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An Evaluation of the SRA Reading Laboratory I-a Used as a Supplementary Reading Program in the First Grade

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AN EVALUATION OF THE SRA READING LABORATORY I-a USED AS A SUPPLEMENTARY READING PROGRAM IN THE FIRST GRADE

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TABLE OF CONTENTS

CHAPTER PAGE

CHAPTER PAGE

LIST OF TABLES

TABLE PAGE

TABLE PAGE

CHAPTER I

INTRODUCTION

Educators are constantly searching for a more effective means of teaching children to read. Though much is known about the nature of learning and the necessity of providing for individual differences, it is well agreed by most authorities that this knowledge has not yet been translated into successful classroom practice.

I. STATEMENT OF THE PROBLEM

This study proposed to examine in detail one aspect of classroom practice. An effort was made to ascertain the relative value of a structured supplementary reading program as compared with an informal supplementary reading program at the first grade level. It was the intent of this study to verify or reject the following hypothesis:

> There will be no significant difference in silent reading comprehension between first grade pupils who have worked with the Power Building Program of the SRA Reading Laboratory I-a as a formal supplement to the basic reading program, and those first grade pupils who have participated in informal supplementary reading in conjunction with the basic reading program.

In an attempt to control as many variables as possible, except the one being tested, the study took the following factors into consideration: (1) Pupil differences of sex, kindergarten experience, health, measured intelligence, and

general socio-economic background; (2) Teacher differences of training, experience and attitude; (3) Amount of instructional time given to the reading program.

II. IMPORTANCE OF THE STUDY

Many controversial points of view concerning the place of individualized reading in the curriculum have been expressed by various educators. However, it has been noted that carefully controlled research studies on the problem are not numerous. No previous attempt to evaluate the SRA Reading Laboratory for use as supplementary material in first grade has been reported.

It was felt that a controlled study of the SRA Reading Laboratory I-a would lend assistance to educators who were preparing to use the SRA materials in their classrooms.

III. LIMITATIONS OF THE STUDY

In an attempt to recognize the limitations of this particular research study, the writer relied heavily on the guidelines for educational research provided by Sartain and Dolch.

Sartain, in attempting to evaluate research studies in the area of individualized reading noted four factors which tend to contaminate many studies. (1) The basic program used as a control is seldom described adequately. (2) The

differences in teachers' capabilities are seldom well controlled. (3) Measurements have been made of only the general aspects of reading growth and rarely of the specifics. (4) The novelty effect on experimental groups has seldom been considered (52:85).

Dolch advises anyone who is planning an experiment to consider six things:

1. Compare equal teachers working equally hard.
2. Compare pupils of equal natural ability and equal home influences.
3. Compare equal school time and emphasis.
4. Watch carefully size of class.
5. Beware of misleading averages.
6. Watch for unmeasured results of any experiment (15:80).

Dolch mentions the unmeasured results. He asks for a test of pupil enthusiasm, a test of pupil discouragement, a measurement for the change in social feeling brought about by reading and a test for determining which method is harder for the teacher. He urges the reader to watch for these unmeasured results when examining research (14:19).

On the basis of the cautions mentioned above, the limitations of this study are as follows:

Size and Location of Study

The study was confined to one experimental group compared with one control group. The schools used in the study were located in a lower-middle class economic area. Therefore, the results of this study apply only to these two groups in this one particular socio-economic area.

Mobility of Experimental Class

Due to continual transfers and withdrawals within the experimental class the number of subjects who could be measured was reduced to seventeen. Results which are applicable to such a small number of subjects may not be similar to those obtained with a larger sampling.

Ability of Experimental Subjects

Due to the immaturity of the subjects, the SRA materials could not be used with all members of the class. Therefore, the study involved only the children of higher ability who were capable of meeting the demands of independent study skills which the SRA Lab required.

Choice of Final Test

Scores in the achievement test administered at the close of the study were skewed to the top. Quite a few subjects obtained perfect scores on many of the subtests. This would indicate that the test did not measure the full potential of most of the subjects and therefore resulted in a limiting factor of the study.

Teacher Variables

The effect of teacher variables was reduced by selecting the control group randomly from three first grade classes. Nevertheless, the experimental teacher variables had some effect on the results of the study.

Unmeasured Results

The study makes no provision for measuring the degree of interest in reading which the subjects developed. Also, no measurement of independent reading and study skills was developed.

IV. DEFINITIONS

Basic Reading Program

In this study, the basic reading program refers to the approved reading curriculum as outlined by District number seven, Yakima Public Schools. Two reading series, Houghton-Mifflin and Scott-Foresman, are used as co-basic materials. Pupils are given reading instruction in small groups which usually meet twice a day. Systematic instruction is given in auditory association, word recognition and word attack skills as outlined in the manuals of the basic series. Companion workbooks for each series are also used by the pupils.

Supplementary Reading Program

For purposes of this study, the term "supplementary reading" refers to all types of reading activities in which first grade children engage, in addition to the basic reading program.

V. ORGANIZATION OF THE REMAINDER OF THE STUDY

The remaining chapters in this study will cover the following material:

Chapter II will give a review of literature on the organizational plans which have been employed in attempting to meet the demands of individual differences. Specific attention is given to a discussion of individualized reading. A review of studies involving the SRA Reading Laboratory will be included.

Chapter III deals with a detailed discussion of the procedures employed in this study.

Chapter IV reports the findings of this study with an analysis of the data presented in table form.

Chapter V presents a summary of the study, reports the conclusions which may be drawn from the study, and suggests implications which might be derived from the conclusions. Suggestions for additional research are also given.

CHAPTER II

REVIEW OF LITERATURE

I. ORGANIZATIONAL ATTEMPTS TO MEET INDIVIDUAL DIFFERENCES

The question of how to provide for individual differences has been of major concern for a long time. Administrators and classroom teachers have attempted many different organizational plans in the hope that a way could be found to meet the individual needs of the students.

Lock-step Method

Early American education was largely individual. After the Revolutionary War, a great experiment in mass education was begun. Grade schools and graded textbooks were introduced. By attempting to provide equal education for all, the schools fell into a lock-step regimentation which, according to Betts, still is a serious peril in education (3:562).

Pueblo Plan

Preston Search has been named the first in America to voice loud protest against lock-step methods in education. He originated the Pueblo plan in 1888 which outlined each subject in the high school in such a way that each student could progress at his own rate. Though the plan did not enjoy a long history, it did serve as a model for later

attempts (47:372). Frederick Burk in 1913 put the idea of the Pueblo Plan into operation in certain California schools where it first became known as "individualized instruction" (10:171).

Winnetka Plan

People failed to see the application of Burk's idea in the city schools until the plan was put into operation in Winnetka, Illinois, under the leadership of Carleton Washburne. Briefly, the Winnetka Plan divided subject matter into those common essentials which all must learn and those activities which require individual and group expression. In the category of common essential learnings, each student worked at an individual pace. He could take as much time as he wished to master a unit of work, "but master it he must" (60:79). In the areas of self expression and group activities the school's job was to provide opportunities for each student's special interests. No student ever failed or skipped a grade. Each year, he took up where he left off the year before and continued on. The child studied on a "piece-work basis, not a time-work basis." He developed the habit of mastering each thing he undertook (60:80-81).

Surveys in 1923-24, as reported by Otto, showed that in terms of available tests, the Winnetka schools were doing

distinctly effective work which was more efficient than comparable schools using class methods of instruction (47:375).

Dalton Plan

The Dalton Plan, introduced by Helen Parkhurst in 1919, was another adventure in school organization for meeting the pupils' individual needs. The plan operated according to three principles: (1) The pupil was left entirely free to pursue his work as he determined and according to his own organizational plan. (2) Co-operation with others was provided by social expression experiences such as art, music, and group discussions. (3) The pupil budgeted his own time, and was under obligation to finish only his "job" by the end of the unit. Opponents of the plan, according to Cubberly, felt that it followed the old curriculum too closely with too much emphasis on storing up knowledge for adult life (11:457-59).

Homogeneous Grouping By Ability

Various types of homogeneous grouping and ability grouping plans have been and still are being employed in an effort to provide for individual differences. According to Otto, "homogeneous grouping" refers to the segregation of students into various classes or grades according to like characteristics. "Ability grouping" is an extension or refinement of this segregation process within each class (47:376-77).

Children have been homogeneously grouped into classes or within classes according to chronological age, I.Q. scores, or achievement scores in an effort to reduce the range of individual differences. In evaluating the worth of ability grouping, Turney in 1931 summarized the finding of some sixty-six experimental studies. His conclusion was that most of the studies proved nothing regarding ability grouping but only gave more emphasis to the nature and extent of individual differences (56:21-42, 110-122).

Cleveland and Joplin Plans

The Cleveland Plan and the Joplin Plan were offshoots of ability grouping. Their operation, as applied to the teaching of reading, is described by Hanson: "At a fixed time each day, the school plays 'fruit basket upset' and each pupil goes to the room that fits his reading level" (27:43). Each pupil works in one reading level with his reading teacher until the end of the period when he returns to his regular classroom.

Hanson believes that the most serious drawback to this type of organization is its treatment of reading as a subject taught in a rigidly scheduled block of time. "Reading is not a subject, however; it is a skill, the mastery of which is achieved as a result of continuous learning and practice throughout the day" (27:43).

Ungraded Primary

The ungraded primary is another organizational plan which has been designed to meet the child where he is. Schools using this plan have abolished grade divisions in the primary levels, and, in some cases, throughout all the elementary grades. Children usually stay with the group with which they enter. Classes are often known by their teachers' names rather than by grade levels. Teachers keep the same class and move along in a "continuous integrated program in which grade boundaries become obscure" (28:112).

Worth of Various Organizational Plans

Regardless of administrative efforts to lessen the range, the teacher is the key to the success of any plan. Goodlad states that the school structure is just a shell, that dropping grades, adding or changing grades leaves curriculum and instruction just as they were before. If educators depend on change in school structure for basic educational reform they will be disillusioned (23:236). In this connection, Betts states:

> The administrator can make plans; the supervisor can conduct teachers' meetings, workshops, and demonstrations; the reading specialist can give his best lecture--but the final test of theories and plans takes place in the classroom (2:592).

II. REVIEW OF LITERATURE FAVORABLE TO INDIVIDUALIZED READING

Seeking, Self-selection, and Pacing

Fundamental to all discussions of individualized reading are Willard C. Olson's concepts of seeking, self-selection, and pacing. These concepts grew out of his studies of the nature of growth, behavior and achievement. He saw a natural tie-up between his findings and how a child learns to read. Many authorities feel that individualized reading is the type of program which best fits these concepts.

Seeking. The healthy child is actively engaged in an exploration of his environment. He seeks from that environment those experiences which he has the maturity to comprehend.

Self-Selection. If a young child is given the freedom to explore and choose from his environment, he will tend to select from the available materials differentially according to his level of maturity.

Pacing. The teacher sets the pace for each child by providing materials upon which he can thrive and by expecting from the child only that which he can perform at his immediate level of maturity (46:89-98).

These concepts of Olson's can be related to the teaching of reading from a child growth and development

point of view. Pacing is a matter of starting at the beginning, moving at the speed with which new material can be absorbed and taking the time to clinch the learning. The teacher's responsibility for pacing is closely related to the child's interest. A particular child may involuntarily, even unconsciously, move away from what-is-to-be-learned unless he wishes to learn it. Darrow and Howes believe that because "interest and pacing are so personal in their effects on learning they sometimes elude group instruction which, of necessity, aims at the 'group', not the individual" (13:4).

There are certain fundamental premises upon which the individualized approach to reading is based. These premises are well-stated by Lazar:

> Reading is a matter individual to each child.
> A child should have the opportunity to proceed at his own pace.
> The reading experiences should eliminate comparisons with others.
> The level of the reader or reading material should be subordinate to the act and enjoyment of reading itself.
> Allowing a child some freedom of choice in selection of his reading materials will develop real purpose for reading.
> Instruction in reading and reading itself are constantly interwoven (35:142).

Generalized procedures which are used in most individualized reading programs include: (1) The teachers usually give some directions to the class as a whole. (2) Children have a time when they all read independently from self-selection material. (3) Teachers provide time for

individualized or small-group conferences with the children. (4) Both teachers and children keep careful records of daily progress. (5) Time is provided for class or group sharing of books read (35:142-43).

Many authorities in the teaching of reading have spoken out in favor of some type of individualized reading program. Zirbes states: "If more children could be given the advantage of an individualized developmental approach to reading there would certainly be less retardation and less need for remedial instruction (65:352). Others who are strongly in favor of individualized reading include: Veatch (58:3-58), Lazar (36:75-83), and Draper and Schwietert (17:1-158).

A case has been presented for using individualized reading with beginning readers. With individualized reading procedures, skills are presented in a much closer relationship to the informal and natural ways a child learns while resisting the impulse to push children into symbolization before they are ready to understand what it really is (17:93-94). According to Draper and Schwietert, the use of basic-reader preprimers and primers at the beginning reader stage can cause actual retrogression (17:101-102).

Other writers offer criticism of basal readers. Boney observes that children who read from related texts, such as preprimers and primers of single series, do not

grow into better readers than those who gained their beginning reading experience from a variety of easy books that had a greater number of new words (5:17-20). Gans suggests that "low-brow" taste in pupils' out-of-school voluntary reading may be attributed in part to the "spoon feeding resulting from a textbook-conditioned curriculum" (20:5-6). Cutts and Mosely agree that the use of basal textbooks is often abused (12:41).

Studies Favorable to Individualized Reading

Many reports of studies are favorable to individualized instruction. It should be noted, however, that in many such studies important variables were not controlled.

As early as 1921 Laura Zirbes experimented with individualized reading methods in her second grade class. Pupils of one section were matched with those of the other according to chronological age, mental age and reading ability. During a six week experimental period, one group was given formal intensive instruction while the other was provided with a wealth of reading material and allowed individual choice. Pupils in the latter group read each day individually with the teacher but had no systematic group instruction. When retested, the average growth of both groups was almost identical, but the upper part of the group which read individually showed more improvement than

the upper part of the group which had formal instruction. Children with inadequate reading ability who were in the individual group frequently acquired bad reading habits and attitudes when they were not given supervised instruction (66:1-65).

Kiesling reported in 1938 on an attempt to provide individualized reading instruction to first grade children. Results revealed an increase in feelings of success among the children and the acquisition of independent working habits (33:325).

In 1941 the Maury School Staff in Richmond, Virginia published a booklet which reported favorable results with self-selection reading materials:

> The reading materials should be close to life and grow out of children's living. They should be chosen for the younger child, not to give practice in word calling or, for the older children, merely to "teach" them content, but they should be used when they contribute genuinely to the enrichment of experience (42:36).

In a study of the New York City Schools' Individualized Reading Program, findings of a teachers' questionnaire revealed that children were reading more, learning more, and making reading an intimate part of their daily life (17:121).

Favorable results with first grade children were revealed in studies by Vite (59:42-43), and O'Keefe (44).

A well-known study was made by McChristy with second grade children in which matched experimental and control

groups were compared. Results revealed that the self-selective reading method may be used successfully at the second grade level. Also, it was revealed that the self-selective reading method produced greater gains than did conventional reading methods in the areas of reading vocabulary, reading comprehension, and total reading (38:84-85).

A controlled study by Gordon and Clark of second grade children in Florida revealed that individualized reading in a small school with limited facilities was superior to the standard reading program. "Not only did pupils achieve better on a standardized test but they read more and increased in self-confidence" (24:113).

A variation of the usual individualized reading is proposed by Barbe in his explanation of personalized reading. Though it follows the same basic pattern, it is more highly-structured. Skills are presented systematically with checks and records kept on individual progress. Individual attention is given when needed, but not all group instruction is abolished. The personalized program is more adaptable to existing programs than the individualized program and may be used in combination with basal-reading instruction. Barbe states:

> The personalized plan of teaching reading is merely another approach to the teaching of reading. It is no panacea for all problems. It will likely be most effective for those teachers who have found other methods effective. The goal is to develop permanent interest in

> reading and to develop skills in selecting reading materials. To the extent that the personalized program contributes to building permanent interests in reading, it will aid in overcoming the greatest reading problem today--that of the adult who knows how to read, but is "too busy" to read (1:539).

III. REVIEW OF LITERATURE IN OPPOSITION TO INDIVIDUALIZED READING

The teaching of reading solely by the individualized method is questioned by many authorities. Several different arguments have been proposed which cast doubt on the subject.

Unavailability of materials. Karlin reminds the reader that individualized reading presupposes the availability of a great number of titles from which the child may choose. It also presupposes that the teacher is so familiar with the contents of these books that she is able to discuss them with the children in a way that will "probe beneath the mere surface." Karlin questions the extent to which a teacher does and can know so many books (32:98).

Harris agrees that locating sufficient materials poses a problem. He states that if an adequate amount of material cannot be found, it would probably work better to employ some form of homogeneous grouping rather than attempt individualized teaching without suitable materials (28:115).

Heavy vocabulary load. Bond and Wagner state that there is apt to be an unduly heavy vocabulary load in the

primary grades even when controlled basal readers are employed. "Great care should be taken during the primary years to limit as much as possible the tendency for the supplementary program to make the vocabulary development difficult, if not impossible, by the introduction of new and difficult words" (4:191-92). Bond and Wagner believe that inconsistent development of vocabulary "causes great confusion for the child and creates difficulties in learning to read that sometimes wreck his educational career" (4:200). This viewpoint is in opposition to the methods of individualized reading which encourage a wide range of vocabulary.

Haphazard skill building. Yoakam (64:7) agrees with Hester that reading skill building should be taught sequentially rather than being presented haphazardly with incidental teaching. The basal reading program provides for continuity and minimizes instructional gaps or overemphasis (29:297).

Lack of teacher preparation. Many writers have expressed concern over the lack of teacher preparation and ability to adequately carry out a successful individualized program. Among those who are concerned about this problem are Fay (19:346), Yoakam (64:7) and Karlin (32:98). A statement made by Lofthouse summarizes their viewpoints:

> It has been implied that perhaps the reason that much of the experimentation has failed to reveal superiority for individualized reading is that some of the classroom teachers involved were not adequately prepared to teach this way and therefore they did not

> realize the fullest potentialities of this approach. What reason have we to believe that the other classroom teachers of the nation are better prepared (37:37)?

Development of poor reading habits. In the study by Laura Zirbes which has been previously mentioned in this chapter, it was stated that children with inadequate reading ability often acquired poor reading habits when not given supervised instruction. Zirbes also stated that new material was neither interesting nor profitable to pupils who read less than sixty words per minute orally and met with as many as two or more difficulties per minute with which they required help (66:4-5).

Studies Unfavorable to Individualized Reading

Studies have been reported which do not reveal the individualized method to be superior. One of the most carefully controlled of these was the Roseville experiment reported by Sartain. Ten comparable classes of second grade children were tested for reading achievement. Five of these classes were randomly chosen to participate for three months in individualized self-selective reading. The other five classes were taught in three or four ability groups per room using basal readers and supplementary books. After the first three months both groups were re-tested. Then each group switched procedures; those who were working in ability groups now did individualized reading and vice versa.

At the end of another three months both groups were tested again. Results of this comparison revealed that the individualized method did not produce better reading gains than a strong basal program (53:277-81).

A different type of evaluation was reported by Safford. He selected seven individualized reading classes who had not been informed of the study, nor observed during the time the classes were functioning. He compared test results of these classes with test results of other classes in the district who had employed other methods of reading instruction. His conclusions suggested that the use of individualized reading techniques resulted in lower gains in reading achievement when contrasted with other methods of reading instruction (51:268-69). Particular attention should be given to the fact that this study eliminated the novelty effect which is so often present in experimental research.

IV. INDIVIDUALIZED READING AS A SUPPLEMENT TO BASAL READING

Two opinions were noted which state that individualized reading should never be combined with a basal reading program. One of these was given by Veatch. She believes that there are issues which are irreconcilable between basal reader systems and self-selection programs. She states:

> These are two opposing approaches to reading instruction, and to pretend otherwise is not to understand the full import of one or the other. . . . I think the inclusion of the unique practices of an individuated program would destroy a basal, ability-grouped program, and high time, too (57:229).

Draper and Schwietert indicate agreement with Veatch's viewpoint in their statement:

> Teachers who combine the use of basic readers in a basal way with the Individualized Reading approach do not understand completely the philosophy of how young children learn, nor do they fully comprehend the procedures of Individualized Reading (17:102).

A great many authorities feel that a combination of methods would be feasible. N. Dean Evans expresses this belief well: "A good, well-balanced reading program is not either individualized or group-oriented. It is both" (18:583). Others who indicate agreement with this viewpoint include: Gray (26:104), Sheldon (54:25-26), Malmquist (40:39), Carson (8:362), and O'Leary (45:12).

A statement made by O'Keefe shows the relationship between the two methods succinctly: "Individualized reading does not eliminate group reading, but is the 'vitamin pill' for the child who is able to comprehend at a faster rate (44:19).

Gates believes that advantages of a systematically organized program of basal materials need not be eliminated. Such a program can be adapted to individual differences in many ways. He gives an example whereby each child could use

a series of basal readers at the rate and in the manner best suited to him (22:24).

Sartain suggests a number of ways in which teachers can bring the two methods together to form a "rather ideal marriage." (1) Individualize the supplementary reading that accompanies the basal program. (2) Alternate basal and individual reading on various days of the week, or between morning and afternoon periods. (3) After every few weeks of basal reading, plan a couple of weeks of individualized study. (4) Complete a basal program during the first of the year and practice the skills through individualized reading during the remainder of the year. (5) Combine basal reading and self-selected reading in a series of topical reading units (52:86).

Before leaving the subject of individualized reading it is well worthwhile to consider the excellent summary of the subject which is given by Jacobs:

> In the first place, "individualized reading" is not a single method, with predetermined steps in procedure to be followed.
>
> . . . . . .
>
> In the second place, "individualized reading" is not a guarantee of the alleviation, for either the child or the teacher, of all the problems and pressures involved in reading instruction.
>
> . . . . . .
>
> In the third place, "individualized reading" does not eliminate group reading.
>
> . . . . . .

> Also, "individualized reading" does not support a laissez-faire attitude toward instruction, in which the child merely does what he wants to do because he wants to do it.
>
> . . . . . .
>
> In other words, "individualized reading" is no panacea for all the ills of teaching reading. It can never be effectual in improving children's abilities to read if it becomes a patent procedure, a sentimental devotion, a rite or ceremony, an exclusive ideology, a vacuous symbol, a standardization, a slogan, a dogma. Its usefulness is dependent upon well-defined purposes and values in operation and action, upon creative uses of time, materials, and procedures suitable to the content for consideration, upon critical appraisal and assessment. "Individualized reading" actually ceases the moment procedures replace perceptiveness; routine supersedes reflection; things take over for thinking; custom curbs creativity (30:4-5).

V. USE OF MULTI-LEVEL MATERIALS IN THE READING PROGRAM

Multi-level reading materials employ the concepts of seeking, self-selection and pacing. Although more rigid and highly structured, one could agree that reading laboratories such as those published by Science Research Associates are a type of individualized reading instruction.

Don Parker, co-author of the SRA Reading Laboratory I-a describes this type of individualized reading program:

> It is desirable to structure a schooling situation in which each boy and girl can move as fast and as far as his learning rate and capacity will let him in getting and using the skills he needs toward individual, creative excellence--each unto his own. Because we're dealing here with classrooms of 25 or 30 or more children, and therefore with as many learning levels, I would like to label this statement simply "A Multilevel Philosophy" (48:102).

Two other references to the reading laboratories were found in the literature. Witty states that the reading laboratory is "perhaps the most ingenious development of such multi-level materials" (63:43). Wilhelms states that individualized programs such as the laboratory plans "reveal a disappointing amount of true individualization." There is too much tendency to individualize with respect to little more than rate of progress (61:65).

Very few research studies involving the use of the SRA reading laboratories have been reported. Perhaps the most extensive study was reported in 1959 by Sister Mary Madeline in which 3600 pupils from Chicago parochial schools were involved in an experiment to test the effectiveness of a multi-level program as compared to a one-level program. The study revealed that children using the SRA material achieved greater competence in reading comprehension and vocabulary growth than children whose program was limited to the conventional methods of reading instruction. It was also noted that children of higher intelligence made greater gains than children who were less intelligent (41).

In 1960, Bullock and Von Brock reported a study of the SRA materials with fifth grade children. Two classes were compared separately according to pre-test and post-test scores. Then test results of the two groups were combined in an effort to compare scores in terms of upper and

lower quartiles of intelligence. Both groups made statistically significant gains in rate of reading and in comprehension. The subjects in the upper level of intelligence realized the greatest benefit from the use of the Lab. The investigators suggested that the Lab was more efficient with the abler students who could profit better from self-instruction and self-direction (6:26).

Another study was reported in 1960 by Robert A. Wissell in South Australia. Pupils in grade five worked with the Lab throughout the second term of school. Pre-test scores were measured against post-test scores. Many pupils advanced from two to three years in achievement, a few made a gain of more than three years, while others made a gain of less than one year or made no significant gain. The study did not have a control group (62:298-99).

Jones and Van Why reported a study of the SRA materials in 1961. Matched experimental and control fifth grade groups of fifty-two pupils each were compared. Both groups made significant pre-test to post-test changes but no significant differences were found between the groups (31:45-46).

A study of the primary edition of the SRA Reading Laboratory was reported in 1962 by Johanna Kool. No control group was used and the sampling was limited to twenty students. It was found that second grade pupils are capable of using the Lab materials. No significant differences were found between pre-test and post-test scores (34:1-38).

In 1962, a pilot study of the primary SRA Reading Laboratory with second grade children was reported by Everyl Parker. The study was exploratory in nature and no attempt to evaluate in terms of pupil achievement was made. Personal observations of the Lab program included in the report were as follows: There was a tendency for the color levels to be more difficult than the stated grade level. The Lab would not have been sufficient in range to provide a full year's program in the pilot class. The Lab was useful in providing insight into the needs of each child in the reading program. Pupil enthusiasm for the Lab program was high (50:1-57).

In January, 1963, a study was reported by Jerome M. Colligan which evaluated the SRA Reading Laboratory for use with intellectually gifted classes in the New York City Schools. Results showed that both experimental and control groups made significant gains. No significant differences were noted between the experimental use of the Lab and the conventional methods used in the control classes. The study concluded that there was "no outstanding reason for not recommending that these SRA materials be listed. . . as suitable ancillary materials for the reading programs extant in classes for the intellectually gifted" (9:10).

