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An analytical and evaluative study of the effectiveness of television as a resource in a seventh-grade social studies class

Margaret A. Sherard

Atlanta University

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AN ANALYTICAL AND EVALUATIVE STUDY OF THE EFFECTIVENESS
OF TELEVISION AS A RESOURCE IN A SEVENTH-
GRADE SOCIAL STUDIES CLASS

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
MARGARET A. SHERARD

SCHOOL OF EDUCATION
ATLANTA UNIVERSITY
ATLANTA, GEORGIA
AUGUST, 1961
DEDICATION

to
My Husband
Roscoe V. Sherard

My Daughters
Viva and Regina Sherard

and
My Mother and Father
Mr. and Mrs. Esper D. Adkins

For
Their Pride and Faith
I wish to express my appreciation to the many people who helped me in the preparation of this research project. Thanks to my friends and colleagues, Mrs. Louise D. Coles and Mrs. Nettie Washington, who gave me so much encouragement and inspiration throughout the preparation of this study.

I am especially grateful for the cooperation of the students, parents, and teachers who responded to the questionnaires relative to this research.

I would like to thank Dr. Linwood D. Graves, School of Education, Atlanta University, for reading and criticizing portions of the research as well as making valuable suggestions for the improvement thereof.

I am sincerely grateful to Dr. Laurence E. Boyd, School of Education, Atlanta University, for his initial assistance and keen discernment toward the refinement of the study and for his patience and encouragement during periods of despondency.

M. A. S.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEDICATION</strong></td>
<td>ii</td>
</tr>
<tr>
<td><strong>ACKNOWLEDGEMENT</strong></td>
<td>iii</td>
</tr>
<tr>
<td><strong>LIST OF TABLES</strong></td>
<td>vi</td>
</tr>
<tr>
<td><strong>LIST OF ILLUSTRATIONS</strong></td>
<td>viii</td>
</tr>
<tr>
<td><strong>Chapter</strong></td>
<td><strong>Page</strong></td>
</tr>
<tr>
<td><strong>I. INTRODUCTION</strong></td>
<td>1</td>
</tr>
<tr>
<td>Rationales</td>
<td>1</td>
</tr>
<tr>
<td>Description of Locale and Subjects</td>
<td>3</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>4</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>4</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>5</td>
</tr>
<tr>
<td>Method of Research</td>
<td>6</td>
</tr>
<tr>
<td>Description of the Subjects</td>
<td>6</td>
</tr>
<tr>
<td>Description of Instruments</td>
<td>6</td>
</tr>
<tr>
<td>Method of Procedure</td>
<td>8</td>
</tr>
<tr>
<td>Collection of Data</td>
<td>9</td>
</tr>
<tr>
<td>Evolution of the Problem</td>
<td>10</td>
</tr>
<tr>
<td>Contribution to Educational Knowledge</td>
<td>11</td>
</tr>
<tr>
<td>Survey of Related Literature</td>
<td>11</td>
</tr>
<tr>
<td>Summary of Related Literature</td>
<td>18</td>
</tr>
<tr>
<td><strong>II. PRESENTATION AND ANALYSIS OF DATA.</strong></td>
<td>20</td>
</tr>
<tr>
<td>Introduction</td>
<td>20</td>
</tr>
<tr>
<td>Organization and Treatment of Data</td>
<td>20</td>
</tr>
<tr>
<td>Questionnaire Data</td>
<td>21</td>
</tr>
<tr>
<td>Foreword</td>
<td>21</td>
</tr>
<tr>
<td>General Merits of Televised Instruction</td>
<td>21</td>
</tr>
<tr>
<td>Development of Study Skills Through Televised Instruction</td>
<td>23</td>
</tr>
<tr>
<td>Teacher Responses Toward Areas of Concern Associated with Televised Instruction</td>
<td>26</td>
</tr>
<tr>
<td>Strengths of Televised Instruction</td>
<td>29</td>
</tr>
<tr>
<td>Weaknesses of Televised Instruction</td>
<td>30</td>
</tr>
<tr>
<td>Opinions of Parents as to the Merits of Televised Instruction</td>
<td>33</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS—Continued

## Chapter II. PRESENTATION AND ANALYSIS OF DATA

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardized Test Data.</td>
<td>33</td>
</tr>
<tr>
<td>Foreword.</td>
<td>33</td>
</tr>
<tr>
<td>Results of the Kuhlmann-Anderson Intelligence Test.</td>
<td>34</td>
</tr>
<tr>
<td>Results of Initial Performance on the Stanford Achievement Test.</td>
<td>35</td>
</tr>
<tr>
<td>Results of Final Performance on the Stanford Achievement Test, Form K.</td>
<td>42</td>
</tr>
<tr>
<td>Correlations on the Paired Variables of Intelligence and Social Studies for the Boys' Group.</td>
<td>46</td>
</tr>
<tr>
<td>Correlations on the Paired Variables of Intelligence and Social Studies for the Girls' Group.</td>
<td>48</td>
</tr>
<tr>
<td>Correlations on the Paired Variables of Intelligence and Social Studies Achievement for the Total Group</td>
<td>48</td>
</tr>
<tr>
<td>Significant Difference between Correlations for the Paired Variables of Intelligence and Achievement</td>
<td>51</td>
</tr>
</tbody>
</table>

## Chapter III. SUMMARY AND CONCLUSIONS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Statement.</td>
<td>54</td>
</tr>
<tr>
<td>Purpose of the Study.</td>
<td>54</td>
</tr>
<tr>
<td>Definition of Terms.</td>
<td>55</td>
</tr>
<tr>
<td>Locale of Study.</td>
<td>56</td>
</tr>
<tr>
<td>Method of Research.</td>
<td>56</td>
</tr>
<tr>
<td>Subjects.</td>
<td>56</td>
</tr>
<tr>
<td>Instruments.</td>
<td>56</td>
</tr>
<tr>
<td>Summary of Related Literature.</td>
<td>57</td>
</tr>
<tr>
<td>Summary of Findings</td>
<td>59</td>
</tr>
<tr>
<td>Conclusions.</td>
<td>65</td>
</tr>
<tr>
<td>Implications.</td>
<td>67</td>
</tr>
<tr>
<td>Recommendations.</td>
<td>68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIBLIOGRAPHY</td>
<td>69</td>
</tr>
<tr>
<td>APPENDIX</td>
<td>72</td>
</tr>
<tr>
<td>VITA</td>
<td>76</td>
</tr>
<tr>
<td>Table</td>
<td>Title</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.</td>
<td>Pupils' Opinions on the Merits of Televised Instruction</td>
</tr>
<tr>
<td>2.</td>
<td>Student Responses Toward Televised Instruction As Compared With Instruction Without Television</td>
</tr>
<tr>
<td>3.</td>
<td>Areas of Concern Associated With Teacher Responses Toward Televised Instruction</td>
</tr>
<tr>
<td>4.</td>
<td>Strengths of Televised Instruction as Indicated by the Opinions of Television and Non-Television Teachers in the Georgia Avenue School, Atlanta, Georgia, 1959-1960</td>
</tr>
<tr>
<td>4A.</td>
<td>Weaknesses of Televised Instruction as Indicated by the Opinions of Television and Non-Television Teachers in the Georgia Avenue School, Atlanta, Georgia, 1959-1960</td>
</tr>
<tr>
<td>5.</td>
<td>Parents' Responses to Statements Regarding the Progress of Their Children in Social Studies VIA Televised Instruction in a Seventh-Grade Class</td>
</tr>
<tr>
<td>6.</td>
<td>Frequency Distribution of I. Q. Scores Obtained on The Kuhlmann-Anderson Intelligence Test G by Thirty-Six Boys and Girls at Georgia Avenue School, Atlanta, Georgia</td>
</tr>
<tr>
<td>7.</td>
<td>Statistical Data Related to Frequency Distribution of Kuhlmann-Anderson Intelligence Test Form G as Obtained by Thirty-Six Boys and Girls at Georgia Avenue School, Atlanta, Georgia</td>
</tr>
<tr>
<td>8.</td>
<td>Frequency Distribution of Initial Performance on the Stanford Achievement Test Form J as Obtained by Thirty-Six Boys and Girls at the Georgia Avenue School, Atlanta, Georgia</td>
</tr>
<tr>
<td>9.</td>
<td>Statistical Data Related to Frequency Distribution of Initial Performance on the Stanford Achievement Test Form J by Thirty-Six Boys and Girls Utilizing Televised Instruction at the Georgia Avenue School</td>
</tr>
<tr>
<td>10.</td>
<td>Frequency Distribution of Final Performance on the</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>11. Statistical Data Related to Frequency Distribution of Final Performance on the Stanford Achievement Test Form K by Thirty-Six Boys and Girls Utilizing Televised Instruction at the Georgia Avenue School, Atlanta, Georgia.</td>
<td>44</td>
</tr>
<tr>
<td>12. Coefficient of Correlation and Related Statistics Based on the Scores Obtained by Fourteen Boys on the Stanford Achievement Test, Forms J and K, and the Kuhlmann-Anderson Intelligence Test Form G...</td>
<td>47</td>
</tr>
<tr>
<td>13. Coefficient of Correlation and Related Statistics Based on the Scores Obtained by Twenty-Two Girls on the Stanford Achievement Test Forms J and K and the Kuhlmann-Anderson Intelligence Test Form G.</td>
<td>49</td>
</tr>
<tr>
<td>15. Significant Differences between Correlations for the Paired Variables of Intelligence and Achievement.</td>
<td>52</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1.</td>
<td>Frequency Polygon of Intelligence Scores in months for fourteen Boys and twenty-two Girls on the Kuhlmann-Anderson Intelligence Test.</td>
</tr>
<tr>
<td>2.</td>
<td>Frequency Polygon of the Scores made by Fourteen Boys and Twenty-two Girls During Initial Performance on the Stanford Achievement Test.</td>
</tr>
<tr>
<td>3.</td>
<td>Frequency Polygon of the scores made by Fourteen Boys and Twenty-two Girls during Final Performance on the Stanford Achievement Test.</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Rationale.—During the past five years, in about one hundred school systems, elementary and secondary throughout the United States, there was an experiment underway which involved the use of television both as an instructional device and as a different type of curricular pattern.

Under planned television, elementary schools were organized so that the students spent half the day in a class of twenty-five students or less receiving instruction in reading, writing, and arithmetic from one teacher; the other half of the day they spent in groups of 75 to 150, with a series of teachers, receiving instruction in social studies, science, physical education, and other subjects. In these larger groups, sixth and seventh-grade students were taught science and social studies through the medium of television. This method was often referred to as "The Stoddard Plan," the idea having been conceived by Dr. A. J. Stoddard and the experiment initiated by the Fund for the Advancement of Education and the Ford Foundation.¹

It might be stated here that this approach in education arose as a means of coping with the acute teacher shortage and the ever-increasing pupil enrollment.² However, the primary concern of televised teaching

²Ibid.
and/or Educational Television is its effect on student learning.

Educational Television can be described as all programs of an educational or cultural nature that are broadcast over Educational Television Stations. The Federal Communications Commission has set aside recently some 257 channels for educational stations in operation.¹

The general feeling toward this new medium of mass communication has run the gamut from evangelistic zeal, looking upon it as a panacea for all educational ills, to intransigent opposition. In this connection, Harold D. Dunkel views Educational Television, thusly:

Most of us in the teaching profession who have used the medium occupy a middle ground. While we doubt the efficacy of television as a sole sacrament leading to educational salvation, we do feel that it is a powerful resource which can be directed to educational ends.²

Many questions remain to be resolved before the place of television in the total education program can be assessed in anything like adequate form. How effective is teaching and learning by television? Under what circumstances is instruction by television likely to be more effective? Can television be utilized to develop understanding, inculcate attitudes and appreciations, affect value judgments or changes in behavior, as well as to present important and meaningful information? Can it be applied equally as well by all competent teachers? In what combination with the more traditional approaches to learning is television most effective?


Dr. A. J. Stoddard, by his own admission, states:

Less progress, than in other areas, has been made in the use of television as an integral part of the regular instructional program in primary and secondary schools. Why? It is not the attitude of the personnel. School teachers and administrators are as open minded and alert to progress as other educators. It is not that money for innovation is scarcer in the schools than in the colleges - there is little enough in both places. It may be that there is more uncertainty at the school level about the legitimate relationship of television experience to the learning process. Adjusting education by television into modern philosophy of how children should learn is quite possibly more difficult to solve at the school level.

The writer looked at this powerful means of communication as a source medium designed to enrich and enliven conventional teaching methods. This study was undertaken with an awareness that today's schools were not designed for instruction by television nor have the facilities to accommodate large classes.

Locale.- This study was conducted at the Georgia Avenue School (a community school) of the Atlanta Public School System, Atlanta, Georgia. The school has a pupil population of approximately seven-hundred and fifty boys and girls as of the 1960-1961 school year.

The community is one of a very low-income bracket and fairly low living standards. The homes are old-fashioned tenant units, where families live together in extremely over-crowded conditions. The surrounding area as well as the school underwent a racial transition within the past eight years. Only a few of the inhabitants are property owners. Many of the children in this community are from broken homes and large numbers have migrated from rural areas.

The Georgia Avenue School is aware of the needs of the community and endeavors to serve as a laboratory for more improved school and community living. In this light every effort is made, through the use of many new ideas and educational tools toward better educating these children and toward helping to meet the needs of its citizens.

Statement of the Problem.--The problem involved in this study was to analyze and evaluate the effectiveness of television as a resource medium and as an aid in teaching and enriching a Seventh-Grade Social Studies Class at Georgia Avenue School, Atlanta, Georgia.

Purpose of the Study.--The major purpose of this study was to determine to what extent student performance under normal conditions, utilizing television as a resource, is as effective or more effective than teaching without the use of television. The specific purposes were:

1. To evaluate pupil performance resulting from the use of television as a teaching aid.
2. To diagnose certain strengths and weaknesses noted in the use of the television medium as a resource.
3. To ascertain the effectiveness of television in opinions of pupils, parents, television and non-television teachers as obtained from a questionnaire based on selected criteria for T. V. Education.
4. To determine the differences, if any, in the achievement in Social Studies as measured by Social Studies Achievement Tests, with groups of students utilizing the television programs, and with the same groups of students without the utilization of the television programs, this comparison to be done using the Stanford Achievement Test, Intermediate Battery Form K and Advanced Battery Form J.
5. To ascertain the correlations, if any, between intelligence and initial achievement of the groups of social studies students with the use of television and without the aid of television.
6. To ascertain the correlations, if any, between intelligence and final achievement of the groups of social studies students utilizing the television programs and without the television programs.

7. To ascertain the correlations, if any, between initial achievement and final achievement of the groups of social studies students utilizing the television programs and without the use of the television programs.

8. To determine the significant difference in correlations, if any, on paired variables of intelligence, and social studies achievement between the groups of seventh-grade pupils.

9. To determine implications and formulate recommendations on the basis of findings and conclusions as gathered from collected statistical data.

Definition of Terms.—There are certain terms which were used extensively within the confines of this study. For the purpose of clarity and preciseness of understanding, these terms are defined, thusly:

1. "Educational Television" refers to all programs of an educational or cultural nature that are broadcast over Educational Television Stations.

2. "Conventional Classroom" refers to a classroom situation having thirty-six seventh-grade pupils with varying abilities, interests, and needs.

3. "Evaluation" refers to the process of:
   a) Stating values and purposes in terms of individuals and an ever-changing society
   b) Securing evidences that these values and purposes are being realized
   c) Interpreting the evidences of pupil achievement and teaching skill

4. "Resources" refer to any teaching aid designed to facilitate learning in any type of teaching-learning situation.

---

Method of Research.—The Descriptive-Survey Method of research, utilizing standardized tests and questionnaires, was used to collect the data necessary for the study.

Description of the Subjects.—Thirty-five pupils in active attendance were used at the beginning of the study. These pupils constituted the primary subjects of the research. Prior to the testing period, one other pupil enrolled in this class. Thirty-six pupils were used to gather test data for the latter part of the study.

More specifically, there were fourteen boys and twenty-two girls for the total of thirty-six subjects. The boys ranged in age from eleven to fifteen years; whereas, the girls ranged in age from eleven to fourteen years. The mean ages were twelve and thirteen for the boys and girls, respectively. The Thirty-six subjects were pupils enrolled in the seventh-grade.

There were ten television and ten non-television (traditional) teachers who executed the questionnaire pertaining to the relative values of televised instructional procedures.

Lastly, there were twenty parents of the thirty-six pupil-subjects who executed the questionnaire pertaining to the impact and effectiveness of televised instruction with reference to their observed behavior of their children.

Description of Instruments.—The instruments used to collect the data are tersely described in the immediate paragraphs below:

battery with six to twenty-four items on each test. Tests are arranged in order of difficulty according to chronological age of children with ability to pass half of the items found in the next higher level as well as some of tests found in the lower level. As to validity, the test provides for detection of differences in mental development over the age range covered. Satisfactory differentiation is made among pupils who are old-for grade, young-for-grade and on grade.

2. The Stanford Achievement Test, Forms J for use with the sixth-grade level and Form K used on the seventh-grade level are comprised of a series of comprehensive achievement tests designed to measure the important knowledges, skills and understandings commonly accepted as desirable outcomes of the major branches of the elementary curriculum.

The present edition of the Stanford Achievement Test, consists of Forms J, K, L, M, and N. The present edition is the fourth in the series of tests. The writer used Forms J and K for initial and final testing in the area of social studies.

The Social Studies Test section of the Stanford Achievement Test covers areas that may be loosely defined as history, geography, and civic education. The content of the Social Studies Test is based on an analysis of many recently published textbooks and courses of study widely used in this area. In choosing this test, the following points were considered: purpose, content, administrability, quality and availability.
Questionnaire. - The questionnaire is a major instrument for data gathering in Descriptive-Survey Studies; and is used to secure information from varied and widely scattered sources.

Three instruments were used and these were prepared under the guidance of persons capable of constructive criticism and direction in the construction of the three questionnaires. These consultants were T. V. Directors, studio-teachers, television and non-television teachers in the Atlanta Public School System, and advisors in the School of Education at Atlanta University.

Separate questionnaire was designed for the group of (a) television and non-television teachers, (b) parents, and (c) pupils. Each instrument was designed and approved to ascertain the resourcefulness of television according to the following criteria:

a) Is the subject or theme of television interesting to the students?

b) Does the lesson lend itself to making the learners more critical minded, more independent?

c) Does the use of television widen the scope of learning by providing experiences, ideas and concepts beyond those of the immediate school environment?

d) Does the telecast lend itself to the development of skills, attitudes, and understandings?

e) Can the telecast lessons be integrated with other areas?

Method of Procedure. - The purposes of this research were achieved in the following manner:

1. Literature pertinent to this study was surveyed for background information.

2. Permission to carry out this study was secured from the proper school officials.

3. The following tests were given:
a) Kuhlmann-Anderson Intelligence Tests, Form G
b) Stanford Achievement Test, Form J (initial achievement)
c) Stanford Achievement Test, Form K (final achievement)

4. Information obtained through questionnaires executed by pupils, television and non-television teachers, and parents.

5. Appropriate tables were established and the basic statistical measures of central tendency, variability, Fisher's "t" were computed. The Spearman's Rank-difference Correlation method was used to determine the relationships of the Intelligence Quotients of the groups to the variables of the Achievement Test. However, the questionnaire data were statistically treated with reference to the frequency and per cent of response to the specific questionnaire items.

Collection of Data. - During the months of March and April of the 1959-1960 school year, the three questionnaire-instruments used to gather the data were distributed to and executed by the pupils, the parents and the television and non-television teachers.

Three instruments were used to secure the data from students, parents, television and non-television teachers. The questionnaires were designed and approved to ascertain the resourcefulness of the television medium according to stated criteria. In order to indicate the extent of responses, the writer used simple percentages.

The student opinionnaire was given in two parts. There were thirty individual responses on the first part, three pupils being absent and two others pre-occupied in other areas of school activity. On the second part of the opinionnaire, responses were obtained from thirty-five pupils, the primary subjects of this study.

A questionnaire was given to both television and non-television teachers. Each of the seventh-grade social studies teachers utilizing the programs of the Atlanta Educational Television Station, WETV, responded. A corresponding number of non-television teachers were selected
from which opinions were obtained. These teachers were selected on the basis of their indirect contact with the medium; as co-teachers of television teachers, persons interested in the medium, and teachers who had used television programs in an incidental or supplemental manner.

Opinions were sought from parents. The instrument used for collecting these data was sent home by the pupils of the seventh-grade social studies class. Twenty parents responded.

Each of the three instruments was designed and approved as adequate and valid for determining to what extent evidences of the following main objectives were shown:

1. Pupil interest in the telecast theme or subject.
2. Independence and critical-mindedness shown on the part of the learners.
3. Ideas and concepts obtained beyond those of the immediate school environment.
4. The development of skills, attitudes and understandings.
5. Ease of integrating lessons with other areas of school work.

Evolution of the Problem.—For the past two years the writer taught Seventh-Grade Social Studies, utilizing the television programs of the Atlanta Educational Television Station, WETV. The first year, the televised presentations were the core of the curriculum of the sixth and seventh grades. The classes involved were combined into large T. V. Classes consisting of about ninety pupils at a single class session.

The second year the telecasts were utilized as a part of the instruction of social studies. This was accomplished in a conventional classroom situation with the television series integrated into the Social Studies units of work resulting from teacher-planning, teacher-pupil
planning, and group-planning.

It was felt that the greatest utilization of Educational Television was as an enrichment resource rather than as a distinct instructional method.

Contribution to Educational Knowledge. — It was desired that this study would aid in placing this new medium of communication (TV) in its proper perspective, that of being one of the audio-visual aids, designed to illustrate and vitalize the teaching procedures and learning activities in the teaching-learning situation.

Survey of Related Literature. — The literature pertinent to the problems of this research was reviewed and organized for presentation below under the following main points: (1) The Potentiality of Television as an Educational Medium, (2) The Intangible Values That Television Does not Offer, and (3) Television as an Audio-Visual Aid.

The Potentiality of Television
As An Educational Medium

In spite of the effectiveness of television as an educational aid, it cannot be overemphasized that this medium of communication is a means and not a way to education. H. K. Newburn lends emphasis to this point-of-view by stating:

Great though I believe its potential to be, television actually presents the profession with a new set of questions relating to teaching and learning for which the answers must be sought as diligently as we have searched for truth in the past. It is necessary to understand that television and education are not in any way synonymous. As has been said repeatedly but with insufficient recognition to date, television is

a neutral thing, a mere channel of communication which can be used for many purposes, educational and otherwise. It is not in itself even a means to educational experiences unless the educators or others will use it for such purposes.

Newburn further advocates:

Neither is television an educational method. There is a fairly common notion that television is something which can be compared to the lecture, the discussion, or some other method of providing learning. Obviously, television is a mechanism through which any method including possibly new ones might be used to distribute learning to groups large or small, in or out of the classroom.¹

Changes in the curriculum of the school automatically denote certain changes in objectives, methods, and techniques employed during the process of perfecting a teaching-learning situation. Utilization of the various educational aids in accomplishing certain objectives allows pupils to participate in many situations which challenge their abilities. Satisfying pupils intellectual curiosity demands a certain amount of proficiency and a greater degree of competency on the part of the teacher and pupil in more than one phase of the education process.

In support of this point-of-view, Montgomery states:

The teacher of any given subject or grade can no longer be concerned only with the acquisition of important facts and concepts. The competent teacher of today is equally concerned with (1) the development of social skills - working in groups, getting along with others, sharing, and (2) the acquisition of important factors which enable the pupil to understand the society in which he finds himself. After providing all possible aid the teacher should then recognize that pupils should have the opportunity to construct their own concepts and generalizations.²

¹Ibid.
In observing the present trend of education, Charles A. Siepman critically views the sickness which is eating at the vitals of our system of education as a quantitative and a qualitative shortage of teachers. The sheer quantitative shortage of some teachers is so acute that some essential subjects are not being included in the curriculum. It is generally believed that some teaching of these subjects is better than none; and television channels provide the physical means of bringing such teaching to some schools located in remote areas. He further emphasizes that there is the problem of qualitative shortage, specifically stating, "Good teachers are rare, for though it requires knowledge and experience, teaching remains essentially an art."¹ Through the use of television good teaching or good teachers can be seen by hundreds of thousands of students.²

A summary of some of the advantages of television as stated by Siepman are:

1. Many children's first concern on returning to school is who will be their room teacher. Some teachers are popular, some are not. Some are superior, some are competent, some poor. Children know this. But room assignment need no longer be the arbitrary determinant of what kind of teacher a student gets. Superior teaching in a wide range of subjects can, over television, become part of the common experience of all students at all grade levels. Student attainment, generally speaking, will not suffer.

