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Differing instructional needs for children of similar reading achievement grades two, four, and six

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DIFFERING INSTRUCTIONAL NEEDS FOR CHILDREN OF SIMILAR READING ACHIEVEMENT GRADES TWO, FOUR, AND SIX

Submitted by

Mayvis L. Baumann
(B. S. in Ed., Boston University, 1960)

Marian D. Bedoukian
(B. A., Sir George Williams College, 1958)

Joan Chandler
(B. S. in Ed., Salem State Teachers College, 1953)

Arline R. Dreisbach
(B. S. in Ed., New Jersey State Teachers College, 1957)

Luise M. Duerr
(B. S. in Ed., Oneonta State Teachers College, 1954)

Mary Talcott Heron
(A. B., Vassar College, 1950)

Marcia Carolyn James
(A. B., Jackson College, 1959)

Jane Ann Robertson
(B. S. in Ed., Lesley College, 1959)

Rowena Hilton Robinson
(A. B., Boston University, 1947)

Judith Rachel Stavis
(A. B., Brandeis University, 1957)

Irene P. Tibbetts
(B. S. in Ed., Castleton Teachers College, 1953)

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FIRST READER: Donald D. Durrell
Professor of Education

SECOND READER: Helen A Murphy
Professor of Education

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TABLE OF CONTENTS

LIST OF TABLES

Table | Page

Table | Page

Table Page

Table | Page

Table | Page

INTRODUCTION

It is agreed that success in most school subjects depends largely on the child's reading ability and that this reading ability varies with each child within the same grade.

As Gates[1/] states:

> "Reading is both the most important and most troublesome subject in the elementary school curriculum. It is most important since it is a tool the mastery of which is essential to the learning of nearly every other school subject. It is most troublesome since pupils fail in reading far more frequently than in any other elementary skill."

It is the purpose of this paper to determine the various reading needs of children at the same grade level.

1/A. T. Gates, The Improvement of Reading, Macmillan Company, New York, 1935, p. 1.

CHAPTER I

RELATED RESEARCH

This chapter will deal with previous research conducted in the field of reading. The following areas were considered pertinent to the study:

1. Factors That May Influence Reading
2. Oral and Silent Reading
3. Study Skills
   - Elaborative Thinking
   - Written and Oral Recall
   - Dictionary Skills
   - Skimming
4. Word Skills
   - Word Pronunciation
   - Spelling
   - Audio and Visual Discrimination
   - Syllabication

1. Factors That May Influence Reading

Durrell[1/] says, "Oral reading is a major consideration in the primary grades, and it is of special importance to any level for children with reading difficulties."

1/Donald D. Durrell, Improvement of Basic Reading Abilities, World Book Company, New York, 1940, p. 115.

Jackson[1] surveyed the psychological, social and environmental differences between high achievers in reading and retarded readers. The findings showed a positive degree of relationship among twenty different variables and retardation in reading. Some of the variables were intelligence, sex, school grades, personal illness, fears and speech defects. Therefore, it is concluded that personality factors are definitely related to reading achievement.

Wilson[2] agrees and points out that the ability and disposition of a child to read should constitute the largest part of the school's work.

Gray,[3] in discussing trends in personal reading, states that low competence in reading from the elementary school training greatly limits the amount of reading in which an adult daily engages.

The following studies are typical of the research being done to help today's schools to meet the individual needs of its pupils.

Storm[4] states that boys are generally slower than girls tested in acquiring language. It was also found that more reading disabilities were noted among boys than girls. Further study showed that girls have a different level of maturity and rate of learning than boys.

1/ Joseph Jackson, "Survey of Psychological, Social Environmental Differences Between Advanced and Retarded Readers," Pedagogical Seminar, 65:113-131.

2/ H. B. Wilson and G. M. Wilson, The Motivation of School Work, Houghton Mifflin Company, Boston, 1916, p. 57.

3/ William S. Gray, "The Challenge Faced in Promoting Desirable Reading Interests," Education (May, 1959), Vol. 79, No. 9.

4/ G. S. Storm, "A Study of Intermediate Grade Reading Skills," Elementary School Journal (May, 1948), p. 453.

This same pattern is found again in the study of a fourth grade by Adams.[1] She concluded that the fourth grade girls tested seemed to work up to their capacity more than did the boys. The boys' capacity median was two points higher than their reading achievement. The girls' median capacity was four points below that of their oral reading achievements.

Likewise Dubois[2] in her study of 48 boys and 52 girls in a second grade says "....it appears that boys need more help in oral reading than the girls, since all but six of the errors checked were in favor of the girls."

She concludes:

> "....the data assembled in the experiment concerning diagnosis of oral reading errors seems to confirm the belief already expressed by students on the subject, that oral reading difficulties seem to occur when the pupils are being presented with reading material which is beyond their ability. If reading errors that are consistently made can be identified and remedied as soon as they appear, the formation of poor reading habits, as well as percentage of failures in reading might be reduced."

Gray[3] found similar problems in silent reading and said,

> "If elementary education fulfills its obligations, it must provide adequate training in habits of intelligent silent reading. This means, not only more reading than is found in the classroom today, but, in addition, more interesting, significant, and thoughtful reading."

The problem of errors in oral reading has been studied and reviewed in the following categories: classification, frequency and order of difficulty.

1/Phyllis M. Adams, A Study of Individual Differences in 4th Grade, Unpublished Master's Thesis, Boston University, 1938.

2/Violette Therese Dubois, A Diagnostic Study of Oral Reading Difficulties in Second Grade, Unpublished Master's Thesis, Boston University, 1952.

3/W. S. Gray, "The Importance of Intelligent Silent Reading," Elementary School Journal (January, 1924), 24:348.

Clarke[1] classified errors in oral reading as follows: faulty vowels, faulty consonants, reversals of letters and sequence of letters, addition and omission of sounds, substitution, repetition, omission and addition to words.

In a summary of reading research, Gray[2] states that

> "....at the primary level the greatest difficulty is in low sight vocabulary and in guessing at words. These remain a problem through junior high level, but are not so apparent at the senior high level. In word analysis, most of the children have some methods even though they may be poor. Even through the junior high level, some students did not know all the names of the letters. Sounds of the letters were not known by some students at all levels. Blends are apparently an unknown thing.
>
> Word by word reading apparently becomes less of a problem as students continue on through high school, but ignoring punctuation apparently becomes a greater problem. Lip movement persists in silent reading through high school, and poor comprehension on easy material becomes an increasingly more serious problem."

Daw,[3] on the other hand, says it is expected that children will rapidly outgrow errors in oral reading on a given level of difficulty. Similar errors will occur as children encounter more difficult materials on a higher reading level. These difficulties tend to persist even after remedial work is done on each level.

1/Nina H. Clarke, Word Perception Errors in Grade 1, and the Persistence of These Errors, Unpublished Master's Thesis, Boston University, 1952.

2/William S. Gray, "Summary of Reading Investigations," Journal of Educational Research (June, 1957), 51:431-435.

3/Steward E. Daw, "The Persistence of Errors in Oral Reading in Grades 4 and 5," Journal of Educational Research (October, 1938), 32:89-90.

Lee[1/] made an analysis of the errors of 200 school children in England and Ireland in reading specifically selected words in context and in isolation to determine the proportion of errors made on more regularly and less regularly spelled words. The evidence revealed slightly greater difficulty with the more irregularly spelled words in context. The tendency to error was increased slightly when words were presented in isolation. The conclusion reached was the irregularity in spelling was a cause but by no means a major cause of difficulty when words were taught initially by the whole word method.

Several diagnostic studies have been made to determine types of errors and their frequency at various grade levels.

Williams[2/] was concerned with determining the difficulties of elementary pupils whose reading was decidedly irregular. A comparison of reading errors of 70 normal and 47 retarded readers in the third grade was made with a view to discovering differentiating types of errors. This was done in addition to obtaining individual error profiles and using the results as a basis for remedial treatment. Perception skills were measured through the study of achievement and errors in oral reading, flash pronunciation and phonic tests: Gray's Standardized Oral Reading and Iowa World Test -- Pronunciation Test on 52 Words. The majority of errors were in vocabulary recognition and in phonics. Children of both

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1/William R. Lee, "Is the Irregularity with Which English is Spelt an Important Cause of Reading Difficulty?" Language Division, University of London, Institute on Education, June, 1957.

2/Gertrude Williams, Perceptual Difficulties in Reading, Unpublished Master's Thesis, Boston University, 1934.

groups tended to make the same errors, however, they varied in number and in occurrence. Other findings included:

1. Range of the number of errors for the different types was from 0.007 (transposition of words) to 5.8 (omission of words) for the retarded group; and from 0.0093 (transposition of words) to 2.61 (faulty-consonants - non-phonetic), for the normal group.

2. More errors were made by both groups on the flash and pronunciation tests than on the reading and phonetic tests.

3. Range of error scores twice as large for the retarded groups (0-100) as for the normal groups (0-50).

Orton's[1/] observations were as follows: (a) all children had more or less marked tendency to reverse the sequence of letters within a word; (b) all children had some difficulty in discriminating between b and d, p and q, and u and n.

In preparing lesson plans for classroom instruction it is necessary to know the types of errors of the children with whom we are dealing.

Dubois[2/] tested 100 second-grade pupils for this purpose. A survey was made of the frequency of certain types of errors, and sex differences in the total oral reading achievement of 52 girls and 48 boys. Listed in the order of frequency, some of the outstanding types of difficulty were: word-by-word reading by 37% of the group, errors made on easier words by 32%, very scanty recall on hard material by 29%, low sight vocabulary by 22% and habitual repetition of words by 20%. The significant part of this study is that oral reading difficulties seem to occur when the pupils are presented with reading material which is beyond their ability. There are

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1/Samuel T. Orton, "Word Blindness in School Children," Archives of Neurology and Psychiatry (November, 1925), 14:615.

2/Violette T. Dubois, op. cit.

differences in the reading achievement of boys and girls in Grade Two, and that the girls nearly always excel boys. Girls make fewer oral reading errors than boys.

Pearson[1] found the outstanding error made by 250 second-grade children appears to be word-by-word reading, which was noted in the oral reading of 46% of the pupils. The type of difficulty showing the next highest frequency is lack of ability in word analysis by 44% of the group. Children reading on first-grade level seemed to have little knowledge of the initial sounds and blends. Forty per cent made errors on easier words. A low sight vocabulary impeded 37% of the group. The unaided recall seemed to show lack of training as much as lack of ability. Of the 24% of the pupils who omitted words or word parts, more of them omitted a part of the word.

Burns[2] found that on the fourth-grade level, of the 143 pupils tested, the most frequent number of pupils making errors on word mastery skills were weak in low vocabulary. It was found that 46% tested made errors on easier words, 44% habitually repeated words, 33% had inadequate phrasing, 29% lacked word mastery skills, while 28% of the group had inadequate sight vocabulary. In viewing the total reading errors, the most frequent number of pupils making errors are found to be as follows:

33% of the whole group have inadequate phrasing
27% have monotonous voices
44% habitually repeat words
29% habitually add words

1/Alice R. Pearson, Oral Reading Difficulties in Second Grade, Unpublished Master's Thesis, Boston University, 1942.

2/Barbara Burns, Diagnostic Study of Reading Difficulties in Fourth Grade, Unpublished Master's Thesis, Boston University, 1938.

These elements in reading which are the main stumbling blocks seem to indicate a general lack of knowledge of the initial steps to reading, those being the recognition of sounds of letters, and blends.

Payne[1/] secured data on 400 children in grades two to five in order to discover principles with regard to the occurrence of the particular errors which may be of value in the diagnosis of the reading process.

The following was noted:

> "When confronted with an unknown word, a child has a tendency to call it the word in his sight vocabulary which is most like it in sound or appearance. If the child's sight vocabulary is extremely limited or if the word has a strange combination of letters, as in 'gambit', he will usually give only a few letters or will give some word beginning with the initial letter. If the child is somewhat mature in his reading habits and encounters an unknown word in context, he tends to substitute a word which will make the meaning clear. Whether there is a reversal, omission, insertion, or substitution of letters in a child's attempt to pronounce an unknown word is a mere chance circumstance and depends, among other factors, on the degree of similarity between the word presented and other words being learned at the same time. The fact the misplacement of letters in mispronunciations is in itself quite extraneous to the diagnosis of reading difficulties."

Bourke et al.[2/] measured the relationship of visual discrimination, auditory discrimination and phonics to reading achievement with 600 children in grades one, two, three, and four. They reported the order of importance of factors in the study for grade one is: phonics, auditory, visual and letter names; for grade two: auditory, phonics, visual and

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1/Spencer C. Payne, "Classification of Errors in Oral Reading," Elementary School Journal (October, 1930), 31:145-146.

2/Anne J. Bourke, et al., The Relationship of Certain Word Analysis Abilities to Reading Achievement of 1st, 2nd, and 3rd Grade Children, Unpublished Master's Thesis, Boston University, 1953.

letter names; for grade three: auditory, visual and phonics. An analysis of reading achievement by intelligence levels showed significant differences in favor of the highest intelligence level, except in grade one, where there was a slight difference in favor of the 90-100 I.Q. group.

It seems that most reading difficulties are the result of a poor beginning, inadequate teaching materials and lack of provision for individual differences.

Many of the oral reading difficulties occur when the reading material is beyond the pupil's ability.

In conclusion, the results seem to confirm that if reading errors can be identified and remedied at their appearance, many failures in reading might be reduced.

2. Oral and Silent Reading

From about 1880-1914, reading instruction was taught primarily through the oral approach because as Hyatt[1/] said

> "....as long as the reading materials were scarce....only a few people read. Oral reading was all that was necessary. But with the increase in published materials, everybody had enough and too much to read....He was of course using silent reading most of the time. Whereas oral reading had answered his previous needs, it proved inadequate now. Silent reading was the type most suitable to real life conditions pressing upon him them.
>
> Intelligent silent reading was now needed almost constantly and in many situations was considered an economical and effective tool for the interpretation of the printed symbol. This condition placed on the schools the responsibility of teaching effective

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1/Ada V. Hyatt, The Place of Oral Reading in the School Program: Its History and Development from 1880-1914, Teachers College, Columbia University New York, 1943, No. 872, pp. 26-27, 29, 71.

> silent reading - a responsibility not faced by the schools previously, and one for which they were unprepared.
>
> ....about 1930, educational and professional literature reflected a revival of interest in reading aloud. The differentiation of the aims and techniques of oral reading from the aims and techniques of silent reading affected profoundly the methods of teaching reading."

A period of stress on silent reading began about 1918 as Smith[1/] reports schools faced "....a period of years, let us say approximately between 1918-1925, marked with an exaggerated emphasis upon silent reading procedures."

The development of measurements provided opportunity for studying the progress in reading. Gray[2/] states that by "....measuring the results of instruction in reading, comparing achievement in oral and silent reading, determining the factors which make for rapid progress ....and measuring the progress of pupils taught by different methods."

Judd and Buswell[3/] suggest:

> "Scientific evidence in regard to the difference between oral reading and silent reading accumulated....until it became too impressive to be ignored....as soon as the distinction was clearly pointed out, practical school people began to realize that many of the troubles of the upper grades can be traced directly to the failure to give proper recognition to silent reading."

1/Nila B. Smith, American Reading Instruction, Silver, Burdett and Company, New York, 1934, p. 153.

2/W. S. Gray, Summary of Investigations Relating to Reading, The University of Chicago, 1925, No. 28, p. 6.

3/C. H. Judd and Guy Buswell, Silent Reading: A Study of Various Types, The University of Chicago, 1922, No. 23, p. 2.

McDade[1] and others attempted to teach beginning reading through the non-oral approach but not enough evidence was found to enable educators to reach any definite conclusions at that time.

Hyatt[2] says, "Since speed in reading was desired and since too much oral reading tended to retard the rate, silent-reading procedures were recommended...."

About speed of silent reading, Durrell[3] says:

> "No attempt should be made to improve speed of silent reading until the habits of accurate, attentive reading are established. It is doubtful if any attempts should be made to emphasize speed of reading in primary grades. Pressures for improving speed of reading must be used with caution in all levels of reading. The number of words or pages per minute is not as important as the yield per minute in memories, images, ideas."

Hildreth[4] warns "Excessive practice in either oral or silent reading may unbalance the reading program...."

In summary, Smith[5] states:

> "Many factors enter into a determination of the relative emphasis on silent and oral reading in the school program. On one day nearly all reading will be oral, and on another day perhaps all reading will be silent, depending upon the activities in the classroom and upon the needs of individuals. Thus

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1/James E. McDade, "A Hypothesis for Non-Oral Reading: Argument, Experiment, and Results," Journal of Education on Research (March, 1937), 30:489.

2/Ada V. Hyatt, op. cit., p. 58.

3/Donald D. Durrell, Improving Reading Instruction, World Book Company, Yonkers-on-Hudson, New York, 1956, p. 190.

4/Gertrude Hildreth, Learning the Three R's, Educational Publishers Inc., Philadelphia, 1936, p. 127.

5/Nila Banton Smith, "Relative Emphasis on Oral and Silent Reading in the School Program," Oral Aspects of Reading, The University of Chicago Press, Chicago (December, 1955), No. 82, 17:76.

> the pendulum of balance should glide easily from hour to hour, day by day, year by year. Along such flexibility, however, we must always keep in mind that by far the heaviest emphasis should be placed upon silent reading, in order to develop the rapid facility needed in coping with the quantities of reading materials in modern life. But withal, let us not hesitate to have enough oral reading to serve the special needs and purposes which only oral reading can serve."

In order to approach effective guidance in functional oral reading, reports of studies concerning voice, pitch, etc. are vital. Smith[1/] states "...that there is a need for specific standards in articulation, rate of speaking, variety and other elements related to oral techniques."

She is supported by Lyman[2/] when he reported the results of 64 investigations in oral composition which showed that many schools continued to neglect oral expression because of the lack of knowledge concerning techniques of investigation in this area.

Pronovost[3/] suggests that effective voice usage involves:

1. The ability to use adequate volume so that the child can be easily heard.
2. The ability to use a pitch level which is appropriate for the age and size of the child.
3. The ability to use right phrasing and duration of tone so that the child can be understood easily.
4. The ability to use a pleasing voice quality.
5. The ability to express meaning through variations of pitch, volume, and durations of tones or pauses.

1/Dora V. Smith, "Diagnosis of English Difficulties," National Society for the Study of Education, 34th Year Book, 1935, p. 266.

2/Roland L. Lyman, Summary of Investigations Relating to Language and Composition, The University of Chicago, Chicago, No. 36, 1939.

3/Wilbert L. Pronovost, "Skills Instruction Speech Work," Skills Instruction in the Elementary School, Boston University, Boston, 1949, p. 39, Mimeographed.

Barry[1/] used electric recordings of one hundred fifth-grade pupils, subjects of an individually administered standardized reading test, to analyze voice and language characteristics. He found that the ten most prevalent errors were poor enunciation, break with restart, awkward pauses before new idea, repeated words, lack of proper stress, break with idea repeated, and low pitch. He also indicated that the pupils were more hesitant as the difficulty of the material increased.

Kyle[2/] was concerned with the pitch of the voice in oral reading activities. In her study one hundred and sixty children in grades two, four and six read orally selected paragraphs. Recordings were made of different oral activities including conversation, easy and difficult reading, and unaided recall following easy and difficult reading. She concluded:

"1. The mean vocal pitches in the five variables, including speaking, reading, and recall, are similar between grades excepting for a significant difference in speaking pitch between grades two and six.

2. The easy reading mean pitch is found to be significantly higher than the speaking pitch at grades two, four, and six.

3. At grade six, the mean pitch in immediate unaided recall of easy reading is significantly higher than the conversational speaking pitch.

4. The mean vocal pitches used in difficult reading at grades two, four, and six are significantly higher than the speaking pitches.

1/Edward Barry and others, An Analysis of Voice and Language Characteristics in an Oral Recall Situation, Unpublished Master's Thesis, Boston University, Boston, 1952.

2/Helen F. Kyle, Pitch of the Voice in Certain Speaking and Reading Activities Among Elementary School Children, Unpublished Doctoral Dissertation, Boston University, Boston, 1956.

5. Following difficult reading at grade six, the mean pitch level for immediate unaided recall of difficult reading is significantly higher than the speaking pitch.

6. There is significant lowering of mean pitch from easy reading to immediate unaided recall of easy reading at grades two, four, and six.

7. Mean pitch in unaided recall of difficult reading is significantly lower than mean pitch in easy reading at grades two, four, and six....

8. Within grades two, four, and six there is significant raising of mean pitch from unaided recall or easy reading to difficult reading....

9. There is significant lowering of mean pitch from difficult reading to immediate unaided recall of difficult reading at grades two, four, and six....

10. A study of sex differences in mean vocal pitch shows the fourth grade boys' mean pitch in unaided recall of easy reading to be 256.6 cps which is 5.1 cps higher than the fourth grade girls' mean of 251.5 cps.

11. Second grade girls' speaking mean pitch of 254.4 cps is 3.2 cps above 251.2 cps, the mean speaking pitch of sixth grade girls...Ahighly tentative conclusion is that maturity factors may be effecting a lower pitch for sixth grade girls.

12. A study of the lower and upper thirds of the population grouped according to educational achievement reveals that the lower third uses a significantly higher speaking pitch than the upper third at grades two and four.

13. From comparisons made in this study, no significant differences are found to exist in boys' mean vocal pitches between grades two, four, and six.

14. From comparisons made in this study, no significant differences are found to exist between mean vocal pitches used by pupils of low and high intelligence within grades two, four, and six.

3. Study Skills

Elaborative thinking.-- Thinking is often described as associative, problem-solving, critical and creative. These are overlapping categories

and many people prefer other descriptive words. The varied classifications of thought processes usually depend upon the preference of the person making the classification. One of the reasons for uncertainty of descriptive terms in thinking appears to be the lack of experimental work on higher mental processes.

The term "elaborative thinking," associative thinking, has been appearing with increasing frequency in educational literature. Reading authorities who use the term do not necessarily agree on what is included.

Elaborative thinking, as defined by Durrell,[1] is the ability:

> "...concerned with uses, applications, comparisons, criticisms, and other ideas brought to reading by the child. Such reading is in contrast to the thorough type in which the child merely attempts to understand the given material rather than to add his own thoughts and interpretations."

According to Durrell and Chambers:[2]

> "Probably the most important to the use of reading is elaborative thinking in its various forms: relating the content of reading to previous knowledge, illustrations and applications, opportunities for use, relationships to other fields, and various associations which integrate reading into knowledge or action. It will probably be found that well-designed exercises in elaborative thinking in reading will produce higher permanent retention."

Russell[3] defines associative thinking as "...a rough term descriptive of much routine thinking of sequential pattern...[associative thinking] relates to the use or application of what has been learned."

1/Donald D. Durrell, op. cit., 1940, p. 33.

2/Donald D. Durrell and John R. Chambers, Jr., "Research in Thinking Abilities Related to Reading," The Reading Teacher (December, 1958), Vol. 12, No. 2:91.

3/David Russell, Children's Thinking, Ginn and Company, Boston, 1956, p. 211.

In another source, Russell[1/] comments on what he calls "creative reading":

> "Today, reading is regarded as involving not only recognition and comprehension, but also interpretation and action. The reading act is composed of mechanics, understanding and enjoyment, and also thinking and doing. It involves relating what one reads to previous experiences and evaluating this material critically."

Chrisof[2/] defines thinking as a psychological function with three distinct phases, the formulation of the problem, elaboration, and solution. In summarizing the period of elaboration, he says:

> "...the distinguishing contribution of the period of elaboration is (1) a collection of varied psychological materials, (2) an ordering of these into the relevant and irrelevant materials, through a critical appraisal based on their worth, (3) a further scrutiny of accepted products, (4) integration into a unity where products have been not only related to one another but to a general topic which is the anticipated solution."

Betts[3/] writes:

> "Contrary to popular opinion, children can be taught how to think. Their ability to think is limited primarily by their personal experiences and the uses they make of them in problem solving, in abstracting, in generalizing to make concepts, in judging, and drawing conclusions. Under competent teacher guidance children gradually learn to think within the limits of their rates of maturation, or inner growth."

Gray[4/] expresses the following interpretation: "A good reader does

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1/David Russell, "Reading for Critical Thinking," California Journal of Elementary Education (November, 1945), 14:76-86.

2/Cleo Chrisof, "The Formulation and Elaboration of Thought-Problems," American Journal of Psychology (April, 1939), 52:174.

3/Emmett Betts, "Reading Is Thinking," The Reading Teacher (February, 1939), Vol. 12, No. 3:145-151.

4/William S. Gray, "Basic Competencies in Efficient Reading," Reading in an Age of Mass Communication, Appleton-Century-Crofts, New York, 1949, pp. 65-70.

more than grasp the literal meaning of a passage. He is also alert to the broader meaning inherent in what he reads. This involves what is often called reading 'between' and 'beyond' the lines."

In describing a reading program which is adapted to today's needs for children in grades four, five, and six, Huus[1/] comments that one of the basic skills which must be extended is getting the full meaning from material read.

> "Real meaning is not complete just with understanding the individual words as they relate to each other in a particular context. The development of a thought, an argument, a theme, through main points and supporting details, must be comprehended, first, then analyzed, interpreted, judged, compared, related, and evaluated. These abilities of interpretation go beneath the surface of actual stated content."

With regard to child development in thinking abilities, Russell[2/] summarizes:

> "In general, scientific studies of children's thinking support the view that critical, creative reading is possible at all levels of the elementary school. Reasoning ability seems to begin at about three years of age and develop gradually with experience and language.
>
> Accordingly, the influence of the teacher in developing reasoning and problem-solving abilities is paramount. The encouragement of creative activities in reading may be a large part of such influence."

Russell[3/] concludes his comments on the nature of thinking and its relation to reading with this fact: "Creative readers add some of the

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1/Helen Huus, "The Nature and Scope of Reading Programs," Better Readers for Our Times, International Reading Association Conference Proceedings, 1956, 1:25.

2/David Russell, op. cit., pp. 311-312.

3/Ibid., p. 306.

products of their own experiences to synthesize them with their reading experience."

The following research illustrates the role of elaborative thinking in relation to reading:

Through an experiment carried on for ten weeks with 106 seventh grade pupils, Marden[1/] found that after directed teaching thirty-five pupils in the experimental group made significant gains in their ability to suggest activities related to reading in the social studies. Significant gains were also made by the experimental group in their ability to raise questions for further research related to their reading.

Marden[2/] feels that "The findings of this investigation, present the following implication for curriculum builders: .... association of activities and questions with reading of social studies materials may be introduced at the lower elementary level."

Glaser[3/] found "that individuals of intelligence quotients of less than 100 were among those who profited the most from training in critical thinking skills. The correlation between gain in the critical thinking test scores and intelligence for the experimental group was found to be 0.33."

Hahn[4/] constructed exercises to develop the ability of pupils in the

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1/Avis Marden, Associational Reading Abilities of the Seventh Grader, Unpublished Master's Thesis, Boston University, 1941.

2/Ibid, p. 223.

3/Edward M. Glaser, An Experiment in the Development of Critical Thinking, Bureau of Publications, Number 843, Teachers College, Columbia University, New York, 1941, pp. 176-177.

4/M. Elizabeth Hahn, Exercises for the Development of Elaborate Thinking in Grade Five, Unpublished Master's Thesis, Boston University, 1950.

middle grades to do elaborative thinking through related questions and activities while reading in the social studies field. Since these exercises were not tried out, no conclusions as to the effectiveness of this technique were possible from this study.

Johnson[1/] evaluated exercises used in social studies to develop elaborative thinking. The experimental group was given practice in finding questions, topics, and activities related to the text. She concludes that the experimental group improved in these three abilities when tested. She found no significant relationship between the test responses and intelligence.

Hayes[2/] constructed an instrument to measure the ability of children in grades six, seven and eight to suggest activities related to their reading. No statistically significant difference was found in the ability to do elaborative thinking between children in grades six and seven and between children in grades seven and eight.

Jenkins'[3/] study had a twofold purpose: (a)to measure the extent to which sixth grade children practice associational reading in the social studies, and (b) to evaluate the effect of a planned program to develop this ability. She constructed two forms of an associational reading test in which the children were required to list questions related

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1/Willimae Johnson, An Evaluation of Exercises in the Social Studies Used in the Development of Elaborative Thinking, Unpublished Master's Thesis, Boston University, 1950.

2/Mary T. Hayes, The Construction of Equivalent Forms of a Test of One Aspect of Elaborative Thinking in Grades Six, Seven, and Eight, Unpublished Master's Thesis, Boston University, 1951.

3/Ethel Jenkins, Associational Reading Skills, Unpublished Doctoral Dissertation, Boston University, 1953.

to the reading material, but not answered by it, and to list activities that would assist them in answering their questions. The experimental group was given seven weeks of practice in this type of exercise. At the end of this period each child in both groups took an alternate form of the Associational Reading Skills test. The data were analyzed to determine the successfulness of the experimental groups as opposed to the control group, the gains made by children on high mental age as compared to those of low mental age, the effect of reading achievement on success in associational reading, and the gains made by boys as compared with the gains made by girls.

Jenkins concluded that groups taught the skill of associational reading by means of specific lessons showed statistically significant gains over those groups which received no direct teaching; that boys and girls made comparable gains in the acquisition of this ability; that mental ability appeared to have no significant effect on the ability of children to practice this skill; and that reading achievement evidenced a significant relationship to ability in associational reading.

Chambers,[1/] in his study of the relationships existing among certain higher mental processes related to reading, found that:

> "Ability in one area of the higher mental processes does not appear to indicate a corresponding amount of skill in each of the other areas. Each appears to have many distinct elements. The skill of Elaborative Thinking bears the least relationship to the other higher mental processes.

1/John R. Chambers, Jr., The Relationship Among Measurable Mental Tasks Related to Reading, Unpublished Doctoral Dissertation, Boston University, 1959, pp. 102, 105-106.

> When factors of intelligence are held constant, the resulting correlations among higher mental processes, reading, achievement, and mental imagery are substantially lowered, showing only slight relationships. The partial correlations range from 0.001 to 0.918. Within the higher mental processes areas, the lowest correlations appear between these factors and elaborative thinking."

Nunes[1/] was concerned with the effect of factual and elaborative thinking study guides as aids to recall. She found "...that children using factual study guides did better than those using elaborative study guides, when recall was checked as soon as the task was completed. When the children were tested after a delay of at least two weeks, the difference in the amount of recall was significantly less, but still favored the factual guide."

Elaborative thinking, or associational thinking, has been defined differently by investigators of this higher mental process. Yet they seem agreed that it is an ability which necessitates the use of previous experience and the application of this experience to some present problem or situation. Research data are incomplete, but they indicate that special thinking abilities can be developed with school children of all ages if the instruction is specifically directed toward some improvement. Two aspects of the ability which have received the greatest amount of attention are the suggesting of pertinent questions and activities stimulated by reading in the content areas.

Scientific evidence has revealed that the skill of elaborative thinking can be successfully developed by use of directed teaching techniques. Further conclusions based on experimental studies have disclosed that intelligence

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1/Agnes Nunes, et al., A Comparison of Recall Using Factual Study Guides Vs. Elaborative Thinking Study Guides in Grade Four, Unpublished Master's Thesis, Boston University, 1959, pp. 65-66.

has no significant effect on the ability of children to make use of this skill, but that reading ability does give evidence of a significant relationship to skill in elaborative thinking.

Written and oral recall.-- Authorities believe that the ability to retain and recall material is an important part of the learning process. Davis[1] stated, "Memory is definitely influenced by heredity but may be improved in its expression by training." The training process mentioned in the above quotation is to enable the student to relate material to fit the present situation. In Vaughan's[2] opinion:

> "Recall is the revival of a past experience, effected when one member of an association enables the mind to trace the other members through a definite connection link of a meaningful nature. Remembering is not a simple reduplication of a pattern, but a constructive imagining through which past experience is transfigured to meet the present need."

Germane[3] also stated,

> "It is the ability to retain and recall the main points of material read which make the acquisition and application of knowledge possible. Time and effort spent in developing skills in rapid reading and in organization are wasted unless the essential ideas are retained."

McKee[4] feels that training in recall benefits the pupils--

1/Robert A. Davis, Psychology of Learning, McGraw-Hill Book Company, New York, 1935, p. 231.

2/Wayland F. Vaughan, General Psychology, The Odyssy Press, New York, 1939, p. 456.

3/Charles E. Germane and Edith Gayton Germane, Silent Reading, Row Peterson Company, New York, 1930, p. 86.

4/Paul McKee, The Teaching of Reading in the Elementary School, Houghton Mifflin, Boston, 1948, p. 65.

> "There is a good reason to believe that even a small amount of skillful and systematic instruction in retaining ideas read can greatly improve the achievement of elementary school pupils in various types of school work and help them make more effective use of ideas read both in and out of school."

Much research has been done in the area of recall. Some of the findings are indicated below.

Yoakum[1/] tested the effect of a single reading upon recall. The study showed that the average elementary school pupil was able to reproduce approximately 10% of the ideas after just one reading. It seemed more difficult to recall facts and easier to recall material in a narrative story. Spitzer[2/] found that a test immediately following the reading material is an effective method of aiding learning. His findings supported that immediate recall of factual material enabled the students to remember more for a two-month period than that remembered without recall for a twenty-four hour period. Kelley[3/] compared reading achievement and memory. She administered Form A of the Nelson Standard Reading Test to 196 fifth grade students. The pupils reading achievement was derived from the above test. The results showed a correlation of 0.822 between reading achievement and memory, and 0.582 between high achievement and memory. The memory test was given after one reading.

1/Gerald A. Yoakum, "The Effect of a Single Reading," Twentieth Yearbook of the National Society for the Study of Education, Part 2, 1921, pp. 90-102.

2/Herbert T. Spitzer, A Study of Retention in Reading, Unpublished Doctoral Dissertation. University of Iowa, 1939.

3/Florence Marie Kelley, Measurement of Recall With and Without Text, Unpublished Masters Thesis, Boston University, 1952.

Scott[1/] evaluated the effectiveness of outline-analysis techniques and the graded-question techniques to improve oral and written recall. The results showed:

1. "The experimental group that used outline-analysis practice material on oral recall made great gains compared to the control group."

2. "The experimental group that used the graded-question material on oral recall made great gains compared to the control group."

3. "Both experimental groups made gains in written recall. The outline-analysis practice showed statistically significant gains, a critical ratio of 4.34. The graded-question practice showed a gain, but this failed to be significant."

Hubbard[2/] found that practice exercises in written recall improved unaided oral recall. "The experimental group gained measurably over the control group in their ability in unaided oral recall. Both good and poor readers in the experimental group made appreciable gains in their ability in unaided oral recall. Both types of grouped data for this investigation show that the first fifty percent of the experimental group gained more in ability in unaided oral recall than the second fifty percent of that group." These results agree with Davis' previous statement.

1/H. E. Scott, An Evaluation of Two Types of Workbook Exercises for the Improvement of Recall, Unpublished Doctoral Dissertation, Boston University, 1949.

2/Carroll Abbott Hubbard, An Investigation into the Relationship Between Simple Practice Exercises in Written Recall and Increased Ability in Unaided Oral Recall, Unpublished Master's Thesis, Boston University, 1952.

Ruth Potter[1/] found that easy material was reproduced in writing as well and better than that reproduced orally with the children in grades three to six. When the material became difficult, oral recall was superior to written recall. She concluded that there seemed to be less and less difference between oral and written recall as the grades ascend from the third to the sixth.

McLellan et al.[2/] tested children on five grade levels, three through six and juniors in college. They reported that unaided oral recall was superior to unaided written recall on all levels except at the sixth grade. Although the results showed unaided written recall was superior to unaided oral recall, the critical ratio was not statistically significant. In all the grade levels mentioned above, the multiple-choice recall was superior to unaided oral recall.

Buchmans[3/] results, after testing 122 pupils in the fifth grades in Somerville, showed recall on multiple-choice questions superior to unaided recall given either orally or written. Unaided oral recall was also superior to written recall, the difference being greater for the longer than for the shorter selection. Torrant[4/] agreed

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1/Ruth Potter, Comparison of Oral Recall in the Middle Grades, Unpublished Master's Thesis, Boston University, 1934.

2/Mary K. McLellan, Richard Eaton, Mary Hohler, Mary A. Ridenti, and Andrianne L. Rubin, A Comparison of the Fluency of Oral, Written, and Multiple-Choice Recall After Silent Reading on Five Grade Levels, Unpublished Master's Thesis, Boston University, 1954.

3/Margaret A. Buchman, A Comparison of the Fluency of Oral Recall in Silent Reading in Geography in Grade Five, Unpublished Master's Thesis, Boston University, 1941.

