A study of factors associated with school success

Aytch Wooden
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A STUDY OF FACTORS
ASSOCIATED WITH SCHOOL SUCCESS

A THESIS
SUBMITTED TO THE FACULTY OF THE SCHOOL OF EDUCATION, ATLANTA
UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF ARTS

BY
AYTCH WOODEN

SCHOOL OF EDUCATION
ATLANTA UNIVERSITY
ATLANTA, GEORGIA
AUGUST 1963
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CHAPTER I

INTRODUCTION

Rationale.—In no other country of the world is secondary education as available to all adolescents as in the United States. Unique among educational institutions of the world, the American high school has an enrollment greater than the combined populations of similar schools of all other nations. Here, more than in any other country, secondary education is no longer for the select few; it is becoming the experience of an increasing proportion of all adolescents. This enlarged enrollment is characterized by greater differences in academic ability, wider variations in cultural background, and an increased number of atypical pupils. Moreover, striking changes in our economic and social life have caused the secondary school to assume greater responsibility for the long time welfare of its pupils, and new emphases have been placed upon the individual needs of pupils and the totality of child and youth development.

Studies are being made throughout the country on various aspects of the school program in order to afford more needed information to help individuals with the responsibility of training boys and girls for a world that demands their best. It is generally accepted that achievement, intelligence, personal adjustment, and family conditions have a definite relationship to a child's development. An individual's success in life and the possibility of securing work depend to a great extent upon these four factors.

1
We have moved today from the method of choosing a person or persons for jobs or positions on the basis of family background to a system based upon what an individual can do. This system of choosing employees is based on performance and performance is dependent upon intelligence, special aptitudes, achievement, personality, and other factors. As one of the other factors one cannot ignore the home influences upon the individual's total adjustment.

Since it is common knowledge that differences and similarities exist among all people, it follows then that there are differences in intelligence, achievement, personal adjustment as well as in family status. There are certain characteristics common to all Americans. They are citizens of the United States of America; they are members of a family group; they share in the American culture; they try to sustain themselves; and they make decisions and take actions which involve choices of value.

The American idea of an equal opportunity to secure an education regardless of age, race, color or creed, does not mean that every individual must or should have the same kind of education. However, it does mean that every individual should have the same opportunity for an education. Then, it follows that those factors affecting the opportunity of individuals to pursue an education must be carefully analyzed in all areas under all conditions possible.

Research shows that failure in school is very costly to society and is a real threat to the total welfare of the nation. It is costly
not only in terms of time and money but also in terms of the total effect it has upon the child and his family.¹

Evolution of the Problem.—While serving as a member on the records committee at the Houston County Training School, the writer was aroused by the large percentage of failures reported each year by teachers of the ninth grade pupils. Considering these grade statistics, the writer became curious of these large numbers of students who failed. Who are these failing students? How do they differ from students who are not failures? Can potential failures be identified? These questions were of great concern to the writer.

Therefore, the writer believed that some insight will be gained through a study of successful and unsuccessful pupils. By selecting the pupils who ranked in the lower twenty percent and upper twenty percent of the ninth grade class, and studying these two groups as personalities and as members of families with unique interpersonal relations among members of those families answers may be found to some of those questions.

Statement of the Problem.—This study was a comparison of pupils in the upper twenty percent and pupils in the lower twenty percent of the ninth grade class to determine the significant differences, if any, in intelligence, achievement, personal adjustment, and social economical status in the Houston County Training School.

Contribution to Educational Knowledge.—It is hoped that this study will help teachers to improve instructions so as to meet the individual

needs of their students. The more that is known about the characteristics of students the better will be the experiences provided which will facilitate the development of those characteristics. In addition to aiding the general instructional program, the results of this investigation will serve to guide the school counselor in working with his counselees.

With more knowledge of the characteristics of successful pupils, teachers and counselors will be able to concentrate on the development of such characteristics in unsuccessful pupils so as to improve their status in the school in particular and society in general.

Purpose of the Study.—The major purpose of this study was to identify certain personal characteristics which may be associated with success in the ninth grade class.

More specifically, this study proposed:

1. To determine the range, and mean level of mental ability in both successful and unsuccessful groups of students as measured by the California Short-form Test of Mental Maturity, 1957, Form A.

2. To determine the range, and mean level of achievement in both successful and unsuccessful groups as measured by the California Achievement Test Battery, 1957, Form W.

3. To determine the range, and mean level of personal adjustment in both successful and unsuccessful groups as measured by the California Test of Personality, 1953, Form AA.

4. To determine what differences exist in home conditions between successful and unsuccessful groups as indicated by a Home Score Sheet.

5. To determine the difference, if any, in mental ability between the successful and unsuccessful groups.

6. To determine the difference, if any, in achievement as measured by a standardized achievement test between the successful and unsuccessful groups.
7. To determine the difference, if any, in personal adjustment between the successful and unsuccessful groups.

Limitation of the Study. — This study was limited in that it placed major concern on the following:

1. The study was only concerned with pupils who ranked according to academic record in the lower and upper twenty percent of the ninth grade class.

2. It was concerned with measured factors which show a relationship or difference between the two groups in intelligence, achievement, personal adjustment, and family conditions.

3. The basic data were confined to test scores and a home score sheet.

Definition of Terms. — The significant terms that were used throughout this study are characterized below:

1. "Successful" as used in this study refers to those pupils who ranked in the upper twenty percent of the class according to school grades.

2. "Unsuccessful" as used in this study refers to those pupils who ranked in the lower twenty percent of the class according to school grades.

3. "Intelligence" refers to the level of mental development as measured by the California Short-form Test of Mental Maturity.

4. "Achievement" refers to the level of achievement as measured by the California Achievement Test Battery.

Method of Research. — The descriptive survey method of research employing the specific techniques of testing and a locally prepared home score sheet was used to gather the necessary data for this study.

Description of Instruments. — The instruments that were used in this study are as follows:

1. The California Short-form Test of Mental Maturity, 1957, Form A. It is an instrument for appraising
mental development or mental capacity. It samples mental functioning in four areas: spatial relationships, logical reasoning, numerical reasoning, and verbal concepts.

2. The California Achievement Test Battery, 1957, Form W. This test is designed for the three-fold purpose of facilitating evaluation, educational measurement and diagnosis. It is composed of three tests: Reading, mathematics, and language.

3. The California Test of Personality, 1953, Form AA. This test is organized around the concept of life adjustment as a balance between personal and social adjustment.

4. The Home Score Sheet—Is a locally prepared instrument designed to measure the home conditions of students with emphasis on home conditions, educational status, and recreational and religious activities.

Research Procedure.—The following steps constituted the operational steps of this study.

1. Permission to conduct this study was obtained from the principal of the Houston County Training School, Perry, Georgia.

2. Literature pertinent to this study was reviewed and summarized.

3. Pupils in the ninth grade class were ranked in the order of highest to lowest according to academic grades after the first semester.

4. Subjects were selected for the successful group from the upper twenty percent of the ninth grade class and unsuccessful group from the lowest twenty percent of the ninth grade class according to the first semester's academic grades.

5. The California Short-form Test of Mental Maturity, California Achievement Test Battery, and California Personality Test were administered to the subjects.

6. The Home of each student was visited and rated with a locally prepared Home Score Sheet.
7. The tests were scored according to directions found in the manuals.

8. The data obtained through the instruments were assembled into appropriate forms, tables, and charts and then statistically treated for the purposes of this study.

**Survey of Pertinent Literature.**—The literature which seemed most likely to make significant contributions to the basic understanding was reviewed under these major topics: (1) studies related to intelligence and achievement; (2) studies related to personal adjustment and achievement; and (3) studies related to family socio-economic status and achievement.

**Studies Related to Intelligence and Achievement.**—Several studies in the area of relationship of intelligence to school marks were examined. Among these was a study by Tiegs concerning the intelligence of students. He said:

> While in general pupils tend to achieve in proportion to their varying degrees of intelligence, the nature and significance of differences between pupils is not revealed by a mere knowledge of the I. Q.'s. Some students with high I. Q.'s fail. Furthermore, students with I. Q.'s of identical numerical value regularly show considerable variations in achievement.¹

This study emphasized the fact that very bright pupils sometime do an inferior quality of school work, while some students with lower intelligence quotients do acceptable work.

Shilder correlated teachers' grades and scores made on intelligence tests and found some relationship. He inferred that intelligence

tests are valuable as a supplement to teachers' judgement, but that danger existed in placing too much reliance on such tests.  

Hollingworth and Cobb studied a group of twenty public elementary school pupils averaging 165 I. Q. and another group of 20 averaging 146 I. Q., the two highly intelligent groups being matched for chronological age, home environment, and certain other factors. In describing their study, they stated:

Both groups were segregated for special opportunity classes at the same early age and were thereafter taught in the same school, under the same administrative auspices. Here they both had access to the same special library, were taught under the same policy of freedom to progress according to capacity, and enjoyed all special and usual privileges and opportunities provided.

Such equalization of educational opportunity over a period of three years (with much duplication of teaching personnel for the two groups) did not equalize achievement, the median achievement of the more intelligent of these two superior groups being distinctly better as indicated by all but a very few of the many achievement tests used.

In 1960, an attempt was made to test the idea that underachievement is not merely a situation in which intelligent students are receiving poor grades, but it is a symptom of students' failure to

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3 Ibid., p. 34.
acquire a set of values for themselves. It was hypothesized that as efforts are made to clarify attitudes, purposes, aspirations, feeling, interests, and beliefs, underachievement patterns will wane. This idea suggests that getting good grades is not a genuine aspiration of the underachieving intelligent students, but a goal imposed upon him by his parents, teachers, and perhaps society. It was assumed that as attitudes and goals of great concern to students are clarified and as values are developed, students will find new purposes in their school work. As a result, they will see achievement as a personal goal and will strive toward it.\(^1\)

**Personality and Achievement.**—Walker made a comparative study of achievement, intelligence, and personality traits of thirty problem and thirty non-problem children of the sixth and seventh grades of the Orange Street School of Fayetteville, North Carolina. The findings of the study revealed that problem children achieve at a much slower pace than non-problem children.\(^2\)

Norris made a study of personality rating of high school pupils in relation to their success in school. He found that personality is an element of quality which greatly influences a pupil's success.\(^3\)

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Strang states that there is usually a positive relationship between personality and achievement but the correlations are usually low. She reports two fairly consistent, though non-significant relationships. The first is a tendency for superior students to evince more neurotic systems than the mediocre or inferior students.

The second tendency is for higher learning performance to be associated with submissiveness. Among high school seniors, Strang reports, the boy who is successful in achievement and the girl who is unsuccessful have been found to be more unstable than other high school seniors.

In a study made by Flemister with one hundred Negro high school youth, she found no statistically reliable difference between the personal adjustment of the subjects who achieve most and the subjects who achieved least. The numerical differences that appeared were in favor of those who achieve most.

A study of 4,787 girls, and 4,264 boys taken from 36 states, 310 communities and 455 schools in the Central States was made by William McGhee and Drayton Lewis. The mentally superior pupils were selected from grades four to eight in the highest 10 percent in terms of intelligence quotients based on Kuhlmann Anderson Tests. The retarded group was composed of pupils who scored in the lowest 10 percent on the same test.


McGhee and Lewis used two measures of personality; the personality scores on the Bernreuter Personality Classification Test and Teacher's Rating of their pupils for the presence of 70 designated personality traits.

The data for study indicate that mentally retarded children are less well adjusted in personality reactions than are mentally superior children.¹

As seen from most of these studies a statistically reliable relationship has not been found but they do report a positive relationship, which is fairly consistent.

Socio-Economic Status and Achievement.—It is generally accepted that social and economic status do influence school achievement. General community facilities and neighborhood characteristics affect all the children in the school, although in different amounts. Certain other elements of the environment such as the characteristics of the child's home vary widely for different children and affect them differently.²

The success of an individual child in school reflects, to a degree, at least, all his experiences outside school, especially the type of home in which he lives.³


³Ibid., p. 87.
From a study made by Collins and Douglass, it was revealed that unfavorable home conditions of their 146 subjects, all with I. Q.'s of 110 or more, was a contributing factor of major importance in their unsatisfactory school work.\(^1\)

Robert A. Ramsey, Jr. attempted to determine the extent of individual differences in cultural background that are reflected in differences in academic behavior in college and law school. He studied seven institutional variables: father's occupation, family income, type of secondary school, religious affiliation, community and region of residence and ancestral background. Significant differences in academic behavior were found within five of the variables.\(^2\)

E. M. Austell made a study of socio-economic factors affecting the behavior of 50 high school students at Atlanta, Georgia. Results indicated that the basic problems of fifty disciplinary and attendance cases were in part influenced by factors in the home.\(^3\)

In a later study by Hermese E. Johnson, it was found that under certain conditions, and with the measuring instruments employed, the progressive achievement tests, form A and B, there were differences in the gain in school achievement by pupils in various subdivisions of each socio-economic classification, but in most cases, the differences did not


approach statistical significance. In general, however, the trend was toward more progress in the school achievement by those pupils who lived under more favorable economic conditions.

As a basis for the study of home environments and school records, Engle selected 490 boys and 404 girls from the Isaac C. Elston High School, Michigan City, Indiana. His study showed evidence of the relationship between favorable home conditions and good records and also evidence of association between unfavorable home conditions and poor records. The significance of these facts was suggested in his conclusions:

In school marks and intelligence quotients, children from financially dependent homes have less favorable school records than children from homes selected at random, and in turn, children from homes selected at random have less favorable records than children from selected privilege homes. Children from the under privileged homes present more problems than children from the privileged homes.

In the Cedar Bayou Elementary School, Cedar Bayou, Texas; Victorie Taylor made a study of the relationship between home conditions and achievement of 23 children. Her study pointed out that there is substantial positive relationship between achievement and home conditions.

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1 Herman E. Johnson, "Socio-Economic Status and School Achievement" (unpublished Master's Thesis, Atlanta University, School of Education, 1941), p. 45.


The relation of home conditions and achievement has been shown in Chauncey's study of 113 eighth grade children and 130 ninth grade children in Junior High School in Oklahoma City. His research showed definitely the association of superior homes and acceleration on the one hand and of inferior homes and retardation on the other hand. His own recognition of the significance of such research is cited below:

Many psychological, social, and educational problems are suggested by this study. To students of education the findings seem to suggest that more attention should be given to home environment when attempts are made to offer social and vocational guidance in the schools.¹

P. C. Sexton in her classic study of Educational Income rejects the thesis that children from underprivileged backgrounds were born short on intelligence. She affirms confidence in the learning potential of such children, and calls for school programs that will assure its realization.²

From all indications socio-economic status plays an important part upon learning and W. Lloyd Warner in Who Shall Be Educated? feels that it is a truism that the school system must fit into the machinery of the social order.³

CHAPTER II

PRESENTATION AND ANALYSIS OF DATA

Statistical Analysis of Scores Obtained by Fifty-Two Ninth Grade Pupils

This chapter presents the data collected from three tests and a rating scale which were administered to fifty-two pupils at the Houston County Training School, Perry, Georgia. The tests used were: The California Achievement Test Battery, 1957, Form W; The California Test of Personality, 1953, Form AA; and A Home Score Sheet. Students for this study were selected from the ninth grade class after their first semester's work. The class was ranked from lowest to highest according to academic record. Those students who ranked in the lowest 20 per cent of the class were chosen as the unsuccessful group, while those who ranked in the upper 20 per cent of the class were chosen as the successful group. The class was composed of 130 students with academic averages on a 100 point scale ranging from a low of 46 to a high of 96 with a mean of 69.5 and a median of 71. The passing grade for all students is 70. The grades for the lowest 20 per cent of the class ranged from a low of 46 to a high of 63 and the averages for the upper 20 per cent of the class ranged from a low of 75 to a high of 96. These data are shown in Table 1 on page 16.
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<td>46-48</td>
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Mean 69.5  
Median 71  
Range 50
Data for this study are based on the pupils' performance on the following instruments:

California Test of Mental Maturity
California Achievement Tests
California Test of Personality
Home Score Sheet

The total group was subjected to all instruments used.

The California Short-Form Test of Mental Maturity is an instrument for appraising mental development or mental capacity. It reveals information that is basic to any interpretation of present functioning and future potential in a relatively specific but critical area of human activities. This information is of particular interest to teachers, counselors, psychologists, and employers. By means of carefully selected and validated items, this test samples mental processes in four areas: spatial relationships, logical reasoning, numerical reasoning, and verbal concepts.

Spatial Relationship is concerned with the way people see or perceive objects in space. This relationship largely determines their experiences with these objects. Much learning is derived from just such experiences—those based on the perception of spatial relationships. Good capacity for seeing and understanding spatial relations is considered essential to success in planning layout design, in science, in art, in geometry, in map reading, and even in subjects as remote as spelling and music.

