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READING HANDBOOK FOR SECONDARY CLASSROOM TEACHERS.

BY- PETERSON, BERNARD SCHEFERS, BERNARD

MINNETONKA SCHOOL DISTRICT, EXCELSIOR, MINN.

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A CURRICULUM GUIDE FOR THE SECONDARY CLASSROOM TEACHER DESIGNED TO EXTEND THE WORK OF THE READING TEACHER, TO MAKE ALL TEACHERS CONSCIOUS OF THEIR RESPONSIBILITY TO TEACH READING, AND TO OFFER SUGGESTIONS ON HOW TO PROMOTE GROWTH IN READING IS PRESENTED. THE FOLLOWING ARE DISCUSSED--HOW TO INTRODUCE A READING ASSIGNMENT, THE SQ3R APPROACH, SOME TYPICAL PATTERNS OF ORGANIZATION, SOME SPECIAL SKILLS IN CONTENT AREAS, SPECIAL PROBLEMS IN SCIENCE AND MATHEMATICS, SPECIAL PROBLEMS IN SOCIAL STUDIES, FLEXIBILITY, LEVELS OF COMPREHENSION, VOCABULARY DEVELOPMENT, THE GATES READING SURVEY TEST, INFORMAL TESTING, ORAL READING, AND DEVELOPING A SOUND APPROACH TO READING. A BIBLIOGRAPHY IS INCLUDED. (RH)

Minnetonka School District 276
Excelsior, Minnesota

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FOR SECONDARY CLASSROOM TEACHERS

Summer, 1966

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Developed as part of the Minnetonka
Curriculum Development Program

Summer, 1966

Prepared by:
Bernard Peterson
Bernard Schepers

PREFACE

CURRICULUM DEVELOPMENT IN THE MINNETONKA SCHOOLS

Change, innovation, and obsolescence are among the primary characteristics of the contemporary world. Rapid strides in knowledge and technology are being made at an accelerated pace. This condition has resulted in programs of research and development and of personnel training in business, industry, and professional fields.

In public education too, change and obsolescence are at work. The organization and knowledge of the disciplines upon which the content of the curriculum is based are undergoing dramatic change. In addition, innovations in methods and equipment promise greater effectiveness and efficiency. The resulting need for staff and curriculum development has been recognized by the Minnetonka School District to an increasing extent in recent years. In 1959 the Board of Education approved a plan for summer employment for curriculum development, and in February, 1963, a general program for staff and curriculum development was adopted.

Materials produced through curriculum development projects are of three types: curriculum guides, instructional materials, and reports of studies.

Curriculum guides are written for the purpose of defining the instructional program of the district for members of the teaching staff. Their effectiveness is determined by the extent to which they carry out that purpose. They are not designed or edited to serve as public information documents.

Development projects which produce instructional materials include materials not available commercially, handbooks for pupils or teachers, and various types of teaching aids.

Written reports are the tangible product of evaluation studies, investigations, or planning implementation of new methods and content.

The Minnetonka School District is committed to the continuous and long-range improvement of the educational program. The product which follows is the result of this commitment and the dedication of the professional staff. The goal is a better education for the youth of our school district.

* * * * *

FOREWORD

"Every teacher a teacher of reading" is an educational cliche which more and more teachers are taking seriously. Since only part of the junior high population in district 276 is receiving intense reading instruction from reading teachers, it is incumbent upon other teachers to provide the reading instruction if any is to be given.

In 1941 Bond wrote:

> The fact that in the secondary school the continued improvement in reading has been left to chance is a dark cloud on the reading horizon. No better results should be expected from this procedure than from leaving a vegetable garden to grow by itself without any outside care after it is once started. (4)

Acquiring mature skills in reading requires skillful coaching, guided practice, and purposeful application. Such direction is most effectively given in connection with daily reading assignments in all content areas. Specialists have been saying for years that reading is a complex and demanding act; it is far from a simple skill that can be mastered, once and for all, somewhere in the elementary school.

This handbook is offered to the junior high teacher with the plea that it be read carefully. It is designed to extend the work of the reading teacher, to make all teachers conscious of responsibilities to teach reading, and to offer some proven suggestions on how to promote growth in reading.

Each teacher is asked to keep this handbook accessible, to refer to it from time to time, and to return it to the reading department for revisions and additions when called for.

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ALL TEACHERS MUST TEACH READING

Many recent studies have pointed up the importance of an all-school approach to reading problems. Typical of these studies is the Austin Experiment, described briefly here by means of quotations from a state department report.

> For some time students in the Austin junior high schools have completed a unit, Reading in the Content Areas, as a part of their course of study in reading classes. Among other skills, students have been taught to know their textbooks thoroughly, to pre-read, or skim, to get an overview of the entire assignment before beginning to read it; and to read carefully all pictorial and tabular material included in the assignment.
>
> In an attempt to find how well students were transferring this training to reading assignments in the content areas, a reading test assignment was designed for seventh grade social studies students. It consisted of a series of questions which could be answered quickly and easily if the students were efficiently reading the assignment in the way they had been taught. Some questions were included to check the students' overview of the assignment to see if they had determined the author's organization of materials, if they knew that major topics of the lesson, and if they could see the relationship between the assignment and previously read material. Other questions tested students' use of maps, pictures, and graphs, as well as such reader aids as footnotes and bibliographies. Some questions tested the ability to read rapidly for detail. Finally, a set of questions was included to see if students were using context, or author explanations, to help in gaining understanding of the vocabulary new to them in the assignment.
>
> A class of <u>above average and superior</u> students was selected for the experiment. They were given copies of the test-assignment and their textbooks. They were told only to follow the directions stated at the beginning of the test. The teacher of the class, the high school principal, and the director of secondary school reading observed the students as they completed the test-assignment. .....
>
> (A copy of the test is available. The findings follow.)
>
> The experiment proved what teachers had suspected. There was little or no transfer of acceptable, effective reading procedures to reading assignments in social studies materials. Few students skimmed the entire test-assignment as directed. Many flipped pages until they came to the chapter assigned rather than use the Table of Contents. Not one student referred to the unit introduction and, as a consequence, no one answered the first question correctly. Very few students read the chapter introduction, summary, or questions to aid in gaining a preview of the material contained in the chapter. Only a few took the time to skim headings, subheads, and boldfaced type to aid in understanding the

author's organization of materials. Pictorial and tabular aids were referred to only as a last resort. Students did not carefully but rapidly read the entire chapter before beginning to write answers. Rather, they began looking in a "hit or miss" fashion for the answers to the questions. It appeared that this was their usual procedure. They showed considerable capacity for "hunting". Most of the students in the class used the entire, hour-long period, and some did not finish. In a trial of the test assignment, a student who used efficient reading procedures, was able to complete the assignment in less than thirty minutes.

The experiment aroused the interest of other social studies instructors. At their request similar experiments were conducted in tenth and twelfth grade social studies classes, again with above average and superior students. Similar test-assignments were designed to accompany the specific textbooks in use in those classes.

The same results were noted, the only difference being that the more advanced the students were, the more skillful they became as "hunters of answers".

During the class periods following the experiments, students learned the purpose of the experiment. With their teacher and other observers, they reviewed efficient reading techniques and procedures. Then they re-read the test assignment using the efficient, effective approach. They were amazed at how much less time was required to complete the assignment. Equally astonishing to them was the difference in their grasp of the materials contained in the chapter.

Having learned that, given a set of questions, students would usually merely hunt for the answers to those questions, teachers analyzed and, in many instances, revised their approach to questioning. Types of questions were studied to see which were most conducive to effective reading. These instructors worked toward elimination of many "who, what, where, and when" questions which appeared to drive students toward becoming hunters of detail. More "why and how" questions were raised - the type that demanded reading of the entire assignment in order to be thoughtfully answered . . . . . .