4/Katherine Torrant, Fluency in Oral Expression, Unpublished Master's Thesis, Boston University, 1940.

that there were a greater number of ideas remembered in multiple-choice test than when the recall was unaided, 12 ideas compared to five ideas.

Courtney[1/] measured recall by multiple-choice questions and by essays, then he compared the results. Again the multiple-choice recall was superior to the essay type recall. He warns against multiple-choice tests---

> "The multiple choice test obscures from the teacher one of the most important elements of true comprehension of things read, namely the orderly mental organization of materials read, without reversals, nor previously existing coalitions of unrelated facts, and other general errors in the correct classification of materials for accurate and complete mastery."

Foster[2/] found that there was a lack of training elementary school children in recall. She summarized her findings:

> "An examination of the total findings of the group reveals that there was growth in the ability to write materials read, and to write in sequence. There was greater growth by the experimental boys and girls over the seven weeks period. The results show that ability in written recall and in sequence in recall may be improved with exercise."

All the studies indicated that with direct help, lessons planned in organization, and multiple-choice questions there were gains in both oral and written recall.

Dictionary skills.-- Published research in the study and experimentation in dicationary skills in the intermediate grades is sparce. Taylor[3/] states

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1/Paul D. Courtney, Recall by Reproduction Versus Recall by Recognition, Unpublished Master's Thesis, Boston University, 1941.

2/Elizabeth V. Foster, Experiments in the Improvement of Written Recall, Unpublished Doctoral Dissertation, Boston University, 1949.

3/M. E. Taylor, Analysis of Ability to Locate Words in Dictionaries, Unpublished Master's Thesis, Boston University, 1949.

that "a number of studies have been carried out in pronunciation, diacritical marking, the ability and time needed to learn the diacritical marks in the dictionary, and word development." Authorities indicate that the skill of locating words is a primary factor in all grades for the ultimate success in the use of the dictionary.

Price[1/] remarks that "man has found the use of words indispensable to his progress. If it is desired that students have access to words, it is necessary to have a planned program for developing a vocabulary. The merits of the dictionary speak for themselves in setting up a plan to improve language skills."

Advocator of developing dictionary techniques as a necessary aid to pronunciation and meaning is Betts.[2/] To promote the dictionary habit one must include the ability to recognize letters and to remember their alphabetical sequences and to be able to use guide words with facility.

"No school genuinely interested in the well-rounded development of students ignores dictionary work," declares Armstrong.[3/] Because a dictionary is a very complicated book, "some instruction is both desirable and necessary."

1/D. M. Price, "Everything with a Name in the Dictionary," Education (January, 1957), 77:266-269.

2/Emmet A. Betts, Foundations of Reading Instruction, American Book Company, New York, 1946, p. 583.

3/David Armstrong, "Dictionary Work," Elementary English Review (November, 1945), 43:490-492.

It is the opinion of Kelley[1] that "the two major tasks of schools are:

1) Child must grasp abilities, to read, write, and do arithmetic.

2) The school must develop in the child the ability to find quickly and adequately, additional facts needed to do this.

Reference skills are essential." The learning of dictionary skills is invaluable to everyday living.

He lists seven skills to be taught in dictionary knowledge. These skills are in general headings:

"1) The ability to find words when arranged alphabetically
2) The ability to handle the dictionary effectively
3) The ability to find out how to pronounce words
4) The ability to use dictionary to insure correct spelling
5) The ability to determine meaning
6) The ability to make use of various grammatical information
7) The ability to use information from pages at front end and back of dictionary."

Constant and repeated use of the dictionary is stressed by Meltzer,[2] who would begin in the lower grades and carry on a sequential program, so that the students would become sufficiently familiar with the dictionary to turn to it for information and to use it profitably.

Murray[3] is also an advocator of beginning dictionary work for children in the primary grades, but realizes that they have a different need for the dictionary than intermediate grade children, yet the need is just as real.

1/Victor Kelley, "The Use of the Dictionary in the Elementary School," Elementary English Review, 1936, 14:17-19.

2/I. J. Meltzer, "Let's Look It Up," Grade Teacher (March, 1956), 73:48.

3/C. M. Murray, "Selecting an Elementary School Dictionary," Elementary English Review (May, 1957), 34:293-297.

In selecting a dictionary that will increase independence in language growth, it is important to judge by the following criteria: scope, reliability, format, and word treatment.

To refute all this positive evidence that the dictionary is an essential tool, Oakes[1/] claims that "teachers will only be free when the last dictionary has decayed into an unrecognizable handful of dust. With their disappearance, little by little people will depend upon their own ultimate good sense in spelling a word and its use in a sentence will give it meaning."

Sister Mary Prisca[2/] feels that the only reason an undesirable attitude toward the use of the dictionary currently exists is because of the lack of proper guidance in teaching the technique of using the dictionary. Corrective measures include:

"1) Primary grades should have experience with picture dictionaries.

2) Teach use of the dictionary in relationship to pupils' needs, not as a separate subject.

3) Every child, from the fourth grade up, should have a personal dictionary."

Trabue[3/] stressed the need for dictionary training.

"Dictionary instruction should include training the individual to determine whether a fact from the dictionary is to be used for the moment or to be memorized for later use. It should include the habit

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1/E. C. Oakes, "Unshackling Ourselves from the Dictionary," The Clearing House (May, 1955), 29:546-547.

2/Sister Mary Prisca, "Dictionary Skills," Catholic School Journal (January, 1958), 58:31-32.

3/Marion R. Trabue, "Use of the Dictionary," Teaching Language in the Elementary School, Forty-third Yearbook of the National Society for the Study of Education, Part II, 1944, pp. 187-193.

> of having the dictionary at hand for immediate reference. Periods of teaching should include instruction in alphabetical arrangement by first two, then three letters of words, and finding words in the glossary and smaller dictionaries."

"Dictionary study is highly recommended among specific ways of building vocabulary," declares Sachs.[1/] Handlan[2/] in her study in word development also emphasizes this point also that "teachers today feel they must stress vocabulary building -- but interest alone does not suffice." She goes on to say:

> "The primary essential to consider is to teach students independence in word attack. In using the dictionary it is our duty to point out the strengths and weaknesses of the dictionary. Doing this will help him to use the dictionary effectively. Drill work is helpful but must be related. The word must be put back into context to determine the meaning."

"One of the major responsibilities of the intermediate-grade teacher in the field of reading is that of teaching her pupils to use the dictionary effectively," states Dallmann.[3/] "The teacher must have sound objectives, which must be comprehensive as guides in the selection of the subject matter itself. Attention should be paid to sequence of learning activities and to grade placement." In addition, "Being able to find entry words quickly and easily is, of

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1/H. H. Sachs, "Reading Instruction in the Secondary School," Research Bulletin of National Education Association (January, 1942), 20:27-28.

2/Bertha Handlan, "Vocabulary Building," Elementary English Review (December, 1946), 23:250-257.

3/M. Dallmann, "Our Friend, the Dictionary," Grade Teacher (November, 1957), 75:48-49.

course, basic to dictionary usage. To develop this skill, pupils need:

1) to know the alphabetical order

2) to be able to tell quickly and without mentally running through the ABC's where in the alphabet any letter occurs

3) to know how to arrange words alphabetically regardless of whether the first or any subsequent letters of words are different

4) to know how to open the dictionary so that it opens fairly close to the pages where the desired entry word is found."

In his experiment carried out in grades five and six to determine the pupil's ability to learn diacritical marking, House[1/] found by testing that pupils low in language, reading, and spelling achievement were low in dictionary skills and learned slowly.

> "Sixth grade pupils were more ready to learn. The consensus of the teachers indicated Grade VI was the best level to learn the system of marks and blends in working for independent analysis. Children with below 75 I.Q. and those who were unsuccessful in classroom work were excused from the experiment."

"How to read a dictionary is as essential as how to read a book," states Adler.[2/]

> "The primary purpose or intention of the dictionary is to help in reading books that might otherwise be too difficult because of the vocabulary. The art of reading a dictionary consists in knowing which heading is being searched for. It is a self-help book, because it tells one how to pay attention to and how to interpret."

1/Ralph House, "The Number of Days Required to Achieve Complete Learning in the Webster System of Diacritical Marks," Journal of Experimental Education (September, 1944), 13:15-19.

2/Mortimer Adler, "How to Read a Dictionary," Saturday Review of Literature (December 13, 1941), 24:3-4.

McKee[1/] summarizes the essentials in dictionary development:

1) Alphabetization

2) Which one-third or one-fourth of the dictionary should be opened to in beginning to find a word in the dictionary list

3) The meaning and use of the respelling or phonetic spelling that follows in parenthesis each word in the dictionary list

4) Meaning and use of accent mark

5) Meaning and use of pronunciation key

6) The selection of meaning that fits best

7) Meaning and use of guide words

8) The finding of a word in an alphabetical list according to the third letter.

Recent articles, theses and texts indicate the importance for a well-developed background in dictionary skills, particularly in the intermediate grades, where a sense of purpose is basic to a sequential program.

Skimming.-- Skimming is a study and comprehension reading skill which involves passing the eye swiftly over print for rapid extraction of the desired material.

In an investigation of speeded reading, the question arises, is rapid eye-movement a cause or a result of good and comprehensive reading ability?

Anderson[2/] made a study of the eye-movements of good and poor readers, and he finds

> "....no evidence to support the conclusion that eye-movements govern reading ability. However, we have ample evidence to show that variations in eye-movements are produced by conditions

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1/Paul McKee, op. cit., p. 366.

2/Irving Anderson, "Eye-Movements of Good and Poor Readers," Psychological Monograph, 58:30, 1937.

> which control the course and needs of central processes in reading. Thus we found that eye-movements were variously modified by (1) changes in the difficulty of reading material, (2) changes in the attitude or 'mental set' in reading produced by alterations in instructions, and (3) differences in general intelligence. This remarkable flexibility of eye-movements which follows changes in central processes of apprehension and comprehension emphasizes again the dependence of eye-movement behavior upon reading ability."

Gray[1/] writes that

> "....any effort to establish a standard rate of reading for all pupils fails to take into account two significant facts, namely, that rate of reading varies widely among individuals and that rate varies for the same reader according to the kind and difficulty of the material, the purpose of the reading, and the conditions under which the reading is done."

Gray[2/] also classifies the various types of reading as follows: (1) normal reading; (2) careful reading; (3) rapid reading; (4) skimming.

Keir[3/] made a study of skimming in 1939. Her purpose was to determind the order of difficulty of four types of skimming and to determine the grade placement of each type. Working with 194 pupils from the fourth, fifth, and sixth grades, she built tests to measure (1) the ability to match topic sentences to accompanying paragraphs; (2) the ability to skim for specific names and dates; (3) the ability to

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1/William S. Gray, "Summary of Investigations Related to Reading," Supplementary Educational Monographs, University of Chicago (June, 1925), p. 43.

2/Ibid., p. 44.

3/Clarinda G. Keir, Relative Order of Difficulty of Four Types of Skimming in the Intermediate Grades, Unpublished Master's Thesis, Boston University, 1939, p. 31.

locate answers to questions which use the same vocabulary as the selection; (4) the ability to locate answers to questions which use a different vocabulary from that in the selection.

She found that the order of difficulty, ranging from easiest to hardest, is the same as in the listing above. The order of difficulty when determined by the time needed to complete the tests remained the same throughout the tested grades. The order of difficulty when determined by the percentage of correct responses was the same on these grade levels except for item (2). She also found that the higher the reading grade level of the pupils, the higher were the test results in skimming. It was concluded that "....ability in skimming increases with general reading ability."

Yoakum[1/] defines skimming as a

> "....very rapid rate of reading in which the reader merely passes his eye rapidly over printed material to find some particular reference or to get a general idea of what the passage, page, or series of pages contains. It is possible to skim at very rapid rates. Eight hundred to a thousand words per minute may be covered in this manner by a skilled reader. References may be found at this rate without error and a general idea of the content of a passage or article obtained. Skimming is a useful skill and should be taught to children after they have mastered the mechanics of reading."

Harris[2/] says,

> "One of the most important types of comprehension skills is the ability to skim rapidly over reading material. Two

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1/Gerald A. Yoakum, Reading and Study, Macmillan Company, New York, 1928, p. 64.

2/Albert J. Harris, How to Increase Reading Ability, Longsman, Green and Company, New York, 1947, pp. 380-381.

> kinds of skimming can be distinguished. One kind involves rapid reading to find the answer to a very specific question, such as a name, a date, a telephone number....The other kind of skimming involves very superficial rapid reading to get a general overall impression."

Anderson and Davidson[1/] distinguished between skimming and rapid reading. Rapid reading is the maximum rate at which there can be proper comprehension and interpretation. Skimming is too rapid for comprehension of details. It is the maximum rate at which the general trend of the discussion may be obtained.

Betts[2/] describes skimming as an aspect of versatility in good readers and stresses the fact that this skill is used chiefly by already skillful readers. He also points out the importance of varying the reading rate according to the nature of the task.

> "The type of reading used depends upon why one is doing the reading. If one is looking over a number of references to find information on a given problem or topic, then skimming the index, table of contents, and section headings to find key words should be used rather than the rapid reading of every word."

Durrell[3/] says of skimming that it is essential in many types of assignments.

> "Facility in these abilities is acquired by many pupils without specific instruction for developing such skills. However, many other pupils need special practice in the abilities related to partial reading, even though they already have good habits of thorough reading."

1/Charles J. Anderson and Isobel Davidson, Reading Objectives, Laurel Book Company, New York, 1925, p. 258.

2/Emmett Albert Betts, op. cit., pp. 73-74.

3/Donald D. Durrell, op. cit., 1956, p. 297.

4. Word Skills

Word pronunciation.-- Many authorities in the field of reading agree that skills in phonetic analysis are essential for independence in identifying new words. As Tronsberg[1/] puts it, phonics "....enables children to recognize many words by associating sounds with the proper symbols and then blending the sounds into a word."

Hildreth[2/] says of the advisability of using sounding and pronouncing in learning to read, "Sounding aids reading to the extent that it enables the reader to hear or pronounce words naturally and to recall from sight sound associations or from partial sounding clues."

Gray[3/] makes this statement about the importance of word analysis:

> "To give children real power in word perception, we must see that they master a sight vocabulary and that we must also teach them how to attack new words in various ways. They must learn to combine meaning and word form clues with a more detailed analysis of structural and phonetic elements in a word, and eventually they must learn how to use a glossary or dictionary."

Although practice in recent years has tended to place the emphasis on teaching phonetics and word attack methods in the primary grades, the educators do suggest that there are many advantages in extending instruction in word analysis into the intermediate grades.

1/Josephine Tronsberg, "The Place of Phonics in a Basal Reading Instruction," Education Digest (January, 1955), 20:48-49.

2/Gertrude Hildreth, "The Role of Pronouncing and Sounding in Learning to Read," Education Digest (January, 1955), 20:46-47.

3/William Gray, On Their Own in Reading, Scott, Foresman and Company, New York, 1948, p. 52.

Hildreth[1] notes that "Sounding is particularly valuable to the child in the intermediate grades and above, when the range of new, infrequently used words met in textbooks, papers, and library rapidly increases."

Tronsberg[2] states "Phonics instruction should be continued throughout the intermediate grades for those children who have not mastered all the skills and also as an aid in developing facility in using the dictionary and in syllabifying polysyllabic words."

Gray[3] agrees that skills in word attack must be taught in all grades. He goes on to say, however, that:

> "This skill should be based on fundamental understanding of how sounds and their letter symbols function in our language, and these understandings should develop as generalizations based on the child's experience with words - words he learned visually as meaningful wholes, rather than mechanically as a series of letter sounds."

Many studies have been conducted to determine the extent of which instruction in phonetic analysis really does help the child to become a better reader. In a study done at Purdue University by Tiffin and McKinnis[4] the conclusion reached showed that "A program of reading instruction which does not, by direct or indirect instruction, yield a mastery of the principles of phonics is not accomplishing its full purposes."

1/Gertrude Hildreth, op. cit., pp. 46-47.

2/Josephine Tronsberg, op. cit., pp. 48-49.

3/William Gray, "Understanding, Attitudes and Skills in Recognizing Word Meanings and Pronunciations," Basic Instruction in Reading in Elementary and High Schools, Supplementary Monographs, No. 65, University of Chicago Press, Chicago, 1948, p. 120.

4/Joseph Tiffin and Mary McKinnis, "Phonics Ability: The Measurement and Relation to Reading Ability," School and Society (February, 1940), 51:190-193.

Witty[1] tells of some of the conclusions drawn from a study conducted by Agnew. Witty says that Agnew showed, as a result of testing two groups of third grade children who had received different amounts of phonic training, that positive advantages were reached. These advantages were:

"a) increased independence in recognizing words previously learned

b) greater ability to 'unlock' new words

c) better pronunciation and

d) improved oral reading."

Templin[2] conducted a study of the relation of phonic knowledge to spelling and reading achievement. Some of the conclusions shown were that,

> "The poor spellers and poor readers applied their phonic knowledge less well than good spellers and good readers in the unfamiliar test situations while the difference was not significant when phonic knowledge was measured in familiar words is an intriguing finding."

Harris[3] seems to sum up the general feeling of the experts in reading by saying,

> "There are several methods that may be used by a child in attempting to solve a word that is not immediately recognized. The word may be guessed from the context in which it is found. If it has been taught in spelling lessons, spelling it may stimulate recall. The words may be sounded out and then blended to get the pronunciation. The size and shape of the word may serve as clues, or the resemblance of the word

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1/Paul Witty, "Phonic Study and Word Analysis," Elementary English (May, 1953), 30:296-305.

2/M. C. Templin, "Phonic Knowledge and its Relation to the Spelling and Reading Achievement of Fourth Grade Pupils," Journal of Education Research (February, 1954), 47:440-454.

3/Albert Harris, op. cit., p. 169.

> to another word which is already known may be noticed. A good reader is resourceful. If one method of attack does not succeed he tries another. He knows how to utilize the context, how to blend, and how to employ visual resemblances. Poor readers often restrict themselves to one method of attack and employ even that method poorly. It is important to find out what method or methods a child tries to use as well as how successful he is."

Spelling.-- It is generally believed that there is a relationship between reading and spelling abilities, although opinion varies as to the relative importance of the relationship between them.

A study by Morrison and Perry[1/] concerning the relationships of reading and spelling with incidence of retardation and acceleration show that "Correlations were found between spelling and general reading abilities from 0.75 in the eighth grade to 0.85 for the third grade." They considered that these figures showed a "....fairly conclusive relationship between children's abilities to read and spell."

Horn[2/] also claims that there is an important relationship between reading and spelling. He further points out that the correlations between reading and spelling are nearly the same as those reported between reading and intelligence.

According to Betts,[3/]

> "General intelligence is a significant factor in reading and spelling. The relationship between spelling ability and

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1/Ida E. Morrison and Ida F. Perry, "Spelling and Reading Relationships with Incidence of Retardation and Acceleration," Journal of Educational Research (February, 1959), 52:222-227.

2/Ernest Horn, "Experiences which Develop Spelling Ability," National Education Association Journal (April, 1954), 43:210-211.

3/Emmett A. Betts, "Interrelationship of Reading and Spelling," Elementary English Review (January, 1945), 22:13-23.

intelligence is in the neighborhood of 0.30 to 0.40 between reading ability and intelligence 0.50 to 0.60. While the correlation between intelligence and reading and spelling abilities leaves many factors unaccounted for the evidence does point to significant relationships."

Townsend[1/] made a report on a study of certain relationships of spelling and academic aptitude and reading. She found "....a mean correlation of about 0.65 between spelling and meaning vocabulary."

To show further relationship existing between reading, or some aspect of it, and spelling, Peake[2/] studied 355 children from grades four to eight in an Indianapolis school. The following chart shows the results of the New Stanford Achievement Test.

Relationship of Reading and Spelling Found by Peake

Number of Cases	Grade Level	Spelling and Reading r	Aspect of Reading
41	4	0.933	Knowledge of meaning of vocabulary
17	4	0.811	
35	5	0.676	
15	5	0.830	
49	6	0.752	
24	6	0.874	
63	7	0.623	
24	7	0.426	
54	8	0.566	
33	8	0.629	
Total 355	4 - 8	0.814	

1/Agatha Townsend, "An Investigation of Certain Relationships of Spelling with Reading and Academic Aptitude," Journal of Educational Research (September, 1946), 40:465-471.

2/Nellie L. Peake, "Relation Between Spelling Ability and Reading Ability," Journal of Experimental Education (December, 1940), 9:192-193.

Peake[1] reported that the coefficients of correlation did not indicate uniform relationships at all levels. The correlations according to grade level ranged from 0.426 to 0.933; while for the whole population it was 0.814 between spelling ability and reading ability in terms of vocabulary knowledge or meaning.

Spache[2] further supports the relationship between reading and spelling, "Low meaning vocabulary is more likely to cause spelling disability than low reading ability."

Acomb[3] found that spelling ability is closely related to reading comprehension. He obtained a correlation of 0.83 when testing 380 third, fourth, and fifth grade children in order to determine the relationships that might exist among the following factors: visual memory of word patterns; auditory recognition of words pronounced; speed of handwriting from copy; written recall from silent reading and spelling.

Reading and spelling are closely allied because many of the skills and abilities required for one are also required for the other according to Hildreth.[4]

> "Spelling and reading have a common basis of vocabulary. If vocabulary is poor and articulation is immature, both reading and spelling suffer. Learning to read and learning to spell both depend upon the ability to discriminate among words visually.
>
> The ability to recognize and remember words is fundamental to both reading and spelling. Readers who are poor in word recognition

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1/Ibid., pp. 465-471.

2/George Spache, "Spelling Disability Correlates — Casual Factors in Spelling Disability," Journal of Educational Research (April, 1941), 34:561-586.

3/Allan Acomb, A Study of the Psychological Factors in Reading and Spelling, Unpublished Master's Thesis, Boston University, 1936.

4/Gertrude H. Hildreth, "Interrelationships Among the Language Arts," Elementary School Journal (June, 1948), 48:538-549.

> are rarely good spellers. Naturally, the pupil who finds it difficult to recognize a word when he sees it is likely to have even more difficulty trying to memorize and to reproduce its sequence of letters."

In his opening comment for his chapter on spelling, Durrell[1/] states that:

> "The fundamental psychological skills underlying reading and spelling are similar. In general, reading ability correlates closely with spelling ability, since skill in word perception is essential if a child is to recall words vividly enough to write them."

Achievement in spelling is closely associated with skills and understanding that are related to word recognition. According to Russell[2/] "Such understanding includes visual discrimination, speed and accuracy of visual perception and structural analysis. These understandings include also auditory discrimination and phonic skill."

Rudisill[3/] investigated the interrelation between functional phonic knowledge, reading achievement, spelling achievement, and mental age among 350 children in the third grade. The correlations she found "suggest that to a great extent, there were common factors between reading, spelling, and phonic knowledge independent of intelligence. They suggest that these factors were results of specific training rather than natural results of applied intelligence."

1/Donald D. Durrell, op. cit., 1940, p. 269.

2/David Russell, "Spelling Ability in Relation to Reading and Vocabulary Achievement," Elementary English Review (January, 1946), 23:32-37.

3/Mabel Rudisill, "Interrelations of Functional Phonic Knowledge, Reading, Spelling and Mental Age," Elementary School Journal (February, 1957), 57:26-27.

Furness[1/] states "Experimental psychology now conceives reading and spelling to be not single unitary processes but a number of activities highly integrated."

Yoakam[2/] writes "....that better spelling is achieved thru a sound foundation in word recognition and meaning in material which is suited to the needs and interests of children seems a well established fact."

Techniques of word recognition are important in spelling according to Stauffer.[3/] He considers that phonetics and structural skills are the skills which bridge the gap between reading and spelling.

Palmer[4/] reported that one of the important differences between the good and poor spellers among the group with which she worked was in their degree of visual perception and phonetic abilities. Good spellers seemed to have a markedly better visual perception and phonetic ability than the poorer spellers.

An investigation of the effect of word analysis on spelling ability of grade four children was made by Aaron.[5/] He found highly significant relationships between spelling ability and (1) visual discrimination of

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1/F. L. Furness, "Psychological Detriment of Spelling Success," Education (December, 1958), 79:234-239.

2/Gerald A. Yoakam, "Better Spelling thru Better Reading," National Education Association Journal (November, 1949), 38:596-597.

3/R. G. Stauffer, "Relationship between Reading and Spelling," Education (December, 1958), 79:206-210.

4/Mary E. Palmer, "Abilities Possessed by the Good Spellers," Elementary English Review (June, 1930), 7:149, 150, 160.

5/Ira E. Aaron, "Relationship of Auditory Visual Discrimination to Spelling Ability," Dissertation Abstracts (1954), Vol. 14, No. 8:1164.

words, (2) recognition of beginnings and endings of words (in non-phonetic as well as in phonetic words).

When discussing techniques used in reading and spelling, Gates[1] suggests the need for coordination.

> "For example, if a teacher is trying to get the pupil to perceive the word in reading by the larger unit, such as syllables, large phonograms, or component words, whereas at the same time she is teaching him to spell by means of letter-by-letter procedure, two rather contradictory habits are being established simultaneously. If the instruction in spelling is more definite and precise, the pupil is likely to resort to letter-by-letter analysis when he encounters an unfamiliar word in reading or when he tries to learn a new word."

Kottmeyer[2] writes that spelling skill can be developed when reading is taught and that reading skills can be strengthened when spelling is taught if the relationship between reading words and spelling words is noticed.

> "But when we spell, we need to know more than the beginning and final consonant sounds, we know that we can utter no syllable without a vowel sound. Hence, to get effective power in spelling a child needs to know the vowel sounds. As a matter of fact, he needs them in reading also to develop his word recognition skills to a point of real usefulness.
>
> ....There is some evidence that we can give children greater competence in both spelling and reading when we make the relationship of these similar skill clusters more apparent."

Auditory and visual discrimination.-- Research findings in the area of visual and auditory discrimination show a positive correlation between them and reading achievement. There have been slight degrees of variation in the different studies.

1/Arthur I. Gates, The Improvement of Reading, Macmillan Company, New York, 1947, p. 293.

2/William Kottmeyer, "On Relationship of Word Perception Skills in Reading and Spelling," Education (May, 1952), 72:600-603.

Meek[1] analyzed the possible clues in word recognition, and concluded that:

> "Word perception depends to a large extent upon the ability to select certain characteristics of a word by which it may be recognized, the characteristics used to identify the words frequently varying with the situation in which the word occurs. The ability to recognize words by such characteristics as length, general configuration, peculiar shape of a letter, and the like, depends upon the formation of certain perceptual habits."

Acomb[2] studied the relationships between visual memory of word pattern, auditory perception of words pronounced, and reading and spelling grades. Three hundred and eighty pupils between grades three and six were included, and the following conclusions were reached:

"1. The ability to distinguish through visual and auditory means.... depends somewhat on mental age.

2. Visual and auditory discrimination, perception, and associability are highly significant factors in relation to reading ability.

3. Visual and auditory factors are significantly related to spelling ability...." with correlations of .76 and .74 respectively.

Murphy[3] and Junkins,[4] working at approximately the same time, studied the effectiveness of formalized teaching programs in auditory and visual

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1/Lois Meek, "A Study of Learning and Retention in Young Children," Contributions to Education, No. 164, Teachers College, Columbia University, New York, 1925, pp. 1-86.

2/Allan Acomb, op. cit., p. 87.

3/Helen Murphy, "An Evaluation of the Effect of Specific Training in Auditory and Visual Discrimination of Beginning Reading," Unpublished Doctoral Dissertation, Boston University, 1943.

4/Katherine Junkins, "The Construction and Evaluation of Exercises for Developing Visual Discrimination in Beginning Reading," Unpublished Master's Thesis, Boston University, 1940.

discrimination. Murphy[1] evaluated the effect of specific exercises for auditory discrimination on:

1. Learning rate in beginning reading
2. Change in child's auditory discrimination between likenesses and differences in words
3. Change in child's visual perception of words
4. Actual reading score

The population tested was fifty-one children of grades one and two. The results showed highly positive gains in learning rate, auditory discrimination, visual perception, and word recognition.

Junkins[2] at this time was evaluating the effect of visual discrimination exercises upon beginning reading. Working with a population of fifty pupils who were making poor progress in grades one and two, materials that would specifically develop this visual discriminatory ability were developed and presented for thirty successive days. The conclusions were as follows:

1. The experimental group was superior to the control group in visual discrimination.
2. Visual discrimination exercises improved the rate of learning new words.
3. In the Detroit Word Recognition test the experimental group was superior to the control group.

Fagg[3] investigated the possible relationships between auditory discrimination and reading achievement, limiting her study to 100 children

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1/Helen Murphy, op. cit.

2/Katherine Junkins, op. cit.

3/Dorothy Fagg, "A Study of the Relationships Between Auditory Analysis and Growth of the Language Arts Skills," Unpublished Master's Thesis, Boston University, 1942, pp. 28-29.

from six first grades in parochial schools. She concluded that "(1) Auditory discrimination ....does not affect reading to some extent.... Visual discrimination shows the highest correlation with reaching achievement...." The correlations were not sufficiently high to warrant use of either in predicting reading success.

Sister Mary James Harrington[1/] attempted to discover the relationship of the word analysis abilities to reading achievement. In a study of the five hundred children of five parochial schools in Massachusetts, she found a high positive relationship between visual discriminatory skills and reading, and auditory skills and reading. Yet, she found the correlation of visual discrimination skills to be a good deal higher than that of auditory. The critical ratio for the visual was 5.85 as compared with a 2.7 for auditory.

Mack[2/] investigated the various word analysis abilities and their importance in spelling and reading achievement, and reported a positive relationship between visual discrimination and reading achievement. In her study of fifty fifth grade cases, she found there to be a mean difference of 9.4 words in a word recognition test given to the control and experimental groups.

Bourke[3/] sought to discover the relationship of certain word analysis abilities to the reading achievement of children in grades one, two, and

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1/Sister Mary James Harrington, "The Relationship of Certain Word Analysis Abilities to the Reading Achievements of the Second Grade Child," Unpublished Doctoral Dissertation, Boston University, 1953.

2/Esther Mack, "An Investigation of the Importance of Various Word Analysis Abilities in Reading and Spelling Achievement," Unpublished Doctoral Dissertation, Boston University, 1953.

3/Ann Bourke, op. cit., pp. 2-5.

three. The results, in order of importance, were phonics, auditory discrimination, visual discrimination, and knowledge of letter names for grade one; auditory discrimination, phonics, visual discrimination, and knowledge of letter names for grade two; auditory discrimination, visual discrimination, and phonics for grade three.

Hudson and Toler[1/] state "....that children with deficiency in audio and visual discrimination must depend wholly on memorization of letter sequence. Tests and studies show that remedial instruction in auditory and visual discrimination pays big dividends in the improvement of spelling."

Artley[2/] also listed visual perception or discrimination as "....a significant ability to successful spelling."

A certain group of studies examined another aspect of the visual discrimination factor, with emphasis upon the physical phase of perceptual acuity. Shubert[3/] proposed the theory that many six and seven year old children are not visually ready for reading, and that this visual immaturity may thus influence a child's progress in reading, both physically and psychologically. He proposed two particular courses:

> "1. The proper identification of the visual immature to measure near-point acuity, stereopsis, and fusion. The tests are all stereoscopic in nature: Orthorater, Keystone Visual Survey Tests, and the Sight Screener.

1/Jess Hudson and Lola Toler, "Instruction in Auditory and Visual Discrimination as a Means of Improving Spelling," Elementary School Journal (April, 1949), 49:466-469.

2/A. Sterl Artley, "Principles Applying to the Improvement of Spelling Ability," Elementary School Journal (November, 1948), 59:137-148.

3/Dwlwyn G. Shubert, "Visual Immaturity and Reading Difficulty," Elementary School English (May, 1957), 34:323-325.

2. Once identified, this group should be relegated to activities on charts, projections, and blackboard demonstrations...."

Vernon[1/] discusses specific inaccuracies in perception, and points out that most of them seem to die out as the child matures, and become relatively unimportant around age seven. Yet, he states "....they may persist in children having unusual difficulty in learning how to read." Along this same line of thought, Roberts and Coleman,[2/] in a study with two groups of children, one of reading failures and one with no particular problem, concluded that "....a proportion of reading failures may be due to lack of visual perceptual acuity, and that, the use of the Fernald Kinesthetic Technique was recommended."

Syllabication.-- Authorities in the field of reading feel that the child should be taught to break up the words into relatively large usable parts, for in careful systematic visual study of words the larger the elements that can be isolated and recognized the more effective will be the visual analysis. The teaching of syllabication is a good means of getting the child to break words into relatively large study units.

Betts[3/] states the following opinion: "Structural analysis is limited to these considerations: compound words, prefixes, suffixes, roots, inflections, and the general problem of syllabication and accent."

1/M. D. Vernon, "Development of Visual Perception in Children," Education (May, 1958), 78:547-549.

2/Richard W. Roberts and James C. Coleman, "An Investigation of the Role of Visual and Kinesthetic Factors in Reading Failure," Journal of Educational Research (February, 1958), 51:445-451.

3/Emmett A. Betts, op. cit., p. 582.

Beery[1/] has summarized the important skills in structural analysis as "The skills involved in recognizing a word, with or without the endings s, ing, ed, er, est, by, en, ful, ment, ness, and the like; and dividing longer words into syllables." In commenting on what skills of structural analysis should be included in teaching in the intermediate grades, Austin[2/] says "To develop efficient habits in structural analysis, the teacher must strengthen all children's ability to see root words in variants and derivatives, to recognize compound words, and to divide words into syllables."

Wolfe and Breed[3/] in a study done at the University of Chicago found that "....slightly better results were obtained in spelling by those children who were taught syllabication than by those who did not have such training."

Dolch[4/] says that "....the continued usefulness of 'letter phonics' should be recognized at all levels of school work." He maintains that there must be thorough teaching of syllabication.

1/Althea Beery, "Development of Reading Vocabulary and Word Recognition," Chapter VIII, Reading in the Elementary School, National Society for the Study of Education, Forty-Eighth Yearbook, University of Chicago Press, Chicago, 1949, pp. 184-186.

2/Mary Austin, "In the Middle and Upper Grades," Classroom Techniques in Improving Reading, Supplementary Monographs, No. 69, University of Chicago Press, Chicago, October 1949, p. 63.

3/H. A. Wolfe and F. S. Breed, "An Experimental Study of Syllabication in Spelling," School and Society, 15:616-623.

4/Edward W. Dolch, "Phonics and Polysyllables," Elementary English Review (April, 1938), 15:120.

Cottrell[1/] expresses her opinion in this statement: "To attack polysyllabic words, a child must be able to use structural as well as phonetic analysis."

Osburn[2/] makes the statement that "The ability to syllabicate is undoubtedly an important factor in learning to read and spell."

Horn[3/] recommends that teachers "....should use syllables to aid spelling ability."

Russell[4/] states that blending ability and syllabication are possessed not only by those excelling in pronunciation, but also by the better spellers.

Gates[5/] makes the following statements concerning syllabication:

> "Children can learn to see syllables as well as component words from a fairly early stage. A beginning in the technique of dividing words into syllables may be made in the first grade. High levels of efficiency in dealing with long and complex words should not be expected until pupils have had many months of experience. It is highly important that skill begin to appear in the latter part of the second grade and the early part of the third. A fairly definite program of instruction should be introduced early in the third grade."

1/Martha J. Cottrell, "Developing Independent Word Attack in the Middle and Upper Grades," Basic Instruction in Reading in Elementary and High School, Supplementary Monographs, No. 65, University of Chicago Press, Chicago, 1948, pp. 132-137.

2/Worth J. Osburn, "Teaching Spelling by Teaching Syllables and Word Roots," Elementary School Journal (September, 1954), 55:32-41.

3/Thomas D. Horn, "How Syllables Can Help in Spelling," Education (January, 1956), 76:291-295.

4/David H. Russell, "Characteristics of Good and Poor Spellers," Contributions to Education, No. 727, Teachers College, Columbia University, 1937, p. 12.

5/Arthur I. Gates, op. cit., pp. 287-288.

Gray[1/] believes that it is important that the child should be able to "....attack the word in terms of syllables or pronounceable units. To do this successfully he needs the help that comes from structural analysis."

Bond[2/] feels that "....the technique of breaking words into their syllables should be taught, since it is effective in the recognition of many otherwise difficult words."

All the research indicates that the child needs to know the technique of syllabication.

It may be generally concluded that all of the areas discussed in this chapter play a major part in the process of learning to read and in the development and maintenance of skills necessary to a sound reading program.

1/William S. Gray, op. cit., p. 76.