Logical Reasoning involves many abstract relationships, such as recognizing opposites and similarities and making analogies and inferences. Comprehending and interpreting phenomena of all kinds depend on logical reasoning which is very important in most academic pursuits.
### Table 2

A frequency distribution of scores made by fifty-two pupils on the California Short-Form Test of Mental Maturity

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<td>13.4</td>
</tr>
<tr>
<td>76-78</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>73-75</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>70-72</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td>67-69</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Mean 81.5  
Median 80.2  
S.D. 9.30  
S.E. 1.27
Numerical Reasoning is a kind of a reasoning which differs from Logical Reasoning in that it is limited to mental manipulation of numbers. This capacity is regarded as prerequisite to all endeavors which involve the use of numerical relationships. Numerous activities require this ability: shop work, home economics, bookkeeping, making change with money, mathematics, engineering, and nearly all sciences.

Verbal concepts is the facility for relating words and meanings. It is one of the best recognized indicators of intelligence. A good vocabulary is indicative of a good learner, of one who can communicate well. Few measures are more highly related to academic success than a good command of useful verbal concepts.

The frequency distribution of scores for the total group on The California Short-Form Test of Mental Maturity is shown in Table 2 on page 18. As seen from this table, the scores ranged from a low of 68 to a high of 102. Approximately 55 per cent of the total group scored less than 82. The mean for the group was 81.5 and the median was 80.2. Twenty three per cent of the group has measured I.Q.'s of 72 or less. Only 5.7 per cent of the students studied had I.Q.'s of more than the expected median I.Q. of 100. The most frequently occurring I.Q. was between 70 and 72.

The standard deviation for the group was 9.30 with a standard error of 1.27. Thirty students or 58 per cent of the group scored between one standard deviation above and one standard deviation below the mean. Students were fairly homogeneous on this measured trait. Only 3.7 standard deviations included 100 per cent of the group.
TABLE 3

A FREQUENCY DISTRIBUTION OF SCORES MADE BY FIFTY-TWO PUPILS ON THE CALIFORNIA ACHIEVEMENT TESTS

<table>
<thead>
<tr>
<th>Scores</th>
<th>Frequencies</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.5-11.9</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>11.0-11.4</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>10.5-10.9</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>10.0-10.4</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>9.5-9.9</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>9.0-9.4</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>8.5-8.9</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>8.0-8.4</td>
<td>8</td>
<td>15.5</td>
</tr>
<tr>
<td>7.5-7.9</td>
<td>9</td>
<td>17.3</td>
</tr>
<tr>
<td>7.0-7.4</td>
<td>13</td>
<td>25.0</td>
</tr>
<tr>
<td>6.5-6.9</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td>6.0-6.4</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Mean 7.3  
Median 7.3  
S.D. .97  
S.E. .13
In summary the group scored less on the California Test of Mental Maturity than scores obtained by the general population: a mean score of 81.5 as compared to an expected mean of 100. The range of scores was rather limited with only 31 I.Q. points between the lowest and highest scores. It should be pointed out also that the scores tended to concentrate in the lower part of the distribution with 23 per cent of the cases in the lowest two class intervals.

The California Achievement Tests are designed to fulfill the important educational testing purposes of measurement, evaluation and diagnosis, including grade placements and percentile ranks of students in three basic skill areas of Reading, Mathematics and Language. The most comprehensive measure yielded by an achievement test is the total battery score. This score is of value only as the measured indicator of an individual's or a group's total attainment status within the scope of the test. Measurement continues through to the smallest unit scores for which reliability and normative data are provided. Diagnosis and evaluation begin with the subject area scores and proceed through the various subdivisions of the test to the smallest units, namely, the individual items.

The frequency distribution of scores for the total group taking the California Achievement Tests is shown in Table 3 on page 20. As seen from this table the scores ranged from a low of grade placement 6.0 to a high of grade placement of 11.9. Approximately 53.4 per cent of the total group had a grade placement less than 7.5. The mean and median for the group were 7.3. Fifty or 96.2 per cent of the group had measured grade placement of 8.4 or less. Only two or 3.8 per cent of the students
### TABLE 4

A FREQUENCY DISTRIBUTION OF SCORES MADE BY FIFTY-TWO PUPILS ON THE CALIFORNIA TEST OF PERSONALITY

<table>
<thead>
<tr>
<th>Scores</th>
<th>Frequencies</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>170-179</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>160-169</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>150-159</td>
<td>3</td>
<td>5.7</td>
</tr>
<tr>
<td>140-149</td>
<td>3</td>
<td>5.7</td>
</tr>
<tr>
<td>130-139</td>
<td>7</td>
<td>13.4</td>
</tr>
<tr>
<td>120-129</td>
<td>4</td>
<td>7.7</td>
</tr>
<tr>
<td>110-119</td>
<td>10</td>
<td>19.2</td>
</tr>
<tr>
<td>100-109</td>
<td>8</td>
<td>15.5</td>
</tr>
<tr>
<td>90-99</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>80-89</td>
<td>4</td>
<td>7.7</td>
</tr>
<tr>
<td>70-79</td>
<td>3</td>
<td>5.7</td>
</tr>
<tr>
<td>60-69</td>
<td>4</td>
<td>7.7</td>
</tr>
<tr>
<td>50-59</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>40-49</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>30-39</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Mean 110.6  
Median 112.5  
S.D. 29.6  
S.E. 4.17
studied had a grade placement of more than the expected median grade placement of 9.0. The most frequently occurring grade placement was between 7.0 and 7.4.

The standard deviation for the group was .97 with a standard error of .13. Forty six or 89 per cent of the group scored between one standard deviation above and one standard deviation below the mean. Students were slightly heterogeneous on this measured trait. Approximately 6.0 standard deviations included 100 per cent of the group.

Thus it is shown that the group scored less on the California Achievement Test than scores obtained by the norming population: A mean score of 7.3 as compared to an expected mean of 9.0. It should be pointed out that the scores tended to concentrate in the lower part of the distribution with 63.4 per cent of the cases in the lowest three class intervals.

The California Test of Personality has been designed to identify and reveal the status of certain highly important factors in personality and social adjustment usually designated as intangibles. These are the factors that defy appraisal or diagnosis by mean of ordinary ability and achievement tests. The California Test of Personality is a teaching learning or developmental instrument primarily. Its purpose is to provide the data for aiding individuals to maintain or develop a normal balance between personal and social adjustment. Individual reactions to items are obtained, not primarily for the usefulness of total or section scores, but to detect the areas and specific types of tendencies to think, feel, and act which reveal undesirable individual adjustments.
It is organized around the concept of life adjustment as a balance between personal and social adjustment. Personal adjustment is assumed to be based on feelings of personal security and social adjustment on feelings of social security.

The frequency distribution of scores for the total group taking the California Test of Personality is shown in Table 4 on page 22. As seen from this table, the scores ranged from a low of 34 to a high of 172. In terms of percentiles the scores ranged from the 1st percentile to the 98th percentile. Approximately 63.4 per cent of the total group scored less than 120 which represents the 20th percentile. The mean score for the group was 110.6 and the median was 112.5. These scores fell between the 10th percentile and the 20th percentile. The most frequently occurring score was between 110 and 119. These scores also fell between the 10th percentile and the 20th percentile.

The standard deviation for the group was 29.6 with a standard error of 4.17. Thirty-eight or 73 per cent of the group scored between one standard deviation above and one standard deviation below the mean. Students were fairly homogeneous on this measured trait. Only 4.6 standard deviations included 100 per cent of the group. Thus it may be concluded that the group scored less on the California Test of Personality than did the general population with a mean score of 111.6 which represents the 20th percentile as compared to an expected mean of 114.5 which represents the 50th percentile. The range was fairly dispersed with 138 points between the lowest and the highest score.
Statistical Analysis of Scores Obtained by Twenty-Six Successful and Twenty-Six Unsuccessful Pupils

The frequency distribution of scores obtained by twenty-six successful and twenty-six unsuccessful pupils on the California Short-Form Test of Mental Maturity is presented in Table 5 on page 26. As seen from this table, the successful group scores ranged on the California Short-Form Test of Mental Maturity from a low of 71 to a high of 102; with the mean of 82.7, a median of 82.2, a standard deviation of 8.10, and a standard error of the mean of 1.54 as compared to the unsuccessful group scores based on the same test which ranged from a low of 68 to a high of 102, with a mean of 80.2, a median of 77.5, a standard deviation of 10.3, and a standard error of the mean of 2.06. Only one or 3.8 per cent of the students in the successful group had an I.Q. of 100 as compared to two or 7.7 per cent of the students studied in the unsuccessful group. The most frequently occurring I.Q. in the successful group was between 85 and 87, 82 and 84, 79 and 81, and 70 and 72 as compared to the most frequently occurring I.Q. in the unsuccessful group which was between 70 and 72.

The significant differences between the scores of the successful group and the unsuccessful group on the California Short-Form Test of Mental Maturity are presented in Table 6 on page 27.

The mean for the successful group was 82.7 and for the unsuccessful group 80.2. There was a difference of 2.5 in favor of the successful group. The median for the successful group was 82.2 and for the unsuccessful group 77.5 with a difference of 4.7 in favor of the successful group.
### TABLE 5

A FREQUENCY DISTRIBUTION OF SCORES MADE BY TWO GROUPS ON THE CALIFORNIA SHORT-FORM TEST OF MENTAL MATURITY

<table>
<thead>
<tr>
<th>Scores</th>
<th>F</th>
<th>Per Cent</th>
<th>Scores</th>
<th>F</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-102</td>
<td>1</td>
<td>3.8</td>
<td>100-102</td>
<td>2</td>
<td>7.7</td>
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<tr>
<td>97-99</td>
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<td>97-99</td>
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<tr>
<td>94-96</td>
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<td>94-96</td>
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<td>3.8</td>
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<tr>
<td>88-90</td>
<td>1</td>
<td>3.8</td>
<td>88-90</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>85-87</td>
<td>4</td>
<td>15.4</td>
<td>85-87</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>82-84</td>
<td>4</td>
<td>15.4</td>
<td>82-84</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>79-81</td>
<td>4</td>
<td>15.4</td>
<td>79-81</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>76-78</td>
<td>3</td>
<td>11.5</td>
<td>76-78</td>
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<td>7.7</td>
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<td>73-75</td>
<td>1</td>
<td>3.8</td>
<td>73-75</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>70-72</td>
<td>4</td>
<td>15.4</td>
<td>70-72</td>
<td>6</td>
<td>23.0</td>
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<td></td>
<td></td>
<td></td>
<td>67-69</td>
<td>2</td>
<td>7.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th>26</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>82.7</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>82.2</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td>8.10</td>
<td></td>
</tr>
<tr>
<td>S.E.</td>
<td>1.54</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th>26</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>80.2</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>77.5</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td>10.3</td>
<td></td>
</tr>
<tr>
<td>S.E.</td>
<td>2.06</td>
<td></td>
</tr>
</tbody>
</table>
The "Z" was found to be .193. This "Z" of .193 was not significant at the one per cent level of confidence because it was less than .496. Therefore, the differences between the successful group and the unsuccessful group scores on the California Short-Form Test of Mental Maturity were not statistically significant. Thus it is shown that the unsuccessful group scored less as a group on the California Short-Form Test of Mental Maturity than did the successful group, although the differences were not statistically significant.

**TABLE 6**

**THE SIGNIFICANT DIFFERENCES FOR SCORES ON THE CALIFORNIA SHORT-FORM TEST OF MENTAL MATURITY**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>S.E.</th>
<th>S.E. dm</th>
<th>D M</th>
<th>&quot;Z&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>82.7</td>
<td>82.2</td>
<td>8.10</td>
<td>1.51</td>
<td>2.58</td>
<td>2.5</td>
<td>.193</td>
</tr>
<tr>
<td>Unsuccessful</td>
<td>80.2</td>
<td>77.5</td>
<td>10.3</td>
<td>2.06</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The frequency distribution of scores obtained by twenty-six successful and twenty-six unsuccessful pupils on the California Achievement Test Battery is presented in Table 7 on page 28.

As seen from this table, the successful group scores ranged on the California Achievement Tests from a low of 6.0 to a high of 11.9 with a mean of 7.50, a median of 7.29, a standard deviation of 1.17; and a standard error of the mean of .23 as compared to the scores of the unsuccessful group which ranged from a low of 6.2 to a high of 8.4; with a mean
### TABLE 7

A FREQUENCY DISTRIBUTION OF SCORES OBTAINED BY TWO GROUPS ON THE CALIFORNIA ACHIEVEMENT TESTS

<table>
<thead>
<tr>
<th>Scores</th>
<th>F</th>
<th>Per Cent</th>
<th>Scores</th>
<th>F</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.5-11.9</td>
<td>1</td>
<td>3.8</td>
<td>8.4-8.5</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>11.0-11.4</td>
<td>0</td>
<td>0.0</td>
<td>8.2-8.3</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>10.5-10.9</td>
<td>0</td>
<td>0.0</td>
<td>8.0-8.1</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>10.0-10.4</td>
<td>1</td>
<td>3.8</td>
<td>7.8-7.9</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>9.5-9.9</td>
<td>0</td>
<td>0.0</td>
<td>7.6-7.7</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>9.0-9.4</td>
<td>0</td>
<td>0.0</td>
<td>7.4-7.5</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>8.5-8.9</td>
<td>0</td>
<td>0.0</td>
<td>7.2-7.3</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>8.0-8.4</td>
<td>3</td>
<td>11.5</td>
<td>7.0-7.1</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>7.5-7.9</td>
<td>6</td>
<td>23.0</td>
<td>6.8-6.9</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>7.0-7.4</td>
<td>7</td>
<td>26.9</td>
<td>6.6-6.7</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>6.5-6.9</td>
<td>5</td>
<td>19.2</td>
<td>6.4-6.5</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>6.0-6.4</td>
<td>3</td>
<td>11.5</td>
<td>6.2-6.3</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>6.0-6.1</td>
<td>1</td>
<td>3.8</td>
<td>6.0-6.1</td>
<td>1</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Total 26 100  Total 26 100

Mean 7.5  Mean 7.1  
Median 7.28  Median 7.02  
Range 6.9  Range 3.2  
S.D. 1.17  S.D. .74  
S.E. .23  S.E. .14  

28
of 7.1, a median of 7.02, a standard deviation of .74 and a standard error of the mean of .14. Only two or 7.6 per cent of the students in the successful group had an expected achievement grade placement of 9.0 as compared to zero of the students in the unsuccessful group. The most frequently occurring achievement grade placement score in the successful group was between 7.5 and 7.9 as compared to the most frequently occurring achievement grade placement score in the unsuccessful group which was between 6.2 and 6.3.

The significant differences between the successful group and unsuccessful group scores on the California Achievement Tests are presented in Table 8.

**TABLE 8**

THE SIGNIFICANT DIFFERENCES FOR SCORES ON THE CALIFORNIA ACHIEVEMENT TESTS

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>S.E.</th>
<th>S.E.</th>
<th>Dm</th>
<th>M</th>
<th>&quot;Z&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful</td>
<td>7.5</td>
<td>7.2</td>
<td>1.17</td>
<td>.23</td>
<td>.28</td>
<td>.4</td>
<td>.310</td>
<td></td>
</tr>
<tr>
<td>Unsuccessful</td>
<td>7.1</td>
<td>7.0</td>
<td>.74</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen from this table, the mean for the successful group was 7.5 and for the unsuccessful group it was 7.1 with a difference of .40 in favor of the successful group. The median for the successful group was 7.28 and for the unsuccessful group 7.02 with a difference of .26 in favor of the successful group.
### Table 9

A frequency distribution of scores obtained by two groups on the California Test of Personality

<table>
<thead>
<tr>
<th>Scores</th>
<th>F</th>
<th>Per Cent</th>
<th>Scores</th>
<th>F</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>170-179</td>
<td>1</td>
<td>3.8</td>
<td>160-169</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>160-169</td>
<td>0</td>
<td>0.0</td>
<td>150-159</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>150-159</td>
<td>3</td>
<td>11.5</td>
<td>140-149</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>140-149</td>
<td>2</td>
<td>7.7</td>
<td>130-139</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>130-139</td>
<td>4</td>
<td>15.4</td>
<td>120-129</td>
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<td>120-129</td>
<td>4</td>
<td>15.4</td>
<td>110-119</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>110-119</td>
<td>3</td>
<td>11.5</td>
<td>100-109</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>100-109</td>
<td>6</td>
<td>23.0</td>
<td>90-99</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>90-99</td>
<td>0</td>
<td>0.0</td>
<td>80-89</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>80-89</td>
<td>2</td>
<td>7.7</td>
<td>70-79</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>70-79</td>
<td>0</td>
<td>0.0</td>
<td>60-69</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>60-69</td>
<td>1</td>
<td>3.8</td>
<td>50-59</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40-49</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30-39</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
<td>Total</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

| Mean       | 121.8 | Mean       | 101.8 |
| Median     | 122.0 | Median     | 104.5 |
| Range      | 107   | Range      | 127   |
| S.D.       | 24.50 | S.D.       | 30.04 |
| S.E.       | 4.90  | S.E.       | 6.42  |
The "Z" was found to be .310. This "Z" was not significant at the one per cent level of confidence for it was less than .496. Therefore, the difference between the successful group and the unsuccessful group scores on the California Achievement Tests was not statistically significant.