2. Given the widespread shortage of able teachers, cooperative use of television by contiguous school systems should broaden both the choice and the influence of good teachers.

3. Observation of superior teaching on television by cooperating classroom teachers is a valuable contribution, on the job, to

² Ibid.
in-service teacher training and can be looked to for saving both time and money.

4. Classroom teachers, while television 'takes over,' have time in which to observe students and attend to individual needs.

5. No teacher has a monopoly of skills. The best teacher can profit from observation of a skilled fellow craftsman. By teacher watching teacher on television new ideas, fresh approaches, unanticipated twist to the treatment of familiar subjects are rapidly adopted and adapted. Something new develops in the cross-fertilization of ideas in the teaching technique.

6. Teachers with interest and knowledge of a special field can, on television, help to broaden the knowledge of students in subjects (such as social studies) covered with rather broad sweep of the brush.

7. All students can have access by television to the best teachers available in a school system as part of their schooling experiences.

8. The stimulus of a new face and personality and of fresh approaches to subject matter enliven students' interest and enrich their learning.

9. With younger students in particular, the television teacher acquires an aura of exceptional prestige. This helps 'motivation'.

The Intangible Values That Television Does Not Offer

Faust, after a recent survey, reported that the essence of education is the development of intelligence, the development of powers and thought, the development of the capacity for reflection, and the development of human reason and its products - knowledge and wisdom. This specific point-of-view is further recognized by Faust in the fact that the task of our schools - not merely one of their tasks, nor one of their major tasks, 

1Ibid., p. 14.

but the task of education is the fullest possible development of the capacity to take thought, to reflect, to weigh, to judge, to foresee, to choose among alternatives, in short, the capacities of human intelligence. Pointedly, Faust states:

Men possess, if not uniquely at least in a unique degree, the capacity to reflect and to take thought, to bend their minds back upon their feelings, their ideas, the capacity to analyze and generalize, to foresee, to hold in imagination what does not now exist in reality, and to select among alternatives, and it is the function of education to develop this cluster of capacities to the fullest possible usefulness.¹

A paraphrase of still another thought of Faust is the concept that the essence or process of education is not communication from the teacher to the students, but the stimulation of profitable reflection in the student. Further, the essence of the educational process is the stimulation of minds by other minds or the stimulation to engage in that internal dialogue by which conflicting ideas come to confront each other in the learner's mind so that in some measure the resolution we call knowledge or wisdom takes over. The processes of effective education, therefore, are basically the processes of discussion at its best, disciplined dialogue on important questions, the interplay of minds, the challenge and the counter-challenge directed to the clarification of problems, the adequate resolution of them.²

Faust sums up this activity of conceptualization as the essence of education:

This activity of the learner's mind in which facts are clearly apprehended, ideas are formulated, facts and ideas are

¹Ibid., p. 24.
²Ibid., p. 27.
faced, and judgments are reached. . . . In the light of the essence of education, what may be said about educational television? What role can television play in the systematic stimulation of fruitful inquiry and reflection, the stimulation of the internal dialogue which is the very essence of education?  

Another shortcoming in the present uses of television, according to Schwarzwalder, is perhaps the single greatest objection to teaching by television, to wit: that the discussion technique of teaching is impossible and that its great values are lost when television is used.  

Television As An Audio-Visual Aid  

In a published report by the American Council on Education, a Committee on the In-School Uses of Television made the following statement:  

It is of utmost importance that for some time to come experimentation be carried on with respect to the many possible educational uses for television in an effort to determine selectively those points at which the medium can make the greatest contribution and the manner in which such contribution can best achieve. The end sought in all cases is the selective use of the medium in combination with the process may be reinforced both quantitatively and qualitatively in the most satisfactory manner. . . . The use of any teaching technique or instructional aid is valid only in terms of the purposes of the instruction and the capability of the learner. One approach of the in-school use of television is identified as an enriching segment. This approach attempts to supplement and enrich the work of the teacher by providing materials which either are not available in the local setting, or not appropriately organized for use, in the classroom. The televised materials are designed to bulwark, support, and enrich the learning process.  

Television as an addition to the spectrum of audio-visual devices, such as the radio, films, books, and the like has been said to be less apt than multiplication.  

1. Ibid., pp. 27-30.  
Pennsylvania State University states that: "Television multiplies the impact of audio and visual teaching."

The usefulness of audio-visual methods and materials in teaching is an established fact. These materials, however, must be seen in their relationship to teaching as a whole and to the learning process as a whole. Until these relationships are understood, intelligent or fruitful use of these new techniques cannot be made. Edgar Dale implies this principle in his statement that:

One must realize that audio-visual methods form only one of several groups of promising methods designed to improve teaching. Even though we are aware of the impressive results achieved through the use of films, recordings, or television in schools, colleges, industry, and government, some of us may conclude that earlier teaching methods were "all wrong," "wasteful," "inefficient," that textbooks should be discarded and the principles of education completely overhauled. Such an extreme attitude is unjustified by the facts. Moreover, it reflects a wholly unrealistic view of the new media. Reading, of course, remains the "sine qua non" of modern education.

The plane upon which television elevates itself above other audio-visual devices is evident by the fact that it is the most communicable, the most complete audio-visual medium available. Wanda B. Mitchell, in a report dealing with learning situations, lends emphasis to this thought by stating:

Television provides a learning situation not equalled by instructional film. The latter cannot be kept up-to-date as can live television presentation. The immediacy of a live, on-the-spot telecast has a realistic motivation which arouses and keeps interest... Television becomes the vehicle for the presentation of the films themselves. When instructional films are shown via the television camera, they become a more integral part of the lesson. Turning on a television set is less obtrusive and less diverting

---

1Ibid., p. 6.

than setting up a screen and projector and turning off lights.¹

Some educators feel that television can be an effective tool for instruction and believe this to be its greatest potential for our system of education. In this light users of the medium must assume a definite responsibility toward everyone concerned with classroom learning situations. Parents, teachers, and pupils must study television to find its real instructional advantages and limitations.

**Summary of Related Literature.**—The literature related to this research was presented under the following captions: (a) the potentiality of television as an educational medium, (b) the intangible values that television does not offer; and (c) television as an audio-visual aid. The summation of the literature pertinent to this investigation is given below.

What will be the future role of television in schools, colleges and universities is not fully known. It is evident that television has an important place in helping teachers and others meet some of the heavy demands made on them. The principal use of television will be to distribute and extend high-quality instruction to students in those courses and areas where there are large numbers of students or by broadcast to large, widespread audiences. It is hoped that in the near future the different kinds of operants of teaching and learning may be accurately defined and a determination made of what teaching functions television can best serve and what functions should be served by other means. When TV's characteristics interfere, auxiliary means of teaching will be

developed. Many special uses will be found for television, such as the recording of instruction, the distribution and projection of films, the pacing and guidance of science laboratories, and the magnifying and remoting of information rather than the movement of people.

It appears generally agreed from a survey of the literature that even though quite a few principles relevant to television are known, there is not enough known concerning all of the principles of learning which are relevant to televised teaching and learning procedures. It goes without saying that much more experience and experimenting is needed to put scientific principles into practical results.

A pupil's learning consist of more than just the amount of subject-matter he can absorb. It includes a variety of learning experiences. The pupil engages in physical and social activities. He develops values, appreciations, and attitudes. In these areas of learning television plays quite a subordinate role to the teacher according to the survey of the literature.

Television as a new audio-visual aid gives the viewer an immediate and complete reproduction of what is happening. From a survey of literature it appears that television as a medium of communication gives schools an opportunity to do some desirable things which otherwise are not possible or feasible or which can be handled more easily and effectively than is usually the case.
CHAPTER II
PRESENTATION AND ANALYSIS OF DATA

Introduction. - The general problem of this study was to analyze and evaluate the effectiveness of television as a resource medium and as an aid in teaching and enriching a group of seventh-grade pupils in the area of social studies. The data are being presented in a manner by which the statements set forth in the purposes may be explained.

Organization and Treatment of Data. - The analysis and evaluation of the data to be presented in this chapter were derived from five major sources, namely: (a) the responses of the students to the items on the questionnaire, (b) the responses of television and non-television teachers to items on the questionnaire, (c) the responses of parents to the items on the questionnaire, (d) pupil performance on achievement tests, and (e) results of pupil performance on the intelligence test.

The quantitative data basic to the findings of this research are set forth in four types of tables:

(a) Tables one through five - Distribution of subjects' responses to items on the respective questionnaires for pupils, teachers, and parents

(b) Tables six through eleven - Distribution and Significant Differences for test-scores of intelligence and achievement of pupils

(c) Tables twelve through fourteen - Correlations for the paired variables of intelligence, initial and final achievement

(d) Table fifteen - Significant Difference for the paired variables of intelligence and achievement.

Further, the quantitative test data are graphically portrayed through three (3) polygons illustrative of the compared indices for boys
and girls, with reference to level of intelligence and achievement.

The criterion of reliability for the statistics was established as a Fisher's "t" of 2.58 at the one per cent level of confidence.

Questionnaire Data

Foreword.—This section of the research report is concerned with the analysis and interpretation of the data on the relative merits of televised instruction as derived from the opinions of the seventh-grade pupils who were the immediate subjects of this research, the teachers, both television and non-television, and the parents of the pupils who executed the respective questionnaires designed to procure the pertinent information.

General Merits of Televised Instruction.—The data on the general merits of televised instruction in the opinion of the seventh-grade pupils of the Georgia Avenue School, Atlanta, Georgia, are presented in Table 1, page 22. Eighty-six per cent indicated in Table 1, no difficulty in viewing the telecasts. As to subject matter interest, 36.67 per cent answered favorable, while 63.33 per cent gave unfavorable comments. The same percentages held true in measuring the effectiveness of the television lessons, or span of televised subject matter. Yet, the retention of unit material showed only 33.33 per cent answered favorably, while 67.67 per cent answered unfavorably.

From the data, it is apparent that most of the pupils realized no greater difficulty in being able to watch the telecast. This is noteworthy, when considering that telecasts are viewed in an auditorium which was not designed primarily for classroom use, and is far from ideal when used for a television class. It is, also, to be noted here, that the subject matter of the television lessons provided no stimulus for the


<table>
<thead>
<tr>
<th>Area of Concern</th>
<th>Favorable No. of Comments</th>
<th>Favorable Per cent</th>
<th>Unfavorable No. of Comments</th>
<th>Unfavorable Per cent</th>
<th>Total</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of viewing</td>
<td>26</td>
<td>86.67</td>
<td>4</td>
<td>13.33</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Subject matter interest</td>
<td>11</td>
<td>36.67</td>
<td>19</td>
<td>63.33</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Effectiveness of television lessons</td>
<td>11</td>
<td>36.67</td>
<td>19</td>
<td>63.33</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Retention of television lessons</td>
<td>10</td>
<td>33.33</td>
<td>20</td>
<td>67.67</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Need for grouping</td>
<td>18</td>
<td>60.00</td>
<td>12</td>
<td>40.00</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Opportunities for activities and student participation</td>
<td>20</td>
<td>66.67</td>
<td>10</td>
<td>33.33</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Boredom threshold of television</td>
<td>20</td>
<td>66.67</td>
<td>10</td>
<td>33.33</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>Attitude toward classroom teacher as compared to studio teacher</td>
<td>25</td>
<td>83.33</td>
<td>5</td>
<td>16.67</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>
learners in the opinion of two-thirds of this seventh grade.

Table 1 further indicated that 60 per cent of the pupils were able to work at a pace independently of other members or groups of the class. More opportunities for activities and student participation were expressed by 66.67 per cent of the respondents. Only 33.33 per cent of the pupils thought most of the telecasts boring. On the other hand, 16.67 per cent felt that the role of the classroom teacher was subordinate to that of the studio-teacher.

Development of Study Skills Through Televised Instruction.— Table 2, page 2k, presents the data on the development of study skills and habits through televised instruction as derived from the opinion of the seventh-grade pupils of the Georgia Avenue School, Atlanta, Georgia. Table 2 shows that the majority of the comments on the second part of the student questionnaire favored televised instruction in terms of increased ability in organizing lessons, ability to take notes, need for directions, amount learned, additional work done and quantity of outside reading accomplished. Among these advantages of televised instruction can be seen certain study skills; the ability to organize lessons, 45.7 per cent could do this better, 28.5 per cent as good as formerly, and 25.8 per cent could not organize lessons as well as before. Indications of the ability to take notes showed 57.1 per cent with more ability in this area, 25.8 per cent with about the same ability and 17.1 per cent not as good in this capacity as these pupils believed they had been before using televised instruction.

The learners' ability to work independently is shown in their need for directions and instructions in carrying out classroom
<table>
<thead>
<tr>
<th>Areas of Concern</th>
<th>No. of Responses</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class order is:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better</td>
<td>16</td>
<td>45.7</td>
</tr>
<tr>
<td>As good</td>
<td>16</td>
<td>45.7</td>
</tr>
<tr>
<td>Not as good</td>
<td>3</td>
<td>8.6</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Ability to organize lessons:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better</td>
<td>16</td>
<td>45.7</td>
</tr>
<tr>
<td>As good</td>
<td>10</td>
<td>28.6</td>
</tr>
<tr>
<td>Not as good</td>
<td>9</td>
<td>25.8</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Outside reading has been done:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More</td>
<td>24</td>
<td>68.6</td>
</tr>
<tr>
<td>Not as much</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td>About the same</td>
<td>5</td>
<td>14.3</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Ability to take notes:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better</td>
<td>20</td>
<td>57.1</td>
</tr>
<tr>
<td>As good</td>
<td>9</td>
<td>25.8</td>
</tr>
<tr>
<td>Not as good</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
</tbody>
</table>
TABLE 2-Continued

STUDENT RESPONSES TOWARD TELEVISIONED INSTRUCTION AS COMPARED
WITH INSTRUCTION WITHOUT TELEVISION

<table>
<thead>
<tr>
<th>Areas of Concern</th>
<th>No. of Responses</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for directions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less</td>
<td>18</td>
<td>51.4</td>
</tr>
<tr>
<td>More</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td>About the same</td>
<td>11</td>
<td>31.5</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
<tr>
<td>Have learned:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More</td>
<td>22</td>
<td>62.9</td>
</tr>
<tr>
<td>Less</td>
<td>4</td>
<td>11.3</td>
</tr>
<tr>
<td>About the same</td>
<td>9</td>
<td>25.8</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
<tr>
<td>Additional work has been done</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More</td>
<td>21</td>
<td>60.0</td>
</tr>
<tr>
<td>Less</td>
<td>1</td>
<td>2.9</td>
</tr>
<tr>
<td>About the same</td>
<td>13</td>
<td>37.1</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
<tr>
<td>Responsibility for learning:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed more</td>
<td>18</td>
<td>51.4</td>
</tr>
<tr>
<td>Developed less</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td>About the same</td>
<td>11</td>
<td>31.5</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### TABLE 2—Continued

**STUDENT RESPONSES TOWARD TELEVISIONED INSTRUCTION AS COMPARED WITH INSTRUCTION WITHOUT TELEVISION**

<table>
<thead>
<tr>
<th>Areas of Concern</th>
<th>No. of Responses</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parental interest shown:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More</td>
<td>26</td>
<td>74.3</td>
</tr>
<tr>
<td>Less</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td>About the same</td>
<td>3</td>
<td>8.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>35</strong></td>
<td><strong>100.0</strong></td>
</tr>
<tr>
<td><strong>Willingness to do assignments:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More</td>
<td>15</td>
<td>42.7</td>
</tr>
<tr>
<td>Less</td>
<td>11</td>
<td>31.5</td>
</tr>
<tr>
<td>About the same</td>
<td>9</td>
<td>25.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>35</strong></td>
<td><strong>100.0</strong></td>
</tr>
<tr>
<td><strong>Reports, field trips,</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Use of references:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More</td>
<td>24</td>
<td>68.6</td>
</tr>
<tr>
<td>Less</td>
<td>5</td>
<td>14.3</td>
</tr>
<tr>
<td>About the same</td>
<td>6</td>
<td>17.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>35</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Activities and during follow-up periods. In the opinion of the pupils, 51.4 per cent stated there was less need, 17.1 per cent had more need for directions and 31.5 per cent had about the same need for directions from classroom teacher after being exposed to televised instruction. Additional work in the form of group projects, experiments and related assignments were done by 60 per cent of the class during the present school year, 2.9 per cent did less, and 37.1 did about the same additional work. More outside reading was accomplished by 68.6 per cent,
17.1 per cent read less, and 14.3 per cent read about the same with televised instruction as compared to amount of reading accomplished without televised instruction.

Table 2 further indicates that in the opinion of the pupils the development of attitudes showing individual responsibility for learning, 51.4 per cent had developed this attitude more, 17.1 per cent less, and 31.5 per cent had the same attitude toward responsibility for learning after televised instruction than in the traditional teacher-learning situation. The data reveal that 68.6 per cent had used more references, made reports and took part in field trips during the 1959-1960 school year than during the previous school year. However, only 42.7 per cent expressed more willingness to do assignments, 31.5 per cent were less willing, and 25.8 per cent showed about the same willingness to do classroom assignments after televised lessons.

Parental interest, incited by the use of television, was shown in 74.2 per cent of the cases. The students, themselves, assumed that more had been learned with the aid of television than without this audio-visual aid. Sixty-two and nine-tenths per cent of the pupils stated that more had been learned, 11.3 per cent believed less had been learned, and 25.8 per cent felt that about the same had been learned through exposure to televised instruction.

**Teacher Responses Toward Areas of Concern Associated with Televised Instruction.** The data presented in Table 3, pages 27 and 28, show the opinions of the merits of televised instruction as obtained from a group of Seventh Grade Social Studies teachers,
### Table 3
**Areas of Concern Associated with Teacher Responses Toward Televised Instruction**

<table>
<thead>
<tr>
<th>Areas of Concern</th>
<th>Non-TV Teachers</th>
<th>TV Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td>TV gives each child a &quot;front row seat.&quot;</td>
<td>8  80</td>
<td>2  20</td>
</tr>
<tr>
<td>TV stimulates more than the usual classroom procedure.</td>
<td>5  50</td>
<td>5  50</td>
</tr>
<tr>
<td>Televised lessons prove dull and uninteresting.</td>
<td>5  50</td>
<td>5  50</td>
</tr>
<tr>
<td>TV gives the classroom teacher more time and stimulus with which to develop the individual student.</td>
<td>4  40</td>
<td>6  60</td>
</tr>
<tr>
<td>TV develops a beneficial teamwork between the studio and classroom teachers.</td>
<td>6  60</td>
<td>4  40</td>
</tr>
<tr>
<td>The work of the classroom teacher is so subordinated to that of the studio teacher that she becomes a monitor.</td>
<td>0  0</td>
<td>10 100</td>
</tr>
<tr>
<td>TV prevents the necessary repetition for learning to take place.</td>
<td>2  20</td>
<td>8  80</td>
</tr>
<tr>
<td>A good television presentation stimulates each student to work at his own level.</td>
<td>6  60</td>
<td>4  40</td>
</tr>
<tr>
<td>The day-after-day pace of televisions prevents much wasted time.</td>
<td>5  50</td>
<td>5  50</td>
</tr>
<tr>
<td>Helpful discussion is prevented by the TV class to an unhealthy degree.</td>
<td>3  30</td>
<td>7  70</td>
</tr>
</tbody>
</table>
TABLE 3-Continued

<table>
<thead>
<tr>
<th>Areas of Concern</th>
<th>Non-TV Teachers</th>
<th>TV Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agree</td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>No. %</td>
<td>No. %</td>
</tr>
</tbody>
</table>

The day-after-day pace of television lessons form a serious disadvantage to the classroom teacher's use of the student's stimulated interest.

|                  | 4 | 40 | 6 | 60 | 10 | 100 | 5 | 50 | 5 | 50 | 10 | 100 |

As a member of the television team the classroom teacher becomes a better teacher.

|                  | 6 | 60 | 4 | 40 | 10 | 100 | 7 | 70 | 3 | 30 | 10 | 100 |

Parents have been more involved in resulting learning activities through the use of television.

|                  | 4 | 40 | 6 | 60 | 10 | 100 | 4 | 40 | 6 | 60 | 10 | 100 |

TV reaches only the average child and does not stimulate the slow learner or bright student.

|                  | 4 | 40 | 6 | 60 | 10 | 100 | 3 | 30 | 7 | 70 | 10 | 100 |

utilizing the televised programs of the Atlanta Public School Television Station, WETV, and a comparable group of regular or traditional classroom teachers not using television, both groups employed in the Georgia Avenue School. These two groups of teachers were the professional subjects in this study. Both television and non-television teachers indicated that TV instruction stimulated more than the usual classroom procedures in 50 per cent of the responses. Of the responses from non-television teachers, 50 per cent agreed that television lessons seemed dull and uninteresting,
while 70 per cent of the television teachers disagree on this point.

As to the role of the classroom teacher being a mere monitor, or as being subordinate to that of the studio teacher, 100 per cent of the non-television teachers disagreed on this point. The lack of repetition which is inherent to television, was not thought to be a deterrent to learning, as expressed by 80 per cent of the non-television teachers and 50 per cent of the television teachers. It is indicated by 50 per cent of the non-television teachers and 80 per cent of the television teachers that the television series prevented much wasted time. It was further shown that the conventional classroom teacher becomes a better teacher as a member of the television team. This benefit was thought to be true by 60 per cent of the non-television teachers and 70 per cent of the television teachers.

Generally the television lessons have been moderately accepted by teachers, parents and students with comparatively few criticisms. It is also generally agreed that televised lessons' main contribution has been to supply information and resource materials which might not be available to the classroom teachers.

As further indicated in Table 3, and as previously stated, the fast pace of the television lessons and lack of opportunity to ask questions during the telecast is not a great disadvantage. This may be due partly (as shown in Table 2) to the fact that students are forced to rely upon their own initiative to a large extent.

**Strengths of Televised Instruction.**—The data on the expressed strengths of televised instruction in the opinions of the groups of:
television teachers and non-television teachers (conventional), are presented in Table 4, page 31. As to strengths of televised instructional teaching: 15 per cent indicated it prevented waste of time. Fifteen per cent thought television was resourceful to classroom teacher and aided the teacher in planning for the subject. Ten per cent thought television helped the pupils learn the art of listening. Ten per cent felt that televised instruction complements what is being taught in the regular classroom and makes the lesson easier to understand, while ten per cent also felt that television makes the subject matter realistic. Ten per cent indicated that: there can be a variety of approaches to the lessons; the studio-teacher is usually better prepared to teach the subject, and planning by studio-teacher and classroom teacher is beneficial to learners, respectively.