VII. SUMMARY

This chapter has discussed some of the various organizational plans for individualizing instruction. A review was given of literature which was favorable to individualized reading. Another review was made of literature which evidenced opposition to individualized reading. Studies on the use of multi-level material were cited.

CHAPTER III

COLLECTION OF DATA

It has been explained in the preceding chapters that this study was conducted in an effort to ascertain the relative value of a structured supplementary reading program as compared with an informal supplementary reading program at the first grade level.

I. LENGTH OF STUDY

The study was conducted over a period of five months from January, 1964 to the end of May, 1964. The experimental use of the SRA Reading Laboratory was not introduced until January for several reasons.

In order to give the materials a fair test, the investigator wished to follow explicitly the directions given in the manual accompanying the Lab, which stated, "In the first-grade classroom, the teacher will probably want to begin the POWER BUILDER program early in the second semester" (49:101).

Aside from the suggestion in the manual, it was found that the types of independent reading skills demanded of children using the Lab were not well-developed until the children were reading successfully at the primer level. This necessitated a postponement of the use of the Lab during the first months of school.

II. DESCRIPTION OF EXPERIMENTAL GROUP AND ITS READING PROGRAM

The investigator taught a first grade class in District number 7, Yakima Public Schools. Class load averaged twenty-eight pupils during the 1963-64 school year. The majority of the students came from families of lower middle-class socio-economic standing.

The class was very mobile. During the year there was a 39 per cent turnover of the pupils who had originally enrolled. At the close of school fourteen class members indicated they would not be attending school in that building during the following year.

The number of children in the experimental group was limited to seventeen. The investigator was aware that a larger N factor would yield more reliable results. However, due to the high mobility of the class many eligible students were not present for the entire length of the experiment. Therefore, results of their achievement had to be eliminated from the study.

Other students were exempted because of the difficulty of the materials which were to be tested. Successful work in the SRA Reading Laboratory requires a relatively high degree of independent reading ability. It was found that the more immature and slower-achieving members of the class were incapable of working independently with the materials. Therefore, those children were eliminated from the study.

As a result of the eliminations, the general ability of the children in the study was average and above. Intelligence quotients ranged from 99 to 122.

Nine boys and eight girls comprised the experimental group. Six of the subjects had attended kindergarten; eleven had not. There were no children in the study who were repeating first grade. All enjoyed normally good health. One girl was handicapped with a hearing loss. Provisions were made to give her preferential seating during instruction periods. She was also given help in auditory training and lip reading by a special therapist.

During the first part of the year, the experimental group participated in a reading program which was conducted in the same general manner as that of the control group. The children were given listening and readiness instruction. Then, they were gradually introduced to the pre-primers and primers of the basal reading series. Systematic instruction in the basic skills of phonetic analysis and word attack was given during this time.

Children worked in small instructional groups twice a day for periods of fifteen to twenty minutes each. Basal reading books and workbooks were used. The weekly newspaper was read and shared together as a total-group reading activity.

In January the teacher introduced those children who were reading successfully at the primer and third pre-primer level to the SRA Reading Laboratory procedure. At this time the teacher tentatively tried the SRA materials with the small group of immature readers in the class. They were incapable of reading the Lab material or doing the work, independently, though they were reading successfully at the first pre-primer level in the basic series. During the remainder of the year the immature group never developed the independent reading skills necessary for work with the Lab. Other reading activities were provided which they could do during the Lab period each day.

Throughout the time of the experiment, all children continued work in their small groups during the morning reading period. This time was spent in continued work with the basal readers and workbooks with carefully prepared lessons in the basic reading skills.

During the afternoon, the experimental students participated in Lab reading for a daily twenty minute period.

Description of Total SRA Reading Program

Before discussing the Lab procedures used during the experiment, it would seem advisable to describe the contents of the SRA Reading Laboratory materials.

The author of the Lab, Dr. Don Parker, intended the SRA materials to "provide a well-balanced program of reading

instruction" (49:3). Dr. Parker's system of multi-level instruction proposes the incorporation of three distinct reading programs within the daily class schedule.

Listening Skill Builder Program. The Listening Skill Builder Program is designed to improve the students' listening abilities. The program consists of teacher-read stories which are used in conjunction with a pupil workbook for checking listening comprehension.

Word Game Program. The Word Game Program is found in the SRA Reading Laboratory I. It consists of 44 word games which are played by using 235 small envelopes of word cards. The program is designed to provide an introduction to beginning phonic skills.

Power Builder Program. SRA Reading Laboratory I-a contains the essentials for the Power Builder Program. Materials for the Power Building Program include an individual booklet for each child, a sturdy box containing over 140 separate stories called Power Builders, answer keys for each Power Builder, pads of answer sheets for each level of Power Builders, and colored pencils to match each color level. Each Power Builder is a small, four-page booklet printed on heavy card stock. Its contents include a story, questions designed to test reading comprehension, and exercises in word analysis.

The investigator eliminated the Listening Skill Builder Program and Word Games Program from the study. This was done for several reasons.

First, the expense of the listening and word game materials was prohibitive for the Yakima School District. Since it would not be possible to provide these materials for all of the first grades in Yakima, it was felt that a study dependent upon the use of these materials would not be of value to the district.

A second reason was that the philosophy and organization of the word game program has been questioned. Many authorities question the advisability of classifying our English language into a system of phonograms. Yet, much of the Word Game Program attempts to teach phonics by use of phonograms. The method of teaching by phonograms is described by Gray:

> The phonograms were ordinarily one of two types--either vowel-consonant combinations, which were called "families" (ad, et, ot, ip, etc.), or consonant-vowel combinations, which were called "helpers" (ma, pa, sa, ca, etc.) In the case of the vowel-consonant combinations, children were taught, for example, to associate with the letter combination ad the sound it represents in had, bad, lad, sad; with et, the sound heard in bet; and so on (25:92-93).

Gates made a study of phonograms and found it was possible to make a list of 203 common phonograms. However, he concludes:

> . . . most of these symbols do not appear as frequently as 20 times in approximately 3,000 of the first words which children are most likely to learn. Most of them, furthermore, are misleading rather than helpful in from 10 to 75 per cent of the words in which they occur, because of the diversity of sounds represented. Finally, if five times this number of phonograms of these types were learned they would leave untouched more than three-fourths of the difficulties encountered in a primary word list (21:146).

Dolch (16:231-34) and McKee (39:242-43) are in general agreement with further statements made by Gray:

> Recognition of such vowel-consonant combinations may be of help to the child in attacking one-syllable words but he is likely to become confused if he tries to use this method of phonetic analysis with words of more than one syllable. Such confusion is understandable when one tries to pronounce the following groups of words by associating a given sound with a phonogram:
>
> ad - had et - bet
> adopt between
> ladle return [etc.]
> . . . . . .
>
> The wise teacher will not give training in phonetic techniques that will later cause confusion; she will develop knowledge of phonetic elements and promote understandings on the basis of the child's experience with words. She will promote skill in phonetic analysis by a carefully planned program in which the child applies his understandings to new words as he goes along (25:92-94).

In the Yakima school district, word-attack skills are taught following the procedures outlined in either the Houghton-Mifflin or the Scott Foresman manuals. It was felt that such a different approach as that of the Word Game Program would prove confusing to the students.

A third reason for eliminating the listening and word building materials deals with the purpose of the experiment.

It was the intent of the investigator to measure achievement in silent reading comprehension. The Power Building Program is the instrument in the SRA materials through which abilities in silent reading comprehension are developed. Therefore, only that section of the total SRA reading program was used.

Procedures Used With Power Building Program

The Power Builder stories are divided into levels according to difficulty and designated by corresponding colors. Dr. Parker assigns numerical levels to each color. No statistical data is available which clarifies how the author determined these numerical levels, nor is it made clear what the numerical levels mean. As stated in the manual, the colors designate the following:

Gold	1.2
Aqua	1.4
Purple	1.7
Orange	2.0
Olive	2.3
Blue	2.6
Brown	3.0

Each color has several starter stories which the student is required to read first. Then the student is free to choose any of the twenty stories available on that particular level. He is allowed to do as many of each color as he feels is needed before going on to the next level of difficulty.

When the SRA Lab was used in the investigator's classroom, a student was expected to use this systematic procedure: He first chose his story and read it silently to himself. He then picked up the appropriate answer sheet from the table of supplies and answered the questions for his story. When the work was completed, he chose the matching answer key for his story. Answer keys were stored in the Lab box. The student was allowed to take the necessary answer key to his seat and check his work. Any incorrect response was circled and the correct answer written in. The score for the story was then recorded in the student's individual booklet. A colored pencil, which matched the color level of the story, was used for recording scores.

Often, a child would finish before the period was over. He then chose another story and began work on it. If the period came to an end before he was finished, he placed the story booklet and answer sheet in his individual booklet and stacked it on the supply table, ready for the next day. A student was not allowed to keep the materials at his seat during other times of the day. This was done, not as the best learning technique, but in an effort to control the time factor in the experiment.

While the children were working individually, the teacher circulated around the room, giving help, listening to individuals read aloud, or discussing a story with a

particular child. The teacher periodically held conferences with each child in the group for the purposes of evaluating progress. At the first grade level, the teacher found it necessary to keep a close check on the work done with the answer sheets. This was felt to be important in order to encourage the development of careful work habits.

III. DESCRIPTION OF CONTROL GROUP AND ITS READING PROGRAM

The control group was selected from first grade classes in District number 7, Yakima Public Schools. The control classes were in a school which was located in the same general socio-economic area as that of the experimental class.

Children selected for the control group were chosen at random from three classrooms. This was done in an attempt to reduce the effect of the teacher variable. All teachers vary in method, training, experience, and attitude. The effect of a teacher upon her class of students is an important factor to be considered when measuring results of achievement. If the number of teachers involved in the study can be increased, the effect of individual teacher differences upon the results will be reduced. All teachers participating in the study had their bachelor's degree and several years of teaching experience at the first grade level.

All of the control classes were involved in reading programs which fulfilled the basic requirements of the Yakima school district reading curriculum.

In an attempt to obtain a more detailed description of the control group's reading program, a questionnaire (see Appendix A) was submitted to each control teacher at the end of the study. Particular attention was given to materials, grouping, and time allotment. A summary of the information obtained from the questionnaire is given below:

1. All three teachers indicated that the Houghton-Mifflin and Scott Foresman materials were used as co-basic reading series.
2. Instruction was given to all classes in a number of small groups with the amount of time spent for each group ranging from fifteen minutes to one-half hour.
3. Two teachers stated that they carefully taught the skills which were outlined in the manual of the basic series.
4. All three rooms had opportunity for extensive supplementary reading during free time.
5. Two teachers stated that each of their groups met for a second reading period of fifteen minutes per group during the day. This time was used for continued work in basic texts and supplementary reading. One teacher did not group for the second reading period, but worked with

the entire class in supplementary reading for a forty-five minute period.

6. All three groups read weekly newspapers under the direction of the teacher. This was done as an entire class activity.

7. Two teachers indicated interest in an individualized type of reading program and used it with a few able students. One teacher employed a rather intensified individualized reading program during the last two or three months of school. The following description of her program is quoted verbatim:

> During the Year, I usually have two months of reading "contests." These are from easy reading books from home and libraries. Most of the children read from ten to twenty books extra during each month. I also have weekly contests with supplementary pre-primers. Most children could read about five or ten in one week. After the basics are finished they read each other's basics. Then they read on that level silently at their seats a unit at a time. They do very little oral reading, but they have many checks for comprehension. At the end they individually choose the school supplementaries they will read at their own speed.

IV. MEASURING ACHIEVEMENT

On May 21, 1964, the classroom teachers of the control and experimental groups administered the Primary Reading Profiles, Level one, 1957 edition (see Appendix B). The opinion of competent reviewers, the nature and purpose of the subtests, and the availability of the test influenced the investigator's choice of test.

A review of the Primary Reading Profiles is given by James R. Hobson in Buros, Fifth Mental Measurements Yearbook.

> Each of the levels was standardized on a widely scattered school population of over a thousand pupils, described by authors as "nationwide."
> . . . . . .
>
> Reliability coefficients calculated by both the Spearman-Brown and Kuder-Richardson formulas ranged from .86 to .98 for the composite score and for all subtests with the exception of test 1 which was .77.
> . . . . . .
>
> In the opinion of this reviewer, tests 2, 3, 4, and 5 of each level are good solid tests with essential content validity for the tasks they attempt to perform, as might be expected from such competent authors (7:762-63).

At the time of testing, the investigator made a survey of the work completed by each experimental subject who used the SRA Reading Laboratory. A discussion of this survey is given in Chapter IV.

V. PROCEDURES USED IN ANALYSIS OF THE DATA

Matching of Groups

The experimental and control groups were matched according to the following factors: sex, kindergarten experience, general health, and I.Q. Although not matched specifically, socio-economic background was considered. Both groups came from the same area of the city. Also, occupations of the parents were similar. Table I, page 42, shows the matching of the two groups. Each child from the

TABLE I

DATA FOR MATCHING EXPERIMENTAL AND CONTROL GROUP

SUBJECT	SEX	KINDER-GARTEN	HEALTH	BIRTHDAY	I.Q.
1-E	M	No	Good	8-12-57	122
1-C	M	No	Good	7- 6-57	121
2-E	F	Yes	Good	3-11-57	117
2-C	F	Yes	Good	11- 6-56	117
3-E	M	No	Good	2- 2-57	117
3-C	M	No	Good	9-10-57	118
4-E	F	No	Good	8-28-57	115
4-C	F	No	Good	6-13-57	117
5-E	M	No	Good	11-13-56	114
5-C	M	No	Good	9-17-57	114
6-E	M	Yes	Good	7-25-57	110
6-C	M	Yes	Good	7-29-57	106
7-E	F	Yes	Good	6- 9-57	109
7-C	F	Yes	Good	7- 5-57	108
8-E	F	Yes	Good	4- 4-57	109
8-C	F	Yes	Good	2-22-57	111
9-E	M	No	Good	10-16-56	108
9-C	M	No	Good	8-20-57	107
10-E	M	No	Good	11-13-56	108
10-C	M	No	Good	8-21-57	110
11-E	F	No	Good	6-28-57	107
11-C	F	No	Good	5-18-57	108
12-E	M	No	Good	12-12-56	106
12-C	M	No	Good	10- 9-56	104
13-E	F	Yes	Good	12- 6-56	105
13-C	F	Yes	Good	11- 6-56	107
14-E	F	No	Good	12-13-56	105
14-C	F	No	Good	12-13-56	106
15-E	M	No	Good	7-20-57	103
15-C	M	No	Good	9- 2-57	101
16-E	F	No	*	4-25-57	99
16-C	F	No	**	10-31-56	95
17-E	M	Yes	Good	10-12-56	99
17-C	M	Yes	Good	9-12-57	98

* Hearing showed definite loss on audiometer test
** Hearing tested slow on audiometer test

NOTE: 1-E is read as: Child one, experimental group.
1-C is read as: Child one, control group.

experimental group (E) has been assigned a numeral and matched with the corresponding numeral from the control group (C).

Intelligence quotients were obtained from the 1953 edition of SRA Primary Mental Abilities test for ages 5 to 7 (see Appendix B). The test was administered by individual teachers on a group basis.

Choice of this test was made by the testing department of the Yakima school district. Since it is district policy to administer this test to all first grade children, the investigator felt justified in using its scores for matching purposes.

Due to the tendency for I.Q.'s to vary a few points from test to test, and because it is known that an individual's I.Q. score is seldom static, the scores were matched on the basis of + or - five points.

It was interesting to note that the chronological age, although not considered a matching factor, averaged two months difference between the matched pairs. The highest age difference of any pair was six months. Children of one pair were within four days of being the same age; another pair did have identical birthdays.

The actual process of matching was done at the end of the study. Teachers of the control classes were not informed of the study until time for testing in late May. Since the

intent of the study was to compare an experimental method with the approved method for the Yakima schools, it was felt that teachers would be more likely to teach in their normal manner if uninformed of the experiment.

Statistical Techniques

Analysis of the data was made by determining the means and standard deviations for control and experimental groups on the composite test score and subtests 3, 4, and 5. The same procedure was applied to scores divided according to kindergarten attendance and non-kindergarten attendance for both control and experimental groups. The t-test was applied to determine statistical significance at the .01 level of confidence.

VI. SUMMARY

It was the purpose of this chapter to describe the procedures of the experiment. It was shown that the intent of the study was to compare two methods of teaching supplementary reading. The control and experimental groups were described; the programs of instruction for both groups were discussed. Descriptions of the testing, matching, and statistical analysis procedures were given.

CHAPTER IV

ANALYSIS OF DATA

An attempt has been made to examine objectively the following hypothesis:

> There will be no significant difference in silent reading comprehension between first grade pupils who have worked with the Power Building Program of the SRA Reading Laboratory I-a as a formal supplement to the basic reading program, and those first grade pupils who have participated in informal supplementary reading in conjunction with the basic reading program.

Data which have been collected include: the results of a questionnaire given to teachers of the control classes, a survey of work completed in the SRA Lab by the experimental group, and results of an achievement test given to the experimental and control groups at the close of the study.

I. SUMMARY OF QUESTIONNAIRE

A questionnaire (see Appendix A) designed to reveal the characteristics of the control group's reading program was completed by the teachers of the control groups. A summary of this information is given in Chapter III, pages 39 and 40.

II. SURVEY OF COMPLETED SRA LAB WORK

Students in the experimental group varied in the amount of work they completed in the Lab. A chart showing

the spread of the group according to stories read at each color level can be found in Appendix C. As may be seen on the chart, three children stayed at the Gold and Aqua levels throughout the study. Others rose rapidly to the more difficult levels. At the close of the study, students were reading as follows: two at the Blue (2.6) level; three at the Olive (2.3) level; five at the Orange (2.0) level; four at the Purple (1.7) level; and three at the Aqua (1.4) level.[1]

III. RESULTS OF ACHIEVEMENT TEST

The Primary Reading Profiles provides separate scores for each subtest. These include: Test 1, Aptitude for Reading; Test 2, Auditory Association; Test 3, Word Recognition; Test 4, Word Attack; and Test 5, Reading Comprehension. A composite score is also given. Since it was the intent of the study to test for reading comprehension, subtests 1 and 2 were not included in the analysis. Raw scores and percentiles are given for each subtest. For purposes of this study, only raw scores will be used. All tests for statistical significance have been computed at the .01 level of confidence.

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[1]A discussion of the numerical values assigned to the color levels was given in Chapter III, page 36.

Composite Test Score

The composite score includes subtests 3, 4, and 5. According to the authors of the test, a composite score which covered reading aptitude, auditory association, word recognition, word attack, and reading comprehension would be difficult to interpret. Yet word recognition, word attack, and reading comprehension are easy to relate because they are a measure of reading accomplishment. "This composite score is an over-all measure of reading achievement, emphasizing the ability to read with understanding" (49:11).

Difference between experimental and control groups. Means were computed for the experimental and control groups on the composite score. This information is shown in Table II.

TABLE II

MEAN DIFFERENCES OF COMPOSITE SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	17	103.86	15.68	4.96	.51	2.75
C	17	103.62	13.16			

As is indicated in Table II, there was a .24 difference in the means of the two groups. The t-test for

significance was applied. The obtained t of .51 was not statistically significant at the .01 level of confidence.

Difference between experimental and control boys' groups. The difference between the means for the boys' composite score is given in Table III.

TABLE III

MEAN DIFFERENCES OF BOYS' COMPOSITE SCORE: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	9	98.82	19.88	7.78	.98	2.92
C	9	98.94	12.24			

As shown in Table III, the mean for the experimental group was .12 lower than the mean for the control group. The obtained t of .98 was not statistically significant.

Difference between experimental and control girls' groups. The difference between the means for the girls' composite score is given in Table IV, page 49.

It will be noted in Table IV, page 49, that the mean for the experimental girls was 109.25, while the mean for the control girls was 108.74. However, the obtained t of 1.50 was too low to be of statistical significance.

TABLE IV

MEAN DIFFERENCES OF GIRLS' COMPOSITE SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	8	109.25	4.97	4.50	1.50	2.98
C	8	108.74	11.72			

Difference between boys and girls within groups. Results of within-group comparisons of boys against girls on the composite score are shown in Table V.

TABLE V

MEAN DIFFERENCES OF BOYS' AND GIRLS' COMPOSITE SCORES: WITHIN GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E-Boys	9	98.82	19.88	6.85	2.18	2.95
E-Girls	8	109.25	4.97			
C-Boys	9	98.94	12.24	5.71	.09	2.95
C-Girls	8	108.74	11.72			

As noted in Table V, page 49, the girls in the experimental group exceeded the boys by a difference in means of 10.43. The t test did not show a statistically

significant difference at the .01 level of confidence. However, when the obtained t of 2.18 was compared to the required t of 2.13 at the .05 level of confidence, it was found to be statistically significant. In the control group, while the girls exceeded the boys by a difference of 9.80 in the means, the obtained t of .09 was not statistically significant.

Differences according to kindergarten attendance. The experimental versus control comparisons for the effects of kindergarten attendance or non-kindergarten attendance on the composite score are shown in Table VI.

TABLE VI

MEAN DIFFERENCES OF COMPOSITE SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
Kindergarten						
E	6	100.99	15.06	9.26	.20	3.17
C	6	95.50	16.95			
Non-Kindergarten						
E	11	105.10	15.68	5.14	1.73	2.84
C	11	107.40	6.76			

As indicated in Table VI, page 50, the children who went to kindergarten achieved a mean of 100.99 in the experimental group and a mean of 95.50 in the control group. Due to an obtained t of .20 there was found to be no statistical significance in this comparison. Non-kindergarten children achieved a mean of 105.10 in the experimental group and a mean of 107.40 in the control group. An obtained t of 1.73 proved the difference to be statistically insignificant.

A within-group comparison of the effects of kindergarten attendance or non-kindergarten attendance on the composite score is shown in Table VII.

TABLE VII

MEAN DIFFERENCES OF COMPOSITE SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, WITHIN GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
Experimental						
Kind.	6	100.99	15.06	7.75	.08	2.95
N-Kind.	11	105.10	15.68			
Control						
Kind.	6	95.50	16.95	7.21	1.41	2.95
N-Kind.	11	107.40	6.76			

As shown in Table VII, page 51, the children who did not go to kindergarten in the experimental and control groups achieved higher mean scores than those who did attend kindergarten. In the experimental group, the mean for the kindergarten children was 100.99; for the non-kindergarten children the mean was 105.10. It is evident that the obtained t of .08 was not statistically significant. In the control group, the mean was 95.50 for the kindergarten children and 107.40 for the non-kindergarten children. The obtained t was 1.41. Again, the difference was not statistically significant.

Subtest Three: Word Recognition

Subtest three is a test of pupil ability in recognizing printed forms of words out of context. The test consists of fifty words with which first grade children should be familiar.

Difference between experimental and control groups. Table VIII, page 53, presents the comparison between experimental and control groups on the test in word recognition skills.

As shown in Table VIII, page 53, the experimental group was exceeded by the control group on the test in word recognition skills. The mean for the experimental group was 44.96 while the mean for the control group was 46.59. However, the obtained t of 1.65 proved the

difference between the means to be statistically insignificant.

TABLE VIII

MEAN DIFFERENCES OF SUBTEST THREE: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	17	44.96	7.14	1.97	1.65	2.75
C	17	46.59	3.88			

Difference between experimental and control boys' groups. The difference between the means of the experimental boys' and control boys' test in word recognition is shown in Table IX.

TABLE IX

MEAN DIFFERENCES OF BOYS' SUBTEST THREE SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	9	45.00	8.88	3.32	1.30	2.92
C	9	42.94	4.55			

It will be noted in Table IX that the boys' experimental group achieved a mean of 45.00 while the boys' control

group achieved a mean of 42.94. This would seem to be a reverse of the findings of the total group comparison in Table VIII, page 53, which showed the control group to be the highest in word recognition. However, the obtained t of 1.30 proved the difference to be statistically insignificant.

Difference between experimental and control girls' groups. Means for the experimental and control girls' groups for the test in word recognition are shown in Table X.

TABLE X

MEAN DIFFERENCES OF GIRLS' SUBTEST THREE SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	8	47.12	2.93	1.21	.93	2.98
C	8	48.37	1.80			

In the comparison shown in Table X, the experimental girls were exceeded by the control girls with a difference of 1.25 in the means. The obtained t of .93 was not statistically significant.

Differences according to kindergarten attendance. The experimental versus control comparisons for the effects of kindergarten attendance or non-kindergarten attendance

on achievement in word recognition are shown in Table XI.

TABLE XI

MEAN DIFFERENCES OF SUBTEST THREE SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σ_m	σ_{Dm}	Obtained t	Required t
Kindergarten						
E	6	43.67	6.07	3.34	.18	3.17
C	6	45.50	5.47			
Non-Kindergarten						
E	11	45.60	5.14	1.73	1.51	2.84
C	11	47.18	2.52			

It may be seen in Table XI, that children who went to kindergarten achieved a mean of 43.67 in the experimental group and a mean of 45.50 in the control group. The obtained t of .18 was not statistically significant. Non-kindergarten children achieved a mean of 45.60 in the experimental group and a mean of 47.18 in the control group. An obtained t of 1.51 proved the difference to be statistically insignificant.

A within-group comparison of the effects of kindergarten attendance versus non-kindergarten attendance on

subtest three is shown in Table XII.

TABLE XII

MEAN DIFFERENCES OF SUBTEST THREE SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, WITHIN GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
Experimental						
Kind.	6	43.67	6.07	2.92	.32	2.95
N-Kind.	11	45.60	5.14			
Control						
Kind.	6	45.50	5.47	2.36	1.25	2.95
N-Kind.	11	47.18	2.52			

As shown in Table XII, the children who did not attend kindergarten in the experimental and control groups achieved higher mean scores than those who did attend kindergarten. In the experimental group, the mean for the kindergarten children was 43.67; for the non-kindergarten children, the mean was 45.60. According to the obtained t of .32, the difference was not statistically significant. In the control group, the kindergarten children achieved a mean of 45.50 while the non-kindergarten children achieved a mean of 47.18. This difference, also, was not statistically significant.

Subtest Four: Word Attack

Subtest four requires the subjects to identify one strange word within a short story of known words. It is designed to measure a pupil's ability to attack strange words independently through the use of auditory and contextual clues (49:10).

Difference between experimental and control groups. Means for the experimental and control groups on the test in word attack skills are shown in Table XIII.