Thus, it is shown that the unsuccessful group scored slightly less as a group on the California Achievement Tests than the successful group, although the differences were not statistically significant.

The frequency distribution of scores obtained by twenty-six successful pupils and twenty-six unsuccessful pupils on the California Test of Personality is presented in Table 9 on page 30.

As seen from this table, the successful group scores ranged on the California Test of Personality from a low of 66 to a high of 172. In terms of percentiles the scores ranged from the first to the ninety-eighth percentile, with a mean of 121.8 and a median of 122 which represents the 20th percentile, a standard deviation of 24.50, and a standard error of the mean of 4.90. The unsuccessful group scores ranged on the California Test of Personality from a low of 34 to a high of 160. In terms of percentiles the scores ranged from the first percentile to the eightieth percentile, with a mean of 101.8, a median of 104.5 which both represent the tenth percentile, a standard deviation of 30.04, and a standard error of the mean of 6.42. Only four or 15.3 per cent of the students in the successful group had a score above 145 which represent the fiftieth percentile. Three or 11.5 per cent of the same group had a score less than 100 which represents the tenth percentile as compared to the unsuccessful group with one or 3.8 per cent scoring
above 145, the fiftieth percentile, whereas twelve or 145 per cent scored below 100, the tenth percentile. The most frequently occurring score in the successful group was between 100 and 109 which represents the tenth percentile as compared to the most frequently occurring score in the unsuccessful group which was between 110 and 119. These scores fell between the tenth and twentieth percentiles.

The significant differences between the successful group and the unsuccessful group scores on the California Test of Personality are presented in Table 10.

As seen from this table, the mean for the successful group was 121.8 which is in the 20th percentile; for the unsuccessful group, 101.8, which represents the tenth percentile with a difference of 20 in favor of the successful group.

<table>
<thead>
<tr>
<th>TABLE 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE SIGNIFICANT DIFFERENCES FOR SCORES ON THE CALIFORNIA TEST OF PERSONALITY</td>
</tr>
<tr>
<td>Group</td>
</tr>
<tr>
<td>Successful</td>
</tr>
<tr>
<td>Unsuccessful</td>
</tr>
</tbody>
</table>

The "Z" was found to be .188. This "Z" of .188 was not significant at the one per cent level of confidence for it was less than .496. Therefore, the difference between the successful group and unsuccessful group scores on the California Test of Personality was not statistically
significant. In summary, the successful group performance on the California Test of Personality was slightly higher than the unsuccessful group with a difference in the mean of 20 points in favor of the successful group, although the differences were not statistically significant.

An Item Analysis on the Home Score Sheet for Fifty-Two Students

The early existence of underachieving behavior would seem to imply that underachievement is a problem which is not unique to the school situation but which stems from and exists in other areas in the underachiever's life. A number of studies into the home backgrounds and parental attitudes and child-rearing practices of the fathers and mothers of underachievers have indeed revealed the existence of some significant differences between families of achievers and underachievers.

It was felt by the researcher that the presence of both parents in the home may be an important factor in the school achievement and other forms of adjustment of children. For that reason, the percentage of homes with both parents present was ascertained for both the successful and for the unsuccessful students.

Parents were considered not to be present when they were absent from the home situation due to death, separation, divorce, extended leaves and similar reasons. The parents present in the home for both groups is shown in Table 11 on page 34. As seen from this table, 65 per cent of the students in the upper group came from homes where both parents were present as compared to 46 per cent of the students in the
lower group. Only 35 per cent of the students in the upper group came from homes where one parent was present as compared to 46 per cent of the students in the lower group. There were no students in the upper group living with other relatives as compared to 8 per cent of the students in the lower group.

### TABLE 11

**PARENTS PRESENT IN HOME**

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
</tr>
<tr>
<td>Both</td>
<td>65</td>
<td>46</td>
<td>56</td>
</tr>
<tr>
<td>One</td>
<td>35</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Other Relative</td>
<td>0</td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>

For the total group, 56 per cent of the students lived in homes where both parents were present, while 40 per cent of the total group lived in homes where only one parent was present, and only 4 per cent of the total group lived in homes with other relatives. In summary, a higher percentage of students from the upper group in this study came from homes where both parents were present and it appeared that the percentage of students in the lower group was about the same from homes with either one or two parents present.

It is logical to assume that when both parents are employed, the amount of income available for the family will be greater than when none or one parent is employed. Since income is so essential for providing the
necessities for living, efforts were made to secure evidence related to this factor. The responses to the direct question about family income were not sufficiently reliable to justify inclusion in this report. Therefore, the number of parents working and occupations of parents were used to provide data concerning family income.

The working parents for both groups is shown in Table 12. As seen from this table, 46 per cent of the students in the upper group came from homes where both parents were working as compared to 61 per cent of the students in the lower group. Thirty-five per cent of the students in the upper group came from homes where one parent worked as compared to 35 per cent of the students in the lower group. The table showed that 19 per cent of the students in the upper group came from homes with no parent working as compared to 4 per cent of the students in the lower group. This means that the lower group enjoyed an advantage over the upper group as far as the number of persons who contributed to the family income. However, this advantage may be cancelled by the fact that in the families of the upper group more mothers were at home during the day and could devote more time to guidance and supervision of their children.

$\begin{array}{|c|c|c|}
\hline
& \text{Upper Group} & \text{Lower Group} & \text{Total Group} \\
\hline
\text{Percentage} & \text{Percentage} & \text{Percentage} \\
\hline
\text{Both Parents} & 46 & 61 & 54 \\
\text{One Parent} & 35 & 35 & 35 \\
\text{No Parent} & 19 & 4 & 11 \\
\hline
\end{array}$

For the total group, approximately 54 per cent of the students lived in homes where both parents work, while 35 per cent of the
students lived in homes where one parent works and 11 per cent of the total group lived in homes where no parent worked. In summary, a smaller percentage of students from the upper group in this study came from homes with both parents working as compared to a much higher percentage for students in the lower group.

Home ownership has been found to be a factor associated with desirable behavior, concern for welfare of children and togetherness of family. 1 These factors appear to be characteristics which would contribute to the maintenance of an atmosphere conducive to school success.

The number of parents owning their homes for both groups is shown in Table 13. According to this table, 39 per cent of the students in the upper group came from homes where parents were owners as compared to 38 per cent of the students in the lower group. Sixty-one per cent of the students in the upper group came from homes where parents were renters as compared to 62 per cent of the students in the lower group.

TABLE 13
HOME OWNERSHIP

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>Homeowner</td>
<td>39</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>Renter</td>
<td>61</td>
<td>62</td>
<td>62</td>
</tr>
</tbody>
</table>

For the total group, 38 per cent of the students lived in homes where parents were owners and 62 per cent of the students lived in

1Sheldon and Eleanor Glueck, Unraveling Juvenile Delinquency, (Mass.: Harvard University Press, 1950, p. 75.)
homes where parents were renters. In summary, a slightly higher percentage of students from the upper group in this study came from homes with parents as owners as compared to a slightly smaller percentage of students in the lower group. It is evidenced that the difference between the two groups on the factor of home ownership is too small to be of any significance.

It was felt by the researcher that the structural features of the homes of children may be an important factor in school achievement and other forms of adjustments of children in that this feature of the home probably is influenced by the family's level of aspiration.

The structural features of the homes for both groups are shown in Table 14. As seen from this table, 12 per cent of the students in the upper group came from brick homes as compared to 3 per cent in the lower group. Fifty per cent of the students in the upper group came from painted frame houses as compared to 59 per cent of the students in the lower group.

**TABLE 14**

<table>
<thead>
<tr>
<th>Structural Features of Home</th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick</td>
<td>12</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Painted-frame house</td>
<td>50</td>
<td>59</td>
<td>53</td>
</tr>
<tr>
<td>Unpainted-frame house</td>
<td>38</td>
<td>38</td>
<td>39</td>
</tr>
</tbody>
</table>

For the total group, 53 per cent of the students came from painted-frame houses. Thus a higher percentage of students from the lower group came from painted-frame homes as compared to a smaller per-
centage of students from the upper group. The percentage of students in both groups coming from unpainted homes appeared to be about the same. This latter fact reveals striking similarity between the two groups.

In addition to structural features of homes, it was believed that the number of rooms in the home and the use of these rooms were factors conducive to school success. Whether a child shares a bedroom with parents or other members of the family may indicate whether or not he has an adequate place to study.

The percentage of rooms in the home for both groups is shown in Table 15. As seen from this table, 80 per cent of the students in the lower group came from homes with four or more rooms as compared to 75 per cent of the students in the upper group. Only 20 per cent of the students in the lower group came from homes with three rooms as compared to 25 per cent of the students in the lower group. No student in the upper or lower group came from a home with two rooms or less.

<table>
<thead>
<tr>
<th>TABLE 15</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROOMS IN HOME</strong></td>
</tr>
<tr>
<td><strong>Upper Group</strong></td>
</tr>
<tr>
<td>Percentage</td>
</tr>
<tr>
<td>Four or more</td>
</tr>
<tr>
<td>Three</td>
</tr>
<tr>
<td>Two</td>
</tr>
</tbody>
</table>

For the total group, 78 per cent of the students came from homes with four or more rooms, while 22 per cent of the total group came from homes with three rooms and none of the students came from homes with two
or less rooms. Thus a much higher percentage of students from the lower group in this study came from homes with four or more rooms as compared to a smaller percentage of students from the upper group.

In addition to the number of rooms in the home, it was believed that the amount of living space provided may be a factor also conducive to school success. For that reason, the percentage of living space available was ascertained for both groups.

The living space available is shown in Table 16. As seen from this table, the total number of rooms for the lower group were 99 as compared to 98 rooms for the upper group. The total number of persons in family for the lower group was 167 as compared to 140 persons for the upper group. The average persons per room for the upper group was 1.4 as compared to 1.7 for the lower group.

<table>
<thead>
<tr>
<th>TABLE 16</th>
<th>LIVING SPACE AVAILABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper Group</td>
</tr>
<tr>
<td>Total rooms</td>
<td>98</td>
</tr>
<tr>
<td>Total persons in family</td>
<td>140</td>
</tr>
<tr>
<td>Average persons per room</td>
<td>1.4</td>
</tr>
</tbody>
</table>

In summary, it is seen that the total number of rooms for each group varied only a little as well as the average number of persons per room. The total number of persons in family showed a wider difference with a larger number of persons in families from the lower group than the upper group.
It was felt by the researcher that screened windows and doors in the home is a good health practice and may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes with screened windows and doors was ascertained for both groups.

The condition of windows and doors for both groups is shown in Table 17. As seen from this table, the percentage of homes with screened windows and doors for both groups were exactly the same: 69 per cent. Twenty-three per cent of the students in the upper group came from homes with windows and doors partially screened as compared to 19 per cent of the students in the lower group.

<table>
<thead>
<tr>
<th>Windows &amp; Doors</th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>69</td>
<td>69</td>
<td>69</td>
</tr>
<tr>
<td>Partially screened</td>
<td>23</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Not screened</td>
<td>8</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

For the total group, 69 per cent of the students came from homes with windows and doors screened while only 10 per cent of the students came from homes with no screened windows and doors. Thus a higher percentage of the total students came from homes with windows and doors screened. The percentage of screened windows and doors for the upper and lower groups were the same.
It was felt by the researcher that separate sleeping rooms for the parents and children in the home may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes with separate rooms for parents and children was ascertained for both the successful and for the unsuccessful groups.

The sleeping accommodations of parents and children for both groups are shown in Table 18. As seen from this table, approximately 96 per cent of the students in the upper group came from homes where children and parents have separate sleeping rooms as compared to 58 per cent of the students in the lower group. Only 4 per cent of the students in the upper group came from homes where parents and children sleep in the same room as compared to 30 per cent of the students in the lower group. Table 18 also shows that no student in the upper group sleeps in the same bed with parents as compared to 12 per cent of the students in the lower group.

TABLE 18
PARENTS AND CHILDREN SLEEPING ACCOMMODATIONS

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>Separate Room for</td>
<td>96</td>
<td>58</td>
<td>73</td>
</tr>
<tr>
<td>Parents and Children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separate Beds in</td>
<td>4</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td>Same Room</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents and Children in</td>
<td>0</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Same Bed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the total group, 73 per cent of the students came from homes where separate rooms were provided for children and parents, while 17 per cent of the group came from homes where children and parents slept
in the same room and only 10 per cent of the total group came from homes where parents and children sleep together. Thus a much higher percentage of students from the upper group in this study came from homes where parents provided separate rooms for sleeping.

In addition to separate rooms for parents and children, it was believed that in homes where separate rooms for boys and girls are provided, a factor even more conducive to school success was present. For that reason, the percentage of boys and girls having separate sleeping accommodations was ascertained for both the successful and for the unsuccessful students.

The sleeping accommodations of boys and girls for both groups are shown in Table 19. As seen from this table, 84 per cent of the students from the upper group came from homes with separate rooms for boys and girls as compared to 69 per cent of the students in the lower group. Only 8 per cent of the students in the upper group came from homes where girls and boys slept in the same bed as compared to none in the lower group.

<table>
<thead>
<tr>
<th>TABLE 19</th>
<th>BOYS AND GIRLS SLEEPING ACCOMMODATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upper Group</td>
</tr>
<tr>
<td></td>
<td>Percentage</td>
</tr>
<tr>
<td>Separate Rooms</td>
<td>84</td>
</tr>
<tr>
<td>Same Room, Separate Beds</td>
<td>8</td>
</tr>
<tr>
<td>Same Room, Same Beds</td>
<td>8</td>
</tr>
</tbody>
</table>

For the total group, 77 per cent of the students came from homes where separate sleeping rooms are provided, while 19 per cent of the
students came from homes where boys and girls slept in the same room with separate beds and only 4 per cent of the students came from homes where boys and girls sleep together.

In summary, it is seen that a higher percentage of the students from the upper group came from homes where separate rooms are provided for boys and girls and it appeared that the percentage of students in the lower group was also higher from homes with separate rooms but these percentages were much lower for the lower group.

In addition to sleeping accommodations, it was believed that attractiveness of rooms may be a sign of certain values conducive to school success. For that reason, the attractiveness of rooms for both groups was ascertained. The researcher used attractiveness to describe the general appearance of the rooms in the homes; physical features such as painted walls, pictures on the walls, arrangement of furniture, etc.

The attractiveness of rooms for both groups is shown in Table 20 on page 44. As seen from this table, 19 per cent of the students in the upper group came from homes where the rooms were very attractive as compared to 21 per cent of the students in the lower group. Approximately 67 per cent of the students in the upper group came from homes where the rooms were slightly attractive as compared to 62 per cent of the students in the lower group. Only 14 per cent of the students in the upper group came from homes where rooms were unattractive as compared to 17 per cent of the students in the lower group.
TABLE 20

ATTRACTION OF ROOMS

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>19</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Slightly</td>
<td>67</td>
<td>62</td>
<td>64</td>
</tr>
<tr>
<td>Unattractive</td>
<td>14</td>
<td>7</td>
<td>16</td>
</tr>
</tbody>
</table>

For the total group, only 20 per cent of the students came from homes where the rooms were attractive, while 64 per cent of the students came from homes with slightly attractive rooms and 16 per cent of the students came from homes with unattractive rooms. According to the foregoing data, the percentage of students in this study with attractive rooms for both groups was small with the lower group showing a slightly higher percentage than the upper group. The largest percentage of students in both groups came from homes with slightly attractive rooms.

It is felt by the researcher that certain values derived from home beautification may be an important factor to school success. For that reason, the percentage of landscaped homes was ascertained for both the successful and for the unsuccessful students.

The conditions of the home surroundings are shown in Tables 21 and 22 on page 45. As seen from table 21, 39 per cent of the students in the upper group came from homes that were improved as compared to only 19 per cent of the students in the lower group. Approximately 61 per cent of the students in the upper group came from homes not improved as compared to 81 per cent of the students in the lower group.
For the total group, only 29 per cent of the students came from homes with improved yards and 71 per cent of the students came from homes with yards which had not been improved. Thus it is shown that a higher percentage of students from the upper group in this study came from homes with improved yards as compared to a higher percentage of students from the lower group in this study who came from homes with unimproved yards.