Thus the experiment became an effective means for alerting content area teachers to the reading habits of their students. Many of those who had scoffed at the concept, "Every teacher a teacher of reading", gained a new awareness of the part subject matter teachers could play in the development of students' reading abilities. (7)

HOW TO INTRODUCE A READING ASSIGNMENT

There are some general suggestions for making an assignment in reading which are applicable to almost any type of selection. To ask your students to "read Chapter 5 for tomorrow" will do nothing to develop their reading skills. Some preliminary planning for the chapter is imperative.

1. SEE THAT NO STUDENT IS READING "OVER HIS HEAD". Being assigned something that he cannot possibly fathom will frustrate the student. His growth in reading will stop. On the other hand, if he's given 5th grade material, for instance, next year he may be able to handle 6th.

2. DEFINE CLEARLY THE PURPOSE FOR READING. Make the assignment easier to tackle by posing a challenge. Arouse the students' curiosity about the subject. Give them some background for understanding the topic. Relate it to their experience. Point them in the right direction by indicating what to look for.

3. TEACH VOCABULARY BEFORE THEY READ. Select the most difficult words and concepts from the reading lesson and introduce them beforehand. Write them on the board in context (a sentence or a good phrase). Discuss the meanings of these words as well as their structure if necessary (syllables, prefixes, suffixes, spelling, etc.). Pertinent questions about words can be asked which will challenge students at any ability level.

4. SUGGEST HOW TO APPROACH EACH READING ASSIGNMENT. Should they skim for answers? Read carefully and outline? List details? Read quickly for general impression? Read and reread to follow directions? Read slowly to evaluate? Use SQ3R? Combine methods?

5. DEMONSTRATE OCCASIONALLY. For example: show how you utilize headings, topic sentences, etc.; show how you outline as you read; do part of an outline and let them complete it; etc. Show them how you read specific types of material. Show how various approaches are used depending on the nature of the material. A good reader formulates a strategy of attack ..... demonstrate how it's done.

With vocabulary obstacles removed, with a clear purpose in mind, with explicit direction as to the reading technique to employ, and with a graphic illustration of how it's done, the student finds many of his potential frustrations removed. He will understand the reading assignment better; he will enjoy it more; he will retain more.

Arthur I Gates talks about seven basal techniques or groups of techniques which he believes form the backbone of the reading process. The good teacher ought to have some concern about each of these seven aspects as he prepares to make any reading assignment:

1. WORD RECOGNITION. The student may recognize a word at a glance. Or, failing, he may look for familiar components in the word. Failing at this, he may analyze syllables, phonetic elements, or single letters. The alert teacher anticipates word analysis problems and helps solve them in advance.

2. WORD MEANING. The student may derive meanings in isolation, from context, or through dictionary use. Teacher guidance in the use of techniques is imperative.

3. RANGE OF SPEED. Investigations show that many students tend to fix a habit of reading at a particular speed. After fourth grade they may read any content for any purpose at a certain rate. Obviously, no one speed is best for comprehension of all materials. A most important basal skill is the ability to modify the pace from very slow careful reading up to an exceedingly rapid skipping and skimming. Teachers can help their students make these fine adaptations.

4. ACCURACY AND FULLNESS OF COMPREHENSION. Should the student look for the high points of the general idea? Should he appreciate the significance of every detail? Or should his degree of comprehension be somewhere between? Many students comprehend ad a fixed level - either superficially, intermediately, or very thoroughly. With guidance they should know their level of comprehension and what level the present situation demands. The content subjects present a great range of comprehension expectancies. The content teacher must help students develop a sensitive and sensible flexibility.

5. RE-READING AND RECALLING. Reading followed by slavish re-reading is generally not an economical or effective learning procedure. Reading followed by <u>selective</u> re-reading and recall is a subtle and intelligent approach. The technique will vary, but the student can develop proficiency with teacher direction.

6. THINKING WHILE READING. There are pupils of all ages whose reading is largely literal. Though it may be somewhat selective, it is essentially a prosaic reception of what was seen on the page. To have students inject appraisal, evaluation, judgment, or comparison between the reading and the reproduction requires teaching skill.

7. GRAND STRATEGY FOR ATTACKING AN ASSIGNMENT. The student must be guided away from a simple, repetitive procedure to an array of techniques depending upon subject, length, time, purpose, etc.

Gates concludes that "all these skills are basal. They are best developed by means of guidance in the basic reading course and in the content subjects as well. To meet the needs of all the content subjects they must be highly adaptable and flexible. (11)

SQ3R

Recent research indicates that study-skill habits are much more important than it was formerly believed. This same research has pointed to the value of a questioning attitude and an initial survey. It has also indicated that questions used at the beginning of a reading assignment are most effective to enhance delayed and immediate recall. (3) Francis P. Robinson's SQ3R Method of Study makes effective use of these techniques; and though it was primarily developed for history, social science, science, and other factual types of prose, it is used with some modification for all types of reading in the reading classes.

The effectiveness of the SQ3R approach depends on its constant use. It should become a habitual response to every reading assignment. Unless it is used in every reading assignment in all classes it will not become part of the student's reading habit pattern (as the Austin experiment demonstrated). The reading department feels that it is especially important to stress the use of the SQ3R at the beginning of the school year and to have it reviewed periodically throughout the year. Since it is relatively simple to learn and to teach and is so effective in developing comprehension, it should be a welcome addition to every teacher's repertoire of teaching methods.

SURVEY — The first step in dealing with a textbook assignment is to make the student aware of the exact location of the pages he has to read. Have him estimate how long it will take him to read this assignment. If he is starting a new chapter, have him read and study the title. Let him state it as a question and study the words. Have him study the introductory outline if there is one. Direct him to glance briefly through the pages to note subheads, pictures and their captions, and the charts and maps with their captions. Then he should read the chapter summary or the last paragraph. He should study briefly any questions at the end of the chapter. As he skims he should be aware of any new or difficult word he encounters. If the text doesn't explain its meaning at its first usage, he should look the word up in the dictionary before he starts to read.

QUESTION — This survey should have made the student automatically ask questions: What does this subhead mean? Why is this picture included? What has this chart to do with this topic? As he thinks over the material that he has just skimmed, many other pertinent questions will come to him. Sometimes the student will want to write some of these questions to see if he can answer them as he reads. The importance of these questions is that they give the reader direction and immediate purpose for reading the assignment.

READ — Study-type reading is often called intensive reading since it is a very careful and often slow reading, but this is not necessarily always true. The reading should vary from the very slow, to moderate, to fast. The student must be flexible and let the nature of the reading and the information he is after determine the manner in which he reads an assignment.

REVIEW — The review step is that stage of the SQ3R where a student becomes the master of what he has read. Review puts ideas in correct order. Here the student looks for the writer's plan and major ideas. As he finishes a section, he should close the book to see how much of it he recalls. When he has finished the whole assignment, he should leaf through the chapter and recall main ideas under each section heading. He should try to see how the sections blend together to form the main idea of the chapter.

RECITE — The reciting step is an opportunity for the student to demonstrate his learning. He may recite to himself, to his teacher, by outlining the material, by reporting on it, or by taking a test on it. Often the student will facilitate his recitation by writing brief notes on each section as he completes the reading or upon the whole assignment as he finishes it.

As one studies the SQ3R method, he becomes more convinced of the importance of the survey step since all the other steps naturally follow it. Therefore, it should be taught explicitly. A good procedure is for the teacher to announce that on the assignment for the day the students will practice the SQ3R method. It can be briefly discussed for the benefit of those students who have forgotten its sequence, purpose, or value. Then the teacher should have the students open their texts to the assignment and give them a minute or two to survey it by taking them through the steps as they are listed above. Now he should have them close their texts and discuss what they already know about the assignment. Perhaps he can list some of their questions which they think will be answered by further reading, or he can have them write them in their notebooks to refer to when they have finished reading. At this time he can also raise questions about the type of organization of ideas in this assignment.