TABLE XIII

MEAN DIFFERENCES OF SUBTEST FOUR SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	17	15.82	3.19	.81	2.70	2.75
C	17	16.94	1.00			

As noted in Table XIII, the experimental group was exceeded by the control group with a difference in means of 1.12. This difference was not statistically significant at the .01 level of confidence. When the obtained t of 2.70 was compared with the required t of 2.04, it was found to be statistically significant at the .05 level of confidence.

Difference between experimental and control boys' groups. A comparison of the mean scores of the experimental and control boys' groups on the test in word attack skills is given in Table XIV.

TABLE XIV

MEAN DIFFERENCES OF BOYS' SUBTEST FOUR SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	9	15.00	4.50	1.53	2.39	2.92
C	9	16.55	.84			

It is evident in Table XIV that the control group had the higher mean. The experimental boys" group obtained a mean of 15.00 while the control boys' group obtained a mean of 16.55. This was not statistically significant at the .01 level of confidence. When the obtained t of 2.39 was compared with the required t of 2.12 at the .05 level of confidence, it was found to be statistically significant.

Difference between experimental and control girls' groups. A comparison of the experimental and control girls on the test in word attack skills is given in Table XV, page 59.

In Table XV, page 59, it can be seen that the mean of the experimental girls' group was exceeded by that of

the control girls' group with a difference of .62. The obtained t was .61 which was not statistically significant.

TABLE XV

MEAN DIFFERENCES OF GIRLS' SUBTEST FOUR SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	8	16.75	.97	.49	.61	2.98
C	8	17.37	1.00			

Differences according to kindergarten attendance. The experimental versus control comparisons for the effects of kindergarten attendance or non-kindergarten attendance on achievement in word attack skills are shown in Table XVI, page 60.

It can be seen in Table XVI, page 60, that children in the experimental group who had the experience of kindergarten rated lower on the test in word attack skills than children in the control group who had experienced kindergarten. The difference between the means for the kindergarten experimental and control groups was 1.50. The obtained t of 2.17 was not statistically significant.

Children in the experimental group who had not attended kindergarten also rated lower than those children in the control group who had not attended kindergarten. The obtained t of 2.15 was not statistically significant.

TABLE XVI

MEAN DIFFERENCES OF SUBTEST FOUR SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
Kindergarten						
E	6	15.33	3.45	1.14	2.17	3.17
C	6	16.83	.39			
Non-Kindergarten						
E	11	16.09	3.00	.86	2.15	2.84
C	11	17.00	.95			

Information concerning a within-group comparison of the effects of kindergarten attendance versus non-kindergarten attendance on the word attack score is given in Table XVII, page 61.

It is indicated in Table XVII that within groups the subjects who did not attend kindergarten achieved a higher mean score on the word attack skills test than

those who did attend kindergarten. In the experimental group, the kindergarten subjects achieved a mean of 15.33; the non-kindergarten subjects achieved a mean of 16.09. The obtained t of .26 was statistically insignificant. In the control group, the kindergarten subjects achieved a mean of 16.83; the non-kindergarten subjects achieved a mean of 17.00. The obtained t was 1.75 which was not statistically significant.

TABLE XVII

MEAN DIFFERENCES OF SUBTEST FOUR SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, WITHIN GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
Experimental						
Kind.	6	15.33	3.45	1.67	.26	2.95
N-Kind.	11	16.09	3.00			
Control						
Kind.	6	16.83	.39	.32	1.75	2.95
N-Kind.	11	17.00	.95			

Subtest Five: Reading Comprehension

Subtest Five is designed to test the pupil's ability to make a correct interpretation of: pictures, questions about the pictures, stories, and questions about the stories.

The vocabulary is carefully controlled and consists of words with which a first grade pupil should be familiar (49:11).

Difference between experimental and control groups. The difference between the means on the test in reading comprehension for the experimental and control groups is shown in Table XVIII.

TABLE XVIII
MEAN DIFFERENCES OF SUBTEST FIVE SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σ_m	σ_{Dm}	Obtained t	Required t
E	17	43.08	5.80	2.68	1.35	2.75
C	17	39.68	9.42			

It was shown in Table XVIII that the experimental group achieved a mean of 43.08 in reading comprehension while the control group achieved a mean of 39.68. This was a difference of 3.40 in favor of the experimental group. The obtained t of 1.35, however, was not statistically significant.

Difference between experimental and control boys' groups. The difference between the means on the test in reading comprehension for the experimental and control groups is given in Table XIX, page 63.

As shown in Table XIX, the experimental boys' group achieved a mean of 41.16; the control boys' group achieved a mean of 36.96. The obtained t for the comparison was .48 which was not found to be statistically significant.

TABLE XIX

MEAN DIFFERENCES OF BOYS' SUBTEST FIVE SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	9	41.16	7.18	3.87	.48	2.92
C	9	36.96	9.14			

Difference between experimental and control girls' groups. The comparison for the experimental and control girls' groups on the test in reading comprehension is given in Table XX.

TABLE XX

MEAN DIFFERENCES OF GIRLS' SUBTEST FIVE SCORES: EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
E	8	45.37	2.50	3.38	1.20	2.98
C	8	42.74	9.24			

As shown in Table XX, page 63, the experimental girls' group exceeded the control girls' group by a difference in means of 2.63. However, the obtained t of 1.20 proved the difference to be statistically insignificant.

Differences according to kindergarten attendance. The effect of kindergarten or non-kindergarten attendance on the test in reading comprehension was noted in a comparison between the experimental and control groups. Table XXI contains this information.

TABLE XXI

MEAN DIFFERENCES OF SUBTEST FIVE SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, EXPERIMENTAL AND CONTROL GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
Kindergarten						
E	6	42.17	5.81	5.85	1.25	3.17
C	6	33.50	13.10			
Non-Kindergarten						
E	11	43.60	5.74	2.14	.72	2.84
C	11	43.00	4.20			

As may be seen in Table XXI, children in the experimental group who attended kindergarten achieved a mean of

42.17. Children in the control group who attended kindergarten achieved a mean of 33.50. This resulted in a difference in means of 8.67 in favor of the experimental group. An obtained t of 1.25 proved the difference to be statistically insignificant. Children in the experimental group who did not attend kindergarten achieved a mean of 43.60 while children in the control group who did not attend kindergarten achieved a mean of 43.00. The difference of .60 between the means favored the experimental group. An obtained t of .72 proved the difference to be statistically insignificant.

A within-group comparison of the effects of kindergarten or non-kindergarten attendance on the test in reading comprehension is given in Table XXII, page 66.

As seen in Table XXII, page 66, within the experimental group, children who attended kindergarten achieved a mean of 42.17; children who did not attend kindergarten achieved a mean of 43.60. This resulted in a mean difference of 1.43 in favor of those children who did not attend kindergarten. The obtained t of .02 was not statistically significant. Within the control group, children who attended kindergarten achieved a mean of 33.50 while children who did not attend kindergarten achieved a mean of 43.00. The mean difference was 9.50 in favor of those

children who did not attend kindergarten. The obtained t of 1.62 was not statistically significant.

TABLE XXII

MEAN DIFFERENCES OF SUBTEST FIVE SCORES: KINDERGARTEN OR NON-KINDERGARTEN ATTENDANCE, WITHIN GROUPS

Group	N	Obtained Mean	σm	σDm	Obtained t	Required t
Experimental						
Kind.	6	42.17	5.81	2.94	.02	2.95
N-Kind.	11	43.60	5.74			
Control						
Kind.	6	33.50	13.10	5.49	1.62	2.95
N-Kind.	11	43.00	4.20			

IV. SUMMARY OF CHAPTER

It was the purpose of this chapter to give an analysis of the data collected. Topics discussed included: the questionnaire which was completed by the control teachers, the survey of work completed in the SRA Lab by the experimental group, and results of the achievement test given to the experimental and control groups at the close of the study. Tables of mean differences were shown and discussed.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATION

I. SUMMARY

This study was conducted with a group of first grade children to ascertain the value of the SRA Reading Laboratory I-a when used as a supplement to the basic reading program. Comparisons were made with another group of first grade children who used an informal reading program as a supplement to the basic reading program.

The study was conducted over a period of five months during the last half of the 1964 school year.

Experimental and control groups were matched according to sex, kindergarten experience, general health, and I.Q. Socio-economic background was also considered.

The effect of teacher variables was reduced by selecting the control group randomly from three comparable first grade classes.

Results of achievement tests given to both groups at the end of the study were compared. An analysis was made of the difference between the means for the composite and subtest scores. The t-test was applied to determine statistical significance at the .01 level of confidence. A brief summary of each test score is given below.

Composite Score

A comparison of means for pupil achievement on the composite score revealed:

The differences between the mean scores for the experimental group versus the control group, the experimental boys versus the control boys, and the experimental girls versus the control girls were slight and of no statistical significance. The difference between the means in all three comparisons was less than .6.

The girls achieved higher mean scores than the boys in both the experimental and control groups. In the experimental group the girls surpassed the boys with a mean difference found to be statistically significant at the .05 level of confidence. The difference between the girls and boys in the control group was not statistically significant.

Those children who attended kindergarten in the experimental group achieved a higher mean score than those who attended kindergarten in the control group. Those children who did not attend kindergarten in the experimental group achieved a lower mean score than those who did not attend kindergarten in the control group. No statistical significance was revealed through the application of the t test.

On a within-group comparison, those children who did not attend kindergarten achieved a higher mean score than

those who did attend kindergarten in both the experimental group and the control group. The differences were not statistically significant.

Subtest Three: Word Recognition

A comparison of means for pupil achievement on the test in word recognition revealed:

The mean score for the experimental group was exceeded by the mean score for the control group, although the difference was not statistically significant.

The experimental boys' mean score exceeded the control boys' mean score while the mean score for the experimental girls was exceeded by the mean score for the control girls. Neither comparison was statistically significant.

Those children who attended kindergarten in the experimental group achieved a lower mean score than those children who attended kindergarten in the control group. Children who did not attend kindergarten in the experimental group also achieved a lower mean score than children who did not attend kindergarten in the control group. The differences were not statistically significant.

On a within-group comparison, those children who did not attend kindergarten achieved a higher mean score in the experimental group and in the control group than those children who did attend kindergarten. Again the differences were not statistically significant.

Subtest Four: Word Attack

A comparison of the means for pupil achievement on the test in word attack skills revealed:

The mean score for the experimental group was exceeded by the mean score for the control group. The difference was statistically significant at the .05 level of confidence.

The mean score for the experimental boys was exceeded by the mean score for the control boys. The difference was statistically significant at the .05 level of confidence.

The experimental girls' mean score was exceeded by the control girls' mean score. The difference was not statistically significant.

Those children who attended kindergarten in the experimental group achieved a lower mean score than those who attended kindergarten in the control group. Those who did not attend kindergarten in the experimental group also achieved a lower mean score than those who did not attend kindergarten in the control group. The differences were not statistically significant.

On a within-group comparison, children who did not attend kindergarten achieved a higher mean score in the experimental group and in the control group than children who did attend kindergarten. The differences were not statistically significant.

Subtest Five: Comprehension

A comparison of the means for pupil achievement on the test in comprehension indicated:

The mean score for the experimental group exceeded the mean score for the control group, although the difference was not statistically significant.

The experimental boys achieved a higher mean score than the control boys; the experimental girls achieved a higher mean score than the control girls. Neither difference was statistically significant.

Those children who attended kindergarten in the experimental group achieved a higher mean score than those who attended kindergarten in the control group. Those children who did not attend kindergarten in the experimental group achieved a higher mean score than those who did not attend kindergarten in the control group. The differences were not statistically significant.

On a within-group comparison those children who did not attend kindergarten achieved a higher mean score in the experimental group and in the control group than those children who did attend kindergarten. The differences were not statistically significant.

II. CONCLUSIONS

The original hypothesis stated:

> There will be no significant difference in silent reading comprehension between first grade pupils who have worked with the Power Building Program of the SRA Reading Laboratory I-a as a formal supplement to the basic reading program, and those first grade pupils who have participated in informal supplementary reading in conjunction with the basic reading program.

On the basis that this study revealed no statistically significant findings at the .01 level of confidence, and with the original limitations of the study in mind, it is concluded that the original hypothesis may be accepted.

III. IMPLICATIONS

There are certain details which should not be overlooked since they have a direct bearing on the interpretation of this study.

Word Attack

In Subtest Four: Word Attack, the control group achieved a higher mean score than the experimental group. This was found to be statistically significant at the .05 level of confidence. Also, the control boys' group achieved a higher mean score than the experimental boys' group in word-attack skills. Again this difference was statistically significant at the .05 level. It is worth noting that the other comparisons in Subtest Four also favored the control group, though they were not statistically significant.

This apparent strength of the control group in word-attack skills leads one to question the methods of learning word-attack skills which were employed in the experimental group. It would necessitate further research in which several experimental groups were compared with several control groups to determine whether the weakness in this area was due to teacher variables or to the materials being tested.

The investigator did note some discrepancies in the SRA Laboratory materials which might have a bearing on this question. For example: early in the Gold (1.2) level the use of picture clues above unknown words is employed as a word-attack device. In certain instances the picture clue is misleading. A picture of a saw for cutting wood is given as a clue for attacking a sentence such as "The boy saw a bird." A picture of two eyes is used to attack the word looked. A drawing of the sun is used to attack the word day. Many children indicated confusion over these picture clues.

Another difficult aspect of the SRA materials confronts the children when they attempt to do the word study exercises at the end of each story. In the early levels of the lab, they are given a list of consonant sounds to match with a list of vowel phonograms to make "real words." Some of the combinations do not make real words. Children in the experimental group exhibited the confusion which can

come from working with phonograms.[2] In the more difficult levels, phonetic elements were sometimes presented erroneously. For example: in the Olive (2.3) level, children were asked to find the in sound in paint and finish.

Vocabulary

The investigator found the vocabulary load extremely heavy in the first two color levels of the Lab. While it seemed to offer a challenge to the more able students in the group, several of the less able students were visibly struggling with material which was above their independent reading level. The Lab would have been more useful to the less able students if the amount of easy stories had been doubled or tripled. Many students were not ready to go on to the next level of difficulty when they had finished all twenty of the first-level stories. Perhaps this observation could lead one to the implication that the SRA Reading Laboratory I-a may be best suited for use by the high-ability children in first grade.

Comprehension

It should be noted that the findings of this study indicated a strength in comprehension skills for the experimental group. Although not statistically significant, the

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[2]A discussion of phonograms was given in Chapter III, page 34.

experimental group achieved higher mean scores in all comparisons on the test in comprehension. This suggests a need for further research using a larger N factor than was possible in this study to aid in obtaining a statistically significant answer to the question of which method of supplementary reading contributes more to the acquisition of comprehension skills.

Differences Between Sexes

Although not directly related to the hypothesis, it is interesting to note the tendency for girls to excel the boys in this study. The comparison made on the composite score showed a significant difference at the .05 level of confidence in favor of the girls over the boys in the experimental group. The girls also excelled the boys in the control group although the difference was not statistically significant. This would seem to lend support to other studies which have indicated that due to maturation girls often excel boys at this level.

Differences According to Kindergarten Experience

Though not statistically significant, the trends of this study would seem to support the children who have not attended kindergarten. In all within-group comparisons, the non-kindergarten groups achieved the higher mean score. It would not seem advisable to place much importance on this

aspect of the study. The Yakima School District does not have public school kindergartens. As a consequence, the N for children in the study who attended kindergarten was very small (six pupils).

Development of Independent Study Skills

Perhaps the most valuable asset of the SRA Reading Laboratory materials was left unmeasured. The investigator noticed many indications among the pupils in the experimental group that good habits of independent study were being developed. Yet, this developmental skill was impossible to measure in a standardized achievement test. It is important to remember the necessity of attaining good independent work habits when evaluating the strengths of the SRA program.

IV. NEED FOR FURTHER RESEARCH

In discussing the implications of this study several problems were mentioned which could profit from further research:

It would be desirable to repeat this study using a larger number of control and experimental groups in an attempt to reduce the influence of teacher variables.

An effort to locate and correct obvious errors in the word attack skills which are taught in the SRA Reading Laboratory would strengthen the program.

More efficient use could be made of the Lab if a project were undertaken to determine the readability level of each color level in the Power Builder Program.

Need for further research with a larger N is indicated to determine the value of the SRA Reading Laboratory in teaching comprehension skills.

It would be valuable to all researchers if a method of measuring interest and independent study skills could be devised and applied to a study of the SRA Reading Laboratory.

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APPENDIX A

QUESTIONNAIRE ON READING PROGRAM OF CONTROL GROUPS

EXPLANATION: This questionnaire has been designed in an attempt to describe the reading program of classrooms whose students will be used as a comparison for an experimental type of reading program. Students who have been taught under your basic program will be compared with students who have had opportunity to use the SRA Reading Laboratory as supplementary reading material. It is hoped to determine the value of the SRA materials for first grade use from the results of this experiment. Your careful attention to the questionnaire will be appreciated. I shall be happy to share the results of this experiment with you when it is concluded. Thank you.

Doris Ayyoub

1. Would you please check each blank which accurately describes your morning or "basic" reading program.

_____ A. Use of Houghton-Mifflin and Scott Foresman materials as co-basic series.

_____ B. Instruction given to a number of small groups. (If checked, please indicate average amount of teacher-time spent with each group. _____.)

_____ C. Careful teaching of skills as outlined in the manual of basic series.

_____ D. Extensive supplementary reading being done by more able students during free time.

_____ E. Use of one text by all students, with children taking turns reading orally. (If checked, please indicate average amount of teacher-time spent with this activity. _____.)

_____ F. Limited pre-reading preparation and teaching of skills as outlined in the manual of basic series.

_____ G. Limited supplementary reading being done by more able students during free time.

2. Would you please check each blank which accurately describes your afternoon or "supplementary" reading program.

_____ A. Meeting with each group for a second time each day with continued work in basic texts and workbooks. (If checked, please indicate average amount of time spent with each group. _____.)

_____ B. Meeting with each group for a second time each day for reading of supplementary books and weekly newspaper. (If checked, please indicate average amount of time spent with each group. _____.)

_____ C. Reading and sharing orally of one supplementary text or weekly newspaper by all students. (If checked, please indicate average amount of teacher-time spent with this activity. _____.)

_____ D. Use of an individualized program of reading. (If checked, please indicate average amount of time spent in this activity. _____.)

3. If you employed any type of individualized reading program with your class, could you describe briefly how it was organized?

_____

_____

_____

_____

_____

_____

_____

APPENDIX B

STROUD • HIERONYMUS • McKee •

Primary Reading Profiles

LEVEL ONE

Pupil's Name _____

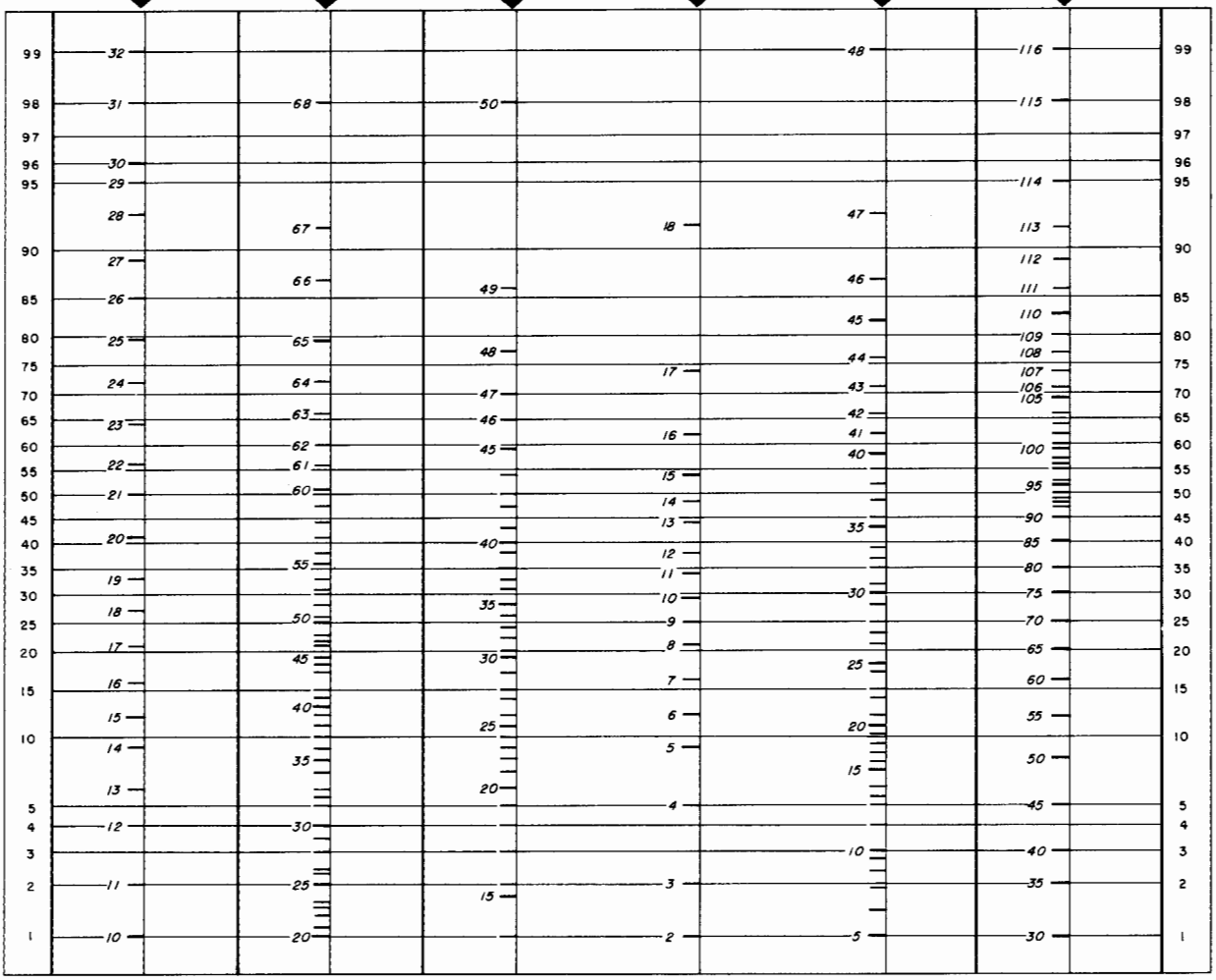
Sex _____ Grade _____ Date _____

School _____

Teacher's Name _____

Comments: _____

	TEST 1 Aptitude for Reading	TEST 2 Auditory Association	TEST 3 Word Recognition	TEST 4 Word Attack	TEST 5 Reading Comprehension	TESTS 3-4-5 Composite Score
POSSIBLE SCORE →	32	68	50	18	48	116
SCORE →						
RANK →						



Test

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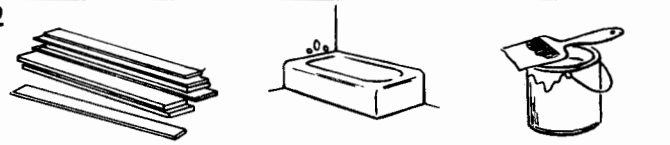
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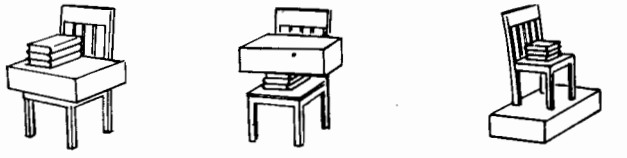
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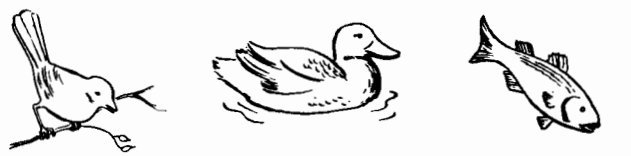
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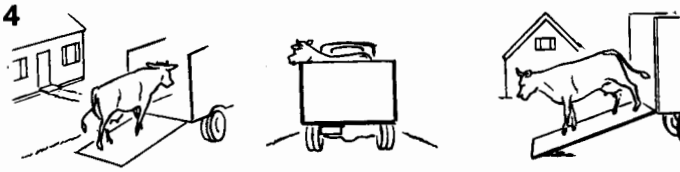
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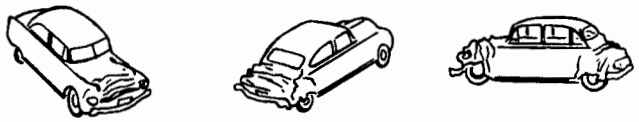
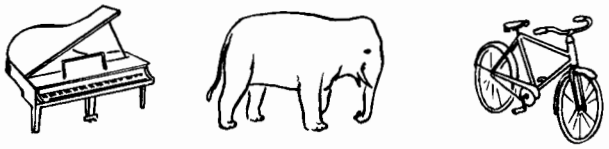
1 

2 

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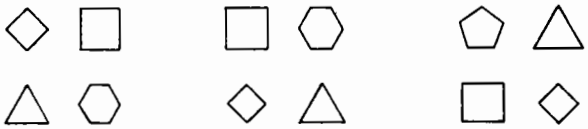
4 

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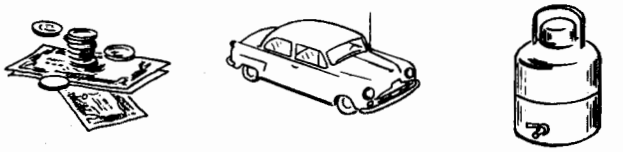
7 

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D

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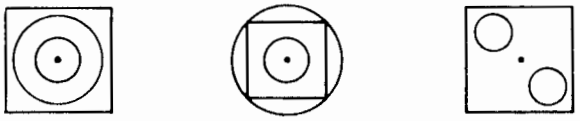
2 