Weaknesses of Televised Instruction.-—The data on the expressed weaknesses of televised instruction in the opinion of the groups of: television teachers and non-television teachers (conventional), are presented in Table 4A, page 32. As to weaknesses of television: 5 per cent felt that television lessens progressed at a too rapid pace. Five per cent also thought there was not enough activity in using the medium, that it tends to lean toward lectures rather than activated, animated teaching. Ten per cent felt there was a lack of properly equipped viewing room, that there were makeshift facilities, poor lighting and acoustics. Twenty per cent of the teachers felt the inability of pupils to ask questions or engage in immediate discussion was a great weakness.
### TABLE 4

**STRENGTHS OF TELEVISED INSTRUCTION AS INDICATED BY THE OPINIONS OF TELEVISION AND NON-TELEVISION TEACHERS IN THE GEORGIA AVENUE SCHOOL, ATLANTA, GEORGIA, 1959-1960**

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV prevents waste of time</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Televised instruction is resourceful to classroom teacher and aids the teacher in planning for the subject</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Television helps the pupils learn the art of listening</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Televised instruction complements what is being taught in the regular classroom and makes the lesson easier to understand</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Television makes the subject matter realistic</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>TV uses more visual materials</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>There can be a variety of approaches to the lessons</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>The studio-teacher is usually better prepared to teach the subject</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Planning by studio-teacher and classroom teacher is beneficial to learners</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Fifteen per cent of the teachers indicated weaknesses of televised instruction as follows: viewers cannot employ other "senses" in connection with the presentations, can only be enjoyed through sight and hearing; that television screen is not demanding enough to hold the attention of disinterested pupils.
### TABLE 4A

WEAKNESSES OF TELEVISED INSTRUCTION AS INDICATED BY THE OPINIONS OF TELEVISION AND NON-TELEVISION TEACHERS IN THE GEORGIA AVENUE SCHOOL, ATLANTA, GEORGIA, 1959-1960

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Televised lessons progress at a too rapid pace</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Not enough activity, tends to lean toward lectures rather than activated, animated teaching</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Lack of properly equipped viewing room, makeshift facilities, poor lighting and acoustics</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Inability of pupils to ask questions or engage in immediate discussion about the lesson</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Viewers cannot employ other &quot;senses&quot; in connection with the presentations, can only be enjoyed through sight and hearing</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Television screen is not demanding enough to hold the attention of disinterested pupils</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Pupils are not used often enough on the programs</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Lessons do not reach all pupils; slow, fast and average</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4A further indicated that ten per cent of the teachers felt that pupils are not used often enough on the programs and twenty per cent felt that lessons do not reach all pupils, slow, fast and average.
Opinions of Parents as to the Merits of Television Instruction.

Table 5, page 34, presents the data on the opinions of parents on the merits of televised instruction for their children. Of the twenty parents responding to the questionnaire, 50 per cent felt that some benefit had been gained and improvement shown from the use of the television series in the social studies, and 10 per cent did not think that the pupils had benefited. As to pupil progress, 15 per cent of the parents thought this to be about the same for both instructional methods. Twenty-five per cent of the parents did not feel adequately informed enough to give an honest opinion on the relative merits of the two methods of instruction.

Standardized Test Data

Foreword.—This section of the present chapter presents the data on the measured intelligence of the pupil subjects and their performance on tests in the Social Studies with references to indices of central tendency, variability, correlation and significant differences between the two groups identified as: Televised and conventional taught seventh grade pupils. Tables 6 through 15 present the statistical measures involved in the observed performance data. Hence, these data will be typified through tables as follows:

1. Distribution Tables — showing measures of central tendency and variability

2. Difference Tables — showing measures of the differences between means and the Fisher's $t$ and $s$ pertaining thereto

3. Correlation Tables — showing the relationship between the paired variables, together with their $t$ and $s$ indices

4. Difference between Correlations Tables — showing the
TABLE 5

PARENTS' RESPONSES TO STATEMENTS REGARDING THE PROGRESS OF THEIR CHILDREN IN SOCIAL STUDIES VIA TELEVISÉD INSTRUCTION IN A SEVENTH-GRADE CLASS

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think that my child has benefited and/or shown some improvement in his (her) school work as a result of using television in social studies.</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>I do not think that my child has benefited and/or shown any improvement in his (her) school work as a result of using television in social studies.</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>I think that my child's progress has been about the same in his (her) social studies.</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>I do not know enough about what my child has been taught and is now being taught in social studies to give an honest opinion.</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

differences between the correlations for selected paired variables of the tests.

5. Criterion of Reliability - The criterion of reliability for the statistical measures in the respective areas was: a "t" of 2.58 at .01 level of confidence for "Significant Differences;" a "r" of .081 for correlations.

Results of the Kulhmann-Anderson Intelligence Test. - -The data on the intelligence of the thirty-six seventh-graders of the Georgia Avenue School, Atlanta, Georgia, as measured by the raw scores obtained on the Kulhmann-Anderson Intelligence Test are presented in Tables 6
Boys - For the fourteen boys the scores ranged from a low of 70 to a high of 119, with a mean of 93.40, a median of 93, a standard deviation of 10.10, and a standard error of the mean of 2.8. Twenty-one per cent of the boys scored above the mean, 57.05 per cent below the mean, and 21.5 per cent of them scored within the mean class-interval. The mean score of 93.40 indicated a grade-placement index of 6.7.

Girls - For the twenty-two girls the scores ranged from a low of 60 to a high of 109, with a mean of 87.70, a median of 86.30, a standard deviation of 12.35, and a standard error of the mean of 2.7. Fifty-one-tenth per cent of the girls scored above the mean, 31.7 per cent below the mean, and 18.2 per cent of them scored within the mean class-interval. The mean score of 87.70 indicated a grade-placement index of 5.9.

"t" Ratio - Table 7 shows that the comparative measures for the two groups were as follows: the mean for the boys was 93.40 and for the girls it was 87.70; the standard error of the mean for the boys was 2.8 and for the girls it was 2.7; and the standard error of the difference between the two means was 3.9. The "t" of 0.13 was not significant for it was less than 2.58 at .01 per cent level of confidence. Therefore, the difference in intelligence between the group of boys and girls on the Kulhmann-Anderson Test of Intelligence was not statistically significant.

Results of Initial Performance on the Stanford Achievement Test. - The data on the initial achievement test of the thirty-six
TABLE 6

FREQUENCY DISTRIBUTION OF I. Q. SCORES OBTAINED ON
THE KUHLMANN-ANDERSON INTELLIGENCE TEST, G BY
THIRTY-SIX BOYS AND GIRLS AT GEORGIA
AVENUE SCHOOL, ATLANTA, GEORGIA

<table>
<thead>
<tr>
<th>Scores</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Per cent</td>
<td>No.</td>
</tr>
<tr>
<td>115 - 119</td>
<td>1</td>
<td>7.15</td>
<td>-</td>
</tr>
<tr>
<td>110 - 114</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>105 - 109</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>100 - 104</td>
<td>1</td>
<td>7.15</td>
<td>3</td>
</tr>
<tr>
<td>95 - 99</td>
<td>1</td>
<td>7.15</td>
<td>4</td>
</tr>
<tr>
<td>90 - 94</td>
<td>3</td>
<td>21.5</td>
<td>3</td>
</tr>
<tr>
<td>85 - 89</td>
<td>3</td>
<td>21.5</td>
<td>4</td>
</tr>
<tr>
<td>80 - 84</td>
<td>2</td>
<td>14.2</td>
<td>3</td>
</tr>
<tr>
<td>75 - 79</td>
<td>2</td>
<td>14.2</td>
<td>-</td>
</tr>
<tr>
<td>70 - 74</td>
<td>1</td>
<td>7.15</td>
<td>1</td>
</tr>
<tr>
<td>65 - 69</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>60 - 64</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>38.88</td>
<td>22</td>
</tr>
</tbody>
</table>

seventh-graders as measured by the raw scores obtained on the Stanford Achievement Test, Form J, are presented in Tables 8 and 9 and Figure 2, pages 39, 40 and 41, respectively.

Boys - For the fourteen boys the scores ranged from a low of 40 to a high of 99, with a mean of 64.5, a median of 65.4, a standard
### TABLE 7

**STATISTICAL DATA RELATED TO FREQUENCY DISTRIBUTION OF KUHLMANN-ANDERSON INTELLIGENCE TEST, FORM G AS OBTAINED BY THIRTY-SIX BOYS AND GIRLS AT GEORGIA AVENUE SCHOOL, ATLANTA, GEORGIA**

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Range</th>
<th>Mean</th>
<th>Median</th>
<th>S. D.</th>
<th>S. E. M.</th>
<th>$M_1 - M_2$</th>
<th>$M_1 - M_2$</th>
<th>S. E. of $t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>14</td>
<td>41</td>
<td>93.40</td>
<td>93.0</td>
<td>10.10</td>
<td>2.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIRLS</td>
<td>22</td>
<td>42</td>
<td>87.70</td>
<td>86.30</td>
<td>12.35</td>
<td>2.7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

And

<p>| | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.7</td>
<td>3.9</td>
<td>.143</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1 - Frequency Polygon of Intelligence Scores in Months for Fourteen Boys and Twenty-Two Girls on the Kuhlmann-Anderson Intelligence Test.
TABLE 8

FREQUENCY DISTRIBUTION OF INITIAL PERFORMANCE ON THE STANFORD
ACHIEVEMENT TEST FORM J AS OBTAINED BY THIRTY-SIX BOYS AND
GIRLS AT THE GEORGIA AVENUE SCHOOL, ATLANTA, GEORGIA

<table>
<thead>
<tr>
<th>Scores</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Per cent</td>
<td>No.</td>
</tr>
<tr>
<td>95 - 99</td>
<td>1</td>
<td>7.15</td>
<td>1</td>
</tr>
<tr>
<td>90 - 94</td>
<td>1</td>
<td>7.15</td>
<td>-</td>
</tr>
<tr>
<td>85 - 89</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>80 - 84</td>
<td>1</td>
<td>7.15</td>
<td>-</td>
</tr>
<tr>
<td>75 - 79</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>70 - 74</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>65 - 69</td>
<td>4</td>
<td>28.7</td>
<td>1</td>
</tr>
<tr>
<td>60 - 64</td>
<td>2</td>
<td>14.2</td>
<td>2</td>
</tr>
<tr>
<td>55 - 59</td>
<td>2</td>
<td>14.2</td>
<td>1</td>
</tr>
<tr>
<td>50 - 54</td>
<td>1</td>
<td>7.15</td>
<td>11</td>
</tr>
<tr>
<td>45 - 49</td>
<td>1</td>
<td>7.15</td>
<td>4</td>
</tr>
<tr>
<td>40 - 44</td>
<td>1</td>
<td>7.15</td>
<td>-</td>
</tr>
</tbody>
</table>

| Total | 14      | 100.0    | 22      | 100.0    | 36 | 100.0 |

deviation of 12.5, and a standard error of the mean of 3.5. Sixty-four
and forty-five per cent of the boys scored above the mean, 21.35 per
cent scored below the mean, and 28.7 per cent within the mean class-
interval. The mean score of 64.5 indicated a grade-placement index
of 7.0.
TABLE 9

STATISTICAL DATA RELATED TO FREQUENCY DISTRIBUTION OF INITIAL PERFORMANCE ON THE STANFORD ACHIEVEMENT TEST FORM J BY THIRTY-SIX BOYS AND GIRLS UTILIZING TELEVISIONED INSTRUCTION AT THE GEORGIA AVENUE SCHOOL

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Range</th>
<th>Mean</th>
<th>Median</th>
<th>S. D.</th>
<th>S. E. M.</th>
<th>( M_1 - M_2 )</th>
<th>S. E. of ( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>14</td>
<td>52</td>
<td>64.5</td>
<td>65.4</td>
<td>12.5</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIRLS</td>
<td>22</td>
<td>47</td>
<td>52.0</td>
<td>48.65</td>
<td>13.0</td>
<td>2.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>And</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.5</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.81</td>
<td></td>
</tr>
</tbody>
</table>
Figure 2 - Frequency Polygon of the Scores made by Fourteen Boys and Twenty-Two Girls during Initial Performance on the Stanford Achievement Test.
Girls - For the twenty-two girls the scores ranged from a low of 45 to a high of 99, with a mean of 52.0, a median of 48.65, a standard deviation of 13.0, and a standard error of the mean of 2.8. Fifty and five-tenths per cent of the girls scored above the mean, 16.7 per cent of the girls scored below the mean, and 32.8 per cent of them scored within the mean class-interval. The mean score of 52.0 indicated a grade-placement index of 5.3.

The "t" Ratio - Table 9 shows that the comparative measures for the two groups were as follows: the mean for the boys was 64.5 and for the girls it was 52.0; the standard error of the mean for the boys was 3.5 and for the girls it was 2.8; and the standard error of the difference between the two means was 12.5. The "t" of 2.84 was significant for it was more than 2.58 at .01 per cent level of confidence. Therefore, the difference in achievement between the group of boys and girls in initial performance on the Stanford Achievement Test, Form J was statistically significant.

Results of Final Performance on the Stanford Achievement Test, Form K. - The data on the final achievement of the thirty-six seventh-graders as measured by the raw scores obtained on the Stanford Achievement Test, Form K are presented in Tables 10 and 11, and Figure 3, pages 43, 44, and 45, respectively.

Boys - For the fourteen boys the scores ranged from a low of 45 to a high of 89, with a mean of 66.0, a median of 66.0, a standard deviation of 14.05, and a standard error of the mean of 3.9. Sixty-four and forty-five per cent of the boys scored above the mean, 21.35 per cent below the mean, and 14.2 per cent of them scored within the
TABLE 10

FREQUENCY DISTRIBUTION OF FINAL PERFORMANCE ON THE STANFORD ACHIEVEMENT TEST FORM K AS OBTAINED BY THIRTY-SIX BOYS AND GIRLS AT THE GEORGIA AVENUE SCHOOL

<table>
<thead>
<tr>
<th>Scores</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Per cent</td>
<td>No.</td>
</tr>
<tr>
<td>95 - 99</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>90 - 94</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>85 - 89</td>
<td>2</td>
<td>14.2</td>
<td>1</td>
</tr>
<tr>
<td>80 - 84</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>75 - 79</td>
<td>1</td>
<td>7.15</td>
<td>1</td>
</tr>
<tr>
<td>70 - 74</td>
<td>4</td>
<td>28.7</td>
<td>1</td>
</tr>
<tr>
<td>65 - 69</td>
<td>2</td>
<td>14.2</td>
<td>1</td>
</tr>
<tr>
<td>60 - 64</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>55 - 59</td>
<td>2</td>
<td>14.2</td>
<td>4</td>
</tr>
<tr>
<td>50 - 54</td>
<td>2</td>
<td>7.15</td>
<td>5</td>
</tr>
<tr>
<td>45 - 49</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>40 - 44</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>100.0</td>
<td>22</td>
</tr>
</tbody>
</table>

Mean class-interval. The mean score of 66.0 indicated a grade placement index of 7.1.

Girls - For the twenty-two girls the scores ranged from a low of 40 to a high of 99, with a mean of 63.0, a median of 52.5, a standard deviation of 15.0, and a standard error of the mean of 3.3. Thirty-one and six-tenths per cent of the girls scored above the mean, 54.7
### Table 11

Statistical data related to frequency distribution of final performance on the Stanford Achievement Test Form K by thirty-six boys and girls utilizing televised instruction at the Georgia Avenue School, Atlanta, Georgia

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Range</th>
<th>Mean</th>
<th>Median</th>
<th>S.D.</th>
<th>S. E. M.</th>
<th>M1-M2</th>
<th>M1-M2</th>
<th>&quot;t&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>14</td>
<td>40</td>
<td>66.0</td>
<td>66.0</td>
<td>14.05</td>
<td>3.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIRLS</td>
<td>22</td>
<td>52</td>
<td>63.0</td>
<td>52.5</td>
<td>15.0</td>
<td>3.3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 3 - Frequency Polygon of the scores made by Fourteen Boys and Twenty-two Girls during the final performance on the Stanford Achievement Test.
per cent below the mean, and 13.7 per cent of them scored within the mean class-interval. The mean score of 63.0 indicated a grade placement index of 6.7.

The "t" Ratio - Table 11 shows that the comparative measures for the two groups were as follows: the mean for the boys was 66.0 and for the girls it was 63.0; the standard error of the mean for the boys was 3.9 and for the girls it was 3.3; and the standard error of the difference between the two means was 26.1. The "t" of 0.111 was not significant for it was less than 2.58 at the .01 level of confidence. Therefore, the difference in final achievement between the group of boys and girls on the Stanford Achievement Test, Form K was not statistically significant.

Correlations on the Paired Variables of Intelligence and Social Studies for the Boys' Group. -- The "r" for the paired variables of Intelligence and the Initial Test performance on achievement in Social Studies indicated an "r" of .554, a standard error of "r" of .19 with a "t" index of 2.33, which was not significant at the one per cent level of confidence as evidenced in Table 12.

The "r" for the paired variables of Intelligence and Final Test performance on achievement in Social Studies indicated a "r" of .287, a standard error of the "r" of .27 with a "t" index of .033, which was not significant at the one per cent level of confidence.

The "r" for the paired variables of Initial Achievement and Final Achievement in Social Studies indicated an "r" of .761, a standard error of the "r" of .12 with a "t" index of 4.05, which was significant at the one per cent level of confidence.
<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>r</th>
<th>S. E.</th>
<th>Obtained &quot;t&quot;</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligence - Initial Achievement</td>
<td>14</td>
<td>.554</td>
<td>.19</td>
<td>2.33</td>
<td>Insignificant</td>
</tr>
<tr>
<td>Intelligence - Final Achievement</td>
<td>14</td>
<td>.287</td>
<td>.27</td>
<td>.033</td>
<td>Insignificant</td>
</tr>
<tr>
<td>Initial Achievement - Final</td>
<td></td>
<td></td>
<td></td>
<td>4.05</td>
<td>Significant</td>
</tr>
</tbody>
</table>

* "t" required for Significance at .01 level of confidence is 3.055 (with 12 degrees of freedom).
Correlations on the Paired Variables of Intelligence and Social Studies for the Girls' Group.— Table 13 shows the following statistical data: the "r" for the paired variables of Intelligence and the Initial Test performance on achievement in Social Studies indicated an "r" of .174, a standard error of "r" of .21 with a "t" index of .783, which was not significant at the one per cent level of confidence.

The "r" for the paired variables of Intelligence and Final Test performance on achievement in Social Studies indicated a "r" of .539, a standard error of the "r" of .15 with a "t" index of 2.85, which was significant at the one per cent level of confidence.

The "r" for the paired variables of Initial Achievement and Final Achievement in Social Studies indicated an "r" of .138, a standard error of the "r" of .13 with a "t" index of .621, which was not significant at the one per cent level of confidence.

Correlations on the Paired Variables of Intelligence and Social Studies Achievement for the Total Group.— Table 14, page 50, reveals the following statistical data: the "r" for the paired variables of Intelligence and the Initial Test performance on achievement in Social Studies for the total group indicated an "r" of .728, a standard error of "r" of .07 with a "t" index of 2.11, which was not significant at the one per cent level of confidence.

The "r" for the paired variables of Intelligence and Final Test performance on achievement in Social Studies indicated an "r" of .22, a standard error of the "r" of .16 with a "t" index of 1.18, which was not significant at the one per cent level of confidence.
TABLE 13

COEFFICIENT OF CORRELATION AND RELATED STATISTICS BASED ON THE SCORES OBTAINED BY TWENTY-TWO GIRLS ON THE STANFORD ACHIEVEMENT TEST FORMS J AND K AND THE KUHLMANN-ANDERSON INTELLIGENCE TEST G

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>&quot;r&quot;</th>
<th>SE</th>
<th>Obtained &quot;t&quot;</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligence - Initial Achieve</td>
<td>22</td>
<td>.174</td>
<td>.21</td>
<td>.783</td>
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</tr>
<tr>
<td>ment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intelligence - Final Achieve</td>
<td>22</td>
<td>.539</td>
<td>.15</td>
<td>2.85</td>
<td>Significant</td>
</tr>
<tr>
<td>ment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Achievement - Final Achieve</td>
<td>22</td>
<td>.138</td>
<td>.13</td>
<td>.621</td>
<td>Insignificant</td>
</tr>
</tbody>
</table>

"t" required for Significance at .01 level of confidence is 2.845 (with 20 degrees of freedom).
<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>&quot;t&quot;</th>
<th>SE_t</th>
<th>Obtained &quot;t&quot;</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligence - Initial</td>
<td>36</td>
<td>.728</td>
<td>.07</td>
<td>2.11</td>
<td>Significant</td>
</tr>
<tr>
<td>Achievement</td>
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</tr>
<tr>
<td>Intelligence - Final</td>
<td>36</td>
<td>.200</td>
<td>.16</td>
<td>1.18</td>
<td>Insignificant</td>
</tr>
<tr>
<td>Achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Achievement - Final</td>
<td>36</td>
<td>.477</td>
<td>.13</td>
<td>3.20</td>
<td>Significant</td>
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<tr>
<td>Achievement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

"t" required for Significance at .01 level of confidence is 2.724.
The "r" for the paired variables of Initial Achievement and final test achievement on achievement in Social Studies indicated an "r" of .477, a standard error of the "r" of .13 with a "t" index of 3.20, which was significant at the one per cent level of confidence.

Significant Difference between Correlations for the Paired Variables of Intelligence and Achievement.- For the paired variables of Intelligence and Initial Achievement in Social Studies the difference between the "r's" was as follows: for the boys the "r" of .553 indicated a Z score equivalent of .62; for the girls the "r" of .174 indicated a Z score equivalent of .17. The standard error of the difference between the "Z's" was 1.19. The "t" for these data was 1.46, which was not significant since the value of "t" must equal to 2.724 with 34 degrees of freedom at the one per cent level of confidence.

Table 15, page 52, shows further that the paired variables of Intelligence and Final Achievement in Social Studies the difference between the "r's" was as follows: for the boys the "r" of .287 indicated a Z score equivalent of .28; for the girls the "r" of .539 indicated a Z score equivalent of .15. The standard error of the difference between the "Z's" was .343. The "t" for these data was .011. Thus, the difference between the correlations for the boys and girls group was not significant since the value of "t" must equal to 2.724 with 34 degrees of freedom at the one per cent level of confidence.

Table 15 also shows that the paired variables of Initial Achievement and Final Achievement in Social Studies the difference between the "r's" was as follows: for the boys the "r" of .761 indicated a Z score equivalent of 1.00. The standard error of the difference between the
### TABLE 15

**SIGNIFICANT DIFFERENCE BETWEEN CORRELATIONS FOR THE PAIRED VARIABLES OF INTELLIGENCE AND ACHIEVEMENT**

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>&quot;r&quot;</th>
<th>Z Score Equivalent</th>
<th>$Z_1 - Z_2$</th>
<th>S.E.D$_Z$</th>
<th>&quot;t&quot;*</th>
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<tbody>
<tr>
<td><strong>Intelligence - Initial Achievement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>14</td>
<td>.553</td>
<td>.62</td>
<td>.45</td>
<td>1.19</td>
<td>1.46</td>
</tr>
<tr>
<td>Girls</td>
<td>22</td>
<td>.174</td>
<td>.17</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intelligence - Final Achievement</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Boys</td>
<td>14</td>
<td>.287</td>
<td>.28</td>
<td>.13</td>
<td>.343</td>
<td>.011</td>
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<tr>
<td>Girls</td>
<td>22</td>
<td>.539</td>
<td>.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Initial - Final Achievement</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>14</td>
<td>.761</td>
<td>1.00</td>
<td>.86</td>
<td>2.27</td>
<td>2.84</td>
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<tr>
<td>Girls</td>
<td>22</td>
<td>.138</td>
<td>.14</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*The value of "t" must equal to 2.724 to be significant with 34 degrees of freedom.*
Z's was 2.27. The "t" for these data was 2.84. Thus, the difference between the correlations for the boys and girls group was significant at the .01 level of confidence since the value of "t" must equal to 2.724 to be significant with 34 degrees of freedom.
CHAPTER III

SUMMARY AND CONCLUSIONS

 Introductory Statement. -- The problem involved in this study was to analyze and evaluate the effectiveness of television as a resource medium and as an aid in teaching and enriching a Seventh-Grade Social Studies Class at Georgia Avenue School, Atlanta, Georgia.

For several years it has become increasingly evident that there is widespread concern over the country about the challenging problems confronting education today. Many new ideas and experiments have been implemented in an effort to cope with the most outstanding of these problems, namely: an increased enrollment of pupils, fewer teachers and the increasing complexity and quality of learning necessary for everyone.

One of the devices used by many educational systems has involved the use of television as an instructional aid and as a different type of curricular pattern.

Notwithstanding the fact that television has great potential as a means of communication, it presents the profession with a new set of questions relating to teaching and learning. It is with this point-of-view in mind that this research has been concerned with the effectiveness of television as an aid and a resource in teaching Social Studies in a Seventh-Grade Class.

 Purpose of the Study. -- The major purpose of this study was to determine to what extent student performance under normal
conditions, utilizing television as a resource, is as effective or more effective than teaching without the use of television.

The Specific Purposes were:

1. To evaluate pupil performance resulting from the use of television as a teaching aid.

2. To diagnose certain strengths and weaknesses noted in the use of the television medium as a resource.

3. To ascertain the effectiveness of television in opinions of pupils, parents, television and non-television teachers as obtained from a questionnaire based on selected criteria for TV Education.