2/Guy L. Bond and Eva W. Bond, Teaching the Child to Read, Macmillan Company, New York, 1950, p. 241.

CHAPTER II

PLAN OF STUDY

The purpose of this study, as stated, is to determine the various instructional needs of children at the same grade level. In order to conduct the study, it was necessary to secure a population as well as build tests to investigate the reading needs of the children.

Population.-- Data for the thesis were compiled from the results of a battery of tests administered to twenty-four classrooms of six elementary schools in an industrial city in Massachusetts.

The entire population tested consisted of five hundred thirty-nine children in the second, fourth and sixth grades. The numbers in the various grades were as follows:

Grade Two	182
Grade Four	184
Grade Six	173

Tests were administered to eight sixth grades, eight fourth grades and eight second grades.

Description of Tests

1. Group Tests

Listening comprehension and achievement.-- The Durrell-Sullivan Capacity and Achievement Tests, Primary and Intermediate, Form A were used.[1/]

1/Donald D. Durrell and Helen B. Sullivan, Durrell-Sullivan Reading Capacity and Achievement Tests, Primary and Intermediate, Form A, World Book Company, Yonkers-on-Hudson, New York, 1937.

The Durrell-Sullivan Capacity Test consisted of two sections: Vocabulary and Paragraph Meaning. The children responded to orally dictated test items by marking a series of pictures. The norms extended from 1.3 to 8.7.

The Achievement Test measured vocabulary, paragraph meaning, comprehension and written recall. The norms for reading extended from 2.5 to 7.9.

Written recall.-- Paragraph One was administered to grade four and Paragraph Two was administered to grade six.

Hearing sounds in words.-- Research has shown that one of the prime considerations in learning to read is the ability of the child to hear the separate sounds in the spoken word. These tests were given for the specific purpose of investigating the ability of these children to hear sounds.

The primary test for hearing sounds in words was taken from Durrell's[1/] text. Its purpose was to discover how well a child could identify sounds in spoken words.

The test was divided into three parts, which measured the ability to identify initial consonants, final consonants and word parts such as prefixes, blends or phonograms. In the first part the children identified the initial sounds of words pronounced by circling the correct letter in a group of five possible answers as shown in the following example: The student had before him the letters e p c d t. When the word cup was pronounced by the examiner the child's correct response was to circle the letter c. Explicit directions are given with the sample of the test in the appendix.

1/Donald D. Durrell, Improving Reading Instruction, World Book Company, Yonkers-on-Hudson, New York, 1956, p. 105.

The second part of the test had two sections. In the first section the children identified the final sound of the word by circling a word which ended with the same sound. For example, the word until was pronounced and the children circled one of the following words: milligram sweltering shrapnel. The second section measured the ability to identify initial and final sounds by circling an unknown word which began and ended like the word pronounced. In the sample given here the word geranium was pronounced for the children. The children circled the correct answer in the following: premium gypsyism glaucoma.

In the third part the children circled groups of letters representing the sounds they recognized in the word pronounced for them. The following is a sample of the letters on the test: ar k st w ight p. The word starlight was pronounced and the children circled the letters they identified from the word.

When scoring the first two parts of the test, the number of correct responses was totaled. In the third part of the test, the number of incorrect responses was subtracted from the number of correct responses to give a total.

A copy of the test and directions for administering and scoring may be found in the appendix.

The intermediate test was originally prepared by Brion.[1/] The purpose of the test was to determine the ability of the child to hear and write initial and final sounds in words. It was administered to grades four and six.

1/Informal test prepared by Margaret Brion, Research Fellow at Boston University, under the direction of Donald D. Durrell.

The test consisted of 45 items. The children were directed to listen and write the letter(s) asked for in a word pronounced by the examiner. For example:

Write the first letter of beneficial.
Write the first two letters of frisky.
Write the first three letters of thresher.
Write the last letter of piston.
Write the last two letters of catapult.

In scoring, one point was given for each correct answer making a total possible score of forty-five.

A copy of the test and directions for administering and scoring may be found in the appendix.

Visual discrimination.-- Visual discrimination of word elements is essential to the reading process. In reading, the child must be able to distinguish between very similar word forms, such as: can-car; then-than; and want-went. These tests were administered for the purpose of determining the visual perceptual abilities of the children.

The primary test of visual discrimination, taken from Durrell's book[1/] has two parts with thirty items in all.

In the first part, a flashcard with a letter on it was shown to the children. The children circled this letter from a group of five letters on the sheet. In the second part, a flashcard with a word on it was shown to the children. The children circled this word from a group of seven words on the sheet. For example, the word ought was flashed. The child selected the word from the following group of words:

eight sought rough (ought) taught aught tough

1/Donald D. Durrell, Improving Reading Instructions, World Book Company, Yonkers-on-Hudson, New York, 1956, p. 102.

The test was scored as designated in Durrell's book. A copy of the test with directions for administering and scoring may be found in the appendix.

The purpose of the intermediate test was to determine with what accuracy pupils could reproduce in writing unfamiliar words following a three second visual presentation.

The following ten words were selected. These words were not in the reading vocabulary of middle grade children, and each word contained unphonetic elements.

gaseous	mischievous
haughty	rheumatism
plateau	aeronautics
salmon	hieroglyphic
chamois	pneumatic

The words were printed on flashcards in letters about two inches high.

In scoring, one point was given for each correct answer, making a total possible score of ten.

A copy of the test with directions for administering and scoring may be found in the appendix.

Homophones.-- This test was given for the purpose of determining the pupil's ability to identify the various groups of letters which are represented by the same sound.

The test is an original one constructed by Joseph Comerford[1/] and adapted from his Doctoral Dissertation for the purposes of this study. The administration and correcting procedures of the complete test was taken directly from Comerford.

1/Joseph Comerford, Perceptual Abilities in Spelling, Unpublished Doctoral Dissertation, Boston University, 1954, p. 52.

The following is a description of the test itself:

"The recognition-of-homophones test contains 50 items, each of which has an indicated stimulus sound and five choices. The following illustrations indicate the form of the items:

5. air	24. eed	42. ode
() ere	() ead	() owed
() ire	() ede	() ewed
() are	() ide	() ood
() eir	() ode	() oed
() ear	() ed	() oad

The underlined letters constituted the stimulus sound which is pronounced by the examiner and which is used by the pupils as a basis for indicating other groups of letters which could represent the same sound. Among the 50 items of this test, 10 items have one choice which represents a homophone or like sounds; 20 have two such choices; 8 have three homophonous choices. In view of the varying number of choices within the items, it was necessary to correct this test on the basis of each choice being correctly marked or unmarked, which resulted in a total possible score of 250."

A copy of the test and directions for administering and scoring may be found in the appendix.

Skimming.-- A test of ten items over a reading selection of approximately thirty words was constructed to measure the skimming ability of children in the fourth and sixth grades. The Kier[1/] study used similar material but the test format was new. There was one item for each paragraph, and the questions were listed to the left of the reading. As an answer was discovered, it was underlined in the paragraph and the corresponding question number was written beside the paragraph. In scoring, credit was given only where the correct answer was underlined and the correct number indicated.

1/Clarinda Kier, The Relative Order of Difficulty of Four Types of Skimming in the Intermediate Grades, Unpublished Master's Thesis, Boston University, 1939.

A copy of the test and directions for administering and scoring may be found in the appendix.

Syllabication.-- The syllabication test was taken from the battery built by John Deasy, School of Education, Boston University.

The words to be syllabicated were presented in a sentence and underlined. The child read the sentence containing the underlined words. At the right of the sentence there was a copy of these underlined words. The child was directed to divide these words into syllables.

Sample:

1-2. Jean found a penny on the sidewalk. p e n n y
s i d e w a l k

The total test contained forty-seven items. The first twenty-five items were used in grade four, and the last twenty-two items in grade six.

In scoring, one point was given for each correct response.

A copy of the test with directions for administering and scoring may be found in the appendix.

Spelling.-- The primary test for grade two and the intermediate test for grades four and six were taken from the Durrell Analysis of Reading Difficulty.[1/] Norms from the same test were used in scoring.

The procedure for administering the test as presented in the manual was followed. A word was dictated, presented in a sentence, and then dictated again so that each word was presented orally three times before the child wrote it.

1/Donald D. Durrell, Durrell Analysis of Reading Difficulty, World Book Company, Yonkers-on-Hudson, New York, 1955, pp. 24-25.

A copy of the test and directions for administering and scoring may be found in the appendix.

Dictionary skills.-- A test of sixteen items, including one sample, was built to measure the speed with which the children could locate words in the dictionary. The words selected represent different initial consonants, blends and prefixes, and were of varied length. They were not in alphabetical order. The list was as follows:

fluent	recind
mechanic	warrant
element	point
deception	thatch
evolution	binocular
stamina	gyroscope
indignation	hectic
resident	limitation

The children wrote the guide word at the top of the appropriate column when they located a word. Two minutes were allowed.

A copy of the test with directions for administering and scoring may be found in the appendix.

Speed of silent reading.-- Speeded silent reading is valueless without comprehension of the passage read. In this test a time limit was set to accommodate the speed of reading and the comprehension check.

This test was taken from the McCall-Crabb, Standard Test Lessons in Reading.[1/]

The test was administered to grades four and six. Children were given three minutes to read the paragraph and answer ten multiple

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1/William A. McCall and Lelah M. Crabb, Standard Test Lessons in Reading, Book 3, Bureau of Publication, Teachers College, Columbia University, 1926, Exercise 13.

choice questions. In scoring, one point was given for each correct answer.

A copy of the test and directions for administering and scoring may be found in the appendix.

Elaborative thinking.-- The first step in constructing the tests was to determine and define the elements of elaborative thinking which were to be measured. Two types of measures were built. The first was limited to exercises which called for spontaneous questions and possible activities related to the selection. The second type of test was a measure of the pupil's ability to relate or associate his own experiences with the material read.

Six selections from the Durrell Analysis of Reading Difficulty[1/] were used, two as samples and four as actual tests. Adjustments were made in the titles and content. The selections included:

The Accident

The Little Girl

The Clubhouse

The House

The Shoes

The Balloon

Each selection was mimeographed with space provided for the written response following it. Sample exercises were provided at the beginning of both Tests I and II. The examiner read the paragraphs orally while

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1/Donald D. Durrell, Durrell Analysis of Reading Difficulty, World Book Company, Yonkers-on-Hudson, New York, 1955, pp. 10, 11, 12, 18, 24.

the class followed along with the reading. An explanation was given of the purpose, and a discussion followed with the examiner and children giving possible items.

The following are sample tests:

SAMPLE TEST I

The Accident

A boy was hurt on our street yesterday. He had been playing ball and was riding his bicycle away from the ball field when a car came down the road. He did not see the car coming because he was looking back at the boys who were still playing ball. The car was going slowly. It hit the boy, but did not run over him. His arm was hurt and his bicycle was bent.

The examiner explained to the children after reading the paragraph that they were to think of questions which were not answered by the story, and which would add to it to make it longer. The examiner read the sample and then offered some suggestions. She then asked the children if they could think of some questions. The following words were listed on the board as a guide for the children: how, who, which, what, when, where, why.

SAMPLE TEST II

The House

Three boys built a house in the woods. They put a table and two old chairs in it. There was a basket full of apples under the table. One afternoon they went away and left the door open. When they came back, they found two little pigs eating the apples.

The examiner explained to the class that they were now to think of things about which the story reminded them. The examiner read the sample

and offered some suggestions. She then asked the children what they thought of as they read the story. The only clues given were verbal and these were given before the sample was read. It was suggested that the story might remind them of things that they had heard or read about, such as songs, poems, and stories.

The prime consideration of the test was to measure the quantity of pupils responses rather than speed. Each response related to the selection was counted as a score of one. Scores for Tests I and II were counted and kept separate.

A copy of the test and directions for administering and scoring may be found in the appendix.

2. Individual Tests

Record sheets.-- Two record sheets, one primary and one intermediate, were formulated to summarize the oral information from the individual tests.

The primary record sheet contained three types of information concerning oral reading: The level of the book the child was reading in class, the suitability of this book, and the oral reading level established by reading the Durrell paragraphs. An abridged checklist of difficulties, from the Oral and Silent Reading sections of the Durrell Analysis of Reading Difficulty,[1/] was used. The word pronunciation list, and the applied phonics list followed. On the back of the sheet were the paragraphs one through four from the Durrell Analysis. Two columns were provided, one for checking unaided recall and the other, aided recall.

1/Donald D. Durrell, Durrell Analysis of Reading Difficulty, World Book Company, Yonkers-on-Hudson, New York, 1955.

The front sheet of the intermediate record form included all of the above items except applied phonics for which diacritical marks were substituted. Paragraphs five through eight were substituted for paragraphs one through four on the primary form.

Each child brought his reading book to the examiner and read a selection which he had not previously read in class. The level was noted on the record sheet. The suitability of the book was determined in the following manner:

Too easy	-	no word pronunciation errors
Satisfactory	-	1 word pronunciation error in 20 words
Difficult	-	2 to 6 word pronunciation errors in 20 words
Too difficult	-	7 or more word pronunciation errors in 20 words.

The number of word pronunciation errors was also recorded.

The checklist of difficulties was used to summarize the information gained from the reading of the oral paragraphs. If the book the child brought with him was too easy, the paragraph one level above the level of the book was used. If the book was satisfactory, the paragraph on the same level as the book was used. If the book was difficult or too difficult, the paragraph one level below the book level was used. The reading of the paragraphs was timed. The child was asked to tell what he could remember. His unaided responses were numbered in sequence as they were given. Questions were asked to check the memories omitted and accurate replies were recorded in the second column, aided recall. A plus indicated phrases recalled and a minus those not recalled.

The correct instructional level was determined by using the norms established for time and errors. This was recorded next to the book level.

The tests of word pronunciation, applied phonics and diacritical marks were scored by using the ratings of 2, 1, or 0. The 2 was checked when the word was immediately recognized and pronounced. The 1 was checked when an acceptable pronunciation was given after a brief hesitation or analysis. The 0 was checked when the word was mispronounced.

A sample of the primary record sheet and the intermediate record sheet may be found in the appendix.

Oral reading.-- Two measures of oral reading were taken. The child was asked to read from the unit immediately following the last one that he read in class. Then he read the paragraph of the Durrell Analysis of Reading Difficulty[1/] which seemed most suitable. Time, errors, and aided and unaided recall were checked as the child read the Durrell paragraphs.

A copy of the paragraphs used from the Durrell Analysis, with provisions for checking recall, may be found in the checklist in the appendix.

Word pronunciation.-- The primary word pronunciation test was abstracted from the Gates Graded Word Pronunciation Test VII, Form 1.[2/] It was composed wholly of isolated words, thus eliminating any use of context in recognition. The mean score for grade two was thirty. The thirtieth word was selected as the starting point and every fifth word was used thereafter.

1/Donald D. Durrell, op. cit., 1955.

2/Arthur I. Gates, The Improvement of Reading, The Macmillan Company, New York, 1935, p. 520.

The test was administered individually to the second grade population. Each child was asked to pronounce the words aloud. After five incorrect responses the test was discontinued.

A copy of the test with directions for administering and scoring may be found in the appendix.

The intermediate test consisted of twenty-five words which were selected from a test of one hundred items by Chapman.[1/] The last twenty-five most difficult words were used.

The words were:

nation	incomparable	ingenious
justice	inimical	endocardium
venture	fascination	voluminosity
inspector	abdicate	subterranean
projection	specify	peripheral
excess	resignation	juxtaposition
emerge	intercolumnar	actinodielectric
engage	commemoration	facultative
	dereliction	

A copy of the test with directions for administering and scoring may be found in the appendix.

Applied phonics.-- The Applied Phonics Test was adapted from a thesis by Coates and Rogers,[2/] and administered to the second grade population. The purpose of the test was to investigate the ability of the child to apply his phonetic knowledge to unknown words. One phonetic element was taken from each of the fifteen review sections

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1/Mary T. Chapman, The Construction and Evaluation of a Word Pronunciation Test, Unpublished Master's Thesis, Boston University, 1955.

2/Diana Coates and Julia Rogers, Exercises in Applied Phonics for Grade Two, Unpublished Master's Thesis, Boston University, 1958.

of the thesis to provide as inclusive and adequate a sampling as possible. The elements included in the test were phonograms, beginning consonant blends, consonant blends, hard and soft "c" and "g", and vowels.

In administering the test a word familiar to the child was read aloud by the examiner and the child was required to solve a new word by changing one phonetic element. For example, the examiner read not and the child cottage.

There were fourteen items with a total possible score of twenty-eight.

A copy of the test with directions for administering and scoring may be found in the appendix.

Diacritical marks.-- A test to measure the knowledge of diacritical marks was constructed using the Webster's New Collegiate Dictionary[1/] as the authority.

This test was administered individually to grades four and six. Ten words were selected which were not in the reading vocabulary of these children.

In order to be sure that the child pronounced the words solely through use of diacritical marks, each word contained at least two possibilities for pronunciation. The words varied in length from two to five syllables. They were presented in two columns; the whole word was shown in the first column, and the word in syllables and diacritically marked in the second. For example:

1. unfeigned (ŭn fānd')

1/A. Merriam-Webster, Webster's New Collegiate Dictionary, G. and C. Merriam Company, Springfield, Massachusetts, 1956, Second Edition.

A copy of the test and directions for administering and scoring may be found in the appendix.

Testing Program

Two weeks in February were devoted to group and individual testing of approximately 200 children in each of grades two, four, and six in six different schools. All of the tests were administered and scored by Boston University personnel.

The group testing took two sessions per room and included for grade two the following tests:

Durrell Sullivan Capacity and Achievement

Spelling list from Durrell Analysis (List one)

Hearing Sounds in Words

Visual Discrimination

for grades four and six:

Durrell Sullivan Capacity and Achievement

Written Recall

First paragraph - grade four
Second paragraph - grade six

Spelling list from Durrell Analysis (List two)

Syllables: first page for grade four
last page for grade six

Hearing Sounds in Words

Homophones

Elaborative Thinking

Dictionary Skills

Speed of Silent Reading

Skimming

Visual Discrimination

Each examiner tested in one classroom until the group testing was completed, and then moved on to aid someone else or begin a new grade. People were assigned to schools according to the school population.

In order to save time the individual testing followed the group testing and only those children who had been present for the group tests were given the individual battery. It was felt that it was faster and more convenient for the teacher if three or four people tested one room at a time. In this manner, three rooms could be completed in one morning.

Chairs had been arranged in groups in the corridors to facilitate the procedure. Each child brought his reading book to the examiner. He was asked to read orally the next unit beyond that which he was reading in class. The book level was checked along with its suitability. The Durrell paragraphs were then presented. Upon completion of this, the primary grade children were given the applied phonics and word pronunciation test; the tests for diacritical marks and word pronunciation were administered to the intermediate grade children.

The results of these tests were first summarized on tally sheets by classroom, then transferred to cards which contained all the data for each child.

CHAPTER III

ANALYSIS OF DATA

The data were analyzed to discover:

1. The instructional needs in the various skills areas for each grade tested.
2. The suitability of the measures for the population.
3. The comparison of scores in the various skills and reading achievement by quartiles.
4. The suitability of textbooks and types of errors as judged by oral reading.

All of the data are presented in numbers and percents.

1. Analysis of Data -- Grade Two

Tables 1 through 9 show the distributions of all tests given.

Table 1 shows the distribution of chronological age in months for the total population of grade two.

Table 1. Distribution of Chronological Age
Grade Two

Intervals	Frequency
114 - 116	1
111 - 113	0
108 - 110	2
105 - 107	2
102 - 104	7
99 - 101	3
96 - 98	31
93 - 95	47
90 - 92	41
87 - 89	31
84 - 86	17
Total	182

Mean 92.83
Standard Deviation 5.1

The range was from 84 to 116 months with a mean of 92.83, or 7 years 7 months.

Table 2 shows the distribution of scores on achievement for the total population of grade two.

Table 2. Distribution of Achievement Scores Grade Two

Intervals	Frequency
53 - 55	2
50 - 52	0
47 - 49	6
44 - 46	1
41 - 43	4
38 - 40	4
35 - 37	6
32 - 34	2
29 - 31	7
26 - 28	14
23 - 25	10
20 - 22	18
17 - 19	27
14 - 16	33
11 - 13	28
8 - 10	13
5 - 7	7
Total	182

Mean 20.49
Standard Deviation 10.5

The scores range from 5 to 55 with a mean of 20.49 and a standard deviation of 10.5.

Table 3 shows the distribution of scores on listening comprehension for the total population of grade two.

Table 3. Distribution of Listening Comprehension Scores Grade Two

Intervals	Frequency
79 - 81	1
76 - 78	0
73 - 75	2
70 - 72	2
67 - 69	1
64 - 66	7
61 - 63	9
58 - 60	16
55 - 57	21
52 - 54	16
49 - 51	20
46 - 48	23
43 - 45	14
40 - 42	13
37 - 39	16
34 - 36	8
31 - 33	6
28 - 30	2
25 - 27	2
22 - 24	0
19 - 21	2
16 - 18	1
Total	182

Mean 48.89
Standard Deviation 10.70

The scores range from 16 to 81 with a mean of 48.89 and a standard deviation of 10.70.

Table 4 shows the distribution of scores on hearing sounds in words for the total population of grade two. The total possible score was 66.

Table 4. Distribution of Hearing Sounds in Words Scores Grade Two

Interval	Frequency
61 - 63	13
58 - 60	21
55 - 57	31
52 - 54	25
49 - 51	31
46 - 48	21
43 - 45	11
40 - 42	11
37 - 39	4
34 - 36	3
31 - 33	6
28 - 30	2
25 - 27	0
22 - 24	1
19 - 21	1
16 - 18	0
13 - 15	1
Total	182

Mean 50.24
Standard Deviation 8.6

The scores range from 13 to 63 with a mean of 50.24 and a standard deviation of 8.6.

Table 5 shows the distribution of scores on visual discrimination for the total population of grade two. The total possible score was 30.

Table 5. Distribution of Visual Discrimination Scores Grade Two

Intervals	Frequency
29 - 31	2
26 - 28	28
23 - 25	53
20 - 22	49
17 - 19	36
14 - 16	10
11 - 13	1
8 - 10	2
5 - 7	1
Total	182

Mean 21.72
Standard Deviation 3.98

The scores range from 5 to 29 with a mean of 21.72 and a standard deviation of 3.98.

Table 6 shows the distribution of scores on spelling for the total population of grade two. The total possible score was 20.

Table 6. Distribution of Spelling Scores Grade Two

Intervals	Frequency
19	2
18	0
17	2
16	4
15	4
14	11
13	9
12	12
11	7
10	19
9	14
8	15
7	16
6	16
5	11
4	18
3	10
2	8
1	1
0	3
Total	182

Mean 8.28
Standard Deviation 4.02

The scores range from 0 to 19 with a mean of 8.28 and a standard deviation of 4.02.

Table 7 shows the distribution of scores on word pronunciation for the total population of grade two. The total possible score was 30.

Table 7. Distribution of Word Pronunciation Scores Grade Two

Intervals	Frequency
30 - 32	1
27 - 29	1
24 - 26	3
21 - 23	6
18 - 20	8
15 - 17	15
12 - 14	7
9 - 11	19
6 - 8	14
3 - 5	39
0 - 2	69
Total	182

Mean 4.94
Standard Deviation 7.02

The scores range from 1 to 30 with a mean of 4.94 and a standard deviation of 7.02.

Table 8 shows the distribution of scores on applied phonics for the total population of grade two. The total possible score was 28.

Table 8. Distribution of Applied Phonics Scores Grade Two

Intervals	Frequency
27 - 28	14
24 - 26	16
21 - 23	16
18 - 20	16
15 - 17	20
12 - 14	13
9 - 11	23
6 - 8	24
3 - 5	14
0 - 2	26
Total	182

Mean 13.27
Standard Deviation 8.6

The scores range from 0 to 28 with a mean of 13.27 and a standard deviation of 8.6.

Table 9 shows the distribution of scores on amount and organization of unaided and aided recall for the total population of grade two. Scores of good, fair and poor were translated to 2, 1, and 0 respectively.

Table 9. Distribution of Recall Scores
Grade Two

Unaided

Amount Frequency	Scores	Organization Frequency
38	2	27
61	1	62
83	0	93
Total 182		Total 182

Aided

Scores	Frequency
2	56
1	52
0	74
	Total 182

Scores are distributed over the possible range on both unaided and aided recall and in amount and organization.

The next four tables summarize the data concerning the skills patterns for the four quartiles of reading achievement in grade two.

Table 10 shows the reading skills patterns of the children in Q_4 in reading achievement, 3.2 to 4.8. The data are reported in numbers and per cents.

Table 10. Reading Skills Patterns - Second Grade
Q_4 Achievement: 3.2-4.8

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Applied Phonics
Q_4	48 100%	13 27%	25 52%	27 56%	27 56%	29 60%	34 71%
Q_3		22 46%	12 25%	13 27%	15 31%	12 25%	10 21%
Q_2		10 21%	11 23%	6 13%	5 11%	6 13%	4 8%
Q_1		3 6%	0 0%	2 4%	1 2%	1 2%	0 0%
RA		32-79	47-63	18-29	5-19	0-30	6-28
Mdn		53.83	56.64	24.88	12.10	15.50	24.10

While 100% of the children are in the fourth quartile in reading achievement, they are distributed from the first to the fourth quartile in every skills area, except in Q_1 of hearing sounds in words and applied phonics.

The five areas in which the largest per cent of children are in the fourth quartile are hearing sounds in words, visual discrimination, spelling, word pronunciation and applied phonics; 52%, 56%, 56%, 60%, 71% respectively.

The area having the lowest agreement with reading achievement is listening comprehension; 27%.

Table 11 shows the reading skills patterns of the children in Q_3 in reading achievement, 2.8 to 3.1. The data are reported in numbers and per cents.

Table 11. Reading Skills Patterns - Second Grade
Q_3 Achievement: 2.8-3.1

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Applied Phonics
Q_4		10 23%	12 27%	14 32%	11 25%	6 14%	7 16%
Q_3	44 100%	7 16%	11 25%	12 27%	15 34%	19 43%	22 50%
Q_2		12 27%	13 30%	15 34%	15 34%	16 36%	13 30%
Q_1		15 34%	8 18%	3 7%	3 7%	3 7%	2 4%
RA		29-75	31-63	16-28	4-15	0-20	0-26
Mdn		46.17	53.00	23.17	9.50	6.50	15.00

The children in the third quartile in reading achievement are distributed from the first to the fourth quartile in every skills area.

In four of the six areas 23% or more of the children are achieving in the fourth quartile. These are listening comprehension, hearing sounds in words, visual discrimination, and spelling; 23%, 27%, 32%, 25% respectively.

In two of the areas 18% or more are in the first quartile. These are listening comprehension and hearing sounds in words; 34% and 18% respectively.

Table 12 shows the reading skills patterns of the children in Q_2 in reading achievement, 2.6 to 2.7. The data are reported in numbers and per cents.

Table 12. Reading Skills Patterns - Second Grade
Q_2 Achievement: 2.6-2.7

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Applied Phonics
Q_4		9 23%	5 13%	2 5%	4 11%	1 2%	3 8%
Q_3		11 28%	14 36%	6 16%	5 13%	9 23%	9 23%
Q_2	39 100%	11 28%	7 18%	13 33%	15 38%	17 44%	15 38%
Q_1		8 21%	13 33%	18 46%	15 38%	12 31%	12 31%
RA		16-68	20-62	11-27	2-14	0-14	0-25
Mdn		48.67	51.00	20.00	6.70	2.33	8.25

The children in the second quartile in reading achievement are distributed from the first to the fourth quartile in every skills area.

The per cent achieving in the fourth quartile in the different areas is small with the exception of listening comprehension which has 23%.

In four of the six areas 69% or more are in the first and second quartiles. These are visual discrimination, spelling, word pronunciation and applied phonics; 79%, 76%, 75%, 69% respectively.

Table 13 shows the reading skills patterns of the children in Q_1 in reading achievement, 1.4 to 2.5. The data are reported in numbers and per cents.

Table 13. Reading Skills Patterns - Second Grade
Q_1 Achievement: 1.4-2.5

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Applied Phonics
Q_4		14 27%	2 4%	2 4%	1 2%	1 2%	2 4%
Q_3		9 18%	9 18%	7 14%	5 10%	5 10%	8 16%
Q_2		9 18%	15 29%	15 29%	12 23%	20 39%	15 29%
Q_1	51 100%	19 37%	25 49%	27 53%	33 65%	25 49%	26 51%
RA		19-74	13-59	5-27	0-13	0-16	0-22
Mdn		46.75	46.60	19.35	4.45	1.54	5.00

The children in the first quartile in reading achievement are distributed throughout the four quartiles in all areas, with the largest number in the first quartile.

The per cent achieving in the fourth quartile in the various areas is small with the exception of listening comprehension which has 27%.

In three of the six areas 51% or more are in the first quartile. These are visual discrimination, spelling and applied phonics; 53%, 65%, 51% respectively.

Tables 14 through 23 show the relationship of reading achievement with specific skills and habits.

Table 14 shows the relationship of hearing sounds in words and reading achievement by quartiles for children in grade two.

Table 14. Relationship of Hearing Sounds in Words and Reading Achievement

Hearing Sounds in Words	Reading Achievement			
	Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
Q_4 N=44	2	5	12	25
Q_3 N=46	9	14	11	12
Q_2 N=46	15	7	13	11
Q_1 N=46	25	13	8	0
Median	46.60	51.00	53.00	56.64

The total possible score of the test for hearing sounds in words was 66. The median scores were 46.60, 51.00, 53.00, 56.64 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 15 shows the relationship of visual discrimination and reading achievement by quartiles for children in grade two.

Table 15. Relationship of Visual Discrimination and Reading Achievement

Visual Discrimination	Reading Achievement			
	Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
Q_4 N=45	2	2	14	27
Q_3 N=38	7	6	12	13
Q_2 N=49	15	13	15	6
Q_1 N=50	27	18	3	2
Median	19.35	20.00	23.17	24.88

The possible score of the test for visual discrimination was thirty. The median scores were 19.35, 20.00, 23.17, 24.88 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 16 shows the relationship of spelling and reading achievement by quartiles for children in grade two.

Table 16. Relationship of Spelling and Reading Achievement

Spelling \ Reading Achievement	Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
Q_4 N=43	1	4	11	27
Q_3 N=40	5	5	15	15
Q_2 N=47	12	15	15	5
Q_1 N=52	33	15	3	1
Median	4.45	6.70	9.50	12.10

The possible score of the test for spelling was twenty. The median scores were 4.45, 6.70, 9.50, 12.10 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 17 shows the relationship of word pronunciation and reading achievement by quartiles for children in grade two.

Table 17. Relationship of Word Pronunciation and Reading Achievement

Word Pronunciation \ Reading Achievement	Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
Q_4 N=37	1	1	6	29
Q_3 N=45	5	9	19	12
Q_2 N=59	20	17	16	6
Q_1 N=41	25	12	3	1
Median	1.54	2.33	6.50	15.50

The possible score of the test for word pronunciation was 30. The median scores were 1.54, 2.33, 6.50, 15.50 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 18 shows the relationship of applied phonics and reading achievement by quartiles for children in grade two.

Table 18. Relationship of Applied Phonics and Reading Achievement

Applied Phonics	Reading Achievement Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
Q_4 N=46	2	3	7	34
Q_3 N=49	8	9	22	10
Q_2 N=47	15	15	13	4
Q_1 N=40	26	12	2	0
Median	5.00	8.25	15.00	24.10

The possible score for the test on applied phonics was 28. The median scores were 5.00, 8.25, 15.00, 24.10 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 19 shows the relationship of scores of the amount of recall and reading achievement by quartiles for grade two. The recall scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 19. Instructional Needs in Amount of Recall
Total Population
Grade Two

Amount of Recall	Reading Achievement			
	Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
2 N=38	10 20%	7 18%	11 25%	10 21%
1 N=62	17 33%	13 33%	17 39%	15 31%
0 N=82	24 47%	19 49%	16 36%	23 48%

There was a fairly even distribution on amount of recall over all quartiles.

Table 20 shows the relationship of scores of organization of recall and reading achievement by quartiles for grade two. The recall scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 20. Instructional Needs in Organization of Recall
Total Population
Grade Two

Organization of Recall	Reading Achievement			
	Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
2 N=27	3 6%	5 13%	7 16%	12 25%
1 N=62	12 23%	14 36%	17 39%	19 40%
0 N=93	36 71%	20 51%	20 45%	17 35%

There was a fairly even distribution of scores of ability to organize recall over all quartiles.

Table 21 shows the relationship of scores for amount of recall and reading achievement by quartiles for grade two. The recall scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 21. Instructional Needs in Aided Recall
Total Population
Grade Two

Aided Recall	Reading Achievement Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
2 N=56	16 31%	8 20%	16 36%	16 33%
1 N=52	13 26%	12 31%	16 36%	11 23%
0 N=74	22 43%	19 49%	12 28%	21 44%

There was a fairly even distribution of amount of recall scores over all quartiles.

Table 22 shows the relation of the oral paragraph and textbook level by quartiles for the total population for grade two.

Table 22. Relation of Textbook and Oral Paragraph Grade Two

Textbook Level			Oral Paragraph Level														
			L	1 M	H	L	2 M	H	L	3 M	H	L	4 M	H	L	5 M	H
Q_4 N=48	2^2 N=40					1		6	6	13	9	1	3	1			
	2^1 N=8					1		1	1	2		1		1	1		
Q_3 N=44	2^2 N=22					3	4	2	4	5	4						
	2^1 N=22					2	9	4	5	2							
Q_2 N=39	2^2 N=17		1	2	3	2	2	3	4								
	2^1 N=21	1	1	4	2	8		4	1								
	1^2 N=1		1														
Q_1 N=51	2^2 N=12		1		1	5	3	1	1								
	2^1 N=37	3	3	8	7	7	3	5	1								
	1^2 N=2		1	1													

The books that the children were reading ranged from 1^2 through 2^2. Twenty-seven children read below grade two on the oral paragraphs and 62 read above grade four.

Table 23 shows the number and per cent of children in each quartile having specific difficulties in general reading habits.

Table 23. Summary of Findings on Individual Tests Total Population Grade Two

	Q_1 N=51	Q_2 N=39	Q_3 N=44	Q_4 N=48
Phrasing inadequate	34 67%	23 59%	17 39%	10 21%
Voice: high or low	6 12%	4 11%	4 9%	7 15%
Expression	19 37%	18 46%	15 34%	7 15%
Attack on unfamiliar words	14 27%	8 21%	4 9%	2 4%
Omits or adds words	6 12%	4 11%	3 7%	3 6%
Repetitions	10 20%	7 18%	7 16%	3 6%
Errors on small words	15 29%	14 36%	8 18%	3 6%
Lip movements	34 67%	22 56%	21 48%	28 58%
Whispering	23 45%	17 44%	10 23%	10 21%
Word analysis ability poor	43 84%	27 69%	17 39%	11 23%
Will not try difficult words	29 57%	22 56%	23 52%	13 27%
Has no method of word analysis	33 65%	18 46%	9 20%	3 6%
Sounds aloud by single letters, blends and syllables	14 28%	20 51%	23 52%	19 40%
Unable to combine sounds into words	24 47%	16 41%	15 34%	9 19%
Looks away from word after sounding	14 27%	10 26%	5 11%	4 8%
Sounding slow or inaccurate	23 45%	17 44%	15 34%	6 13%
Spells words inadequately	1 2%	1 3%	0	1 2%
Silent word study inadequate	15 29%	6 15%	15 34%	4 8%
Enunciates badly when prompted	2 4%	3 8%	1 2%	0

All difficulties were represented in all quartiles. The numbers decreased in the third and fourth quartiles.

2. Analysis of Data -- Grade Four

Tables 24 through 40 show the distributions of all tests given.

Table 24 shows the distribution of chronological age in months for the total population of grade four.

Table 24. Distribution of Chronological Age
Grade Four

Intervals	Frequency
139 - 141	1
136 - 138	0
133 - 135	2
130 - 132	6
127 - 129	11
124 - 126	10
121 - 123	16
118 - 120	40
115 - 117	41
112 - 114	44
109 - 111	13
Total	184

Mean 118.04
Standard Deviation 5.70

The range was from 109 to 139 months with a mean of 118.04 or 9 years 8 months.

Table 25 shows the distribution of scores on achievement for the total population of grade four.

Table 25. Distribution of Achievement Scores Grade Four

Intervals	Frequency
108 - 112	1
103 - 107	1
98 - 102	5
93 - 97	2
88 - 92	2
83 - 87	6
78 - 82	18
73 - 77	15
68 - 72	15
63 - 67	13
58 - 62	21
53 - 57	24
48 - 52	25
43 - 47	10
38 - 42	9
33 - 37	5
28 - 32	5
23 - 27	5
18 - 22	2
Total	184

Mean 60.8
Standard Deviation 17.87

The scores range from 18 to 109 with a mean of 60.8 and a standard deviation of 17.87.