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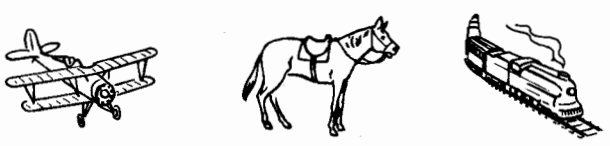
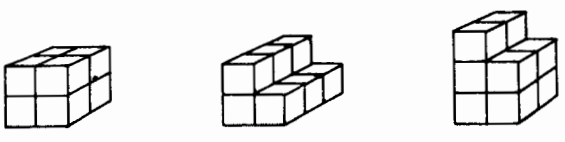
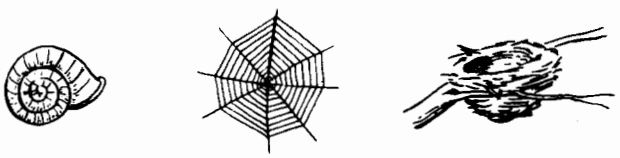
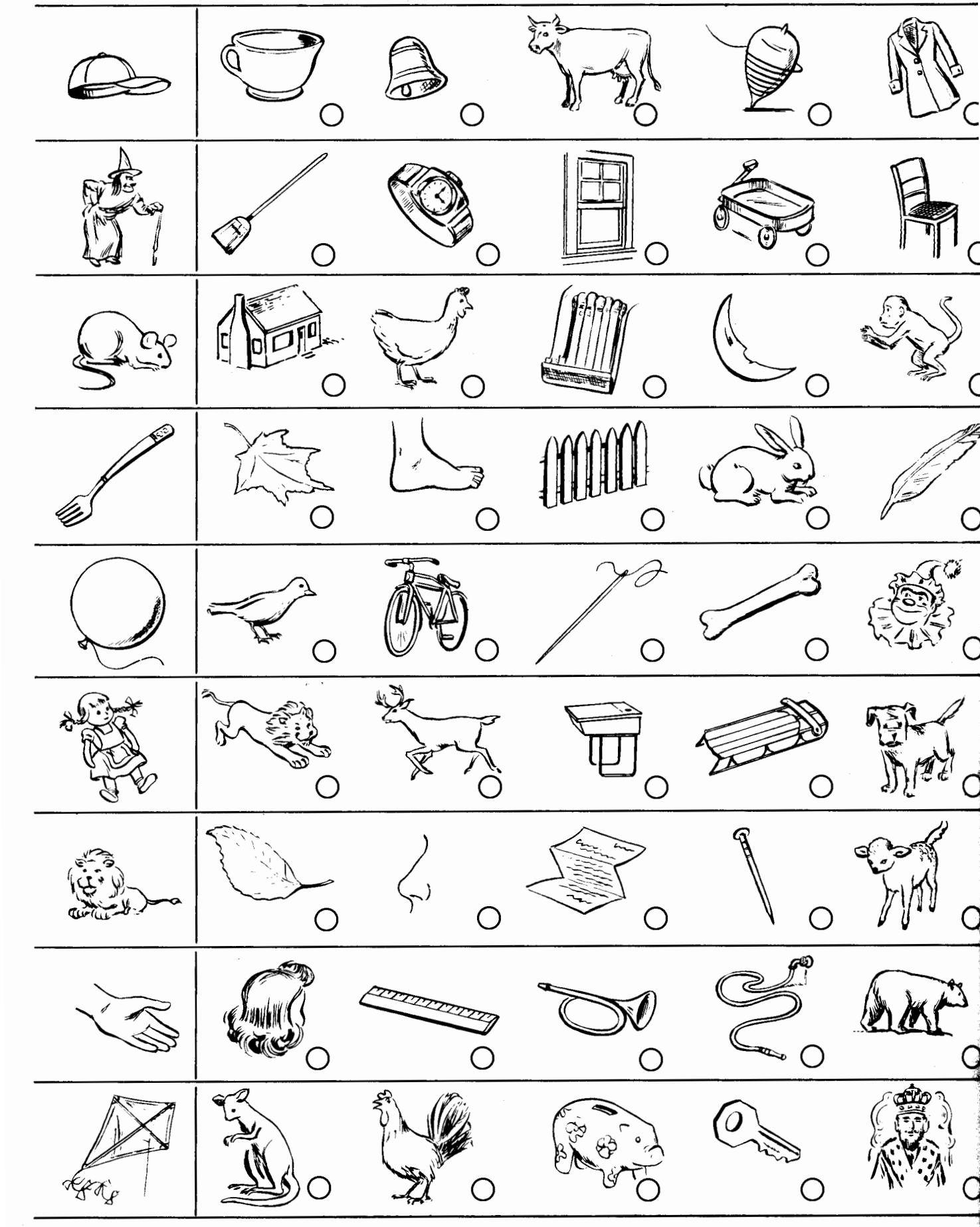
6 

7 

8 

STOP

SCORE



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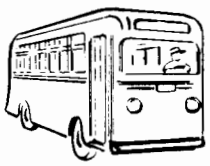

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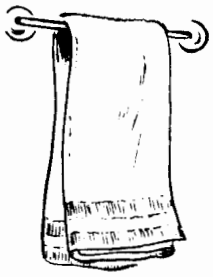

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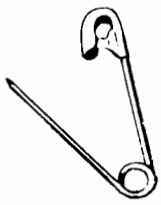

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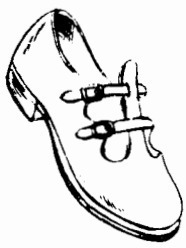

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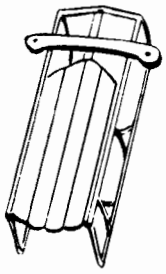

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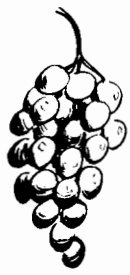

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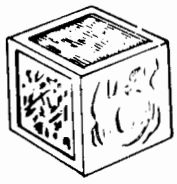

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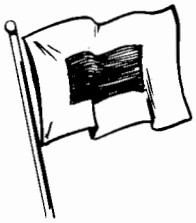

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STOP

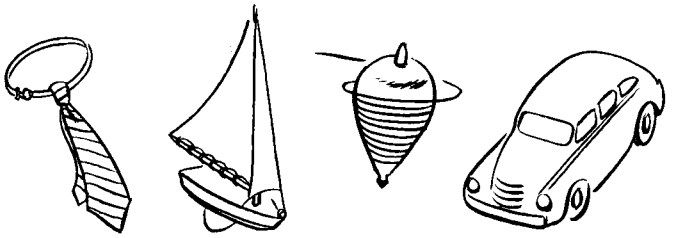
SCORE

	1	2	3	4	5
A	○ pump	○ plaster	○ ma	○ black	○ berry
	○ jump	○ faster	○ am	○ true	○ hurry
	○ just	○ after	○ any	○ broom	○ funny
	○ goat	○ afraid	○ can	○ blue	○ heard
B	○ slept	○ over	○ part	○ goose	○ sat
	○ desk	○ never	○ think	○ choose	○ say
	○ kept	○ elephant	○ paint	○ circus	○ sit
	○ keep	○ near	○ peanut	○ shoe	○ pat
C	○ read	○ tank	○ gab	○ quiet	○ pike
	○ degrade	○ king	○ bar	○ prize	○ zebra
	○ parrot	○ string	○ bag	○ light	○ ride
	○ parade	○ think	○ rag	○ stripe	○ prize
D	○ cake	○ belong	○ rest	○ really	○ show
	○ gate	○ strong	○ green	○ party	○ should
	○ kite	○ behind	○ grass	○ paint	○ shoe
	○ cage	○ song	○ guess	○ thirsty	○ stood
E	○ walking	○ horse	○ ever	○ white	○ pencil
	○ witch	○ more	○ river	○ match	○ penny
	○ wishing	○ home	○ clover	○ which	○ picture
	○ wanting	○ four	○ never	○ next	○ paint

	1	2	3	4	5
A	○ strike	○ five	○ little	○ almost	○ wagon
	○ street	○ call	○ kettle	○ alone	○ word
	○ sheep	○ help	○ like	○ belong	○ would
	○ green	○ calf	○ paddle	○ long	○ cloud
	1	2	3	4	5
B	○ laugh	○ mine	○ hunting	○ orange	○ shoe
	○ look	○ maybe	○ wanted	○ ostrich	○ true
	○ calf	○ among	○ wished	○ going	○ toy
	○ cage	○ money	○ walked	○ among	○ trick
	1	2	3	4	5
C	○ heard	○ got	○ is	○ our	○ than
	○ card	○ hot	○ if	○ now	○ where
	○ hard	○ pot	○ it	○ own	○ think
	○ hot	○ not	○ in	○ home	○ when
	1	2	3	4	5
D	○ another	○ came	○ out	○ ride	○ fast
	○ bother	○ clean	○ count	○ fast	○ first
	○ around	○ green	○ cloud	○ gate	○ feet
	○ river	○ color	○ know	○ race	○ circus
	1	2	3	4	5
E	○ fog	○ down	○ slowing	○ this	○ horse
	○ four	○ don't	○ gone	○ these	○ heard
	○ fun	○ done	○ hoeing	○ there	○ dark
	○ bar	○ one	○ going	○ those	○ first

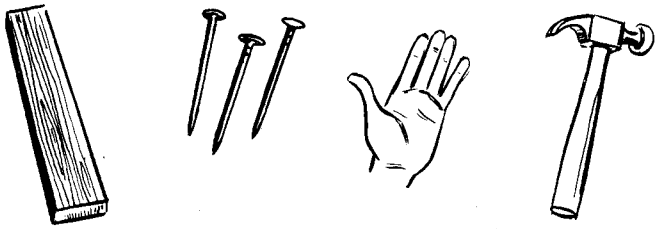
SCORE

The little boy
has something to play with.
It is a top.



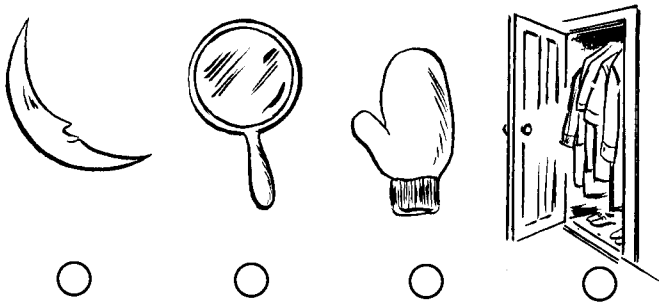
○ ○ ○ ○

Jack wanted to make a house
for his dog.
He asked his daddy
for a hammer.



○ ○ ○ ○

Jack liked the new cap
his mother got for him.
He said, "I want to see
how I look.
I will look in the mirror."



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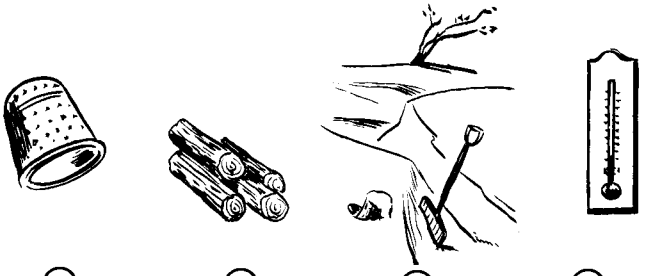
It was a very cold day.
"How cold is it?" asked Tom.
Tom's daddy said,
"Look at the thermometer."

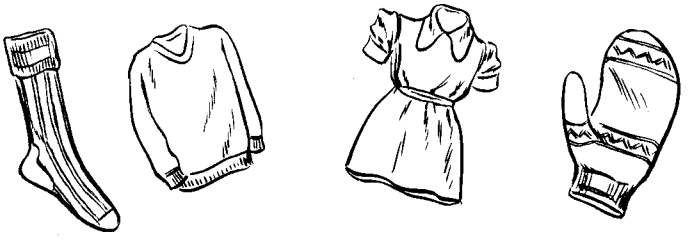


○ ○ ○ ○

One night it was very cold.
Dot was going to bed.
Her mother said,
"Here is another blanket."

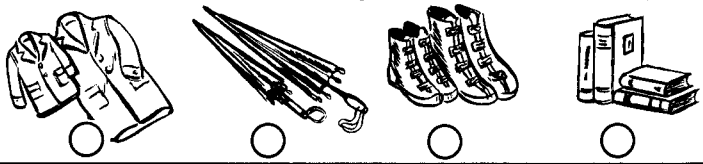
○ ○ ○ ○

Penny laughed and laughed.
"I did something funny.
I put on my shoe
before I put on my stocking."



○ ○ ○ ○

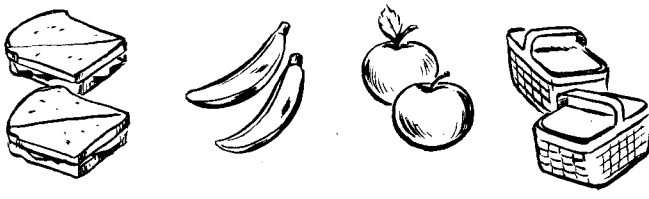
Jack was going for a walk
with his daddy.
His mother said,
"It is wet and cold
out on the street.
You must have your boots."



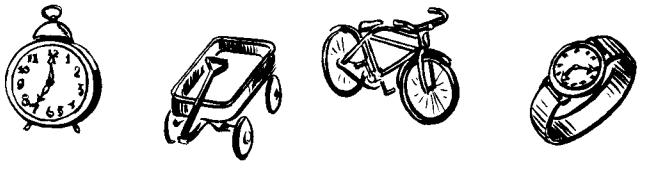
Dick and his daddy
went for a walk.
It had been cold
a long time.
The ice on the water
was very hard.
Dick's daddy said,
"I wish we had our skates."

Now Janet can be
in the girls' band.
Her mother gave her a drum.

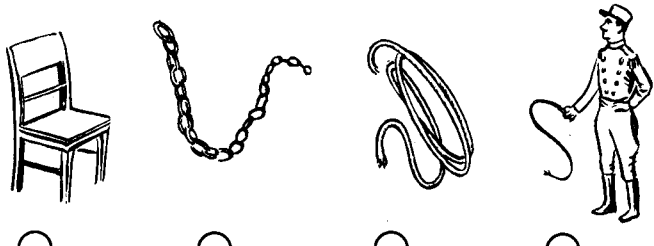
Jack and his daddy
were going fishing.
Jack's mother said,
"You may want something to eat
before you get home.
Here are some bananas."



Now Tom can tell
when it is time to go home.
He has a new watch.



"The elephant cannot come
over here," said Dot's daddy.
"He is kept over there
by that strong chain."



"I will eat my ice cream,"
said Penny, "as soon as
I get a spoon."

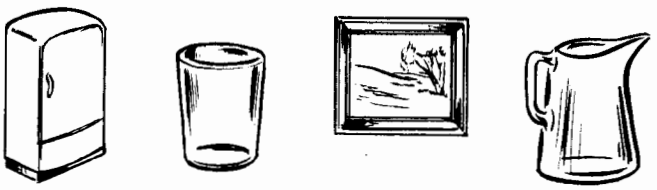
Janet is very happy today.
She has a new tooth.

Dot's mother said,
"I must do the dishes
as soon as I put on my apron."

Janet said, "I must have
some hot water.
I will get some
out of the kettle."

After Tom and Jack
had been walking a long time,
they wanted to sit down.
They sat on a log.

Janet had been out playing.
When she came in,
her mother said,
"You will find some cold water
in the pitcher."

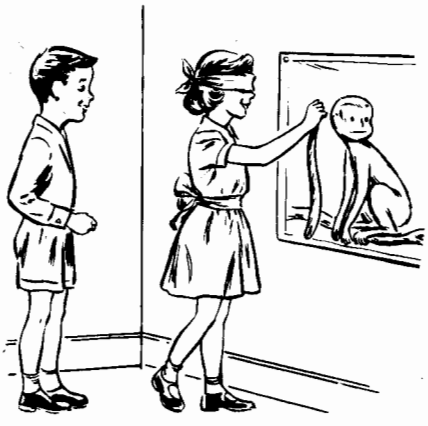


Jack went for a walk.
He wanted to take something
home to his mother.
He got her some flowers.

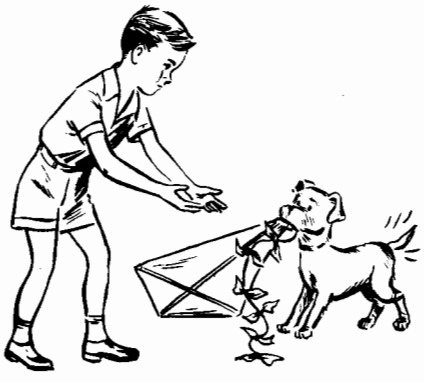
STOP

SCORE

Does the dog have a mitten? ○ Yes ○ No
Does the mitten belong to him? ○ Yes ○ No
Does the little girl want him to give it back to her? ○ Yes ○ No

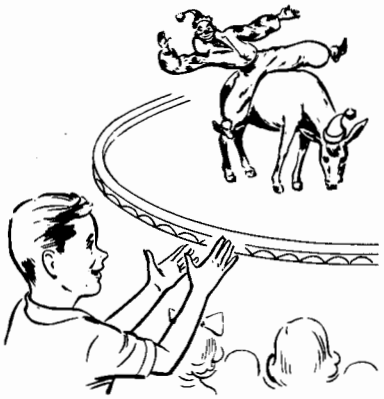


Can the girl see what she is doing? ○ Yes ○ No
Is the boy behind the girl? ○ Yes ○ No
Is the boy about as big as the girl? ○ Yes ○ No



Does the dog want to play? ○ Yes ○ No
Is the boy playing with the dog? ○ Yes ○ No
Does the boy like what the dog is doing? ○ Yes ○ No

Does the little girl have three kittens? ○ Yes ○ No
Are they running away from her? ○ Yes ○ No
Does she have something that kittens like? ○ Yes ○ No



Does the man in this picture belong to a circus? ○ Yes ○ No

Does the boy belong to a circus? ○ Yes ○ No

Does the boy like what the man is doing? ○ Yes ○ No

Does the girl want to get the kitten back? ○ Yes ○ No

Does the kitten want to come back to the girl? ○ Yes ○ No

Is the girl running away from the kitten? ○ Yes ○ No

Are these boys coming from a circus? ○ Yes ○ No

Do all three boys have some fish? ○ Yes ○ No

Does one boy have more fish than the other boys? ○ Yes ○ No

Is the dog helping the girl? ○ Yes ○ No

Does the girl like what the dog did? ○ Yes ○ No

Can the girl use the dish now? ○ Yes ○ No

STOP

One day Jack and his daddy
went to the circus.
They saw some kangaroos and elephants.
They got some ice cream.

1. Did Jack go alone to the circus? ○ Yes ○ No
2. Did Jack get anything to eat at the circus? ○ Yes ○ No

Dot's little kitten ran away.
She looked and looked for it.
It was gone a long time.
Then Jack got it back for her.

1. Was it Dot's little dog that ran away? ○ Yes ○ No
2. Did Dot find the kitten herself? ○ Yes ○ No
3. Did somebody help her find it? ○ Yes ○ No
4. Was Jack good to Dot? ○ Yes ○ No

Jack and his daddy went out
to the farm.
They went for a long walk.
They were happy all day long.
It was dark when they got home.

1. Did Jack and his daddy go to a birthday party? ○ Yes ○ No
2. Did Jack have fun at the farm? ○ Yes ○ No
3. Was it night when they got home? ○ Yes ○ No
4. Did Jack take a walk alone? ○ Yes ○ No

Dick came to some water.
He said, "I can jump over the water."
Dick ran and jumped.
He jumped as far as he could,
but he did not get over.
When he got up
his clothes were all wet.

1. Did Dick think he could jump over the water? ○ Yes ○ No
2. Did Dick go around the water? ○ Yes ○ No
3. Did he get wet? ○ Yes ○ No
4. Would Dick's mother like what he did? ○ Yes ○ No

Jack was a big boy.
Penny was a little girl.
One day Jack and Penny
went to a birthday party.
They could choose prizes.
Jack got a bag with many peanuts in it.
Penny got a funny bag
with one peanut in it.
All the boys and girls laughed.
Then Jack gave Penny some of his peanuts.

1. Was Penny as big as Jack? ○ Yes ○ No
2. Did Jack go to the party with Penny? ○ Yes ○ No
3. Did Penny give Jack some peanuts? ○ Yes ○ No
4. Do you think Jack liked Penny? ○ Yes ○ No

Sam is little.
He has four little feet.
He can run very fast.
Sam is a little mouse.

Sam said, "Now I am big.
The kitten cannot get me."
He stood up on two feet
and looked around.
He began to hop.
He was having fun.
Just then a wagon
came down the street.
Sam said, "I am big.
I will take a ride."
He got into the wagon.

Down the street
went Sam in the wagon.
At first it was fun.
Then Sam did not know
where he was.
He said, "I am little.
I want to go home."
He cried and cried.

Before long the wagon
came back to Sam's street.
Sam was very happy.
When the wagon stopped
he ran to his mother.
Then Sam said,
"Now I am big again."

1. Was Sam a mouse? ○ Yes ○ No
2. Did Sam have just two feet? ○ Yes ○ No
3. Did Sam like to hop? ○ Yes ○ No
4. Did Sam ride in a wagon? ○ Yes ○ No
5. Was Sam happy all the time he was away from home? ○ Yes ○ No
6. Did the kitten get Sam? ○ Yes ○ No
7. Did Sam like to ride at first? ○ Yes ○ No
8. Did Sam know where he was all the time? ○ Yes ○ No
9. Did Sam get back to his mother? ○ Yes ○ No
10. Did Sam ever say he was little? ○ Yes ○ No

SCORE

SRA PRIMARY MENTAL ABILITIES

— FOR AGES 5 TO 7 —

Profile Revised November, 1954

Prepared by THELMA GWINN THURSTONE, University of North Carolina
and L. L. THURSTONE, University of North Carolina

With the cooperation of the Bureau of Child Study of the Chicago Public Schools
Drawings by Lois Fisher

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Please use number 7-261 when reordering this test booklet

Name _____ **Date of Test** _____

School _____ **Birth Date** _____

Grade _____ **Room** _____ **Age** _____

Raw Score **V** [ ] **P** [ ] **Q** [ ] **Mo** [ ] **S** [ ]

MA	Score	Wgt.	Score	Wgt.	Score	Wgt.	Score	Score	Wgt.
9- 0			29	90	27	297	47		
10							46		
8	49	234	28	87	26	286	45		
8- 6							44	24	68
4	48	225	27	83	25	275	43		
2	47	220					42		
8- 0			26	80	24	264	41	23	64
10	46	211					40		
8	45	207	25	77	23	253	39	22	61
7- 6							38		
4	44	198	24	73	22	242	37	21	59
2	43	193	23	72	21	237	35-36		
7- 0			22	70	20	231	33-34	20	56
10	42	184	21	68	19	226	31-32		
8	41	180	20	67	18	220	29-30	19	53
6- 6	39-40	175	18-19	65	17	215	27-28	18	52
4	38	171	17	63	16	209	25-26	17	51
2	36-37	166	16	62	15	204	23-24	16	49
6- 0	35	162	15	60	14	198	21-22	15	48
10	33-34	157	14	58	13	193	20	14	47
8	31-32	153	13	57	11-12	187	18-19	13	45
5- 6	29-30	148	11-12	55	10	182	17	12	44
4	27-28	144	9-10	53	9	176	16	11	43
2	26	139	8	52	8	171	14-15	10	41
5- 0	24-25	135	7	50	7	165	13		
10	23	130	5-6	48	6	160	12	9	39
8	22	126	4	47			11	8	37
4- 6	21	121	3	45	5	149	10		
4	19-20	117	2	43	4	143	9	7	35
2	18	112			3	138		6	33
4- 0	17	108					8		
10	16	103			2	127		5	31
8	14-15	99						4	29
3- 6	13	94							
4	12	90						3	27
2	11	85						2	25
3- 0	10	81							

V—Wgt. _____

P—Wgt. _____

Q—Wgt. _____

S—Wgt. _____

Total—Wgt. _____

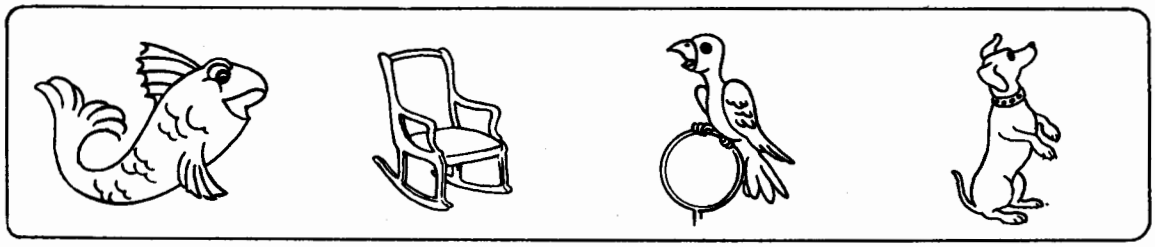
Total Score

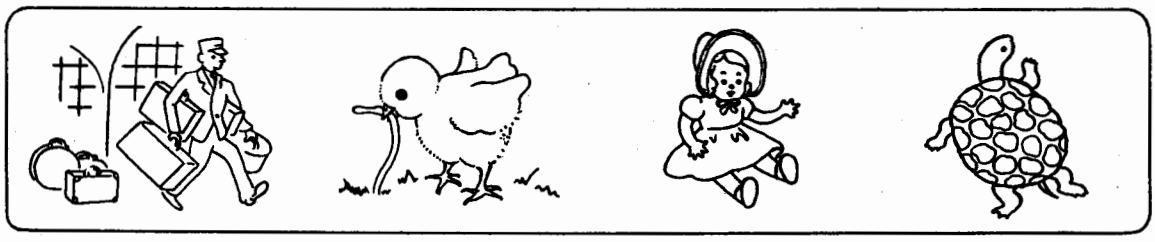
Wgt.	MA
702	9- 0
689	10
676	8
663	8- 6
650	8- 4
637	2
624	8- 0
611	10
598	8
585	7- 6
572	7- 4
559	2
546	7- 0
533	10
520	8
507	6- 6
494	6- 4
481	2
468	6- 0
455	10
442	8
429	5- 6
416	5- 4
403	2
390	5- 0
377	10
364	8
351	4- 6
338	4- 4
325	2
312	4- 0
299	10
286	8
273	3- 6
260	3- 4
247	2
234	3- 0

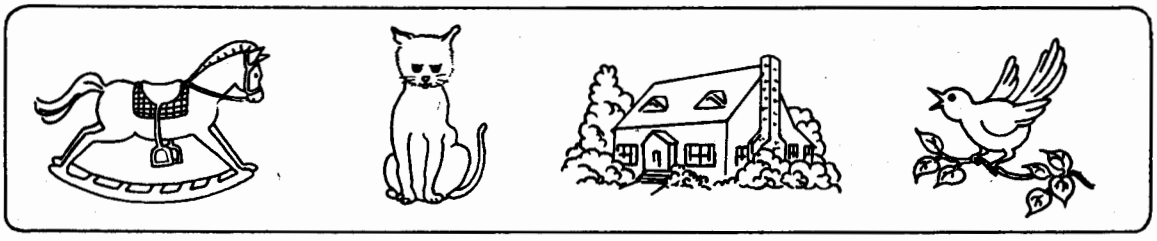
MA SCORES **V** [ ] **P** [ ] **Q** [ ] **Mo** [ ] **S** [ ] **Total** [ ]