4. To determine the differences, if any, in the achievement in Social Studies as measured by Social Studies Achievement Tests, with groups of students utilizing the television programs, and with the same groups of students without the utilization of the television programs, this comparison to be done using the Stanford Achievement Test, Intermediate Battery Form K and Advanced Battery Form J.

5. To ascertain the correlations, if any, between intelligence and initial achievement of the groups of social studies students with the use of television and without the aid of television.

6. To ascertain the correlations, if any, in intelligence and final achievement of the groups of social studies students utilizing the television programs and without the television programs.

7. To ascertain the correlations, if any, in initial achievement and final achievement of the groups of social studies students utilizing the television programs and without the use of the television programs.

8. To determine the significant difference in correlations, if any, on paired variables between the groups of seventh-grade pupils.

9. To determine implications and formulate recommendations on the basis of findings and conclusions as gathered from collected statistical data.

Definition of Terms.— The terms used throughout this research are defined as follows:
1. "Educational Television" - all programs of an educational or cultural nature that are broadcast over Educational Television Stations.

2. "Conventional Classroom" - a classroom situation having thirty-six seventh-grade students with varying abilities, interests, and needs.

3. "Evaluation" - the process of:
   a) stating values and purposes in terms of individuals and an ever changing society
   b) securing evidences that these values and purposes are being realized.
   c) interpreting the evidences of pupil achievement and teaching skill

4. "Resources" - any teaching aid designed to facilitate learning in any type of teaching-learning situation.

Locale of Study. -- This study was conducted at a community school in the Atlanta Public School System; Georgia Avenue School, Atlanta, Georgia. The data for this study was compiled during 1960 and 1961 with information covering the school year 1959-1960.

Method of Research. -- The Descriptive-Survey Method of research, utilizing standardized tests and questionnaires, was used to collect the data necessary for the study.

Subjects. -- The subjects involved in this study were as follows:

1. Thirty-six students constituted the primary subjects of the research.

2. The television teachers of the Atlanta Television Station, WETV, non-television teachers of Georgia Avenue School constituted the secondary subjects.

3. The parents of the students enrolled in the seventh-grade Social Studies Class.

Instruments. -- The instruments used for gathering the data are briefly described below. Copies of these instruments are shown in
the Appendixes.

1. Three specifically designed questionnaires, one for the students, one for the teachers, and one for their parents were used to collect data pertaining to this research, designed to ascertain the resourcefulness of the television medium according to stated criteria.

2. The Kuhlmann-Anderson Intelligence Test, Form G were used to ascertain the intelligence-quotient of the students.

3. The Stanford Achievement Tests, Forms J and K, were used to ascertain the social studies achievement of the students.

The data pertinent to the captions indicated will be summarized in this subsequent order below:

1. Review of the Related Literature pertinent to this study
2. Data concerning the responses of pupils to the questions
3. Data concerning the responses of teachers to the questions
4. Data concerning the responses of the parents to the questions
5. Data concerning the performance on the intelligence test
6. Data concerning the performance on the initial achievement test
7. Data concerning the performance on the final achievement test
8. Data concerning correlations for Boys' Group
9. Data concerning correlations for Girls' Group
10. Data concerning the comparisons of correlations

Summary of Related Literature.—The literature related to this research was presented under the captions namely: the potentiality of television as an educational medium, the intangible values that television does not offer, and television as an audio-visual aid. The summation of the literature pertinent to this investigation is given as follows:
What will be the future role of television in schools, colleges and universities is not fully known. It is evident that it has an important place in helping teachers and other educators meet some of the heavy demands made on them. The principal use of television will be to distribute and extend high-quality instruction to students in those courses and areas where there are large numbers of students or by broadcast to large, widespread audiences. It is hoped that in the near future the different kinds of operants of teaching and learning may be accurately defined, and a determination made of what teaching functions television can best serve and what functions should be served by other means. When TV's characteristics interfere, auxiliary means of teaching will be developed. Many special uses will be found for television, such as the recording of instruction, the distribution and projection of films, the pacing and guidance of science laboratories, and the magnifying and remoting of information rather than the movement of people.

It appears generally agreed from a survey of the literature that even though quite a few principles relevant to television are known, there is not enough known concerning all of the relevant principles of learning. It goes without saying that much more experience and experimenting is needed to put scientific principles into practical results.

A pupil's learning consists of more than just the amount of subject-matter he can absorb. It includes a variety of learning experiences. The pupil engages in physical and social activities.
He develops values, appreciations, and attitudes. In these areas of learning television plays quite a subordinate role to the teacher.

Television as an audio-visual aid gives the viewer an immediate and complete reproduction of what is happening. Television as a medium of communication gives schools an opportunity to do some desirable things which otherwise are not possible or feasible or which can be handled more easily and effectively than is usually the case.

**Summary of Findings.**—The findings which are the results of the analysis are summarized in the paragraphs that follow.

**Pupils' Opinions on the Merits of Televised Instruction**

Tables 1 and 2

The opinions of the seventh-grade pupils relative to the merits of televised instruction shows thirty pupils responding in Table 1 and thirty-five pupils responding in Table 2. Eighty-six per cent indicated in Table 1, no difficulty in viewing the telecasts. As to subject matter interest, 36.67 per cent answered favorably, while 63.33 per cent gave unfavorable comments. The same percentages held true in measuring the effectiveness of the television lessons, or span of televised subject matter. Yet, the retention of unit material showed only 33.33 per cent answered favorably, while 66.67 per cent answered unfavorably. Most of the students realized no great difficulty in being able to watch the telecast. The subject-matter of the television lessons provided no stimulus for the learners in the opinions of two-thirds of this seventh-grade.
Forty-five and seven-tenths per cent could better organize lessons, 28.5 per cent as good as formerly and 25.8 per cent could not organize lessons as well as before. Indications of the ability to take notes showed 57.1 per cent with more ability in this area, 25.8 per cent with about the same ability and 17.1 per cent not as good in this capacity as these pupils believed they had before using televised instruction. Need for directions and instructions in carrying out classroom activities and during follow-up periods, 51.4 per cent needed less help, 17.1 per cent had more need for directions, 31.5 per cent had about the same need. More outside reading was accomplished by 68.6 per cent, 17.1 per cent read less, and 14.3 per cent read about the same with televised instruction as compared to amount of reading accomplished without televised instruction.

**Teachers Responses Toward Areas of Concern Associated with Televised Instruction**

Tables 3 and 4

Teacher responses included both television and non-television teachers. Fifty per cent of the non-television teachers thought television lessons seemed dull and uninteresting, 70 per cent of the television teachers disagreed on this point. One hundred per cent of the non-television teachers did not feel that the role of the classroom teacher was subordinate to that of the studio teacher. Eighty per cent of the non-television teachers and 50 per cent of the television teachers stated that the lack of repetition which is inherent to television was not a deterrent to learning. Sixty per cent of the non-television teachers and 70 per cent of the television
teachers stated that the conventional classroom teacher becomes a better teacher as a member of the television team. As to strengths of television instruction: 15 per cent indicated it prevented waste of time. Fifteen per cent thought television was resourceful to classroom teacher and aided the teacher in planning for the subject. Listed as some of the weaknesses of television; 5 per cent felt that television lessons progressed at a too rapid pace. Five per cent thought there was not enough activity in using the medium. Inability of pupils to ask questions or engage in immediate discussion about the lesson was said to be a weakness of 20 per cent of the television and non-television teachers.

Opinion of Parents as to Merits of Television Instruction

Table 5

Of the twenty parents responding, 50 per cent felt that some benefit had been gained and improvement shown from the use of the television series in social studies, 10 per cent did not feel that the pupils had benefited. As to pupil progress, 15 per cent thought this to be about the same for both instructional methods. Twenty-five per cent of the parents did not feel adequately informed enough to give an honest opinion on the relative merits of the two methods of instruction.

Results of the Kuhlmann-Anderson Intelligence Test

Tables 6 and 7

For the fourteen boys the scores ranged from a low of 70 to a high of 119, with a mean of 93.40, a median of 93, a standard deviation of 10.10, and a standard error of the mean of 2.8. Twenty
one per cent of the boys scored above the mean, 57.05 per cent below the mean, and 21.5 per cent of them scored within the mean class-interval. The mean score of 93.40 indicated a grade-placement index of 6.7. For the twenty-two girls the scores ranged from a low of 60 to a high of 109, with a mean of 87.70, a median of 86.30, a standard deviation of 12.35, and a standard error of the mean of 2.7. Fifty and one-tenth per cent of the girls scored above the mean, 31.7 per cent below the mean, and 18.2 per cent of them scored within the mean class-interval. The mean score of 87.70 indicated a grade-placement index of 5.9.

Results of Initial Performance on the Stanford Achievement Test

Tables 8 and 9

For the fourteen boys the scores ranged from a low of 40 to a high of 99, with a mean of 64.5, a median of 65.4, a standard deviation of 12.5, and a standard error of the mean of 3.5. Sixty-four and forty-five per cent of the boys scored above the mean, 21.35 per cent below the mean, and 28.7 per cent within the mean class-interval. The mean score of 64.5 indicated a grade-placement index of 7.0. For the twenty-two girls the scores ranged from a low of 45 to a high of 99, with a mean of 52.0, a median of 48.65, a standard deviation of 13.0, and a standard error of the mean of 2.8. Fifty and five-tenths per cent of the girls scored above the mean, 16.7 per cent of the girls scored below the mean, and 32.8 per cent of them scored within the mean class-interval. The mean score of 52.0 indicated a grade-placement index of 5.3.
Results of Final Performance on the Stanford Achievement Test  
Tables 10 and 11

For the fourteen boys the scores ranged from a low of 45 to a high of 89, with a mean of 66.0, a median of 66.0, a standard deviation of 14.05, and a standard error of the mean of 3.9. Sixty-four and forty-five per cent of the boys scored above the mean, 21.35 per cent below the mean, and 14.2 per cent of them scored within the mean class-interval. The mean score of 66.0 indicated a grade placement index of 7.1. For the twenty-two girls the scores ranged from a low of 40 to a high of 99, with a mean of 63.0, a median of 52.5, a standard deviation of 15.0, and a standard error of the mean of 3.3. Thirty-one and six-tenths per cent of the girls scored above the mean, 54.7 per cent below the mean, and 13.7 per cent of them scored within the mean class-interval. The mean score of 63.0 indicated a grade-placement of 6.7.

Correlations for the Boys' Group

Table 12

The "r" for the paired variables of Intelligence and Initial Test performance on achievement was .554, a standard error of "r" of .19 with a "t" index of 2.33, which was not significant at the .01 level of confidence. The "r" for the paired variables of Intelligence and Final Test performance indicated a "r" of .287, a standard error of the "r" of .27 with a "t" index of .033, which was not significant at the .01 level of confidence. The "r" for the paired variables of Initial Achievement and Final Achievement indicated an "r" of .761,
a standard error of "r" of .12 with a "t" index of 4.05, which was
significant at the .01 level of confidence.

Correlations for the Girls' Group

Table 13

The "r" for the paired variables of Intelligence and the Initial
Test performance on achievement indicated an "r" of .174, a standard
error of "r" of .21 with a "t" index of .783, which was not significant
at the .01 level of confidence. The "r" for the paired variables of
Intelligence and Final Test performance on achievement indicated an
"r" of .539, a standard error of the "r" of .15 with a "t" index of
2.85, which was significant at the .01 level of confidence. The "r"
for the paired variables of Initial Achievement and Final Achievement
indicated an "r" of .138, a standard error of the "r" of .13 with a
"t" index of .621, which was not significant at the .01 level of
confidence.

Correlations for the Total Group

Table 14

The "r" for the paired variables of Intelligence and Initial Test
performance on achievement for the total group indicated an "r" of .728,
a standard error of "r" of .07 with a "t" index of 2.11, which was
significant at the .01 level of confidence. The "r" for the paired
variables of Intelligence and Final Test performance on achievement in
Social Studies indicated an "r" of .22, a standard error of the "r" of
.16 with a "t" index of 1.18, which was not significant at the .01 level
of confidence. The "r" for the paired variables of Initial Achievement
and Final Test achievement indicated an "r" of .477, a standard error
of the "r" of .13 with a "t" index of 3.20, which was significant at the .01 level of confidence.

**Significant Differences between Correlations**

**Table 15**

For the paired variables of Intelligence and Initial Achievement for the boys' "r" of .553 indicated a Z score equivalent of .62; for the girls the "r" of .174 indicated a Z score equivalent of .17. The "t" for these data was 1.46, which was not significant since the value of "t" must equal to 2.724 with 34 degrees of freedom at the .01 level of confidence. For the paired variables of Intelligence and Final Achievement the difference between the "r's" was as follows: for the boys the "r" of .287 indicated a Z score equivalent of .15. The standard error of the difference between the correlations for the boys and girls group was not significant since the value of "t" must equal to 2.724 with 34 degrees of freedom at the .01 level of confidence. For the paired variables of Initial Achievement and Final Achievement the difference between the "r's" was as follows: for the boys the "r" of .761 indicated a Z score equivalent of 1.00. The standard error of the difference between the Z's was 2.27. The "t" for these data was 2.84. The difference between the correlations for the boys and girls group was significant at the .01 level of confidence since the value of "t" must equal to 2.724 to be significant with 34 degrees of freedom.

**Conclusions.**—On the basis of the findings derived from the data in this study the following conclusions seem warranted:

1. The pupils experienced no difficulty in viewing and following televised lesson presentations.
2. The students, for groups as a whole did not find that televised lessons made the teaching of subject-matter any more interesting.

3. The pupils showed increased ability to take notes and to organize learning experiences because of televised instructional procedures.

4. The pupils developed greater competence for independently carrying-out the activities (assigned or unassigned) during and after experiences in televised instruction.

5. The students did not look upon the studio-teacher as being superior or different from the regular classroom teacher.

6. The lack of repetition in televised lessons was not found to be a deterrent to the effective learning of the pupils.

7. Procedures utilizing television instruction do not provide an optimum opportunity for frequent and effective pupil participation.

8. The regular classroom teacher developed into a better teacher as a result of participating as a member of the television team in the preparation of instructional materials.

9. The auditoriums used for television instruction did not lend themselves to effective teaching; therefore regular classrooms properly equipped would have served instructional purposes far better.

10. The timed and structured patterns of televised instruction increased the amount of subject-matter covered as well as the minimizing of time wasted in lesson presentations.

11. Parents were found to be evenly divided on the merits of televised instruction as compared to conventional instruction.

12. The boys manifested a higher level of mental development than did the girls.

13. The boys were found at the start of the study to be achieving at a higher level than the girls.

14. The boys, on the final testing, indicated a greater measure of school achievement than did the girls.

15. There was no significant relationship or correlation between the variables of intelligence, initial and final achievement for the group of boys.
16. There was a significant relationship or correlation between the indices of initial and final achievement for the group of boys.

17. There was no significant correlation on the variables of intelligence and initial achievement for the group of girls.

18. There was significant correlation between the variables of intelligence and final achievement for the girls.

19. There was significant correlation between the variables of initial achievement and final achievement.

20. For the total group, that is, for boys and girls, there was a significant correlation on the variables of intelligence and initial achievement.

21. For the total group, there was no significant correlation for the variables of intelligence and final achievement.

22. There was a significant relationship for the total group on the variables of initial and final achievement.

**Implications.**—The data presented in this thesis seem to justify the following implications:

1. That through the use of televised instruction some skills are achieved.

2. That televised instruction requires the student to accept more responsibility for his own learning than with conventional methods of instruction.

3. That the television method capitalizes on the "team" approach to teaching.

4. That the classroom teacher plays an important role toward making the televised subject-matter more interesting.

5. That contrary to popular belief, it may be assumed from the data that there is some relationship between intelligence and achievement in utilizing television instruction.

6. That the data suggest that also in the televised learning situation the underlying factors may alter and affect the achievement of groups with comparable intelligence.

7. That adequate library resources should be made available to classes utilizing televised instruction.
Recommendations.— The following recommendations are made in terms of their relevancy to the findings of this research.

1. That in the television instructional and learning situation, full and adequate library resources are mandatory, if the fullest measure of effective learning is to take place.

2. Classrooms to be used in televised teaching and learning situations should be properly designed with reference to the function and methodology which inheres in television instructional programs.

3. Classroom teachers of television classes should be oriented towards, made more knowledgeable of, and develop competence in the methods and techniques of televised instruction.

4. Classroom teachers and studio-teachers should jointly participate in the overall planning and development of television materials and programs.

5. More evaluative studies and experimentations should be made to determine the effectiveness of the various techniques used in televised instruction, together with ascertaining approaches to the refinement and improvement of televised instructional procedures and programs.
BIBLIOGRAPHY

Books


Articles


Fletcher, Leon. "Teaching on Television," The School Executive, XIV, No. 4(December, 1954), 47.


Teaching by Discussion Method, An Experiment with Television Discussion, Small Group Discussion, Large Group Discussion, and the Lecture Method. Fund for the Advancement of Education (State University of Iowa, 1958), pp. 4-31.

Reports


Unpublished Material


APPENDIX
APPENDIX A

PUPIL QUESTIONNAIRE
PART I

Directions: The following have been listed as assets or liabilities of television teaching. Place a circle around the "A" if you agree with the statement, but place a circle around the "D" if you disagree with the statement.

1. TV gives each child a "front row seat." A D

2. It is impossible in the usual situation for every child to see television well. A D

3. TV, through more varied presentation of subject matter, stimulates more than the usual classroom procedure. A D

4. TV is so limited by what it can do that televised lessons prove dull and uninteresting. A D

5. TV gives the classroom teacher more time and stimulus with which to develop the individual student. A D

6. TV reaches only the average child and does not stimulate the slow learner or bright student. A D

7. TV develops a beneficial teamwork between the studio teacher and classroom teacher. A D

8. The work of the classroom teacher is so subordinated to that of the studio teacher that she becomes a mere monitor. A D

9. TV prevents the necessary repetition for learning to take place in spite of proper emphasis. A D

10. A good television presentation stimulates each pupil to work at his own level. A D

11. The day after day pace of television lessons prevents much wasted time. A D

12. The day after day pace of television lessons form a serious disadvantage to the classroom teacher's use of the student's stimulated interest. A D

13. Helpful discussion is prevented by the TV class to an unhealthy degree. A D

14. As a member of the television team the classroom teacher becomes a better teacher. A D

15. Parents have been more involved in resulting learning activities through the use of television. A D
Part I

Directions: Please place a plus sign (+) on the blank line when you agree with the statement, but place a minus sign (-) on the line when you disagree with the statement. Do this for each of the following.

1. Cannot always see television. ______
2. Television lessons are dull and uninteresting. ______
3. Television covers more information and is therefore more exciting than regular classroom work. ______
4. The lessons change too often to learn anything well when using television. ______
5. No one has to keep up with anyone else with the use of television. ______
6. There are more activities, or things to do such as; making scrapbooks, collecting, building models, painting, drawing, etc. with television than with regular classroom procedures. ______
7. There seems to be no wasted time when lessons are geared to the pace of television. ______
8. The television teacher teaches the lessons better than the classroom teacher. ______

Part II

Directions: In each of the following statements, you are asked to make ONE CHOICE ONLY - the choice which tells best how you feel about the statement. Place a check (x) on the blank which tells how you feel.

1. Class order is: better______, as good______, not as good______
2. The ability to organize lessons is: better______, as good______, not as good______
3. Outside reading: more has been done______, not as much has been done______, about the same has been done______
4. The ability to take notes is: better______, as good______, not as good______
5. The need for directions and instructions is: less______, more______
6. Have learned: more______, less______, about the same______
7. Additional work after school: more has been done______, less has been done______, about the same______
8. An awareness of the responsibility for learning: developed more______, developed less______, about the same______.

9. Parents interest in school work has been shown: more______, less______, about the same______.

10. Willingness to do assignments has been: more______, less______, about the same______.

11. Reports, field trips, use of references have done: more frequent______, less frequent______, about the same______.
PART II

1. In the area of social studies, what do you consider to be the GREATEST strength of television teaching? (Specify in the blank space below)

2. In the area of social studies, what do you consider to be the GREATEST weakness of television teaching? (Specify in the blank space below.)
APPENDIX C

PARENT'S QUESTIONNAIRE
Directions: Please indicate your opinion in regard to the following statements, by checking the statement that tells best how you feel.

DO NOT CHECK BUT ONE STATEMENT.

1. I think that my child has benefited and/or shown some improvement in his (her) school work as a result of using television in social studies. . . . . . . . . . . ( )

2. I do not think that my child has benefited and/or shown any improvement in his (her) school work as a result of using television in social studies. . . . . . . . . ( )

3. I think that my child's progress has been about the same in his (her) social studies. . . . . . . . . . . ( )

4. I do not know enough about what my child has been taught and is now being taught in social studies to give an honest opinion. . . . . . . . . . . . . . . . ( )
VITA

Sherard, Margaret Adkins

Education: A. B., Clark College (Social Science and Business Administration), 1946; Plan to complete requirements for the degree of Masters of Arts in Education, August, 1961. Thesis topic: An Analytical and Evaluative Study of the Effectiveness of Television as a Resource in a Seventh-Grade Social Studies Class.


Fields of Concentration:

Graduate: Elementary Education

Personal Information:

Married, mother of two daughters, ages 13 years and 2 years. Member, Gate City Teachers Association, National Education Association, Zeta Phi Beta Sorority. Husband has B. S. degree (Elementary Education), Morris Brown College; instructor, Beacon Elementary School, Decatur, Georgia.

### Kuhlmann-Anderson Test of Sixth Edition

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Copyright 1927, 1940, and 1942 F. KUHLMANN and ROSE G. ANDERSON.
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*In these spaces write zero scores and M.A. scores below those listed.

**In these spaces write M.A. scores above those listed.

To find the Median M.A. take average of the 5th and 6th highest scores.