A simplified procedure is possible. The teacher informs the students they have a minute or two to survey the next reading assignment. When the time has elapsed the books are closed. The class now volunteers logical questions spawned by the survey, and the teacher lists them on the board. The class also gives opinions on the general organization or structure of the reading selection. Thus they learn from each other how to make a good survey. They see its great value when they proceed with the reading and see how everything falls logically into place.

One cannot overrate the value of the survey in the reading act. Berg and Rentel, writing in the Journal of Reading, say:

> Skimming enables the reader to rapidly define the author's purpose, it provides the reader with an active mental set for attention and comprehension, it structures for the reader the author's organization, and it helps him to set the rate at which he will read. (3)

IF THE TEACHER DOES NOTHING ELSE ABOUT IMPROVING STUDY METHODS, HE WILL BE DOING THE STUDENTS A GREAT SERVICE BY AT LEAST INSISTING ON AN INTELLIGENT PRELIMINARY SURVEY OF ANY READING ASSIGNMENT. IT WILL GIVE DIRECTION AND ORGANIZATION TO THEIR READING AND IMPROVE THEIR COMPREHENSION AND RETENTION.

TYPICAL PATTERNS OF ORGANIZATION

One of the important values of the survey step of the SQ3R is that it gives the student an indication of the general organization of the material that he is about to read. This understanding is important because initial comprehension often depends on a recognition of the general organizational pattern that the writer has used. Efficient recall follows as a result of this comprehension, for though the details may fade, they can easily be revived if there is a total understanding of the concept. Another real value of this perception of the organization is that it enables the student to read more critically because he can decide which details are pertinent to the main idea and which are relatively unimportant.

These patterns of organization are not instinctively learned as the student becomes a skilled reader. They must be taught. In some cases these patterns in writing most generally used in certain subject fields have been identified only recently through research done in the past few years. This research came about through recognition of patterns in writing in literature. It was hypothesized that there must be special patterns in writing in the content of other subject fields as well.

The research analyzed a great number of textbooks widely used in grades 7 through 12 in science, social studies, mathematics, and literature. (25) A complete study and listing of all patterns from all types of writing would be a cumbersome task. One must also realize that many writings are a combination of patterns that can make identification more difficult. However, the most common patterns of writing found in the various subject fields are listed below:

PATTERNS OF WRITING IN LITERATURE

The common ones are the essay, the drama, the story, the biography, the fable, and poetry of many kinds.

Each of these requires a different approach. The student reads the story to enjoy the plot, characters, and setting; an essay to get the author's slant on life; and the drama to interpret the conversation of the characters. Biography and autobiography are read not only to get the chronological facts but to get an impression of the person written about. Poetry varies widely in purpose. A ballad should not be read for the same purpose or in the same way that one reads a sonnet.

The teacher of literature must teach his students to identify each pattern and to sense the purpose of each pattern so his students can adjust their reading skills to fit that pattern and purpose.

PATTERNS OF WRITING IN SCIENCE

The most common patterns are the classification pattern, the explanation of a technical process, instructions for an experiment, detailed statement-of-facts pattern, the descriptive problem-solving pattern, abbreviations and equations, mathematical problems, and a combination of two or more of these.

A student reading all science as he would the regular introductory material because he fails to identify the pattern certainly will be limited in his comprehension.

PATTERNS OF WRITING IN SOCIAL SCIENCE

Most of the patterns used are the cause-and-effect pattern, sequential events with dates, the comparison pattern, detailed statement-of-facts pattern, and the propaganda pattern.

The cause and effect pattern occurs also in science, but it is found most in history since every major event in history comes about as the result of some cause or set of causes. Sometimes the effect of one event becomes the cause of another event. The student who is adept in identifying the cause-and-effect pattern and gears his reading to ascertaining causes and effects will find this to be one of his most valuable assets in studying the social sciences.

The sequential pattern should be read with two purposes: (1) To keep whole blocks or larger periods of events in their correct chronological order, and (2) to fix in mind important dates of happenings within each period or block.

PATTERNS IN MATHEMATICS

They are the problem pattern, the explanatory pattern, the graph and chart patterns, and the special symbols, signs, and formulas.

The problem pattern is the most highly specialized pattern, and it is found in all types of mathematics texts. Problems are usually stated in this format: at the beginning the situation is given, or the condition under which the problem took place is stated; then follows a series of numbers or mathematical values; finally the reader is asked or told what to find.

The explanatory pattern is extremely difficult reading. It is similar to the explanation-of-a-process pattern in science textbooks except that in mathematics it explains a mathematical process. Students should be urged to read this pattern with great care and to repeat the explanation in their own words when they have finished. Success in solving the problems which follow often depends on the reading of this pattern.

The graph and chart patterns must be read carefully, too. The student should read the title to determine exactly what is being compared, read the figures or labels to make sure he grasps what they stand for, and then study the graph or chart to make comparisons in regard to the different items illustrated. Finally he should interpret the significance of the chart or graph as a whole.

The special symbols, signs, and formulas are a new reading alphabet to the student and should be handled in that manner, for it is almost like trying to learn to read all over again for him.

A question might be raised at this point about the value of outlining. And isn't the arrangement graphically shown in the typical outline the most common of all patterns? The answer is probably yes. One should mention that in most cases the main pattern could logically be presented in outline form, into which may or may not be woven one or more of the basic patterns listed above. This simple relationship of main topic and sub-topic is the one most used by the student and the one he will recognize most easily.

It is not difficult to show students how to identify basic patterns as a part of the S step of SQ3R, but they must have experience in skimming for clues. There is no need for them to go outside their regular textbooks to do this. In fact, the more often they do this in their own texts the more meaningful it will become. With practice this procedure will become habitual to the skilled reader, who will unconsciously look for the pattern in every reading assignment.

SPECIAL SKILLS IN CONTENT AREAS

Reading efficiently in the content fields requires mastery of many skills. Some of these skills are fundamental for good reading in all curriculum areas. A token listing might include: ability to survey materials to determine general nature, main ideas, appropriate reading approach; ability to handle graphic and illustrative materials effectively; skill in the use of the library and basic references peculiar to the field; skill in general reading abilities such as rate, comprehension, and vocabulary; systematic study habits; sound techniques in note-taking, outlining, summarizing, and listening; skill in preparing for and taking examinations; intelligent planning of a personal schedule. Students must be well grounded in all of these habits and skills before they can be expected to read competently in the content fields.

To detail further the complexity of reading in the various content areas we refer to a listing by Schick and Schmidt in a recently published reading guide book (19). Their list of skills by subject area is intended to be suggestive rather than all-inclusive.

ART — Reading to: appreciate and criticize various art forms and objects; collect and evaluate materials in collateral fields, for cultural background; follow measurements, abbreviations, graphic materials; retain ideas and theories of technique, schools, historical principles and practices; define what constitutes "greatness" in a given art form.

BUSINESS EDUCATION — Reading to: apply good practices of secretarial skills - proofreading, getting meaning from context to supply omissions in transcriptions or copies; develop familiarity with business, commercial, and industrial practices; make use of symbols - including shorthand; recognize and use special forms such as charts, graphs, applications for positions, invoices, legal papers, tax forms; understand business principles and ethics.

HOME ECONOMICS — Reading to: appreciate and make use of collateral knowledge, such as art design, historical and cultural relationships, psychological and health factors; evaluate itemized bills and lists, charts, labels, guarantees, records, budgetary accounts, meter-readings; evaluate reports such as consumer-research, advertising statements; use and evaluate signs, symbols, abbreviations, for descriptions, measurements, patterns; follow instructions for appliances.

INDUSTRIAL ARTS — Reading to: comprehend and use symbols, abbreviations, signs; consider consumer-research reports critically; evaluate advertising; evaluate and interpret licenses, guarantees; evaluate quality of materials; follow instructions for use of tools and instruments; follow step-by-step directions for construction, finishes; learn and follow safety instructions; interpret and use blueprints, patterns, layouts; secure and evaluate collateral readings on inventions, design, and color and on related fields, such as mathematics, science, research and development; use and follow measurements.