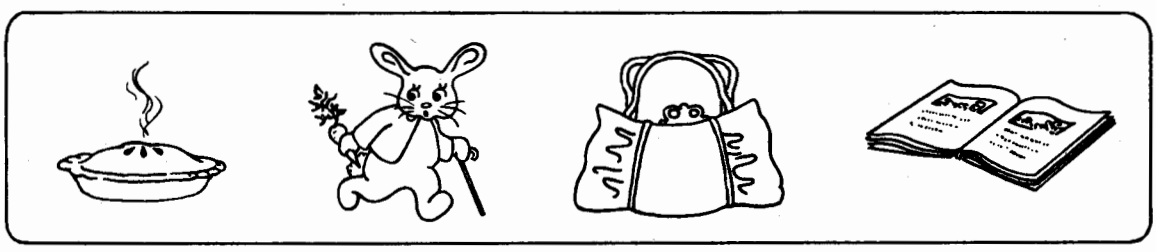
CHRONOLOGICAL AGE [ ] [ ]

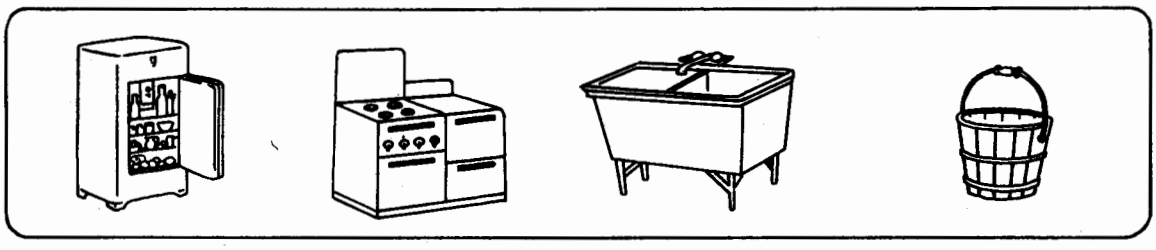
QUOTIENT SCORES **V** [ ] **P** [ ] **Q** [ ] **Mo** [ ] **S** [ ] **Total** [ ]