The percentage of homes with lawns for both groups is shown in Table 22. As seen from this table, 35 per cent of the students in the upper group came from homes with lawn grass as compared to 23 per cent of the students in the lower group. Only 65 per cent of the students in the upper group came from homes without lawn grass as compared to approximately 77 per cent of the students in the lower group.

TABLE 22
HOMES WITH LAWNs

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Lawn Grass</td>
<td>35</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>Without Lawn Grass</td>
<td>65</td>
<td>77</td>
<td>71</td>
</tr>
</tbody>
</table>

For the total group, only 29 per cent of the students came from homes with lawn grass and 71 per cent of the students came from homes...
without lawn grass. In summary, a higher percentage of students from the upper group in this study came from homes with lawn grass as compared to a higher percentage of students from the lower group in this study who came from homes without lawn grass.

It is felt by the researcher that good lighting is a good health practice and may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes according to source of light was ascertained for both groups.

The percentage of homes according to source of light is shown in Table 23. As seen from this table 95 per cent of the students in the lower group came from homes having electricity as compared to 83 per cent of the students in the upper group. Approximately 17 per cent of the students in the upper group came from homes with oil lamps as compared to 5 per cent of the students in the lower group. For the total group, 89 per cent of the total group came from homes with electricity. In summary, a higher percentage of students in the lower group came from homes having electricity than the upper group.

<table>
<thead>
<tr>
<th>TABLE 23</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOURCE OF LIGHT IN HOME</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Electricity</td>
</tr>
<tr>
<td>Oil Lamp</td>
</tr>
<tr>
<td>Neither</td>
</tr>
</tbody>
</table>

It is felt by the researcher that communication is vital in our world in many ways and that a telephone, being a common form of communication, may be an important factor in school achievement and other forms
of development. On the other hand, a telephone may interfere with a child's study. For that reason, the percentage of homes with telephones was ascertained for both groups.

As seen from Table 2, only 11 percent of the students in the upper group came from homes with a telephone as compared to 23 percent of the students in the lower group. For the total group, 83 percent of the students came from homes with no telephone. In summary, a higher percentage of students in the lower group came from homes with a telephone than the upper group.

TABLE 2

<table>
<thead>
<tr>
<th>PERCENTAGE OF HOMES WITH TELEPHONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Group</td>
</tr>
<tr>
<td>Lower Group</td>
</tr>
<tr>
<td>Total Group</td>
</tr>
<tr>
<td>Percentage</td>
</tr>
<tr>
<td>Percentage</td>
</tr>
<tr>
<td>Percentage</td>
</tr>
<tr>
<td>Telephone in Home</td>
</tr>
<tr>
<td>No Telephone in Home</td>
</tr>
</tbody>
</table>

It is felt by the researcher that the kind of walkways represents a socio-economic status that may be an important factor associated with school success. For that reason, the percentage of homes with paved or hard surfaced walkways was ascertained for both the successful and for the unsuccessful groups.
The kind of walk in the yard is shown in Table 25. As seen from this table, only 3 per cent of the students from the upper group came from homes with a concrete walk as compared to 12 per cent of the students from the lower group. No student in either group came from a home with a brick walk but 92 per cent of the students in the upper group came from homes with a sand walk as compared to 88 per cent of the students in the lower group.

**TABLE 25**

<table>
<thead>
<tr>
<th>Walk in Yard</th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
</tr>
<tr>
<td>Concrete</td>
<td>3</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Brick</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sand</td>
<td>97</td>
<td>88</td>
<td>92</td>
</tr>
</tbody>
</table>

For the total group, 92 per cent of the students came from homes with a sand walk. Thus the highest percentage of students in this study came from homes with a sand walk. It appeared that the percentage of students from homes with concrete walks in both groups were very low and about the same.

It was felt by the researcher that the presence of a place to store food in the home may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes with food storages was ascertained for both the successful and for the unsuccessful students.
The manner of storing food is presented in Table 26. As seen from this table, 20 per cent of the students came from homes with a refrigerator and freezer for storing food as compared to 23 per cent of the students in the lower group, and 80 per cent of the students in the upper group came from homes that had only a refrigerator or ice box for storing food.

**TABLE 26**

FOOD STORAGE FOR HOME

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerator and Freezer</td>
<td>20</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Refrigerator or Ice Box</td>
<td>80</td>
<td>77</td>
<td>79</td>
</tr>
<tr>
<td>Neither</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For the total group, 21 per cent of the students came from homes with a refrigerator and freezer for storing food and 79 per cent of the students came from homes that had only a refrigerator or ice box for storing food. Thus, the percentage of students in this study coming from homes with a refrigerator and freezer was rather small with the upper group showing a slightly higher percentage than the lower group. The largest percentage of students in both groups came from homes with a refrigerator or ice box for storing food.
The source of water in the homes for both groups is shown in Table 27. As seen from this table, 61 per cent of the students in the upper group came from homes with piped water as compared to 50 per cent of the students in the lower group. Approximately 23 per cent from each the lower and upper groups came from homes with pump wells. Only 16 per cent of the students in the upper group came from homes with an open well as compared to 27 per cent in the lower group.

**TABLE 27**

**SOURCE OF WATER**

<table>
<thead>
<tr>
<th>Source of Water</th>
<th>Percent in Upper Group</th>
<th>Percent in Lower Group</th>
<th>Percent in Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piped</td>
<td>61</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>Pump Well</td>
<td>23</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Open Well</td>
<td>16</td>
<td>27</td>
<td>22</td>
</tr>
</tbody>
</table>

For the total group, 55 per cent of the students came from homes with piped water, 23 per cent from homes with a pump well, and only 22 per cent came from homes with an open well. In summary, a higher percentage of students from the upper group in this study came from homes with piped water and it appeared that the percentage of students in both groups was about the same from homes with pump wells but there was a higher percentage of students in the lower group than the upper group who came from homes with an open well.
The types of toilets in the homes for both groups are shown in Table 28. As seen from this table, 65 per cent of the students in the upper group came from homes with inside bathrooms as compared to 38 per cent of the students in the lower group. Approximately 30 per cent of the students in the upper group came from homes with an outdoor toilet as compared to 62 per cent of the students in the lower group. Only 5 per cent of the students in the upper group came from homes with no toilet as compared to none from students in the lower group.

### TABLE 28

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside Bathroom</td>
<td>65</td>
<td>38</td>
<td>51</td>
</tr>
<tr>
<td>Outdoor Toilet</td>
<td>30</td>
<td>62</td>
<td>46</td>
</tr>
<tr>
<td>No Sanitary Toilet</td>
<td>5</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

For the total group, 51 per cent of the students came from homes with indoor bathrooms, 46 per cent came from homes with outside toilets and only 3 per cent came from homes with no toilet. Thus, a much higher percentage of the students from the upper group in this study came from homes with an indoor bathroom. The highest percentage of students in this study came from homes with an outdoor toilet.

It was felt by the researcher that the educational status of parents in the home may be an important factor in school achievement and other forms of adjustment of children. For that reason, the educational status of parents in home was ascertained for both successful and for the unsuccessful students.
The educational status of parents in the home for both groups is shown in Table 29. As seen from this table, 69 per cent of the students in the upper group came from homes where both parents read and write as compared to 65 per cent for students in the lower group. Only 31 per cent of the students in the upper group came from homes where only one parent can read and write as compared to 35 per cent of the students in the lower group. No student came from homes where neither parent could read nor write.

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both Parents Can Read and Write</td>
<td>69</td>
<td>65</td>
<td>67</td>
</tr>
<tr>
<td>One Parent can Read and Write</td>
<td>31</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>Neither Parent can Read and Write</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For the total group, approximately 67 per cent of the students came from homes where both parents could read and write. Only 33 per cent of the students came from homes where only one parent could read and write. No student came from a home where neither parent could read nor write. Thus, it is shown that a slightly higher percentage of students from the upper group in this study came from homes where both parents can read and write. It appeared that the percentage of students in both groups was about the same from homes where only one parent reads and writes. No student in either group came from homes where none of the parents can read nor write.

It is felt by the researcher that homes with certain reading material available may be an important factor in school achievement and
other forms of adjustment of children. Since reading is so essential and one of the main ways of obtaining facts, efforts were made to secure evidence related to this factor.

TABLE 30

HOMES WITH CERTAIN READING MATERIALS

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
</tr>
<tr>
<td>Books</td>
<td>69</td>
<td>46</td>
<td>57</td>
</tr>
<tr>
<td>Magazines</td>
<td>61</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>Newspaper</td>
<td>73</td>
<td>34</td>
<td>53</td>
</tr>
<tr>
<td>Bible</td>
<td>88</td>
<td>46</td>
<td>67</td>
</tr>
</tbody>
</table>

The percentage of homes with certain reading materials is shown in Table 30. As seen from this table, approximately 69 per cent of the students in the upper group came from homes with books to read as compared to 46 per cent of the students in the lower group. For the total group 57 per cent of the students came from homes with no books. Sixty-one per cent of the students in the upper group came from homes with magazines as compared to only 27 per cent of the students in the lower group. For the total group, approximately 42 per cent of the students came from homes with magazines to read. Seventy-three per cent of the students in the upper group came from homes with a newspaper available as compared to 34 per cent of the students in the lower group. For the total group, approximately 53 per cent of the students came from homes with newspapers to read. Eighty-eight per cent of the students in the upper group came from homes with a Bible as compared to 46 per cent of the students in the lower group. For the total group, approximately 67 per
cent of the students came from homes with a Bible. Thus, it is shown that
the upper group had a higher percentage of homes with reading materials
than the lower group.

In addition to certain reading materials in the home, it was
believed by the researcher that in homes where audio-visual equipment is
present, this may be an important factor in school achievement and other
forms of adjustment of children. For that reason, the percentage of homes
with audio-visual equipment was ascertained for both the successful and
the unsuccessful students.

TABLE 31

AUDIO-VISUAL EQUIPMENT IN HOME

<table>
<thead>
<tr>
<th></th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage</td>
<td>Percentage</td>
<td>Percentage</td>
</tr>
<tr>
<td>Television</td>
<td>61</td>
<td>68</td>
<td>64</td>
</tr>
<tr>
<td>Radio</td>
<td>23</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Record Player</td>
<td>11</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>None of the Above</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

The audio-visual equipment present in the home is presented in
Table 31. As seen from this table, approximately 68 per cent of the
students in the lower group came from homes with a television as compared
to only 61 per cent of the students in the upper group. About 23 per
cent of the students in the upper group came from homes with a radio as
compared to 14 per cent of the students in the lower group. Eighteen per
cent of the students in the lower group came from homes with a record
player as compared to 11 per cent of the students in the upper group.
Approximately 5 per cent of the students in the upper group came from homes with neither a television, radio nor record player as compared to none of the students in the lower group.

For the total group, 64 per cent of the students came from homes with a television. In summary, a higher percentage of students in the lower group came from homes with a television, radio and record player as compared with a smaller percentage for the upper group. A higher percentage of the students in the upper group came from homes with no television, radio or record player as compared to the lower group.

It was felt by the researcher that family group recreation may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes with family group recreation was ascertained for both the successful and for the unsuccessful students. Family group recreation as used by the researcher refers to any form or kind of recreational activity whereby the entire family participates. Indoor as well as outdoor activities are included. Activities of this sort may be considered physical or mental.

| Table 32 |
|-----------------|-----------------|-----------------|
|                 | Upper Group     | Lower Group     | Total Group     |
|                 | Percentage      | Percentage      | Percentage      |
| Often           | 19              | 11              | 15              |
| Sometimes       | 73              | 61              | 67              |
| Never           | 8               | 28              | 18              |

The family group recreation for both groups is shown in Table 32. As seen from this table, 19 per cent of the students in the upper group lived in homes where the families participated in recreation often as
compared to 11 per cent of the students in the lower group where the families participated in recreational activities as a group often. Approximately 73 per cent of the students in the upper group lived in homes where family recreation was engaged in sometimes as compared to 61 per cent of the students in the lower group. Only 8 per cent of the students in the upper group lived in homes where the families never participated in recreational activities as a group.

For the total group, approximately 15 per cent of the students lived in homes where the families participated in recreation often, while 67 per cent of the students lived in homes where family recreation was engaged in sometimes. Only 18 per cent of the students lived in homes where there was no family recreation. Thus, the highest percentage of students from both groups came from homes where family recreation was engaged in sometimes.

It was felt by the researcher that a person being affiliated with a church may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes with church affiliation was ascertained for both the successful and for the unsuccessful students.

The percentage of church memberships for both groups is shown in Table 33 on page 57. As seen from this table, approximately 70 per cent of the students in the upper group came from homes where all persons of school age and above in the home are members of a church as compared to 65 per cent of the students in the lower group. Thirty per cent of the students in the upper group came from homes where a few persons in the home are members of a church as compared to 27 per cent of the students
in the lower group. Approximately 8 per cent of the students in the lower group came from homes where no person is a member of the church as compared to none of the students in the upper group.

| TABLE 33 |
|-----------------|-----------------|-----------------|
| CHURCH MEMBERSHIP | Upper Group | Lower Group | Total Group |
|-----------------|-----------------|-----------------|
| Percentage      | Percentage      | Percentage      |
| All Persons     | 70              | 65              | 67          |
| A Few Persons   | 30              | 27              | 28          |
| None            | 0               | 8               | 5           |

For the total group, 67 per cent of the students came from homes where all persons are members of the church. Twenty-eight per cent of the students came from homes where a few persons are members of a church. Only 5 per cent of the students came from homes where no person in the home is a member of the church. In summary, a higher percentage of students from the upper group came from homes with all persons members of a church as compared to a higher percentage of students from the lower group who came from homes where only a few persons are members of the church.

It was believed that superstitious beliefs may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes with superstitious beliefs was ascertained for both the successful and unsuccessful students. Superstitious as used by the researcher refers to the belief in magic, voodoo, and the like.
The percentage of homes with superstitious beliefs is shown in Table 34. As seen from this table, approximately 41 per cent of the students came from homes with no person superstitious as compared to 30 per cent of the students in the upper group. About 61 per cent of the students in the upper group came from homes where only a few persons are superstitious as compared to 54 per cent of the students in the lower group. Only 5 per cent of the students in the lower group came from homes where all persons are superstitious as compared to 9 per cent of the students in the upper group.

**Table 34**

<table>
<thead>
<tr>
<th>Persons Superstitious in Home</th>
<th>Upper Group</th>
<th>Lower Group</th>
<th>Total Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>30</td>
<td>41</td>
<td>36</td>
</tr>
<tr>
<td>A Few</td>
<td>61</td>
<td>54</td>
<td>57</td>
</tr>
<tr>
<td>All</td>
<td>9</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

In summary, the highest percentage of the total group came from homes where a few persons were superstitious. The lower group had a higher percentage of homes where no person was superstitious as compared to a higher percentage of students in the upper group who came from homes where all persons are superstitious.

It is felt by the researcher that transportation may be an important factor in school achievement and other forms of adjustment of children. For that reason, the percentage of homes with transportation was ascertained for both the successful and for the unsuccessful students.
The researcher judged an automobile as being good or poor on general appearance. An automobile with clean and good upholstery, no dents in the body, paint well kept and the model wasn't 5 years old was considered a good automobile whereas, the opposite conditions hold true for a poor automobile.

**TABLE 35**

**TRANSPORTATION**

<table>
<thead>
<tr>
<th>A Good Automobile</th>
<th>Upper Group Percentage</th>
<th>Lower Group Percentage</th>
<th>Total Group Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>53</td>
<td>53</td>
<td>53</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A Poor Automobile</th>
<th>Upper Group Percentage</th>
<th>Lower Group Percentage</th>
<th>Total Group Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>30</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Has No Automobile</th>
<th>Upper Group Percentage</th>
<th>Lower Group Percentage</th>
<th>Total Group Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>15</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

The percentage of families with automobiles for both groups is shown in Table 35. As seen from this table, approximately the same percentage of students in the upper and lower groups came from homes with a good automobile. Only 15 per cent of the students in the upper group came from homes with a poor automobile as compared to 30 per cent of the students in the lower group. Approximately 30 per cent of the students in the lower group came from homes with no automobile as compared to 15 per cent of the students in the lower group.

In summary, it is seen that the highest percentage of the total students came from homes with a good automobile and there appeared to be no difference in the homes with a good automobile in either the upper or lower groups.
CHAPTER III

SUMMARY AND CONCLUSIONS

Introduction.—Studies are being made throughout the country on various aspects of the school program in order to afford more needed information to help individuals with the responsibility of training boys and girls for a world that demands their best. It is generally accepted that achievement, intelligence, personal adjustment and family conditions have a definite relationship to a child's success in life and the possibilities of securing work depend to a great extent upon these four factors. It follows then, that those factors affecting the opportunity of individuals to pursue an education must be carefully analyzed in all areas and under all possible conditions.