LITERATURE	Reading to: comprehend sequence of events, cause and effect relationships; develop broad tastes and permanent interests in good literature; enjoy sensory and experiential elements of the material being read, such as figurative and colorful language; evaluate qualities of good writing, content, style, vocabulary, structure; experience what the selection has to tell, what the plot, characters, setting, episodes, style, language, author's ideas reveal; recognize and appreciate different types of literature - novel, short story, drama, essay, poetry, biography, and other types of non-fiction; try to discover the author's "statement about life".
MATHEMATICS	Reading to: apply graphic representations to problems and situations; develop mathematical perspective; weigh evidence of data; evaluate on the basis of principle, cause and effect, variables; exercise judgment in distinguishing the important and irrelevant in problems and act upon this interpretation accordingly; grasp mathematical concepts and relate them to others or generalize from them; recognize equations as expressive in a manner similar to sentences in regular prose writing; use and evaluate mathematical symbols and expressions descriptive of size and shape, extent, relationships.
MUSIC	Reading to: appreciate and enjoy historical and analytical accounts of music, musicians, style and form of compositions, historical context; appreciate and evaluate other art forms, architecture, painting, sculpture, etc.; follow lyrics, songs; use and interpret notes, symbols, abbreviations.
PHYSICAL EDUCATION	Reading to: develop critical thinking in development of approaches to motor skills and rules of safety; evaluate advertising, propaganda; evaluate materials; follow procedures in safety rules in physical activities; interpret and carry out movement skills, safety rules; interpret data, scientifically proved materials; make use of graphs, charts, tables; secure information for developing lifelong health and safety habits.
SCIENCES	Reading to: comprehend diagrams, charts, tables; develop scientific thinking - weigh evidence, recognize cause and effect, observe and organize data, suspend judgment, draw significant generalizations; recognize characteristic signals in style and typography for emphasis and organization in science texts and manuals, for key statements, for announcement of principles and "laws".
SOCIAL STUDIES	Reading to: compare reports of eye-witnesses, experts, secondary authorities; comprehend and evaluate facts, ideas, principles and practices; establish appropriate relationships of events in chronological order; evaluate controversial issues; follow graphic presentations, such as line, statistical, trend, functional, bar, circle graphs; interpret social, geographical, historical, political, legal terms; investigate and test reliability of statements or authors, agreement or differences among authorities, recognize and appreciate historical style and the art of historical writing; visualize and interpret other times, places, circumstances.

Effective reading in the content areas demands all the general reading skills the student has been taught throughout the primary grades. However, each content-area course has its special vocabulary and concepts and requires its special reading skills.

The content-area teacher must assume full responsibility for teaching the special vocabulary, concepts, and reading skills required by his subject. To teach content effectively, he must teach reading effectively.

SPECIAL PROBLEMS IN SCIENCE AND MATHEMATICS

There are many reasons why students who read reasonably well in other content areas fail to read well in science and mathematics. Bamman ([2]) lists the following:

1. Young readers have been accustomed to reading materials of narration. They are not used to the terse, expository language of science and mathematics.
2. Ideas are often more complex, and there is little control over the number of concepts introduced.
3. Concepts are developed on an ascending scale of difficulty. Previous knowledge and experience is vital. Care must be taken not to pitch the instruction above the functioning level of students.
4. Wide reading may be demanded from a variety of sources.
5. Inter- and intra- relationships in mathematics and science are numerous and complex. Students who read for literal interpretation don't exercise the critical thinking necessary or see the relationships between what they know and what they're reading.
6. Readers must judge relevance, authenticity, and value. Too many are prone to accept everything as fact.
7. Mastery of study skills (interpreting graphs, tables and charts; using reference materials) is essential.
8. The vocabulary of science and mathematics is often specific to the content area.

The challenge to teachers then is obvious. They must teach vocabulary, comprehension techniques, critical reading, and flexibility.

Vocabulary instruction must be systematic and thorough. A subsequent chapter will discuss in detail some effective techniques.

Fehr and Bamman ([2]) suggest six steps in helping students improve comprehension:

1. Help the student adopt a problem consciousness. A problem is not a problem simply because the book says it is. There must be purpose for solving it.
2. Develop wide experience and broad background in mathematics and science situations. Point out essential relationships through references to previous learning and through multiple illustrations.
3. Activate the problem. Aid the student in the statement of the problem in his own language. Use diagrams, concrete objects, etc., and illustrate practical applications.
4. Help students ask meaningful questions. Guide them, through your own questions, to read the selection or problem again. In problem solving there are always questions.
5. Become sensitive to the student who is using an unsuccessful attack on the problem.
6. Generalize the solution to every problem so that it may have wide application in solving new problems.

The teacher must at times emphasize critical reading. Maney's ([14]) definition of comprehension and critical reading skills has some implications:

1. Developing functional vocabulary
2. Developing understanding of semantic variations
3. Locating the central theme
4. Making inferences
5. Making generalizations
6. Solving problems
7. Associating ideas
8. Recognizing analogies
9. Understanding antecedents
10. Establishing and remembering sequences
11. Recognizing extraneous ideas
12. Following directions
13. Visualizing

The teacher must be concerned about students' flexibility in rate for reading various types of material. This subject will be discussed in another chapter.

SPECIAL PROBLEMS IN SOCIAL STUDIES

Smith and Dechant (24) list three principal difficulties in reading social studies:

1. The vocabulary may be highly specialized and the reading material is likely to be heavily loaded with complex concepts.
2. The diagrammatic materials require considerable interpretive skill for their effective use.
3. The content frequently is emotionally loaded and controversial. A critical evaluation rather than blind acceptance is required.

Concerning No. 1, Horn (12) writes:

> Many of the ideas presented in typical textbooks in geography, history, or other social studies are so intrinsically complicated that they would be difficult to understand even if described in liberal detail, in untechnical language, and in a lucid attractive style. Actually, however, they are presented in the form of condensed and abstract statements that are readily understood only by those who have already formed the generalization for which the statements stand.

Concerning No. 2, Strang, McCullough, and Traxler (28) say:

> Just as a student must learn the vocabulary of a foreign language, so he has to learn the symbolic language of maps. Just as his impression of descriptive passages gains in vividness when he pictures the scenes described, so his reading of maps becomes more realistic if he visualizes the rivers, glaciers, and other features of the landscape indicated by maps. He needs to be taught to recognize that a map is a ground plan drawn to scale; to read a descriptive story from maps; to read different kinds of maps; to progress from simple to more complex maps; and to read maps in order to learn.

The problems involved in reading a map illustrate the difficulties in interpreting other diagrammatic material - graphs, charts, tables, and pictures.

Concerning No. 3, Ferrell (9) has suggested that, to read critically, the student must acquire the following skills:

1. To identify the purpose for which the article was written, namely, to discredit, to eulogize, to make news, or to give accurate information.
2. To examine and evaluate the sources of information, distinguish between what is based upon observation and what is based upon inferences drawn from observations.
3. To understand and identify the devices used to make the reader react according to a certain pattern:
   a. Appealing to emotion instead of reason
   b. Relating only one side
   c. Using glittering generalities
   d. Beginning with facts generally accepted and then introducing questionable points
   e. Getting endorsement from some prominent person

Continued on following page

f. Calling names and using slanted words
g. Avoiding source of information
h. Encouraging one to join the band wagon

It is generally agreed that critical reading can be taught, not in one lesson or unit, but through encouragement and guidance in a developmental process.

Similarly, the social studies teacher who is aware of his students' problems with vocabulary or diagrammatic materials can make pertinent day by day provisions for alleviating them.

FLEXIBILITY

Most reading experts list the development of flexibility as one of the prime objectives of a junior high developmental reading program. Most discussions of flexibility center around different rates of reading. Actually, flexibility involves any kind of adaptability in technique. It may be reasonable to discuss flexibility in terms of speed variation only if we understand that a slower rate should imply more intense and thorough mental involvement and more creative intellectual activity.