Table 26 shows the distribution of scores on listening comprehension for the total population of grade four.

Table 26. Distribution of Listening Comprehension Scores Grade Four

Intervals	Frequency
108 - 110	3
105 - 107	3
102 - 104	4
99 - 101	9
96 - 98	11
93 - 95	10
90 - 92	15
87 - 89	20
84 - 86	15
81 - 83	11
78 - 80	22
75 - 77	15
72 - 74	11
69 - 71	11
66 - 68	6
63 - 65	6
60 - 62	4
57 - 59	3
54 - 56	2
51 - 53	2
48 - 50	1
Total	184

Mean 82.51
Standard Deviation 12.53

The scores range from 48 to 109 with a mean of 82.51 and a standard deviation of 12.53.

Table 27 shows the distribution of scores on hearing sounds in words for the total population of grade four. The total possible score was 45.

Table 27. Distribution of Hearing Sounds in Words Scores Grade Four

Intervals	Frequency
45 - 47	3
42 - 44	19
39 - 41	23
36 - 38	19
33 - 35	21
30 - 32	20
27 - 29	19
24 - 26	18
21 - 23	16
18 - 20	5
15 - 17	13
12 - 14	4
9 - 11	2
6 - 8	1
3 - 5	0
0 - 2	1
Total	184

Mean 30.58
Standard Deviation 9.18

The scores range from 0 to 45 with a mean of 30.58 and a standard deviation of 9.18.

Table 28 shows the distribution of scores on visual discrimination for the total population of grade four. The total possible score was 10.

Table 28. Distribution of Visual Discrimination Scores Grade Four

Intervals	Frequency
9	1
8	1
7	3
6	3
5	9
4	16
3	27
2	47
1	48
0	29
Total	184

Mean 2.11
Standard Deviation 1.66

The scores range from 0 to 9 with a mean of 2.11 and a standard deviation of 1.66.

Table 29 shows the distribution of scores on spelling for the total population of grade four. The total possible score was 20.

Table 29. Distribution of Spelling Scores Grade Four

Intervals	Frequency
18	3
17	3
16	6
15	6
14	7
13	9
12	6
11	11
10	12
9	9
8	20
7	18
6	18
5	22
4	13
3	10
2	7
1	3
0	1
Total	184

Mean 8.17
Standard Deviation 4.16

The scores range from 0 to 18 with a mean of 8.17 and a standard deviation of 4.16.

Table 30 shows the distribution of scores on word pronunciation for the total population of grade four. The total possible score was 50.

Table 30. Distribution of Word Pronunciation Scores Grade Four

Intervals	Frequency
48 - 50	1
45 - 47	1
42 - 44	4
39 - 41	3
36 - 38	4
33 - 35	8
30 - 32	8
27 - 29	4
24 - 26	7
21 - 23	11
18 - 20	31
15 - 17	18
12 - 14	11
9 - 11	18
6 - 8	15
3 - 5	26
0 - 2	11
Total	184

Mean 16.39
Standard Deviation 11.30

The scores range from 0 to 48 with a mean of 16.39 and a standard deviation of 11.30.

Table 31 shows the distribution of scores on diacritical marks for the total population of grade four. The total possible score was 20.

Table 31. Distribution of Diacritical Marks Scores Grade Four

Intervals	Frequency
20	1
19	2
18	2
17	0
16	4
15	0
14	3
13	3
12	2
11	7
10	9
9	7
8	15
7	8
6	14
5	13
4	13
3	14
2	17
1	12
0	38
Total	184

Mean 5.21
Standard Deviation 4.72

The scores range from 0 to 20 with a mean of 5.21 and a standard deviation of 4.72.

Table 32 shows the distribution of scores on homophones for the total population of grade four. The total possible score was 250.

Table 32. Distribution of Homophones Scores Grade Four

Intervals	Frequency
226 - 230	2
221 - 225	6
216 - 220	4
211 - 215	7
206 - 210	6
201 - 205	7
196 - 200	8
191 - 195	15
186 - 190	11
181 - 185	7
176 - 180	17
171 - 175	5
166 - 170	22
161 - 165	17
156 - 160	11
151 - 155	10
146 - 150	13
141 - 145	10
136 - 140	4
131 - 135	0
126 - 130	1
121 - 125	1
Total	184

Mean 176.29
Standard Deviation 23.560

The scores range from 121 to 227 with a mean of 76.29 and a standard deviation of 23.560.

Table 33 shows the distribution of scores on written recall for the total population of grade four. The total possible score was 24.

Table 33. Distribution of Written Recall Scores Grade Four

Intervals	Frequency
16	1
15	2
14	5
13	8
12	12
11	10
10	9
9	10
8	16
7	16
6	18
5	21
4	26
3	8
2	15
1	2
0	5
Total	184

Mean 6.90
Standard Deviation 3.68

The scores range from 0 to 16 with a mean of 6.90 and a standard deviation of 3.68.

Table 34 shows the distribution of scores on skimming for the total population of grade four. The total possible score was 10.

Table 34. Distribution of Skimming Scores Grade Four

Intervals	Frequency
7	1
6	3
5	6
4	10
3	22
2	37
1	49
0	56
Total	184

Mean 1.54
Standard Deviation 1.51

The scores range from 0 to 7 with a mean of 1.54 and a standard deviation of 1.51.

Table 35 shows the distribution of scores on syllabication for the total population of grade four. The total possible score was 25.

Table 35. Distribution of Syllabication Scores Grade Four

Intervals	Frequency
25	4
24	8
23	15
22	19
21	25
20	13
19	21
18	16
17	11
16	12
15	7
14	5
13	6
12	3
11	2
10	2
9	2
8	6
7	0
6	4
5	1
4	0
3	1
2	1
Total	184

Mean 18.15
Standard Deviation 4.74

The scores range from 2 to 25 with a mean of 18.15 and a standard deviation of 4.74.

Table 36 shows the distribution of scores on dictionary skills for the total population of grade four. The total possible score was 15.

Table 36. Distribution of Dictionary Skills Scores Grade Four

Intervals	Frequency
9	1
8	0
7	0
6	0
5	3
4	5
3	13
2	35
1	35
0	39
Total	131

Mean 1.44
Standard Deviation 1.40

The scores range from 0 to 9 with a mean of 1.44 and a standard deviation of 1.40.

Table 37 shows the distribution of scores on speed of silent reading for the total population of grade four. The total possible score was 10.

Table 37. Distribution of Speed of Silent Reading Scores Grade Four

Intervals	Frequency
10	8
9	13
8	31
7	18
6	18
5	11
4	17
3	15
2	20
1	19
0	14
Total	184

Mean 4.92
Standard Deviation 3.03

The scores range from 0 to 10 with a mean of 4.92 and a standard deviation of 3.03.

Table 38 shows the distribution of scores on the elaborative thinking test I for the total population of grade four.

Table 38. Distribution of Elaborative Thinking Test I Scores Grade Four

Intervals	Frequency
24	1
23	0
22	0
21	1
20	4
19	2
18	0
17	2
16	3
15	7
14	11
13	14
12	9
11	12
10	14
9	13
8	10
7	17
6	12
5	16
4	11
3	10
2	5
1	5
0	5
Total	184

Mean 8.82
Standard Deviation 4.72

The scores range from 0 to 24 with a mean of 8.82 and a standard deviation of 4.72.

Table 39 shows the distribution of scores on the elaborative thinking test II for the total population of grade four.

Table 39. Distribution of Elaborative Thinking Test II Scores Grade Four

Intervals	Frequency
11	1
10	6
9	2
8	1
7	6
6	12
5	18
4	24
3	25
2	46
1	18
0	25
Total	184

Mean 3.16
Standard Deviation 2.44

The scores range from 0 to 11 with a mean of 3.16 and a standard deviation of 2.44.

Table 40 shows the distribution of scores on amount and organization of unaided and aided recall for the total population of grade four. Scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 40. Distribution of Recall Scores
Grade Four

Unaided

Amount Frequency	Scores	Organization Frequency
32	2	34
80	1	65
72	0	85
Total 184		Total 184

Aided

Scores	Frequency
2	32
1	67
0	85
	Total 184

The scores are distributed over the possible range in all phases of recall measured.

The next four tables summarize the data concerning the skills patterns, for the four quartiles of reading achievement in grade four.

Table 41 shows the reading skills patterns of the children in Q_4 in reading achievement, 5.8 to 8.1. The data are reported in numbers and per cents. The numbers are constant with the exception of dictionary skills, as dictionaries were not available.

Table 41. Reading Skills Patterns - Fourth Grade
Q_4 Achievement: 5.8-8.1

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4	49 100%	33 66%	31 63%	26 53%	27 55%	30 62%	21 43%
Q_3		11 23%	7 14%	12 25%	15 31%	14 28%	16 33%
Q_2		4 8%	8 17%	9 18%	6 12%	4 8%	5 10%
Q_1		1 2%	3 6%	2 4%	1 2%	1 2%	7 14%
RA		75-109	22-45	0-9	4-18	5-46	0-20
Mdn		94.86	39.88	2.69	11.13	25.63	7.80

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=26	Speed of Silent Reading	Elaborative Thinking Test 1	Elaborative Thinking Test 2
Q_4	28 57%	15 31%	19 39%	14 28%	11 42%	27 55%	15 31%	17 34%
Q_3	13 27%	18 37%	9 18%	16 33%	5 20%	12 25%	18 37%	13 27%
Q_2	4 8%	11 23%	6 12%	9 18%	6 23%	5 10%	14 28%	15 31%
Q_1	4 8%	5 10%	15 31%	10 21%	4 15%	5 10%	2 4%	4 8%
RA	141-227	4-16	0-7	2-25	0-9	0-10	3-24	1-10
Mdn	196.13	9.33	1.89	19.75	2.10	7.71	9.63	2.80

While 100% of the children are in the top quartile in reading achievement, they are distributed from the first to the fourth quartile in every skills area.

The areas in which the largest per cent of children are in the fourth quartile in skills as well as reading achievement are listening comprehension, hearing sounds in words, and word pronunciation; 66%, 63%, 62% respectively.

The skills areas having the lowest agreement with reading achievement are syllabication, written recall, elaborative thinking, test one; 28%, 31%, 31% respectively.

Table 42 shows the reading skills patterns of the children in Q_3 in reading achievement, 5.0 - 5.7.

Table 42. Reading Skills Patterns - Fourth Grade
Q_3 Achievement: 5.0-5.7

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4		9 19%	11 23%	13 28%	14 30%	12 26%	12 26%
Q_3	47 100%	17 36%	15 32%	16 34%	23 49%	18 38%	17 36%
Q_2		11 23%	13 28%	10 21%	8 17%	12 26%	10 21%
Q_1		10 21%	8 17%	8 17%	2 4%	5 10%	8 17%
RA		61-105	0-44	0-5	3-15	4-35	0-16
Mdn		84.13	33.14	2.47	8.29	17.12	5.58

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=32	Speed of Silent Reading	Elaborative Thinking Test 1	Elaborative Thinking Test 2
Q_4	10 21%	7 14%	11 23%	13 28%	8 25%	16 34%	8 17%	12 26%
Q_3	22 47%	16 34%	10 21%	21 45%	13 40%	7 14%	14 30%	13 28%
Q_2	13 28%	12 26%	14 30%	5 10%	4 13%	5 10%	14 30%	7 14%
Q_1	2 4%	12 26%	12 26%	8 17%	7 22%	19 42%	11 23%	15 32%
RA	154-209	0-14	0-6	5-24	0-5	0-10	1-21	0-10
Mdn	178.76	7.38	1.39	20.08	2.38	4.40	9.13	2.67

The children in the third quartile in reading achievement are distributed from the first to the fourth quartile in every skills area. Two areas have 30% or more of the children in the fourth quartile, spelling and silent reading.

In seven of the fourteen skills 20% or more are in the first quartile.

Table 43 shows the reading skills patterns of the children in Q_2 in reading achievement, 4.5 - 4.9.

Table 43. Reading Skills Patterns - Fourth Grade
Q_2 Achievement: 4.5-4.9

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4		2 5%	2 5%	12 29%	8 19%	2 5%	3 7%
Q_3		8 19%	14 33%	10 24%	12 29%	9 22%	8 19%
Q_2	42 100%	19 45%	16 38%	12 29%	13 31%	20 47%	18 43%
Q_1		13 31%	10 24%	8 19%	9 22%	11 26%	13 31%
RA		54-149	14-44	0-4	1-16	0-30	0-16
Mdn		78.82	29.39	1.5	6.25	9.25	2.5

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=33	Speed of Silent Reading	Elaborative Thinking Test 1	Elaborative Thinking Test 2
Q_4	6 14%	3 7%	3 7%	14 33%	1 3%	7 17%	6 14%	8 19%
Q_3	6 14%	6 14%	9 22%	8 19%	9 27%	10 24%	10 24%	12 29%
Q_2	14 33%	21 51%	18 43%	13 31%	13 40%	7 17%	10 24%	9 22%
Q_1	16 38%	12 29%	12 29%	7 17%	10 30%	18 43%	16 38%	13 31%
RA	137-212	2-13	0-5	6-25	0-4	0-9	1-15	0-11
Mdn	166.5	5.4	1.00	19.0	1.00	4.70	7.75	2.38

The children in the second quartile in reading achievement are distributed from the first to the fourth quartile in every skills area.

The per cents in the fourth quartile are small with the exception of visual discrimination and syllabication which have over 20% in the fourth quartile.

In all but two areas, visual discrimination and syllabication, there are more than 20% in the first quartile.

Table 44 shows the reading skills patterns of the children in Q_1 in reading achievement, 2.7 - 4.4.

Table 44. Reading Skills Patterns - Fourth Grade
Q_1 Achievement: 2.7-4.4

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4		1 2%	1 2%	9 19%	2 4%	4 9%	4 9%
Q_3		9 19%	10 22%	9 19%	9 19%	7 15%	9 19%
Q_2		10 22%	10 22%	17 37%	13 28%	11 24%	11 24%
Q_1	46 100%	26 56%	25 54%	11 24%	22 48%	24 52%	22 48%
RA		48-94	6-40	0-4	0-13	0-48	0-19
Mdn		72.25	23.07	1.2	4.64	5.32	1.66

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=40	Speed of Silent Reading	Elaborative Thinking Test 1	Elaborative Thinking Test 2
Q_4	3 6%	3 6%	9 19%	5 11%	2 5%	2 4%	2 4%	9 19%
Q_3	5 11%	5 11%	9 19%	14 30%	8 20%	7 15%	7 15%	11 24%
Q_2	15 33%	11 24%	11 24%	12 26%	12 30%	11 24%	14 31%	15 33%
Q_1	23 50%	27 59%	17 37%	15 33%	18 45%	26 57%	23 50%	11 24%
RA	121-217	0-12	0-6	3-24	0-3	0-8	0-15	0-7
Mdn	158.0	4.0	1.04	17.7	0.67	3.00	5.50	2.30

The children in the first quartile in reading achievement are distributed throughout the four quartiles in all areas with the largest per cents in the first quartile.

More than 30% are in the third and fourth quartiles in visual discrimination, skimming, syllabication, and elaborative thinking, test two.

Tables 45 through 62 show the relationship of reading achievement with specific skills and habits.

Table 45 shows the relationship of hearing sounds in words and reading achievement by quartiles for children in grade four.

Table 45. Relationship of Hearing Sounds in Words and Reading Achievement Grade Four

Hearing Sounds in Words	Reading Achievement			
	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=45	1	2	11	31
Q_3 N=46	10	14	15	7
Q_2 N=47	10	16	13	8
Q_1 N=46	25	10	8	3
Median	23.07	29.39	33.14	39.88

The possible score on the hearing sounds in words test was 45. The median scores were 23.07, 29.39, 33.14, 39.88 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 46 shows the relationship of visual discrimination and reading achievement by quartiles for children in grade four.

Table 46. Relationship of Visual Discrimination and Reading Achievement Grade Four

Visual Discrimination	Reading Achievement			
	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=60	9	12	13	26
Q_3 N=47	9	10	16	12
Q_2 N=48	17	12	10	9
Q_1 N=29	11	8	8	2
Median	1.2	1.5	2.47	2.69

The possible score on the visual discrimination test was 10. The median scores were 1.2, 1.5, 2.47, 2.69 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 47 shows the relationship of spelling and reading achievement by quartiles for children in grade four.

Table 47. Relationship of Spelling and Reading Achievement Grade Four

Spelling	Reading Achievement Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=51	2	8	14	27
Q_3 N=59	9	12	23	15
Q_2 N=40	13	13	8	6
Q_1 N=34	22	9	2	1
Median	4.64	6.25	8.29	11.13

The possible score on the spelling test was 20. The median scores were 4.64, 6.25, 8.29, 11.13 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 48 shows the relationship of word pronunciation and reading achievement by quartiles for children in grade four.

Table 48. Relationship of Word Pronunciation and Reading Achievement Grade Four

Word Pronunciation	Reading Achievement Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=48	4	2	12	30
Q_3 N=48	7	9	18	14
Q_2 N=47	11	20	12	4
Q_1 N=41	24	11	5	1
Median	5.32	9.25	17.12	25.63

The possible score on the word pronunciation test was 50. The median scores were 5.32, 9.25, 17.12, 25.63 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 49 shows the relationship of diacritical marks and reading achievement by quartiles for children in grade four.

Table 49. Relationship of Diacritical Marks and Reading Achievement Grade Four

Diacritical Marks	Reading Achievement Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=40	4	3	12	21
Q_3 N=50	9	8	17	16
Q_2 N=44	11	18	10	5
Q_1 N=50	22	13	8	7
Median	1.66	2.5	5.58	7.80

The possible score on the diacritical marks test was 20. The median scores were 1.66, 2.5, 5.58, 7.80 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 50 shows the relationship of homophones and reading achievement by quartiles for children in grade four.

Table 50. Relationship of Homophones and Reading Achievement Grade Four

Homophones	Reading Achievement Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=47	3	6	10	28
Q_3 N=46	5	6	22	13
Q_2 N=46	15	14	13	4
Q_1 N=45	23	16	2	4
Median	158.0	166.5	178.76	196.13

The possible score on the homophones test was 250. The median scores were 158.0, 166.5, 178.76, 196.13 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 51 shows the relationship of written recall and reading achievement by quartiles for children in grade four.

Table 51. Relationship of Written Recall and Reading Achievement Grade Four

Written Recall	Reading Achievement Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=28	3	3	7	15
Q_3 N=45	5	6	16	18
Q_2 N=55	11	21	12	11
Q_1 N=56	27	12	12	5
Median	4.0	5.4	7.38	9.33

The possible score on the written recall test was 24. The median scores were 4.0, 5.4, 7.38, 9.3 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 52 shows the relationship of skimming and reading achievement by quartiles for children in grade four.

Table 52. Relationship of Skimming and Reading Achievement Grade Four

Skimming \ Reading Achievement	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=42	9	3	11	19
Q_3 N=37	9	9	10	9
Q_2 N=49	11	18	14	6
Q_1 N=56	17	12	12	15
Median	1.04	1.00	1.39	1.89

The possible score on the skimming test was 10. The median scores were 1.04, 1.00, 1.39, 1.89 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 53 shows the relationship of syllabication and reading achievement by quartiles for children in grade four.

Table 53. Relationship of Syllabication and Reading Achievement Grade Four

Syllabication	Reading Achievement Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=46	5	14	13	14
Q_3 N=59	14	8	21	16
Q_2 N=39	12	13	5	9
Q_1 N=40	15	7	8	10
Median	17.7	19.0	20.08	19.75

The possible score on the syllabication test was 25. The median scores were 17.7, 19.0, 20.08, 19.75 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 54 shows the quartile relationship of speed of locating words in the dictionary and reading achievement in grade four.

Table 54. Relationship of Dictionary Skills and Reading Achievement Grade Four

Dictionary Skills	Reading Achievement Q_1 N=40	Q_2 N=33	Q_3 N=32	Q_4 N=26
Q_4 N=22	2	1	8	11
Q_3 N=35	8	9	13	5
Q_2 N=35	12	13	4	6
Q_1 N=39	18	10	7	4
Median	0.67	1.00	2.38	2.10

The possible score of the test for speed of locating words in the dictionary is fifteen. The median scores were 0.67, 1.00, 2.38, 2.10 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 55 shows the relationship of speed of silent reading and reading achievement by quartiles for children in grade four.

Table 55. Relationship of Speed of Silent Reading and Reading Achievement Grade Four

Speed of Silent Reading	Reading Achievement Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=52	2	7	16	27
Q_3 N=36	7	10	7	12
Q_2 N=28	11	7	5	5
Q_1 N=68	26	18	19	5
Median	3.0	4.70	4.40	7.71
Grade Equivalent	3.8	4.2	4.2	6.2

The possible score on the speed of silent reading test was 10. The median scores were 3.0, 4.70, 4.40, 7.71 for Q_1, Q_2, Q_3, Q_4 respectively. Translated to grade equivalents, these scores are 3.8, 4.2, 4.2, and 6.2.

Table 56 shows the relationship of elaborative thinking test I and reading achievement by quartiles for children in grade four.

Table 56. Relationship of Elaborative Thinking Test I and Reading Achievment Grade Four

Elaborative Thinking - Test I	Reading Achievement			
	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=31	2	6	8	15
Q_3 N=49	7	10	14	18
Q_2 N=52	14	10	14	14
Q_1 N=52	23	16	11	2
Median	5.5	7.75	9.13	9.63

The median scores were 5.5, 7.75, 9.13, 9.63 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 57 shows the relationship of elaborative thinking test II and reading achievement by quartiles for children in grade four.

Table 57. Relationship of Elaborative Thinking Test II and Reading Achievement Grade Four

Elaborative Thinking - Test II	Reading Achievement			
	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Q_4 N=46	9	8	12	17
Q_3 N=49	11	12	13	13
Q_2 N=46	15	9	7	15
Q_1 N=43	11	13	15	4
Median	2.30	2.38	2.67	2.80

The median scores were 2.30, 2.38, 2.67, 2.80 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 58 shows the relationship of amount of recall and reading achievement by quartiles for children in grade four. The recall scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 58. Instructional Needs in Amount of Recall
Total Population
Grade Four

Amount of Recall	Reading Achievement			
	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
2 N=32	7 15%	4 10%	11 23%	10 20%
1 N=80	20 44%	18 43%	20 43%	22 45%
0 N=72	19 41%	20 47%	16 34%	17 35%

There was a fairly even distribution of recall scores over all reading achievement quartiles.

Table 59 shows the relationship of organization of recall and reading achievement by quartiles for children in grade four. The scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 59. Instructional Needs in Organization of Recall
Total Population
Grade Four

Organization of Recall	Reading Achievement			
	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
2 N=34	8 17%	4 10%	10 21%	12 24%
1 N=65	11 24%	16 38%	21 45%	17 35%
0 N=85	27 27%	22 52%	16 34%	20 41%

There was a fairly even distribution of recall scores over all reading achievement quartiles.

Table 60 shows the relationship of amount of aided recall and reading achievement by quartiles for children in grade four. The recall scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 60. Instructional Needs in Aided Recall
Total Population
Grade Four

Aided Recall	Reading Achievement			
	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
2 N=32	6 13%	6 14%	11 23%	9 18%
1 N=67	15 33%	14 34%	21 45%	17 35%
0 N=85	25 54%	22 52%	15 32%	23 47%

There was fairly even distribution of recall scores over all reading achievement quartiles.

Table 61 shows the relation of oral paragraph and textbook level by quartiles for the total population of grade four.

Table 61. Relation of Textbook and Oral Paragraph Grade Four

Textbook Level		Oral Paragraph Level																						
		1			2			3			4			5			6							
		H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	
Q_4 N=49	4^2 N=26										3	2	3	7	4	6	1							
	4^1 N=23							1			3	4	1	3	1	3	2	5						
Q_3 N=47	4^2 N=28						1		4	4	7	5	3	2	1		1							
	4^1 N=19					1			1	7	4	3	1	2										
Q_2 N=42	4^2 N=14							5	3	1	3	1	1											
	4^1 N=27					1	2	4	10	4	3		1	2										
	3^2 N=1						1																	
Q_1 N=46	4^2 N=19		1			4	5		3	2	1	3												
	4^1 N=22	1				3	8	5		4	1													
	3^2 N=4					2	1		1															
	3^1 N=1		1																					

The books that the children were reading ranged from 3^1 to 4^2. Forty-eight children read below grade four on the oral paragraphs and 62 read above grade four.

Table 62 shows the number and per cent of children in each quartile having specific difficulties in general reading habits.

Table 62. Summary of Findings on Individual Tests
Total Population
Grade Four

	Q_1 N=46	Q_2 N=42	Q_3 N=47	Q_4 N=49
Phrasing inadequate	14 33%	10 24%	9 19%	6 8%
Omits or adds words	3 6%	9 21%	2 4%	7 14%
Word analysis abilities poor	30 65%	27 64%	20 43%	10 20%
Repetitions	11 23%	10 24%	6 13%	14 35%
Errors on small words	9 20%	5 12%	4 9%	3 6%
Will not try difficult words	10 22%	6 14%	7 15%	3 6%
Sounds aloud by single letters, blends and syllables	18 39%	16 38%	23 49%	19 39%
Unable to combine sound into words	21 46%	18 43%	17 36%	9 18%
Looks away from word after sounding	4 9%	4 10%	1 2%	2 4%
Sounding slow or inaccurate	19 41%	26 62%	25 53%	17 35%
Spells words inadequately	1 2%	1 2%	2 4%	0
Voice: high and low	10 22%	8 19%	9 19%	10 20%
Expression	9 20%	8 19%	7 15%	2 4%
Enunciates badly when prompted	2 4%	1 2%	2 4%	3 6%
Lip Movement	11 23%	16 38%	7 15%	8 16%

All errors and confusions are represented in all achievement quartiles. The analysis skills present the greater number of difficulties.

3. Analysis of Data -- Grade Six

Tables 63 through 79 show the distributions of all tests given.

Table 63 shows the distribution of chronological age in months for the total population of grade six.

Table 63. Distribution of Chronological Age
Grade Six

Intervals	Frequency
162 - 164	1
159 - 161	1
156 - 158	3
153 - 155	9
150 - 152	6
147 - 149	11
144 - 146	19
141 - 143	39
138 - 140	39
135 - 137	27
132 - 134	16
129 - 131	2
Total	173

Mean 139.85
Standard Deviation 2.07

The range was from 129 to 162 months with a mean of 139.85, or 11 years 7 months.

Table 64. shows the distribution of scores on achievement for the total population of grade six.

Table 64. Distribution of Achievement Scores Grade Six

Intervals	Frequency
128 - 132	3
123 - 127	5
118 - 122	9
113 - 117	10
108 - 112	13
103 - 107	14
98 - 102	27
93 - 97	12
88 - 92	22
83 - 87	18
78 - 82	11
73 - 77	5
68 - 72	6
63 - 67	10
58 - 62	1
53 - 57	4
48 - 52	0
43 - 47	1
38 - 42	2
Total	173

Mean 94.76
Standard Deviation 18.35

The scores range from 38 to 131 with a mean of 94.76 and a standard deviation of 18.35.

Table 65 shows the distribution of scores on listening comprehension for the total population of grade six.

Table 65. Distribution of Listening Comprehension Scores
Grade Six

Intervals	Frequency
125 - 127	1
122 - 124	3
119 - 121	1
116 - 118	6
113 - 115	20
110 - 112	14
107 - 109	22
104 - 106	22
101 - 103	23
98 - 100	15
95 - 97	13
92 - 94	9
89 - 91	3
86 - 88	3
83 - 85	5
80 - 82	5
77 - 79	1
74 - 76	3
71 - 73	0
68 - 70	1
65 - 67	2
62 - 64	0
59 - 61	1
Total	173

Mean 104.05
Standard Deviation 11.31

The scores range from 59 to 125 with a mean of 104.05 and a standard deviation of 11.31.

Table 66 shows the distribution of scores on hearing sounds in words for the total population of grade six. The total possible score was 45.

Table 66. Distribution of Hearing Sounds in Words Scores Grade Six

Intervals	Frequency
45 - 47	4
42 - 44	46
39 - 41	43
36 - 38	19
33 - 35	27
30 - 32	12
27 - 29	7
24 - 26	5
21 - 23	2
18 - 20	2
15 - 17	2
12 - 14	2
9 - 11	1
6 - 8	0
3 - 5	1
Total	173

Mean 38.90
Standard Deviation 7.35

The scores range from 3 to 45 with a mean of 38.90 and a standard deviation of 7.35.

Table 67 shows the distribution of scores on visual discrimination for the total population of grade six. The total possible score was 10.

Table 67. Distribution of Visual Discrimination Scores Grade Six

Intervals	Frequency
10	1
9	6
8	8
7	8
6	26
5	37
4	29
3	18
2	15
1	18
0	7
Total	173

Mean 4.29
Standard Deviation 2.33

The scores range from 0 to 10 with a mean of 4.29 and a standard deviation 2.33.

Table 68 shows the distribution of scores on spelling for the total population of grade six. The total possible score was 20.

Table 68. Distribution of Spelling Scores Grade Six

Intervals	Frequency
20	7
19	18
18	29
17	27
16	20
15	17
14	6
13	11
12	3
11	8
10	6
9	2
8	6
7	3
6	3
5	2
4	2
3	2
2	0
1	1
Total	173

Mean 14.91
Standard Deviation 4.11

The scores range from 1 to 20 with a mean of 14.91 and a standard deviation of 4.11.

Table 69 shows the distribution of scores on word pronunciation for the total population of grade six. The total possible score was 50.

Table 69. Distribution of Word Pronunciation Scores
Grade Six

Intervals	Frequency
47 - 49	2
44 - 46	5
41 - 43	6
38 - 40	15
35 - 37	14
32 - 34	31
29 - 31	22
26 - 28	21
23 - 25	22
20 - 22	11
17 - 19	7
14 - 16	3
11 - 13	4
8 - 10	6
5 - 7	0
2 - 4	4
Total	173

Mean 29.55
Standard Deviation 9.225

The scores range from 2 to 48 with a mean of 29.55 and a standard deviation of 9.225.

Table 70 shows the distribution of scores on diacritical marks for the total population of grade six. The total possible score was 20.

Table 70. Distribution of Diacritical Marks Scores Grade Six

Intervals	Frequency
20	3
19	1
18	5
17	1
16	3
15	4
14	8
13	5
12	11
11	9
10	14
9	10
8	13
7	15
6	14
5	11
4	15
3	16
2	4
1	4
0	7
Total	173

Mean 8.09
Standard Deviation 4.74

The scores range from 0 to 20 with a mean of 8.09 and a standard deviation of 4.74.

Table 71 shows the distribution of scores on homophones for the total population of grade six. The total possible score was 250.

Table 71. Distribution of Homophones Scores Grade Six

Intervals	Frequency
227 - 233	2
220 - 226	12
213 - 219	23
206 - 212	24
199 - 205	26
192 - 198	21
185 - 191	20
178 - 184	4
171 - 177	11
164 - 170	6
157 - 163	13
150 - 156	9
143 - 149	1
136 - 142	0
129 - 135	0
122 - 128	0
115 - 121	0
108 - 114	0
101 - 107	1
Total	173

Mean 200.84
Standard Deviation 9.19

The scores range from 101 to 233 with a mean of 200.84 and a standard deviation of 9.19.

Table 72 shows the distribution of scores on the written recall test for the total population of grade six. The total possible score was 38.

Table 72. Distribution of Written Recall Scores
Grade Six

Intervals	Frequency
20	2
19	4
18	7
17	6
16	7
15	9
14	7
13	11
12	10
11	13
10	12
9	18
8	22
7	18
6	9
5	8
4	3
3	3
2	4
Total	173

Mean 10.42
Standard Deviation 4.22

The scores range from 1 to 20 with a mean of 10.42 and a standard deviation of 4.22.

Table 73 shows the distribution of scores on skimming for the total population of grade six. The total possible score was 10.

Table 73. Distribution of Skimming Scores Grade Six

Intervals	Frequency
7	3
6	4
5	18
4	27
3	48
2	30
1	23
0	20
Total	173

Mean 2.72
Standard Deviation 1.64

The scores range from 0 to 7 with a mean of 2.72 and a standard deviation of 1.64.

Table 74 shows the distribution of scores on syllabication for the total population of grade six. The total possible score was 23.

Table 74. Distribution of Syllabication Scores Grade Six

Intervals	Frequency
23	2
22	3
21	6
20	7
19	16
18	20
17	24
16	12
15	19
14	17
13	10
12	10
11	7
10	6
9	4
8	6
7	1
6	1
5	0
4	0
3	0
2	0
1	2
Total	173

Mean 15.32
Standard Deviation 3.79

The scores range from 1 to 23 with a mean of 15.32 and a standard deviation of 3.79.

Table 75 shows the distribution of scores on the dictionary skills for the total population of grade six. The total possible score was 15.

Table 75. Distribution of Dictionary Skills Scores Grade Six

Intervals	Frequency
15	2
14	3
13	3
12	0
11	2
10	2
9	3
8	4
7	6
6	17
5	27
4	33
3	28
2	5
1	4
0	7
Total	147

Mean 4.98
Standard Deviation 3.03

The scores range from 0 to 15 with a mean of 4.98 and a standard deviation of 3.03.

Table 76 shows the distribution of scores on speed of silent reading for the total population of grade six. The total possible score was 10.

Table 76. Distribution of Speed of Silent Reading Scores Grade Six

Intervals	Frequency
10	25
9	65
8	36
7	17
6	11
5	3
4	5
3	6
2	3
1	1
0	1
Total	173

Mean 7.91
Standard Deviation 2.01

The scores range from 0 to 10 with a mean of 7.91 or a grade equivalent of 6.2, and a standard deviation of 2.01.

Table 77 shows the distribution of scores on the elaborative thinking test I for the total population of grade six.

Table 77. Distribution of Elaborative Thinking Test I Scores Grade Six

Intervals	Frequency
27 - 29	1
24 - 26	8
21 - 23	9
18 - 20	19
15 - 17	32
12 - 14	47
9 - 11	38
6 - 8	13
3 - 5	4
0 - 2	3
Total	173

Mean 13.27
Standard Deviation 5.00

The scores range from 0 to 28 with a mean of 13.27 and a standard deviation of 5.00.

Table 78 shows the distribution of scores on the elaborative thinking test II for the total population of grade six.

Table 78. Distribution of Elaborative Thinking Test II Scores
Grade Six

Intervals	Frequency
28 - 30	2
24 - 27	3
21 - 23	2
18 - 20	4
15 - 17	2
12 - 14	8
9 - 11	5
6 - 8	28
3 - 5	77
0 - 2	42
Total	173

Mean 4.56
Standard Deviation 5.06

The scores range from 0 to 30 with a mean of 4.56 and a standard deviation of 5.06.

Table 79 shows the distribution of scores of amount and organization of recall, unaided and aided for the total population of grade six. Scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 79. Distribution of Recall Scores
Grade Six

Unaided

Amount Frequency	Scores	Organization Frequency
44	2	66
68	1	43
61	0	64
Total 173		Total 173

Aided

Scores	Frequency
2	32
1	43
0	98
	Total 173

The scores of unaided recall for organization and amount were distributed fairly equally in the three groups. The aided recall showed more than half of the children in the lowest group.

The next four tables summarize the data concerning the skills patterns, for the four quartiles of reading achievement in grade six.

Table 80 shows the reading skills patterns of the children in Q_4 in reading achievement, 8.0 - 8.4. The data are reported in numbers and per cents. The numbers are constant with the exception of the dictionary skills, as dictionaries were not available in all of the rooms.

Table 80. Reading Skills Patterns - Sixth Grade
Q_4 Achievement: 8.0-8.4

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4	41 100%	20 49%	15 35%	15 35%	16 40%	19 46%	16 40%
Q_3		11 26%	16 40%	7 18%	15 35%	14 34%	11 26%
Q_2		7 18%	8 20%	11 26%	6 15%	7 18%	8 20%
Q_1		3 7%	2 5%	8 20%	4 10%	1 2%	6 15%
RA		87-125	30-45	0-9	8-20	20-48	2-18
Mdn		109.00	41.10	4.83	17.00	33.75	9.80

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=37	Speed of Silent Reading	Elaborative Thinking Test I	Elaborative Thinking Test II
Q_4	13 32%	20 49%	25 61%	11 26%	3 8%	12 29%	4 10%	5 13%
Q_3	14 34%	11 26%	10 24%	11 26%	22 59%	18 44%	13 32%	11 26%
Q_2	10 24%	8 20%	4 10%	14 34%	7 19%	8 20%	12 29%	19 46%
Q_1	4 10%	2 5%	2 5%	5 13%	5 13%	3 7%	12 29%	6 15%
RA	160-255	5-20	0-7	6-21	0-14	6-10	9-28	2-30
Mdn	203.67	13.33	3.91	16.88	5.00	9.03	13.25	4.31

The scores are distributed from the first to the fourth quartile in every skills area. The areas in which there is the greatest agreement with achievement are skimming, written recall, and listening comprehension; 61%, 49%, 49% respectively. Visual discrimination, diacritical marks, and elaborative thinking, test II, 20%, 15%, 15% respectively, are the areas with the largest number in Q_1.

