be required. Many good references are available.

4. A unit test at the end of each unit.

B. At the end of the course

1. A semester test composed of questions from quizzes and unit tests.

V. REFERENCES

General References, School Library


*General References, City Library*


**Encyclopedias, School Library**


**Encyclopedias, City Library**


**Magazines**


2. **Science World.** New York: Scholastic Magazines, Inc.


**VI. SUMMARY OF FILMS**

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UNIT VIII

This study was made to develop a curriculum guide for the ninth grade in Winterset Community School for science for the ninth grade in Winterset Community School. It was developed as a part of an elementary and secondary science program in Winterset, Iowa. It was developed as a part of an

UNIT IX

The Face of the High Arctic

The purpose of this curriculum guide for an earth science course to meet the needs of ninth grade students in their constantly changing world in which science plays an increasingly important role.

To develop a more unified science program, eliminating unnecessary duplication of content and assuring continuity and content from one science course to the next.

This study was that this type of curriculum planning had a greater student achievement in the field of science in approaching the study, a faculty committee representing all areas of science instruction in the Winterset City School met preceding the 1962-1963 school year.
CHAPTER III
SUMMARY AND CONCLUSIONS

I. SUMMARY

This study was made to develop a curriculum guide for earth science for the ninth grade in Winterset Community Schools, Winterset, Iowa. It was developed as a part of an integrated science program in the elementary and secondary schools.

The purposes of this study were:

1. To develop a curriculum guide for an earth science course to meet the needs of ninth grade students in their constantly changing world in which science plays an increasingly important role.

2. To develop a more unified science program, eliminating unnecessary duplication of content and assuring continuity of content from one science course to the next.

It was hoped that this type of curriculum planning would lead to greater student achievements in the field of science.

In approaching the study, a faculty committee representing all areas of science instruction in the Winterset Community Schools met preceding the 1962-1963 school year.
At this series of meetings, the objectives and course content of each science course were reviewed, and needed changes in the individual science courses and over-all science curriculum were discussed. As a result of these meetings, a number of recommendations were made by the committee. These recommendations resulted in the revision of most of the curriculum guides of science courses during the 1962-1963 school year.

In June, 1963, the committee's recommendation that earth science be substituted for general science in the ninth grade was accepted. The writer then revised a previous earth science outline which had been developed as a part of the earth science recommendation. The earth science course was offered in the ninth grade in the Winterset Community Schools during the 1963-1964 school year, utilizing the revised outline.

Experience with the earth science course during the 1963-1964 school year, and the availability of certain ESCP materials following March, 1964, resulted in still further revision and expansion of the curriculum guide for earth science to its present state of development. The results of two years' work may be found in Chapter II of this report. Chapter II is the earth science curriculum guide and contains material designed to meet Standard 41.

At the time this report was written, most details of
the revised science program have been worked out; other changes are contemplated. For example, revisions will be necessary in the content of the physical science course in order to prevent duplication of the content of the earth science course.

II. CONCLUSIONS

The revision of the curriculum guides and substitution of earth science for general science has resulted in a more integrated science curriculum in Winterset Community Schools.

It is recommended by the writer that, as further information becomes available from the ESCP, this information be used for further development of the earth science curriculum guide.

Development of a series of field trips to local areas of interest would be a valuable supplement to the curriculum guide, but was not a part of this report.
BIBLIOGRAPHY


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