Some research has indicated that only five per cent of high school and college students are truly flexible readers. Certainly a startling number of junior high students have no flexibility. They have settled into a habitual manner of reading. They approach every selection with one technique, one rate. Often this rate is an intermediate one - say 200 words per minute. They never skim; they seemingly regard rapid skimming as dishonest. They are likewise inept at close reading. An economically stated argument, a paragraph needing critical consideration, a problem in mathematics - all get cheated or by-passed by the 200 word per minute rate. These students need daily practice and guidance in developing flexibility.

Ellen Thomas (20) comments on the applicability of five approaches to reading:

1. Skimming. The student should skim when searching through materials for a single piece of information, when seeking a general impression of the content, or when examining the selection to see if it contains what he wants. He should skim when previewing, preliminary to more careful reading.
2. Very rapid reading. This rate would probably be suitable when reading light, easy, fast-moving fiction for entertainment only.
3. Rapid Reading. The student might read rapidly when the material is fairly easy and when his purpose is grasping only the more important ideas and facts. Much of the content of newspapers and magazines is intended for rapid reading, as is much recreational material.
4. Average reading. Average reading may be suitable for an article in Natural History assigned in science, for certain chapters read in social studies, and for novels in English, like My Antonia or The Ox Bow Incident.
5. A slow and careful approach. The student should adjust his speed downward when. . . . he wants to retain details, to weigh the truth of what he is reading--with "thought time" required in addition to "reading time" -- to linger over artistic wording or to compare his own experiences with a poet's sonnets.

The goal of guidance in the area of flexibility is to help the student develop independence in choosing suitable reading patterns. Most people can make appropriate adaptations; the fact that relatively few do makes this a fertile area for teaching.

A number of studies have shown that merely directing the students to change their reading technique does not suddenly result in significant rate changes. The conclusions we draw from these studies are: (1) It takes time to produce truly flexible readers. Instruction should be given throughout the developmental program. (2) Merely offering advice concerning desirable reading speeds seems to be ineffectual. The emphasis should be on various comprehension requirements. The purpose for reading should be the foremost concern. Selecting the appropriate technique and employing a reasonable rate should be a logical outgrowth of the determination of purpose.

LEVELS OF COMPREHENSION

There is only one reason for reading and that is comprehension. Yet the word "comprehension" itself is one of the more defined but least standardized of the terms used in reading. Some authorities have listed as many as twenty-four comprehension skills. Others have much shorter lists. In an analysis of the general types, however, one sees basic similarities in all the lists. The difference in number comes from a breaking down of three or four major areas into several subdivisions. General agreement can be found also among all authorities on other aspects of comprehension. They generally agree that a student's intelligence limits his level of comprehension and that his background delineates the extent of his comprehension, for although the printed page presents the same words to each reader, each person emerges with a somewhat different impression of what the author has said.

Edwin H. Smith has defined the comprehension skills in reading in three categories. He calls them <u>receptive</u> reading, <u>critical</u> reading, and <u>creative</u> reading. (23)

<u>Receptive</u> reading is reading to locate and identify facts, opinions, and reports. It is reading to absorb the message.

<u>Critical</u> reading is reading to appraise, evaluate, and to form judgments. Here the student has taken a step beyond the receptive reading which he has used to supply the facts for his critical appraisal. In this type of reading the student applies criteria that he has learned from past experiences to judge the reading that he is doing. These criteria actaas a screen to hold out ideas that conflict with it.

He has divided <u>creative</u> reading into two subdivisions: <u>divergent</u> creative reading and <u>convergent</u> creative reading. Divergent creative reading is the use of the author's ideas to lead the way to new concepts. This type requires that the mind be able to free itself of the restrictions of conventional knowledge. It often is characterized by an emotional involvement.

The convergent creative reading is the use of the author's and the reader's ideas to converge on an existing answer to a problem. Convergent reading involves the use of conventional knowledge.

In both convergent and divergent creative reading, the student may use such reasoning tools as analogy, personification, addition, subtraction, division, redefinition, anticipation, rearrangement, probability, or compression.

Smith gives an example of the use of these types of comprehension. If a person wants to find the date of an event, he uses receptive reading. If he wants to evaluate the accuracy of the date, he is doing critical reading. If he wants to place the date into an event sequence, he uses convergent creative reading. If he envisions how he would have lived in that era, he is using divergent creative thinking.

He advocates the teaching of creative reading by several methods (a few of which are listed here), and urges teachers to add others. His technique includes: (1) extending the idea of the author by asking, "Could we apply this to another situation?" (2) asking, "What can we add to this idea to make it fit another situation?" (3) asking for problems related to the one presented by the author, (4) asking students to find similarities between unrelated sections, (5) asking for reasons why an author used a personification and

asking the students to substitute their own personifications, (6) asking students to add lines to an incomplete poem, (7) asking for solutions to social problems other than the one presented by the author, and (8) asking for differences between similar descriptions of an event or events.

Once recognized, these categories are useful to the teacher in several ways. He can better set the level of accomplishment that he wishes to have his students achieve and get away from the overused pattern of "reading for details" involved in receptive reading. He can stress critical reading in certain areas when it is appropriate. He can make a lesson challenging by moving it to the area of creative reading.

The identification of these areas will also aid the teacher in adjusting his objectives to the student's comprehension level and suggest some ideas for intra-class grouping. The low ability student should certainly not be expected to do much in the area of criticial or creative reading. He usually is doing well to master the receptive reading of an assignment. With a little ingenuity the teacher can have all his students participating in the same reading assignment but in different activities at different comprehension levels. While a low-ability student reads for the general plot, the more able student searches for the symbolism of the story. While the low-ability student lists the general area that a law involves, the more able student describes the effect that this law might have on the future in shaping the America of tomorrow.

The use of the same reading lesson in such diverse ways eliminates the bad features of ability grouping while preserving the principle of "every student working at his level".

VOCABULARY DEVELOPMENT

Convincing a student that "words are power" and that the understanding of them is essential to his success is a relatively easy first step in vocabulary building.

While all teachers share responsibility for building general vocabulary, the content area teacher alone is responsible for teaching the special and technical vocabulary of his subject field. The word "lepidoptera" must be introduced and related to other words of its class ("hymenoptera," "homoptera," etc.) by the science teacher. The subject matter teacher's responsibility becomes clear also in words with multiple specialized meanings. The word "radical" might be presented by an English teacher, a social studies teacher, and a mathematics teacher - with a different meaning each time.

Before discussing some specific methods for promoting vocabulary growth, we might agree on some pervasive principles which relate to all sound vocabulary study. For instance, authorities agree that context is the most important single aid to vocabulary development. Virtually all word study can be done in a contextual setting for optimum effectiveness. The importance of motivation, too, is indisputable. When the student's curiosity about words is aroused, when he becomes sensitive to the "power phase" of language, when he becomes attentive to the connotations of words and semantic variations - in short, when he becomes immersed in voluntary word study, then methods of teaching words become a secondary consideration.

Though there is conflict in the research concerning the most effective techniques for teaching vocabulary, we have attempted to present a list of those methods most generally accepted, somewhat in order of their effectiveness:

1. FIRSTHAND EXPERIENCES — Field trips, laboratory experiments, and teacher demonstrations are excellent examples of this method.

2. ILLUSTRATIONS FROM EVERYDAY ACTIVITIES — This practice leads students away from the memorization of rigid explanations, which he often parrots back without real understanding. (Methods #1 and #2 use the inductive approach.)

3. EXERCISES USING ROOTS WITH SUFFIXES AND PREFIXES — The long difficult words become relatively simple if they are analyzed as to the meaning of their various parts. Here, too, the history of the word can be effectively used to heighten interest and to aid retention.

4. DICTIONARY WORK — The "dictionary habit" is one that if firmly fixed will serve the student well in school and in the years after instruction has ceased.

5. WIDE READING — This is effective because it exposes the student to new words and shows all words in context.

6. VOCABULARY NOTEBOOKS — Research contains reports of fruitful experiences with students' word notebooks, even though some teachers have misgivings about them. Student motivation again apparently seems to determine how profitable such work will be.