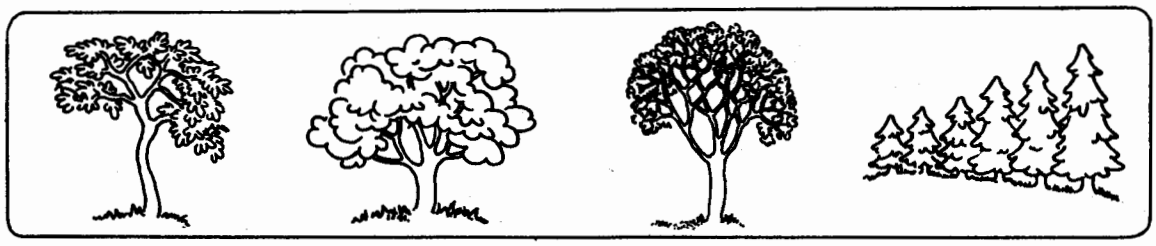


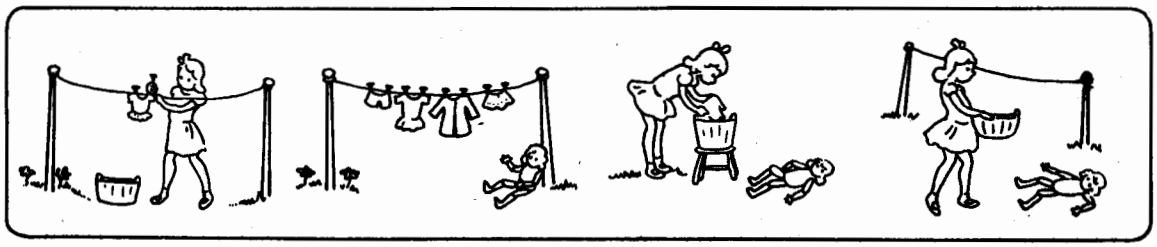


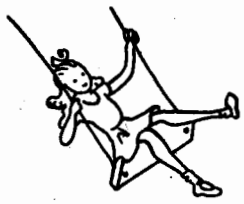


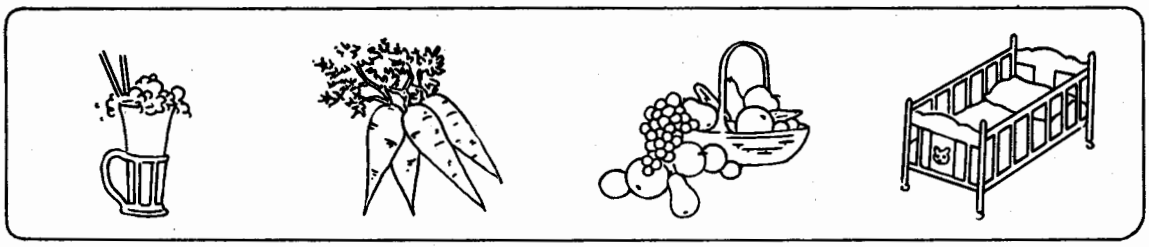


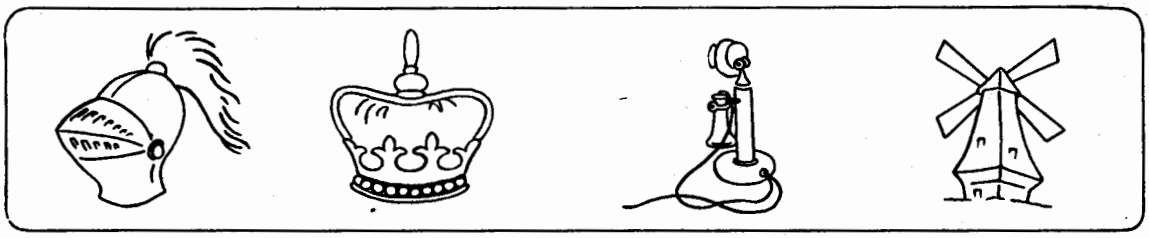


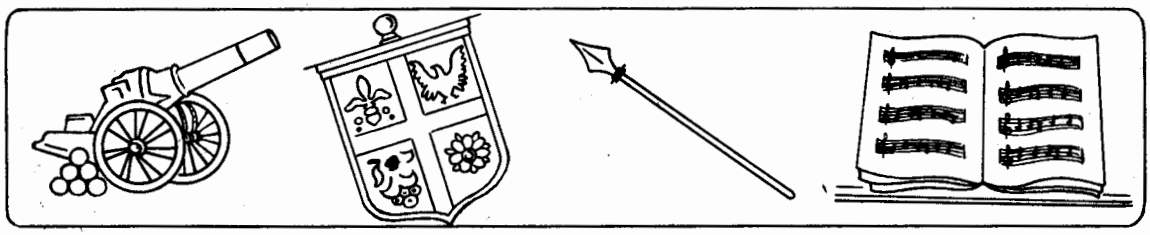


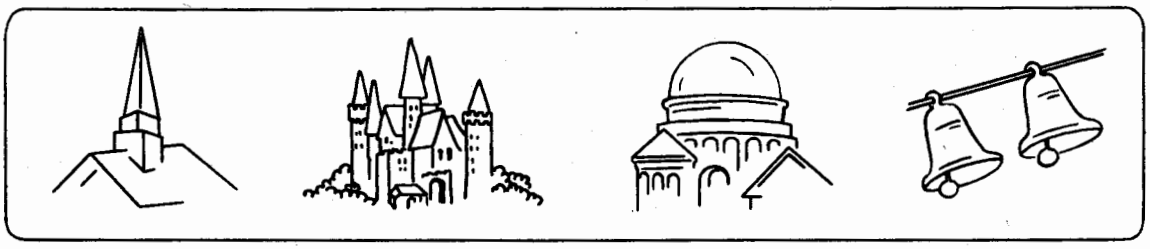


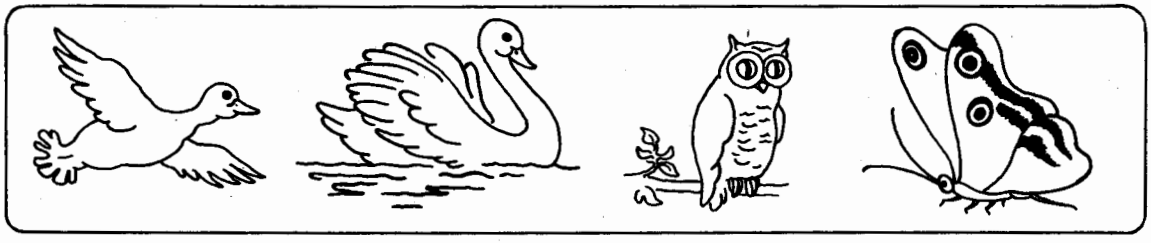


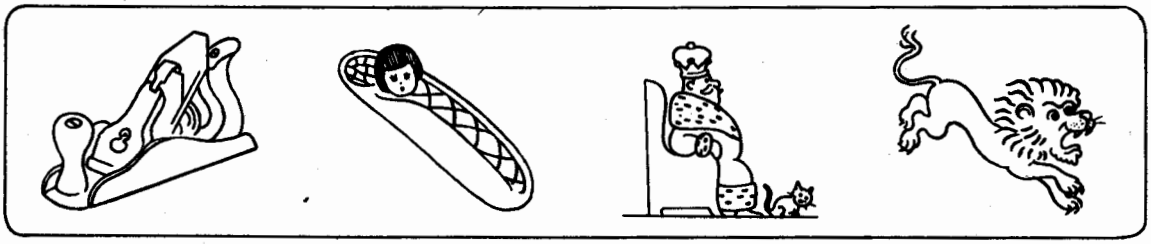


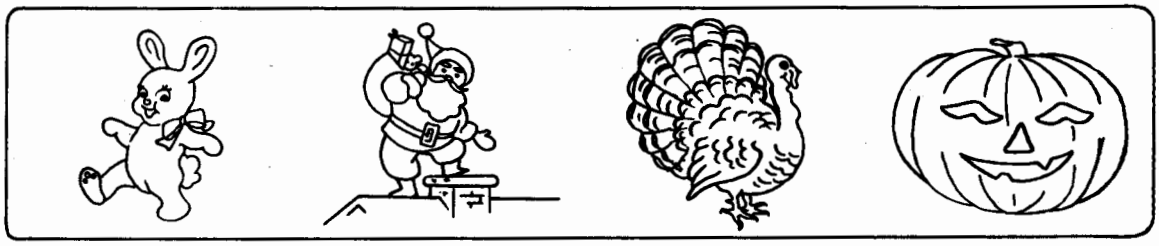


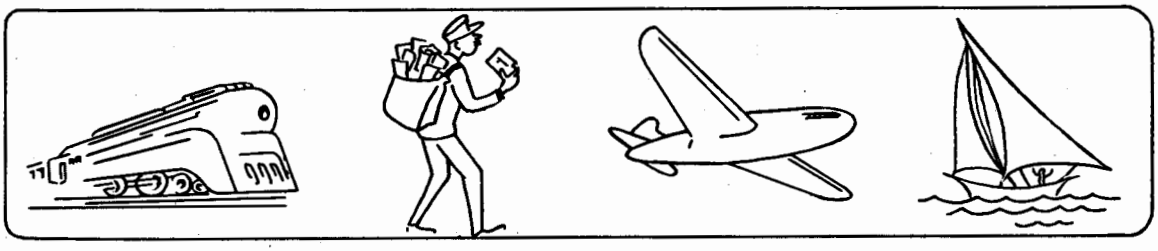


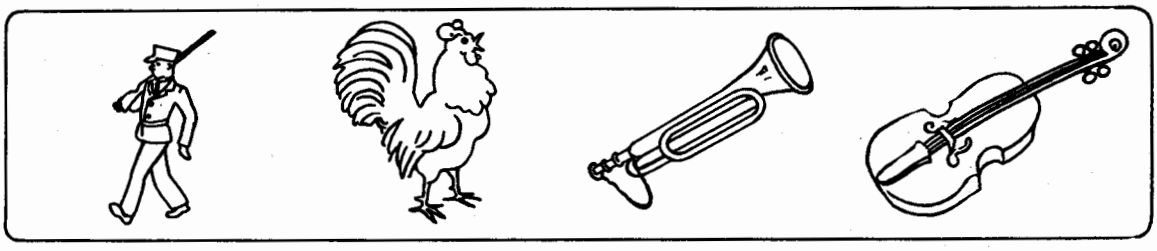


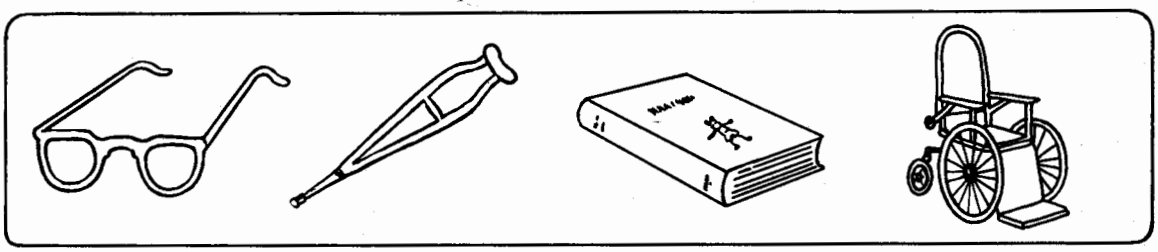


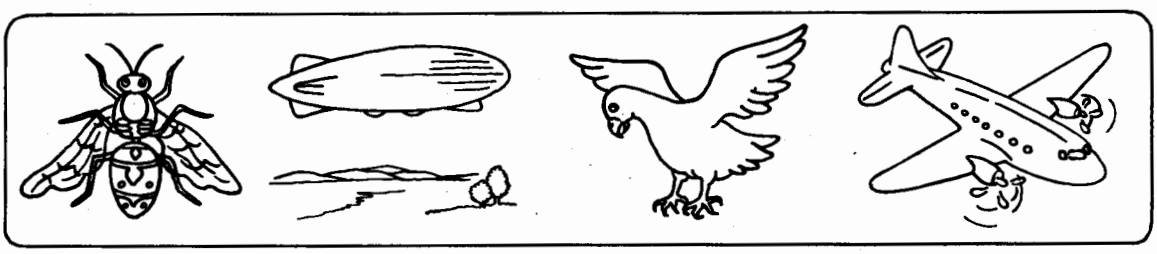


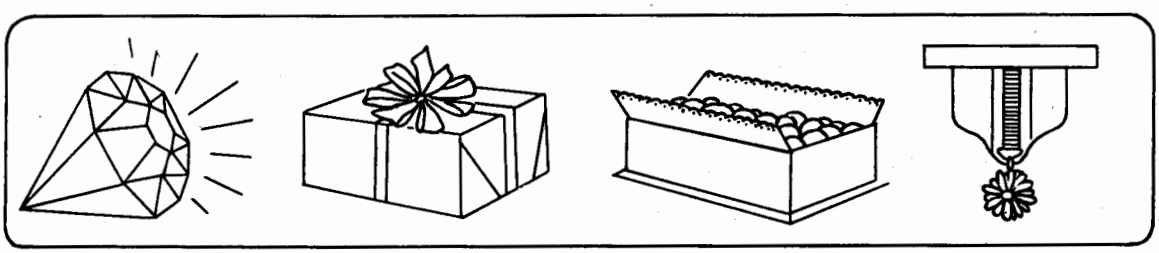


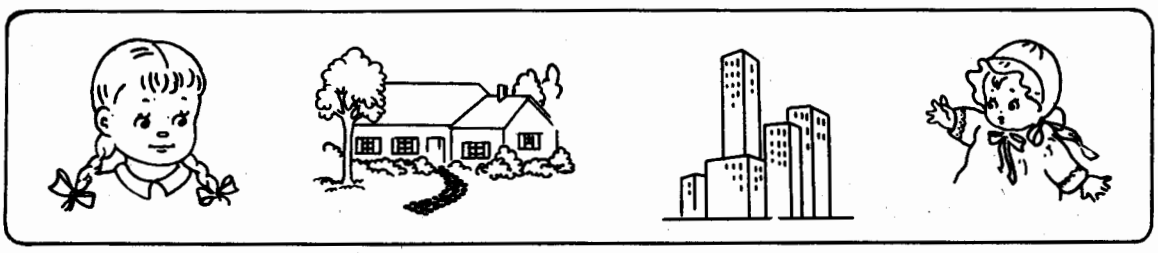


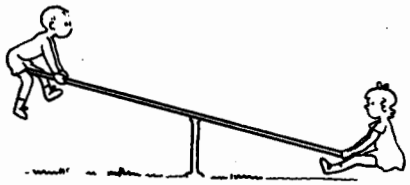


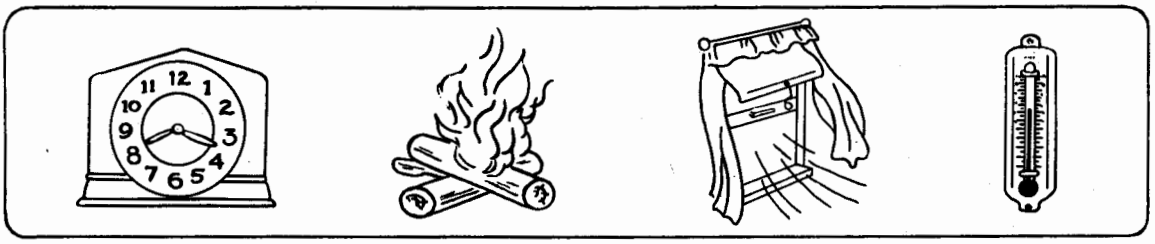


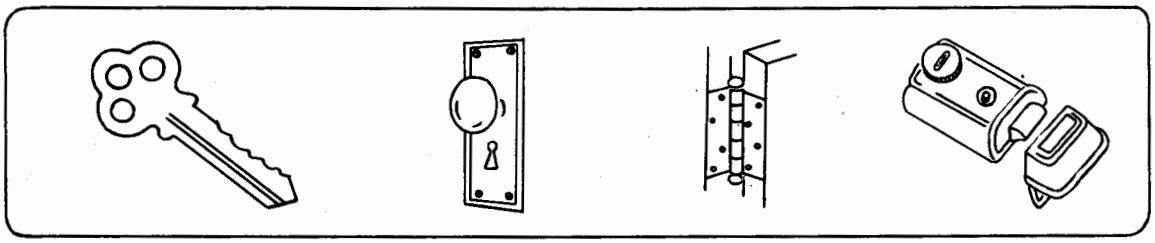


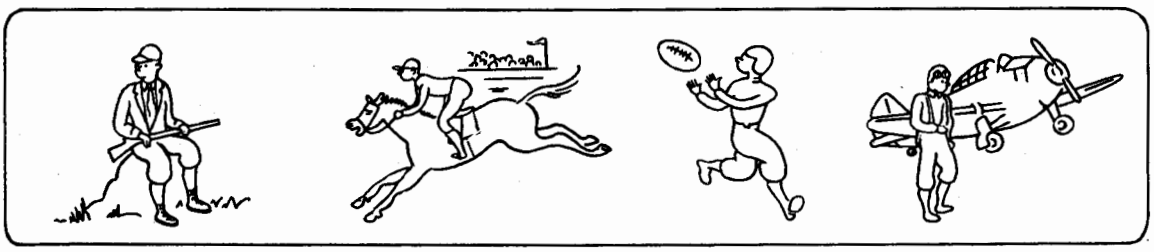


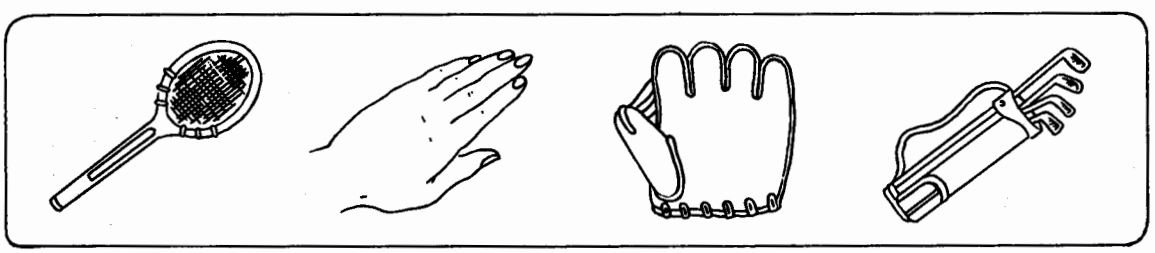


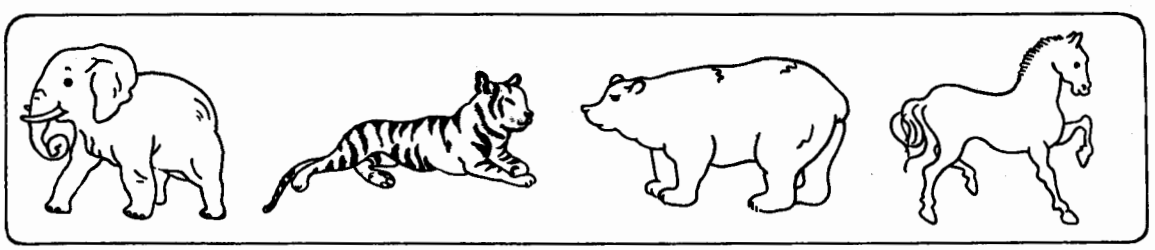


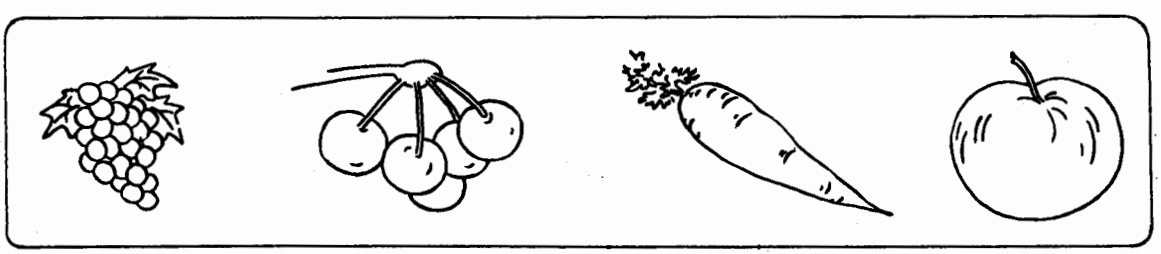


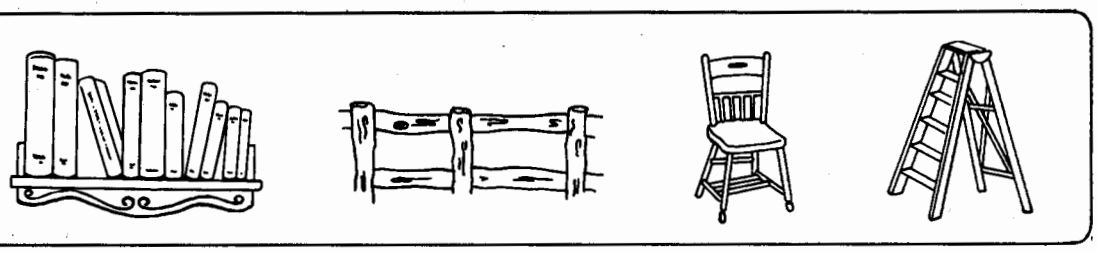


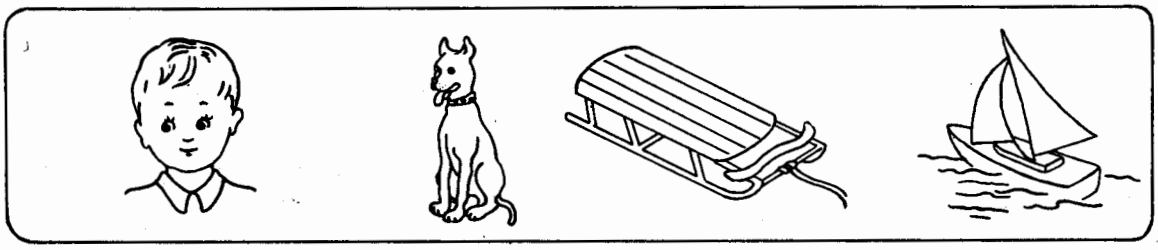


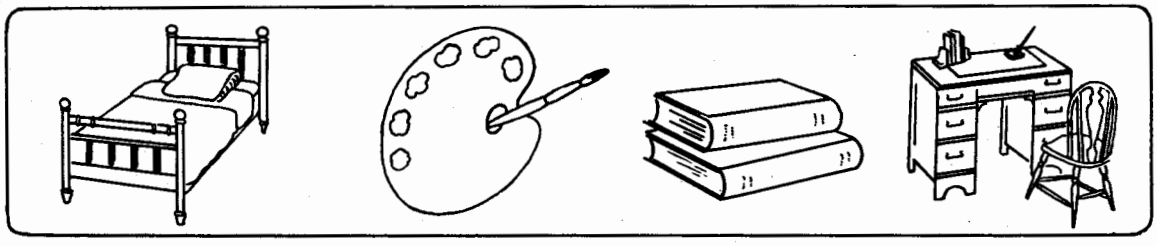


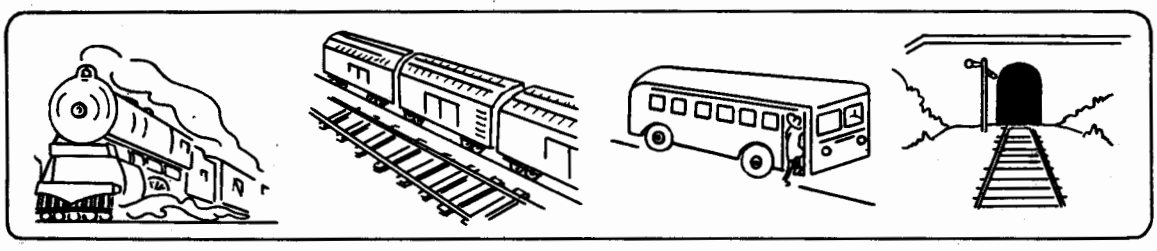


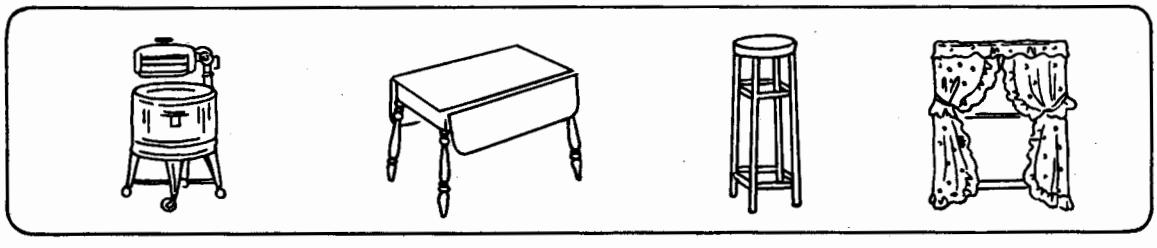


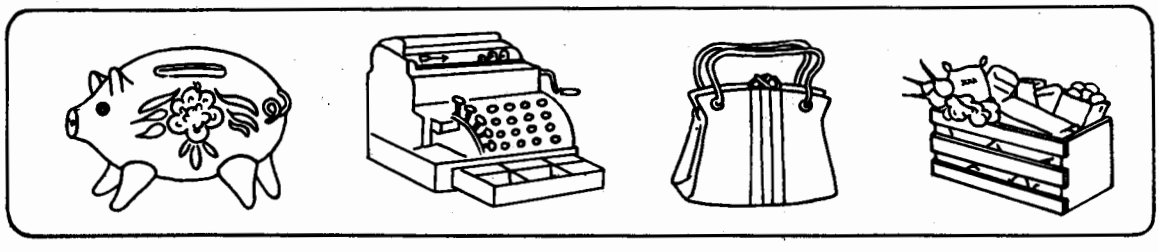


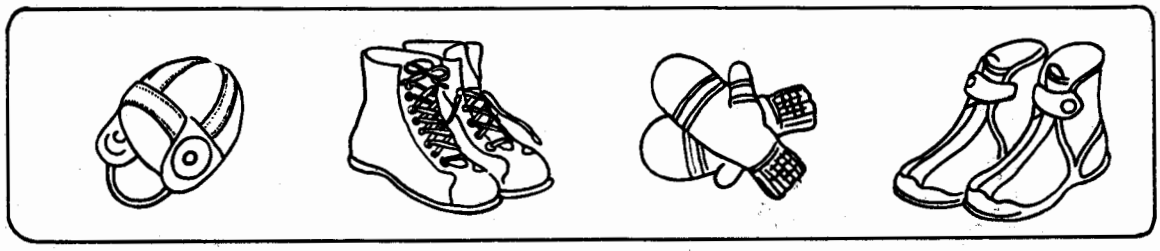


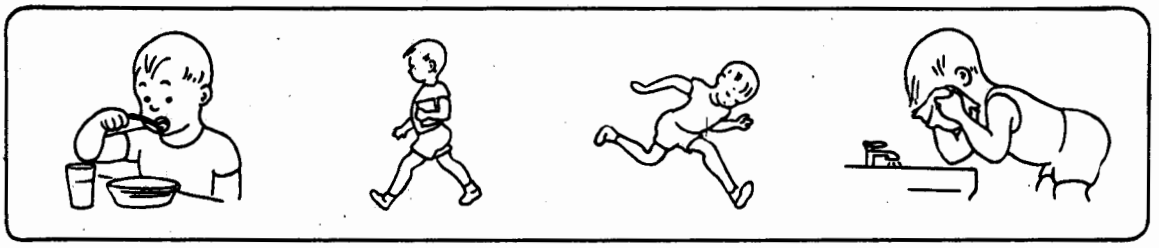


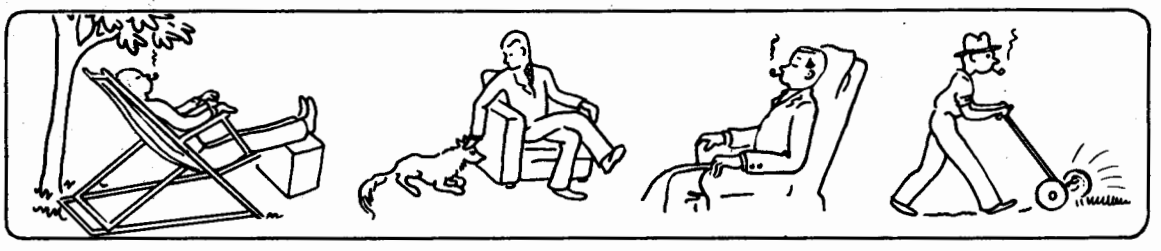


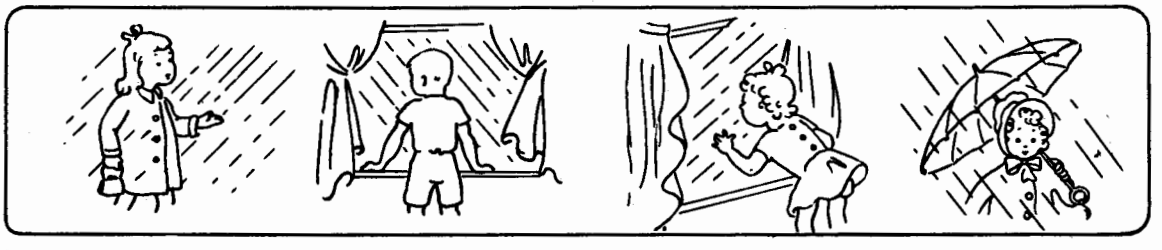


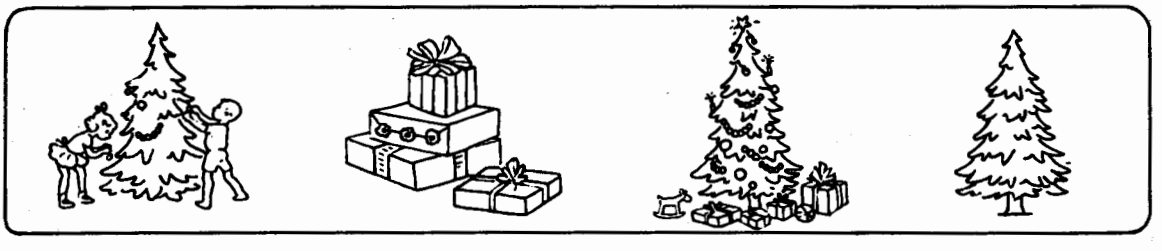


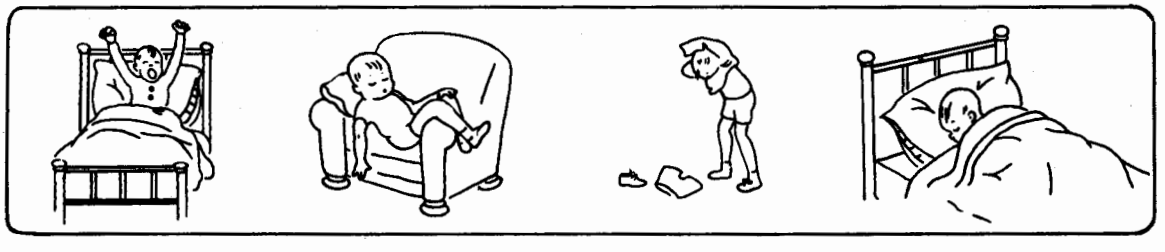


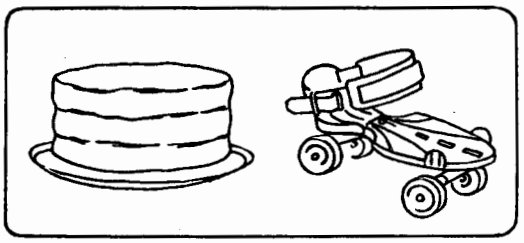


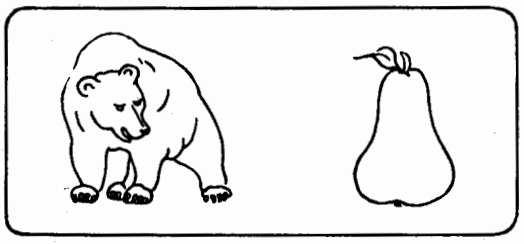


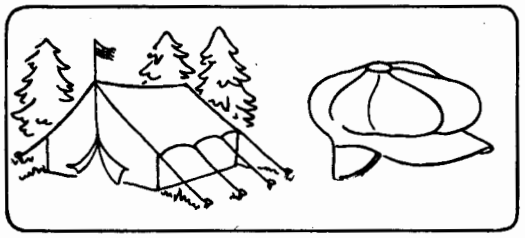


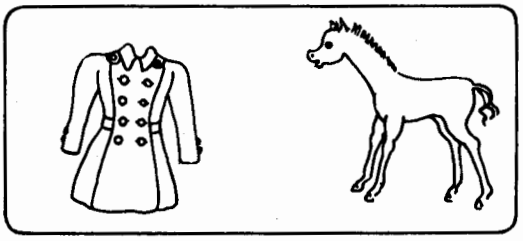


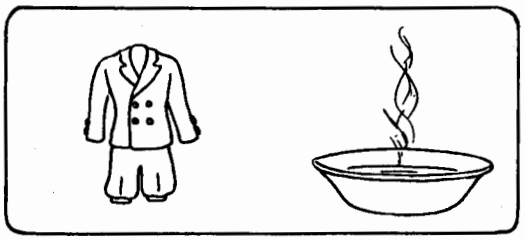


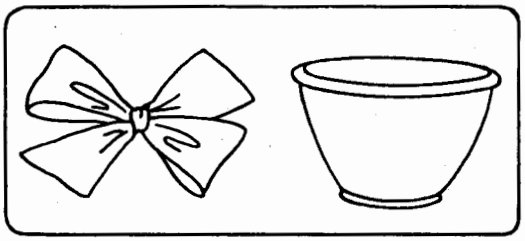


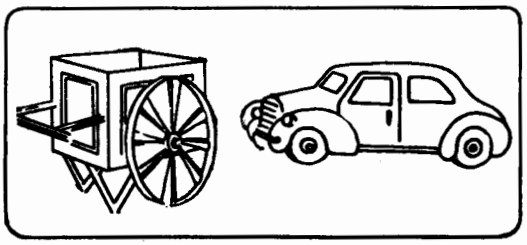


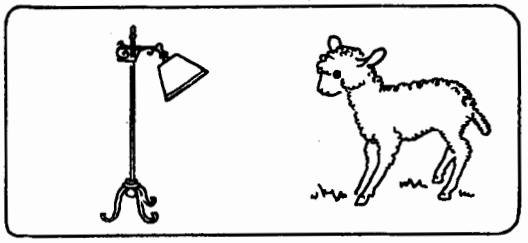


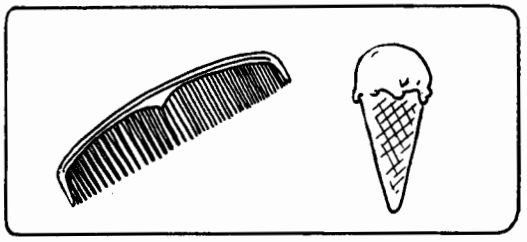


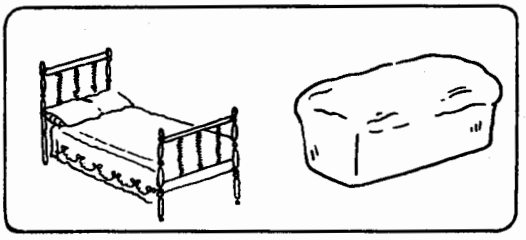


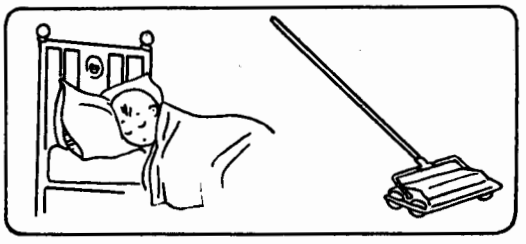


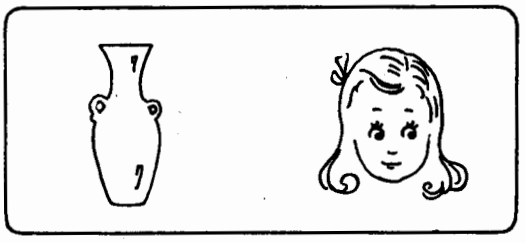


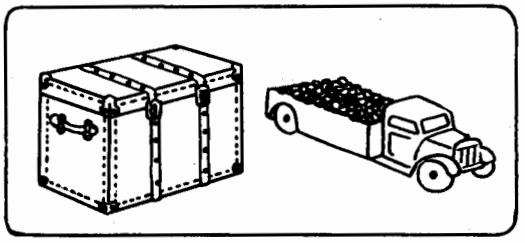


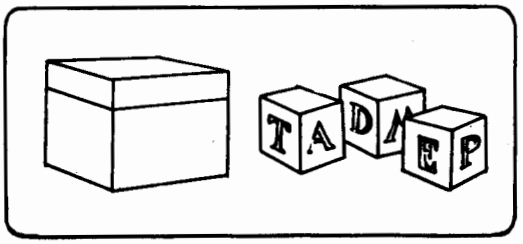




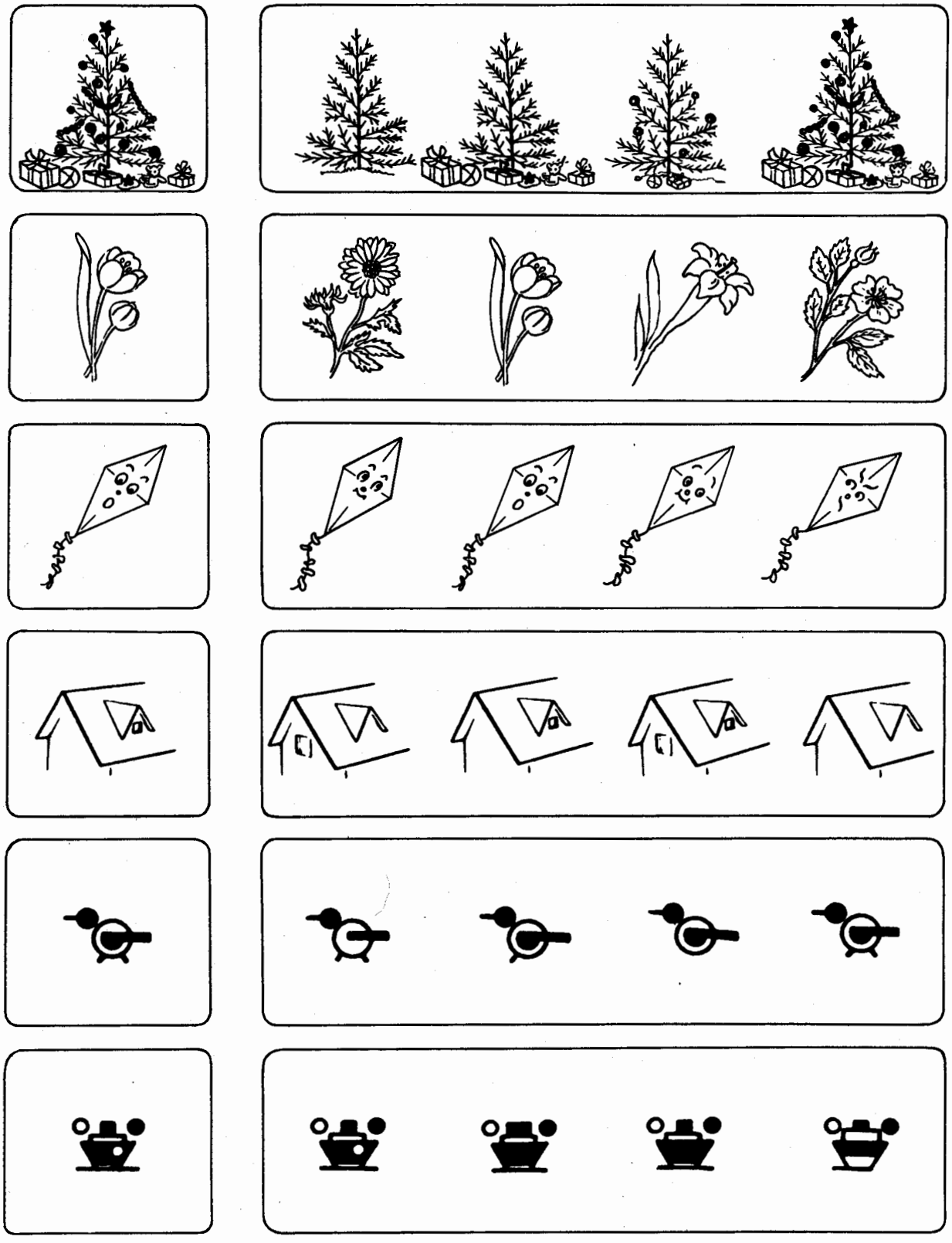


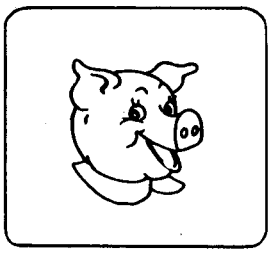


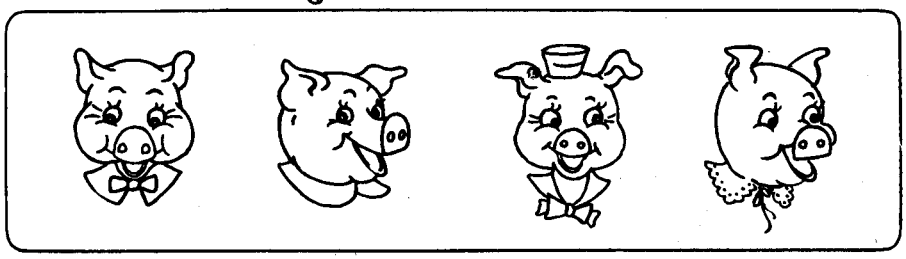


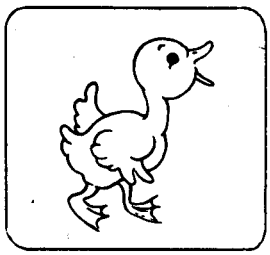

ТАДАЕР

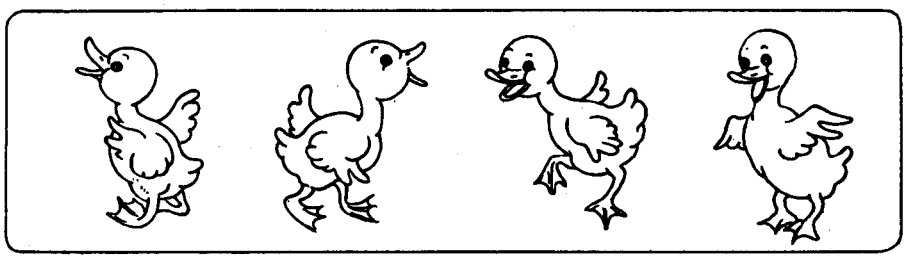
Perceptual-Speed Tests

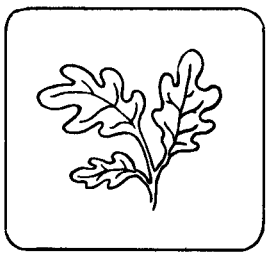


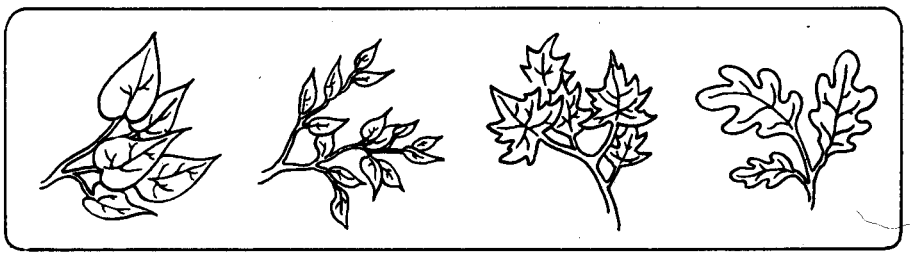


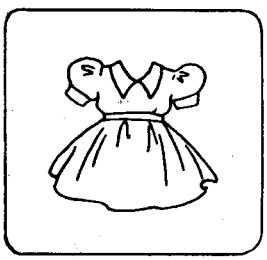


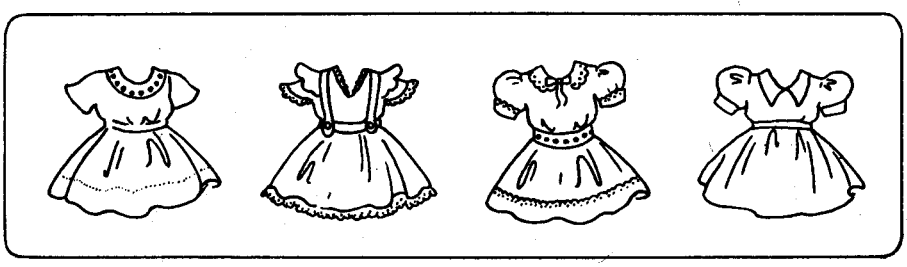


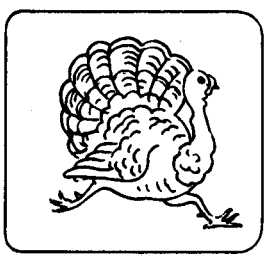


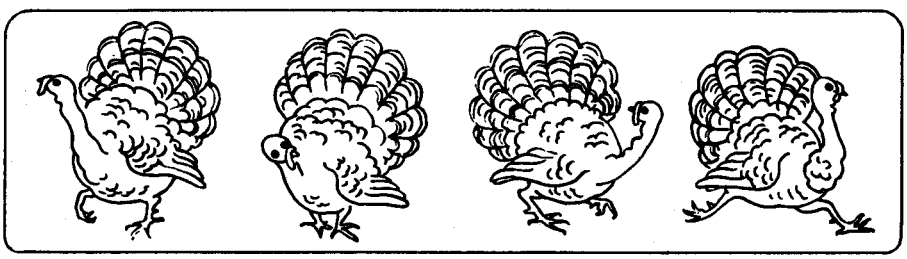


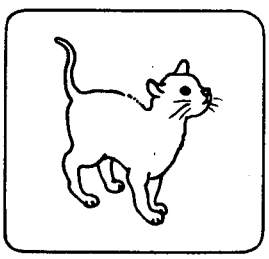


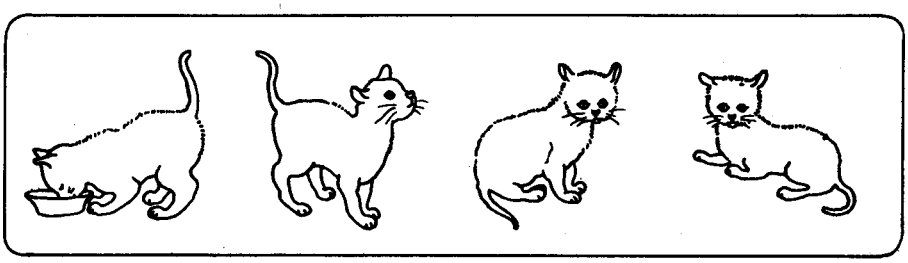


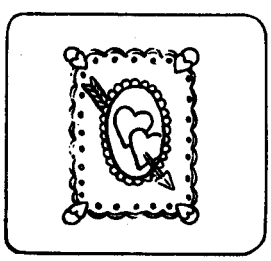


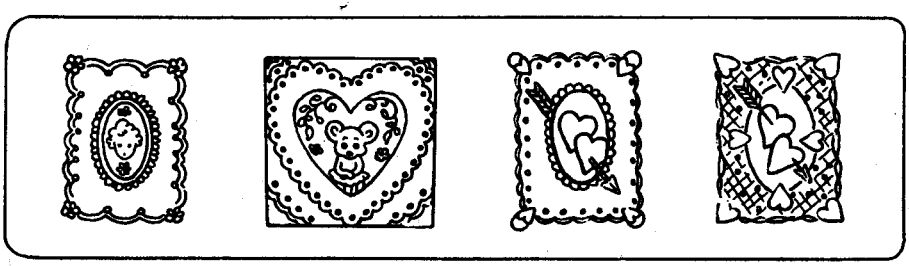


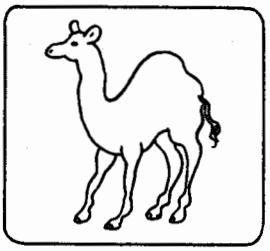