The Problem.—The problem involved in this study was to compare two groups of ninth grade students in the Houston County Training School on certain factors which are believed to be associated with school success. The two groups of students were comprised of the upper and lower twenty per cent of the membership of the class according to their grade point average. Comparisons were based upon scores obtained by the two groups of subjects on three standardized instruments, the California Short-Form Test of Mental Maturity, the California Test of Personality, the California Achievement Tests, and a Home Score Sheet which was prepared by the researcher.
The Procedure.—The descriptive survey method of research employing the specific techniques of testing and a locally prepared Home Score Sheet was used to gather the necessary data for this study. Students for this study were selected from the ninth grade class after their first semester's work. The class was ranked from lowest to highest according to academic record. Those students who ranked in the lowest 20 per cent of the class were chosen as the unsuccessful group, while those ranked in the upper 20 per cent of the class were chosen as the successful group. These groups were then administered the California Short-Form Test of Mental Maturity, California Achievement Test Battery and the California Personality Test. Later, the home of each student was visited and rated with a Home Score Sheet prepared by the researcher. This Home Score Sheet was designed to measure the home conditions of students with emphasis on socio-economic status, educational status, recreational and religious activities. The data obtained through these instruments were later assembled into appropriate forms, tables and charts, and then statistically treated for the purposes of this study.

Findings.—In accordance with the purposes of the study and from the analysis and interpretation of the data presented in chapter II, the following summarization of findings is presented.

1. Both groups scored less on the California Test of Mental Maturity than scores obtained by the general population: a mean score of 81.5 as compared to an expected mean of 100. The range of scores was rather limited with only 3/4 I.Q. points between the lowest and highest scores. It also should be pointed out that scores tended to
concentrate in the lower part of the distribution with 23 per cent of the cases showing intelligence quotients of less than 73.

2. The difference between the successful group and the unsuccessful group scores on the California Short-Form Test of Mental Maturity was not statistically significant. It was found that the unsuccessful group scored less on the California Short-Form Test of Mental Maturity than did the successful group, although the difference was not statistically significant.

3. Both groups scored less on the California Achievement Tests than scores obtained by the general population. A mean score of 7.3 Grade Placement as compared to an expected mean score of 9.0 Grade Placement. It should be pointed out that the scores tended to concentrate in the lower part of the distribution with 63.4 per cent having a Grade Placement of less than 7.5.

4. The difference between the successful group scores on the California Achievement Tests and unsuccessful group scores was not statistically significant. It was found that the unsuccessful group scored slightly less as a group on the California Achievement Tests than the successful group, although the difference was not statistically significant.
5. Both groups scored less on the California Test of Personality than did the general population with a mean score of 111.6 which represents the twentieth percentile. The range was widely dispersed with 138 points between the lowest and the highest score. The successful group performance on the California Test of Personality was slightly higher than the unsuccessful group with a difference in the mean of 20 points in favor of the successful group, although the difference was not statistically significant.

6. A higher percentage of students from the successful group in this study came from homes where both parents were present. In the unsuccessful group, there were as many students from homes with only one parent present as there were students from homes where both parents were present.

7. A smaller percentage of students from the upper group in this study came from homes with both parents working as compared to a much higher percentage for students in the lower group with both parents working.

8. Thirty-nine per cent of the students from the successful group in this study came from homes where parents owned the houses in which they lived as compared to 38 per cent of the students in the unsuccessful group whose parents owned their homes.
9. A slightly higher percentage of students from the lower group lived in painted-frame houses as compared to a smaller percentage of students from the upper group who lived in painted-frame houses. From unpainted-frame houses, there were as many students from the upper group as there were from the lower group.

10. It was found that 80 per cent of the students in the unsuccessful group lived in houses with four or more rooms as compared to 75 per cent of the students from the successful group. Seventy-eight per cent of the students in the total group lived in houses with four or more rooms.

11. The degree of crowding in the homes varied slightly for the two groups. In the homes of the successful students, there were 1.4 persons per room and in the unsuccessful group, there were 1.7 persons per room.

12. Sixty-nine per cent of the total students lived in houses with screened windows and doors. The percentage of screened windows and doors for the successful group and unsuccessful group was equal: sixty-nine per cent.

13. Ninety-six per cent of the students from the successful group came from homes where parents and children were provided separate rooms for sleeping as compared to 58 per cent of the students in the unsuccessful group.
14. Eighty-four per cent of the students from the successful group came from homes where separate rooms were provided for boys and girls as compared to 69 per cent for students from the unsuccessful group.

15. Twenty-one per cent of the students in the lower group came from homes where rooms were attractive as compared to 19 per cent of the students in the upper group.

16. Thirty-nine per cent of the students from the successful group came from homes with improved yards as compared to 61 per cent for students from the unsuccessful group.

17. Thirty-five per cent of the students from the successful group came from homes with lawn grass as compared to 23 per cent of the students from the unsuccessful group who came from homes with lawn grass.

18. Ninety-five per cent of the students in the unsuccessful group came from homes with electricity as compared to 83 per cent of the students in the upper group who had electricity in their homes. Eighty-nine per cent of the total students came from homes with electricity.

19. The highest percentage of students in the total group came from homes without a telephone: eighty-three per cent. Only seventeen per cent of the total group studied came from homes with a telephone. A higher percentage of students in the lower group came from homes with a telephone than the upper group.
20. The highest percentage of the total students came from homes with a sand walk: ninety-two per cent. The percentage of students from homes with concrete walks in both groups was very low with the lower group having a small advantage.

21. Twenty per cent of the students in the upper group came from homes with a refrigerator and freezer as compared to 23 per cent of the students in the lower group. The largest percentage of students in both groups came from homes with only a refrigerator or ice box.

22. It was found that 61 per cent of the students from the successful group in this study came from homes with piped water as compared to 50 per cent of the students in the unsuccessful group who came from homes with piped water.

23. Sixty-five per cent of the students from the successful group in this study came from homes with bathrooms as compared to 38 per cent of the students in the unsuccessful group.

24. It was found that 69 per cent of the students from the successful group came from homes where both parents read and write as compared to 65 per cent of the students in the lower group. In all of the other homes for both groups, one parent could read and write.

25. The upper group had a higher percentage of homes with certain reading materials than the lower group. The reading materials included a Bible, magazines, newspapers and books.
26. A higher percentage of students in the lower group came from homes with a television (sixty-eight per cent) and record player (eighteen per cent) as compared to a smaller percentage for the upper group.

27. The highest percentage of the students from both groups came from homes where the family engaged in recreational activities sometimes but not often. The successful students enjoyed the advantage in this important activity. Twenty-eight per cent of the unsuccessful children belonged to families which never engaged in group recreation as a unit.

28. Seventy per cent of the students from the successful group came from homes where all persons who were of school age and beyond were members of a church as compared to 65 per cent of the students from the unsuccessful group who were found to hold such membership.

29. Forty-one per cent of the students in the lower group came from homes where no person was superstitious as compared to 30 per cent of the students in the upper group. Nine per cent of the students in the upper group came from homes where all persons were superstitious as compared to only 5 per cent of the students in the lower group.

30. The percentage of students in both groups from homes with a good automobile was equal (fifty-three per cent). Thirty per cent of the students in the upper group came from homes without an automobile as compared to 15 per cent in the lower group.
Conclusions.--It is felt that the findings of this research would warrant the following conclusions:

1. The average intelligence quotient for the students studied was lower than the average intelligence of the general population.

2. Students who earned higher grades during the first semester 1962-63 did not differ significantly in intelligence from students who earned lower grades.

3. The scholastic achievement of the subjects of this investigation was 1.7 grades below their actual grade placement.

4. The scores obtained by the two groups of students on a standardized achievement test did not differ significantly. This was in disagreement with the marks they received from teachers.

5. The successful students enjoyed more of the factors which contribute to effective family functioning than did the unsuccessful students. These factors were separate sleeping accommodations, less crowding in homes, parents can read and write, reading materials in the homes, the family engages in activities as a group, church membership, both parents are present in the home, more mothers are not working.

6. The unsuccessful students enjoyed certain factors which are good to have but are not very helpful or absolutely essential for successful living. These were: painted houses, electricity, telephone, television, record players and automobiles.
Implications.—The implications for educational theory and practice which grew out of this study are presented below:

1. It appears that there is no difference in the performance of successful and unsuccessful groups in the areas of intelligence, achievement, and adjustment.

2. It appears that teachers were more subjective than objective in their grading.

3. Families of successful and unsuccessful students, when defined in terms of teacher grades, seem to differ in their values as evidenced by the kinds of differences found in their home conditions.

Recommendations.—It is felt that the findings of this research would warrant the following recommendations:

1. That a testing program be continued throughout the school so that the data may be used as a vital part of continuous evaluation.

2. That the faculty make greater use of test scores in classroom planning.

3. That teachers continue to select materials developed on the basis of the pupils' abilities to achieve according to the heterogeneous class groupings.

4. That the over-all curriculum be carefully re-studied for the purpose of upgrading and enhancing the learning experiences for every pupil.

5. That a community-wide adult education program be developed.
6. That this study be continued through the twelfth grade to determine whether significant change will be shown in the gap between the two groups as a result of the total high school experience.

7. That an In-Service Training Program on teachers' grading policies be held in order to develop more objectivity in grading rather than the over-emphasis on subjectivity.

8. That the school be forever mindful of its role in shaping the value systems of its students and of its community.
BIBLIOGRAPHY

Books


Periodicals


Unpublished Materials


Flemister, R. G. "A Study of the Personality Adjustment, the Intelligence, the Achievement of One Hundred Negro High School Pupils." Unpublished Master's Thesis, School of Education, Atlanta University, 1951.


APPENDIXES
APPENDIX A

GROUP_______

HOME SCORE SHEET

Name of Family _____________________________________________

Name of Child ______________________________________________

1. Head of household

Both Parents ________________________________________________
One Parent _________________________________________________
Relative (give relationship to child) __________________________
Other (Explain) _____________________________________________

2. Occupation of father ______________________________________

3. Occupation of mother ______________________________________

4. Home Ownership: Own House_______ Renting _________

5. Physical Condition of House

Structure: Brick _______ Painted Frame _________
Unpainted Frame _______

Doors and Windows: Screened_______ Unscreened _______

6. Number of rooms in home ________

7. Accommodations for sleeping

Parents and Children have separate rooms ______
Parents and Children have separate beds in same room ______
Parents and Children sleep in same bed ______
Boys and girls have separate rooms ______
Boys and girls sleep in same room ______
Boys and girls sleep in same bed ______

8. Attractiveness of homes

Rooms attractive ______
Rooms slightly attractive ______
Rooms unattractive ______

74
9. Facilities

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bath, inside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water: Piped</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Well</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Condition of Yard

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Improved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lawn Grass:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grass:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walkway from road to house:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brick</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Other Facilities

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record Player</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile: Good condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Education of Parents

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both parents read and write</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One parent reads and writes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No parent can read and write</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Reading Materials in Home

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books (Other than textbooks)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magazines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newspaper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bible</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. Family Participation in Recreational Activities as a Group

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seldom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Religious Activities

16. Church Membership:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>All persons of school age &amp; beyond church members:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some persons of school age and beyond are church members:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No church members</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. Superstitiousness

<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>All persons in home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some persons in home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No person in home</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
INSTRUCTIONS TO EXAMINEES:

This is a test of mental maturity. In taking it you will show how well you understand relationships and what you do when you face new problems. No one is expected to do the whole test correctly, but you should answer as many items as you can. Work as fast as you can without making mistakes.

DO NOT WRITE OR MARK ON THIS TEST BOOKLET UNLESS TOLD TO DO SO BY THE EXAMINER.
DIRECTIONS: In each row find the drawing that is a different view of the first drawing. Mark its number as you are told.
DIRECTIONS: Read each group of statements below and the conclusions which follow. Then mark the number of the answer you have decided is correct for each statement.

3. All four-footed creatures are animals.
   All horses are four-footed.
   Therefore,
   1 creatures other than horses can walk.
   2 all horses can walk.
   3 all horses are animals.
   4 the conclusion is uncertain. ___E

51. All creatures that have feathers are birds.
    All eagles have feathers.
    Therefore,
    1 all birds are eagles.
    2 all eagles are birds.
    3 eagles cannot fly.
    4 the conclusion is uncertain. ___51

52. If Smith is a member of the committee, then Smith knows Jones.
    Smith does not know Jones.
    Therefore,
    1 Smith is a member of the committee.
    2 Jones is a member of the committee.
    3 Smith is not a member of the committee.
    4 the conclusion is uncertain. ___52

53. If A is B, C is D.
    But C is not D.
    Therefore,
    1 A is not B.
    2 A is B.
    3 C is B.
    4 the conclusion is uncertain. ___53

54. All animals need proteins to live.
    Some animals do not eat meat.
    Therefore,
    1 some animals cannot get proteins.
    2 some animals do not use protein from meat.
    3 not all animals use proteins.
    4 the conclusion is uncertain. ___54

55. All M is O.
    Some S is M.
    Therefore,
    1 no S is O.
    2 all O is M.
    3 some S is O.
    4 the conclusion is uncertain. ___55

56. A is situated to the south of B.
    C is situated to the west of B.
    Therefore,
    1 A is southwest of C.
    2 A is southeast of C.
    3 C is northeast of A.
    4 the conclusion is uncertain. ___56

57. If he stays with the ship, he will die a hero.
    If he abandons the ship, he will be saved.
    Therefore,
    1 he will stay with the ship.
    2 he will abandon the ship.
    3 he will be saved.
    4 he will die a hero or be saved. ___57
**TEST 5**

**DIRECTIONS:** In each row of numbers below there is one that does not belong. Find the number that should be omitted from each row among the answer numbers on the right, and mark its letter as you are told. When you have finished as many as you can from 66 to 75, read the Directions in the middle of the page and proceed with rows 76 to 80.

<table>
<thead>
<tr>
<th>2 4 6 8 9 10 12 14</th>
<th>a 6 b 9 c 10 d 12 e 14 F</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 12 17 22 26 27 32</td>
<td>a 7 b 17 c 22 d 26 e 27 66</td>
</tr>
<tr>
<td>33 35 37 39 41 43 46</td>
<td>a 33 b 37 c 39 d 43 e 46 67</td>
</tr>
<tr>
<td>3 6 10 15 18 20 22 27</td>
<td>a 10 b 15 c 18 d 20 e 22 68</td>
</tr>
<tr>
<td>1/8 1/2 2 4 8 32 36</td>
<td>a 1/2 b 2 c 4 d 8 e 32 69</td>
</tr>
<tr>
<td>0 1 11 19 25 29 31</td>
<td>a 0 b 1 c 11 d 25 e 29 70</td>
</tr>
<tr>
<td>4 6 8 11 14 16 18 20 21</td>
<td>a 8 b 14 c 16 d 18 e 20 71</td>
</tr>
<tr>
<td>32 16 12 8 4 2</td>
<td>a 16 b 12 c 8 d 4 e 2 72</td>
</tr>
<tr>
<td>48 36 25 16 9 4 1</td>
<td>a 48 b 36 c 25 d 9 e 4 73</td>
</tr>
<tr>
<td>1 2 2 4 4 7 7 10</td>
<td>a 1 b 2 c 4 d 7 e 10 74</td>
</tr>
<tr>
<td>13 24 35 46 57 69</td>
<td>a 24 b 35 c 46 d 57 e 69 75</td>
</tr>
</tbody>
</table>

**DIRECTIONS:** Go right on with the following until told to stop. In each row of numbers below, the numbers grow larger or smaller in a regular series of whole numbers. Decide what numbers are missing, find them among the answers on the right, and mark the letter of your choice for the correct answer.

<table>
<thead>
<tr>
<th>12 14 15 17 18</th>
<th>a 13, 15, 16 b 13, 15, 17 c 13, 16, 17 d 14, 16, 17 e 15, 16, 18 C X</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 10 13 19 25 31</td>
<td>a 17, 21, 28 b 16, 23, 28 c 16, 22, 28 d 15, 21, 27 e 14, 20, 26 76</td>
</tr>
<tr>
<td>3 6 12 48</td>
<td>a 18, 60, 120 b 24, 92, 192 c 24, 96, 192 d 36, 72, 186 e 28, 96, 144 77</td>
</tr>
<tr>
<td>22 26 30 34 38 38</td>
<td>a 28, 28, 36 b 28, 30, 34 c 28, 30, 36 d 26, 30, 34 e 26, 28, 35 78</td>
</tr>
<tr>
<td>68 63 57 50 45 44</td>
<td>a 62, 56, 51 b 58, 56, 55 c 62, 55, 53 d 58, 56, 51 e 59, 55, 53 79</td>
</tr>
<tr>
<td>180 140 105 50 30 0</td>
<td>a 70, 10, 5 b 75, 15, 5 c 80, 15, 10 d 75, 20, 10 e 70, 15, 10 80</td>
</tr>
</tbody>
</table>

**STOP**

**NOW WAIT FOR FURTHER INSTRUCTIONS**

Test 5 Score (number right)........................................
89. A portion of the bleachers on an athletic field consists of 20 rows of seats, each of which is 50 feet long. There are also 10 rows of seats, each 30 feet long. If each spectator is allowed 30 inches of seating space, how many can be seated when the bleachers are full?

a 280  
b 312  
c 400  
d 520  

90. A clock on the tower of a building has a dial 7 feet in diameter. If marks representing the hours are placed on the edge of the dial, how far apart will the centers of these marks be? (Circumference of a circle is about $3\frac{1}{7}$ times the diameter.)

a 22 in.  
b 14 in.  
c 8 in.  
d 7 in.  