7. VOCABULARY WORKBOOKS	Some excellent vocabulary workbooks are in circulation. (In this connection we may generalize that all word drill will probably be most effective if given in frequent brief doses.)
8. CREATIVE WORK	Teachers of English and social studies can use this method with especial effectiveness. When allowed to do creative work students are apt to use "new" words more frequently and, with guidance, learn to use these words accurately without drill or conscious memorization.
9. SIMPLE VERBAL EXPLANATION	Sometimes the only practicable way to explain a word is by means of other words. Even this "last resort" method should employ context.

It is probably wise procedure for teachers to continue to use both incidental and direct methods of vocabulary instruction. As they teach words daily in their classes, they may wish to keep in mind some principles put down by McDonald (15):

1. Since the meanings of all but a very few words are derived from the context in which they are used, words to be learned should be presented and studied in context.
2. Students should be taught a technique for using context clues in unlocking or inferring word meaning.
3. Students should be given experience with central and important transferred meanings in contextual settings.
4. Usage should be stressed to help students develop confidence in their ability to use their expanded vocabulary.
5. A structured teaching situation should be devised which makes it possible for students to encounter more words in controlled contexts in less time than would be possible in free or assigned reading.
6. Each student should work at his own level of need and at his own rate of learning.
7. The words to be taught should be those shown by research to be most needed at the level(s) of instruction under consideration.

GATES READING SURVEY TEST

In the early weeks of the seventh grade, students of District 276 are given the Gates Reading Survey Test. The grade scores yielded by this test are the ones that a teacher usually refers to first for determining the reading level of his students. There are other sources. The counselors have a file on every student giving background information and reading scores from the elementary grades. However, the Gates is usually the most up-to-date test available.

Because of its importance the teacher should be aware of its strengths and weaknesses in order to use it most effectively.

For advantages we can list:

1. It can be administered in one period.
2. It has several equivalent forms.
3. It is widely used and has well-established norms.
4. It is somewhat diagnostic in that it gives scores on three distinct areas (speed, vocabulary, and comprehension).

As disadvantages we cite:

1. Vocabulary is tested apart from all context.
2. The comprehension score is based on ability to fill in missing words in paragraphs. This does not take into account the more comprehensive organizational abilities essential to real understanding of study material.
3. The test is too short to be truly reliable. For instance, if a student scores 18 on the speed test, he receives the grade score 8.6. If he scores 21, he receives the grade score 10.6. Thus, three additional correct answers advances the grade score two full years. A variation of three on a test of this sort could easily be accounted for by how much sleep the student had the night before, the time of day the test was given, the amount of encouragement given by the administrator, the student's characteristic temperament and stability in the testing situation, etc.

Because of these limitations, results must be supplemented by teacher judgments, and the test must be interpreted with caution. Teachers should be familiar with the content and structure of the test and its inherent limitations. They must be aware of the fact that the reading level the test ascribes to a student is in reality a "frustration reading level." The student who scores 8.1 will not be able to handle eighth grade material well. He's probably just a good average seventh grade reader.

Certain other factors should be kept in mind when using the Gates test. The students of District 276 average a grade and one-half to two grades above national norms. Beginning seventh graders average 8.5 to 8.9 on the test. This also indicates that they will probably gain more than one grade level in reading per year. Knowing this, the teacher can better gauge his classes' reading level at the eighth and ninth grades.

The experienced teacher will not be satisfied with the Gates score alone. He will also know and use many informal ways of checking a student's reading.

INFORMAL TESTING

Because of the limitations of any survey-type reading test, the teacher will feel that he doesn't know quite enough about his students' reading ability and needs. As a valuable supplement we suggest informal testing.

The whole area of informal testing is an amorphous one. Yet it is a prolific source of useful information that every teacher should tap.

The teacher should probably not be expected to structure a refined inventory of reading skills in his area. Yet some simple, valid techniques are at his command. Seyfert (20) mentions (1) the open book test to see if the student can use the text for different purposes, (2) tests on a series of articles, roughly graded in difficulty, to check the point at which a student can no longer handle the vocabulary or concepts, and (3) direct observation of students' work - for instance, to see if he can skim to answer a question concerning a main idea.

Another interesting method is described by Anderson (1) and called the "Cloze procedure." Merely take a section of text and delete, say, every eighth word. Leave these blanks for the student to fill in words. Such an exercise is an excellent test to see if the student can perform at this comprehension level.

In preparing informal tests, teachers should first determine the skills needed for reading in their content areas. (See Chapter 5.) The list of skills for reading a science book would include, for example, reading for main ideas and specific details, understanding technical vocabulary explained in context, determining scientific accuracy, and checking the validity of generalizations. The teacher may select ten words and present them out of context in the form of a matching exercise. Next the pupils are asked to read the text containing the words just tested. These words should be clarified by the context. Pupils retake the original test after reading. A comparison of scores on the pre-test and post-test indicates their ability to derive word meanings from context.

To test ability to read for main ideas, pupils are required to read several paragraphs from the text and to write the main ideas in their own words. Or, pupils are directed to read a short, well-organized passage. When they have finished, they close their books and write all they remember. These tests of recall can be evaluated on several points: recall of main ideas, recall of details, and ability to remember ideas in sequence. Informal tests of specific skills can be analyzed quickly to identify pupils who have serious deficiencies, those who have moderate weaknesses, and those who have mastered the skill in question. Results should be charted. The tests do not need to be painstakingly corrected or scored numerically. Their purpose is solely to identify weaknesses.

Some significant results come from informal testing: (1) The testing of abilities to interpret meaning, make inferences and generalizations, to draw conclusions, etc. may show the need for departing from a mere search for literal meanings. (2) It alerts the teacher to the complexity of the reading process and the danger of taking too much for granted (e.g. What some students consider the main idea of a passage will startle the teacher at times.). (3) It yields information that is truly diagnostic, and the good teacher is constantly inter-weaving diagnosis with instruction. (4) It gives direction to the planning for future reading assignments. (5) It suggests some ideas for grouping and differentiating assignments.

Chapter 13

ORAL READING

One area in which today's students are less proficient than were those of past decades is that of oral reading. Educators have tended to neglect oral reading because the main value of reading comes from doing the skilled silent reading that the student does the majority of the time. Now there is a trend again toward some training in oral reading. The consensus seems to be that even if a person is called upon only once in his lifetime to stand befofe a large group and give an oral reading, the time spent learning to do so effectively has not been wasted.

Generally oral reading should be done only on material that a student has had a chance to prepare. To force a student to read unprepared material can cause a severe emotional disturbance that could affect his growth in oral language, ease of expression, and development of poise before a group. There is no justification for oral sight-reading round-a-group, one child reading after another. The learning value is negligible in relation to the dangers of such procedure.

There are values in oral reading if it is correctly handled. A student learns to develop a better language pattern from reading aloud. Oral reading can be used as an aid to develop better silent reading. For example, the teacher asks for a main idea from a paragraph, and the student skims to find the answer and reads it aloud; or the student reads a new word in context by finding it in another sentence and reading it aloud. Correct pronunciation of difficult words results from oral reading when the teacher is listening and corrects the student. This is especially helpful to high-ability students who have developed a tremendous store of new words from their wide reading but have had no practice in saying them aloud.

Oral reading can be used as a diagnostic test of a student's reading level. A student should be able to read material that he is going to read independently (for recreation) with no more than one word-recognition error in each one hundred words and with at least 90% comprehension. At this level he should read in a natural tone. His posture should be good, and he should be free from tension. His silent reading should be faster than his oral reading.

At his instructional level, the student should read with no more than one word-recognition error in twenty words, and he should have a comprehension score of at least 75%. At this level the child reads orally, after silent study, without tension, in a conversational tone, and with rhythm and proper phrasing.