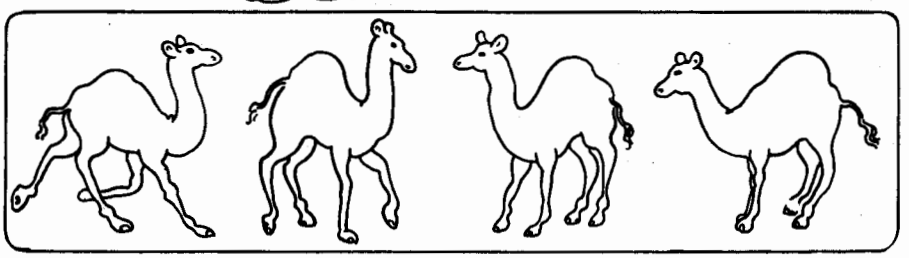


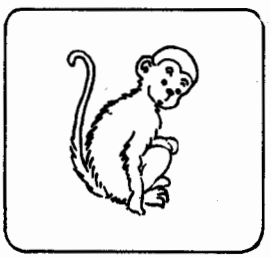


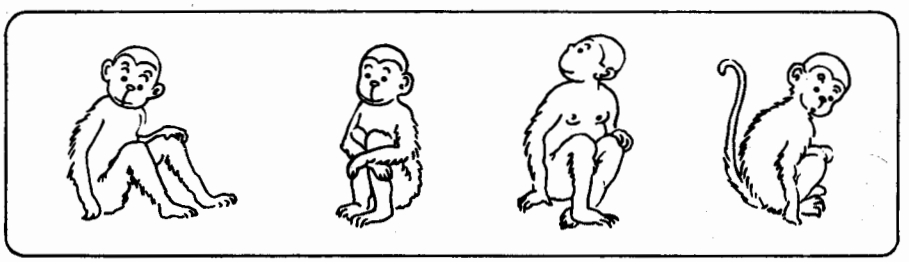


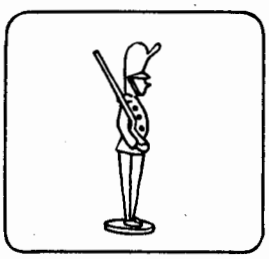


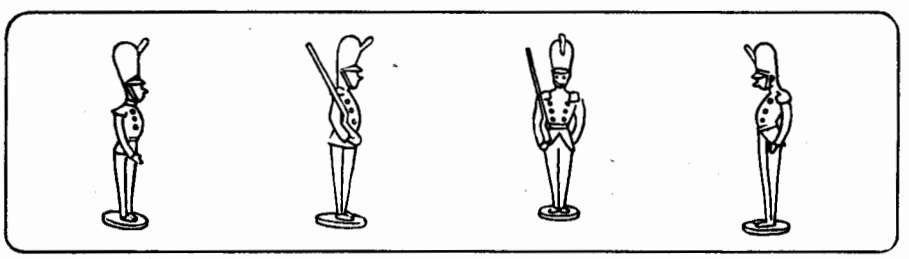


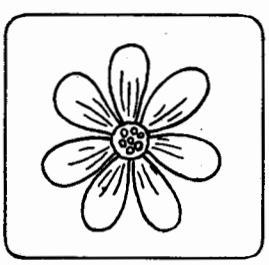


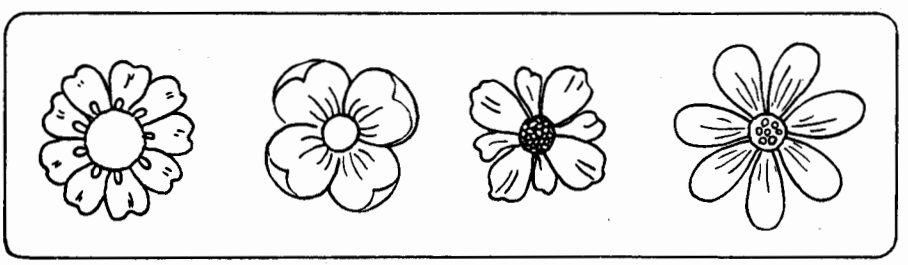


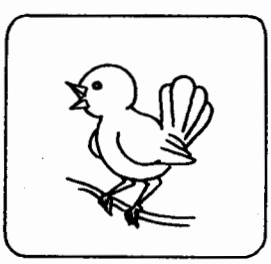


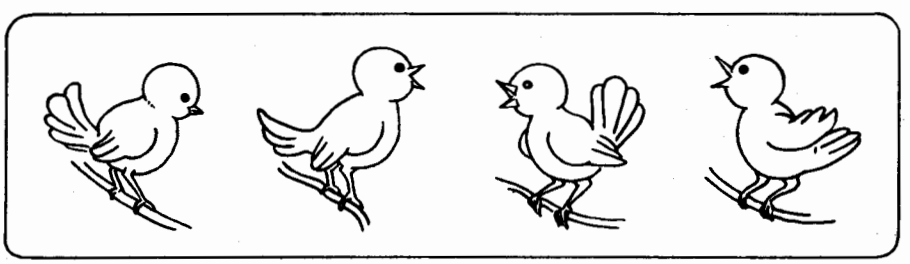


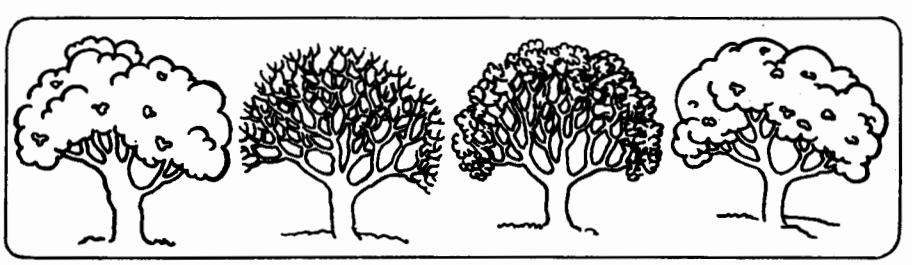


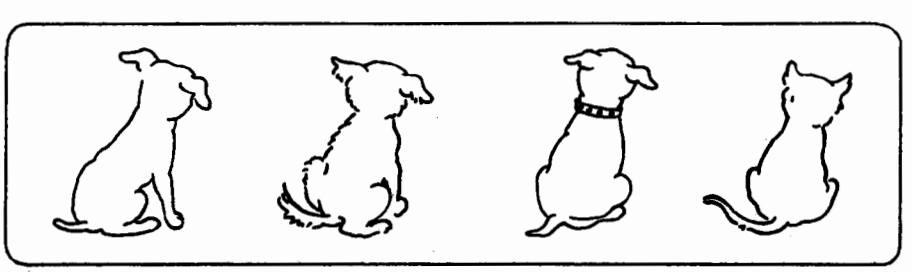


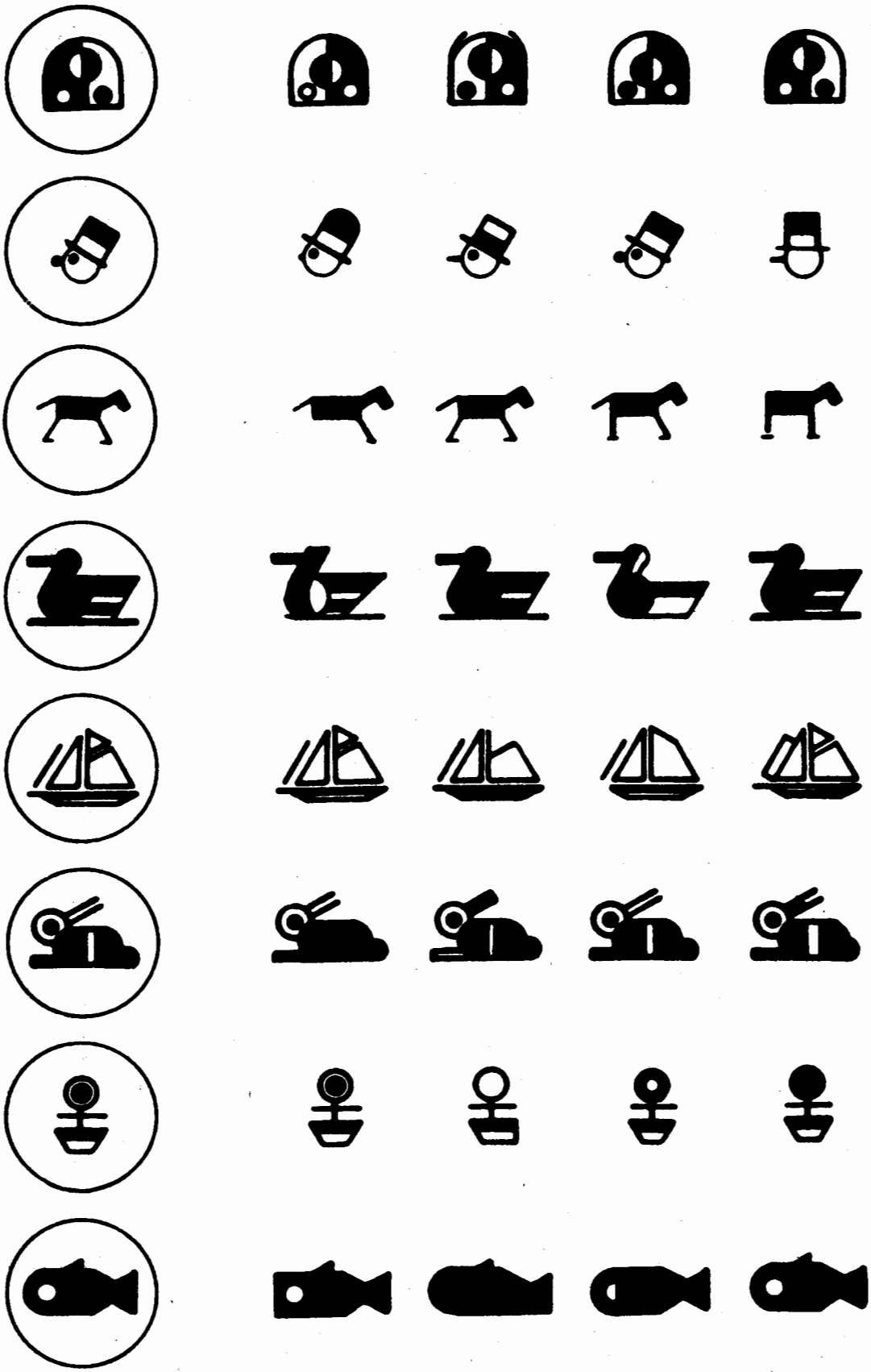


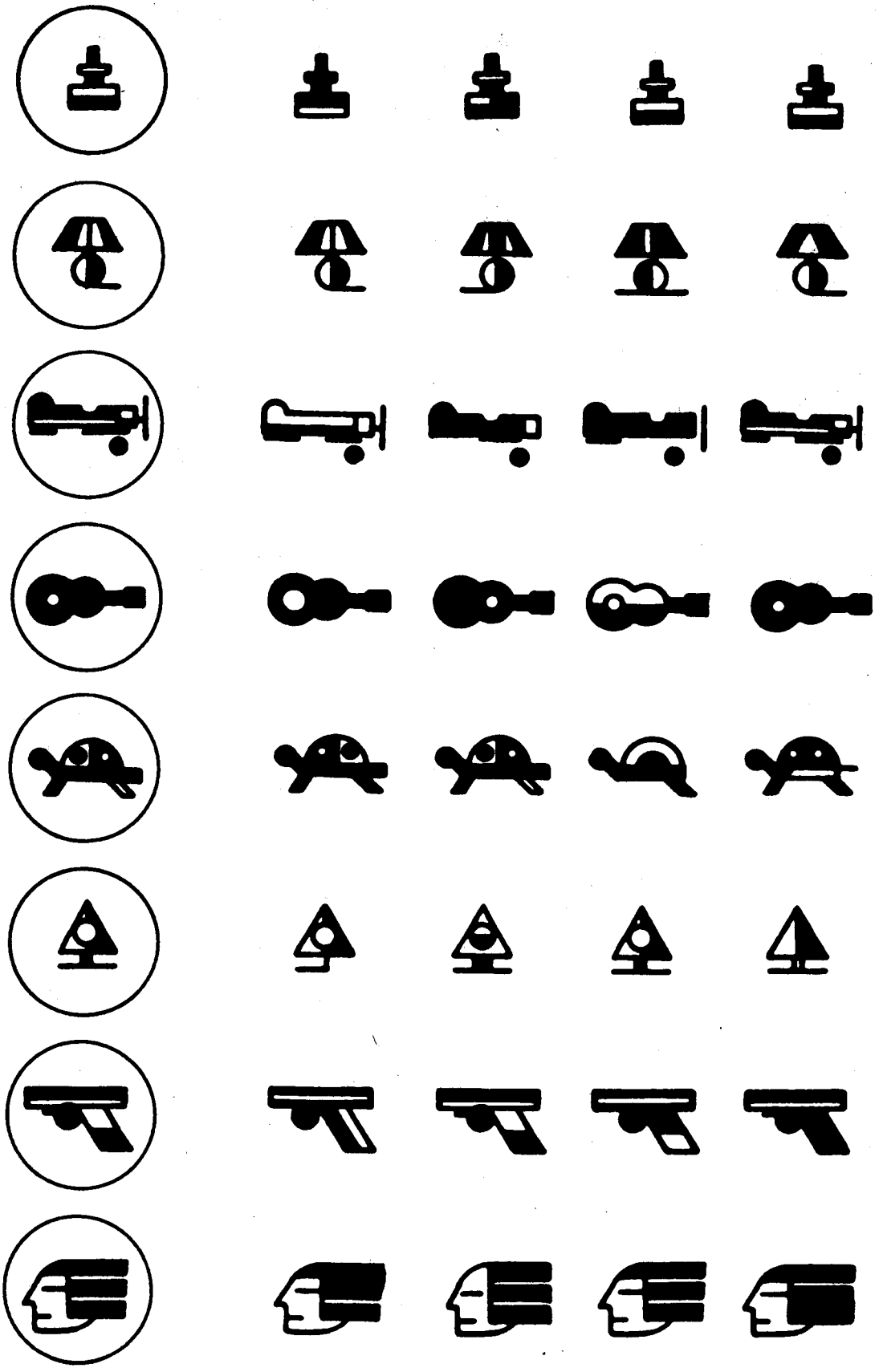


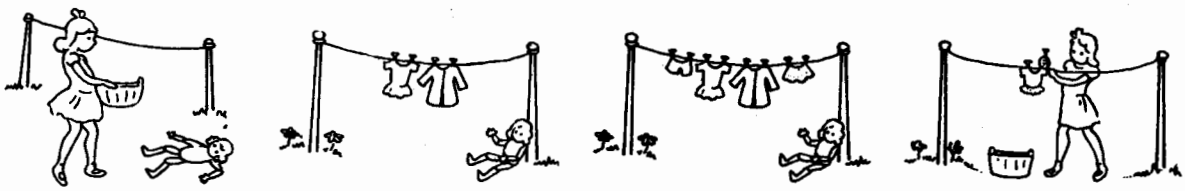


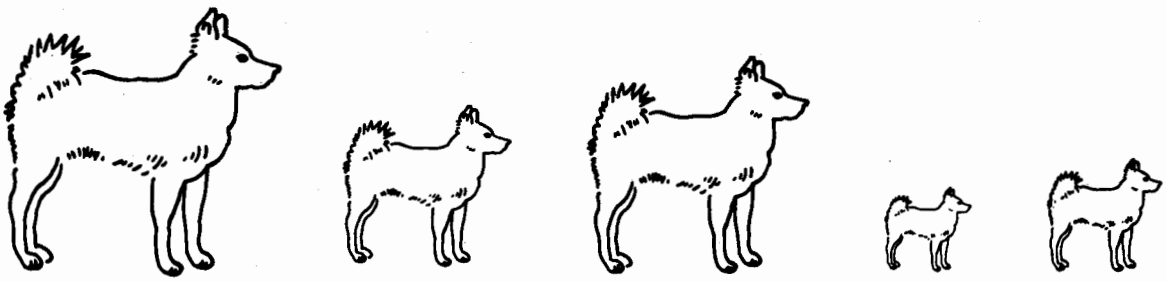


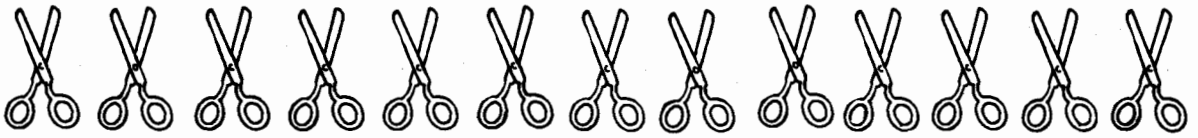


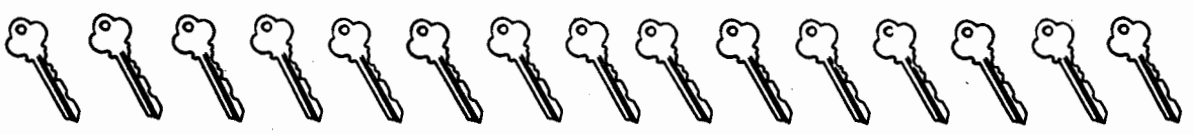


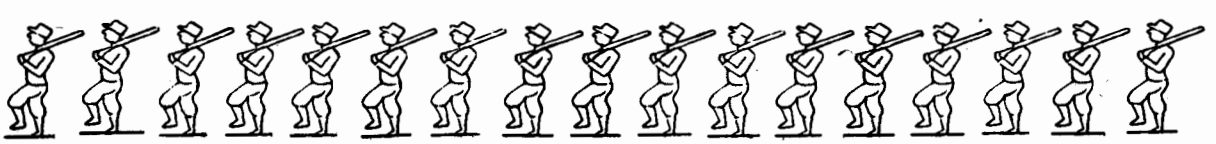


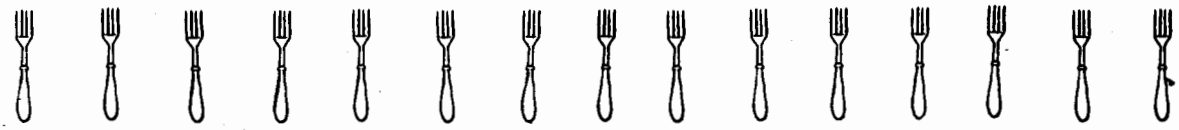


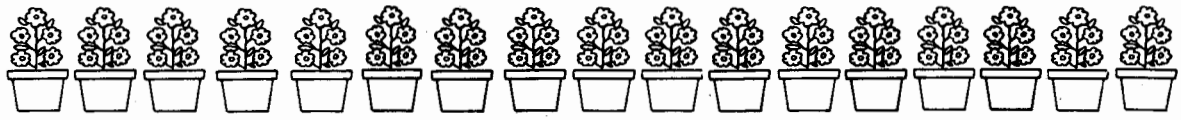


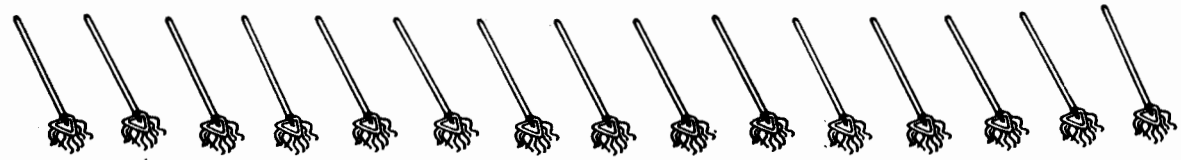


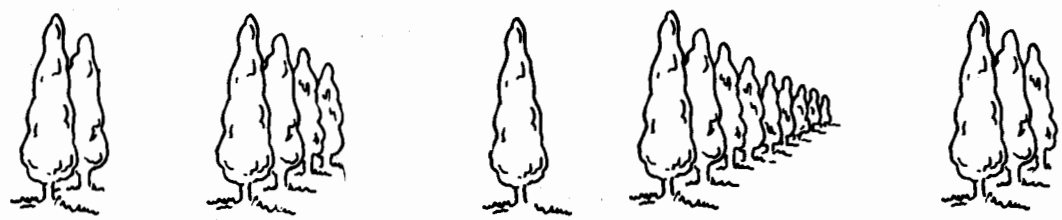


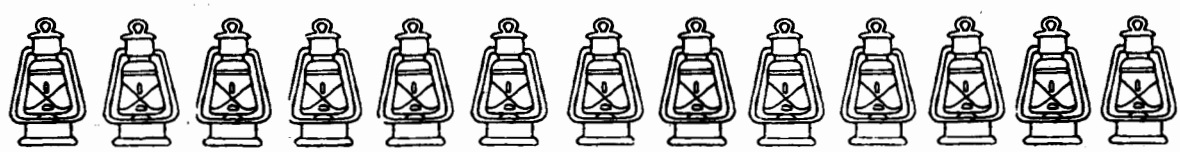


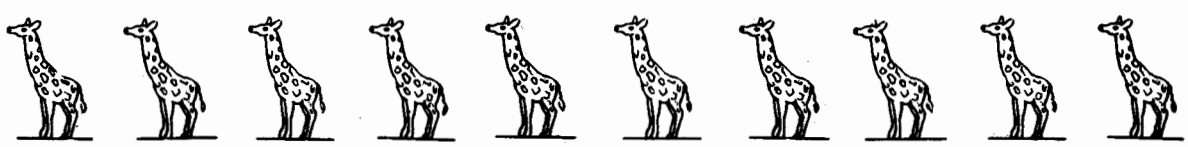


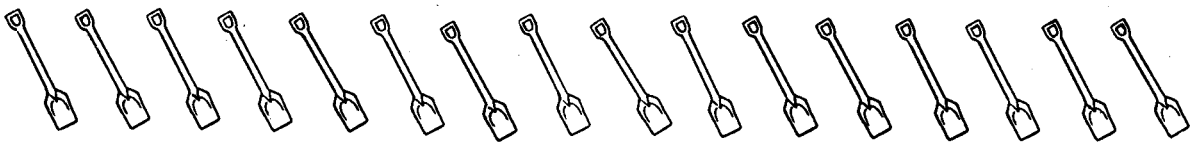


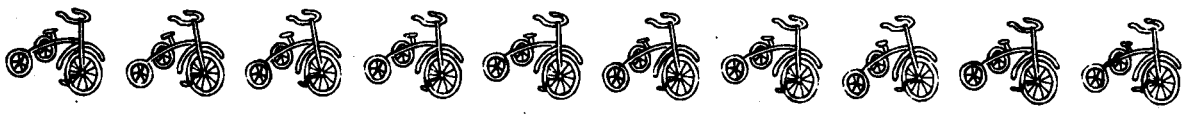


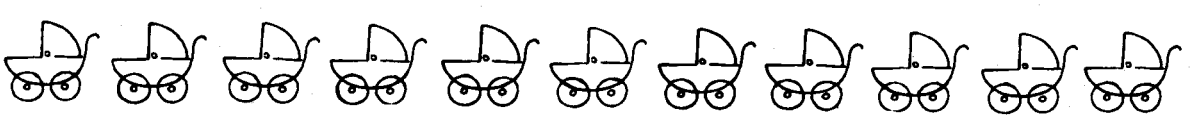


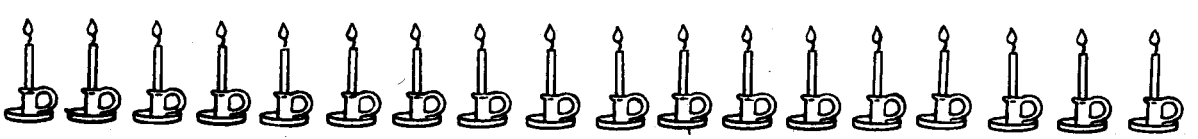


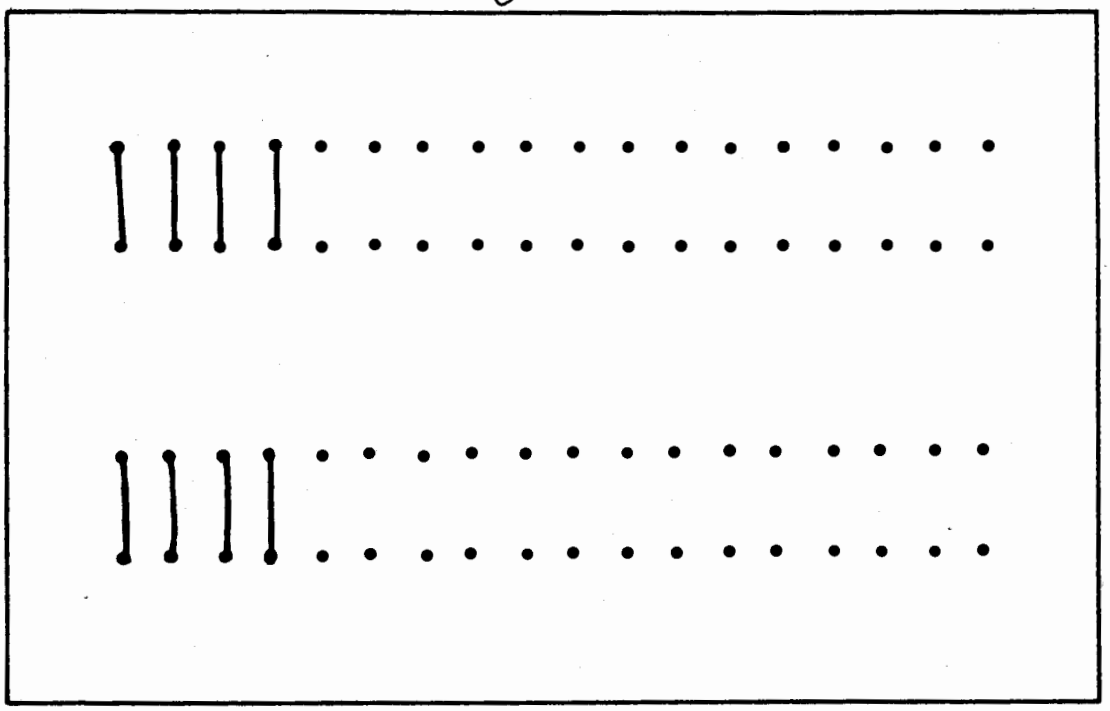


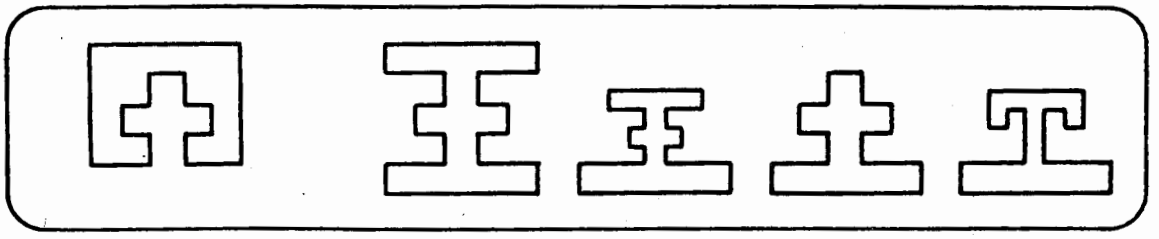


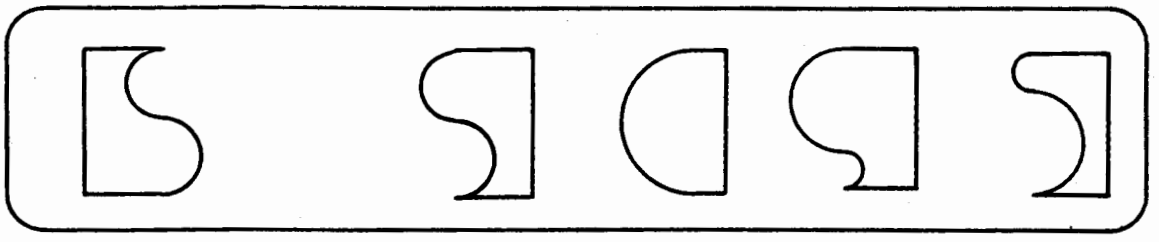


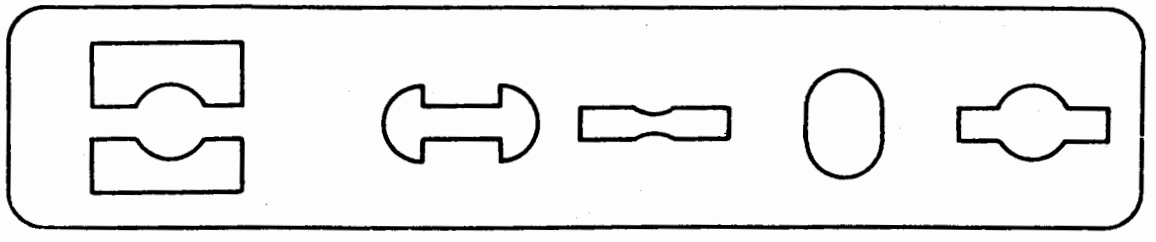


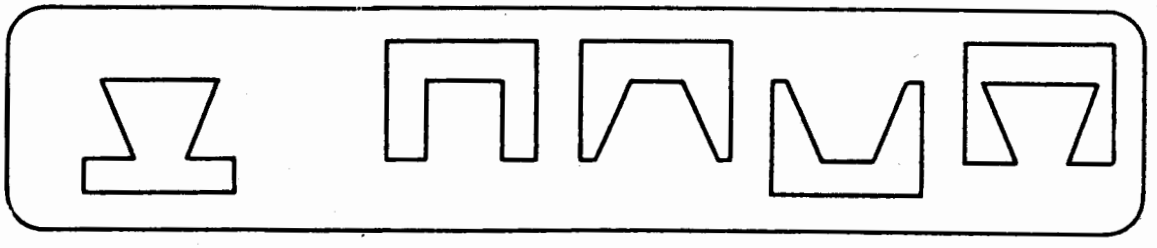


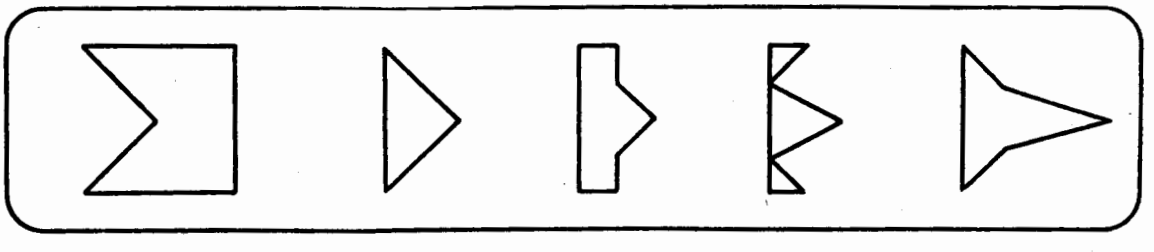


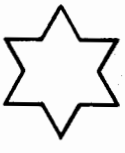


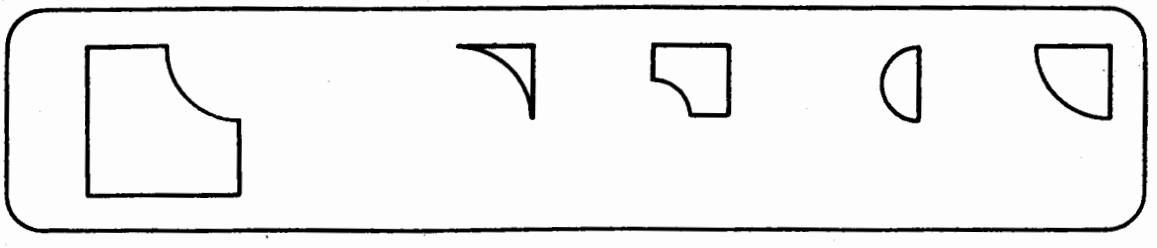


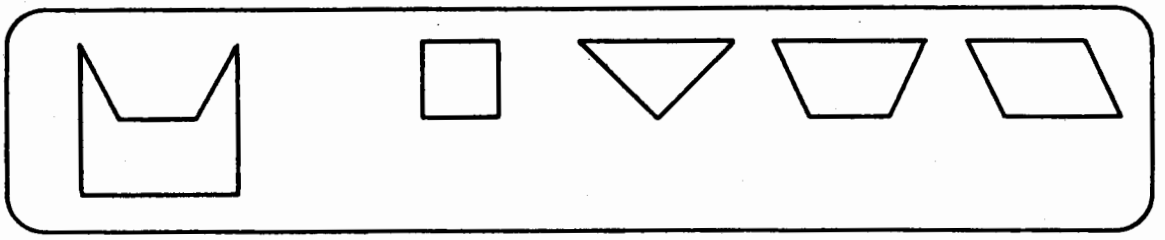


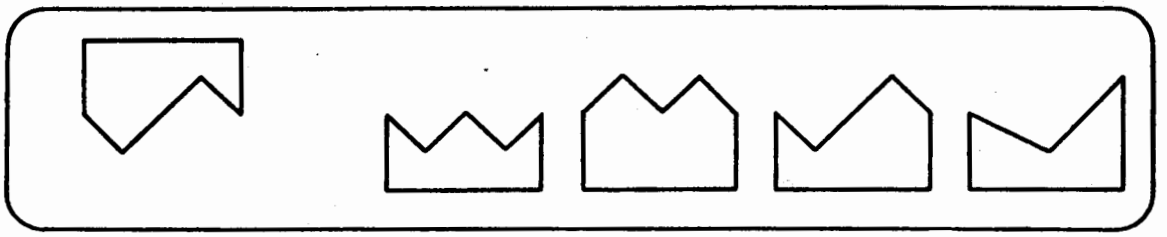


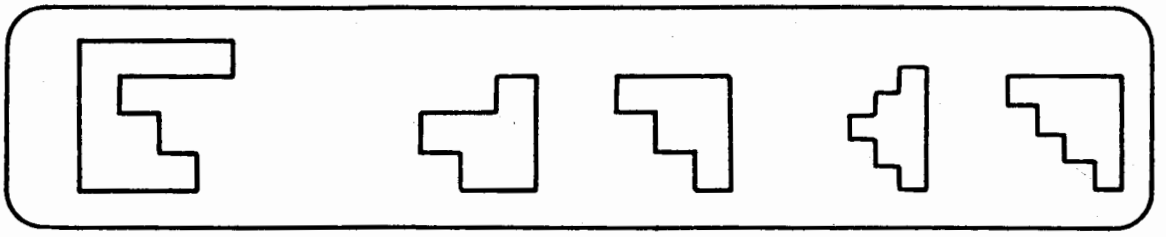


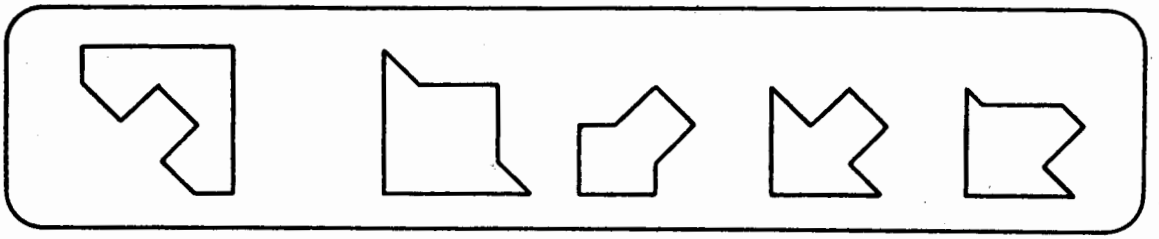




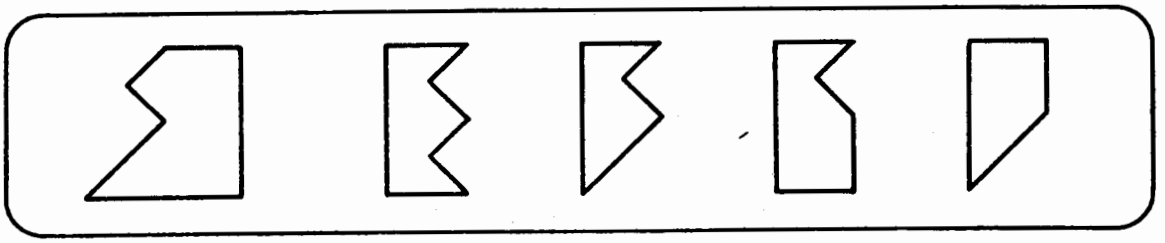


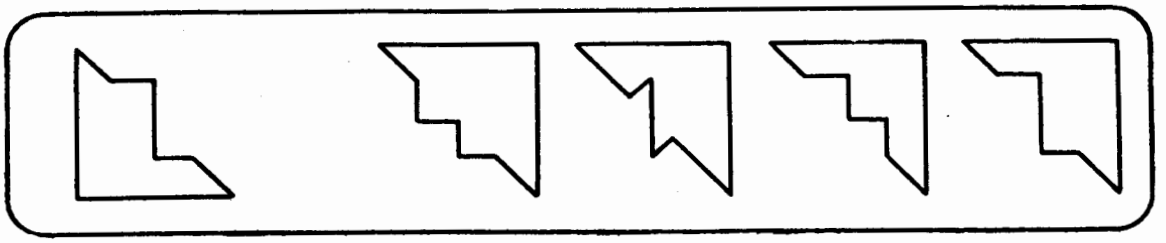


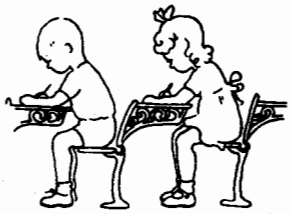


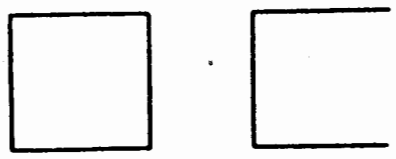


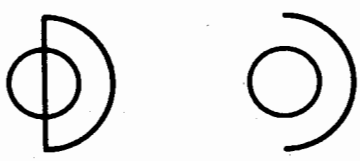

TOOTH
PASTE

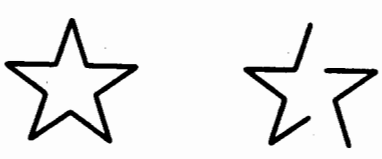


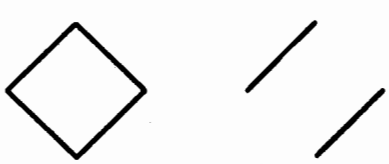


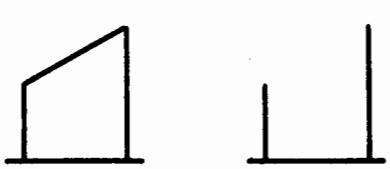


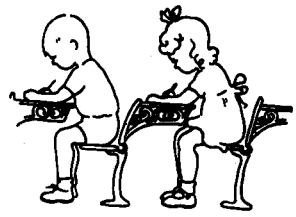


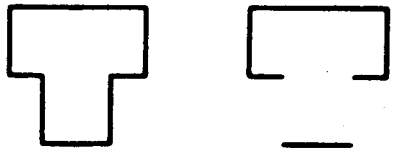


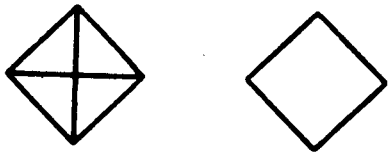


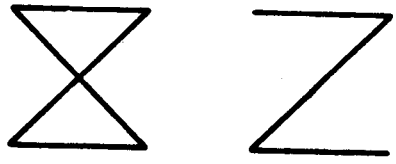


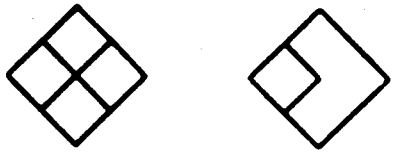


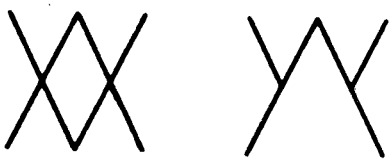


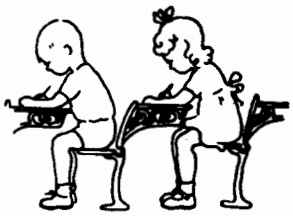


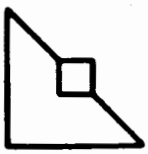


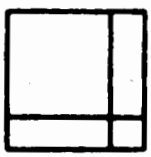


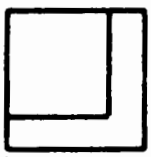


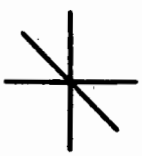


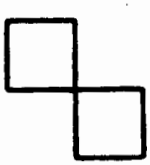


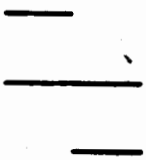


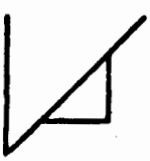


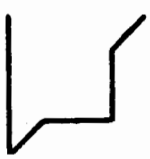


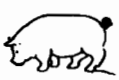


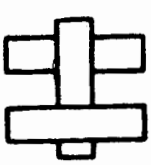


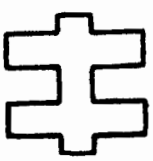