Table 81 shows the reading skills patterns of the children in Q_3 in reading achievement, 7.3 - 7.9.

Table 81. Reading Skills Patterns - Sixth Grade
Q_3 Achievement: 7.3-7.9

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4		12 27%	16 36%	13 30%	15 34%	13 30%	11 25%
Q_3	44 100%	10 23%	16 36%	12 27%	18 41%	15 34%	11 25%
Q_2		18 41%	8 18%	12 27%	6 13%	13 30%	13 30%
Q_1		4 9%	4 9%	7 16%	5 11%	3 7%	9 20%
RA		83-122	28-45	0-9	6-20	20-44	0-20
Mdn		103.50	40.25	4.75	16.72	30.50	7.50

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=37	Speed of Silent Reading	Elaborative Thinking Test I	Elaborative Thinking Test II
Q_4	13 30%	13 30%	13 30%	10 23%	6 16%	5 11%	5 11%	1 2%
Q_3	15 34%	7 16%	16 36%	13 30%	13 35%	20 46%	15 34%	11 25%
Q_2	11 25%	13 30%	8 18%	11 25%	8 22%	10 23%	13 30%	17 39%
Q_1	5 11%	11 25%	7 16%	10 23%	10 27%	9 20%	11 25%	15 34%
RA	160-227	3-19	0-7	9-21	0-15	6-10	4-26	0-22
Mdn	205.50	9.21	2.94	16.61	4.63	8.65	14.10	3.38

The scores are distributed from the first to the fourth quartile in every skill. Seven have 30% or more in Q_4, hearing sounds in words, spelling, visual discrimination, word pronunciation, homophones, written recall, skimming; 36%, 34%, 30%, 30%, 30%, 30%, 30% respectively. These skills have 20% or more in the first quartile, diacritical marks, written recall, syllabication, dictionary skills, speed of silent reading, and elaborative thinking, tests I and II.

Table 82 shows the reading skills patterns of the children in Q_2 in reading achievement which range from 6.5 - 7.2.

Table 82. Reading Skills Patterns - Sixth Grade
Q_2 Achievement: 6.5-7.2

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4		11 25%	9 20%	14 32%	15 34%	6 13%	7 16%
Q_3		13 30%	7 16%	9 20%	8 18%	13 30%	15 34%
Q_2	44 100%	9 20%	19 43%	8 18%	12 27%	16 36%	11 25%
Q_1		11 25%	9 20%	13 30%	9 20%	9 20%	11 25%
RA		75-116	3-45	0-10	5-20	9-43	0-20
Mdn		104.50	36.50	4.61	15.75	26.50	7.50

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=36	Speed of Silent Reading	Elaborative Thinking Test I	Elaborative Thinking Test II
Q_4	6 13%	7 16%	11 25%	8 18%	3 8%	7 16%	7 16%	1 3%
Q_3	12 27%	16 36%	10 23%	11 25%	11 31%	17 39%	13 30%	12 27%
Q_2	13 30%	11 25%	8 18%	13 30%	11 31%	9 20%	15 34%	22 50%
Q_1	13 30%	10 23%	15 34%	12 27%	11 31%	11 25%	9 20%	9 20%
RA	154-233	3-20	0-5	8-23	0-13	2-10	3-26	1-29
Mdn	192.00	9.67	2.38	15.30	3.94	8.62	13.83	4.06

The scores are distributed from the first to the fourth quartile in every area. In these areas, visual discrimination, skimming, diacritical marks, word pronunciation, written recall, dictionary skills, elaborative thinking, test I, and listening comprehension, 30% or more are above the reading achievement quartile.

Table 83 shows the reading skills patterns of the children in Q_1 in reading achievement which range from 3.8 - 6.4.

Table 83. Reading Skills Patterns - Sixth Grade
Q_1 Achievement: 3.8-6.4

	Achievement	Listening Comprehension	Hearing Sounds in Words	Visual Discrimination	Spelling	Word Pronunciation	Diacritical Marks
Q_4		1 2%	10 23%	7 16%	8 18%	4 9%	7 16%
Q_3		11 25%	4 9%	9 20%	6 13%	11 25%	9 20%
Q_2		4 9%	11 25%	16 36%	10 23%	7 16%	8 18%
Q_1	44 100%	28 64%	19 43%	12 27%	20 46%	22 50%	20 46%
RA		59-113	12-44	0-9	1-20	2-47	0-18
Mdn		94.00	33.50	3.83	13.17	21.50	5.50

	Homophones	Written Recall	Skimming	Syllabication	Dictionary Skills N=37	Speed of Silent Reading	Elaborative Test I	Elaborative Test II
Q_4	5 11%	2 5%	3 7%	5 11%	4 11%	1 3%	2 5%	4 9%
Q_3	9 20%	12 27%	12 27%	9 20%	8 22%	10 23%	10 23%	9 20%
Q_2	7 16%	8 18%	10 23%	10 23%	7 19%	9 20%	7 16%	19 43%
Q_1	23 53%	22 50%	19 43%	20 46%	18 49%	24 54%	25 56%	12 27%
RA	101-222	2-17	0-7	1-23	0-15	0-10	2-25	0-23
Mdn	175.00	7.50	1.80	14.00	3.57	6.5	11.17	3.67

Again the scores are distributed from the first to fourth quartile in every area. In ten areas 50% or more are achieving above the reading achievement quartile. The four areas with the greatest agreement are knowledge of homophones, speed of silent reading, elaborative thinking, test I, and listening comprehension.

Tables 84 through 101 show the relationship of reading achievement with specific skills and habits.

Table 84 shows the relationship of hearing sounds in words and reading achievement by quartiles for children in grade six.

Table 84. Relationship of Hearing Sounds in Words and Reading Achievement Grade Six

Hearing Sounds in Words	Reading Achievement Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=50	10	9	16	15
Q_3 N=43	4	7	16	16
Q_2 N=46	11	19	8	8
Q_1 N=34	19	9	4	2
Median	33.50	36.50	40.25	41.10

The possible score on the hearing sounds in words test was 45. The median scores were 33.50, 36.50, 40.25, 41.10 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 85 shows the relationship of visual discrimination and reading achievement by quartiles for children in grade six.

Table 85. Relationship of Visual Discrimination and Reading Achievement Grade Six

Visual Discrimination	Reading Achievement Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=49	7	14	13	15
Q_3 N=37	9	9	12	7
Q_2 N=47	16	8	12	11
Q_1 N=40	12	13	7	8
Median	3.83	4.61	4.75	4.83

The possible score on the visual discrimination test was 10. The median scores were 3.83, 4.61, 4.75, 4.83 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 86 shows the relationship of spelling and reading achievement by quartiles for children in grade six.

Table 86. Relationship of Spelling and Reading Achievement Grade Six

Spelling \ Reading Achievement	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=54	8	15	15	16
Q_3 N=47	6	8	18	15
Q_2 N=34	10	12	6	6
Q_1 N=38	20	9	5	4
Median	13.17	15.75	16.72	17.00

The possible score on the spelling test was 20. The median scores were 13.17, 15.75, 16.72, 17.00 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 87 shows the relationship of word pronunciation and reading achievement by quartiles for children in grade six.

Table 87. Relationship of Word Pronunciation and Reading Achievement Grade Six

Word Pronunciation	Reading Achievement Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=42	4	6	13	19
Q_3 N=53	11	13	15	14
Q_2 N=43	7	16	13	7
Q_1 N=35	22	9	3	1
Median	21.50	26.50	30.50	33.75

The possible score on the word pronunciation test was 50. The median scores were 21.50, 26.50, 30.50, 33.75 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 88 shows the relationship of diacritical marks and reading achievement by quartiles for children in grade six.

Table 88. Relationship of Diacritical Marks and Reading Achievement Grade Six

Diacritical Marks \ Reading Achievement	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=41	7	7	11	16
Q_3 N=46	9	15	11	11
Q_2 N=40	8	11	13	8
Q_1 N=46	20	11	9	6
Median	5.50	7.50	7.50	9.80

The possible score on the diacritical marks test was 20. The median scores were 5.50, 7.50, 7.50, 9.80 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 89 shows the relationship of homophones and reading achievement by quartiles for children in grade six.

Table 89. Relationship of Homophones and Reading Achievement Grade Six

Homophones \ Reading Achievement	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=37	5	6	13	13
Q_3 N=50	9	12	15	14
Q_2 N=41	7	13	11	10
Q_1 N=45	23	13	5	4
Median	175.00	192.00	205.50	203.67

The possible score on the homophones test was 250. The median scores were 175.00, 192.00, 205.50, 203.67 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 90 shows the relationship of written recall and reading achievement by quartiles for children in grade six.

Table 90. Relationship of Written Recall and Reading Achievement Grade Six

Written Recall	Reading Achievement Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=42	2	7	13	20
Q_3 N=46	12	16	7	11
Q_2 N=40	8	11	13	8
Q_1 N=45	22	10	11	2
Median	7.50	9.67	9.21	13.33

The possible score on the written recall test was 38. The median scores were 7.50, 9.67, 9.21, 13.33 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 91 shows the relationship of skimming and reading achievement by quartiles for children in grade six.

Table 91. Relationship of Skimming and Reading Achievement Grade Six

Skimming	Reading Achievement			
	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=52	3	11	13	25
Q_3 N=48	12	10	16	10
Q_2 N=30	10	8	8	4
Q_1 N=43	19	15	7	2
Median	1.80	2.38	2.94	3.91

The possible score on the skimming test was 10. The median scores were 1.80, 2.38, 2.94, 3.91 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 92 shows the relationship of syllabication and reading achievement by quartiles for children in grade six.

Table 92. Relationship of Syllabication and Reading Achievement Grade Six

Syllabication	Reading Achievement Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=34	5	8	10	11
Q_3 N=44	9	11	13	11
Q_2 N=48	10	13	11	14
Q_1 N=47	20	12	10	5
Median	14.00	15.30	16.61	16.88

The possible score on the syllabication test was 23. The median scores were 14.00, 15.30, 16.61, 16.88 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 93 shows the relationship of dictionary skills and reading achievement by quartiles for children in grade six.

Table 93. Relationship of Dictionary Skills and Reading Achievement Grade Six

Dictionary Skills	Reading Achievement Q_1 N=37	Q_2 N=36	Q_3 N=37	Q_4 N=37
Q_4 N=16	4	3	6	3
Q_3 N=54	8	11	13	22
Q_2 N=33	7	11	8	7
Q_1 N=44	18	11	10	5
Median	3.57	3.94	4.63	5.00

The possible score of the test for speed of locating words in the dictionary was 15. The median scores were 3.57, 3.94, 4.63, 5.00 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 94 shows the relationship of speed of silent reading and reading achievement by quartiles for children in grade six.

Table 94. Relationship of Speed of Silent Reading and Reading Achievement Grade Six

Speed of Silent Reading	Reading Achievement Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=25	1	7	5	12
Q_3 N=65	10	17	20	18
Q_2 N=36	9	9	10	8
Q_1 N=47	24	11	9	3
Median	6.50	8.62	8.65	9.03
Grade Equiv.	5.4	7.4	7.4	8.0

The possible score on the speed of silent reading test was 10. The median scores were 6.50, 8.62, 8.65, 9.30 for Q_1, Q_2, Q_3, Q_4 respectively. Translated into grade equivalents these scores are 5.4, 7.4, 7.4, 8.0.

Table 95 shows the relationship of elaborative thinking test I and reading achievement by quartiles for children in grade six.

Table 95. Relationship of Elaborative Thinking Test I and Reading Achievement Grade Six

Elaborative Thinking I	Reading Achievement			
	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=18	2	7	5	4
Q_3 N=51	10	13	15	13
Q_2 N=47	7	15	13	12
Q_1 N=57	25	9	11	12
Median	11.17	13.83	14.10	13.25

The median scores were 11.17, 13.83, 14.10, 13.25 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 96 shows the relationship of elaborative thinking test II and reading achievement by quartiles for children in grade six.

Table 96. Relationship of Elaborative Thinking Test II and Reading Achievement Grade Six

Elaborative Thinking II	Reading Achievement			
	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Q_4 N=11	4	1	1	5
Q_3 N=43	9	12	11	11
Q_2 N=77	19	22	17	19
Q_1 N=42	12	9	15	6
Median	3.67	4.06	3.38	4.31

The median scores were 3.67, 4.06, 3.38, 4.31 for Q_1, Q_2, Q_3, Q_4 respectively.

Table 97 shows the distribution of scores of the amount of recall in relation to reading achievement by quartiles in grade six. Scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 97. Instructional Needs in Amount of Recall
Total Population
Grade Six

Amount of Recall	Reading Achievement			
	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
2 N=43	10 23%	5 11%	12 28%	16 39%
1 N=72	18 41%	19 43%	18 41%	17 41%
0 N=58	16 36%	20 46%	14 21%	8 20%

There was a fairly even distribution of recall scores over all reading quartiles.

Table 98 shows the relationship of scores on organization of recall and reading achievement by quartiles in grade six. Scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 98. Instructional Needs in Organization of Recall
Total Population
Grade Six

Organization of Recall	Reading Achievement			
	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
2 N=66	8 18%	18 41%	16 36%	24 59%
1 N=44	19 43%	6 13%	12 28%	7 17%
0 N=63	17 39%	20 46%	16 36%	10 24%

There was a fairly even distribution of organization scores over all achievement quartiles.

Table 99 shows the relationship of the amount of aided recall and reading achievement by quartiles in grade six. The recall scores of good, fair, and poor were translated to 2, 1, and 0 respectively.

Table 99. Instructional Needs in Aided Recall
Total Population
Grade Six

Aided Recall	Reading Achievement			
	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
2 N=33	9 20%	4 10%	6 13%	14 34%
1 N=43	9 20%	13 30%	12 28%	9 22%
0 N=92	26 60%	22 50%	26 59%	18 44%

There was a fairly even distribution of recall scores over all reading achievement quartiles.

Table 100 shows the relation of oral paragraph and textbook level by quartiles for the total population of grade six.

Table 100. Relation of Textbook and Oral Paragraph
Grade Six

Text Book Level		Oral Paragraph Level																				
		2			3			4			5			6			7		
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Q_4 N=41	7^1 N=6														1	2	3		
	6^2 N=26											1		1	11	13			
	6^1 N=9														5	4			
Q_3 N=44	7^1 N=2															2			
	6^2 N=33												1	6	13	13			
	6^1 N=9					1									5	3			
Q_2 N=44	6^2 N=28										1	4	5	3	6	9			
	6^1 N=16													6	5	5			
Q_1 N=44	6^2 N=11								1	1		2	3	1	2	1			
	6^1 N=25			1	1				1	3	6	3	1	6	2	1			
	5^2 N=3				1	1					1								
	5^1 N=4					2		1			1								
	3^2 N=1					1													

The books the children brought ranged from 3^2 to 7^1 with fourteen children reading from books below sixth grade. Forty-five children were reading below 6^1 on the oral paragraphs.

Table 101 shows the number and per cent of children in each quartile having specific difficulties in general reading habits.

Table 101. Summary of Findings on Individual Tests Total Population Grade Six

	Q_1 N=44	Q_2 N=44	Q_3 N=44	Q_4 N=41
Phrasing inadequate	15 34%	10 23%	6 14%	4 10%
Omits or adds words	2 5%	3 7%	4 9%	2 5%
Word analysis abilities poor	23 52%	11 25%	8 18%	2 5%
Repetitions	9 20%	4 9%	6 14%	5 12%
Errors on small words	10 23%	3 7%	4 9%	1 2%
Will not try difficult words	7 16%	2 5%	3 7%	1 2%
Sounds aloud by single letters, blends and syllables	22 50%	16 36%	7 16%	7 17%
Unable to combine sounds into words	20 45%	10 23%	4 9%	1 2%
Looks away from word after sounding	3 7%	1 2%	0	0
Sounding slow or inaccurate	21 48%	15 34%	6 14%	11 27%
Spells words inadequately	1 2%	1 2%	0	0
Voice: high and low	5 11%	5 11%	3 7%	2 5%
Expression	14 32%	5 11%	3 7%	3 7%
Enunciates badly when prompted	3 7%	2 5%	0	1 2%
Lip movement	15 34%	7 16%	8 18%	0

Similar difficulties occur among children in all quartiles of reading achievement. Most of the problems were concerned with analysis skills.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The purpose of the study was to survey reading achievement in grades two, four, and six.

The Durrell-Sullivan Reading Capacity and Achievement tests were used at all grade levels. The separate skills measured in grade two by group tests were Hearing Sounds in Words, Visual Discrimination, and Spelling. Oral Reading, Word Pronunciation, Applied Phonics and Oral Recall, unaided and aided, were measured individually.

In grades four and six, group tests were used to measure Hearing Sounds in Words, Visual Discrimination, Spelling, Knowledge of Homophones, Written Recall, Skimming, Syllabication, Speed of Locating Words in the Dictionary, Speed of Silent Reading and Elaborative Thinking. Individual tests were used for Knowledge of Diacritical Marks, Word Pronunciation, Oral Reading and Oral Recall, unaided and aided.

Approximately two hundred children at each grade level in the public schools of a large industrial city in Massachusetts were tested during the first two weeks of February. All of the tests were administered and scored by the writers. The data were analyzed by achievement quartiles. The following conclusions may be drawn:

1. The general reading achievement was excellent.

    a. The range of achievement for the top fifty per cent of the children in grade two was from 2.8 to 4.8.

b. The achievement range for the top fifty per cent of the children in grade four was 5.0 to 8.1.

c. The achievement range for the top fifty per cent of the children in grade six was 7.3 to 8.4.

2. There is need for instruction in all skills measured for children achieving at the same reading level as measured by standard tests.

a. In grade two children in each quartile of reading achievement were distributed over the four quartiles in all the skills with the exception of hearing sounds and applied phonics. No child in Q_4 in reading achievement was in Q_1 in either of these areas.

b. In grades four and six the children in every quartile of achievement were in every quartile in every skill measured.

3. The areas needing the greatest amount of instruction differed.

a. In grade two, thirty-five children in Q_4 in reading achievement were lower in listening comprehension. Sixty-two children in the other quartiles were lower in reading achievement than in listening comprehension.

b. The greatest difficulty in oral reading for grade two was inadequate phrasing and for silent reading, lip movement and whispering.

c. In grade four, sixteen children were achieving above listening comprehension and thirty-nine were lower in reading achievement than in listening comprehension.

d. Speed of silent reading, skimming, knowledge of diacritical marks, hearing sounds in words, and speed of locating words in the dictionary were fairly low in grade four.

e. In grade six, twenty-one children were lower in listening comprehension than in reading achievement. Fifty-two children were lower in reading achievement than in listening comprehension.

f. Knowledge of diacritical marks, knowledge of homophones, speed of locating words in the dictionary, skimming, and the word analysis abilities are the lower ones in grade six.

4. The ability to do elaborative thinking is not related to reading achievement or listening comprehension.

5. The oral reading in grade six is not equal to silent reading. There is a need for instruction in oral reading for the children in the highest quartile in reading achievement as measured by the Durrell-Sullivan Achievement test.

6. The materials used in class instruction for oral reading did not always agree with the scores on oral reading paragraphs.

a. In grade two, of the children reading in second grade books, sixty-two were achieving above grade four and twenty-seven below grade two.

b. In grade four, of the children reading in fourth grade books, sixty-two were reading above grade four and forty-eight were reading below.

c. The books the children were reading in grade six ranged from 3^2 to 7^1. Fourteen children were reading books below sixth grade and forty-five children were reading below 6^1 on the oral paragraph.

APPENDIX

182

DURRELL-SULLIVAN READING CAPACITY AND ACHIEVEMENT TESTS

READING ACHIEVEMENT TEST

By DONALD D. DURRELL
Professor of Education and Director of the Educational Clinic
Boston University

and HELEN BLAIR SULLIVAN
Associate Director of the Educational Clinic
Boston University

Primary Achievem't

A

PRIMARY TEST: FORM A

Name.....Grade.....Teacher.....Boy or girl.....

Age.....When is your next birthday?.....How old will you be then?.....

Name of school.....City and State.....Date.....

TEST	SCORE	GRADE EQUIVALENT	AGE EQUIVALENT
1. Word Meaning			
2. Paragraph Meaning			
Average			
OPTIONAL TESTS			
3. Spelling			
4. Written Recall Rating			

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 DS:RAT:PRIM. A—24

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TEST 1. WORD MEANING

Samples.

An *apple* is a kind of — 1 paint 2 metal 3 animal 4 fruit 5 chair

Large means — 1 angry 2 big 3 hurt 4 little 5 like

To *shut* means to — 1 help 2 give 3 take 4 run 5 close

1. A *dog* is an — 1 answer 2 elephant 3 animal 4 excuse 5 orange
2. A *robin* is a — 1 crow 2 bird 3 bug 4 flower 5 leaf
3. To *bring* is to — 1 find 2 carry 3 think 4 lose 5 fall
4. *Small* means — 1 hurry 2 large 3 little 4 like 5 help
5. To *fall* is to — 1 pay 2 lift 3 touch 4 drop 5 face
6. To *bake* is to — 1 break 2 lose 3 cook 4 speak 5 copy
7. A *dollar* is — 1 copper 2 money 3 business 4 healthy 5 clothing
8. A *voice* is used to — 1 clamp 2 speak 3 point 4 write 5 mark
9. A *potato* is a — 1 song 2 planet 3 vegetable 4 table 5 postman
10. *Beef* is a kind of — 1 horse 2 boat 3 maze 4 ranch 5 meat

2➔

11. To *chop* means — 1 roll 2 note 3 come 4 chide 5 cut
12. If a thing is *above*, it is — 1 glad 2 pleasant 3 short 4 higher 5 between
13. A thing that is *bent* is — 1 warm 2 sharp 3 crooked 4 straight 5 tight
14. *Travel* means — 1 trouble 2 journey 3 serious 4 prepare 5 junction
15. *Oil* is used for — 1 fuel 2 water 3 fun 4 writing 5 presents
16. *Quarrel* means — 1 stop 2 travel 3 fight 4 forget 5 throw
17. A *hall* is a — 1 horn 2 road 3 tooth 4 room 5 field
18. An *island* is surrounded by — 1 sugar 2 gardens 3 earth 4 salad 5 water
19. *Remain* means — 1 ride 2 measure 3 happen 4 stay 5 accompany
20. *Salt* is used on — 1 holidays 2 water 3 food 4 birds 5 flowers
21. *Marriage* means — 1 image 2 civil 3 bitter 4 obtain 5 wedding
22. A *carpenter* makes things of — 1 iron 2 stone 3 cement 4 wood 5 grass
23. A *maid* is a — 1 smile 2 father 3 girl 4 heart 5 fruit
24. A *palace* is a — 1 crown 2 storm 3 land 4 building 5 policeman
25. A *helmet* is worn on the — 1 knees 2 breast 3 feet 4 elbows 5 head

(Go right on to the next page.)

26. When you *miss school*, you are — 1 tardy 2 absent 3 present 4 taught 5 fair
27. A person is *alone* who is without — 1 money 2 food 3 company 4 shelter 5 danger
28. A *stomach* is part of the — 1 sea 2 sky 3 body 4 country 5 world
29. A man's *daughter* is his — 1 parent 2 child 3 sister 4 son 5 niece
30. *Ill* means — 1 sick 2 hungry 3 well 4 safe 5 sorry
31. *Excellent* means very — 1 weak 2 poor 3 happy 4 good 5 tired
32. A *hive* is for — 1 oil 2 school 3 bees 4 peaches 5 rubbers
33. To *tumble* is to — 1 type 2 ask 3 knock 4 fall 5 tickle
34. A *grandparent* is an — 1 antagonist 2 elephant 3 ancestor 4 impostor 5 umpire
35. A *smell* is an — 1 amount 2 answer 3 office 4 odor 5 idea
36. An *elm* is a — 1 mold 2 helm 3 hug 4 tree 5 tool
37. A *mule* is a — 1 splinter 2 pearl 3 beast 4 ditch 5 handle
38. *Costly* things are — 1 expensive 2 pliant 3 scorched 4 liberal 5 domestic
39. An *author* is a — 1 writer 2 policeman 3 statesman 4 treasurer 5 patron
40. A *mayor* is an — 1 expert 2 animal 3 invalid 4 umbrella 5 official

3➡

41. A *zone* is a — 1 number 2 stepson 3 region 4 sliver 5 habit
42. To *injure* is to — 1 slump 2 insure 3 wound 4 sell 5 splash
43. To *rouse* means to — 1 waken 2 rule 3 roast 4 throw 5 love
44. *Mild* means — 1 gentle 2 price 3 wild 4 new 5 behind
45. *Wicked* means — 1 generous 2 grateful 3 unselfish 4 evil 5 brilliant
46. To make *preparations* is to get — 1 over 2 measles 3 ready 4 upon 5 cloudy
47. A *selection* is a — 1 choice 2 capital 3 desire 4 bullet 5 folder
48. To *tour* is to — 1 prepare 2 toast 3 lean 4 travel 5 trust
49. *Twinkle* means — 1 wrinkle 2 ringing 3 pitiful 4 glisten 5 feeble
50. *Coarse* cloth is — 1 smooth 2 fine 3 rough 4 cold 5 short

TEST 2. PARAGRAPH MEANING

Sample.

One warm, sunny day Helen and her brother went on a trip to the beach. Their mother and aunt went with them. They took their bathing suits so that they could all go into the water. When noontime came, they had lunch on the sand. After lunch the children gathered sea shells. They saw a starfish and some funny little crabs.

A. What did Helen and her brother do?
1 went to see their aunt **2 went to the seashore** **3 went on a train**
4 went for crabs **5 went fishing** 1 2 3 4 5

B. The weather was —
1 quiet **2 funny** **3 fair** **4 gloomy** **5 rainy** 1 2 3 4 5

C. The best name for this story is —
1 Helen and Her Aunt **2 Gathering Shells** **3 Eating Lunch Outdoors**
4 One Warm Day **5 A Trip to the Beach** 1 2 3 4 5

I **6➡**

Mary and John go to camp as soon as school closes in the summer. They go on the train and stay until it is time for school to open again in the fall. They have a happy time at camp because there are many other boys and girls there too. They ride, swim, and play games together every day.

1. When do Mary and John go to camp?
1 before school **2 when school is over** **3 in the fall** **4 when school starts**
5 every day 1 2 3 4 5

2. Which word tells what kind of a time the children have at camp?
1 lonesome **2 sad** **3 joyous** **4 funny** **5 weary** 1 2 3 4 5

3. How do the children travel to camp?
1 on a train **2 on a bus** **3 in an automobile** **4 on a car** **5 in an airplane** 1 2 3 4 5

4. The best name for this story would be —
1 Close of School **2 Playing Games** **3 A Trip on the Train**
4 A Summer at Camp **5 The Boys at Camp** 1 2 3 4 5

5. Mary and John enjoy camp life because they —
1 are glad to be away for the summer **2 like the ride on the train**
3 are glad to be out of school **4 like to study nature**
5 have fun playing games with the other children 1 2 3 4 5

(Go right on to the next page.)

II

Jack had a new fish line. His father took him fishing in a little brook at the back of his grandfather's house. Jack was the first to feel a bite. There was a strong pull at his line. He tried hard to pull the fish out of the water, but it pulled so hard his father had to help him. He was happy when he saw his fish lying on the grass near the stream.

6. Jack went —
1 **to his grandfather's house** 2 **into the water** 3 **fishing with his father**
4 **to buy a fish line** 5 **to the ocean to fish** 1 2 3 4 5

7. The fish —
1 **helped** 2 **struggled** 3 **ate** 4 **tried** 5 **fell** 1 2 3 4 5

8. Jack tried to —
1 **fish near the stream** 2 **pull his father back** 3 **land his own fish**
4 **put fish in the brook** 5 **lie on the grass** 1 2 3 4 5

9. The best name for this story is —
1 **A Trip to Grandfather's** 2 **Catching Some Fish** 3 **Jack's Fishing Trip**
4 **Buying a New Fish Line** 5 **How Father Fished** 1 2 3 4 5

10. Jack enjoyed his trip because —
1 **the fish got away** 2 **the brook was near grandfather's** 3 **he caught a fine fish**
4 **he went to a stream** 5 **his father helped him** 1 2 3 4 5

III

In the cold northlands many animals go to sleep for the whole winter. They have to store up enough fat on their bodies in the summertime to last them all winter while they are sleeping. These animals grow huge in the summer. Among the animals which sleep all winter are the bears. They get so large in the summer that they can hardly move about. All these animals which sleep during the winter crawl into caves or hollow trees when winter nears and stay until spring comes once more. When they come out, they are very thin and are starving. 7➡

11. How do the animals in the story prepare for the long winter?
1 **by storing their food in caves** 2 **by getting fat in summer**
3 **by coming out for food as they need it** 4 **by eating the bark of trees**
5 **by living on small animals** 1 2 3 4 5

12. In winter the climate where these animals live is very —
1 **windy** 2 **warm** 3 **breezy** 4 **cold** 5 **hot** 1 2 3 4 5

13. How do the animals look when they come out of the cave?
1 **huge and fat** 2 **lean and hungry** 3 **thin and tired** 4 **large and strong**
5 **huge and sleepy** 1 2 3 4 5

14. The best title for this story would be —
1 **Bears Which Go into Caves** 2 **Thin and Hungry Animals**
3 **Animals Which Sleep through the Winter** 4 **Large Animals Sleep in Winter**
5 **While They Are Sleeping** 1 2 3 4 5

15. The animals which sleep through the winter make their winter dens —
1 **in the summertime** 2 **in the open woods** 3 **when spring comes**
4 **in caverns or hollow logs** 5 **while they are sleeping** 1 2 3 4 5

(Go right on to the next page.)

IV

The St. Bernards are among the bravest of dogs. They are large and very strong. In Switzerland these dogs are trained to go out and find travelers who are lost in the snowdrifts on the high mountains. A first-aid kit containing food and medicine is hung about their necks, and a warm blanket is strapped on their backs. When they find worn-out travelers, they dig them out of the snow and help them if they are awake and able to move. If the traveler is injured and helpless, the dog is trained to go back to the town below and bring aid. Many lives are saved every year by these fearless animals.

16. What is the most valuable thing that St. Bernard dogs do?
1 **They can climb over snowdrifts.** 2 **They are good mountain climbers.**
3 **They are trained to rescue lost travelers.** 4 **They are large and strong.**
5 **They carry first-aid kits.** 1 2 3 4 5

17. The St. Bernard dog is —
1 **cowardly** 2 **speedy** 3 **courageous** 4 **rough** 5 **fierce** 1 2 3 4 5

18. How does the dog assist worn-out travelers?
1 **by digging large holes in the snow** 2 **by climbing the drifts to the traveler**
3 **by bringing first aid** 4 **by covering him with a blanket** 5 **by his great strength** 1 2 3 4 5

19. The best title for this story is —
1 **Training Dogs** 2 **The Heroic St. Bernard** 3 **A Strange St. Bernard Dog**
4 **People Lost in Mountains** 5 **Traveling through Snowdrifts** 1 2 3 4 5

20. What do the dogs do for the traveler who is helpless? 1 **stand the man on his feet**
2 **give him food and medicine** 3 **return to the village for aid**
4 **carry him down the mountain** 5 **give him the first-aid kit** 1 2 3 4 5

V

8➔

The camel possesses a most uncommon body, which almost seems made to order for the many purposes he fills in the life of the desert people. His mouth is peculiarly fitted for securing food. The strong membrane and powerful teeth enable him to tear off the dry shrubs and stiff, prickly cactus of the desert. His huge nostrils allow him to breathe deeply. They close tightly when a sandstorm arises, thus shutting out the choking sands. His hump, a mere lump of fat, is of great use if food fails, for he can obtain nourishment from it for many days. He is also provided with inside reservoirs which hold enough water to last him for four or five days. Unfortunately the camel is dull. To kneel down at a given signal is about the only trick he ever learns. Although the camel is homely he is nevertheless valuable, for without him many portions of the earth would remain untraveled.

21. The camel is — 1 **more intelligent than the horse** 2 **capable of learning a great deal**
3 **rather unintelligent** 4 **poorly taught** 5 **friendly and intelligent** 1 2 3 4 5

22. The body of the camel is —
1 **unfortunate** 2 **unusual** 3 **graceful** 4 **evil** 5 **inspiring** 1 2 3 4 5

23. The mouth of the camel — 1 **is harmed by thorny cactus** 2 **is small and tender**
3 **is well suited for procuring food** 4 **tightens when a sandstorm arises**
5 **provides an inside reservoir** 1 2 3 4 5

24. The best title for this story is — 1 **The Mouth of the Camel**
2 **How the Camel Is Suited to His Work** 3 **The Stupidity of the Camel**
4 **Sandstorms on the Desert** 5 **How the Camel Eats** 1 2 3 4 5

25. The camel is — 1 **unsuited for desert travel** 2 **helpless in a sandstorm**
3 **a tricky animal** 4 **well adapted for desert travel** 5 **quick to learn** 1 2 3 4 5

(Go right on to the next page.)

VI

Bill vaulted the fence into the corral and faced the bucking pony. At his approach the little animal struck out with his forefeet, but Bill was quick and avoided him. The boy caught the pony close to the head and with a rapid movement sprang into the stirrups. Then began the real task. With head down, back up, and whinnying loudly, the animal reared into the air, bouncing back to earth with terrific force. He tried every trick possible to throw his rider, plunging and rearing in all directions, but Bill held on. Finally, after many minutes, the exhausted pony, wet with perspiration, stood still. His nostrils trembled, but one felt that though his body had been subdued, his spirit was still unbroken.

26. When Bill approached, the pony was — 1 **tired and broken** 2 **quieted in spirit** 3 **impatient to be ridden** 4 **disturbed and angry** 5 **thrown to the ground** 1 2 3 4 5

27. The pony was finally — 1 **overbalanced** 2 **exultant** 3 **overpowered** 4 **distracted** 5 **restored** 1 2 3 4 5

28. The little pony tried to — 1 **outlive his rider** 2 **aid the boy** 3 **unseat his rider** 4 **exhaust the animal** 5 **butt Bill** 1 2 3 4 5

29. The best title for this story is — 1 **Riding the Range** 2 **An Exhausted Pony** 3 **Breaking a Pony** 4 **A Perspiring Pony** 5 **Bill Approaches a Pony** 1 2 3 4 5

30. The article illustrates — 1 **how to enter a corral** 2 **a whinnying pony** 3 **trickery in riding** 4 **leading a pony** 5 **skill in horsemanship** 1 2 3 4 5

VII

Studying bird life with a camera is certainly an entrancing sport. One can engage in it without destroying life, yet get great satisfaction from the thrilling activities it offers. The sport is appropriate for any time or place. From it one can derive all sorts of adventures, for to be a good photographer of birds in their native haunts it is necessary to climb trees and cliffs as well as travel on land and water. How interesting it is to find their nests, learn where they stay at various times during the day, how the young are fed and cared for, and procure photographs of the birds in various attitudes. Hiking with the camera through the woods is always an enjoyment. There is a feeling of excitement and expectancy present, for one never knows at what moment he may come upon some unusual bird activity. 9➔

31. Making camera studies of bird life — 1 **is dull and uninteresting** 2 **is not limited to one season** 3 **requires expensive equipment** 4 **offers very few thrills** 5 **is destructive of bird life** 1 2 3 4 5

32. Using a camera in place of a rifle encourages wild life by promoting — 1 **destruction** 2 **conservation** 3 **dissatisfaction** 4 **conversation** 5 **haunts** 1 2 3 4 5

33. Bird study is a satisfying sport because — 1 **the young are fed** 2 **the birds like it** 3 **one can get eggs out of nests** 4 **it can be enjoyed during all seasons** 5 **one can use a rifle** 1 2 3 4 5

34. The best title for this story is — 1 **Interesting Birds** 2 **The Excitement of Adventure** 3 **Taming Wild Birds** 4 **Photography of Wild Birds** 5 **Destroying Bird Life** 1 2 3 4 5

35. Taking pictures of bird life is fascinating because — 1 **it is helped by a camera** 2 **it takes much time** 3 **it gives more bird pictures** 4 **it brings adventure without destruction of life** 5 **it scatters the birds about** 1 2 3 4 5

(Go right on to the next page.)