---

**Profile of Trials Passed**

![Profile of Trials Passed Diagram]

Test 25 26 27 28 29 30 31 32 33 34

**Median M.A.**
EXAMPLES:

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<thead>
<tr>
<th>Class</th>
<th>Examples</th>
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<tbody>
<tr>
<td>table</td>
<td>top, paint, legs, cloth, dishes</td>
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<tr>
<td>tree</td>
<td>shade, nuts, roots, leaves, branches</td>
</tr>
<tr>
<td>book</td>
<td>story, pages, shelf, picture, printing</td>
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<tr>
<td>squirrel</td>
<td>nuts, fur, tail, cage, tree</td>
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<tr>
<td>cat</td>
<td>hair, owner, mouse, claws, milk</td>
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<tr>
<td>chair</td>
<td>arms, legs, rocker, seat, comfort</td>
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<tr>
<td>house</td>
<td>sidewalk, window, bed, furnace, door</td>
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<tr>
<td>boy</td>
<td>shoes, legs, suit, head, knife</td>
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<tr>
<td>room</td>
<td>furniture, lamp, people, walls, ceiling</td>
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<tr>
<td>concert</td>
<td>encore, performer, violin, singing, applause, music</td>
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<tr>
<td>army</td>
<td>officers, tents, fighting, soldiers, ships, deaths</td>
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<tr>
<td>banquet</td>
<td>music, wine, guests, dancing, food, laughter</td>
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<td>fire</td>
<td>alarm, flame, danger, heat, fireman, insurance</td>
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<td>blizzard</td>
<td>winds, death, thunder, danger, snow, wrecks</td>
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<td>trial</td>
<td>sentence, crime, defendant, judge, jury, guilt</td>
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<tr>
<td>contest</td>
<td>opponents, crowds, rowing, strength, rivalry, dislike</td>
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</table>

This is an example of a brainstorming exercise where different objects and their related attributes are listed to enhance vocabulary and comprehension.
EXAMPLES:

chair  book  couch  desk  box  letter

dog  cheese  dish  potato  table  bread

1. dirt  iron  force  silver  wool  wire
2. ship  waves  cart  road  wagon  bricks
3. store  banana  basket  apple  seed  plum
4. sea  rock  mountain  lake  storm  river
5. glass  hat  room  ribbon  basket  dress
6. robin  winter  horse  song  squirrel  fence
7. rain  wind  sky  steam  heat  water
8. brass  piano  violin  party  pleasure  flute
9. submarine  officer  duty  bomb  trench  gun
10. poetry  physics  physiology  beauty  chemistry  
    resonance
11. sermon  newspaper  manuscript  book  magazine  
    speech
12. house  cave  barn  hotel  store  castle
13. paper  crayon  pencil  blackboard  pen  ink
14. frog  feathers  fish  chicken  animal  duck
15. gold  ruby  stone  pearl  jewel  diamond

Test No. 26
EXAMPLES:

1. The third letter of the alphabet is . . . . . . . . . .  
2. The second letter before the sixth letter is . . . . . .  
3. The fifth letter of the alphabet is . . . . . . . . . .  
4. The second letter before the last letter is . . . . . .  
5. The third letter before M is . . . . . . . . . . . .  
6. The letter midway between H and N is . . . . . . . .  
7. The second letter after the fourth letter is . . . . . .  
8. The letter two letters to the right of the letter E is . . . .  
9. The first letter to the left of the tenth letter is . . . .  
10. The letters of the word the in the order in which they come in the alphabet are . . . . . . .  
11. The letters of the word boy in the order in which they come are . . . . . . . . .  
12. The word you get by putting the first letter between the two middle letters of the alphabet is . . . . . .  
13. The word you can make out of the fifth letters from the ends, using one of them twice is . . . . . .  
14. The word you get by putting the first and fifth letters between the two middle letters of the alphabet is . . . . . .
**EXAMPLES:**

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</table>

Test No. 28
EXAMPLES:

girl  come  ill  his

apple  shell  ripe  banana

1. sit  can  pie  big
2. ton  sing  boy  some
3. tell  some  me  can
4. why  bury  still  you
5. are  bat  out  tell
6. truth  happy  people  riches
7. mirth  beauty  business  ugly
8. trill  hurry  battle  leaves
9. tramp  lease  trial  found
10. across  bought  camel  truce
11. makes  story  tremble  asking
12. early  income  fashion  simply
13. anchor  sample  truth  ripple
14. beacon  giving  nation  humble
15. family  forgive  angel  bought

Test No. 29
EXAMPLES:

my not is book that
ran the boy the street down

1. apples trees on grow
2. play boys like marbles to
3. grow boys men to become up
4. is lesson girl her studying the
5. there days are the week in seven
6. children room of the out ran six
7. away winter for nuts store squirrels
8. Mary I runs as as fast
9. do go we Saturday school on not to
10. she youngest selected our the in girl room
11. thousand many a year cars makes Ford
12. true stories teacher about the a told them colonies
13. who her lost girl pencil the another bought
14. allowed upon skate to they never river were the
15. an embankment train leaped lost lives their and many people the
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EXAMPLES:

quarter nickel dollar dime penny
rod yard inch mile foot

1. gallon teacup bushel quart pint
2. one multitude few none many
3. clause syllable sentence letter word
4. infancy adolescence old-age childhood maturity
5. warm cold hot torrid frigid
6. president alderman governor mayor citizen
7. company regiment squad division army
8. colossal tiny small enormous large
9. inaudible distinct deafening faint loud
10. millennium eon century year decade
11. lieutenant corporal general colonel captain
12. frequently occasionally never usually always
13. square-rod section county acre state
14. good naughty wicked mischievous angelic
15. pennyweight pound ounce grain carat
XAMPLES:

What is the number which is 2 less than \( \frac{1}{3} \) of 9? 

What is the number which if added to 3 is \( \frac{1}{2} \) of 12?

1. What is the number which is 2 more than \( \frac{1}{2} \) of 10? 

2. What is the number which if multiplied by 2 is 3 times 6? 

3. What is the number \( \frac{1}{3} \) of which is \( \frac{1}{5} \) of 15? 

4. What is the number which if divided by 2 leaves 1 less than 5?

5. What is the number which if added to 8 makes 3 less than 15?

6. What is the number which if multiplied by 2 makes 3 more than 11?

7. What is the number which if multiplied by itself is \( \frac{1}{4} \) of 100?

8. What is the number \( \frac{1}{3} \) of which is \( \frac{5}{6} \) of 18?

9. What is the number which if subtracted from 17 leaves 4 more than \( \frac{2}{3} \) of 15?

10. What is the number which if added to 9 gives twice the product of 2 times \( \frac{1}{3} \) of 24?

11. What is the number which if multiplied by 2 and added to 5 is 1 and \( \frac{1}{2} \) times \( \frac{1}{2} \) of 12?

12. What is the number \( \frac{1}{6} \) of which added to 6 is 3 times \( \frac{1}{6} \) of 36?
Write one number after each one of these words:

**IF THE WORD CONTAINS**

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<th>A, E, and N, write 1 after it.</th>
<th>A and E, but not N, write 2 after it.</th>
<th>A and N, but not E, write 3 after it.</th>
<th>E and N, but not A, write 4 after it.</th>
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<tbody>
<tr>
<td>Treasure</td>
<td>Wrinkle</td>
<td>Mental</td>
<td>Fountain</td>
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<tr>
<td>Signature</td>
<td>Handle</td>
<td>Envelope</td>
<td>Special</td>
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**EXAMPLES:**

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<tr>
<th>Eaten 1</th>
<th>Nation 3</th>
<th>Elated 2</th>
<th>Plenty 4</th>
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</table>

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**IF THE WORD CONTAINS**

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<th>I, R, and E, write 1 after it.</th>
<th>I, but not R nor E, write 2 after it.</th>
<th>E, but not R nor I, write 3 after it.</th>
<th>I and E, but not R, write 4 after it.</th>
<th>I and R, but not E, write 5 after it.</th>
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<tr>
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<td>Whisper</td>
<td>Similar</td>
<td>Continent</td>
<td>Animal</td>
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<tr>
<td>Envelope</td>
<td>Simpleton</td>
<td>Picture</td>
<td>Writing</td>
<td>Satchel</td>
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**EXAMPLES:**

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<tr>
<th>Practice 1</th>
<th>Bicycle 4</th>
<th>Kinship 2</th>
<th>Wrist 5</th>
<th>Basket 3</th>
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Test No. 34
STANFORD
ACHIEVEMENT TEST

TRUMAN L. KELLEY • RICHARD MADDEN • ERIC F. GARDNER • LEWIS M. TERMAN • GILES M. RUCH

Name_______________________ Age_________ Grade_________ Boy or girl_________

Teacher______________________ School____________________ Date of birth________

Year _______ Month _______ Day _______

City or town__________________ State____________________ Data__________________

<table>
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Individual Profile Chart

GRADE SCORE SCALE

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GRADE EQUIVALENT SCALE

Grade equivalent values above 10.0 are extrapolated values and not to be interpreted as signifying the typical performance of pupils of the indicated grade placement. (See Directions for Administering.)

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TEST 1  Paragraph Meaning

DIRECTIONS: Read each paragraph below. Decide which one of the numbered words at the right is best for each blank, and then mark the answer space that is numbered the same as the word you have chosen. Study the sample below, and answer the other questions in the same way.

SAMPLE: I am shorter than my sister and taller than my brother. This morning we stood beside one another. I looked down at my _____ and _____ at my sister.

1-2 Roy is taller than Dick, but Dick is the older of the two boys. The shorter boy is ____. The younger boy is ____.

3-4 Long ago the Indians of the Great Plains killed and ate buffaloes. They made their tepees and clothing out of buffalo skins. Some of their cooking vessels were even made of raw-hide from the same animal. The horns and bones provided tools. Thus, the ____ was in many ways a useful ____ to these Indians.

5-6 Next to the air we breathe, water is the most necessary thing for life. Persons can live for several weeks without food. To go without ____ for more than a few days will cause even the strongest man to die. One can go without ____ much longer than he can go without water.

7-8-9 In olden days men made their own pens from the quills of feathers. It required considerable skill to cut a pen properly so as to suit one's individual taste in writing. Students were always on the lookout for good goose, swan, turkey, or other bird feathers. Goose quills made the most satisfactory ____ for general ____, but schoolmasters liked pens made from the ____ of swan feathers because they fitted best behind the ear.

10-11-12 Did you know that rayon, a material often used for dresses, is made from wood pulp? Treated with certain chemicals, the ____ turns into a sticky substance known as viscose. In a spinning machine the ____ is forced through tiny openings to form threads which can be woven into ____.

13-14-15 A homonym is a word having the same pronunciation as another word but differing from it in meaning, in origin, and often in spelling. A synonym is a word that has the same essential meaning as another word but differs from it in spelling and pronunciation. Antonyms are words that have opposite meanings. For example, fast and swift are _____. high and low are ____, and bare and bear are ____.

Go on to the next page.
16-17 In certain parts of the world it may soon be possible to heat homes by utilizing sunlight. The sun’s rays will heat water, which is then run through radiating pipes. Of course it wouldn’t work in Canada, where in winter the days are short and the sunlight is __16__, but it would be fine in the temperate regions, where the days are __17__.

18-19 Generally speaking, if the name of a town ends in _ia_, the name of a citizen of the town is formed by adding _n_; for example, _Philadelphian_. If the town’s name ends in _on_, the letters _ian_ are added. If it ends in _a_, not preceded by _i_, the rule is to add _n_. Thus, a man from Topeka would be called a __18__; one from Jackson, a __19__.

20-21-22 Climates often seem to contradict themselves. Who would think of biting cold at the equator? Nevertheless, one of the coldest temperatures on record was found at the top of a high __20__ mountain in Africa. Temperature extremes are so great in the Sahara Desert that travelers who have __21__ by day may be in danger of __22__ at night.

23-24-25-26 Mercury is a metal, just as are iron and copper, but it differs from other metals in that it is a liquid at ordinary temperatures. These other __23__ can be made liquid by heating to high temperatures. Mercury differs from water in the powerful mutual or self-attraction of its atoms. Thus mercury, though a true __24__ just as water is, will not wet a paper on which a drop of it is placed, because its atoms have a greater attraction for one another than they have for __25__. Mercury seems most similar to other metals when very __26__.

27-28-29 A dog may be trained to seat himself at his master’s left side when given the command “heel.” He may also be taught that “stay” means for him to remain motionless. In judging dogs for obedience, points are taken off if the dog remains __27__ when given the command “heel.” Points are also taken off if the dog __28__ his master when he has been given the order __29__.

30-31 The musical instrument which is most widely heard alone takes its name from two Italian words, _piano_ meaning soft, and _forte_ meaning loud. The musicians’ name, but not the most common name, for this instrument is __30__. Only an accomplished player can take full advantage of the range from __31__ of which this instrument is capable.

32 Archeologists know that men lived in parts of North America at least 10,000 years before Columbus. Some believe that they came from Asia by way of Alaska. Fossil remains of bison, caribou, and moose dating back 25,000 years have been found in Alaska. This may indicate that the first men who came to America were __32__.  

Go on to the next page.
The first Continental Congress, meeting in Philadelphia in 1774, adopted resolutions setting forth the rights, immunities, and liberties of the colonists, and it cited British violations of them. Instead of restoring American rights, British officers continued to violate them, and also American privileges, and immunities. Finally the violations resulted in the Revolutionary War.

Among the food plants that were unknown in Europe before the discovery of America were cocoa, vanilla, potatoes, and corn. The last was the basis of the diet of all the more advanced peoples of the New World. In the Old World, the potatoes brought from America have taken an important place in the diet of the common people. In many Latin American countries the people still subsist largely upon potatoes. In Germany, Ireland, and some other European countries, the people depend greatly upon potatoes.

Attainment commonly refers to the higher intellectual acquirements; accomplishment, to the acquired graces of social custom. Thus, of one man it is said that his scientific acquirements were beyond those of his associates and dancing was one of his best accomplishments.

The design and operation of modern highways offer many parallels with the human body and its efficient functioning. Let us note some similarities. The outflow of blood in the arteries and the inflow in the veins may be compared to the breathing rhythm may be compared to the conscious control of human action by the brain and nervous system may be compared to the conscious control of human action by the brain and nervous system.

Until the 17th century Europeans firmly believed in the existence of the unicorn, a horselike animal with a long horn in its forehead. Its legendary elusiveness and the magical powers attributed to its horn, the alicorn, made these alicorns worth fifteen times their weight in gold. The alicorn was supposed to be particularly potent in counteracting the effects of poison. Unscrupulous merchants sold various objects "made from alicorn." One product widely sold was goblets. These merchants made big profits from the superstitious beliefs of even the richest people.
TEST 2  Word Meaning

DIRECTIONS: In each exercise decide which of the four numbered words will complete the sentence best. Look at the number of this word. Mark the answer space at the right that is numbered the same as the word you have chosen. Study the samples.

SAMPLES:

31 The day that comes after Friday is — 1 Monday 2 Tuesday 3 Saturday 4 Sunday

52 To draw on a blackboard, use a piece of — 5 pencil 6 straw 7 eraser 8 chalk

1 A breeze is a — 1 sea 2 bird 3 ship 4 wind

2 A shelter gives — 5 protection 6 warmth 7 food 8 hope

3 Difficult means — 1 hard 2 heavy 3 rapid 4 good

4 A vessel is a — 5 bell 6 basket 7 boat 8 lake

5 A beast that can’t get away from an attack in any direction is —
   1 trampled 2 cornered 3 executed 4 smuggled

6 If a person seeks a job, he must — 5 refuse 6 apply 7 demand 8 protest

7 One who tries to get ahead has — 1 temper 2 authority 3 ambition 4 kindness

8 People who watch tennis matches are —
   5 specters 6 spectacular 7 spectators 8 speculators

9 The plan of a speech or a story is —
   1 a commission 2 an institution 3 a principle 4 an outline

10 A person who is careful about the way he dresses is —
   5 singular 6 unique 7 indifferent 8 particular

11 Breaking up soil to help things grow is called —
   1 harvesting 2 sowing 3 cultivating 4 reaping

12 An idea is often called a — 5 trifle 6 notion 7 remark 8 yarn

13 A watch that tells the right time to the second is —
   1 reasonable 2 accurate 3 trusting 4 sincere

14 A train that is timed to meet another train is a —
   5 circumstance 6 condition 7 connection 8 convention

15 In a scientific laboratory we use apparatus; similarly, in the home we use —
   1 appliances 2 science 3 religion 4 management

16 If her lips were held in a tight little line, they were —
   5 conceited 6 compressed 7 entreating 8 puttered

17 If you buy a box that contains a mixture of several kinds of nuts, they are —
   1 sorted 2 sordid 3 assaulted 4 assorted

18 To expect something is to — 5 waste it 6 anticipate it 7 survey it 8 pursue it

19 A speed of forty miles an hour in an automobile on an open highway is —
   1 extreme 2 exceptional 3 perilous 4 moderate

20 An advertising campaign is often made successful by an appealing —
   5 quota 6 crucible 7 slogan 8 status

21 If there is only one house on a lonely hill, it is —
   1 resolute 2 insolent 3 solemn 4 isolated

22 Whenever you stop what you are doing, you —
   5 decrease it 6 deposit it 7 condense it 8 cease it

Go on to the next page.
23. People who plot against someone else are —
   1 craftsmen  2 draftsmen  3 conspirators  4 reactionaries

24. The number of persons an auto will seat is the number it will —
   5 support  6 service  7 feature  8 accommodate

25. A person being tried for a crime is —
   1 guilty  2 convicted  3 accused  4 innocent

26. Museum exhibits frequently feature —
   5 traditions  6 dialects  7 fantasies  8 relics

27. The aims of a club are its —
   1 preparations  2 purposes  3 attendance  4 contributions

28. The mayor of a town is —
   5 a delegate  6 an official  7 a veteran  8 a congressman

29. The skilled habits a tennis player acquires are his —
   1 endurance  2 form  3 tenacity  4 endowment

30. Razors and pipes are —
   5 feminine things  6 muscular things  7 sturdy things  8 masculine things

31. A portion of some larger object is —
   1 a segment  2 a scourge  3 an outbreak  4 a clipping

32. One who claims to believe one way and who behaves the opposite is —
   5 a hypocrite  6 a pagan  7 eccentric  8 orthodox

33. The term for a period of ten years is —
   1 a jubilee  2 a decade  3 an epic  4 an era

34. To underline a word or phrase in something you are writing is one way to —
   5 emphasize it  6 quote it  7 analyze it  8 malign it

35. If an artist received honorable mention in a contest, his work was —
   1 forgotten  2 the best  3 praised  4 the worst

36. If something you thought was true turns out to be so, it is —
   5 confirmed  6 endured  7 exceeded  8 discouraged

37. If every second name is picked, the people are selected —
   1 hazardously  2 alternately  3 oddly  4 haphazardly

38. Ideas which pass quickly are said to be —
   5 transient  6 insurgent  7 transports  8 sophisticated

39. A person on horseback is an —
   1 equestrian  2 effigy  3 epistle  4 equity

40. A smooth and untroubled lake is —
   5 solitary  6 serene  7 relaxed  8 sumptuous

41. National parks provide wild animals with —
   1 veneration  2 inspiration  3 sanctuary  4 allegiance

42. An exceptionally hard worker for a “cause” must be —
   5 frustrated  6 ferocious  7 zealous  8 erroneous

43. Remarks made jokingly are —
   1 facetious  2 fantastic  3 random  4 sweeping

44. The usual and accepted way of acting is —
   5 conversant  6 ostentatious  7 observant  8 conventional

45. A brief story is —
   1 an antidote  2 a dissolution  3 an anecdote  4 a dissertation

46. A person who is dogmatic in his beliefs is a —
   5 bigot  6 maggot  7 fagot  8 niggard

Stop.
DIRECTIONS: In each exercise below, one of the words is spelled in three different ways. If the correct spelling is there, mark the answer space that has the same number as the correct spelling. If the correct spelling is not given as one of the three spellings, mark the answer space under NG as the right answer; NG stands for not given.

SAMPLES:

1. rid. 1 2 3 NG
   2. red. 1 2 3 NG
   3. rud.

4. eg 4 5 6 NG
   5. egg

6. eeg NG
   7. egg NG

8. thot
   9. we thought we were right 1 2 3 NG
   10. thought 1 2 3 NG

12. Ann 5 stood at home 1 2 3 NG
13. staid

15. Fish 5 swim in the water 1 2 3 NG
16. swim

18. He has 5 permission to go 1 2 3 NG
19. permission

21. Jane had her 5 lesson 1 2 3 NG
22. leson

24. We play in the 5 gymnasium 1 2 3 NG
25. gymnasium

28. lost in the 5 confusion 1 2 3 NG
29. confusion

31. It is 5 commercially true 1 2 3 NG
32. commercially

34. We can 5 correspond by mail 1 2 3 NG
35. correspond

37. Fishing takes 5 patience 1 2 3 NG
38. patience

39. a mysterious stranger 1 2 3 NG

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<td>scarcely</td>
<td>1</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>genius</td>
<td>5</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>David</td>
<td>2</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Name</td>
<td>6</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>many</td>
<td>2</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>His</td>
<td>5</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>All</td>
<td>5</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>He</td>
<td>5</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>solemn promise</td>
<td>1</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>a diet of enough</td>
<td>4</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>It is</td>
<td>2</td>
<td>✗</td>
<td></td>
</tr>
</tbody>
</table>

Stop.
DIRECTIONS: Decide whether each of the sentences below is simple (only one thought), compound (two independent clauses), or complex (one clause subordinate to another). Mark the answer space under S if the sentence is simple, CD if it is compound, or CX if it is complex. Mark only the one that tells what form the sentence is.

Several races lived in ancient Mexico. ... S CD

The best known are the Mayans and the Aztecs. ... S CD

The Aztec workers practiced the peaceful art of growing maize, and the leaders a religious custom of making human sacrifices. ... CD CX

The latter practice, which continued many centuries, marked their culture as barbaric. ... CD CX

The Mayans built pyramids, but the Aztecs apparently did not. ... CD CX

When the war ended, many refugees came to this country. ... CD CX

After they had found homes, they had to look for jobs. ... CD CX

The skills which they had developed elsewhere could not always be put to use. ... CD CX

DIRECTIONS: Decide whether the word in heavy type is the subject, verb, or object in the sentence. Mark the answer space under S if the word is the subject of the sentence, V if it is the verb, or O if it is the object.

The five o’clock train has gone. ... S O

You should train your child to eat neatly. ... S V

The stationmaster did not signal the train. ... S V

Bat the ball harder next time. ... S V

Will Tom bat for the Dodgers? ... V O

Choose a bat that is not too heavy. ... V O

Ben
DIRECTIONS: In each sentence, decide which of the numbered words is correct. Then mark the answer space at the right that has the same number as the word you have chosen.

1. They're ... , ■
2. Their getting on the bus. ... , ■
3. He said that no bones were broken. ... , ■
4. Will you take this book to Mary? ... , ■
5. The wind had blown all day. ... , ■
6. He drew some water from the well. ... , ■
7. At school they taught Ted spelling. ... , ■
8. Everyone has taken a turn. ... , ■
9. Jane had already gone home. ... , ■
10. Have you an eraser? ... , ■
11. Has Mr. Brown spoken to this class? ... , ■
12. The milkman left us some cream. ... , ■
13. John's bicycle works well. ... , ■
14. Why don't we girls play tag? ... , ■
15. Bill is lying on the couch. ... , ■
16. Columbus wondered whether he would ever see land. ... , ■
17. You haven't ridden in our car. ... , ■
18. Is it too late for a story? ... , ■
19. Jean has drawn a mountain. ... , ■
20. My mother feels considerably better today. ... , ■
21. Give either Sue or the book. ... , ■

I don't know whose turn comes next. ... , ■
1. I accept your invitation. ... , ■
2. He nearly burst his buttons. ... , ■
3. She and Sally have new dresses. ... , ■
4. The mayor lived on our street. ... , ■
5. Somebody must have been here. ... , ■
6. That man might have stolen the ring. ... , ■
7. This stone is different from the others. ... , ■
8. Some boys can do arithmetic easily. ... , ■
9. I could have sworn he was here. ... , ■
10. What's to prevent me falling off the ladder? ... , ■
11. Did you and him eat lunch together? ... , ■
12. The runners sprang to their feet. ... , ■
13. The hammer as well as the hatchet are gone. ... , ■
14. Nancy came through the accident without hardly a scratch. ... , ■
15. Watch the bird lift its wings! ... , ■
16. The smaller of the twin brothers is nicknamed Tiny. ... , ■
17. There is no doubt about their winning. ... , ■
18. Tom's friend can run faster than him. ... , ■
19. Who's father is a carpenter? ... , ■
20. Everyone has finished their work. ... , ■
21. The chorus was composed of the alumni of the college. ... , ■
22. Neither of the boys are at home. ... , ■

Stop.