APPENDIX C

Record of Work Completed in SRA Reading Laboratory Ia

E-1

Brown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blue	1	2	3	4	5		7	8	9	10	11	12	13		15			18		
Olive			3	4	5					10	11					16		18	19	20
Orange			3	4						10							17		19	20
Purple		2	3		5	6	7	8			11		13			16	17	18		
Aqua			3	4	5	6	7		9	10	11	12	13	14	15	16	17			
Gold			3		5	6	7			10	11		13	14	15	16	17	18		20

E-2

Brown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blue	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Olive	1	2	3	4	5	6	7	8	9		11	12	13	14	15		17	18		20
Orange			3		5	6			9				13	14	15			18		
Purple		2					7			10					15		17	18		20
Aqua					5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Gold	1	2		4	5			8	9	10	11	12		14		16			19	20

E-3

Brown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blue	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Olive	1		3	4	5	6		8	9	10	11	12		14	15	16	17	18	19	
Orange		2	3	4				8		10	11					16				20
Purple				4	5		7	8	9				13	14	15	16	17			20
Aqua								8	9	10	11	12	13	14	15	16	17	18		
Gold					5		7	8	9	10	11	12	13		15	16	17	18	19	20

E-4

Brown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blue	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Olive	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Orange	1	2	3	4	5	6	7	8	9	10	11	12			15	16	17	18	19	20
Purple	1		3	4	5	6		8	9	10	11	12	13	14		16	17			
Aqua				4			7	8			11	12	13			16				
Gold							7							14	15	16	17			20

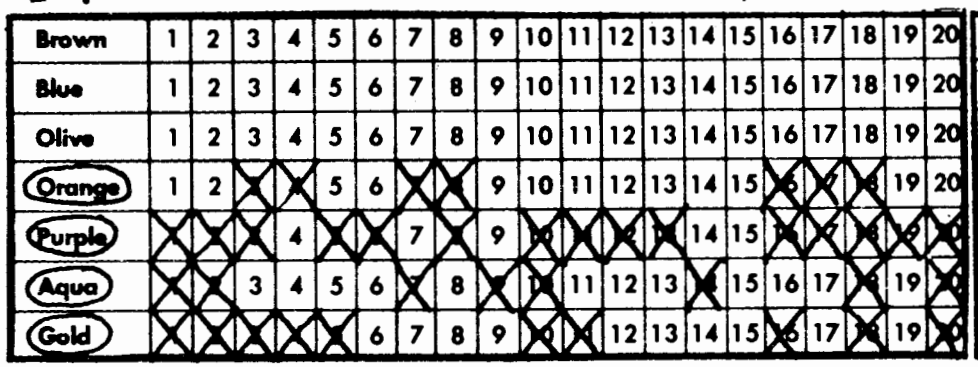
E-5

Brown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blue	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Olive	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Orange	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Purple	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Aqua		2		4					9	10				14					19	
Gold												13					17			

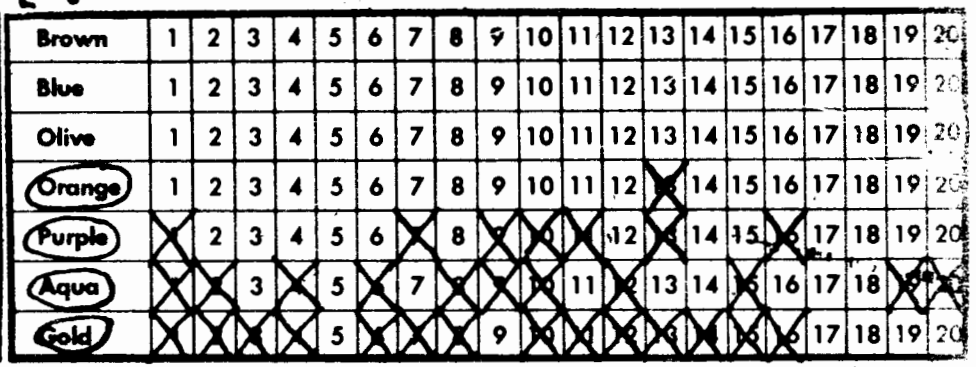
E-6

Brown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Blue	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Olive	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Orange	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Purple	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Aqua							7													
Gold																				

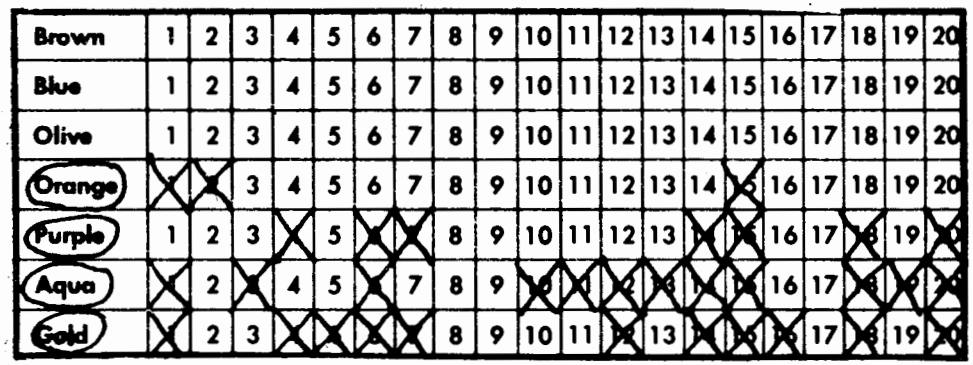
E-7



E-8



E-9



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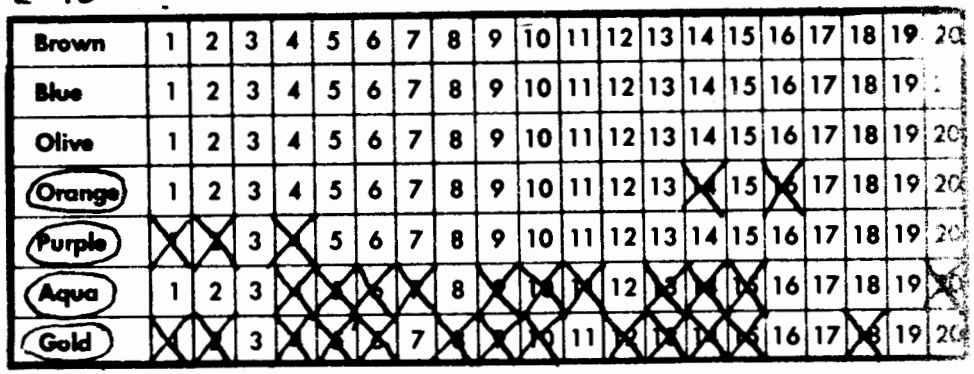
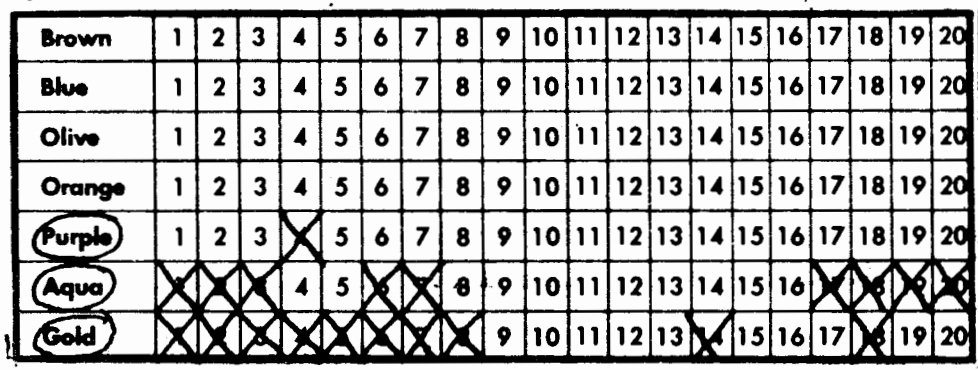


E-11



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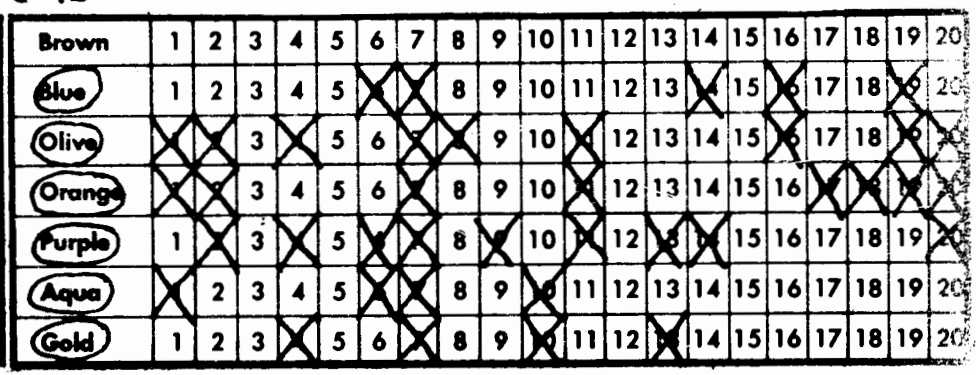
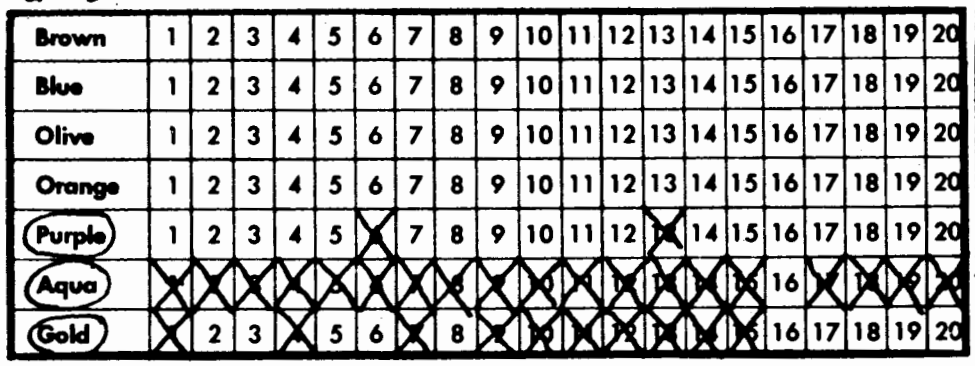
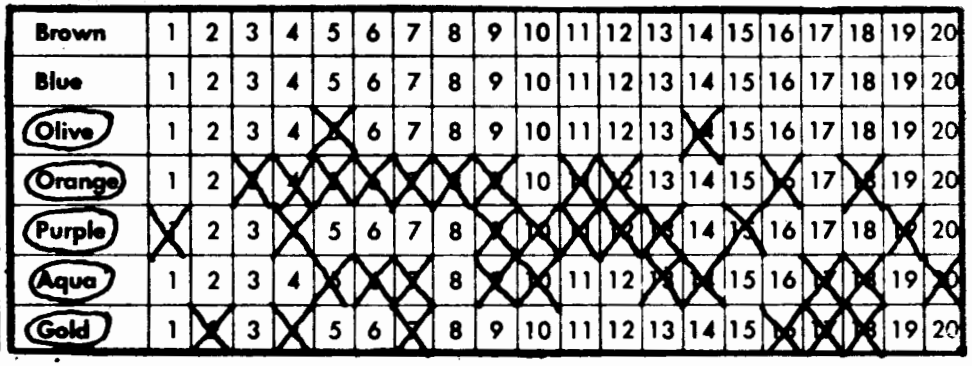


E-13



E-14



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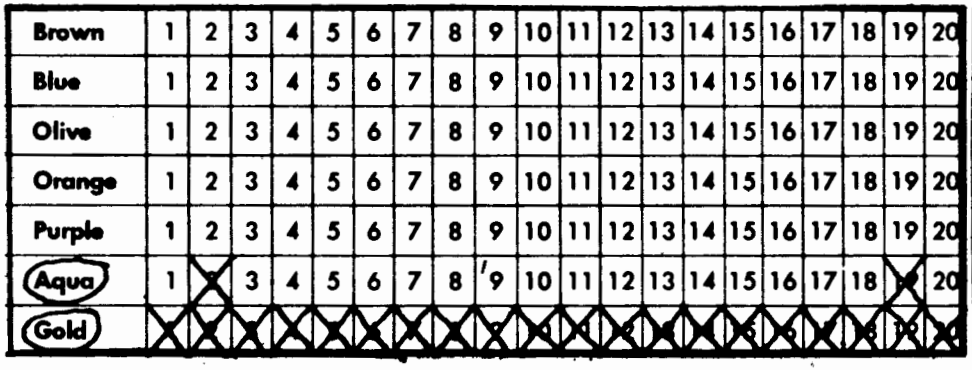

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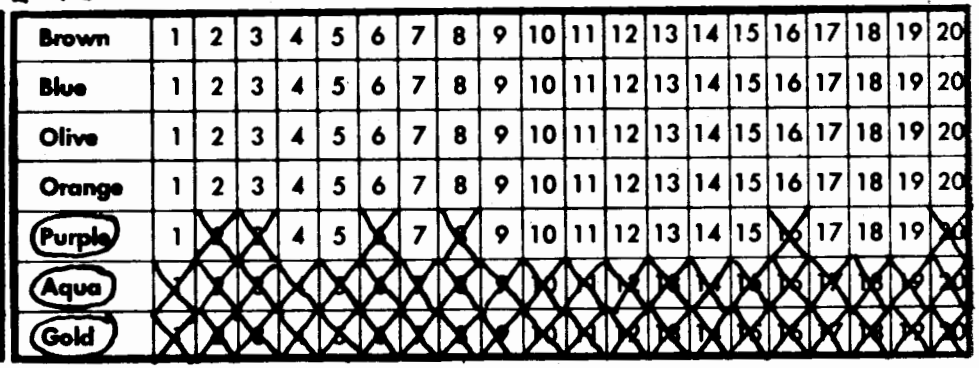

E-17