91. A car which cost $2400 when new is sold for $1200 at the end of 3 years. By what average percentage did the car depreciate each year?

a 12%  
b 16 \frac{2}{3} %  
c 50%  
d 66 \frac{2}{3} %  

92. A room is 8 feet by 12 feet. You can buy the correct length of 10-foot carpeting which is 2 feet wider than necessary. How many square feet of carpet would be wasted?

a 24 sq. ft.  
b 22 sq. ft.  
c 11 sq. ft.  
d 2 sq. ft.  

93. A theater will hold 1500 people. One fifth of the seats are priced at $3.00, \( \frac{2}{5} \) at $2.00, and \( \frac{2}{5} \) at $1.50. If all seats are sold for one performance, how much money will the management take in?

a $3900  
b $2100  
c $2700  
d $3000  

94. A building is 30 stories high. Each of the first 10 stories has 110 windows which are 4 feet by 6 feet. Each of the next 5 stories has 95 windows which are 3 feet by 5 feet. Each of the remaining stories has 75 windows which are 3 feet by 5 feet. How many square feet of window space does the building contain?

a 16,875 sq. ft.  
b 26,400 sq. ft.  
c 34,650 sq. ft.  
d 50,400 sq. ft.  

95. A punch recipe calls for 2 quarts of orange juice, 1 pint of lemon juice, 3 quarts of carbonated water, 1 \( \frac{1}{2} \) quart of pineapple juice, and 1 pint of simple syrup. If each of 58 guests is expected to drink 4 glasses which hold \( \frac{1}{2} \) pint each, how many times must the full recipe be repeated?

a 8  
b 7  
c 6  
d 5  

Page 9

STOP NOW WAIT FOR FURTHER INSTRUCTIONS

Test 6 Score (number right).................
INSTRUCTIONS TO STUDENTS:

This is a test of your achievement in reading, mathematics, and language. In taking the first part you will show how many words you know and how well you understand what you read. No one is expected to do the whole test correctly, but you should answer as many items as you can. Work as fast as you can without making mistakes.

DO NOT WRITE OR MARK ON THIS TEST BOOKLET UNLESS TOLD TO DO SO BY THE EXAMINER.
SAMPLE: A. large  1 little  2 big  3 zero  4 angle

TEST 1—SECTION A

1. fragment  1 whole  2 meridian  3 weight  4 segment  — 1
2. quadrant  1 tangent  2 fourth  3 constant  4 significant  — 2
3. consecutive  1 derived  2 previous  3 successive  4 conclusion  — 3
4. fundamental  1 primary  2 theory  3 equation  4 equivalent  — 4
5. supplement  1 counterpart  2 whole  3 sphere  4 diamond  — 5
6. compute  1 record  2 calculate  3 invest  4 loan  — 6
7. infinity  1 infantile  2 stable  3 volatile  4 unlimited  — 7
8. asset  1 property  2 assize  3 artifice  4 degree  — 8
9. variable  1 concentric  2 infinite  3 fluctuating  4 pivotal  — 9
10. octagon  1 instrument  2 bisector  3 pentagon  4 polygon  — 10
11. gradient  1 fulcrum  2 quadrant  3 latitude  4 ascending  — 11
12. derive  1 defer  2 deduce  3 depend  4 distract  — 12
13. adjacent  1 amenable  2 torrential  3 contiguous  4 protractile  — 13
14. fee  1 compensation  2 statement  3 admission  4 suit  — 14
15. formulate  1 retain  2 enervate  3 state  4 destroy  — 15

TEST 1—SECTION B

16. circulation  1 cost  2 distribution  3 department  4 disputation  — 16
17. saturate  1 medicate  2 putrefy  3 soak  4 initiate  — 17
18. apparatus  1 filament  2 quadrant  3 synchronism  4 mechanism  — 18
19. extension  1 exception  2 projection  3 exhaustion  4 dispersion  — 19
20. transparent  1 quadrant  2 nascent  3 lucent  4 qualitative  — 20
21. deterioration  1 erosion  2 fusion  3 reflection  4 amplification  — 21
22. perforate  1 pierce  2 desolate  3 dehydrate  4 accelerate  — 22
23. home  1 abbé  2 aide  3 abode  4 abider  — 23
24. dissect  1 catalyze  2 analyze  3 neutralize  4 pulverize  — 24
25. solidification  1 transition  2 size  3 undulation  4 crystallization  — 25
26. loam  1 soil  2 furrow  3 dune  4 dome  — 26
27. precipitate  1 ration  2 condense  3 conserve  4 devitalize  — 27
28. ecology  1 barbarism  2 batiste  3 birthplace  4 bionomics  — 28
29. fulcrum  1 pivot  2 pyrite  3 alloy  4 anion  — 29
30. attraction  1 influence  2 fusion  3 reflection  4 adhesion  — 30

GO  RIGHT ON TO THE NEXT SECTION

STOP  NOW WAIT FOR FURTHER INSTRUCTIONS

Test 1 — Sec. A Score (number right) ..............................
Test 1 — Sec. B Score (number right) ..............................
51. On the following scale of miles, one inch (1") represents twenty miles:

```
0   10   20   30   40
```

```
0   1"  2"
```

Mark the letter of the number which shows how many miles are represented by 1\(\frac{3}{4}\) inches.

- a 20
- b 30
- c 35
- d 40
- e 45

62. Several Latin-American countries have cities of the same name. For example, there is a Santiago in Chile, Argentina, and Cuba; Magdalena is in Peru, Bolivia, and Chile; Concepción is in Paraguay and Bolivia; and there is a San José in Costa Rica, Guatemala, and Argentina. Mark the number that shows the cities found in Argentina.

1 Magdalena, Concepción
2 Santiago, San José
3 Concepción, Santiago
4 San José, Magdalena

63. The Greek letters β, ε, γ, and ϐ are the equivalents of ד, ה, ג, and ה in Hebrew. They stand for our b, d, g, and k, respectively. Mark the number which shows the letters d, k, g first in Greek and then in Hebrew.

1 ד, ה, ג, ϐ
2 ה, ϐ, β, ד
3 ε, ϐ, γ, ד, ה
4 δelta, κappa, beth, daleth, kof, beta

64. The chemical symbol for calcium is Ca; for carbon, C; for oxygen, O; for nitrogen, N; and for hydrogen, H. A formula expresses the proportion in which substances combine chemically. For example, if one part nitrogen takes three parts hydrogen, the formula is NH\(_3\). Suppose that on Mars our chemical substances did not exist but were paralleled by others which, when combined in the same proportion as ours, would yield similar results. Thus our calcium would be equal to Martian yuk (Y), our carbon to benil (Be), our oxygen to graal (Gr), and our hydrogen to milix (Mx). Mark the number of the Martian formula that would be equivalent to our combination of one part calcium, one part carbon, and three parts oxygen.

1 YBeGr\(_3\)
2 Gr\(_3\)CO
3 CaCO\(_3\)
4 BeYMx\(_3\)

65. Two lines that are drawn so that they cannot meet are said to be parallel lines. Two lines drawn so that they form right angles are said to be perpendicular to each other. Diagonal lines are lines drawn at any angle except right angles to each other. Mark the number which identifies the following lines:

```
____  |   |   |
```

1 diagonal, perpendicular, parallel
2 perpendicular, perpendicular, perpendicular
3 perpendicular, parallel, perpendicular
4 perpendicular, diagonal, parallel
The volume of a cone is found by multiplying $\frac{1}{3}$ of the area of the base by the altitude. The area of the base of a cone is 60 square inches (computed by multiplying the square of the radius by pi or 3.1416) and its altitude is 9 inches. Mark the letter indicating the volume of this cone in cubic inches.

- a 180
- b 200
- c 270
- d 360
- e 540

3. In other languages, various letters are pronounced differently from the way we say them in English. In Spanish, for instance, a always sounds as we pronounce it in the word *mark*; e as we pronounce it in *bet*; i as in our word *pick*; o as in our *fort*; and u as in our *rude*. Mark the number of the English word that has the same vowel sounds, in the same sequence, as the Spanish word *pregunta*.

1. regulate
2. reticule
3. encounter
4. excludable

74. The four words below are listed on one page of a dictionary. Mark the number that represents the pair of words which would be listed second and third.

- tympanic, tympanist, tympanites, tympanitic

1. tympanic, tympanitic
2. tympanist, tympanites
3. tympanist, tympanitic
4. tympanitic, tympanites

75. The standard time meridians of the United States are those whose longitudes west of Greenwich are 75°, 90°, 105°, and 120°. A difference of 15 degrees in longitude corresponds to a difference in time of one hour. The time of these standard meridians is 5, 6, 7, and 8 hours, respectively, slower than Greenwich Time. They are called Eastern, Central, Mountain, and Pacific Time, respectively. Mark the letter which shows what time it is at 105° West of Greenwich when it is 3:00 P.M. at Greenwich.

- a 8:00 A.M.
- b 10:00 P.M.
- c 6:00 A.M.
- d 10:00 A.M.
- e 9:00 P.M.

STOP NOW WAIT FOR FURTHER INSTRUCTIONS

Test 2 — Sec. E Score
(number right)
TEST 2—SECTION F (Continued)

If the items just presented were arranged in the proper order in a final report,
6. the letter that shows which item would be third is
   B. C. D. E. F. ——86
7. the letter that shows which item would be fifth is
   A. B. C. D. E. ——87

Look at the graph below and answer questions 88 through 92.

8. By approximately how many dollars do Great Britain's imports exceed her exports?
   a 900 million
   b 430 dollars
   c 430 million
   d 525 million ——88

9. The condition called "a favorable balance of trade" exists when a country's exports exceed imports. With which two nations did the United States not have a favorable balance of trade?
   1 France and Great Britain
   2 Argentina and Germany
   3 Argentina and Belgium
   4 Belgium and France ——89

90. Which two nations buy approximately the same amount from the U.S.?
   1 France and Germany
   2 France and Argentina
   3 Germany and Belgium
   4 Belgium and France ——90

91. With reference to trade with the United States, which nation imports twice as much as it exports?
   1 Great Britain
   2 Germany
   3 France
   4 Argentina ——91

92. How many nations have a total trade with the United States exceeding 800 million dollars?
   a one
   b two
   c three
   d four ——92

93. The explanation of the markings on a map is called
   1 the inscription.
   2 the legend.
   3 the story.
   4 the tradition. ——93

IMPORTS AND EXPORTS OF THE U.S. WITH SELECTED COUNTRIES

<table>
<thead>
<tr>
<th>Country</th>
<th>Imports of U.S.</th>
<th>Exports of U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gt. Britain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Millions of $  0  50  100  150  200  250  300  350  400  450  500  550  600  650  700  750  800  850  900  950  1000
98. Which city listed below lies farthest south?
1 Leningrad
2 Helsinki
3 Oslo
4 Stockholm

99. Which city is located at 11°30'E 53°N?
1 Warsaw
2 Copenhagen
3 London
4 Berlin

100. The nearest to the correct number of miles from Berlin to Rome is
a 350 miles.
b 500 miles.
c 750 miles.
d 980 miles.

101. A degree of latitude is nearly 70 miles in length. How many miles farther north than Newcastle, England (Great Britain) is Oslo, Norway?

\[
\begin{align*}
\text{a} & \quad 40 \\
\text{b} & \quad 75 \\
\text{c} & \quad 350 \\
\text{d} & \quad 650
\end{align*}
\]

102. Which one of the figures below indicates the extreme lines of longitude and latitude of France?

\[
\begin{align*}
\text{a} & \quad 4°52'W \quad 7°39'E \\
\text{b} & \quad 42°20'N \quad 36°38'N \\
\text{c} & \quad 9°15'W \quad 3°20'E \\
\text{d} & \quad 43°40'N \quad 36°5'N
\end{align*}
\]

\[
\begin{align*}
\text{a} & \quad 6°50'E \quad 14°10'E \\
\text{b} & \quad 54°2'N \\
\text{c} & \quad 47°30'N
\end{align*}
\]
TEST 2—SECTION G (Continued)

104. The most important natural influence on the life of man is that of
1. the form of government he adopts.
2. the geography of his homeland.
3. the availability of minerals.
4. his nationality.  ——— 104

105. Most of the land area of Italy consists of
1. the Po valley.
2. mountains and hills.
3. coastal plains.
4. large plains used in agriculture. ——— 105

106. The number of good harbors in Italy is restricted because of
1. the short seacoast.
2. the clogging of harbors by silt.
3. precarious cliffs along the coastline.
4. her shallow coastline. ——— 106

107. Italy must import food because
1. most of the people are engaged in industry rather than farming.
2. more land is used for raising grapes than for raising food.
3. her farmers will not adopt modern methods.
4. her natural resources in agricultural lands are inadequate. ——— 107

108. Many Italian rivers are
1. useless for navigation.
2. used for irrigation.
3. used for navigation.
4. being drained. ——— 108

109. Most of the domestic animals raised in Italy are small, such as sheep and goats. These are raised in preference to cattle because
1. the Italians prefer mutton.
2. the wool and hair are necessities for the textile industries.
3. the sheep and goats produce more by-products.
4. it takes more feed for cattle than can be raised. ——— 109

110. Italians have done much to correct their nation's unfavorable geographic environment. Such a correction is exemplified by
1. putting water on the land to supplement an insufficient rainfall.
2. creating mineral deposits.
3. changing the overall climate of a given area.
4. adapting tropical plant life to normal growth in the temperate zone. ——— 110

111. Italy extends through how many degrees of latitude?
a. 12° 5'
b. 8°
c. 11° 13'
d. 13° 5' ——— 111

112. To increase agricultural yields in the coastal regions, the people of Italy are beginning to
1. irrigate.
2. rotate crops.
3. improve varieties.
4. introduce more productive types of plants. ——— 112

113. What percentage of the land is tillable?
a. 80%
b. 45%
c. 20%
d. 60% ——— 113
The speaker implied that irrigated land loses its productivity when it is
1. left idle.
2. saturated.
3. over-planted.
4. reforested.

The central topic of the address is
1. science and invention.
2. irrigation projects.
3. leading nations.
4. planned use of resources.

Read the following article:

Near the end of the nineteenth century Pierre Curie and Marie Curie, working with C. Bémont at the Sorbonne in Paris, discovered radium. For this discovery, the Curies were awarded the Nobel prize in physics in 1903.

Radium, the heaviest element of the alkaline earth group, is a naturally occurring substance which gives off emanations or rays. These rays shoot out with enormous speed, some of them traveling as fast as 186,000 miles a second. This means that they hit with great force. It thus becomes apparent that a very small amount of radium sending out such emanations or rays possesses a surprisingly large amount of energy.

Modern physics has, in fact, developed mainly as a result of an intensive study of radiation and rays. Much has been said about the twentieth century's advancement into the "Atomic Age." However, the fact that there are radiations was demonstrated by Sir William Herschel as early as 1800. The work of Ritter, Voltasten, Fizeau and Foucault, Becquerel, Langley, Goldstein, Wien, Sir Joseph J. Thomson, and others preceded the isolation of the first pure salt of radium by Marie Curie in 1902 and the first preparation of the metal in 1910.

The simplest form of radioactivity is an atom of matter carrying a positive charge and endowed, as a result of falling through a high potential, with sufficient energy to make its presence detectable.

Radioactivity is revealed in three different kinds of rays. If we are to understand anything about the power exerted by radium and other radioactive particles, we must understand something about these rays.

The first is called the alpha ray. The alpha ray has very little penetrating power and is readily absorbed by many substances. A sheet of writing paper, a piece of thin glass, and several coats of varnish are among common materials that will absorb them. The alpha rays have a marked influence upon photographic plates. They are also readily absorbed by certain substances, such as zinc sulphide and calcium tungstate, which then will glow in the dark. This activity is described as phosphorescence.