No. right ( ) × 2 ( )
No. omitted or double-marked ( )
Sum ( )

Difference (R-W) 5 6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Gr. score 25 29 32 35 38 40 42 45 47 49 51 53 55 57 59 61 62 64 65 66 68 70 72 73 74 75 76 77 78 80 81 83 84 85 87 88 90 93 96
Subtract 74

Difference (R-W) (Cont'd) 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74
Gr. score 99 101 103 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128
Subtract 74

[ 10 ]
SAMPLES: 51 How many balls are 3 balls and 4 balls?  
\[ \begin{array}{cccc} 
\text{a} & 3 & b & 4 \\
\text{c} & 7 & d & 12 \\
e & \text{not given} \\
\end{array} \]  
52 How many books are 3 books and 2 books?  
\[ \begin{array}{cccc} 
\text{f} & 2 & g & 3 \\
\text{h} & 4 & i & 6 \\
j & \text{not given} \\
\end{array} \]  

1. Steve got 38 addition examples and 24 subtraction examples right. How many examples were right all together?  
\[ \begin{array}{cccc} 
\text{a} & 14 & b & 24 \\
\text{c} & 38 & d & 62 \\
e & \text{not given} \\
\end{array} \]  
2. Ruth has 24 lines to learn for the play. She says she will learn 4 new ones every day. At that rate, how many days will it take to learn all 24 lines?  
\[ \begin{array}{cccc} 
\text{f} & 4 & g & 6 \\
h & 8 & i & 24 \\
j & \text{not given} \\
\end{array} \]  
3. The school library has 24 shelves. Sue counted 34 books on one shelf. If each shelf has the same number of books, how many books are there all together?  
\[ \begin{array}{cccc} 
\text{a} & 24 & b & 34 \\
\text{c} & 58 & d & 716 \\
e & \text{not given} \\
\end{array} \]  
4. A coat which was priced at $49.50 last month is now on sale for $39.95. How much can be saved by buying at the sale price?  
\[ \begin{array}{cccc} 
\text{f} & \$3.55 & g & \$10.45 \\
h & \$10.55 & i & \$39.95 \\
j & \text{not given} \\
\end{array} \]  
5. Jane reads 15 pages in her book in 45 minutes. That is an average of how many minutes per page?  
\[ \begin{array}{cccc} 
\text{a} & 1 & b & 3 \\
\text{c} & 15 & d & 30 \\
e & \text{not given} \\
\end{array} \]  
6. Tom washes windows for 35¢ each. How much should he get for washing 12 of Mrs. Brown's windows?  
\[ \begin{array}{cccc} 
\text{f} & 35¢ & g & 52¢ \\
h & \$2.80 & i & \$4.20 \\
j & \text{not given} \\
\end{array} \]  
7. The children saw three kinds of planes at the airport. One could go 400 miles per hour, another 250, and another 125. What was the difference in miles per hour between the fastest and the slowest plane?  
\[ \begin{array}{cccc} 
\text{a} & 125 & b & 150 \\
\text{c} & 275 & d & 400 \\
e & \text{not given} \\
\end{array} \]  
8. Mother bought 8 cards at 10¢ each and 23 stamps at 3¢ each. How much did all the cards and stamps cost?  
\[ \begin{array}{cccc} 
\text{f} & \$1.39 & g & \$1.46 \\
h & \$1.49 & i & \$1.59 \\
j & \text{not given} \\
\end{array} \]  
9. Father bought 2 tickets at 87¢ each and 2 at 36¢ each. How much change should he get back from $5?  
\[ \begin{array}{cccc} 
\text{a} & \$1.23 & b & \$2.46 \\
\text{c} & \$2.54 & d & \$3.77 \\
e & \text{not given} \\
\end{array} \]  
10. Helen has 24 hens. She gathered 18 eggs on Monday, 16 on Tuesday, and 19 on Wednesday. How many eggs did she gather on all 3 days?  
\[ \begin{array}{cccc} 
\text{f} & 53 & g & 54 \\
h & 63 & i & 77 \\
j & \text{not given} \\
\end{array} \]  
11. Small cakes are 2 for 15¢. How many cakes will 45¢ buy?  
\[ \begin{array}{cccc} 
\text{a} & 2 & b & 3 \\
\text{c} & 15 & d & 30 \\
e & \text{not given} \\
\end{array} \]  
12. The scale on a map reads 1 inch = 50 miles. How many miles are represented by a line 3 1/2 inches long?  
\[ \begin{array}{cccc} 
\text{f} & 50 & g & 125 \\
h & 175 & i & 350 \\
j & \text{not given} \\
\end{array} \]  
13. You know what you paid for a hat. You know how much money you had left. To find how much money you had before buying the hat, you would —  
\[ \begin{array}{cccc} 
\text{a} & \text{add} & b & \text{subtract} \\
c & \text{multiply} & d & \text{divide} \\
e & \text{not given} \\
\end{array} \]  
14. Dan is buying 1 1/2 pounds of large nails and 5 ounces of small nails. How many pounds of nails is he buying all together?  
\[ \begin{array}{cccc} 
\text{f} & 1 \text{lb. 6 oz.} & g & 1 \text{lb. 10 oz.} \\
h & 1 \frac{3}{4} \text{lb.} \\
i & 2 \frac{1}{4} \text{lb.} \\
j & \text{not given} \\
\end{array} \]
15 Mary picked 2 boxes of berries in a quarter of an hour. How many boxes would she pick in an hour at that rate? 
\( a \ 2 \ b \ 4 \ c \ 6 \ d \ 8 \ e \) not given 

16 Some girls plan to make 16 pounds of candy for a candy sale. How many cups of sugar will it take if \( \frac{1}{4} \) cups are needed for each pound of candy? 
\( f \ 4 \ g \ 16 \ h \ 17 \frac{1}{4} \ i \ 20 \ j \) not given

17 A picture which is 2 inches by 3 inches is to be enlarged to 6 inches by 9 inches. Either dimension of the new picture will be how many times as large as the same dimension of the first picture? 
\( a \ 2 \ b \ 3 \ c \ 6 \ d \ 9 \ e \) not given

18 If Ted's horse goes at the rate of \( \frac{4}{5} \) miles an hour, how many miles will it go in 4 hours? 
\( f \ \frac{4}{5} \ g \ 16 \ h \ 17 \ i \ 19 \ j \) not given

19 Anne can play for three quarters of an hour. How many minutes is that? 
\( a \ 30 \ b \ 40 \ c \ 45 \ d \ 60 \ e \) not given

20 Don spends \( \frac{1}{6} \) of his allowance for clothes and \( \frac{1}{4} \) for pleasure, and saves the rest. What fraction of his allowance does he save? 
\( f \ \frac{1}{4} \ g \ \frac{1}{2} \ h \ \frac{3}{4} \ i \ \frac{4}{4} \ j \) not given

21 Bob's parents are planning to buy a new freezing cabinet. The storage space in the cabinet is 2 feet by 3 feet by \( \frac{3}{2} \) feet. How many cubic feet is that? 
\( a \ 6 \ b \ 7 \frac{1}{2} \ c \ 12 \ d \ 14 \ e \) not given

22 Mr. Smith's budget for his car this year is \$800. If his gasoline costs \$200, what percent of his total budget for the car is used for gasoline? 
\( f \ 16 \ g \ 20 \ h \ 25 \ i \ 60 \ j \) not given

23 A carpenter started work at 8:00 A.M. and stopped at 4:30 P.M., with \( \frac{3}{4} \) hour off for lunch. How many hours did he work, to the nearest quarter hour? 
\( a \ 7 \frac{3}{4} \ b \ 8 \ c \ 8 \frac{1}{4} \ d \ 8 \frac{1}{2} \ e \) not given

24 What is the volume in cubic feet of a corncrib which is 8 feet wide, 30 feet long, and 10 feet high? 
\( f \ 240 \ g \ 380 \ h \ 760 \ i \ 2400 \ j \) not given

25 Some children had fun measuring the length of their room with their own feet. Jane say it is 36 of her feet, but her feet are only 10 inches long. How many feet long is the room if measured by 12-inch feet? 
\( a \ 24 \ b \ 26 \ c \ 32 \ d \ 48 \ e \) not given

26 If a sales tax is 3% what will the tax be to the nearest cent on a dress which costs \$12.90? 
\( f \ 43\frac{1}{8} \ g \ 39\frac{1}{8} \ h \ 38\frac{1}{8} \ i \ 36\frac{1}{8} \ j \) not given

27 Last week, the workers in a factory made an average of 80 radios per day. This week, their gain the first day over the average of 80 is represented by +6. The second day, their loss was represented by -4. Gains and losses for the other three days were +2, -3, and -8. What is the total difference in production for the two weeks? 
\( a \ -15 \ b \ -7 \ c \ +8 \ d \ +23 \ e \) not given

28 A candy bar which weighs \( \frac{1}{2} \) ounce sells for 10¢. At this rate, what does the candy cost per pound? 
\( f \ 13\frac{1}{8} \ g \ 120 \ h \ 1.33 \ i \ 2.13 \ j \) not given

29 The premium for a 1-year fire insurance policy is 40¢ per \$100 of insurance. A 3-year policy can be purchased for \( 2\frac{1}{2} \) times the cost of a 1-year policy. How much would the premium be on a 3-year policy for \$12,000? 
\( a \ 48 \ b \ 100 \ c \ 120 \ d \ 144 \ e \) not given

30 A worker receives \$100 for a regular week of five 8-hour days, time and a half for Saturday, and double time for Sunday. This week he worked regularly on Monday through Friday, 4 hours on Saturday, and 2 hours on Sunday. How much did he earn all together? 
\( f \ 110 \ g \ 115 \ h \ 120 \ i \ 135 \ j \) not given
DIRECTIONS: The answer to each of these examples can be thought out without doing any figuring on paper. You are to think out the answer and mark the answer space that is lettered the same as your choice.

31 Which is the largest?  
   a \( \frac{1}{10} \)  
   b \( \frac{1}{40} \)  
   c \( \frac{1}{50} \)  
   d \( \frac{1}{20} \)  

32 Which of these indicates temperature?  
   e lb.  
   f \( ^\circ \)  
   g "  
   h  

33 By estimation, tell which of these examples will have the largest quotient.  
   a \( \frac{82}{4136} \)  
   b \( \frac{69}{4136} \)  
   c \( \frac{80}{4136} \)  
   d \( \frac{71}{4136} \)  

34 Which of these months has just 30 days?  
   e June  
   f August  
   g December  
   h January  

35 \( 2\frac{1}{2} = \)  
   a 2.50  
   b 2.00 \( \frac{1}{2} \)  
   c \( \frac{2}{2} \)  
   d \( .002 \frac{1}{2} \)  

36 The highest per cent of an average family's income should be budgeted for —  
   e health  
   f clothes  
   g auto expenses  
   h food  

37 What is the \( \sqrt{9} \)?  
   a 3  
   b 9  
   c 18  
   d 81  

38 When a salesman receives a part of the selling price for his work, it is called his —  
   e profit  
   f commission  
   g net income  
   h expenses  

39 How much is 7 hr. 50 min. rounded off to the nearest half hour?  
   a 7 hr.  
   b 7 1/2 hr.  
   c 8 hr.  
   d 8 1/2 hr.  

40 Which number is nearest in value to one million?  
   e 1,100,000  
   f 1,090,000  
   g 990,000  
   h 909,000  

41 By estimation, choose the example which will have the largest product.  
   a 8006  
   b 8096  
   c 8106  
   d 8016  

42 Which of these formulas would be used in borrowing money?  
   e \( v = lw \)  
   f \( d = rt \)  
   g \( a = lw \)  
   h \( i = prt \)  

43 What part of a circle is 1 degree?  
   a \( \frac{1}{60} \)  
   b \( \frac{1}{90} \)  
   c \( \frac{1}{100} \)  
   d \( \frac{1}{360} \)  

44 Which is the same as "14 less than a number = 36"?  
   e \( 36 - 14 = N \)  
   f \( \frac{N}{14} = 36 \)  
   g \( N - 14 = 36 \)  
   h \( N = 36 - 14 \)  

45 The amount of real estate tax to pay is the product of the tax rate times the —  
   a real value  
   b cost  
   c taxable income  
   d assessed valuation  

Stop.
**TEST 6 Arithmetic Computation**

**DIRECTIONS:** Work each example. Then compare your answer with the answers given at the right of the example. If your answer is one of those given, mark the answer space that has the same letter as your answer. Sometimes the correct answer is not given. If the correct answer is not given, mark the answer space under the letter for not given. Look carefully at each example to see what it tells you to do. If you need to do any figuring, use a separate sheet of paper.

<table>
<thead>
<tr>
<th>Example</th>
<th>Operation</th>
<th>Numbers</th>
<th>Answer Options</th>
<th>Answer Marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Multiply</td>
<td>504</td>
<td>a 516 b 2016 c 2046 d 2056 e not given</td>
<td>a b c d e</td>
</tr>
<tr>
<td>2</td>
<td>Add</td>
<td>6.50</td>
<td>f $9.26$ g $10.36$ h $11.16$ i $11.26$ j not given</td>
<td>f g h i j</td>
</tr>
<tr>
<td>3</td>
<td>Subtract</td>
<td>6.48</td>
<td>a $.52$ b $.62$ c $1.42$ d $1.48$ e not given</td>
<td>a b c d e</td>
</tr>
<tr>
<td>4</td>
<td>Multiply</td>
<td>32</td>
<td>f 2 g 3 h 11 i 20 j not given</td>
<td>f g h i j</td>
</tr>
<tr>
<td>5</td>
<td>Add</td>
<td>47</td>
<td>a 976 b 986 c 1086 d 1186 e not given</td>
<td>a b c d e</td>
</tr>
<tr>
<td>6</td>
<td>Multiply</td>
<td>61</td>
<td>f 147 g 486 h 5146 i 5246 j not given</td>
<td>f g h i j</td>
</tr>
<tr>
<td>7</td>
<td>Subtract</td>
<td>597,356</td>
<td>a 398,736 b 400,636 c 400,736 d 409,336 e not given</td>
<td>a b c d e</td>
</tr>
<tr>
<td>8</td>
<td>Multiply</td>
<td>20</td>
<td>a 806 b 860 c 8060 d 8260 e not given</td>
<td>a b c d e</td>
</tr>
<tr>
<td>9</td>
<td>Subtract</td>
<td>$\frac{1}{6}$</td>
<td>f $2\frac{2}{3}$ g 3 h $3\frac{2}{3}$ i 4 j not given</td>
<td>f g h i j</td>
</tr>
</tbody>
</table>
| 10 | Add | 2

Go on to the next page.
### TEST 6 Arithmetic Computation (Continued)

<table>
<thead>
<tr>
<th>Question</th>
<th>Calculation/Computation</th>
<th>Answer Options</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>(0.5 \times 0.7)</td>
<td>(0.35)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Add</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a 24,154.02</td>
<td>b 24,263.92</td>
<td>c 24,264.02</td>
</tr>
<tr>
<td></td>
<td>e not given</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Divide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f 85</td>
<td>g 805</td>
<td>h 825</td>
</tr>
<tr>
<td>19</td>
<td>Selling Price</td>
<td>$500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rate of Commission</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a $4.00</td>
<td>b $5.08</td>
<td>c $400</td>
</tr>
<tr>
<td></td>
<td>Commission</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e not given</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Divide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f 0.004</td>
<td>g 0.04</td>
<td>h 0.4</td>
</tr>
<tr>
<td>21</td>
<td>Subtract</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a 3</td>
<td>b 3 (\frac{3}{4})</td>
<td>c 4 (\frac{3}{4})</td>
</tr>
<tr>
<td>22</td>
<td>Multiply</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f 8 (\frac{1}{2})</td>
<td>g 15</td>
<td>h 15 (\frac{1}{2})</td>
</tr>
<tr>
<td>23</td>
<td>If (z + 3 = 9), (z)</td>
<td>a 3</td>
<td>b 6</td>
</tr>
<tr>
<td>24</td>
<td>Divide</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f (\frac{21}{50})</td>
<td>g (\frac{2}{3})</td>
<td>h (\frac{15}{60})</td>
</tr>
<tr>
<td>25</td>
<td>What percentage of all workers are included under the heading “All other occupations”?</td>
<td>a 40%</td>
<td>b 50%</td>
</tr>
<tr>
<td>26</td>
<td>What fractional part of the whole group are the professional people and the farmers together?</td>
<td>f (\frac{1}{6})</td>
<td>g (\frac{1}{4})</td>
</tr>
<tr>
<td>27</td>
<td>Subtract</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a 2 yr. 7 mo.</td>
<td>b 2 yr. 9 mo.</td>
<td>c 3 yr. 3 mo.</td>
</tr>
<tr>
<td>28</td>
<td>Add</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f 16 gal. 1 qt. 2 pt.</td>
<td>g 17 gal. 2 qt.</td>
<td>h 18 gal. 1 qt. 2 pt.</td>
</tr>
<tr>
<td>29</td>
<td>How many books did Jane and Bob read during the three months of March, April, and May?</td>
<td>a 13</td>
<td>b 11</td>
</tr>
<tr>
<td>30</td>
<td>During the entire school year how many more books did Jane read than Bob?</td>
<td>f 4</td>
<td>g 5</td>
</tr>
<tr>
<td>31</td>
<td>Find the average</td>
<td>17 oz.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a 10 oz.</td>
<td>b 12 oz.</td>
<td>c 13 oz.</td>
</tr>
</tbody>
</table>

### Number of Books Read by Jane and Bob

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of Books Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept.</td>
<td>2</td>
</tr>
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<tr>
<td>Apr.</td>
<td>1</td>
</tr>
<tr>
<td>May</td>
<td>5</td>
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</tbody>
</table>

### Sales Commission Calculation
- Selling Price: $500
- Rate of Commission: 8%
-_a_
- __b__
- __c__
- __d__
- __e__

### Other Details
- **19**
  - Selling Price: $500
  - Rate of Commission: 8%
  - Commission: ?
  - __a__ $4.00
  - __b__ $5.08
  - __c__ $400
  - __d__ $460
  - __e__ not given

---

*Go on to the next page.*
32 \[0.2 \times 10.4\]  
\[f \times 0.52 \quad g \times 0.52 \quad h \times 5.2 \quad i \times 52 \quad j \text{ not given} \]

33 Add  
\[2 \text{ km. 769 m.} \quad a \times 6 \text{ km. 602 m.} \quad b \times 21 \text{ km. 2 m.} \quad c \times 21 \text{ km. 102 m.} \quad 3 \text{ km. 833 m.} \quad d \times 166 \text{ km. 2 m.} \quad e \text{ not given} \]

34 If \( A = bh \), what is the area of the parallelogram shown at the left?  
\[f \times 30 \quad g \times 108 \quad h \times 144 \quad i \times 216 \quad j \text{ not given} \]

35 If 50% of an amount is $1.50, what is the amount?  
\[a \times \$0.15 \quad b \times 30\text{c} \quad c \times \$3.00 \quad d \times \$75 \quad e \text{ not given} \]

36 \[\frac{8}{6} = \frac{1}{?} \]
\[f \times 4 \quad g \times 9 \quad h \times 10 \quad i \times 16 \quad j \text{ not given} \]

37 If \( 2y + 30 = 50 \), \( y = a \times 10 \quad b \times 20 \quad c \times 28 \quad d \times 30 \quad e \text{ not given} \]

38 Assessed Valuation = $3000  
Tax Rate per $100 = $3.00  
Amount of Tax = \(?\)  
\[f \times 33 \quad g \times 90 \quad h \times 3003 \quad i \times 3300 \quad j \text{ not given} \]

39 \[\frac{-18}{-6} = a \times -12 \quad b \times 3 \quad c \times 12 \quad d \times 18 \quad e \text{ not given} \]

40 Multiply  
\[\frac{-6x}{-2} = f \times 12 \quad g \times -12 \quad h \times -12 \quad i \times 12 \quad j \text{ not given} \]

41 Principal = $200  
Annual Interest = $8  
Rate of Interest = \(?\)  
\[a \times 0.4\% \quad b \times 2.5\% \quad c \times 4\% \quad d \times 40\% \quad e \text{ not given} \]

42 If \( \frac{c}{3} = 12, c = a \times 4 \quad b \times 9 \quad h \times 15 \quad i \times 36 \quad j \text{ not given} \]

43 Principal = $500  
Rate = 3%  
Time = 8 mo.  
Interest = \(?\)  
\[a \times \$1.875 \quad b \times \$10 \quad c \times \$15 \quad d \times \$120 \quad e \text{ not given} \]

44 If \( A = \pi r^2 \), what is the area of the circle shown at the left?  
\[\pi = 3.14 \]
\[f \times 16 \text{ sq. ft.} \quad g \times 25.12 \text{ sq. ft.} \quad h \times 50.24 \text{ sq. ft.} \quad i \times 200.96 \text{ sq. ft.} \quad j \text{ not given} \]

Stop.
TEST 7 Social Studies: History, Geography, and Civic Education

DIRECTIONS: In each exercise, one of the four numbered answers is the best answer. Mark the answer space that is numbered the same as the best answer. The sample is marked correctly.

SAMPLE:

91 The United States flag is red, white, and — 1 black 2 green 3 blue 4 yellow

1 The first Thanksgiving Day was celebrated by the — 1 Pilgrims 2 Quakers 3 Dutch 4 Swedes

2 The money paid to policemen and firemen comes from — 1 profits 2 duties 3 savings 4 taxes

3 Farmers depend upon city workers most for — 1 factory goods 2 roads 3 vegetables 4 meat

4 Paper comes chiefly from — 1 mines 2 forests 3 animals 4 cereals

5 In most states, a person can first vote for state officials at the age of — 1 18 2 19 3 20 4 21

6 The weapon used first by man was the — 1 bow and arrow 2 cannon 3 hatchet 4 club

7 One of the first steamboats in the United States was the — 1 Queen Mary 2 Clermont 3 Monitor 4 Merrimac

8 A Navaho Indian of Arizona most likely sells some of the wool from his sheep to buy — 1 furs 2 nuts 3 rugs 4 salt

9 The first printing was done by — 1 linotype 2 engraved wooden blocks 3 movable types 4 type casting

10 “Give me liberty or give me death” was said by — 1 Patrick Henry 2 John Calhoun 3 Daniel Webster 4 William Jennings Bryan

11 Cement is made largely from — 1 coke 2 limestone 3 asbestos 4 iron

12 A city important for its harbor is — 1 Atlanta 2 New Orleans 3 Fort Worth 4 Pittsburgh

13 Augustus Caesar was a famous Roman — 1 emperor 2 singer 3 actor 4 artist

14 A country composed of islands is — 1 Arabia 2 Mexico 3 Japan 4 China

15 The steam engine was invented by — 1 Luther Burbank 2 James Watt 3 John Fitch 4 Charles Duryea

16 The first solo airplane flight across the Atlantic Ocean brought fame to — 1 De Haviland 2 Post 3 Hughes 4 Lindbergh

17 Samuel Morse is credited with the invention of the — 1 telephone 2 reaper 3 telegraph 4 phonograph

18 The ancient Hebrews settled in — 1 Rome 2 Palestine 3 Asia Minor 4 Turkey

19 Slavery was greatly promoted by the — 1 steamboat 2 cotton gin 3 railroad 4 telegraph

20 A very important source of income in Canada is — 1 citrus farming 2 weaving 3 cotton growing 4 fishing

Go on to the next page.
21 Factories are usually built near a good supply of —
1 workers 2 steel 3 lumber 4 raw materials

22 “Old Faithful” in Yellowstone Park is a —
5 bear 6 waterfall 7 deer 8 geyser

23 The Colosseum was built in —
1 Jerusalem 2 Athens 3 Rome 4 Naples

24 A decision of a jury is called —
5 a decree 6 an injunction 7 a ruling 8 a verdict

25 London is situated on the river —
1 Clyde 2 Severn 3 Thames 4 Forth

26 Cloth is woven on —
5 carding machines 6 looms 7 spindles 8 cotton gins

27 The corn belt of the United States is in the —
1 Middle West 2 East 3 South 4 Far West

28 Temperature changes most rapidly with change in —
5 altitude 6 latitude 7 zone 8 longitude

29 The Orient commonly refers to —
1 Europe 2 Australia 3 Asia 4 Africa

30 The greatest steel-producing city of America is —
5 Chicago 6 Gary 7 Birmingham 8 Pittsburgh

31 A country almost surrounded by water is —
1 Hungary 2 Poland 3 Denmark 4 Iran

32 Manufacturing of wood pulp and paper is an important industry of —
5 Saskatchewan 6 Manitoba 7 Quebec 8 Alberta

33 A tax on goods imported into a country is called —
1 a rebate 2 a tariff 3 a writ 4 an embargo

34 The United States imports much —
5 coal 6 cotton 7 cane sugar 8 wheat

35 When it rains heavily, most soil will wash from land which is —
1 pasture land 2 seeded to clover 3 timberland 4 freshly plowed

36 The important sheep-raisng area of the United States is the —
5 Rocky Mountains 6 Gulf Coast 7 Allegheny Mountains 8 Pacific Coast

37 Lewis and Clark explored the —
1 Great Lakes 2 Mississippi 3 Pacific Northwest 4 Santa Fe Trail

38 Relatively few wholesalers sell directly to —
5 consumers 6 retailers 7 stores 8 producers

39 The lawmaking body of a state is usually called the —
1 Governor’s Council 2 Board of Commissioners 3 Trustees 4 Legislature

40 Which of the following zones is the least inhabited?
5 Torrid 6 North Temperate 7 South Temperate 8 South Frigid

41 Crowded housing conditions in cities most directly increase —
1 living costs 2 disease 3 population 4 taxes

42 Deltas are formed by —
5 winds 6 rivers 7 volcanoes 8 ocean currents

43 The greatest violin makers were —
1 French 2 Italian 3 Swiss 4 English

44 When a court has authority over cases, they are said to be within its —
5 claim 6 appeal 7 jurisdiction 8 probate power

45 Cabinet members are appointed by the —
1 President 2 Senate 3 Chief Justice 4 House of Representatives
TEST 7  Social Studies: History, Geography, and Civic Education (Cont.)