VIII

In the part of our country which gets very little rain in the summer the ground must be wet by irrigation to make the plants grow. Otherwise all the crops would be spoiled by dry weather. This form of agriculture is carried on in states where snow is found high up in the mountains the entire year. A large reservoir is made by damming up the mountain streams. The snow, melting in summer, rushes into a stream which runs into the reservoir. This, in turn, is joined to a large ditch. At the head of the ditch is an intake gate. This can be opened and closed at will. In this way water is drawn off and the various fields are irrigated. The water can be turned on whenever the fields need it. The parts of our country where irrigation is possible seldom have crop failures, because water can be secured when it is needed.

36. This form of agriculture is carried on where —
1 crops are grown in summer **2 mountain streams make it possible**
3 cities are near **4 there are no reservoirs** **5 there are crop failures** 1 2 3 4 5

37. Because irrigation is possible crop failures are —
1 increased **2 reduced** **3 possible** **4 permitted** **5 eliminated** 1 2 3 4 5

38. They stop the water from flooding the fields by —
1 damming the ditch **2 the use of gates** **3 opening the reservoir**
4 irrigating the fields **5 drawing off the water** 1 2 3 4 5

39. The best title for this story would be —
1 Damming Up Streams **2 Supplying Water for Irrigation**
3 Crops in Dry Weather **4 Building Huge Dams** **5 Supplying Water for Colorado** 1 2 3 4 5

40. Land that is irrigated yields better harvests because —
1 in summer it gets little rain **2 it is high up in the mountains**
3 water may be applied as needed **4 the water can be turned off**
5 agriculture is carried on 1 2 3 4 5

IX

10

Sugar beets must be raised where cheap labor can be secured because the plants require a great deal of cultivation, most of which must be done by hand. First the plants are thinned and then blocked to get the correct number in the rows. The roots from which the sugar is extracted are not like the red beets which are eaten as vegetables, but are more like the common turnips. These roots are washed, sliced, and soaked in water. The water is later drawn off and boiled into beet syrup. Then the syrup is changed to a brown sugar called raw sugar. The last step is to send the raw sugar through the refinery, where it is cleaned and whitened. Then the white sugar is ready to be boxed and sold for use in our homes.

41. Sugar beets must be raised where labor is not expensive because they require —
1 much care **2 much washing** **3 many plants in a row** **4 soaking in water**
5 much boiling 1 2 3 4 5

42. What kind of labor is most used in the raising of sugar beets?
1 machine **2 manual** **3 difficult** **4 easy** **5 unusual** 1 2 3 4 5

43. The raw sugar is — **1 made into syrup** **2 refined and whitened**
3 boxed and sold **4 left as it is** **5 changed to brown sugar** 1 2 3 4 5

44. The best title for this story is — **1 Blocking and Thinning Beets**
2 Colorado Sugar Beets **3 How Beet Sugar Is Obtained**
4 Cleaning Raw Sugar **5 How Beet Sugar Is Whitened** 1 2 3 4 5

45. In making beet sugar the beets are — **1 cut in pieces** **2 eaten as vegetables**
3 first ground up **4 pressed in a mill** **5 mixed with turnips** 1 2 3 4 5

(Go right on to the next page.)

TEST 4. WRITTEN RECALL

I

Blackie was a little kitten. One day a big dog chased him. He became frightened and ran up a tree. After he got high up in the branches, he was afraid to come down. The little girl who owned him came and stood beneath the tree. She called to Blackie and showed him his dish of milk, hoping he would want his supper enough to try to come down. But he would not come. Finally her father called the fire chief. He sent a fireman with a ladder. The man went up the tree and carried little Blackie down. The little girl was happy to have her kitten again.

II

John could hardly wait, so anxious was he to try the new canoe he had received for his birthday. As soon as he finished his breakfast he raced with his brother and sister to the lake. Here they examined his splendid new gift. John's father showed him how to use the paddle and told him that he might take his brother and sister for a short ride in the canoe, but warned him that he must not go too far from shore before he was thoroughly familiar with handling the new craft. All went smoothly, and gradually John forgot his caution and drifted farther from shore. Suddenly there came a great gust of wind. In a moment the lake was filled with heavy waves. John struggled to keep the little canoe upright. Luckily they were not far from a small island. He steered for this and reached the shore just as a particularly large wave turned the canoe bottom side up. The three children scrambled from the water out onto the island just as another huge wave came in. The canoe floated away, and John feared he had lost his precious gift. But a party in a little steamer presently came to the aid of the stranded children and rescued the canoe, which had blown a distance away.

TEST 3. SPELLING

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DURRELL-SULLIVAN
READING CAPACITY AND ACHIEVEMENT TESTS

READING CAPACITY TEST

By DONALD D. DURRELL
Professor of Education and Director of the Educational Clinic
Boston University

and HELEN BLAIR SULLIVAN
Associate Director of the Educational Clinic
Boston University

Primary Capacity

A

PRIMARY TEST: FORM A

Name.....Grade.....Teacher.....Boy or girl.....

Age.....When is your next birthday?.....How old will you be then?.....

Name of school.....City and State.....Date.....

TEST	SCORE	GRADE EQUIVALENT	AGE EQUIVALENT
1. Word Meaning			
2. Paragraph Meaning			
Average			

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 DS:RCT:PRIM. A-24

PRINTED IN U.S.A.

TEST 1. WORD MEANING

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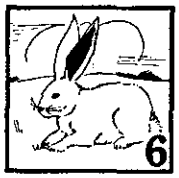

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II

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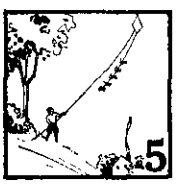

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III

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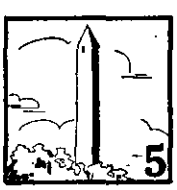

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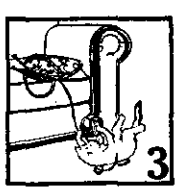

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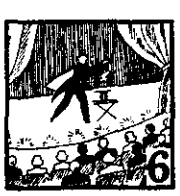

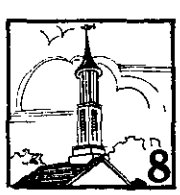

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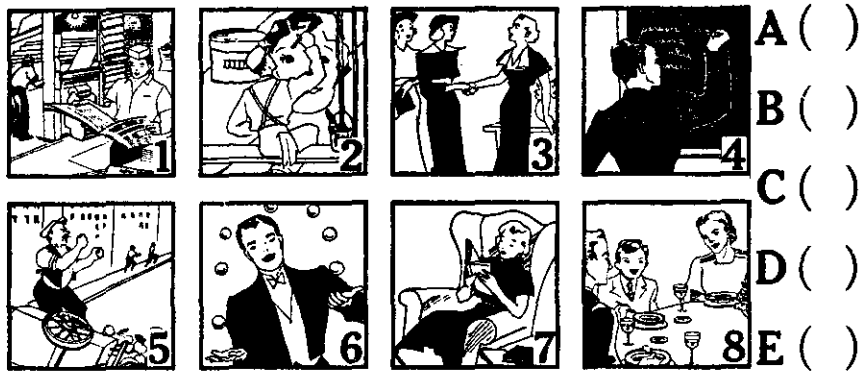

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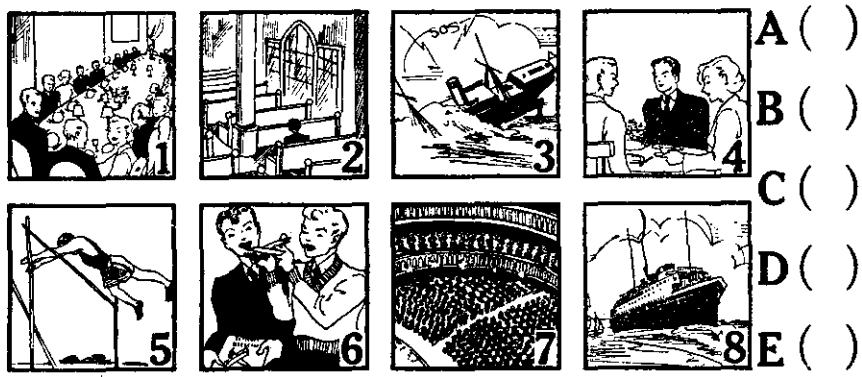

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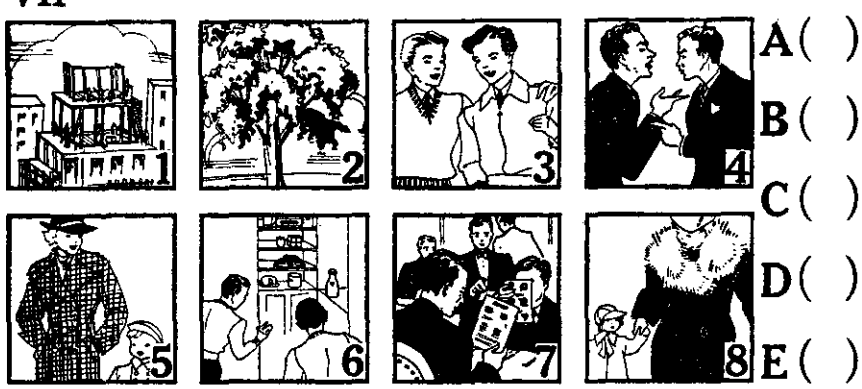

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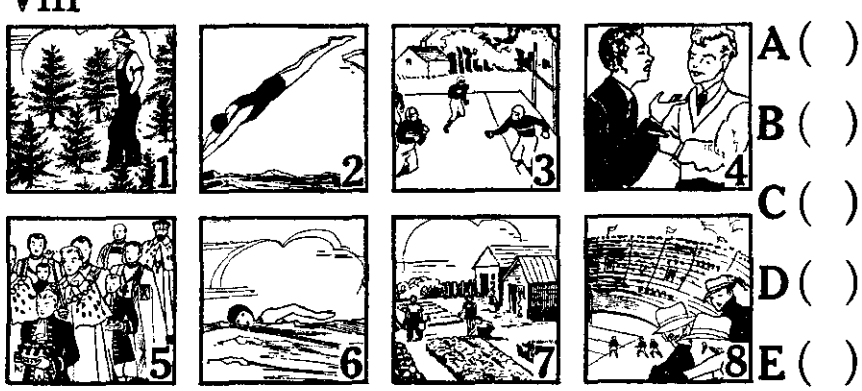

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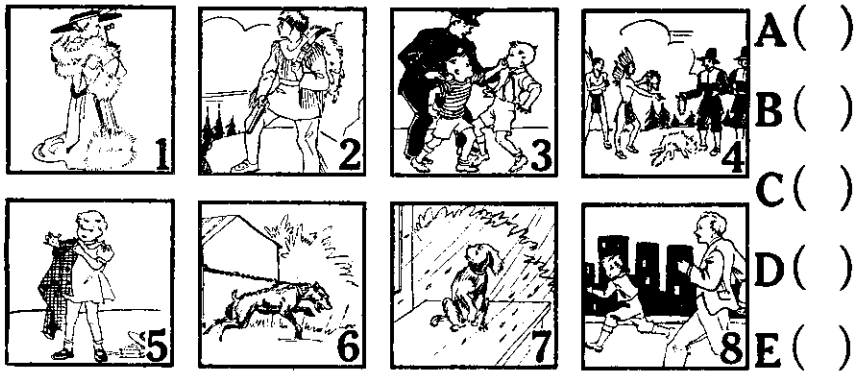

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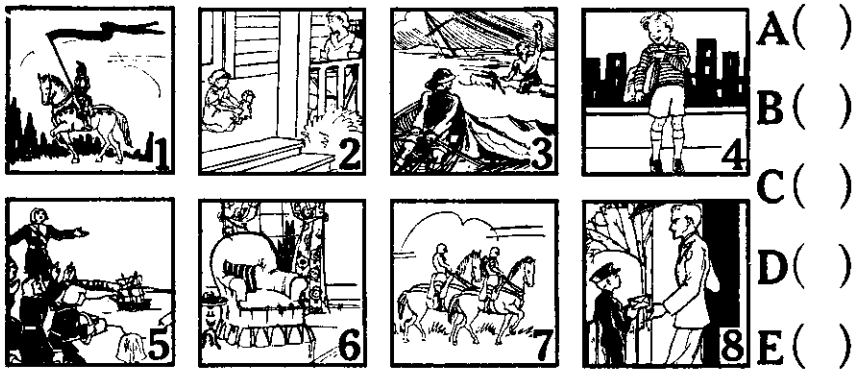

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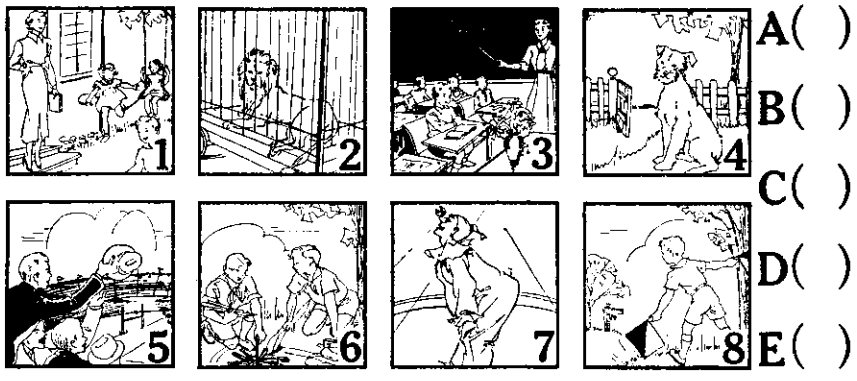

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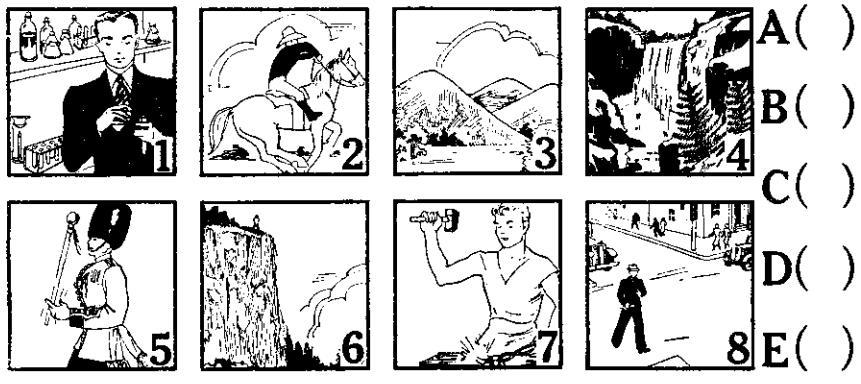

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TEST 2. PARAGRAPH MEANING

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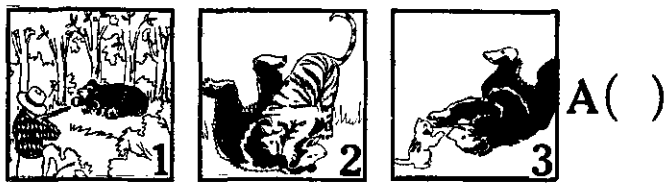

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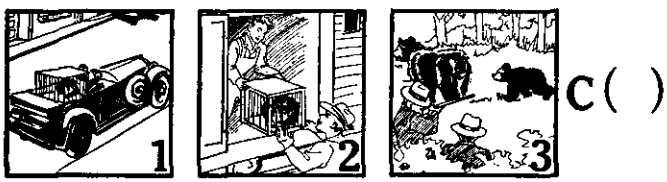

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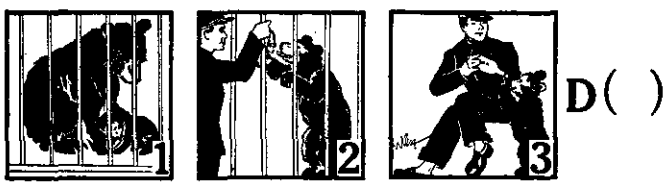

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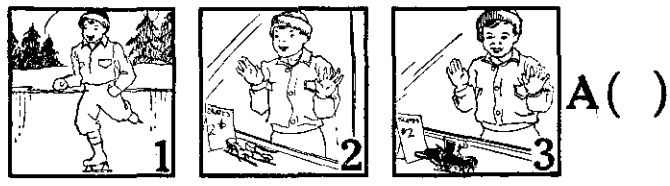

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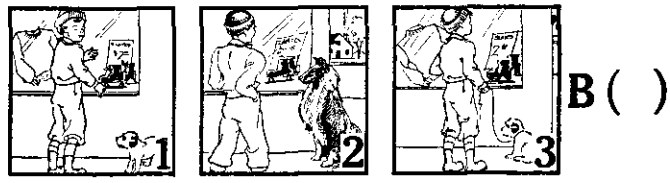

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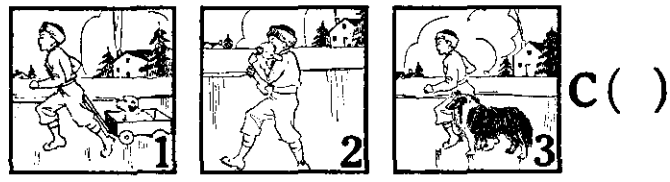

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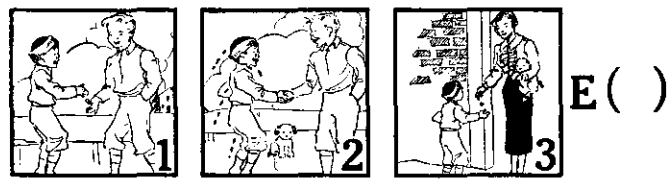

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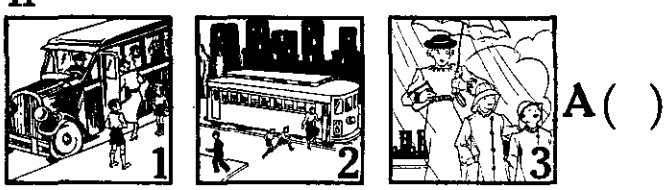

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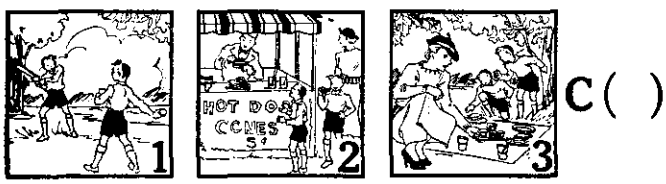

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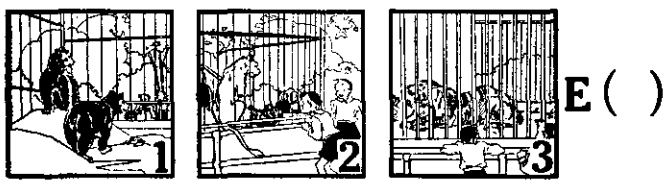

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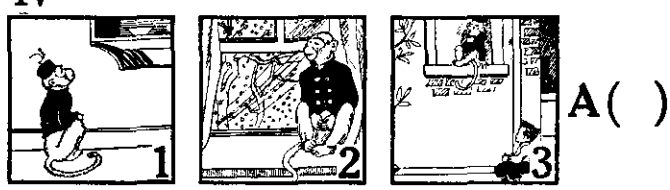

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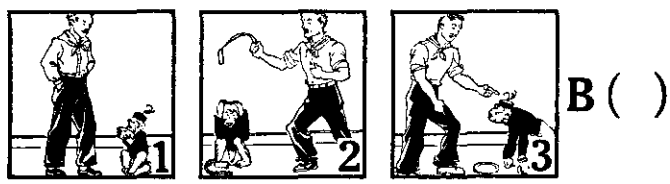

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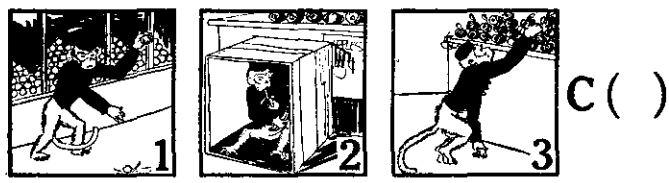

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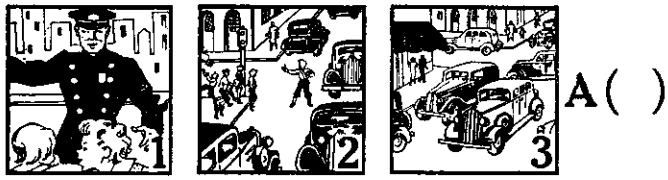

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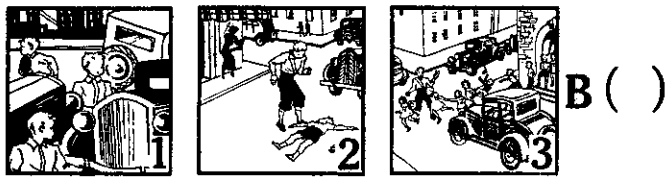

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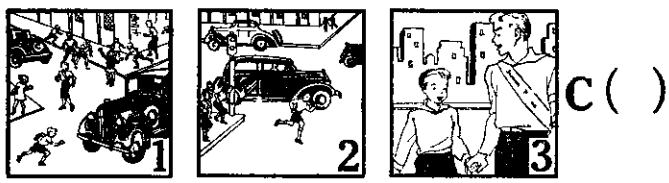

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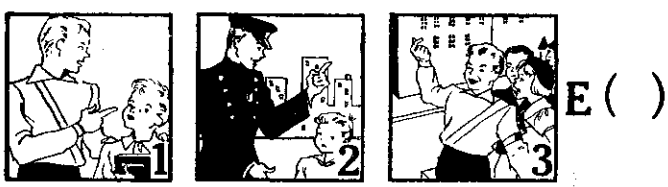

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VI

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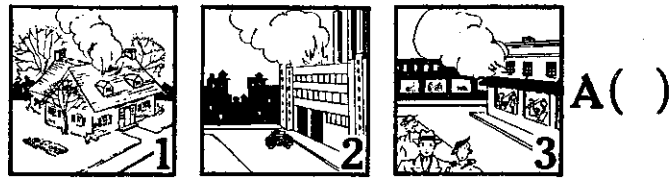
VII



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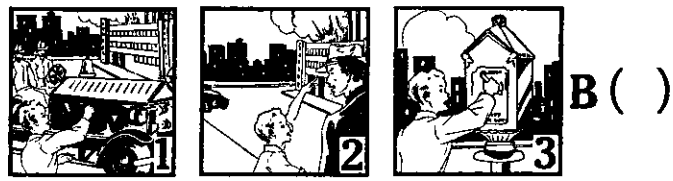

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VIII

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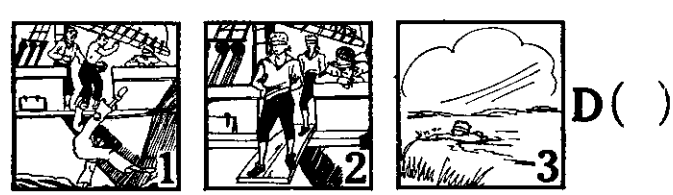

D( )

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Primary Sheet

Name _____ Grade _____ School _____

I Oral Reading

Level _____

Suitability: Much too difficult ___ Difficult ___ Satisfactory ___

Too easy ___ Approximate errors in 20 words ___

On Paragraphs

___ Phrasing, inadequate
___ Voice, high or low pitch
___ Expression
___ Attack on unfamiliar words
___ Omits or adds words
___ Repetitions
___ Errors on small words
___ Lip movements
___ Whispering

Word Analysis

___ Word analysis ability poor
___ Will not try difficult words
___ Has no method of word analysis
___ Sounds aloud by: single letters - blends - syllables
___ Unable to combine sounds into words
___ Looks away from word after sounding
___ Sounding slow or inaccurate
___ Spells words: successful - inadequate
___ Silent word study: successful - inadequate
___ Enunciates badly when prompted

Recall

___ Unaided recall scanty
___ Poorly organized recall
___ Inaccurate memories and guesses
___ Response labored and slow
___ Avoids use of new words in recall
___ Recalls details badly in questions
___ Very scanty recall on hard material

II Word Pronunciation List

	2	1	0
year	___	___	___
child	___	___	___
point	___	___	___
scratch	___	___	___
frighten	___	___	___
shepherd	___	___	___
elegant	___	___	___
brilliant	___	___	___
restaurant	___	___	___
temperature	___	___	___
astonishment	___	___	___
unnecessary	___	___	___
national	___	___	___
preparation	___	___	___
treacherous	___	___	___

III Applied Phonics

		2	1	0
will	- grill	___	___	___
oil	- spoil	___	___	___
out	- flour	___	___	___
splash	- trash	___	___	___
let	- letter	___	___	___
far	- smart	___	___	___
tear	- clearing	___	___	___
cross	- cream	___	___	___
sniff	- snare	___	___	___
quick	- queer	___	___	___
strange	- village	___	___	___
hurt	- further	___	___	___
night	- frightened	___	___	___
because	- August	___	___	___

1

Muff is
a little yellow kitten.
She drinks milk.
She sleeps
on a chair.
She does not like
to get wet.

2

A little black dog
ran away from home.
He played
with two big dogs.
They ran away from him.
It began to rain.
He went
under a tree.
He wanted
to go home,
but he did not know the way.
He saw
a boy he knew.
The boy
took him home.

3

Six boys
put up a tent
by the side of the river.
They took things to eat
with them.
When the sun went down,
they went into the tent
to sleep.
In the night,
a cow came
and began to eat grass
around the tent.
The boys were afraid.
They thought
it was a bear.

4

Henry goes
to a large lake
in summer.
Last summer,
a motor boat sank
near his house.
The boat had
ten men in it.
The man
who was running the boat
brought it
very close to the shore
when the water was low.
He hit
a big rock
under water.
It made a hole
in the bottom of the boat.
The water came in
very fast.
All of the men
swam to shore.

Word Pronunciation Test: Primary

Administration: This is an individual check. The child has a copy of the words to be pronounced. Examiner says: "These words you have never seen before. Try to pronounce them for me." After five incorrect responses discontinue testing.

Scoring: A total possible score is thirty. Rate the child as follows:

2 for words immediately recognized and readily pronounced.

1 for words with an acceptable pronunciation after a brief hesitation.

0 for no response or an incorrect one.

Word Pronunciation Test

1. year
2. child
3. point
4. scratch
5. frighten
6. shepherd
7. elegant
8. brilliant
9. restaurant
10. temperature
11. astonishment
12. unnecessary
13. national
14. preparation
15. treacherous

Applied Phonics Test: Primary

Administration: This test is an individual check. The child has a copy of the applied phonics test. Examiner says: "I shall say the first word in the column. You are to say the word next to mine. Remember that the word I say will help you to read your word correctly. Let's start. I'll say 'will' and you will say...." Discontinue testing after five incorrect responses.

Scoring: The total possible score is twenty-eight. Rate the child as follows:

2 for correct responses without hesitation.

1 for words solved after a brief hesitation.

0 for no response or an incorrect one.

Applied Phonics

will	grill	cross	cream
oil	spoil	sniff	snare
out	flour	quick	queer
splash	trash	strange -	village
let	letter	hurt	further
far	smart	night	frighten
tear	clearing	because	August

Visual Discrimination Test: Primary

The Visual Discrimination and the Hearing Sounds in Words Tests are taken from Improving Reading Instruction.[1/]

Administration: Examiner says: "Look at this letter. You are to find it in the first box on your sheet and draw a circle around it." Children may use markers under the boxes on the sheet, moving to the next box after each word is marked. Or the teacher may call the number of the word, saying, "Here is number six. Find it and draw a circle around it." The word should be exposed for about three seconds, then turned down when the children start to look on their blanks. A second look is not permitted, nor should either teacher or children pronounce the word.

Scoring: The total possible score is thirty. Count one point for each correct response.

1/Donald D. Durrell, Improving Reading Instruction, World Book Company, Yonkers-on-Hudson, New York, 1956, pp. 102-107.

y b d g f	16 clear clean close climb lean
2 m h n r t	17 par park trap party quart dark part
3 no on imp in nip	18 eight sought rough ought taught aught tough
4 goes do go ago dog	19 quite quick quack point quiet question quit
5 saw war as was waste	20 state elation tasted station stationed started skating
6 pot tab tap top pat	21 dinner differ difference deferent deferent different deference
7 girl dog boy dig day	22 nomination notion mention mountain mountains motion mentioned
8 won no now mow was	23 quarter portion bracelet particle practice practical poultice
9 and tend on ended end	24 other the weather wealth whether whither wealthier
10 lack clock clack block black	25 obscure advice above advise advances dance advance
11 frost first fast firm trust	26 sure obscure scare secure second server cure
12 same came name some somebody	27 portable possible probably probable problem practical desirable
13 slat last lost lot blast	28 contact contain contract contracts contacts capital convict
14 jump jest just jot must	29 immediate mediates mediate mistake meditate material meditative
15 drip prop drops rap drop	30 regular regulate regulation registration negotiation radiation recognition

Hearing Sounds in Words Test: Primary

Administration: Part A

Print on the board the letters p b t n a, just as they appear on line 1 of the child's paper. Direct the children in the following way:

Today we are going to use our eyes and ears to see if we can find the right letters in words. You will need to listen and look carefully. Put your marker on the first line under the big letter A. (Check to see that each child has the right place.)

I'll say a word and you are to listen to see if you can find the letter the word begins with. Listen - top. What is the first letter in top? Yes, t - so you draw a circle around t on your paper. (Draw a circle around t on the board. Then check to see that each child has circled the correct letter.)

Now move your marker to the next line below. Now I will not help any more. Be sure you look and listen carefully. Ready. Draw a circle around the first letter in cup. (Repeat the word, if necessary. Wait until the children have finished making a circle around the letter. This usually takes not more than five seconds. Count five slowly on all later words in this test.)

(Direct in this way for the rest of the words.) Move your marker to number 3. Find the first letter in dog.

4. garden	9. machine	14. handle
5. recess	10. fountain	15. every
6. noise	11. vacation	16. olive
7. lemon	12. polish	17. waste
8. bacon	13. absent	18. supper

PART B

Direct as follows:

Now move your markers up to number 1 under the big letter B. (Write on the board the words garrulous pertain warrant.)

Now this time you are to listen for the last sound in the word. Listen to this word - spoon. Which word on the board has the same last sound as spoon? Yes, the middle one has the same last sound as spoon. So we draw a circle around it like this. Now draw a circle around the same word on your paper.

Now move your marker down to number 2. Listen for the last sound in this word - until. Find the word that has the same sound at the end as until. Draw a circle around it.

(Direct in this way for the next four words.) Move your marker to number 3. Which word has the same last sound as visit? Draw a circle around it.

3. visit 4. wonder 5. railroad 6. company

On number 7, you are to listen for both the beginning and ending sounds. (Write on the board the following words: brethren noblemen burlesque.)

Which of these words has the same beginning and ending sound as between? (Wait for answers). Yes, the first one begins and ends like between. So you draw a circle around it. You draw a circle around the word on your paper.

(Direct in this way for the remainder of the words in PART B.) Move your marker to number 8. Find the word that begins and ends like geranium.

9. happen
10. present
11. cabinet
12. famous
13. motor
14. shovel
15. break
16. thicken
17. drink
18. child

PART C

Write these letters on the board: ind r bl x t ing. Then direct as follows:

Now move your marker down to number 1 under C. Listen to this word blinding. Draw circles around all of the sounds you hear in blinding. (Circle ind bl ing on the board.) How many of you circled these sounds?

(Write on the board a m sp f d ng.) Now find all of the sounds you can in this word - sporadic. Which did you circle? Yes, sp, a and d. The other sounds are not on your paper.

(Direct in this way for the rest of the words.) On number 3, circle the letters you hear in this word - starlight.

3. starlight
4. continuous
5. fortunate
6. twinflower
7. exemplify
8. indenture
9. envelopment
10. elocutionist
11. benevolent
12. unqualified

Scoring: The total possible score is sixty-six.

In Parts A and B total the number of correct responses.

In Part C subtract the number of incorrect responses from the number of correct responses.

TEST OF HEARING SOUNDS IN WORDS - GRADES 1-3
Boston University - 1955

Name _____ Grade ____ School _____

City _____ Teacher _____

A

1.	p	b	t	n	a
2.	e	p	c	d	t
3.	d	f	g	v	h
4.	g	k	v	l	i
5.	k	r	b	d	s
6.	o	s	n	b	t
7.	y	l	d	f	g
8.	f	t	j	r	b
9.	c	d	k	m	i
10.	f	v	p	h	o
11.	l	v	n	t	u
12.	s	q	r	z	p
13.	c	m	a	b	o
14.	h	m	s	e	w
15.	m	v	e	r	a
16.	n	e	h	a	o
17.	w	q	j	n	e
18.	j	l	s	t	y

B

1.	garrulous	pertain	warrant
2.	milligram	sweltering	shrapnel
3.	chemist	stereogram	hydrocarbon
4.	ponderous	spectacular	military
5.	finesse	intended	rebuff
6.	linoleum	periwinkle	cacaphony
7.	brethren	noblemen	burlesque
8.	premium	gypsyism	glaucoma
9.	hexameter	generation	hydrogen
10.	proficient	presumptive	dominant
11.	cavalry	martinet	castinet
12.	filiform	felonious	deciduous
13.	meander	monotony	rancour
14.	sheathing	shameful	collateral
15.	bronchitis	platonic	breechblock
16.	theorem	reckon	thermion
17.	drammock	druidism	pyrogenic
18.	eroded	chiseled	carbon

C

1.	ind	r	bl	x	t	ing
2.	a	m	sp	f	d	ng
3.	ar	k	st	w	ight	p
4.	ous	b	sh	th	f	con
5.	n	ck	for	cl	w	ate
6.	in	ep	ow	tw	a	fl
7.	tion	ex	pl	f	h	an
8.	ure	g	d	sm	k	in
9.	op	r	en	a	l	v
10.	o	b	sp	el	er	ist
11.	ent	a	be	c	n	v
12.	d	un	gr	b	qu	l

Score

A _____

B _____

C _____

Total _____

Spelling Test: Primary

Administration: The test is administered as in the Manual of the Durrell Analysis of Reading Difficulty.[1/] Each word is dictated, then included in a sentence and dictated again so that each word is presented orally three times.

Scoring: The total possible score is twenty. Each word correctly spelled is counted as one credit.

1/Donald D. Durrell, Durrell Analysis of Reading Difficulty, World Book Company, Yonkers-on-Hudson, New York, 1955, pp. 24-25.

LIST 1 (Grade 2)

WORD	EXPLANATORY PHRASE
run	Run fast.
work	Men work hard.
back	Come back.
look	Look out.
call	Call the dog.
hard	A hard rock.
down	Come down here.
hair	She has long hair.
time	What time is it?
night	It gets dark at night.
papers	He delivers papers.
broken	The dish is broken.
train	The train is on time.
moving	The car is moving slowly.
market	Buy carrots at the market.
planted	He planted the garden.
straight	That is a straight line.
question	He asked a question.
minute	Wait a minute.
promise	You gave your promise.

READING CAPACITY TEST

By DONALD D. DURRELL
Professor of Education and Director of the Educational Clinic
Boston University

and HELEN BLAIR SULLIVAN
Associate Director of the Educational Clinic
Boston University

Inter.
Capacity
A

INTERMEDIATE TEST: FORM A

For Grades 3 to 6

Name.....Grade.....Teacher.....Boy or girl.....

Age.....When is your next birthday?.....How old will you be then?.....

Name of school.....City.....Date.....

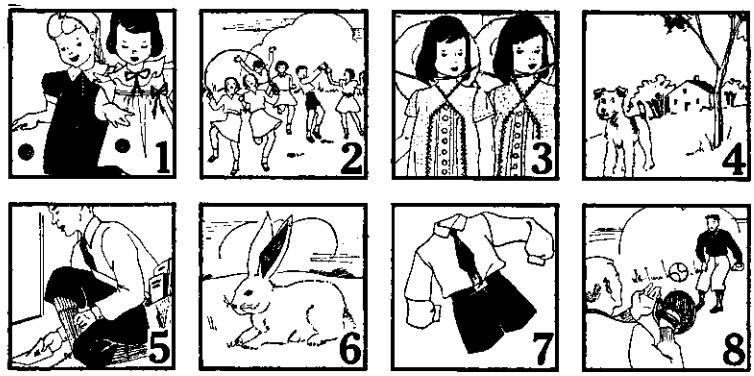
TEST	SCORE	GRADE EQUIVALENT	AGE EQUIVALENT
1. Word Meaning			
2. Paragraph Meaning			
Total			

Published by World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois
 DS:RCT:INTER.A-29

PRINTED IN U.S.A.