The frustration level is marked by a book in which the student reads orally without rhythm and in an unnatural voice. Errors and refusals are numerous. The student is obviously tense and ill at ease. He comprehends less than half of what he reads. No student should be asked to read at his frustration level silently or orally.

There is one word of warning to the teacher testing a student in this manner. The retarded reader tends to read all material in about the same way. He makes about the same number and kinds of errors on any reading material presented to him.

Chapter 14

DEVELOPING A SOUND APPROACH TO READING

These are random ideas taken from many sources and quoted by Erickson (8) that might help in teaching the student to read:

1. Failure to adjust material to the child's level is the chief cause of reading failure, and the failure to read is the single greatest cause of school failure.
2. Even poor readers wish to belong and do not want to be classed as failures.
3. A child's growth in reading is not necessarily uniform.
4. Simply retarding or accelerating a child one grade will not solve his problem. Wherever the child, the teacher must adjust the instruction to him.
5. A disabled reader is one whose future is in jeopardy because of reading failure.
6. If a child does well in arithmetic and poorly in reading, he may be classed as a reading disability case. If he does poorly in both arithmetic and reading and has a better than average intelligence then his is probably an emotional problem.
7. A child in reading difficulties is bound to feel it emotionally in time.
8. Low intelligence is not generally the cause of poor reading.
9. The effectiveness of learning depends far more upon the activities of the teacher than upon the basal reading system.
10. The chief problem in the teaching of reading is providing for individual differences.
11. The basal reading system can provide only a fraction of the reading program; the rest must be up to the teacher.
12. Regardless of the mental ability of a child, there is a level of learning suitable for him, and every child in school can make progress when suitable instruction is provided.
13. A skilled teacher provides experiences which stimulate a child to continue developing his reading skills.
14. The development of character is more important than the possession of facts and skills.
15. Reading programs are not standardized because children are not standardized.
16. A common cause of reading failure is lack of drill at points of weakness.
17. The best basis for meeting the needs of the individual student is informal testing and close observation of his regular reading.
18. Almost invariably the development of study skills is enhanced by having the children work in pairs.
19. Pupils who do routine work more rapidly if they know they can work on a specialty when routine tasks are done.
20. Motivation is the most important aspect of a reading lesson.
21. Small units in particular skills may be set up to help a child acquire a feeling of reaching a goal.

22. A child is not generally considered to be a remedial reading case unless there is a difference of one year between his potential capacity and his reading achievement.

23. A child should keep a record of his progress.

24. Independent word recognition is the most important skill that a child can develop in reading.

25. Every child of average intelligence should be reading library books at his independent reading level. If books are too hard he is quickly discouraged.

26. By the time a child has reached the third grade level in reading he should have mastered the Dolch List of sight words (220).

27. Unfair competition at early levels is the greatest single enemy of social development.

28. There is little place for punishment in the reading program.

29. Word-by-word reading in an unnatural voice is a dead give away that a child is reading at his frustration level.

30. When word meaning and word analysis abilities are developed in reading, a large share of the spelling task is also accomplished.

31. Respect for a pupil increases his respect for himself.

32. If a student comprehends a passage read aloud much better than he comprehends a comparable passage read silently it means that he has the potential of becoming a good reader.

33. A teacher need not wait for a specialist to give him diagnostic information; it is available to him in his daily work with the child.

34. A skilled teacher constantly interweaves diagnosis and correction.

35. Remember that a child is entitled to some happiness....We modern day teachers have been accused of subjecting students to too many pressures in our own quest for excellence.

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SYLLABICATION

A syllable is a word or a part of a word in which there is <u>just one vowel sound</u> (plus any consonants that may go with it). Only vowels give full-fledged sounds. The syllable is a unit of sound; hence it contains just one vowel sound.

When you ask a student how many syllables there are in a word (and this is more important than technical perfection in dividing words into syllables), just have him count vowel sounds. Silent vowels don't count. Dipthongs (ou, oi, ow, oy) are considered single vowel sounds.

<u>The following rules should be applied in order</u>. In other words, Rule 2 about a prefix being a syllable overrides any application of Rule 5. The prefix will be a syllable even if it is followed by two consonants, that is.

<u>Rule 1</u> PRONOUNCE THE WORD. It may fall into syllables automatically.

remembering	(4)	increase	(2)	wonderful	(3)
candlelight	(3)	absolute	(3)	contraption	(3)
sympathy	(3)	September	(3)	trespass	(2)

a. Compound words fall easily into their separate parts. Try these:

corkscrew	horsedrawn	cornstalk
streamline	elsewhere	withstand

b. Many words become unpronounceable if divided in any but the right way. Some word elements or letter combinations must stay together in a syllable or their special sound is lost.

na <u>tion</u>	<u>tech</u> nique	de li <u>cious</u>
spe <u>cial</u>	ty <u>phoon</u>	<u>meth</u> od

<u>Rule 2</u> LOOK FOR PREFIXES AND SUFFIXES

a. A prefix is normally a syllable (or syllables). Divide them between prefix and root.

in sight	be come	per cent
re port	ex plode	trans port

b. A suffix that begins with a consonant is normally a syllable.

a muse <u>ment</u>	spine <u>less</u>	king <u>dom</u>
short <u>ness</u>	sky <u>ward</u>	four <u>teen</u>

c. <u>-er</u>, <u>-est</u>, <u>-ing</u>, <u>-ish</u>, and <u>-ed</u> (when it is a syllable...that is, preceded by <u>d</u> or <u>t</u>) normally stand as syllables.

hunt er	mend ed	spill ing
imp ish	warm est	quilt ed

d. When the final consonant of a word is doubled before a suffix is attached, the added consonant goes with the suffix.

swim <u>ming</u>	fun <u>ny</u>	big <u>gest</u>
o mit <u>ted</u>	snob <u>bish</u>	flat <u>ten</u>

e. Most other suffixes are troublesome. If you can't determine the proper division by careful pronunciation, you may have to consult a dictionary.

Rule 3 NOTE ENDING -LE. If a word of more than one syllable ends in -le, the consonant directly before the l begins the last syllable.

ta ble	sti fle	ri fle
nee dle	trem ble	sam ple

Note: The rule does not hold when a ck is involved.

tack le	knuck le	trick le

Rule 4 DIVIDE RIGHT AFTER A VOWEL THAT IS FOLLOWED BY JUST ONE CONSONANT. "Divide right after a long vowel" is really the same rule with more limited application. The rule as first stated makes allowance for the schwa sound and is therefore more useful. (Remember that digraphs like ch, ph, sh, th, are considered single consonants. Remember too that after a long vowel the blend shouldn't be split, as in se cret and vi brate.)

embu lance (3)	occu py (3)	dy namo (3)	cu cumber (3)
toma to (3)	py thon (2)	occu pant (3)	hori zon (3)
diplo mat (3)	argu ment (3)	torna do (3)	la bel (2)

Rule 5 DIVIDE BETWEEN THE CONSONANTS IF A VOWEL IS FOLLOWED BY TWO CONSONANTS. (Again we make exception when the two consonants are logically considered as one. For instance: diagraphs ph, th, ck, etc., or blends)

ac cumulate (4)	cal culate (3)	ad vantage (3)
vic tory (3)	oc cupy (3)	in for mation (4)
am bulance (3)	al cohol (3)	oc topus (3)

NOTE: When a vowel is clearly short (not a schwa sound), we include the consonant after it in the syllable, even if that short vowel is followed by just one consonant.

riv er	meth od	sol emn	mad am
cam el	val id	beck on	rap id

APPENDIX

PREFIXES - SUFFIXES - ROOTS

An analysis of words into roots, prefixes, and suffixes helps the student to understand their origins, substance, and usage.

Of the 20,000 commonest words in English, 4992 or 25% have prefixes. Fifteen prefixes make up 82% of the total number of prefixes. They are:

ab (from)	dis (apart)	pre (before)
ad (to)	en (in)	pro (in front of)
be (by)	ex (out)	re (back)
com (with)	in (into)	sub (under)
de (from)	in (not)	un (not)

Prefixes change or add meaning to the root. Suffixes have a different function. While they occasionally affect the meaning, they are used more to change the part of speech.