40 Western architecture has been influenced most by that of —
   5 China  6 Egypt  7 Greece  8 Persia

41 Which of the following persons did most to bring about early reforms in the treatment of
   the insane? 1 Margaret Fuller  2 Andrew Jackson  3 Horace Mann  4 Dorothea Dix

42 The greatest number of immigrants to the United States have come from —
   5 Germany  6 Ireland  7 France  8 Sweden

43 What was the most important financial influence on house building following World
   War II? 1 insurance companies  2 private loans  3 large individual savings
   4 government financing

44 Fire protection for individuals comes primarily from the —  5 city government
   6 state government  7 forest service  8 Department of the Interior

45 Suffrage refers to —
   1 property rights  2 medical science  3 anesthetics  4 the right to vote

46 In our democracy, the basic source of power is the —
   5 President  6 Congress  7 people  8 Supreme Court

47 Rockefeller pioneered in the —
   1 oil industry  2 silk trade  3 steel industry  4 refining of sugar

48 The serfs of feudal times were —  5 landowners  6 traders  7 minstrels  8 workers

49 The chief member of a city government's legal staff is the —
   1 fire chief  2 chief of police  3 city council  4 city attorney

50 The death of President Garfield stimulated —
   5 conservation  6 anti-trust laws  7 civil service reform  8 railroad building

51 Responsibility for executing the laws of a state rests with the —
   1 legislature  2 courts  3 secretary of state  4 governor

52 In the 18th century, the most successful revolt against autocracy in Europe was in —
   5 Italy  6 France  7 Germany  8 Russia

53 In the Middle Ages, guilds were made up of —
   1 skilled workers  2 nobles  3 monks  4 soldiers

54 The Cumberland Gap formed a natural pass through the —
   5 Andes  6 Rockies  7 Appalachians  8 Sierras

55 Most alcohol is made from —  1 gasoline  2 grain  3 coal tar  4 animal oils

56 A United Nations agency with a preamble which declares "wars begin in the minds of
   men" is —  5 UNESCO  6 ILO  7 FAO  8 IRO

57 John Brown was a militant —  1 pioneer  2 abolitionist  3 statesman  4 Populist

58 Juvenile delinquency and crime are most closely associated with —  5 dangerous highways
   6 racial background  7 religious background  8 housing problems

60 Money for payment of old-age pensions by the Federal government comes from —
   1 workers and employers  2 corporations  3 income taxes  4 luxury taxes

61 A large group of citizens may remove public officials by the method called —
   1 initiative  2 referendum  3 recall  4 direct primary

Stop.

No. right (Ofd) 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
Gr. score 39 39 39 40 40 40 40 41 41 42 42 42 42 42 42 42 42 42 42 42
Gr. score 83 83 83 83 83 83 83 83 83 83 83 83 83 83 83 83 83 83 83 83
DIRECTIONS: Choose the best answer for each exercise and mark the answer space that is numbered the same as your choice.

1. Water runs downhill because of — 1 wind 2 sun 3 gravity 4 sand 5 minerals 6 water 7 wildlife 8 soil
2. A game warden’s chief duty is to help save — 5 minerals 6 water 7 wildlife 8 soil
3. Anything which is burned to make heat is — 1 solid 2 fuel 3 gas 4 metal
4. We can see ourselves in a mirror because light — 5 is a form of energy 6 can be reflected 7 consists of waves 8 produces chemical changes
5. A skull and crossbones on the label of a bottle means the bottle contains — 1 a drug 2 something for internal use only 3 medicine for adults 4 a poison
6. Our body temperature is about — 5 110° F. 6 98.6° F. 7 89° F. 8 100° F.
7. Flies are common carriers of the disease bacteria of — 1 smallpox 2 measles 3 whooping cough 4 typhoid fever
8. Artificial respiration is most often used for — 5 bleeding 6 drowning 7 running away 8 fatigue
9. The wearing down of land by water and wind is called — 1 erosion 2 conservation 3 vulcanism 4 corrosion
10. Smoking a great amount of tobacco increases — 5 steadiness 6 nervousness 7 endurance 8 strength
11. One way in which the deer protects itself is by — 1 using its sharp teeth 2 playing dead 3 running away 4 climbing trees
12. The rotation of the earth on its axis causes — 5 day and night 6 the seasons 7 an eclipse 8 earthquakes
13. Most injuries at home result from — 1 falls 2 burns 3 explosions 4 gas
14. The place in the sky where the stars appear thickest to the naked eye is called — 5 the Big Dipper 6 the Pleiades 7 Orion 8 the Milky Way
15. The chief cause for the rapid decline of wildlife in America is — 1 spring floods 2 man 3 new diseases 4 dogs
16. Our body temperature is about — 5 110° F. 6 98.6° F. 7 212° F. 8 98.6° F.
17. Flies are common carriers of the disease bacteria of — 1 smallpox 2 measles 3 whooping cough 4 typhoid fever
18. Smoking a great amount of tobacco increases — 5 steadiness 6 nervousness 7 endurance 8 strength
19. Artificial respiration is most often used for — 5 bleeding 6 poisoning 7 drowning 8 fatigue
20. Preventing forest fires may help control floods by — 5 saving the animals 6 using up the water 7 filling up the dams 8 checking rapid run-off of water
21. The rotation of the earth on its axis causes — 5 day and night 6 the seasons 7 an eclipse 8 earthquakes
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Go on to the next page.
26 A nurseryman buys and sells — 5 clothing 6 pets 7 dairy cattle 8 plants
27 Sterilization to prevent infection was encouraged by the discoveries of —
  1 Franklin 2 Pasteur 3 Newton 4 Curie
28 Eggs are rich in — 5 carbohydrates 6 proteins 7 starch 8 vitamin C
29 Bacteria reproduce by means of — 1 eggs 2 seeds 3 budding 4 splitting
30 The sun and the nine planets and their moons can be described best as —
  5 the Big Dipper 6 a solar system 7 the Milky Way 8 a constellation
31 Water plants furnish fish with food and —
  1 oxygen 2 nitrogen 3 carbon dioxide 4 warmth
32 The earth's nearest neighbor is — 5 the sun 6 the moon 7 Mars 8 Venus
33 Fish ladders are built to help fish —
  1 breathe 2 hibernate 3 swallow 4 migrate
34 A life-saving substance produced by a common mold is —
  5 the sulfa drug 6 quinine 7 antitoxin 8 penicillin
35 Ragweed and goldenrod often cause —
  1 ringworm 2 allergic reaction 3 eczema 4 boils
36 A red clover patch profits most from visits by —
  5 katydids 6 bumblebees 7 ants 8 grasshoppers
37 A person who feels that he is about to faint should — 1 leave the room 2 stand up and stretch 3 rub toward the heart 4 place his head between his knees
38 White clothing is usually cooler than dark clothing because it — 5 weighs less 6 is more porous 7 is a better reflector 8 produces less heat
39 The most calories per ounce are found in —
  1 raisins 2 beans 3 butter 4 fish
40 Time zones were developed in the United States as a result of the needs created by —
  5 watchmakers 6 increased travel 7 fur traders 8 surveyors
41 It is easier to turn a nut with a long wrench than with a short one because the long wrench —
  1 provides more leverage 2 is heavier 3 has wider jaws 4 fits better
42 When fuels burn, the carbon combines with —
  5 oxygen 6 nitrogen 7 hydrogen 8 helium
43 The voltage of an alternating electric current can be changed by a —
  1 transformer 2 commutator 3 voltmeter 4 electroscope
44 Any material which will allow an electric current to pass through it is called —
  5 a circuit 6 a metal 7 a conductor 8 an insulator
45 A mild form of disease is introduced into a healthy person by —
  1 the Schick test 2 pasteurization 3 use of germicides 4 vaccination
46 Fluorescent light tubes differ from ordinary light bulbs in that they —
  5 are brighter 6 are safer 7 have no filament 8 require more electricity
47 A match flame burns upward because heated gases —
  1 vanish 2 expand 3 dissolve 4 contract
48 To improve a rose garden, one might produce —
  5 hybrids 6 sepals 7 stigmas 8 petals

Stop.
DIRECTIONS: Choose the best answer for each exercise and mark the answer space that has the same letter as your choice.

Use the graph below in answering questions 1–5.

MAJOR OCCUPATIONAL GROUPS IN THE UNITED STATES

1 Which occupational group has the most members?
   a clerical  b craftsmen  c operatives  d laborers

2 How do clerical workers rank among the occupation groups in size?
   e first  f second  g third  h fourth

3 Which group has the fewest members?
   a laborers, farm  b domestics  c service workers  d operatives

4 In which group are there the most women?
   e service workers  f domestics  g professional  h information not given

5 Which group has the greatest earning power?
   a salesmen, saleswomen  b craftsmen  c proprietors, managers, officials  d information not given

Use the graph below in answering questions 6–10.

MONTHLY RAINFALL IN PORTLAND AND MIAMI (In Inches)

6 In which of the following months was the rainfall about the same in Portland and Miami?
   e April  f July  g Nov.  h Dec.

7 There were 7.8 inches of rain in Miami in —

8 A person is most likely to find a —
   e wet fall in Miami  f dry winter in Portland  g wet summer in Portland  h dry spring in Miami

9 How many inches of rain fell in Miami in December?
   a 1.0  b 1.9  c 6.6  d 7.6

10 For how many months was the rainfall in Portland greater than it was in Miami?
   e 2  f 3  g 5  h 7

Use the table below in answering questions 11–15.

MILEAGE BETWEEN CITIES

11 How far is it from Port to Salem?
   a 243  b 511  c 512  d not given

12 Which two towns are nearest to each other?
   e Troy-Bard  f Hall-Kent  g Kent-Burt  h Bard-Burt

13 How many miles is it from Burt to Hall?
   a 140  b 378  c 589  d not given

14 How many miles farther is it from Hall to Port than it is from Hall to Kent?
   e 90  f 110  g 716  h not given

15 Estimate which town is located (on the average) farthest from the other towns.
   a Ada  b Troy  c Bard  d Burt
DIRECTIONS: Here are three maps of the same imaginary state. You may need to use one, or two, or sometimes all three maps, to answer a question. Notice that each map is divided into four counties. Read each question, then select the best answer and mark the answer space that is lettered the same as your choice.

16 The county with greatest corn acreage is —
   a Brown  b Burke  c Pawnee  d Blair

17 The smallest county is —
   e Brown  f Burke  g Pawnee  h Blair

18 The county which raises the most fruit is —
   a Brown  b Burke  c Pawnee  d Blair

19 A dairy center is —
   e Oak  f Kent  g Lee  h Colt

20 The city most like Bend in altitude is —
   a Hays  b Ord  c Kent  d Kars

21 The city whose population is most like that of Kent is —
   e Bend  f Chester  g Oak  h Colt

22 The airline distance from Colt to Bend is about —
   a 25 mi.  b 50 mi.  c 75 mi.  d 100 mi.

23 The map indicates that Kent is a center of —
   e manufacturing  f agriculture  g mining  h lumbering

24 The city with the coolest summer nights probably is —
   a Kars  b Cody  c Bend  d Chester

25 Of the following, the least income is derived from —
   e corn  f mined products  g fruit  h poultry

26 The county in which most people live is probably —
   a Brown  b Burke  c Pawnee  d Blair

27 The minimum elevation at which wheat is grown is about —
   e 5000 ft.  f 2000 ft.  g 1000 ft.  h 500 ft.

28 A city with a railroad, a state highway, and a U.S. highway is —
   a Bend  b Chester  c Lee  d Ord

29 The single product of the area producing most income is —
   e dairy products  f corn  g wheat  h beef cattle

30 The boundary between Pawnee and Burke counties is about —
   a 20 mi.  b 50 mi.  c 80 mi.  d 140 mi.

31 The distance from Lee to Cody is about —
   e 25 mi.  f 50 mi.  g 75 mi.  h 100 mi.

32 From Kent to the mining country, one would go —
   a southeast  b southwest  c northwest  d northeast

33 A highway which probably has few grades is number —
   e 9  f 10  g 11  h 44

34 The river flows to the —
   a northwest  b northeast  c southwest  d southeast
TEST 9 Study Skills Part III. Using the Dictionary, Sources, and Index

DIRECTIONS: This part of the test is on the use of the dictionary, location of information in references, and use of an index. Choose the one best answer and mark the answer space that has the same number as your choice.

For questions 35, 36, and 37 four meanings of the word “run” are given. For each sentence, decide which meaning of “run” is used. Mark the answer space that has the same number as your choice.

run (rŭn) a. Go; move; keep going.  
b. Creep; grow; climb.  
c. Spread.  
d. Expose oneself to.

35 The bus runs from Minneapolis to Chicago. 1 a  2 b  3 c  4 d

36 The vines run along the arbor. 5 a  6 b  7 c  8 d

37 He will run the risk of falling into the creek. 1 a  2 b  3 c  4 d

38 Where would you find a synonym for blaze? 5 atlas 6 The World Almanac 7 dictionary 8 Readers’ Guide to Periodical Literature

39 The date of the landing at Plymouth Rock is given in an encyclopedia under — 1 Boston 2 Continental Congress 3 Massachusetts 4 Revolutionary War

40 Where would you find an extensive account of the life of Beethoven or of Michelangelo? 5 history book 6 encyclopedia 7 Who’s Who in America 8 atlas

41 In an encyclopedia the best history of the automobile will be found under — 1 transportation 2 combustion engines 3 Ford, Henry 4 automobile

42 In an American index the topic under rice which would most likely give information on the amount of rice sold by the United States to England is — 1 article of trade 2 exports 3 production 4 agriculture

43 The most direct reference in an index to a discussion of irrigation would be under — 1 irrigation 2 water 3 farming 4 reclamation

44 Where would you find the name of the governor of Alaska? 5 history book 6 Dictionary of American Biography 7 dictionary 8 The World Almanac


46 Which word comes first in the dictionary? 5 exploiter 6 exploration 7 exploitative 8 exploitation

47 The electric-power resources of Norway would be located through the index of a geography of the world under — 1 electric power 2 resource 3 Norway 4 electricity

48 The meaning of certain notations in music would be given in the dictionary under — 1 Abbreviations 2 Abbreviations and Symbols 3 Explicit Notes 4 Orthography


Stop.
STANFORD
ACHIEVEMENT TEST

TRUMAN L. KELLEY • RICHARD MADDEN • ERIC F. GARDNER • LEWIS M. TERMAN • GILES M. RUCH

Name__________________________Age__________Grade__________Boy or girl__________

Teacher__________________________School__________________________Date of birth__________

City or Town__________________________State__________________________Date__________

<table>
<thead>
<tr>
<th>Grade Equiv.</th>
<th>Age Equiv.</th>
<th>%ile Rank</th>
</tr>
</thead>
</table>

Individual Profile Chart

Grade Score Scale

Grade equivalent values above 10.0 are extrapolated values and not to be interpreted as signifying the typical performance of pupils of the indicated grade placement. (See Directions for Administering.)

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DIRECTIONS: Read each paragraph below. Decide which one of the numbered words at the right is best for each blank, and then mark the answer space which is numbered the same as the word you have chosen. Study the sample below, and answer the other questions in the same way.

SAMPLE: I am shorter than my sister and taller than my brother. This morning we stood beside one another. I looked down at my 51 and 52 at my sister.

1 The children went to the circus. They saw elephants and monkeys and many other animals. There were many clowns and lots of popcorn and peanuts. The children said that they wished a 1 would come every day.

2-3 The gold used for jewelry is mixed with another metal, usually copper. Pure gold is very soft, and jewelry made of it would not wear well. Therefore, copper or some other 2 is mixed with the gold to make it 3.

4-5 Insects that fly at night often make mistakes. It may be that they cannot tell the light of the moon from that given by an open fire. Sometimes these 4 fly into a 5 and are killed.

6 I go to bed at seven o'clock. Bob stays up until eight. We both rise at seven o'clock in the morning. Bob sleeps an hour 6 than I do.

7-9 Wool is clipped from live sheep by a process called shearing. The entire mat of fleece from each animal comes off in a single piece. With electric clippers one man can 7 from 150 to 200 8 a day. After shearing, the 9 is rolled up and sent to the mill.

10-12-13 A few years ago most freight was carried by railroad trains. Now such things as furniture and even automobiles are sent across country on trucks. Goods sent by 10 can go only where 11 have been laid, but goods sent by 12 can reach any point to which a 13 runs.

14-15 A long time ago the people of Peru did not know how to write. In order to count, they tied knots in threads of different colors. Each color meant a different kind of thing. The 14 in a thread stood for the things being 15.
The dog, first domesticated during the Old Stone Age, belongs to the same family as the wolf, jackal, and fox. It is believed that some breeds of dogs resulted from crossing two of these three animals, but perhaps not all dogs had the same ancestors. Many breeds have developed since the 16. It is hard to see anything of the 17 in the barkless dog of the North American Indians, or any kinship between the 18 and the cocker spaniel.

19-20 Ventriloquism is the art of making sounds so that they appear to come from a distance rather than from the speaker’s own mouth. It is an ancient 19, and many authorities believe that various phenomena such as the Greek oracles and the Egyptian speaking statues owe their explanation to the practice of 20 by the priests.

21-22 Crude oil from wells in Texas and other Western states is now transported in pipes to refineries in such distant states as California, Illinois, and Pennsylvania. Pumping stations are located 25 to 40 miles apart along each pipe line. From storage tanks near the wells the oil passes into the 21 and is shipped to the refineries.

23-24-25 A common example of a chemical reaction is the rusting of iron. A gas called oxygen which is present in the air combines with the silvery metal iron to form a reddish brown substance known in chemistry as ferrous oxide, but commonly called 23. This substance is quite different from either the 24 or the 25 which combined to form it.

26 During the French and Indian War more than one hundred English colonists were captured by the Indians at Deerfield, Massachusetts, and taken into the forest. Later, some were ransomed but many refused to return to 26.

27-28-29 Architectural styles are the result of social, technical, and environmental factors. The flat-roofed houses of the Egyptians and the Aztecs were practical because of dry climates. This illustrates the 27 factor. For heavy structures both peoples used the pyramid, rather than beams, buttresses, girders, etc. This illustrates the 28 factor. The decorations of these two peoples were widely different because of traditions and aesthetic standards. This illustrates the 29 factor.

30-31-32 The windward side of a great mountain chain has plenty of rainfall, whereas the regions on its lee are more arid. This difference is due to the fact that when prevailing winds strike high mountains, precipitation occurs and relatively little moisture is carried over the crest. Thus, the regions lying on the 30 side of mountain chains are better suited to 31 than those protected from the 32.
33-34 A dinosaur called "stegosaurus" had a brain-like nerve center inside his skull, and another, larger one in the region of the pelvis. This latter controlled the reptile's heavy tail, which was armed with horn-like spines. Because of the dominance of the rear 33_, scientists jokingly ask whether the 34_ wagged his tail, or vice versa.

35-36-37 Much of the history of man might be written in terms of ocean currents. The warm Gulf Stream contributes so much to the temperatures of England and northern Europe that if somehow it could be cut off, the region of the British Isles would be nearly uninhabitable. The mass of frigid arctic water helps bend the 35_ to take a 36_ direction and is 37_ itself prevented from reaching the 37_.

38-39 The noun radical comes from the Latin word for root. A radical is something fundamental, or at the root of things. One who wishes to upset the government is a radical because he wishes to make fundamental changes. In chemistry the fundamental parts of a compound are radicals. Recently a critic of radicalism denounced a professor's book entitled "Organic Radicals in the Presence of Catalysts." It is reasonable to assume that the subject matter of the book was 38_. A dictionary would inform one that catalysts are chemical agents and not foreign agents. The critic should conclude that the book was 39_.

40 Unusual meanings are sometimes attached to words. For as long as we have a record, "seeding" has meant putting seeds into the ground to grow into mature plants. "Cloud seeding" is an attempt to 40_.

41-42 Myths are imaginary tales and have for their heroes gods and goddesses. In fables animals talk and have the characteristics of human beings. Apollo, the sun-god, figures prominently in many Greek 41_. The story of the "Dog in the Manger" is one of the most familiar 42_.

43-44 Symbiosis is a very interesting biological phenomenon. It is the intimate living together of two different forms of life. For example, the Yucca, a desert plant, has its pollen carried from one flower to another by the Yucca moth only. This moth lays its eggs in a Yucca seed pod; the eggs hatch; the larvae eat some seeds and nothing else; they turn into moths, get covered with pollen, fly to a second Yucca blossom, carrying the pollen and fertilizing the seeds of the second plant. Thus 43_. The scientific term for wonderful cases like this is 44_.

1 spines 2 nerve 33
3 pelvis 4 head
5 reptile 6 mastodon 5 6 7 8
7 man-eater 8 mammal 54

1 Gulf Stream 2 Polar Current 3 Japan Current
5 northward 6 westerly 5 6 7 8
7 north-easterly
9 Gulf Stream 10 Atlantic
11 British Isles 12 Newfound-

1 radical 2 subversive 3 unfamiliar 4 entertain-
3 to the critic
5 about 6 un-American
7 subversive 8 about chemistry

1 put seeds 2 put seeds into the ground clouds
3 make seeds 4 make rain mature

1 fables 2 legends 3 myths 4 histories
5 myths 6 fables 7 legends 8 anecdotes

1 the moth helps the Yucca moth helps the
3 each helps 4 each is nec-
5 evolution 6 mutual aid 5 7 8
7 symbiotic union commendation

Stop.
TEST 2  Word Meaning

DIRECTIONS: In each exercise decide which of the four numbered words will complete the sentence best. Look at the number of this word. Mark the answer space at the right which is numbered the same as the word you have chosen. Study the samples.