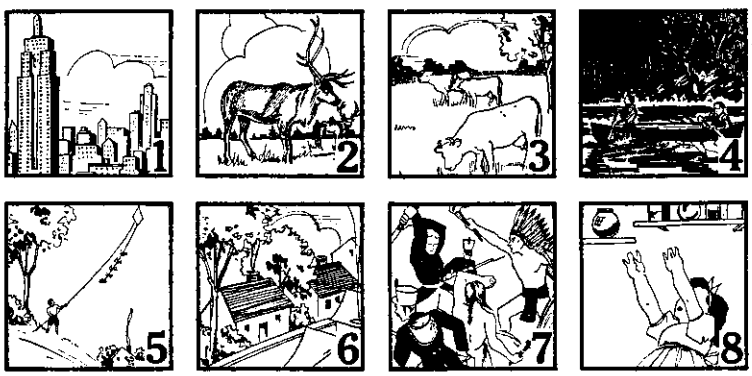
TEST 1. WORD MEANING

I



A( )
B( )
C( )
D( )
E( )

II

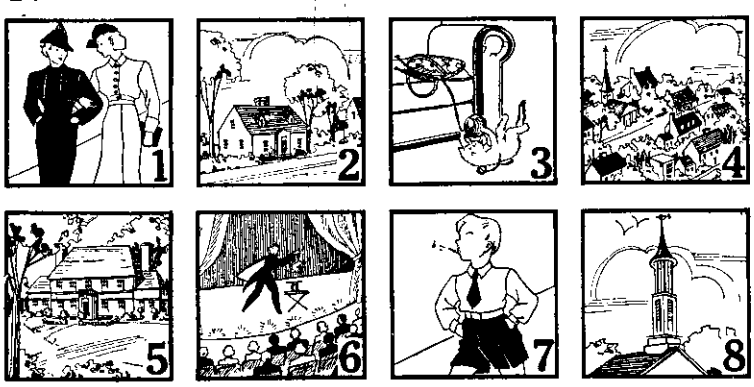


A( )
B( )
C( )
D( )
E( )

III

A( )
B( )
C( )
D( )
E( )

IV



A( )
B( )
C( )
D( )
E( )

V

A ( )

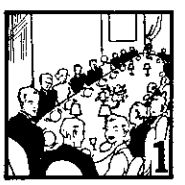
B ( )

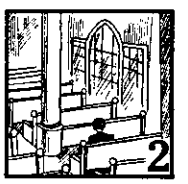
C ( )

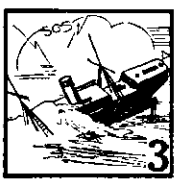
D ( )

E ( )

VI



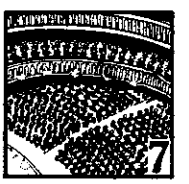




A ( )

B ( )

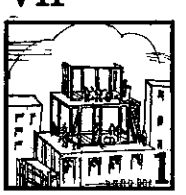
C ( )



D ( )

E ( )

VII



A ( )

B ( )

C ( )

D ( )

E ( )

VIII

A ( )

B ( )

C ( )

D ( )

E ( )

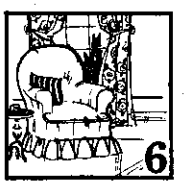
IX

A( )
B( )
C( )

D( )
E( )

X

A( )
B( )
C( )



D( )
E( )

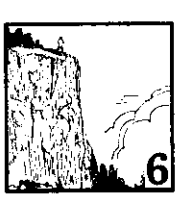
XI

A( )
B( )
C( )

D( )
E( )

XII

A( )
B( )
C( )



D( )
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XIII

A( )

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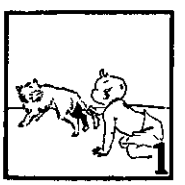
XIV



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B( )

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E( )

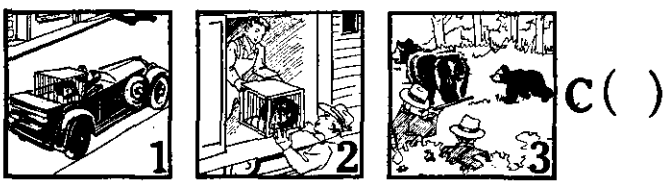
Score.....

TEST 2. PARAGRAPH MEANING

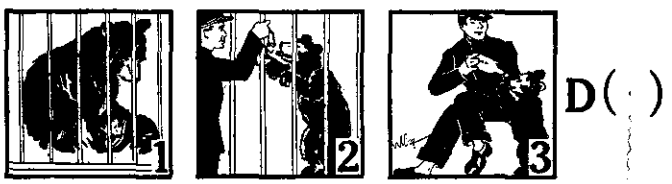
I

A( )

B( )



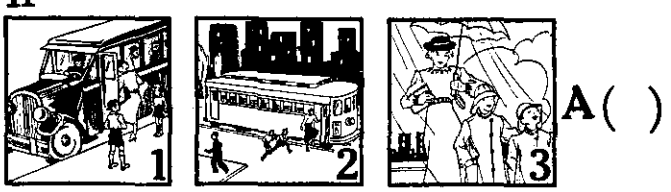
C( )



D( )

E( )

II

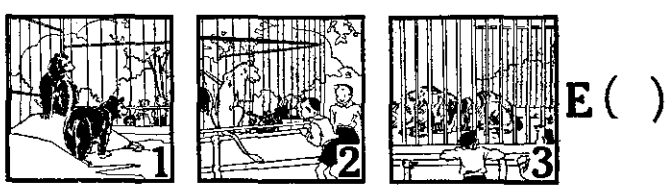


A( )

B( )

C( )

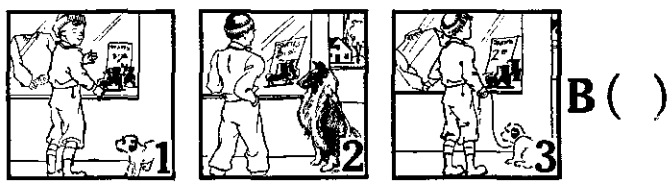
D( )



E( )

III

A( )



B( )

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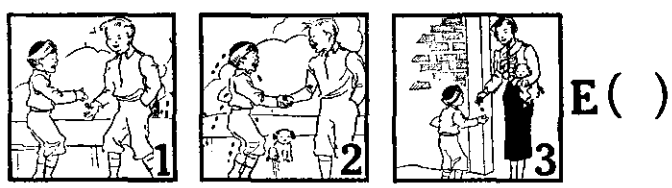
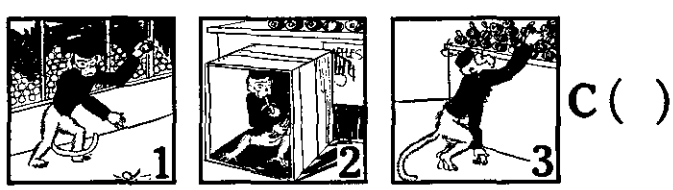


E( )

IV

A( )

B( )



C( )

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V

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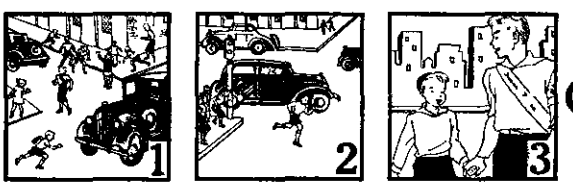
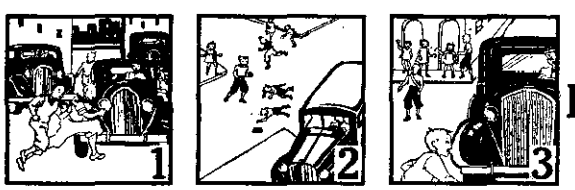


C( )



D( )

E( )

VI

A( )

B( )

C( )

D( )

E( )

VII

A( )

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C( )

D( )

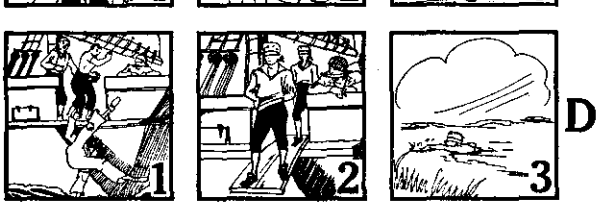
E( )

VIII

A( )

B( )

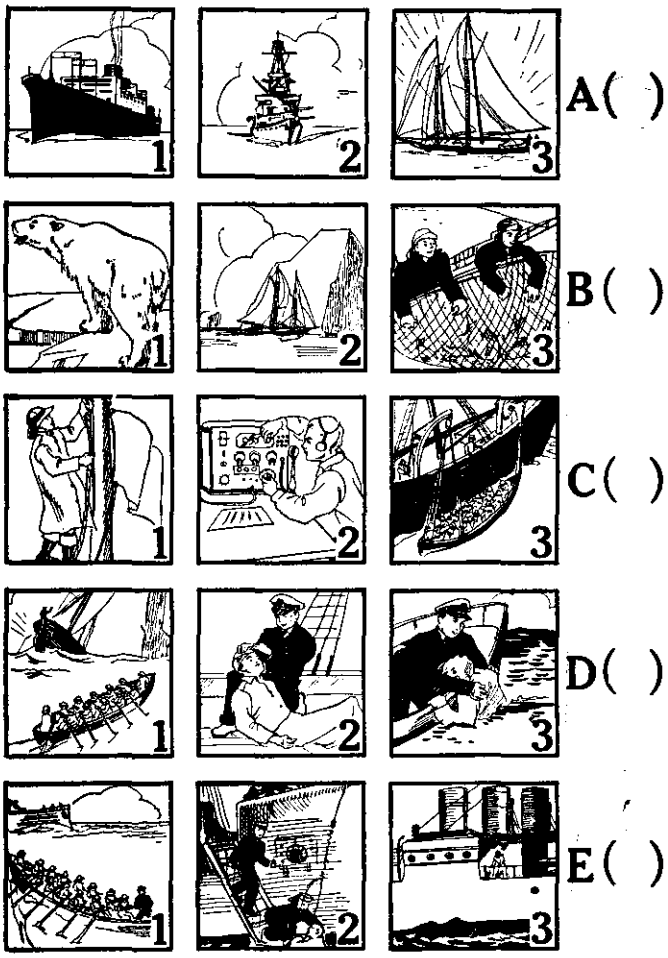
C( )



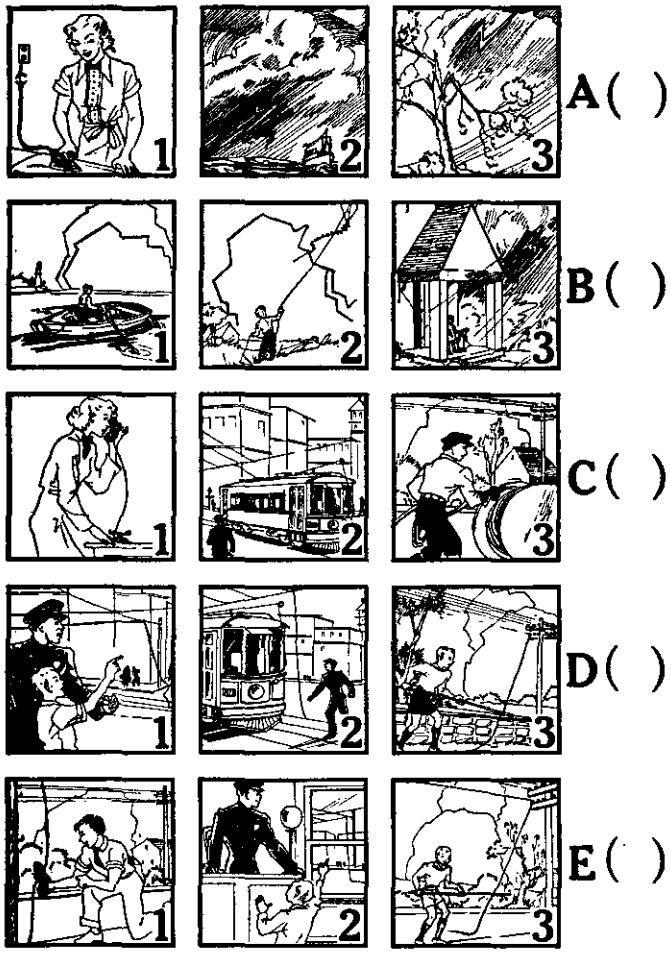
D( )

E( )

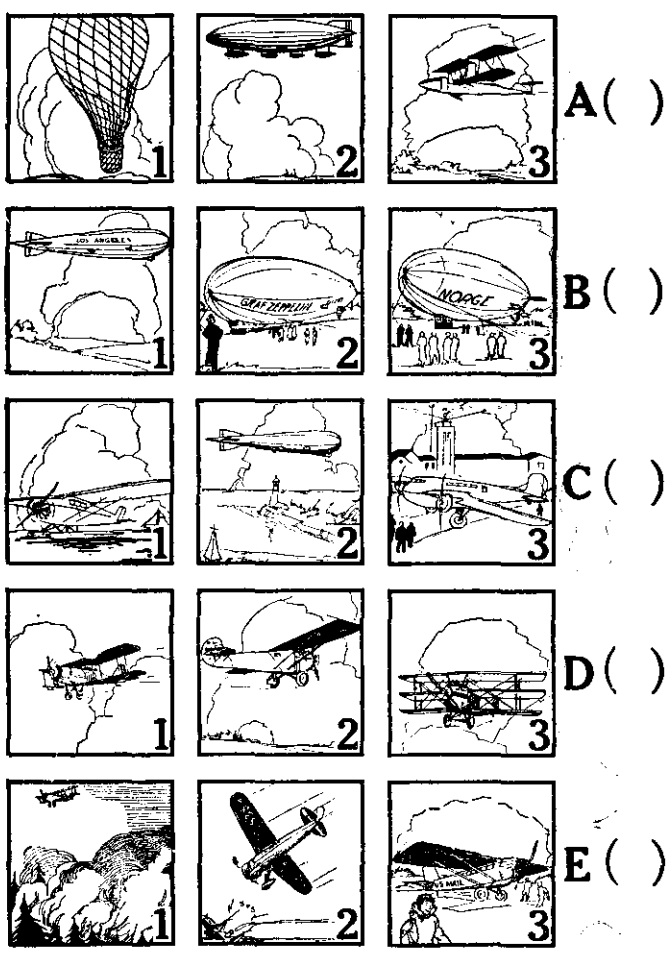
IX



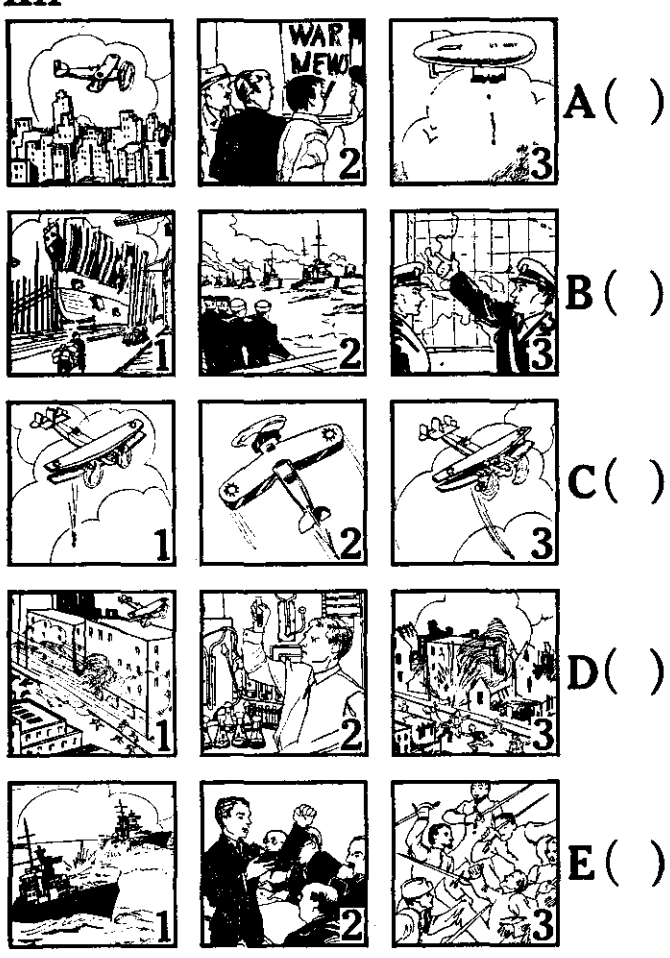
XI



X



XII



Score.....

197

DURRELL-SULLIVAN
READING CAPACITY AND ACHIEVEMENT TESTS

READING ACHIEVEMENT TEST

By DONALD D. DURRELL
Professor of Education and Director of the Educational Clinic
Boston University

and HELEN BLAIR SULLIVAN
Associate Director of the Educational Clinic
Boston University

Inter. Achievem't

A

INTERMEDIATE TEST: FORM A

For Grades 3 to 6

Name.....Grade .....Teacher.....Boy or girl.....

Age..... ..When is your next birthday?.. .....How old will you be then?.....

Name of school..... .... .City.....Date.....

TEST	SCORE	GRADE EQUIVALENT	AGE EQUIVALENT
1. Word Meaning			
2. Paragraph Meaning			
Total			
OPTIONAL TESTS			
3. Spelling			
4. Written Recall Rating			

Published by World Book Company, Yonkers-on-Hudson, New York, and Chicago, Illinois

a

TEST 1. WORD MEANING

Samples.

An *apple* is a kind of — 1 paint 2 metal 3 animal 4 fruit 5 chair . . 1 2 3 **4** 5

Large means — 1 angry 2 big 3 hurt 4 little 5 like 1 2 3 4 5

To *shut* means to — 1 help 2 give 3 take 4 run 5 close 1 2 3 4 5

---

1. A *dog* is an — 1 answer 2 elephant 3 animal 4 excuse 5 orange 1 2 3 4 5
2. A *robin* is a — 1 crow 2 bird 3 bug 4 flower 5 leaf 1 2 3 4 5
3. To *bring* is to — 1 find 2 carry 3 think 4 lose 5 fall 1 2 3 4 5
4. *Small* means — 1 hurry 2 large 3 little 4 like 5 help 1 2 3 4 5
5. To *fall* is to — 1 pay 2 lift 3 touch 4 drop 5 face 1 2 3 4 5
6. To *bake* is to — 1 break 2 lose 3 cook 4 speak 5 copy 1 2 3 4 5
7. A *dollar* is — 1 copper 2 money 3 business 4 healthy 5 clothing 1 2 3 4 5
8. A *voice* is used to — 1 clamp 2 speak 3 point 4 write 5 mark . . . 1 2 3 4 5
9. A *potato* is a — 1 song 2 planet 3 vegetable 4 table 5 postman . . 1 2 3 4 5
10. *Beef* is a kind of — 1 horse 2 boat 3 maze 4 ranch 5 meat 1 2 3 4 5

2→

11. To *chop* means — 1 roll 2 note 3 come 4 chide 5 cut 1 2 3 4 5
12. If a thing is *above*, it is — 1 glad 2 pleasant 3 short 4 higher 5 between 1 2 3 4 5
13. A thing that is *bent* is — 1 warm 2 sharp 3 crooked 4 straight 5 tight . . . 1 2 3 4 5
14. *Travel* means — 1 trouble 2 journey 3 serious 4 prepare 5 junction . . 1 2 3 4 5
15. *Oil* is used for — 1 fuel 2 water 3 fun 4 writing 5 presents 1 2 3 4 5
16. *Quarrel* means — 1 stop 2 travel 3 fight 4 forget 5 throw 1 2 3 4 5
17. A *hall* is a — 1 horn 2 road 3 tooth 4 room 5 field 1 2 3 4 5
18. An *island* is surrounded by — 1 sugar 2 gardens 3 earth 4 salad 5 water 1 2 3 4 5
19. *Remain* means — 1 ride 2 measure 3 happen 4 stay 5 accompany . . 1 2 3 4 5
20. *Salt* is used on — 1 holidays 2 water 3 food 4 birds 5 flowers . . 1 2 3 4 5
21. *Marriage* means — 1 image 2 civil 3 bitter 4 obtain 5 wedding . . 1 2 3 4 5
22. A *carpenter* makes things of — 1 iron 2 stone 3 cement 4 wood 5 grass 1 2 3 4 5
23. A *maid* is a — 1 smile 2 father 3 girl 4 heart 5 fruit 1 2 3 4 5
24. A *palace* is a — 1 crown 2 storm 3 land 4 building 5 policeman . . 1 2 3 4 5
25. A *helmet* is worn on the — 1 knees 2 breast 3 feet 4 elbows 5 head 1 2 3 4 5

26. When you *miss school*, you are — 1 tardy 2 absent 3 present 4 taught 5 fair
27. A person is *alone* who is without — 1 money 2 food 3 company 4 shelter 5 danger
28. A *stomach* is part of the — 1 sea 2 sky 3 body 4 country 5 world
29. A man's *daughter* is his — 1 parent 2 child 3 sister 4 son 5 niece
30. *Ill* means — 1 sick 2 hungry 3 well 4 safe 5 sorry
31. *Excellent* means very — 1 weak 2 good 3 happy 4 poor 5 tired
32. A *hive* is for — 1 oil 2 school 3 robbers 4 peaches 5 bees
33. To *tumble* is to — 1 type 2 ask 3 knock 4 fall 5 tickle
34. A *grandparent* is an — 1 antagonist 2 elephant 3 ancestor 4 impostor 5 umpire
35. A *smell* is an — 1 amount 2 answer 3 office 4 odor 5 idea
36. An *elm* is a — 1 mold 2 helm 3 bug 4 tree 5 tool
37. A *mule* is a — 1 splinter 2 pearl 3 beast 4 ditch 5 handle
38. *Costly* things are — 1 expensive 2 pliant 3 scorched 4 liberal 5 domestic

3➡

39. An *author* is a — 1 patron 2 policeman 3 statesman 4 treasurer 5 writer
40. A *mayor* is an — 1 expert 2 animal 3 invalid 4 umbrella 5 official
41. A *zone* is a — 1 number 2 stepson 3 region 4 sliver 5 habit
42. To *injure* is to — 1 slump 2 insure 3 wound 4 sell 5 splash
43. To *rouse* means to — 1 waken 2 rule 3 roast 4 throw 5 love
44. *Mild* means — 1 gentle 2 price 3 wild 4 new 5 behind
45. *Wicked* means — 1 generous 2 grateful 3 unselfish 4 evil 5 brilliant
46. To *make preparations* is to get — 1 over 2 measles 3 ready 4 upon 5 cloudy
47. A *selection* is a — 1 bullet 2 capital 3 desire 4 choice 5 folder
48. To *tour* is to — 1 prepare 2 toast 3 lean 4 travel 5 trust
49. *Twinkle* means — 1 wrinkle 2 ringing 3 pitiful 4 glisten 5 feeble
50. *Coarse* cloth is — 1 smooth 2 fine 3 rough 4 cold 5 short
51. A *bough* is a — 1 limb 2 leaf 3 pail 4 crest 5 trunk
52. To *welcome* means to — 1 endure 2 persist 3 receive 4 believe 5 practice

53. A *blunt* thing is — 1 dull 2 sharp 3 disagreeable 4 black 5 thin
54. *Circular* means — 1 careless 2 familiar 3 round 4 square 5 jealous
55. *Skillful* means — 1 laborious 2 excited 3 radical 4 expert 5 kindly
56. *Interior* means — 1 inferior 2 above 3 empty 4 dreary 5 inside
57. *Stupid* means — 1 studious 2 false 3 stylish 4 cowardly 5 dull
58. To *surrender* is to — 1 surround 2 soften 3 colonize 4 yield 5 dance
59. *Destruction* causes — 1 discipline 2 ruin 3 government 4 scandal 5 satisfaction
60. To *convince* means to — 1 declare 2 design 3 combine 4 nourish 5 persuade
61. A *sign* is an — 1 offering 2 agreement 3 acquaintance 4 indication 5 address
62. A *portion* is a — 1 gate 2 home 3 wall 4 riddle 5 share
63. To *overcome* is to — 1 discover 2 happen 3 anticipate 4 defeat 5 worry
64. An *insult* is an — 1 instinct 2 insertion 3 announcement 4 embrace 5 offense
65. To *confirm* is to make — 1 angry 2 equal 3 trouble 4 certain 5 time
66. *Valiant* means — 1 valid 2 lenient 3 brave 4 royal 5 loyal

4 ➡

67. To *kindle* means to — 1 pick 2 range 3 light 4 soil 5 assist
68. *Abrupt* means — 1 exclude 2 neutral 3 recent 4 sudden 5 rugged
69. *Fatigue* means — 1 fatal 2 faithful 3 conflict 4 dodge 5 weariness
70. A *durable* thing is — 1 fantastic 2 courteous 3 modified 4 lasting 5 moist
71. *Fourscore* is the same as — 1 fourteen 2 fortnight 3 eighty 4 twenty 5 four
72. To *ratify* is to — 1 confuse 2 approve 3 assist 4 report 5 poison
73. To *rebel* is to — 1 realize 2 pledge 3 justify 4 resist 5 flourish
74. *Sullen* means — 1 sultry 2 satisfied 3 credulous 4 harmful 5 surly
75. *Probability* means — 1 disheveled 2 originality 3 likelihood 4 sincerity 5 enthusiasm

Score.....

TEST 2. PARAGRAPH MEANING

Sample.

One warm, sunny day Helen and her brother went on a trip to the beach. Their mother and aunt went with them. They took their bathing suits so that they could all go into the water. When noontime came, they had lunch on the sand. After lunch the children gathered sea shells. They saw a starfish and some funny little crabs.

A. What did Helen and her brother do ?
1 went to see their aunt **2 went to the seashore** **3 went on a train**
4 went for crabs **5 went fishing** 1 2 3 4 5

B. The weather was —
1 quiet **2 funny** **3 fair** **4 gloomy** **5 rainy** 1 2 3 4 5

C. The best name for this story is —
1 Helen and Her Aunt **2 Gathering Shells** **3 Eating Lunch Outdoors**
4 One Warm Day **5 A Trip to the Beach** 1 2 3 4 5

I

5➡

Mary and John go to camp as soon as school closes in the summer. They go on the train and stay until it is time for school to open again in the fall. They have a happy time at camp because there are many other boys and girls there too. They ride, swim, and play games together every day.

1. When do Mary and John go to camp ?
1 before school **2 when school is over** **3 in the fall** **4 when school starts**
5 every day 1 2 3 4 5

2. Which word tells what kind of a time the children have at camp ?
1 lonesome **2 sad** **3 joyous** **4 funny** **5 weary** 1 2 3 4 5

3. How do the children travel to camp ?
1 on a train **2 on a bus** **3 in an automobile** **4 on a car** **5 in an airplane** .. 1 2 3 4 5

4. The best name for this story would be —
1 Close of School **2 Playing Games** **3 A Trip on the Train**
4 A Summer at Camp **5 The Boys at Camp** 1 2 3 4 5

5. Mary and John enjoy camp life because they —
1 are glad to be away for the summer **2 like the ride on the train**
3 are glad to be out of school **4 like to study nature**
5 have fun playing games with the other children 1 2 3 4 5

II

Jack had a new fish line. His father took him fishing in a little brook at the back of his grandfather's house. Jack was the first to feel a bite. There was a strong pull at his line. He tried hard to pull the fish out of the water, but it pulled so hard his father had to help him. He was happy when he saw his fish lying on the grass near the stream.

6. Jack went —
   1 to his grandfather's house 2 into the water 3 fishing with his father
   4 to buy a fish line 5 to the ocean to fish 1 2 3 4 5

7. The fish —
   1 helped 2 struggled 3 ate 4 tried 5 fell 1 2 3 4 5

8. Jack tried to —
   1 fish near the stream 2 pull his father back 3 land his own fish
   4 put fish in the brook 5 lie on the grass 1 2 3 4 5

9. The best name for this story is —
   1 A Trip to Grandfather's 2 Catching Some Fish 3 Jack's Fishing Trip
   4 Buying a New Fish Line 5 How Father Fished 1 2 3 4 5

10. Jack enjoyed his trip because —
    1 the fish got away 2 the brook was near grandfather's 3 he caught a fine fish
    4 he went to a stream 5 his father helped him 1 2 3 4 5

6→

III

In the cold northlands many animals go to sleep for the whole winter. They have to store up enough fat on their bodies in the summertime to last them all winter while they are sleeping. These animals grow huge in the summer. Bears, which are among the animals which sleep all winter, get so large in the summer that they can hardly move about. All these animals which sleep during the winter crawl into caves or hollow trees when winter nears and stay until spring comes once more. When they come out, they are very thin and are starving.

11. How do the animals which sleep through the winter get their winter food?
    1 by carrying their food in with them 2 by getting fat in summer
    3 by coming out for food as they need it 4 by eating the bark of trees
    5 by living on small animals 1 2 3 4 5

12. The climate where these animals live is very —
    1 windy 2 warm 3 breezy 4 cold 5 hot 1 2 3 4 5

13. How do the animals look when they come out of the cave?
    1 huge and fat 2 lean and hungry 3 thin and tired 4 large and strong
    5 huge and starving 1 2 3 4 5

14. The best title for this story would be —
    1 Bears Which Go into Caves 2 Thin and Hungry Animals
    3 Animals Which Sleep through the Winter 4 Large Animals Sleep in Winter
    5 While They Are Sleeping 1 2 3 4 5

15. The animals which sleep through the winter make winter dens —
    1 in the summertime 2 in the open woods 3 when spring comes
    4 in caverns or hollow logs 5 while they are sleeping 1 2 3 4 5

IV

The St. Bernards are among the bravest of dogs. They are large and very strong. In Switzerland these dogs are trained to go out and find travelers who are lost in the snowdrifts on the high mountains. A first-aid kit containing food and medicine is hung about their necks, and a warm blanket is strapped on their backs. When they find worn-out travelers, they dig them out of the snow and help them if they are awake and able to move. If the traveler is injured and helpless, the dog is trained to go back to the town below and bring aid. Many lives are saved every year by these fearless animals.

16. What is the most valuable thing that St. Bernard dogs do?
1 They can climb over snowdrifts. 2 They are good mountain climbers. 3 They are trained to rescue lost travelers. 4 They are large and strong. 5 They carry first-aid kits. 1 2 3 4 5

17. The St. Bernard dog is —
1 cowardly 2 speedy 3 courageous 4 rough 5 fierce 1 2 3 4 5

18. How does the dog assist worn-out travelers?
1 by digging large holes in the snow 2 by climbing the drifts to the traveler 3 by bringing first aid 4 by covering him with a blanket 5 by his great strength 1 2 3 4 5

19. The best title for this story is —
1 Training Dogs 2 The Heroic St. Bernard 3 A Strange St. Bernard Dog 4 People Lost in Mountains 5 Traveling through Snowdrifts 1 2 3 4 5

20. What do the dogs do for the travelers they cannot help? **1 stand the man on his feet 2 give him food and medicine 3 return to the village for aid 4 carry him down the mountain 5 give him the first-aid kit** 1 2 3 4 5

V

7→

The camel possesses a most uncommon body, which almost seems made to order for the many purposes he fills in the life of the desert people. His mouth is peculiarly fitted for securing food. The strong membrane and powerful teeth enable him to tear off the dry shrubs and stiff, prickly cactus of the desert. His huge nostrils allow him to breathe deeply. They close tightly when a sandstorm arises, thus shutting out the choking sands. His hump, a mere lump of fat, is of great use if food fails, for he can obtain nourishment from it for many days. He is also provided with inside reservoirs which hold enough water to last him for four or five days. Unfortunately the camel is dull. To kneel down at a given signal is about the only trick he ever learns. Although the camel is homely he is nevertheless valuable, for without him many portions of the earth would remain untraveled.

21. The camel is — **1 more intelligent than the horse 2 capable of learning a great deal 3 rather unintelligent 4 poorly taught 5 friendly and intelligent** 1 2 3 4 5

22. The body of the camel is —
1 unfortunate 2 unusual 3 graceful 4 evil 5 inspiring 1 2 3 4 5

23. The mouth of the camel — **1 is harmed by thorny cactus 2 is small and tough 3 is well suited for procuring food 4 tightens when a sandstorm arises 5 provides an inside reservoir** 1 2 3 4 5

24. The best title for this story is — **1 The Homely Body of the Camel 2 Why the Camel Is Useful 3 The Stupidity of the Camel 4 Sandstorms on the Desert 5 How the Camel Eats** 1 2 3 4 5

25. The camel is — **1 unsuited for desert travel 2 helpless in a sandstorm 3 a tricky animal 4 well adapted for desert travel 5 friendly and intelligent** 1 2 3 4 5

VI

Bill vaulted the fence into the corral and faced the bucking pony. At his approach the little animal struck out with his forefeet, but Bill was quick and avoided him. The boy caught the pony close to the head and with a rapid movement sprang into the stirrups. Then began the real task. With head down, back up, and whinnying loudly, the animal reared into the air, bouncing back to earth with terrific force. He tried every trick possible to throw his rider, plunging and rearing in all directions, but Bill held on. Finally, after many minutes, the exhausted pony, wet with perspiration, stood still. His nostrils trembled, but one felt that though his body had been subdued, his spirit was still unbroken.

26. When Bill approached, the pony was — **1 tired and broken** **2 quieted in spirit** **3 impatient to be ridden** **4 disturbed and angry** **5 thrown to the ground** 1 2 3 4 5

27. The pony was finally — **1 overbalanced** **2 exultant** **3 overpowered** **4 distracted** **5 restored** 1 2 3 4 5

28. The little pony tried to — **1 outlive his rider** **2 aid the boy** **3 unseat his rider** **4 exhaust the animal** **5 butt Bill** 1 2 3 4 5

29. The best title for this story is — **1 Riding the Range** **2 An Exhausted Pony** **3 Breaking a Pony** **4 A Perspiring Pony** **5 Bill Approached a Pony** 1 2 3 4 5

30. The article illustrates — **1 how to enter a corral** **2 a whinnying pony** **3 trickery in riding** **4 leading a pony** **5 skill in horsemanship** 1 2 3 4 5

VII

8→

Studying bird life with a camera is certainly an entrancing sport. One can engage in it without destroying life, yet get great satisfaction from the thrilling activities it offers. The sport is appropriate for any time or place. From it one can derive all sorts of adventures, for to be a good photographer of birds in their native haunts it is necessary to climb trees and cliffs as well as travel on land and water. How interesting it is to find their nests, learn where they stay at various times during the day, how the young are fed and cared for, and procure photographs of the birds in various attitudes. Hiking with the camera through the woods is always an enjoyment. There is a feeling of excitement and expectancy present, for one never knows at what moment he may come upon some unusual bird activity.

31. Making studies of bird life is interesting because — **1 they haunt native places** **2 of the various activities one can observe** **3 it is always done on water** **4 the young are fed and cared for** **5 the sport is appropriate** 1 2 3 4 5

32. Using a camera in place of a rifle encourages wild life by promoting — **1 destruction** **2 conservation** **3 dissatisfaction** **4 conversation** **5 haunts** 1 2 3 4 5

33. Bird study is a satisfying sport because — **1 the young are fed** **2 the birds like it** **3 one can get eggs out of nests** **4 it can be enjoyed during all seasons** **5 one can use a rifle** 1 2 3 4 5

34. The best title for this story is — **1 Interesting Birds** **2 The Excitement of Adventure** **3 Taming Wild Birds** **4 Photography of Wild Birds** **5 Destroying Bird Life** 1 2 3 4 5

35. Taking pictures of bird life is fascinating because — **1 it is helped by a camera** **2 it takes much time** **3 it gives more bird pictures** **4 it brings adventure without destruction of life** **5 it scatters the birds about** 1 2 3 4 5

VIII

In the part of our country which gets very little rain in the summer the ground must be wet by irrigation to make the plants grow. Otherwise all the crops would be spoiled by dry weather. This form of agriculture is carried on in states where snow is found high up in the mountains the entire year. A large reservoir is made by damming up the mountain streams. The snow, melting in summer, rushes into a stream. This, in turn, is joined to a large ditch. At the head of the ditch is an intake gate. This can be opened and closed at will. In this way water is drawn off and the various fields are irrigated. The water can be turned on whenever the fields need it. The parts of our country where irrigation is possible seldom have crop failures, because water can be secured when it is needed.