The second of the rays is known as the beta ray. It travels at a speed approaching the velocity of light. Scientists tell us that it consists of electrons which are negatively charged. The mass of these rays is so small and the velocity so high that they have great penetrating power. When laboratory workers first began to experiment with radium, they did not know the danger of beta rays. They carried little sealed vials of radium in their hands or pockets. No ill effects were felt for some hours. Then deep and severe burns, which healed only with great difficulty, began to show themselves.

The third type, the gamma ray, differs further from the first two. Like light waves and X rays, it consists of electromagnetic disturbances and is a true radiation. The beta ray is 100 times more penetrating than the alpha ray, and the gamma ray is from ten to one hundred times greater in penetrating power than the beta ray. The gamma ray will go through a foot of iron or the human body. Both alpha and beta rays are deflected in a powerful magnetic field, but the gamma rays are not deflected by electricity nor in a magnetic field.
130. The importance of the discovery of the Curie's is that

1. they were given the highest international award.
2. it led to their continued work to discover more about radium.
3. Geiger counters were developed to find original sources of radium.
4. it ushered in what we now call the "Atomic Age." — 130

131. To what extent is the most penetrating of these three rays deflected by a magnetic field?

1. deflected very little
2. deflected very much
3. not deflected
4. deflected to a noticeable degree — 131

132. Compared with the gamma ray, the alpha ray has a penetrating power

1. 10 times as great.
2. from .001 to .0001 as great.
3. 100 times as great.
4. 1000 times as great. — 132

133. The existence of radiation was proved by

1. Herschel.
2. Langley.
3. Ritter.
4. the Curie's. — 133

134. The best meaning of phosphorescence as used in this article is

1. a faint light emitted by a star.
2. absorbing rays and emitting light.
3. the property of emitting light as the result of and only during absorption of radiation from some other source.
4. burning when taken out of water. — 134

Reasonably reliable aptitude tests have been constructed since 1920 for the purpose of measuring mechanical aptitude, musical aptitude, clerical aptitude, and artistic aptitude. There are also tests for aptitude in mathematics, language, etc. Just as we now recognize the variations, due largely to heredity, that occur among individuals in physical characteristics and intelligence, likewise individual differences in the above-mentioned special abilities are being recognized, measured, and given consideration in many schools.

Mechanical aptitude has been analyzed into such elements as manual dexterity, hand and eye coordination, and orientation in spatial relations. These factors are tested by such devices as tapping, tracing, copying designs, and recognizing physical relationships of objects. Musical aptitude is indicated by the capacity of the individual to discriminate between variations in pitch, tone, consonance, intensity, and rhythm. Artistic aptitude is thought to consist of a number of more specific capacities such as are required in the recognition of proportion, analysis of perspective, and recognition of color combinations, including shades and tints. Recently batteries made up of several tests which measure different aptitudes have been devised.

The authors of aptitude tests, of course, will agree that the possession of special aptitude in any one of these fields of itself will not assure success. There must also be a coordination of interest, effort, and other factors for satisfactory accomplishment.

The practical applications of the results of such measurements are rather obvious. For example, a dentist, surgeon, or jeweler must not only have technical information concerning his vocation, but he must also have eye-hand coordination that will enable him to be skillful and dexterous if he is to become a successful practitioner in his chosen field.
Read the following statement:

During the present century, scientific study of man’s surroundings and experiences is commonly accepted as the desirable way to determine the truth or falsity of statements, opinions, or beliefs.

This was not always so. During past centuries there was much reliance on authority. The expressed opinion of individuals and the written statements in approved documents have frequently been accepted and taught as oracles of truth. Those questioning the accuracy or validity of these opinions were in grave danger. Many persons, later recognized as leading contributors to the progress of mankind, have suffered torture, imprisonment, and even death because they dared to question beliefs or opinions which are demonstrably false.

The scientific method emphasizes the inductive rather than the deductive approach to the solution of problems. The inductive method is characterized by observation, measurement, definition, enumeration, classification, and the formulation of conclusions on the basis of objective evidence. On the other hand, authoritarianism utilizes the deductive method, namely, reasoning from a major premise to a conclusion, without necessarily expressing all the elements involved in the final statement or opinion.

In one sense authority and scientific method may be harmonized. It is conceivable that the major premises of an authority may be based on scientific studies which have produced demonstrable truths. Deductions made with these truths as major premises and with strict adherence to the principles of logic should be valid.

Mark the number of each correct answer. You may look back to find the answers.

| 143. Scientists emphasize the use of the method called |
| 1 inductive. |
| 2 deductive. |
| 3 rational. |
| 4 eclectic. |

| 144. Scientific method has been encouraged |
| 1 for many centuries. |
| 2 continuously. |
| 3 recently. |
| 4 by authoritarians. |

| 145. “Authority,” as used in the above article, means |
| 1 expert. |
| 2 scientific. |
| 3 inductively determined. |
| 4 assumed truths. |

| 146. Deductive reasoning assumes the accuracy of |
| 1 conclusions. |
| 2 major premises. |
| 3 facts. |
| 4 a logical synthesis. |

| 147. The central idea of the preceding article is that |
| 1 deductive methods are harder to apply. |
| 2 science and logic are opposed. |
| 3 facts and opinions are about the same thing. |
| 4 scientific and authoritarian methods may complement each other. |
INSTRUCTIONS TO STUDENTS:

This is a mathematics test. In taking it you will show how well you can think and work problems. No one is expected to do the whole test correctly, but you should answer as many items as you can. Work as fast as you can without making mistakes.

DO NOT WRITE OR MARK ON THIS TEST BOOKLET UNLESS TOLD TO DO SO BY THE EXAMINER.
TEST 3—SECTION A

Do not write, mark, or figure on this test booklet unless told to do so by the examiner.

DIRECTIONS: Decide how each of the amounts below should be written as a number. Then mark as you are told the letter of each correct answer. For some of the problems none of the answers given may be correct. If you cannot work a problem, or if you think that none of the answers given is correct, mark the letter, E. In taking this test you should finish the first column before going on to the second. Look at the samples to the right and see how they are marked.

1. Six thousand fourteen
   a 614,000
   b 6140
   c 6014
   d 600,014
   e None

2. Eighteen thousand four
   a 18,040
   b 180,040
   c 1804
   d 18,000,4
   e None

3. Two million two hundred two
   a 200,202
   b 2,200,002
   c 20,202
   d 2,000,202
   e None

4. Forty-six dollars and four cents
   a $46.40
   b $46.04
   c $44.60
   d $46.48
   e None

5. Eighteen and three-fourths
   a 18 3/4
   b 18
   c 8 3/4
   d 18
   e None

6. Six hundredths (written as a decimal)
   a .006
   b .6
   c .06
   d 6.00
   e None

7. Thirty-four thousandths
   (written as a decimal)
   a .034
   b 34.000
   c .0034
   d .340
   e None

Sample A: Twelve

<table>
<thead>
<tr>
<th>Correct Answer Sheet Mark</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample A: Twelve</td>
<td>a10</td>
<td>b12</td>
<td>c11</td>
<td>d2</td>
<td>e None</td>
</tr>
</tbody>
</table>

Sample B: Twenty

<table>
<thead>
<tr>
<th>Correct Answer Sheet Mark</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample B: Twenty</td>
<td>a22</td>
<td>b200</td>
<td>c2</td>
<td>d21</td>
<td>e None</td>
</tr>
</tbody>
</table>

✓ Read these Roman numerals. Then mark as you have been told the letter of each correct answer.

8. LX means
   a 20
   b 60
   c 40
   d 80
   e None

9. DCCII means
   a 202
   b 502
   c 702
   d 152
   e None

10. MCXII means
    a 613
    b 713
    c 803
    d 1113
    e None

✓ Find the largest number or quantity, marked a, b, c, or d, in each of the following rows. Then mark its letter.

11. a 2/3
    b 5/6
    c 4/5
    d 5/9

12. a .068
    b .32
    c .187
    d .0978

13. a 3
    b 50%
    c .64
    d 1.19

14. a 3^2
    b 2^3
    c 7
    d 1^10

15. a (3^2)^2
    b 4/5
    c (3^2)^2
    d (7/8)^2

16. a √54
    b .84
    c √81
    d .786

17. a .6^3
    b .6^2
    c .3
    d .5^4

(Check all algebraic quantities to be positive and that x + y is greater than 1.)

18. a x^2
    b x^2 - 1
    c x^3 - x
    d x(x - 2)

19. a 4x^2 - y
    b x
    c 3x - y
    d 4x^2 - 2y^2

20. a (x + y)^2
    b (x - y)^2
    c (x + y)(x - y)
    d x^2

STOP

Test 3 — Sec. A Score
(number right)...........................................
### DIRECTIONS
Work these problems. Then mark as you have been told the letter of each correct answer. For some of the problems none of the answers given may be correct. If you cannot work a problem, or if you think that none of the answers given is correct, you should mark the letter, e. Finish the first column before going on to the second. Remember to do your figuring on scratch paper if you are marking your answers on an answer sheet.

#### 6. Subtract: $\frac{56a^2}{12a}$
- a $68a^2$
- b $672a^2$
- c $44a$
- d $44a^2$
- e None

#### 41. $x + 4 = 10$
- a 14
- b 16
- c $2 \frac{1}{2}$
- d $10 - x$
- e None

#### 7. Multiply: $7 (-4)$
- a 11
- b 28
- c 3
- d $-28$
- e None

#### 42. $\frac{x}{4} = 3$
- a 12
- b $\frac{3}{4}$
- c 1
- d $\frac{3}{4}$
- e None

#### 8. Simplify: $-\frac{21}{7}$
- a $-3$
- b $-14$
- c 3
- d $-147$
- e None

#### 43. $x^2 = 36$
- a $36x^2$
- b 18
- c $1296x$
- d 6
- e None

#### 9. Add: $71$
- a 149
- b 83
- c 116
- d $-12$
- e None

#### 44. If $x = 5$, $y = 4$, and $z = 3$, find the value of $d$ in the following equation:
- a 12
- b 6
- c 2
- d 4
- e None

#### 45. If $n = 4$, $p = 2$, and $r = 5$, find the value of $x$ in the following equation:
- a 2
- b $1 \frac{1}{2}$
- c 24
- d 36
- e None

---

**STOP** NOW WAIT FOR FURTHER INSTRUCTIONS
1. Some families spend their incomes according to budget plans, two of which are given to the right. Using these plans as a basis, about how much would a family with a monthly income of $225 spend for clothing?

<table>
<thead>
<tr>
<th>Monthly Income</th>
<th>$225</th>
<th>$275</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelter</td>
<td>20%</td>
<td>17%</td>
</tr>
<tr>
<td>Food</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>Clothing</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Operation</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Savings</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Other Expenses</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a $33.75  
b $33.95  
c $42.95  
d $41.75  
e None

(54)

5. Our football team won 40 per cent of the games played, but lost 12 games. How many games did they play altogether?

a 15  
b 52  
c 60  
d 20  
e None

(55)

6. Elmer earned $30.00 and saved $6.00 of it. What per cent did he save?

a 5  
b $\frac{1}{3}$  
c 20  
d 18  
e None

(56)

7. What was the average wage per month of department store employees who were paid as follows:

<table>
<thead>
<tr>
<th>Department</th>
<th>20 received $190 per month</th>
<th>30 received $200 per month</th>
<th>10 received $210 per month</th>
<th>2 received $250 per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelter</td>
<td>a $200</td>
<td>b $195</td>
<td>c $205</td>
<td>d $210</td>
</tr>
<tr>
<td>Food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Savings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(57)

8. A building, valued at $10,000, was insured for 75% of its value. The rate of insurance was 25 cents per $100. What was the amount of the premium?

a $75.00  
b $18.75  
c $13.75  
d $8.75  
e None

(58)

9. A merchant sold hats for $4.00 which cost him $3.00 each. Thus he received a gross profit of $1.00, or 25% on the selling price. By what per cent was the cost price increased to provide for this 25% profit on the selling price?

a 20  
b 30  
c 25  
d $33\frac{1}{3}$  
e None

(59)

10. Mary’s father owns a furniture store. He wished to purchase a dining room set at a list price of $150. One wholesale dealer offered a discount of 25%, and another offered discounts of 20% and 10%. How much more will Mary’s father save by taking the better discount?

a $15.00  
b $12.00  
c $7.50  
d $4.50  
e None

(60)
**TEST 4 — SECTION E**

**DIRECTIONS:** Do these problems in subtraction. Then mark the letter of each correct answer. For some of the problems none of the answers given may be correct. If you cannot work a problem, or if you think that none of the answers given is correct, you should mark the letter, e. Finish each column before going on to the next. Be sure to reduce fractions to lowest terms. Remember that these are problems in subtraction.

<table>
<thead>
<tr>
<th>Column</th>
<th>Problem</th>
<th>Options</th>
<th>Correct Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>81)</td>
<td>$\frac{81}{(88)}$</td>
<td>a 362, b 1068, c 1168, d 162, e None</td>
<td>(88) b 3/5, c 1/5, d 1, e None</td>
</tr>
<tr>
<td>82)</td>
<td>$\frac{83}{(89)}$</td>
<td>a 66, b 110, c 56, d 2241, e None</td>
<td>(89) a 7/4, b 14/16, c 21/32, d 3/8, e None</td>
</tr>
<tr>
<td>83)</td>
<td>$\frac{9605}{(90)}$</td>
<td>a 15452, b 4758, c 5868, d 4862, e None</td>
<td>(90) a 2/24, b 1/12, c 7/12, d 12/24, e None</td>
</tr>
<tr>
<td>84)</td>
<td>$\frac{18.45}{(91)}$</td>
<td>a $\frac{15.20}{6}$, b $\frac{22.10}{4}$, c $\frac{15.80}{3}$, d $\frac{14.80}{e} \ \text{None}$</td>
<td>(91) a 4/9, b 12/2, c 5/16, d 2/5, e None</td>
</tr>
<tr>
<td>85)</td>
<td>$\frac{3000.00}{(92)}$</td>
<td>a $\frac{283.25}{5}$, b $\frac{316.75}{4}$, c $\frac{383.25}{3}$, d $\frac{294.35}{4} \ \text{None}$</td>
<td>(92) a 29/5, b 3/5, c 11/5, d 2/5, e None</td>
</tr>
<tr>
<td>86)</td>
<td>$\frac{5 \ \text{yd.} \ 1 \ \text{ft.} \ 7 \ \text{in.}}{3 \ \text{yd.} \ 2 \ \text{ft.} \ 9 \ \text{in.}}$</td>
<td>a 8 yd. 3 ft. 16 in., b 2 yd. 1 ft. 10 in., c 2 yd. 1 ft. 2 in., d 1 yd. 1 ft. 10 in., e None</td>
<td>(93) a 4/8, b 32/2, c 31/8, d 528/4, e None</td>
</tr>
<tr>
<td>87)</td>
<td>$\frac{1/4}{(94)}$</td>
<td>a $\frac{1}{16}$, b $\frac{1}{2}$, c $\frac{2}{4}$, d $\frac{3}{8}$, e None</td>
<td>(94) 42.50 - 6 1/4 = a 36.25, b 36.75, c 41.875, d 48.75, e None</td>
</tr>
</tbody>
</table>

**STOP** NOW WAIT FOR FURTHER INSTRUCTIONS
DIRECTIONS: Do these problems in division. Then mark the letter of each correct answer. Finish each column before going on to the next. Be sure to express remainders as fractions and reduce fractions to lowest terms.