Noun suffixes: -ness, -y, -dom, -ment, -ion, -ance, -sion, -ation, -ity, -ty, -ence, -hood, -ship, -er, -or, -eer, -ant

Adjective suffixes: -able, -ible, -ive, -al, -ial, -ful, -ish, -less, -ous, -ious, -ary

Verb suffixes: -ize, -fy, -ate

Adverb suffix: -ly

The following page presents FOURTEEN WORDS which, if understood literally and completely, are the KEY TO THE MEANINGS OF 100,000 WORDS, according to a study made by Dr. James Brown of the University of Minnesota which appeared in the August, 1956, issue of Coronet.

KEY TO 100,000 WORDS

Prefix	Its other spellings	Its Meaning	MASTER WORDS	Root	Its other spellings	Its Meaning
de-		down or away	DETAIN	tain	ten, tin	to have or hold
inter-		between	INTERMITTENT	mitt	miss, mis, mit	to send
pre-		before	PRECEPT	cept	cap, capt, ceiv, ceit, cip	to take or seize
ob-	oc- of- op-	to, toward, against	OFFER	fer	lat, lay	to bear or carry
in-	il- im- ir-	into	INSIST	sist	sta	to stand endure or persist
mono-		one or alone	MONOGRAPH	graph		to write
epi-		over, upon beside	EPILOGUE	log	ology	speech or science
ad-	a- ac- ag- al- an- ap- ar- as- at-	to or towards	ASPECT	spect	spec, spi, spy	look
un-		not	UNCOMPLICATED	plic	play, plex, ploy, ply	to fold, bend, twist, interweave
com-	co- col- con- cor-	with or together				
non-		not	NONEXTENDED	tend	tens, tent	to stretch
ex-	e- ef-	out or formerly				
re-		back or again	REPRODUCTION	duct	duc, duit, duk	to lead, make, shape fashion
pro-		forward or in favor of				
in-	il- im- ir-	not	INDISPOSED	pos	pound, pon, post	to put or place
dis-	di- dif-	apart from				
over-		above	OVERSUFFICIENT	fic	fac, fact, fash, feat	to make or do
sub-	suc- suf- sug- sup- sur- sus-	under				
mis-		wrong or wrongly	MISTRANSCRIBE	scribe	scrip, scriv	to write
trans-	tra- tran-	across or beyond				

JUDGING READABILITY

A cardinal principle in the teaching of reading is that no student should be asked to read "over his head." To the subject area teacher this presents many practical difficulties. How can he individualize reading assignments? The units he teaches with their multiple texts and supplementary reading sources provide some answers. But some difficulties remain. The teacher must still, for instance, be able to estimate the reading level of a given text. And what does he do when he wants the entire class to read a certain selection which is obviously too difficult for some or all of the class? If the teacher knew how to "write down" a reading selection to a desired reading level, to adapt it for any certain group, he would find it a useful skill on many occasions.

Rudolph Flesch, the "Why Johnny Can't Read" man, has specialized in the study of readability. He has popularized several formulas for estimating degrees of readability. Such formulas are generally complex and difficult to apply. However, we have taken his most simple method and modified it somewhat. As here presented it can be used with ease and with a useful degree of validity.

HOW TO JUDGE READABILITY

Step 1: Pick your samples. Take enough samples to make a fair test. Each sample should start at the beginning of a paragraph.

Step 2: Count the number of words. Take each sample and count each word in it up to 100.

Step 3: Figure the average sentence length. In a 100-word sample, find the sentence that ends nearest to the 100-word mark--that might be at the 94th word or the 109th word. Count the sentences up to that point and divide the number of words in those sentences in all your samples by the number of sentences in all your samples. (Regard colons and semi-colons as periods.)

Step 4: Count the syllables. Count syllables the way you pronounce the word. "Asked has one syllable. "Determined" has three. "Pronunciation" has five.

Step 5: Consult the following table for your "reading ease" score.

NUMBER OF SYLLABLES PER 100 WORDS

AVERAGE NUMBER OF WORDS PER SENTENCE

	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200
5	100	96	92	88	83	79	75	70	66	62	58	54	50	46	42	37	33
6	99	95	91	87	82	78	74	69	65	61	57	53	49	45	41	36	32
7	98	94	90	86	81	77	73	68	64	60	56	52	48	44	40	35	31
8	97	93	89	85	80	76	72	67	63	59	55	51	47	43	39	34	30
9	96	92	88	84	79	75	71	66	62	58	54	50	46	42	38	33	29
10	95	91	87	83	78	74	70	65	61	57	53	49	45	41	37	32	28
11	94	90	86	82	77	73	69	64	60	56	52	48	44	40	36	31	27
12	93	89	85	81	76	72	68	63	59	55	51	47	43	39	35	30	26
13	92	88	84	80	75	71	67	62	58	54	50	46	42	38	34	29	25
14	91	87	83	79	74	70	66	61	57	53	49	45	41	37	33	28	24
15	90	86	82	78	73	69	65	60	56	52	48	44	40	36	32	27	23
16	89	85	81	77	72	68	64	59	55	51	47	43	39	35	31	26	22
17	88	84	80	76	71	67	63	58	54	50	46	42	38	34	30	25	21
18	87	83	79	75	70	66	62	57	53	49	45	41	37	33	29	24	20
19	86	82	78	74	69	65	61	56	52	48	44	40	36	32	28	23	19
20	85	81	77	73	68	64	60	55	51	47	43	39	35	31	27	22	18
21	84	80	76	72	67	63	59	54	50	46	42	38	34	30	26	21	17
22	83	79	75	71	66	62	58	53	49	45	41	37	33	29	25	20	16
23	82	78	74	70	65	61	57	52	48	44	40	36	32	28	24	19	15
24	81	77	73	69	64	60	56	51	47	43	39	35	31	27	23	18	14
25	80	76	72	68	63	59	55	50	46	42	38	34	30	26	22	17	13
26	79	75	71	67	62	58	54	49	45	41	37	33	29	25	21	16	12
27	78	74	70	66	61	57	53	48	44	40	36	32	28	24	20	15	11
28	77	73	69	65	60	56	52	47	43	39	35	31	27	23	19	14	10
29	76	72	68	64	59	55	51	46	42	38	34	30	26	22	18	13	9
30	75	71	67	63	58	54	50	45	41	37	33	29	25	21	17	12	8
31	74	70	66	62	57	53	49	44	40	36	32	28	24	20	16	11	7
32	73	69	65	61	56	52	48	43	39	35	31	27	23	19	15	10	6
33	72	68	64	60	55	51	47	42	38	34	30	26	22	18	14	9	5
34	71	67	63	59	54	50	46	41	37	33	29	25	21	17	13	8	4
35	70	66	62	58	53	49	45	40	36	32	28	24	20	16	12	7	3

Step 6: See how your "reading ease" score fits into the following chart.

DESCRIPTION OF STYLE	AVERAGE SENTENCE LENGTH	AVERAGE NO. OF SYLL. PER 100 WORDS	READING EASE SCORE	ESTIMATED READING GRADE
Very easy	8 or less	123 or less	90 to 100	5th grade
Easy	11	131	80 to 90	6th grade
Fairly easy	14	139	70 to 80	7th grade
Standard	17	147	60 to 70	8th & 9th
Fairly difficult	21	155	50 to 60	10th & 12th
Difficult	25	167	30 to 50	13th to 16th
Very difficult	29	193	0 to 30	College graduate

Step 7: Consider the "human interest" in your selection. Personal words (pronouns except the neuter ones, words that have masculine or feminine gender like "John Jones," "Mary," "father," "sister," "iceman," and "actress," group words like "people" and "folks") and personal sentences (spoken sentences, questions, commands, requests, exclamations, and grammatically incomplete sentences) add to the readability of a selection and must be considered.