36. This form of agriculture is carried on where —
1 **crops are grown in summer** 2 **mountain streams make it possible**
3 **cities are near** 4 **there are large reservoirs** 5 **there are crop failures** 1 2 3 4 5

37. Because irrigation is possible crop failures are —
1 **increased** 2 **reduced** 3 **possible** 4 **permitted** 5 **eliminated** 1 2 3 4 5

38. They stop the water from flooding the fields by —
1 **damming the ditch** 2 **use of gates** 3 **opening the reservoir**
4 **irrigating the fields** 5 **drawing off the water** 1 2 3 4 5

39. The best title for this story would be —
1 **Damming Up Streams** 2 **Supplying Water for Irrigation**
3 **Crops in Dry Weather** 4 **Building Huge Dams** 5 **Supplying Water for Colorado** 1 2 3 4 5

40. Land that is irrigated yields better harvests because —
1 **in summer it gets little rain** 2 **it is high up in the mountains**
3 **water may be applied as needed** 4 **the water can be turned off**
5 **agriculture is carried on** 1 2 3 4 5

IX

9→

Sugar beets must be raised where cheap labor can be secured because the plants require a great deal of cultivation, most of which must be done by hand. First the plants are thinned and then blocked to get the correct number in the rows. The roots from which the sugar is extracted are not like the red beets which are eaten as vegetables, but are more like the common turnips. These roots are washed, sliced, and soaked in water. The water is later drawn off and boiled into beet syrup. Then the syrup is changed to a brown sugar called raw sugar. The last step is to send the raw sugar through the refinery, where it is cleaned and whitened. Then the white sugar is ready to be boxed and sold for use in our homes.

41. Sugar beets must be raised where labor is not expensive because they require —
1 **much care** 2 **much washing** 3 **many plants in a row** 4 **soaking in water**
5 **much boiling** 1 2 3 4 5

42. What kind of labor is most used in the raising of sugar beets?
1 **machine** 2 **manual** 3 **difficult** 4 **easy** 5 **unusual** 1 2 3 4 5

43. The raw sugar is — 1 **made into syrup** 2 **refined and whitened**
3 **boxed and sold** 4 **left as it is** 5 **changed to brown sugar** 1 2 3 4 5

44. The best title for this story is — 1 **Blocking and Thinning Beets**
2 **Colorado Sugar Beets** 3 **How Beet Sugar Is Obtained**
4 **Cleaning Raw Sugar** 5 **How Beet Sugar Is Whitened** 1 2 3 4 5

45. Raising sugar beets requires — 1 **inexpensive labor** 2 **syrup changed to sugar**
3 **sugar to be cleaned** 4 **many common turnips** 5 **raw sugar** 1 2 3 4 5

X

Airplanes are growing more important every year. Today they have traveled to almost every part of the world and into many places that would otherwise have remained unexplored. Daring pilots have been responsible for many outstanding feats. They have gone to the aid of dying men when there was no other opportunity of reaching them. At one time serum was carried to Alaska by plane and saved the lives of many children who were seriously ill of diphtheria. Every day of the year, and in all kinds of weather, Uncle Sam's pilots carry the mail through the air. Practically every day one reads of some new achievements of airplanes.

46. Airplanes have rendered valuable service to humanity by — 1 **carrying many diseases** 2 **having no other opportunity** 3 **aiding the sick and dying** 4 **helping boys to become pilots** 5 **taking passengers in the air** 1 2 3 4 5

47. The life of an airplane pilot is — 1 **lonesome** 2 **easy** 3 **hazardous** 4 **happy** 5 **high** 1 2 3 4 5

48. Airplanes are used for a variety of services such as — 1 **exploring, carrying mail, and aiding the sick** 2 **carrying mail in all sorts of weather** 3 **bringing serum to diphtheria patients** 4 **serving humanity** 5 **traveling in all kinds of weather** 1 2 3 4 5

49. The best title for this story is — 1 **Mail Pilots** 2 **Exploring with Airplanes** 3 **Value of Airplanes** 4 **Life of an Air Pilot** 5 **A Trip to Alaska** 1 2 3 4 5

50. The accomplishments of airplanes are — 1 **unimportant** 2 **understanding** 3 **trivial** 4 **significant** 5 **serious** 1 2 3 4 5

XI

10→

The mode of living on the plantations of the South was vastly different from that of the early New England people. The spacious Southern mansions, surrounded by the many slave cabins, gardens, and poultry yards, were often in themselves small villages. While many of these planters were living in wasteful extravagance, the Puritans of New England were living in modest two-room homes. They were thrifty people who were not in favor of the riotous living and entertaining of the planters. The New England people were more interested in the establishment of good common schools for all people, while the rich planters did not favor this idea. They had tutors at home for their children, or sent them to Europe to be educated.

51. The New Englanders were interested in — 1 **having tutors for their sons** 2 **organizing good public schools** 3 **educating their children in England** 4 **living in two rooms** 5 **riotous living and entertaining** 1 2 3 4 5

52. Which word best describes a Southern planter? 1 **lavish** 2 **gallant** 3 **brave** 4 **weak** 5 **frugal** 1 2 3 4 5

53. Which word best describes a New England home? 1 **magnificent** 2 **insignificant** 3 **unpretentious** 4 **extensive** 5 **valuable** 1 2 3 4 5

54. The best title for this story is — 1 **A Story of Education** 2 **A Comparison of the Life of the Planters** 3 **Northern and Southern Modes of Living** 4 **The Thrifty New England People** 5 **Good Schools for All** 1 2 3 4 5

55. The Southern gentlemen desired — 1 **common education for all** 2 **the organizing of good public schools** 3 **good education for members of his own family** 4 **tutors for children in New England** 5 **good free schools for planters' sons** 1 2 3 4 5

XII

The pulmotor, a device for the resuscitation of persons suffering from gas poisoning, drowning, or electric shock, consists of a tank of compressed oxygen which is thinned with air and pumped into the lungs of the patient. It must be remembered that if breathing is to be produced artificially the process must be begun within ten minutes after the breathing has stopped or the person may not revive. Therefore it is not safe to wait to begin to revive the person until the pulmotor arrives. Some other method of restoring consciousness should be attempted in order to avoid a fatality. While the pulmotor can be of great advantage, it is also a very dangerous instrument in the hands of an inexperienced person. There is great peril, if the instrument is not properly handled, of drawing the air out of the small air cells in the lungs and collapsing them.

11→

56. The pulmotor is an instrument for —
1 **collapsing the lungs** 2 **avoiding drowning** 3 **inducing artificial respiration** 4 **administering electric shock** 5 **inducing carbon monoxide** 1 2 3 4 5

57. What is conveyed to the patient by means of the pulmotor?
1 **concentrated oxygen** 2 **a device of great advantage** 3 **air cells which collapse** 4 **a mixture of oxygen diluted with air** 5 **a combination of oxygen and nitrogen** ... 1 2 3 4 5

58. If the person is to be resuscitated, artificial respiration should be started —
1 **by a dangerous instrument** 2 **for collapsing the lungs** 3 **within ten minutes** 4 **by a tank of oxygen** 5 **by an inexperienced person** 1 2 3 4 5

59. While waiting for the pulmotor one should —
1 **attempt to avoid the instrument** 2 **apply another type of resuscitation** 3 **pump oxygen from a tank** 4 **draw air out of the lungs** 5 **dilute the air** 1 2 3 4 5

60. The pulmotor is a menace in the hands of a novice because —
1 **of the danger of injuring the stomach** 2 **it might not arrive on time** 3 **it can be of great advantage** 4 **it should be properly handled** 5 **of the danger of collapsing the lungs** 1 2 3 4 5

Score.....

TEST 4. WRITTEN RECALL

I

Blackie was a little kitten. One day a big dog chased him. He became frightened and ran up a tree. After he got high up in the branches, he was afraid to come down. The little girl who owned him came and stood beneath the tree. She called to Blackie and showed him his dish of milk, hoping he would want his supper enough to try to come down. But he would not come. Finally her father called the fire chief. He sent a fireman with a ladder. The man went up the tree and carried little Blackie down. The little girl was happy to have her kitten again.

II

John could hardly wait, so anxious was he to try the new canoe he had received for his birthday. As soon as he finished his breakfast he raced with his brother and sister to the lake. Here they examined his splendid new gift. John's father showed him how to use the paddle and told him that he might take his brother and sister for a short ride in the canoe, but warned him that he must not go too far from shore before he was thoroughly familiar with handling the new craft. All went smoothly, and gradually John forgot his caution and drifted farther from shore. Suddenly there came a great gust of wind. In a moment the lake was filled with heavy waves. John struggled to keep the little canoe upright. Luckily they were not far from a small island. He steered for this and reached the shore just as a particularly large wave turned the canoe bottom side up. The three children scrambled from the water out onto the island just as another huge wave came in. The canoe floated away, and John feared he had lost his precious gift. But a party in a little steamer presently came to the aid of the stranded children and rescued the canoe, which had blown a distance away.

INTERMEDIATE

Name _____ Grade _____ School _____

ORAL READING

Level _____

Suitability: Much too difficult___ Difficult___ Satisfactory___ Too easy___

Approximate errors in 20 words _____

___ 1. Phrasing inadequate
___ 2. Omits or adds words
___ 3. Word analysis abilities poor
___ 4. Repetitions
___ 5. Errors on small words
___ 6. Will not try difficult words
___ 7. Sounds aloud by: single letters ___
___ blends ___ syllables
___ 8. Unable to combine sounds into words
___ 9. Looks away from word after sounding
___ 10. Sounding slow or inaccurate
___ 11. Spells words: ___successfully
___inadequately
___ 12. Voice: High ___ Low ___
___ 13. Expression
___ 14. Enunciates badly when prompted

RECALL

___ 1. Unaided recall scanty
___ 2. Poorly organized recall
___ 3. Inaccurate memories and guesses
___ 4. Response labored and slow
___ 5. Avoids use of new words in recall
___ 6. Recalls details badly in questions
___ 7. Very scanty recall on hard material

DIACRITICAL MARKS

	2	1	0
1. unfeigned			
2. cerate			
3. lancinate			
4. ephedrine			
5. ichneumon			
6. gerundive			
7. pygidium			
8. quincuncial			
9. sciamachy			
10. polyphyletic			

WORD PRONUNCIATION

	2	1	0
1. nation			
2. justice			
3. venture			
4. inspector			
5. projection			
6. excess			
7. emerge			
8. engage			
9. incomparable			
10. inimical			
11. fascination			
12. abdicate			
13. specify			
14. resignation			
15. intercolumnar			
16. commemoration			
17. derelictionn			
18. ingenious			
19. endocardium			
20. voluminosity			
21. subterranean			
22. peripheral			
23. juxtaposition			
24. actinodielectric			
25. facultative			

5

In 1807
Robert Fulton
took the first long trip
in a steamboat.
He went 150 miles
up the Hudson River.
The boat went 5 m.p.h.
This was faster
than a steam boat
had ever gone before.
Crowds gathered
on both banks of the river
to see this new kind of boat go by.
The fishermen
did not like the boat.
They were afraid
that its noise and splashing
would drive away all the fish.

6

The richest diamond field
in the world
is in South Africa.
Deep pits
yield a hard substance
called "blue ground"
which contains the diamonds.
The blue ground
is spread over the drying fields
for a year.
The weather
gradually crumbles it.
Then it is taken up
and run through washing machines
which sort out the stones
and the diamonds.
The value of the diamonds
is determined by color, size, and purity.
Blue, yellow, orange, brown and green
diamonds
have been discovered.
The most valuable ones
are pure white.
The largest diamonds ever found
weighed almost two pounds.

7

Golf
originated in Holland
as a game played on ice.
The game in its present form
first appeared in Scotland.
It became unusually popular
and kings found it so enjoyable
that it was known as "the royal game."
James IV, however,
thought that people neglected their
work
to indulge in this fascinating sport
so that it was forbidden
in 1457.
James relented
when he found how attractive the
game was
and it immediately regained its
former popularity.
Golf spread gradually to other
countries,
being introduced in America
in 1890.
It has grown in favor
until there is hardly a town
that does not boast
of a private or public course.

8

Between 1865 and 1900
the northern parts of the U. S.
enjoyed great prosperity.
Many new industries developed,
among them the making of thread
and ready-made clothes.
The invention of machinery
revolutionized methods of manufacture.
For example
the introduction of the McKay sewing
machine
permitted the manufacture of shoes
in big factories.
Radical changes
in steel-making
allowed enormous expansion
of the iron and steel industries.
The Bessemer process of smelting
was introduced into the country
in 1864
and the open-hearth process
in 1867.
As a result,
more machinery could be built,
and factories became more productive.

Word Pronunciation Test: Intermediate

Administration: Words for this test were taken from Improving Reading Instruction.[1/] This test is administered individually.

The pupil has the list of words. The examiner says:

"Try to pronounce as many of these words as you can."

Discontinue after five incorrect responses.

Scoring: A possible score is fifty. Rate the child as follows:

2 for words immediately recognized and readily pronounced.

1 for words with an acceptable pronunciation after a brief hesitation.

0 for no response or an incorrect one.

1/Donald D. Durrell, op. cit., 1956, pp. 393-394.

Intermediate Grades

Word Pronunciation Test

1. nation
2. justice
3. venture
4. inspector
5. projection
6. excess
7. emerge
8. engage
9. incomparable
10. inimical
11. fascination
12. abdicate
13. specify
14. resignation
15. intercolumnar
16. commemoration
17. dereliction
18. ingenious
19. endocardium
20. voluminosity
21. subterranean
22. peripheral
23. juxtaposition
24. actinodielectric
25. facultative

Diacritical Marks Test: Intermediate

Administration: This test is given individually. The child has a copy of the test. The examiner says: "You have never seen these words before. It will be necessary for you to use the diacritical marks in order to pronounce them correctly. Diacritical marks are in the dictionary to help you pronounce words. See how many you can read." Discontinue after five incorrect responses.

Scoring: A possible score is twenty. Rate the child as follows:

2 for words immediately recognized and readily pronounced.

1 for words with an acceptable pronunciation after a brief hesitation.

0 for no response or an incorrect one.

Diacritical Marks

1.	unfeigned	(ŭn fān')
2.	cerate	(sēr' ăt)
3.	lancinate	(lăn' sĭ nāt)
4.	ephedrine	(ĕ fĕd' rĭn)
5.	ichneumon	(ĭk nū' mŏn)
6.	gerundive	(jĕ rŭn' dĭv)
7.	pygidium	(pī jĭd' ĭ ŭm)
8.	quincuncial	(kwĭn kŭn' shăl)
9.	sciamachy	(sī ăm' ə kĭ)
10.	polyphyletic	(pŏl' ĭ fī lĕt' ĭk)

Spelling Test: Intermediate

Administration: The test is administered as in the Manual of the Durrell Analysis of Reading Difficulty.[1/] Each word is dictated, then included in a sentence and dictated again so that each word is presented orally three times.

Scoring: The total possible score is twenty. Each word correctly spelled counts as one credit.

1/Donald D. Durrell, op. cit., 1955, pp. 24-25.

LIST 2 (Grades 4 and 6)

WORD	EXPLANATORY PHRASE
back	Come back.
draw	Draw a picture.
thin	A thin slice of bread.
spend	Don't spend too much.
money	Save your money.
question	Ask me a question.
minute	Wait a minute.
engine	The engine is going.
promise	You gave your promise.
furniture	The furniture was loaded on the truck.
valuable	A valuable ring was stolen.
shoulders	He had broad shoulders.
customer	The customer was in a hurry.
invitation	An invitation to a party.
hospital	The doctor went to the hospital.
weather	The weather is cold this morning.
different	This is a different knife.
measure	Measure how tall he is.
necessary	It is necessary to rest now.
disappointed	The football game disappointed him.

The Recognition-of-Homphones Test: Intermediate

This test is taken from Joseph Comerford's Doctoral Dissertation.[1/]

Administration: Examiner writes the following samples on the board:

x. eat	y. eek	z. ate
() ape	() ake	() it
() eet	() age	() aight
() eep	() ike	() ait
() ete	() ache	() eight
() eek	() eak	() ati

1. (Say to the class)
   We are going to mark some of these letters, but not all of them. Listen carefully.

2. (After papers are distributed and pupils have filled in the information requested, say to the class:)
   "Different groups of letters have the same sound. Let's look at these groups of letters on the board." "They are just like the first sample on your paper. These letters, (point to 'eat') say eat. Do the letters a-p-e (pointing to first item) say 'eat'? (No.) That's correct. We will not mark it. Now look at e-e-t. Do these say 'eat'? Yes, they do. We will put an X right here in front. Does e-e-p say 'eat'? No, so we will not mark it. Does e-t-e say 'eat'? Yes, so we will mark it. Does e-e-k say 'eat'? (No.) We will not mark it."

3. "Let's try another one. Mark the ones which say eek." (Move about the room during the following procedure to make certain pupils understand how to mark the answers.) How many marked only e-a-k?"

4. "Try the next one. Mark the groups which say ate. Let's see which ones should be marked: a-i-g-h-t, a-i-t and e-i-g-h-t (marking them as you say them.)"

5. Now I will not help you any more. Sometimes you may mark only one; sometimes 2 or 3 or 4 or even 5. Listen carefully. Mark just the ones which sound like the one I say.

6. Precede each item with the following introduction:

   "Mark the letters that say _____".

1/Joseph Comerford, Perceptual Abilities in Spelling, Unpublished Doctoral Dissertation, Boston University, 1954.

7. Stimulus sounds for each item and the key are:

1.	aid	(as in paid)	26.	ay	(as in day)
2.	eeze	(as in squeeze)	27.	eem	(as in seem)
3.	ood	(as in good)	28.	un	(as in until)
4.	irth	(as in birth)	29.	ole	(as in stole)
5.	air	(as in fair)	30.	oard	(as in board)
6.	urse	(as in nurse)	31.	ac	(as in tack)
7.	ence	(as in fence)	32.	ist	(as in mist)
8.	sion	(as in occasion)	33.	um	(as in bum)
9.	ite	(as in bite)	34.	o	(as in so)
10.	een	(as in screen)	35.	ale	(as in tale)
11.	i	(as in bite)	36.	all	(as in tall)
12.	ell	(as in bell)	37.	eel	(as in feel)
13.	ane	(as in plane)	38.	ude	(as in dude)
14.	ire	(as in fire)	39.	per	(as in perhaps)
15.	ought	(as in bought)	40.	ern	(as in stern)
16.	old	(as in sold)	41.	ud	(as in thud)
17.	f	(as in frame)	42.	ode	(as in code)
18.	aze	(as in daze)	43.	erd	(as in herd)
19.	uff	(as in stuff)	44.	ir	(as in fir)
20.	sir	(as in sir)	45.	aws	(as in claws)
21.	own	(as in shown)	46.	n	(as in not)
22.	eece	(as in fleece)	47.	ock	(as in sock)
23.	each	(as in peach)	48.	erl	(as in sterling)
24.	eed	(as in seed)	49.	ome	(as in home)
25.	aint	(as in paint)	50.	ose	(as in hose)

Scoring: Each correct item counts one. The total possible score is 250.

RECOGNITION OF HOMOPHONES

(J. F. Comerford)

Name _____ School _____

Teacher _____

You and the class are going to do the following samples together. Follow the directions given to you by your teacher.

SAMPLES

x. eat
() ape
() eet
() eep
() ete
() eek

y. eek
() ake
() age
() ike
() ache
() eak

z. ate
() it
() aight
() ait
() eight
() ati

Now do each of the following as directed by your teacher.

1. aid
() ed
() ade
() ode
() ide
() eighed

2. eeze
() ize
() ease
() eize
() ees
() eas

3. ood
() ode
() ord
() ould
() od
() ard

4. irth
() orth
() eth
() arth
() erth
() outh

5. air
() ere
() ire
() are
() eir
() ear

6. urse
() erze
() erse
() urze
() erce
() arse

7. ence
() ens
() ince
() ense
() ins
() ents

8. sion
() son
() ton
() tion
() zion
() fion

9. ite
() ete
() ight
() ike
() ote
() it

10. een
() ean
() ine
() une
() ene
() ien

11. i
() y
() ie
() eye
() oy
() igh

12. ell
() elle
() al
() el
() il
() eel

13. ane
() aim
() ain
() ein
() ene
() eign

14. ire
() iore
() yre
() air
() ier
() uer

15. ought
() aut
() ught
() aught
() ort
() eught

16. old
() ould
() oled
() oal
() olled
() owed

17. f
() ft
() ph
() ff
() gh
() pt

18. aze
() ace
() ase
() ays
() aise
() aize

19. uff
() ove
() off
() ogh
() eff
() ough

20. sir
() sur
() cir
() sor
() cer
() ser

21. own
() owe
() one
() oan
() oon
() awn

22. eece
() iece
() eese
() eace
() ace
() ice

23. each
() ach
() eech
() ooch
() eese
() oach

24. eed
() ead
() ede
() ide
() ode
() ed

25. aint
() ant
() eint
() oint
() int
() ent

26. ay
() uy
() eigh
() ai
() oy
() ey

27. eem
() eam
() im
() em
() eme
() ime

28. un
() an
() on
() une
() one
() urn

29. ole
() owl
() oul
() oll
() oal
() ol

30. oard
() ored
() ood
() ord
() ode
() orde

31. ac
() at
() eck
() ack
() et
() ok

32. ist
() est
() izzed
() iest
() issed
() ast

33. um
() om
() ume
() ome
() ump
() umb

34. o
() eau
() ode
() ew
() ow
() ough

35. ale
() al
() eil
() ol
() ail
() eel

36. all
() ol
() aul
() ale
() awl
() eal

37. eel
() eal
() ile
() ell
() eil
() el

38. ude
() ood
() eud
() ud
() ewed
() ued

39. per
() pur
() pre
() por
() pro
() par

40. ern
() orn
() earn
() yrn
() arn
() urn

41. ud
() udge
() ood
() ude
() ad
() od

42. ode
() owed
() ewed
() oed
() ood
() oad

43. erd
() eard
() ord
() ird
() irred
() urd

44. ir
() are
() ur
() ire
() er
() ar

45. aws
() az
() ause
() auze
() ose
() oze

46. n
() an
() in
() kn
() gn
() on

47. ock
() oc
() ark
() ook
() ox
() awk

48. erl
() url
() irl
() arl
() orl
() earl

49. ome
() oam
() oim
() omb
() umb
() one

50. ose
() oze
() owes
() ows
() oes
() oss

Elaborative Thinking Test: Intermediate

Administration: Part I

The examiner says:

"Today we are going to do something different. We are going to read a story to see if we can think of some questions that the story does not answer and that will add to the story. Remember we are not all going to think of the same kind of questions. Let's try one together."

"The first story is called THE ACCIDENT. Follow along as I read it to you." (Examiner reads the sample to the class.)

After the story is read, examiner says, "Here is a question that I thought of that might add to the story:"

"How old was the boy?" (Allow class members to give different answers).

Examiner says, "Can you think of any questions that will add to the story?"

The following list of questions can be used to guide the child. After stating the questions and allowing children to answer, ask children if they can think of some questions themselves.

What was his position on the ball team?
Who was in the car that hit him?
Why didn't they see him?
What did they do after they hit him?
How did he get home?

TEST I

Examiner says:

"Here are two more stories that you are going to read to yourself. When you have finished each story, make a list of questions that are not answered by each story and that will add to the story. Write your list of questions under each story."

"Here are some key words that will help you write your questions. They are: (examiner writes them on the blackboard): who, which, when, why, where, what, how."

"After you have finished the first story and written all the questions you can think of, turn your paper over and do the same for the next story."

Name_____ Grade_____

SAMPLE TEST I

The Accident

A boy was hurt on our street yesterday. He had been playing ball and was riding his bicycle away from the ball field when a car came down the road. He did not see the car coming because he was looking back at the boys who were still playing ball. The car was going slowly. It hit the boy, but did not run over him. His arm was hurt and his bicycle was bent.

The Little Girl

A little girl got off the bus all alone. There was nobody at the drug store to meet her. She asked the man inside the drug store where her mother was. He said that her mother could not get the car started. A man was trying to fix it. The little girl sat down to wait. A few minutes later a big car came around the corner with her mother in it. The little girl got in and they drove home.

The Clubhouse

Late in the summer a man started to build a house. He wanted to finish it before winter came. He had some men dig the cellar for him. Then he built the floor and the cellar steps himself. Before he could do anything more, he had to move away to another town. He left the house just as it was. He told the boys next door that they might use the cellar as a clubhouse.

PART II

Examiner says:

"On the stories that we are going to read now, you are going to think of the many different kinds of things that the story reminds you of. It may remind you of anything that had happened to you; things you have done or heard about, songs, poems and stories that you have read about, and places you have been. The story that I am going to read to you now may make you think of Goldilocks and the Three Bears or the time that you built your own clubhouse. The name of the story is THE HOUSE. Follow along with me as I read it to you."

(Examiner reads sample to class). After reading the selection, ask class "Can you think of something that the story reminds you of; a poem, song, or story you have read; or something you have done or heard about?" (Allow children to give their answers).

If children need more help, the following suggestions can be used:

"It reminds me of the time we left my baby brother alone, and he got into the cooky jar and there was nothing left when we got home."

"It reminds me of the song, "Under the Apple Tree."

"Now you are going to read two stories to yourself. When you have finished each story, make a list of things that the story reminds you of. Write your list under each story. When you have finished the first story, turn your paper over and do the next one."

Scoring: Each item counts one.

Name_____ Grade_____

SAMPLE TEST II

The House

Three boys built a house in the woods. They put a table and two old chairs in it. There was a basket full of apples under the table. One afternoon they went away and left the door open. When they came back, they found two little pigs eating the apples.

The Shoes

One morning Jack woke up late. He had to dress in a hurry. He put on one of his black shoes, but he could not find the other. He could find only an old brown shoe. He put it on and ran to school. He got there just as the bell rang.

The Balloon

About one hundred and fifty years ago, the first man went up in a balloon. His balloon was made of paper covered with strips of cloth to make it strong. A long rope kept it from going too high. Later this man took a friend up in the balloon with him. On this trip they rose over five hundred feet. The trip lasted thirty minutes. They came down several miles from where they started.

Visual Discrimination Test: Intermediate

Administration: Examiner says: "I am going to show you words you have never seen before. Look carefully at each one. When I put the card down write what you remember. I will give you only one look." Hold each card three seconds.

The words were:

gaseous

haughty

plateau

salmon

chamois

mischievous

rheumatism

aeronautics

hieroglyphic

pneumatic

Scoring: One point is given for each correct answer, making a total possible score of ten.

Skimming Test: Intermediate

Administration: Give the children the test papers. Say, "You must read the question first and find its answer as quickly as possible in the story. Underline the answer as soon as you find it and write the number of the question at the end of the line. We'll do one together."

"The first question says, What people did Columbus find when he discovered America? Find the answer in the story as quickly as possible -- that's right, he found Indians. Now underline Indians and write the number one beside the paragraph in the margin, because question one is being answered in this paragraph. Now you are going to do the rest by yourself in the same way. Does everyone understand? Are there any questions? When I say stop, you are to put your pencils down immediately and turn over your paper. Ready. Go." Time of two minutes is allowed.

Scoring: Credit is given only when the correct answer is underlined and the correct number is indicated. The total possible score is ten.

Name _____

Grade ____

QUESTIONS

Sample Question: 1. What people did Columbus find when he discovered America?

2. What game did the French name?

3. What was the wela hoop made of?

4. What was carried in the pocket of the sticks?

5. What did the Indian boys throw at each other when playing war?

6. Where did the Iroquois play lacrosse in the summer?

7. What did the Indians have to do before they threw the "snake"?

8. What side of the plum stone was placed down in the bowl?

9. What were the "snakes"?

10. What was tied to the blunt end of the dart in the wela game?

11. When did the Indian boys go swimming?

Some Interesting Games

When Columbus discovered America he found Indians living here. They lived differently than we do today. Like all people they worked and played.

Indians played a game with plum stones. One side of the stone was burned black. Seven stones were placed in a wooden bowl with the black side down. The stones were tossed into the air and caught in a bowl. The game was to try to catch the greatest number of stones with the black side up.

An exciting ball game played by Indian men was played with a stick that ended with a hook. The French called this lacrosse which means a hooked stick in their language.

The Iroquois played lacrosse on land in summer and on ice in winter.

The sticks looked like long-handled tennis rackets. Thong laces across the hooked end made a pocket in which a small round stone was carried. The players tried to carry the stone across the opposite goal, a line between two posts like the goal posts in football games.

Indian men and boys played snow snake. They made a path about seven hundred feet long by dragging a log through the snow. The "snakes" were peices of hard wood eight feet long, rounded on the top and flat on the bottom. One end of the stick looked like a snakes head.

The Indians sent the snake along the path. A player had to aim carefully before he threw the snake so it would not be buried in the deep snow.

Hopi boys and men played wela. The wela hoop made from strands of corn husks wound together until the hoop was about two inches across the rim. The wela was set rolling, and each player tried to throw a dart into it. The player whose dart stuck into the rim won the game.

The darts were about twelve inches long with gay colored feathers tied on to the blunt end. Each player tied a certain color on to his dart so that he could tell it from the others.

When Indian boys played at war they did not use bows and arrows. They used twigs that had mud balls on the ends. The boys shouted war hoops as they threw mud balls at each other. When the mud balls were gone the battle was over.

The boys often went to the river or lake when they grew tired of playing games. Here they dived, swam and played at canoe tipping.

Speed of Silent Reading Test: Intermediate

This test is taken from Standard Test Lessons in Reading.[1/]

Administration: Examiner says: "Read the story as quickly as possible and then answer the questions by underlining the correct answers." Time allowed three minutes.

Scoring: One point for each correct response. A total possible score is ten. Grade norms provided.

1/William A. McCall and Lelah M. Crabbs, Standard Test Lessons in Reading, Book 3, Bureau of Publications, Teachers College, Columbia University, New York, 1926.

Name_____ Grade_____

Cut out a life-size picture of a parrot, which you will use as a pattern. Trace around this pattern. Trace around this pattern on a piece of wood one-quarter of an inch thick. Cut on the outline with a fret saw. Next, sandpaper the edges and then the rest of the parrot. Paint the head red, and beak yellow, the eye black, and the body, wings and tail green. Saw off twenty-four inches of a quarter-inch dowel stick. Sharpen one end of this stick to a point. Sandpaper both ends of the dowel stick. Then paint this stick brown. With some small wire nails fasten the parrot to the stick. Now the parrot is ready for your flower box or for the garden.

1. The directions say that you must first (a) draw; (b) paint; (c) cut; (d) saw.

2. The picture is for (a) painting; (b) a pattern; (c) framing; (d) mounting.

3. Use wood whose thickness is (a) 1/2 inch; (b) 1 inch; (c) 1/4 inch; (d) 3/4 inch.

4. The head should be painted (a) green; (b) red; (c) black; (d) yellow.

5. You must use a (a) saw; (b) plane; (c) screw-driver; (d) knife.

6. The tail of the parrot should be painted (a) red; (b) black; (c) yellow; (d) green.

7. Make the wood smooth with (a) paint; (b) sandpaper; (c) plane; (d) saw.

8. The length of the stick should be (a) 12 inches; (b) 14 inches; (c) 16 inches; (d) 24 inches.

9. Sharpen the stick on (a) both ends; (b) the sides; (c) one end; (d) the edges.

10. These are directions for making a (a) flower box; (b) toy; (c) picture; (d) garden stick.

William A. McCall and Lelah M. Crabbs, Standard Test Lessons in Reading, Book 3, Bureau of Publications, Teachers College, Columbia University, New York, 1926.

Dictionary Skills Test: Intermediate

Administration: Examiner reads to the class the printed directions at the top of the test. The first word "fluent" is a sample done with the class. Time allowed is two minutes.

Scoring: The total score is fifteen. Each word counts one point.

DICTIONARY SKILLS

Directions: Find the word quickly. Write the guide word of the column in the blank.

fluent _____

mechanic _____

element _____

deception _____

evolution _____

stamina _____

indignation _____

resident _____

rescind _____

warrant _____

point _____

thatch _____

binocular _____

gyroscope _____

hectic _____

limitation _____

Hearing Sounds in Words:[1] Intermediate

Administration: It is suggested that the children number their papers in in groups of numbers as they go along, according to the task they are being asked to do.

Examiner says: "As we go along I am going to ask you to do several different things. Please listen very carefully so that you will do just the right thing. First of all, number your papers from 1 to 5; and as I say a word, you are to write down the first letter that you hear." (An example may be given.)

The instructions change as indicated below:

Write the first letter of:

1. beneficial
2. mythological
3. nullification
4. anthropology
5. harpsichord

Write the first two letters of:

6. frisky
7. whimsical
8. sleighing
9. bribery
10. stipulation
11. blasphemy
12. therapeutic
13. credential
14. cleavage
15. prickly
16. swaddle
17. plurality
18. flume

Write the first three letters of:

19. thresher
20. shrapnel
21. spritely
22. stringent
23. splutter
24. scrimmage

Write the last letter of:

25. piston
26. throb
27. develop
28. racket
29. centennial
30. chloroform
31. handkerchief

Write the last two letters of:

32. catapult
33. shrunk
34. handicraft
35. forewarn
36. perturb
37. overwhelm
38. concept
39. wrung
40. squeamish
41. dividend
42. arrant
43. rampart
44. haphazard

Write the last three letters of:

45. commonwealth

Scoring: The total possible score is 45. One point is given for each correct response.

1/Informal test prepared by Margaret Brion, Research Fellow at Boston University, under the direction of Donald D. Durrell.

Syllabication Test: Intermediate

Administration: Examiner reads to the class the printed directions at the top of the test. The samples on the cover sheet are done with the class. Use cover sheet and page two in the fourth grade and cover sheet with page three in the sixth grade.

Scoring: The total possible score for grade four is twenty-five. The total possible score for grade six is twenty-three. Each word counts one point.

Name _____ Class 221

SYLLABICATION

Directions. In each sentence one or more words have been underlined. These same words appear to the right of the sentences. Draw a line or lines in each word at the right to show how you would divide it into syllables.

Samples.

a This book is an adventure story.	a d v e n t u r e
b The horses were led from the stable.	s t a b l e
c-d-e Returning to the field, the pilot landed his airplane safely.	r e t u r n i n g p i l o t a i r p l a n e
f-g Frank and Dave were able to gather a bucket of blueberries.	g a t h e r b u c k e t

Test by: John Deasy
School of Education
Boston University

1-2 Jean found a penny on the sidewalk.	p e n n y
	s i d e w a l k
3-4 The baby was playing with a rattle.	b a b y
	r a t t l e
5 Ted could smell bacon cooking.	b a c o n
6-7 Many people like to listen to band music.	p e o p l e
	m u s i c
8-9 The boys brought along candles when they went to explore the cave.	c a n d l e s
	e x p l o r e
10-11 The taxi driver slowed down at the yellow blinker.	t a x i
	b l i n k e r
12 Someone had written in the margin.	m a r g i n
13-14 The railroad train stopped at the mouth of the tunnel.	r a i l r o a d
	t u n n e l
15-16 Jimmy was able to chuckle at his own mistake.	c h u c k l e
	m i s t a k e
17-18 The guide picked up a hatchet and went to cut some firewood.	h a t c h e t
	f i r e w o o d
19-20 A signal lantern was hung in the steeple of the church.	l a n t e r n
	s t e e p l e
21 Grace was delighted with her gift.	d e l i g h t e d
22-23 The merchant was alone in the store when the bandits entered.	m e r c h a n t
	b a n d i t s
24-25 One of the robbers was arrested by a policeman.	a r r e s t e d
	p o l i c e m a n

26-27 The owner of the store pointed an accusing finger at the prisoner.	o w n e r
	a c c u s i n g
28-29 The car had stopped with motor trouble.	m o t o r
	t r o u b l e
30 The carpenter sawed the board in half.	c a r p e n t e r
31-32 Al took off his new jacket and handed the garment to his father.	j a c k e t
	g a r m e n t
33-34 There was a great commotion when the gunpowder exploded.	c o m m o t i o n
	e x p l o d e d
35-36 Is Jerry aware that this game is very important?	a w a r e
	i m p o r t a n t
37-38 The Indians tried to escape observation as they cautiously crept toward the wagon train.	o b s e r v a t i o n
	c a u t i o u s l y
39-40 All of the campers had healthy appetites.	c a m p e r s
	a p p e t i t e s
41 A hexagon is a figure with six sides.	h e x a g o n
42-43 Some tribes used drums as a method of communication.	m e t h o d
	c o m m u n i c a t i o n
44-45 Paul gave a good description of how a radio transmitter works.	d e s c r i p t i o n
	t r a n s m i t t e r
46 The police began an investigation.	i n v e s t i g a t i o n
47 Nocturnal animals hunt at night.	n o c t u r n a l
48 These books are for supplementary reading.	s u p p l e m e n t a r y

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