121) \( \frac{6}{6} \)
- a \( \frac{1}{10} \)
- b \( \frac{6}{60} \)
- c 10
- d 360
- e None (121)

122) \( \frac{4}{4} \) 2 6
- a 420
- b 106 \( \frac{1}{2} \)
- c 16
- d 428
- e None (122)

123) \( \frac{3}{3} \) 1 3 4 6 4
- a 480
- b 13431
- c 408
- d 13497
- e None (123)

124) \( \frac{200}{8} \) 0 0 0
- a 400
- b 7800
- c 8200
- d 40
- e None (124)

125) \( \frac{63}{5} \) 6 7 4
- a 96 \( \frac{4}{60} \)
- b 5737
- c 9 \( \frac{6}{63} \)
- d 5611
- e None (125)

126) \( \frac{1}{4} \)
- a 4
- b \( \frac{1}{4} \)
- c \( \frac{1}{16} \) (126)

127) \( \frac{1}{4} \)
- a 4 \( \frac{1}{4} \)
- b \( \frac{1}{4} \)
- c \( \frac{1}{16} \) (127)

128) \( 8 \div \frac{4}{5} = \)
- a 10
- b \( \frac{1}{10} \)
- c \( \frac{8}{5} \) (128)

129) \( \frac{1}{3} \div \frac{1}{3} = \)
- a \( \frac{2}{6} \)
- b \( \frac{2}{3} \)
- c \( \frac{1}{3} \) (129)

130) \( \frac{5}{6} \div \frac{1}{3} = \)
- a \( \frac{1}{2} \)
- b \( \frac{18}{8} \)
- c \( \frac{5}{18} \) (130)

131) \( \frac{5}{4} \div \frac{2}{7} = \)
- a \( \frac{1}{2} \)
- b \( \frac{18}{8} \)
- c \( \frac{4}{6} \) (131)

132) \( \frac{6}{3} \div \frac{3}{1} = \)
- a \( \frac{8}{2} \)
- b \( \frac{20}{1} \)
- c \( \frac{2}{12} \) (132)

133) \( \frac{1}{2} \)
- a \( \frac{1}{2} \)
- b \( \frac{1}{4} \)
- c \( \frac{1}{16} \) (133)

134) \( \frac{3}{1} \) 2 5 \( \frac{3}{4} \)
- a \( \frac{41}{12} \)
- b \( \frac{11}{12} \)
- c \( \frac{41}{3} \)
- d \( \frac{128}{3} \) (134)

STOP NOW WAIT FOR FURTHER INSTRUCTIONS

Test 4 — Sec. G Score (number right) ..........................
Language

INSTRUCTIONS TO STUDENTS:

This is a language test. In taking it you will show what you know about capitalization, punctuation, and words and sentences, and how well you can spell. No one is expected to do the whole test correctly, but you should answer as many items as you can. Work as fast as you can without making mistakes.

DO NOT WRITE OR MARK ON THIS TEST BOOKLET UNLESS TOLD TO DO SO BY THE EXAMINER.
**SAMPLE A.** The winner of the race was tom.

**SAMPLE B.** He is one of my best friends.

In Sample A, the “t” in “tom,” which has a 4 above it, should be a capital. Notice how the 4 has been marked. In Sample B, none of the letters with numbers above them should be capitals, so the N has been marked.

**STORY**

1. One of the most interesting courses ___ __

2. at valley High School is the one I’m taking ___ __

3. popular and able miss Rinehart, who has had many poems published in harper’s and other excellent magazines. she has even written a textbook on the subject which my friend, carol, in philadelphia says she is using in her studies. ___ __

4. My teacher has traveled all over the civilized world. Every friday she tells us something about her experiences in cairo and other foreign cities. Last week she said, “who would like ___ __
28. James saw the game. We won easily.

Later on our friend asked Helen Robertson

to secure a map for the trip.

30. Labor Day falls on a Monday in September.

31. He speaks English with great fluency.

32. *Treasure Island* is a good book.

33. William asked, "in what classrooms do your German and science classes meet?"

34. *The Merchant of Venice* is a play by Shakespeare.

36. In 1814 Napoleon the Great was imprisoned on the tiny island of Elba.

37. He attended the University of Wisconsin in Madison.

39. The Senate and the House constitute our Congress.

40. The captain cried, "Don't give up the ship!"
When Dad saw how much money I was making, incidentally he said, "I'll be expecting a new pipe from you for Christmas."

As for your question about which styles were popular, people showed the most interest in the following: 121a, 248c, 261b, and 289a. Many of my new customers said they'd never seen such pretty cards. My Aunt Sue, when she saw 121a, said, "That card reminds me of the famous poem that goes, 'The stockings were hung by the chimney with care,' and so on.

Mr. Miller, I thought I would put my order in earlier next year and your company could send the cards some time in October. If so, do you think I'd sell more? Mother thinks so and suggested I ask you, even though December 25, 1957, is a long way off.

It is now 7:00 P.M., and the movie called "The Story of G.I. Joe" is on TV, but I'd better start delivering cards. Incidentally, the money I collect tonight and tomorrow will be sent to you Monday.

Sincerely yours,

Roger Brown
TEST 5—SECTION C

DIRECTIONS: Mark the number of the correct or better word in each sentence below.

Sample E, the word in parentheses with the 2 by it, “isn’t,” is the better word. Notice how e 2 has been marked.

If he had (1 went 2 gone) then, he would have been on time. —81

The word “Hurrah!” is (1 an interjection 2 a conjunction). —82

(1 Isn’t 2 Aren’t) the baskets filled with flowers? —83

My sister and (1 I 2 myself) will be glad to contribute. —84

There are (1 eight 2 five) different parts of speech. —85

His son (1 run 2 ran) the newspaper as his father did. —86

Every evening we saw her (1 setting 2 sitting) there alone. —87

A sentence that asks a question is called (1 a declarative 2 an interrogative) sentence. —88

In “Leaving the curb, he hailed a taxi,” the words “Leaving” and “hailed” are both (1 verbs 2 nouns). —89

When you finish, (1 lay 2 lie) the violin on the table. —90

“Ivan bought candy with his money.” “Candy” is (1 the subject 2 the object) of the sentence below: —91

(1 Him 2 He) and I are taking the same courses. —92

A word (1 can 2 cannot) be used as more than one part of speech. —93

According to the report, he is thought (1 to have been elected 2 to be elected). —94

The word “at” as used in “at home” is (1 a preposition 2 an adjective). —95
17. In the sentence below, "when you will arrive" is (1 a clause 2 a phrase):

Regarding your proposal, we need to know when you will arrive.

18. Neither he nor the quarterback (1 were 2 was) to blame.

19. The past participle of "blow" is (1 blown 2 blew).

20. The possessive case of the pronoun "I" is (1 me 2 my or mine).

21. A phrase (1 does not 2 does) need to have a subject and a predicate.

22. Give this to (1 whoever 2 whom-ever) you see first.

23. He has already (1 drank 2 drank) more than his share.

24. The word "they" is a (1 relative 2 personal) pronoun.

25. In "The diamond sparkled," the verb "sparkled" is (1 transitive 2 intransitive).

26. He (1 ought not 2 hadn't ought) to go if he's sick.

27. The superlative degree of "bad" is (1 worse 2 worst).

28. Degree is related to (1 adjectives 2 pronouns).

✓ For each statement given below that is a complete sentence, mark YES; for each that is not, mark NO.

129. Realizing that his capture was inevitable and being too weak from lack of food to sustain his flight much longer, the escaped criminal, whose heart was beating with fear.

130. The familiar way the plot was constructed gave us the impression we had seen the movie before.

131. Remembering the statement of our friends in our endeavor to overcome the difficulty.

132. The feeling that he had been there before haunted his every step.

133. In the laundry room, with tubs and clothes baskets piled full of clothes all ready to hang out as soon as the sun came out.

134. In the anteroom, with the prisoner impatiently awaiting the appearance of the jury in whose hands his destiny rested.

135. According to one of our greatest actresses, to run the gauntlet of emotions before an unsympathetic first-night audience in a play of little consequence requires not only a wealth of acting ability but "a lot of nerve."
DIRECTIONS: Each line in this test contains four spelling words and the word, None. These words are numbered 1, 2, 3, 4, and the None is numbered 5. In some of the lines, one word is misspelled. In others, no word is misspelled. If there is a misspelled word, mark its number. If no word is misspelled, mark the 5.

**Example:** F. 1 now 2 just 3 come 4 ron 5 None 4 F
G. 1 go 2 see 3 do 4 may 5 None 5 G

<table>
<thead>
<tr>
<th>Correct Test Booklet Mark</th>
<th>Correct Answer Sheet Mark</th>
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<tbody>
<tr>
<td>F</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>G</td>
<td>1 2 3 4 5</td>
</tr>
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</table>

1. offense 2. reseipt 3. emphasis 4. deem 5. None
2. approved 2. surprise 3. dreary 4. tractors 5. None
3. muzeum 2. malice 3. comparative 4. principal 5. None
4. successor 2. prinsiples 3. parole 4. recognition 5. None
5. millinery 2. messenger 3. assignment 4. innocent 5. None
6. federal 2. drama 3. bandit 4. profssion 5. None
7. apologize 2. herald 3. initiate 4. forfeit 5. None
8. sensus 2. judgment 3. merit 4. liking 5. None
9. mortal 2. postscript 3. differed 4. patriot 5. None
0. wobbly 2. magnificent 3. eligible 4. facilitate 5. None
1. uncertain 2. warehouse 3. linen 4. exciting 5. None
2. proposal 2. tract 3. folkes 4. cucumbers 5. None
3. pierce 2. scandal 3. recitation 4. elliminate 5. None
4. conception 2. spineless 3. obedient 4. together 5. None
5. admiral 2. fragrant 3. croeheting 4. chemestry 5. None
6. invalid 2. ocassional 3. bankrupt 4. ambassador 5. None
7. apparently 2. squirrels 3. representative 4. irrigation 5. None
8. saleries 2. regretting 3. confirmation 4. phase 5. None
9. sorority 2. rheumatic 3. requisition 4. procedure 5. None
0. vomit 2. infinate 3. criticism 4. competitors 5. None
1. existence 2. itimized 3. apricot 4. imped 5. None
2. warranted 2. continuous 3. epistle 4. voluntary 5. None
3. possessed 2. whither 3. accounted 4. substantial 5. None
4. fraternity 2. kindergarden 3. reckon 4. acutely 5. None
5. undoubtedly 2. vouchers 3. duely 4. transferred 5. None
6. fascinating 2. unconscious 3. tonnage 4. tuberculosis 5. None
7. voluntary 2. competent 3. fragrance 4. acquaintance 5. None
8. commodity 2. declension 3. benificial 4. antitoxin 5. None
9. unanimous 2. cancelation 3. technical 4. strenuous 5. None
0. abandone 2. expenditure 3. mercantile 4. greatful 5. None

ge 45

**STOP NOW WAIT FOR FURTHER INSTRUCTIONS**

Test 6 Score (number right) ........................................}
## Diagnostic Analysis of Learning Difficulties

### California Achievement Tests—Advanced Battery

### Reading Vocabulary

<table>
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<tr>
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<th>B. SCIENCE</th>
<th>C. SOCIAL SCIENCE</th>
<th>D. GENERAL</th>
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### Reading Comprehension

#### E. FOLLOWING DIRECTIONS

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#### F. REFERENCE SKILLS

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<th>Reading a map</th>
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### Interpretation of Material

#### G. INTERPRETATION OF MATERIAL

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### Mathematics Reasoning

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### Symbols, Rules, & Equations

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### Mechanics of English

#### A. CAPITALIZATION

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#### B. PUNCTUATION

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#### C. WORD USAGE

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### Spelling

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<td>9 16 23 20</td>
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<td>9 16 23 20</td>
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### Handwriting

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<tr>
<td>9 16 23 20</td>
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<td>9 16 23 20</td>
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</table>
INSTRUCTIONS TO STUDENTS:

This booklet contains some questions which can be answered YES or NO. Your answers will show what you usually think, how you usually feel, or what you usually do about things. Work as fast as you can without making mistakes. DO NOT TURN THIS PAGE UNTIL TOLD TO DO SO.
SECTION 1 A

Do you often act as leader when working with other people? YES NO

Is it easy for you to introduce or be introduced to people? YES NO

Do you find it hard to keep from being bossed by people? YES NO

Is it hard for you to continue with your work when it becomes difficult? YES NO

Do you give considerable thought to your future work or career? YES NO

Do you take an active part in making decisions when with other people? YES NO

Is it easier to do things that your friends propose than to make your own plans? YES NO

Do you usually do things that are good for you even if you do not like them? YES NO

Is it hard for you to admit when you are wrong? YES NO

Do you usually keep at your plans until they are finished? YES NO

Do you feel uncomfortable when you are alone with important people? YES NO

Do you prefer some competition to working alone in your own way? YES NO

Is it easy for you to wait until the appropriate time to do things? YES NO

Do you usually get discouraged when other people disagree with you? YES NO

Is it natural for you to feel like crying or pitying yourself whenever you get hurt? YES NO

SECTION 1 B

16. Do your friends seem to think you have likable traits? YES NO

17. Do people seem to think that you are dependable? YES NO

18. Do you feel that you are not very good at handling money? YES NO

19. Do you feel that people often treat you rather badly? YES NO

20. Are you often invited to parties that both boys and girls attend? YES NO

21. Do most of your friends and classmates do nice things for you? YES NO

22. Do your folks seem to think that you are going to amount to something? YES NO

23. Do people seem to think well of your family’s social standing? YES NO

24. Are you usually considered brave or courageous? YES NO

25. Are you considered a failure in many of the things you do? YES NO

26. Are you often discouraged because people fail to recognize your worth? YES NO

27. Do your friends seem to think that your ideas are usually poor? YES NO

28. Do you feel that people recognize your social standing as they should? YES NO

29. Are you usually given credit for the good judgment you show? YES NO

30. Do members of the opposite sex seem to like you? YES NO
SECTION 1 E

Are people frequently so unkind or unfair to you that you feel like crying? YES NO

Do you find it difficult to associate with the opposite sex? YES NO

Do you find that many people seem perfectly willing to take advantage of you? YES NO

Do you have many problems that cause you a great deal of worry? YES NO

Do you find it hard to meet people at social affairs? YES NO

Are your responsibilities and problems often such that you cannot help but get discouraged? YES NO

Do you often feel lonesome even when you are with people? YES NO

Have you found that a good many people are hard to like? YES NO

Do you find many people inclined to say and do things that hurt your feelings? YES NO

Are you sorry that you are continually growing older? YES NO

Do you find it difficult to overcome the feeling that you are inferior to others? YES NO

Is it hard for you to forget humiliating experiences? YES NO

Does it seem to you that younger persons have an easier and more enjoyable life than you do? YES NO

Do you often feel that people do not appreciate you or treat you as they should? YES NO

Are certain people so unreasonable that you can't help but hate them? YES NO

GO RIGHT ON TO THE NEXT COLUMN

SECTION 1 F

76. Are you likely to stutter when you get worried or excited? YES NO

77. Are you bothered by periodic dizzy spells? YES NO

78. Do you have the habit of biting your fingernails? YES NO

79. Do you have frequent headaches for which there seems to be no cause? YES NO

80. Do you sometimes walk or talk in your sleep? YES NO

81. Do you suffer often from annoying eyestrain? YES NO

82. Is it hard for you to sit still? YES NO

83. Are you more restless than most people? YES NO

84. Are you inclined to drum restlessly with your fingers on tables, desks, and chairs? YES NO

85. Do people frequently speak so indistinctly that you have to ask them to repeat what they have said? YES NO

86. Do you lose a great deal of sleep because of worry? YES NO

87. Do you find that you are tired a great deal of the time? YES NO

88. Do you often have considerable difficulty in going to sleep? YES NO

89. Do you sometimes have nightmares? YES NO

90. Do your muscles twitch some of the time? YES NO

GO RIGHT ON TO THE NEXT PAGE
SECTION 2 C

1. Are you justified in taking things that are denied you by unreasonable people?  YES NO
2. Have things ever been so bad at home that you have had to run away?  YES NO
3. Are you often forced to show some temper in order to get what is coming to you?  YES NO
4. Do you often have to make your classmates do things that they don't want to do?  YES NO
5. Are people often so stubborn that you have to call them names?  YES NO
6. Do you find it easy to get out of trouble by telling "white lies"?  YES NO
7. Do people often provoke you to the point where you feel justified in swearing?  YES NO
8. Are some people so unfair that you are justified in being sarcastic to them?  YES NO
9. Are many people so narrow-minded that they force you to quarrel with them?  YES NO
10. Are teachers and other people often so unfair that you do not obey them?  YES NO
11. Do you often have to fight or quarrel in order to get your rights?  YES NO
12. Are people often so thoughtless of you that you have a right to be spiteful to them?  YES NO
13. Do little "kids" often get in your way so that you have to push or frighten them?  YES NO
14. Are people at home or at school always bothering you so that you just have to quarrel?  YES NO
15. Do you have to stand up for your rights?  YES NO

GO RIGHT ON TO THE NEXT COLUMN

SECTION 2 D

136. Are you troubled because your parents are not congenial?  YES NO
137. Do the members of your family frequently have good times together?  YES NO
138. Do your folks take time to become acquainted with your problems?  YES NO
139. Does someone at home like to have you bring your friends to the house?  YES NO
140. Are things difficult for you because your folks are usually short of money?  YES NO
141. Are you troubled because your folks differ from you regarding the things you like?  YES NO
142. Do you like your parents about equally?  YES NO
143. Do you wish that more affection were shown by more members of your family?  YES NO
144. Do your folks appear to doubt whether you will be successful?  YES NO
145. Do the members of your family seem to criticize you a lot?  YES NO
146. Do you usually like to be somewhere else than at home?  YES NO
147. Do you avoid inviting others to your home because it is not as nice as theirs?  YES NO
148. Do some of those at home seem to think they are better than you?  YES NO
149. Are your folks reasonable to you when they demand obedience?  YES NO
150. Do you sometimes feel like leaving your home for good?  YES NO

GO RIGHT ON TO THE NEXT PAGE