SAMPLES:
61 The day that comes after Friday is — 1 Monday 2 Tuesday 3 Saturday 4 Sunday 5678
62 To draw on a blackboard, use a piece of — 5 pencil 6 straw 7 eraser 8 chalk 5678

1 Mary Smith and John Doe are cousins if they have the same —
   1 grandmother 2 mother 3 sister 4 daughter 1234
2 Marvelous means — 5 pleasant 6 distant 7 wonderful 8 great 1234
3 To lash is to — 1 deceive 2 whip 3 destroy 4 waste 1234
4 Anyone over 21 years old is — 5 a graduate 6 an adult 7 a major 8 a patriot 678
5 If you can identify a butterfly, you can —
   1 exhibit it 2 stuff it 3 mount it 4 recognize it 1234
6 Something you must do, such as paying taxes, is —
   5 a custom 6 a sacrifice 7 a duty 8 an opportunity 5678
7 Height, weight, and temperature are all —
   1 distances 2 visible 3 feelings 4 measurements 1234
8 Groceries arranged to attract customers are —
   5 displays 6 campaigns 7 evidence 8 bargains 5678
9 To attempt a job is to — 1 condemn it 2 oppose it 3 imagine it 4 undertake it 1234
10 Things which are much alike are — 5 equal 6 handsome 7 similar 8 opposite 678
11 A small thing given as evidence of good faith is a —
   1 petition 2 spindle 3 token 4 goblet 1234
12 A person elected to office should be — 5 confused 6 pitied 7 capable 8 noble 678
13 When you don’t sense anything which is going on about you, you are —
   1 unconscious 2 sullen 3 prosperous 4 sensible 1234
14 The group of men who run a business are its —
   5 managers 6 customers 7 salesmen 8 engineers 1234
15 Saving money for a "rainy day" is — 1 likable 2 industrial 3 fearful 4 advisable 1234
16 People who write letters to each other —
   5 correspond 6 translate 7 interrupt 8 interview 1234
17 The dead body of a wild animal is a — 1 vestige 2 carcass 3 corpuscle 4 corruption 1234
18 When you have learned your next lesson well, you are —
   5 mistaken 6 prepared 7 discouraged 8 educated 1234
19 Any statement about which there is question is —
   1 vagrant 2 elastic 3 appreciable 4 debatable 1234
20 When a person repeatedly fails at something he wants to do, he may become —
   5 buoyant 6 frustrated 7 fruitless 8 drenched 1234
21 Something written about or talked about is —
   1 a token 2 a topic 3 a title 4 an article 1234
22 If you have made up your mind about something, you have —
   5 a conviction 6 an investigation 7 a sermon 8 a doubt 1234

23 Clothing of any kind is called — 1 woolens 2 apparel 3 robes 4 draperies
24 Money wasted foolishly is — 5 proffered 6 severed 7 scandalized 8 squandered
25 If everybody agrees upon a plan, the agreement is —
   1 unanimous 2 moderate 3 proportional 4 conscientious
26 An individual who insists upon doing things his way only is —
   5 nimble 6 obstinate 7 kingly 8 towering
27 When a man seeks a position with a certain firm, he becomes —
   1 an applicant 2 a suitor 3 a petitioner 4 a contractor
28 A dramatic event in a story is called —
   5 an epistle 6 a nucleus 7 a novelette 8 an episode
29 “She has a good chance to recover” means that improvement is —
   1 certain 2 assured 3 impossible 4 probable
30 A difficulty to be overcome is — 5 an obstacle 6 a miracle 7 a vehicle 8 a barnacle
31 The way an army executes its campaigns is called its —
   1 enmity 2 eclipse 3 tactics 4 treatise
32 A beginner in some sport is — 5 a novice 6 a professional 7 a private 8 an assailant
33 In a story meant to teach something, the teaching is called the —
   1 fable 2 myth 3 plot 4 moral
34 One who works hard is — 5 brazen 6 alluring 7 ancestral 8 diligent
35 A daily newspaper calls the number of papers it sells each day its —
   1 administration 2 attraction 3 circulation 4 introduction
36 Any very long, unpleasant experience is —
   5 an ordeal 6 an offense 7 a vigil 8 a seclusion
37 One senator speaks of another senator as his —
   1 collector 2 elector 3 colleague 4 chaplain
38 Spotlessly clean clothes are — 5 blanched 6 immaculate 7 stark 8 purged
39 A small event that is part of a story is — 1 a plot 2 an epic 3 an incident 4 an era
40 Any national issue over which there is disagreement is —
   5 controversial 6 contraband 7 tabu 8 subversive
41 Corrupt politics are due largely to public —
   1 responsiveness 2 antagonism 3 degradation 4 indifference
42 To destroy something completely is to —
   5 detract it 6 distort it 7 annihilate it 8 depress it
43 A very exact measurement is — 1 absolute 2 concise 3 precise 4 fundamental
44 The “crossing” of two or more kinds of grain produces —
   5 mongrels 6 hybrids 7 formulas 8 chaff
45 An interesting conversationalist often has a store of —
   1 denominations 2 anecdotes 3 alibis 4 conveyances
46 Sometimes an opinion on a subject is changed after —
   5 consternation 6 delegation 7 dissolution 8 deliberation
**TEST 3 Spelling**

**DIRECTIONS:** In each exercise below, one of the words is spelled in three different ways. If the correct spelling is there, mark the answer space which has the same number as the correct spelling. If the correct spelling is not given as one of the three spellings, mark the answer space under NG as the right answer; NG stands for not given.

**SAMPLES:**

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Correct Spelling</th>
<th>Incorrect Spelling 1</th>
<th>Incorrect Spelling 2</th>
<th>Incorrect Spelling 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. rid.</td>
<td>1 rid.</td>
<td>2 red.</td>
<td>3 rud.</td>
<td>NG</td>
</tr>
<tr>
<td>2. egg</td>
<td>4 egg</td>
<td>5 egges for breakfast</td>
<td>6 egg</td>
<td>NG</td>
</tr>
<tr>
<td>3. furnitur</td>
<td>1 furnitur</td>
<td>2 furnituer</td>
<td>3 furniture</td>
<td>NG</td>
</tr>
<tr>
<td>4. piano.</td>
<td>4 piano.</td>
<td>5 peano.</td>
<td>6 paino.</td>
<td>NG</td>
</tr>
<tr>
<td>5. smock</td>
<td>1 smock</td>
<td>2 smok from the fire.</td>
<td>3 smook</td>
<td>NG</td>
</tr>
<tr>
<td>6. lawyer</td>
<td>A 5 lawyer</td>
<td>6 lawer</td>
<td>7 lawyer</td>
<td>NG</td>
</tr>
<tr>
<td>7. medicene</td>
<td>1 medicene.</td>
<td>2 medicina.</td>
<td>3 medicen.</td>
<td>NG</td>
</tr>
<tr>
<td>8. smok</td>
<td>1 smok</td>
<td>2 smok from the fire.</td>
<td>3 smoke</td>
<td>NG</td>
</tr>
<tr>
<td>9. explor</td>
<td>4 explor</td>
<td>5 explorism</td>
<td>6 explorist</td>
<td>NG</td>
</tr>
<tr>
<td>10. durt</td>
<td>4 durt</td>
<td>5 drite on his hands.</td>
<td>6 dirte</td>
<td>NG</td>
</tr>
<tr>
<td>11. settled</td>
<td>1 setted</td>
<td>2 settled in the jar.</td>
<td>3 settled</td>
<td>NG</td>
</tr>
<tr>
<td>12. geography</td>
<td>4 geograph.</td>
<td>5 geography.</td>
<td>6 geographer.</td>
<td>NG</td>
</tr>
<tr>
<td>13. famely</td>
<td>1 famely</td>
<td>2 family</td>
<td>3 famley</td>
<td>NG</td>
</tr>
<tr>
<td>14. roal</td>
<td>4 roal</td>
<td>5 roal of the hero.</td>
<td>6 role</td>
<td>NG</td>
</tr>
<tr>
<td>15. graduly</td>
<td>1 gradually.</td>
<td>2 gradually.</td>
<td>3 gradly.</td>
<td>NG</td>
</tr>
<tr>
<td>16. vitamans</td>
<td>4 vitamans.</td>
<td>5 vitamens.</td>
<td>6 vitemins.</td>
<td>NG</td>
</tr>
</tbody>
</table>

**Additional Exercises:**

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Correct Spelling</th>
<th>Incorrect Spelling 1</th>
<th>Incorrect Spelling 2</th>
<th>Incorrect Spelling 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. patient</td>
<td>1 impatient.</td>
<td>2 impatients.</td>
<td>3 impatient.</td>
<td>NG</td>
</tr>
<tr>
<td>18. horse</td>
<td>4 horse.</td>
<td>5 hourse.</td>
<td>6 hoarse.</td>
<td>NG</td>
</tr>
<tr>
<td>19. tournament</td>
<td>1 tournament</td>
<td>2 tourniment.</td>
<td>3 tournament.</td>
<td>NG</td>
</tr>
<tr>
<td>20. realey</td>
<td>4 realey</td>
<td>5 realy liked it.</td>
<td>6 reely</td>
<td>NG</td>
</tr>
<tr>
<td>21. frequently</td>
<td>1 frequently.</td>
<td>2 frequently.</td>
<td>3 frequently.</td>
<td>NG</td>
</tr>
<tr>
<td>22. mistake</td>
<td>4 unfortunat mistake</td>
<td>5 unfortunat</td>
<td>6 unfortunette</td>
<td>NG</td>
</tr>
<tr>
<td>23. literature.</td>
<td>1 literature.</td>
<td>2 literatur.</td>
<td>3 literature.</td>
<td>NG</td>
</tr>
<tr>
<td>24. Ruth is 5 generally</td>
<td>4 generallly</td>
<td>5 generaly.</td>
<td>6 generally.</td>
<td>NG</td>
</tr>
<tr>
<td>25. Father 2 rarely goes hunting</td>
<td>1 rarely</td>
<td>2 rarely goes hunting</td>
<td>3 rareley</td>
<td>NG</td>
</tr>
<tr>
<td>26. The berries are ripe.</td>
<td>4 berres</td>
<td>5 berries are ripe.</td>
<td>6 berries</td>
<td>NG</td>
</tr>
<tr>
<td>27. prettest</td>
<td>1 priterrist flowers</td>
<td>2 prettest flowers</td>
<td>3 prettest</td>
<td>NG</td>
</tr>
<tr>
<td>28. My uncle studies 5 philosophy.</td>
<td>4 philosophy.</td>
<td>5 philosophy.</td>
<td>6 philosofy.</td>
<td>NG</td>
</tr>
<tr>
<td>29. available.</td>
<td>1 available.</td>
<td>2 available.</td>
<td>3 available.</td>
<td>NG</td>
</tr>
<tr>
<td>30. Anne has a 5 majority vote.</td>
<td>1 eventualy</td>
<td>2 eventualy arrived.</td>
<td>3 eventually.</td>
<td>NG</td>
</tr>
<tr>
<td>31. He is 5 ignorant of the facts.</td>
<td>4 ignorant</td>
<td>5 ignorant of the facts.</td>
<td>6 ignorant</td>
<td>NG</td>
</tr>
<tr>
<td>32. the offensive team.</td>
<td>1 offensive</td>
<td>2 offensive team.</td>
<td>3 offensive</td>
<td>NG</td>
</tr>
<tr>
<td>33. vicinity.</td>
<td>4 vicinty.</td>
<td>5 vicinty.</td>
<td>6 visinty.</td>
<td>NG</td>
</tr>
<tr>
<td>34. apparent.</td>
<td>1 apparent.</td>
<td>2 apparent.</td>
<td>3 apparent.</td>
<td>NG</td>
</tr>
<tr>
<td>35. science.</td>
<td>1 science.</td>
<td>2 science.</td>
<td>3 science.</td>
<td>NG</td>
</tr>
<tr>
<td>36. 4 territory</td>
<td>4 territory</td>
<td>5 territory</td>
<td>6 territory</td>
<td>NG</td>
</tr>
<tr>
<td>37. Chemistry is a 5 sincirety.</td>
<td>4 sincirty.</td>
<td>5 sincirty.</td>
<td>6 sincirty.</td>
<td>NG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test 3 Spelling (Continued)</th>
<th>8a</th>
<th>8b</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 The moon enters a new 2 phase.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>40 He is a college professor.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>41 very conscious of his duty</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>42 The scene is picturesque.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>43 wired for electricity</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>44 The two lines are parallel.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>45 The firm was a financial success.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>46 extreme simplicity</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>47 The loss is insignificant.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>48 Such an idea is absurd.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>49 Perhaps I imagine it.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>50 The blizzard brought snow.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>51 It is not necessarily wrong.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>52 Alice did not apologize.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>53 The task was done with facility.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>54 Betty made prior arrangements.</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>55 Jim ate a hot biscuit.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

| 56 It is a fundamental rule. | 4 | 5 | 6 |
| 57 My conscience is clear. | 1 | 2 | 3 |
| 58 a scarcity of food | 4 | 5 | 6 |
| 59 It is a boy's club. | 1 | 2 | 3 |
| 60 The cost of admission is low. | 4 | 5 | 6 |
| 61 An aerial is on the roof. | 1 | 2 | 3 |
| 62 The ship was immense. | 4 | 5 | 6 |
| 63 We are privileged to help. | 1 | 2 | 3 |
| 64 Dan will pay the expense. | 4 | 5 | 6 |
| 65 a comparatively small one. | 1 | 2 | 3 |
| 66 The vote was unanimous. | 4 | 5 | 6 |
| 67 The indebtedness is heavy. | 1 | 2 | 3 |
| 68 The answer is logical. | 4 | 5 | 6 |
| 69 Bob had a fine recommendation. | 1 | 2 | 3 |
| 70 a cough from bronchitis. | 4 | 5 | 6 |
| 71 The meeting is adjourned. | 1 | 2 | 3 |
| 72 to perceive the truth. | 4 | 5 | 6 |

Stop.
TEST 4 Language

DIRECTIONS: In each pair of words in heavy type there is an error in either capitalization or punctuation. You are to decide which one of each pair has the correct capitalization and punctuation. Then mark the answer space at the right that has the same number as the correct form.

SAMPLES: This is 1 Mr. Jones. 2 Mr. Jones. 3 St. Louis, Missouri 4 St. Louis Missouri

A Musical Program

We heard 1 Beethoven's 2 Beethoven's. 3 "Sixth Symphony" 4 "Sixth Symphony" on the Symphony Hour.

Featured instruments were:

A. 5 The strings 6 the Strings
B. 1 Flutes and other Woodwinds 2 Flutes and other woodwinds

"This symphony," the announcer said, 3 "describes a storm." 4 "Describes a storm.

A Good Play

In our play my friend 5 Sam, 6 Sam acted the part 5 of Rip Van Winkle.

1 "I'll get enough sleep for once," he said. 2 "I'II get enough sleep for once," he said.

Our play was 3 good some 4 good. Some people wanted to see it 5 again, 6 again.

For the answer, turn to the third 1 chapter. 2 Chapter.

Freedom of speech was a 3 Jeffersonian ideal. 4 Jeffersonian ideal.

Both 5 Democrats, 6 Democrats and Republicans approved.

This notebook represents two 1 month's work. 2 month's work.

We had a heavy 3 storm, 4 storm; an inch of rain fell.

"The storm struck 5 suddenly, 6 suddenly;" our paper reported.

We have 1 arithmetic 2 Arithmetic and English every day.

The president, it 3 seems 4 seems, has called a meeting.

DIRECTIONS: Decide whether each of the sentences below is simple (only one thought), compound (two independent clauses), or complex (one clause subordinate to another). Mark the answer space under S if the sentence is simple, CD if it is compound, and CX if it is complex. Mark only the one that tells what form the sentence is.

Our school offers a course in printing. 1 2 3 4

My cousin and I are taking it now. 1 2 3 4

My cousin got a B, and I got an A. 1 2 3 4

Orville Wright and his brother Wilbur built the first successful airplane. 1 2 3 4

Before 1920, people did not have radio sets. 1 2 3 4

Before radio became popular, children read more books. 1 2 3 4

Pioneer women made soap from fat which they had saved. 1 2 3 4

One kind of palm tree from which many useful products are obtained is the coconut palm. 1 2 3 4

DIRECTIONS: If the word in heavy type is the subject of the sentence, mark the answer space under S. If it is the verb, mark the answer space under V.

This land has been plowed. 1 2 3 4

That plane will soon land. 1 2 3 4

For these men, working brought its reward. 1 2 3 4

These men are working to finish their job. 1 2 3 4

Where does that light come from? 1 2 3 4

Light streamed in the windows. 1 2 3 4
**TEST 4 Language (Continued)**

**DIRECTIONS:** In each sentence, decide which of the numbered words is correct. Then mark the answer space at the right which has the same number as the word you have chosen.

| Bob and I \_ 1 me painted the scenery. | \_ 1 2 |
| He 3 doesn't watch where he's going. | \_ 3 4 |
| Where 5 are my books? | \_ 5 6 |
| Our team will win this game \_ 1 easily. | \_ 3 4 |
| Each of us \_ 3 ought to work faster. | \_ 3 4 |
| Is this the right \_ 6 write road? | \_ 5 6 |
| Nancy can certainly read \_ 1 good. | \_ 1 2 |
| I might \_ 3 of have gone if I'd been asked. | \_ 3 4 |
| Take a picture of Helen and \_ 5 I. | \_ 1 2 |
| Some of us were \_ 1 lying 2 laying on the ground. | \_ 3 4 |
| 3 Whose \_ 4 Who's sweater is this? | \_ 3 4 |
| The girls have all \_ 5 run \_ 6 ran away. | \_ 5 6 |
| Tell me when \_ 1 your \_ 2 you're ready. | \_ 1 2 |
| Miss Martin is \_ 3 too \_ 4 to busy to see us. | \_ 3 4 |
| The dog is looking for \_ 5 It's \_ 6 its master. | \_ 1 2 |
| Have you \_ 1 drank \_ 2 drunk your milk? | \_ 1 2 |
| My kitten was \_ 3 drowned. | \_ 3 4 |
| Last \_ 5 weak they took a trip. | \_ 5 6 |
| The baby had \_ 1 fell \_ 2 fallen downstairs. | \_ 1 2 |
| Most people like to eat \_ 3 regular. \_ 4 regularly. | \_ 3 4 |

Both the cat and the dog \_ 5 have fleas. \_ 5 6
We are \_ 1 all ready \_ 2 already late. \_ 1 2
I \_ 3 can \_ 4 can't hardly wait to see him. \_ 3 4
Everybody wants \_ 5 his \_ 6 their own coat. \_ 5 6
The birds had all \_ 1 flew \_ 2 flown South. \_ 3 4
A girl \_ 3 who \_ 4 which giggles is a nuisance. \_ 3 4
They fought a \_ 5 strange \_ 6 funny battle. \_ 5 6
It was cold in the house \_ 1 with \_ 2 without no heat. \_ 3 4
The captain \_ 3 led \_ 4 lead his men to victory. \_ 5 6
A boy \_ 5 who \_ 6 whom I knew got lost. \_ 1 2
Have you ever \_ 1 shook \_ 2 shaken apples from a tree? \_ 1 2
We've driven \_ 3 all \_ 4 as far as the farther we can. \_ 3 4
Treat me \_ 5 as if \_ 6 like I was your sister. \_ 5 6
The ship \_ 1 sank \_ 2 sunk before help could reach it. \_ 3 4
Do you like \_ 3 whip \_ 4 whipped cream? \_ 3 4
There are \_ 5 less \_ 6 fewer boys than girls here. \_ 3 4
This picture is the \_ 1 better \_ 2 best of the two. \_ 3 4
The explosion had \_ 3 burst \_ 4 bursted open the door. \_ 5 6
I \_ 5 reckon \_ 6 suppose they will serve refreshments. \_ 5 6
A bellhop is \_ 1 where \_ 2 a boy who carries baggage. \_ 1 2
Here \_ 3 come \_ 4 comes your sister and my brother. \_ 3 4
At the corner I stopped very \_ 1 sudden. \_ 2 suddenly. \_ 3 4
Does your statement \_ 1 infer \_ 2 imply that he did it? \_ 1 2

---

**Stop.**

No. right ( ) \times 2 ( )

No. omitted or double-marked ( )

Sum ( )

Subtract 74

---

**Differences (R-W)**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 19 | 22 | 25 | 26 | 30 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 | 49 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 63 | 65 | 66 | 67 | 69 | 70 | 72 | 73 | 74 | 75 | 76 | 78 | 79 | 80 | 82 | 84 | 85 | 88 |

**Gr. score**

| 19 | 22 | 25 | 26 | 30 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 | 49 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 63 | 65 | 66 | 67 | 69 | 70 | 72 | 73 | 74 | 75 | 76 | 78 | 79 | 80 | 82 | 84 | 85 | 88 |

**Difference (R-W)**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

**Gr. score**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
DIRECTIONS: Work an example, and then compare your answer with the answers which follow it. If your answer is one of those given, mark the answer space that has the same letter as your answer. Sometimes the correct answer is not given. If you do not find the correct answer, mark the space under the letter for not given.

SAMPLES: 61 How many balls are 3 balls and 4 balls? 
\[ a \quad 3 \quad b \quad 4 \quad c \quad 7 \quad d \quad 12 \quad e \quad \text{not given} \]

62 How many books are 3 books and 2 books? 
\[ f \quad 2 \quad g \quad 3 \quad h \quad 4 \quad i \quad 6 \quad j \quad \text{not given} \]

1 Judy has 16 jacks and Hazel has 9. How many more jacks has Judy than Hazel? 
\[ a \quad 7 \quad b \quad 9 \quad c \quad 16 \quad d \quad 25 \quad e \quad \text{not given} \]

2 Mother bakes 24 rolls at a time. How many pans will she need if she bakes 6 in a pan? 
\[ f \quad 4 \quad g \quad 18 \quad h \quad 24 \quad i \quad 30 \quad j \quad \text{not given} \]

3 A strip of paper 19 inches long is to be cut so that one piece will be a foot long. How long will the other piece be? 
\[ a \quad 5 \quad \text{in} \quad b \quad 12 \quad \text{in} \quad c \quad 19 \quad \text{in} \quad d \quad 31 \quad \text{in} \quad e \quad \text{not given} \]

4 A cake costs 73 cents. How much change will Mother get back if she gives the baker two half dollars? 
\[ f \quad 23\epsilon \quad g \quad 27\epsilon \quad h \quad 37\epsilon \quad i \quad 1.00 \quad j \quad \text{not given} \]

5 A lock for the clubhouse will cost $1.35. What will be each boy’s share if 9 boys share equally? 
\[ a \quad 9\epsilon \quad b \quad 14\epsilon \quad c \quad 15\epsilon \quad d \quad 12.15 \quad e \quad \text{not given} \]

6 Ruth weighs 78 pounds, Helen weighs 54, and Ann weighs 67. How many pounds will Ann have to gain to weigh as much as Ruth? 
\[ f \quad 11 \quad g \quad 13 \quad h \quad 24 \quad i \quad 78 \quad j \quad \text{not given} \]

7 Ann bought 6 yards of ribbon to tie two packages. For one package she used 3 yards and 2 feet. How much ribbon was left for the other package? 
\[ a \quad 3 \quad \text{yd} \quad b \quad 3 \quad \text{yd} \quad 1 \quad \text{ft} \quad c \quad 3 \quad \text{yd} \quad 2 \quad \text{ft} \quad d \quad 9 \quad \text{yd} \quad 2 \quad \text{ft} \quad e \quad \text{not given} \]

8 You know how much a man is paid per hour. You know how many hours he worked in a week. To find his earnings for the week, what would you do? 
\[ f \quad \text{add} \quad g \quad \text{subtract} \quad h \quad \text{multiply} \quad i \quad \text{divide} \quad j \quad \text{not given} \]

9 How much would Steve get in all for selling 11 papers at 7¢ each and 3 magazines at 20¢ each? 
\[ a \quad 27\epsilon \quad b \quad 77\epsilon \quad c \quad 1.27 \quad d \quad 1.37 \quad e \quad \text{not given} \]

10 Each class in a school agreed to collect \( \frac{1}{3} \) of 300 cans of food for Thanksgiving baskets. How many cans would each class have to collect? 
\[ f \quad 50 \quad g \quad 60 \quad h \quad 180 \quad i \quad 240 \quad j \quad \text{not given} \]

11 Tom runs errands for 15¢ each. If he averages 15 errands a month, what is his monthly income? 
\[ a \quad 15\epsilon \quad b \quad 30\epsilon \quad c \quad 1.50 \quad d \quad 2.25 \quad e \quad \text{not given} \]

12 The heights of five boys are 60 inches, 67 inches, 66 inches, 62 inches, and 60 inches. If they lined up according to height, how tall would the middle boy be? 
\[ f \quad 60 \quad \text{in} \quad g \quad 62 \quad \text{in} \quad h \quad 63 \quad \text{in} \quad i \quad 66 \quad \text{in} \quad j \quad \text{not given} \]

13 Candy eggs are 2 for 5¢. How many can be bought for 50¢? 
\[ a \quad 10 \quad b \quad 20 \quad c \quad 25 \quad d \quad 30 \quad e \quad \text{not given} \]

14 For a picnic, a class bought 4 dozen buns at 22¢ a dozen and 3 packages of marshmallows at 32¢ a package. How much did the buns and marshmallows cost all together? 
\[ f \quad 88\epsilon \quad g \quad 96\epsilon \quad h \quad 1.74 \quad i \quad 1.84 \quad j \quad \text{not given} \]
16 When the Smiths go to the movies, Jane takes care of their baby and earns 50¢ an hour. How much should she receive for staying one evening from 7 P.M. to 10:30 P.M.?  
   a 50¢ b $1.50  c $1.75 d $2.50 e not given 15  

16 A pancake recipe for 6 persons calls for \( \frac{2}{3} \) cups of pancake mix. How many cups will it take for 3 persons?  
   f \( \frac{1}{4} \)  g \( \frac{1}{2} \)  h \( 2\frac{1}{2} \)  i \( 3\frac{3}{4} \) j not given 16  

17 Bill jumped 13 feet 5 inches on Tuesday. On Thursday he jumped 11 feet 9 inches. How much farther did he jump on Tuesday than on Thursday?  
   a 1 ft. 2 in.  b 1 ft. 4 in.  c 1 ft. 6 in.  d 2 ft. 4 in.  e not given 17  

18 A Scout troop bought 24 uniforms for $194.40. What was the cost per uniform?  
   f $8.10  g $8.95  h $9.92  i $9.95  j not given 18  

19 Pine City is 120 miles from Milton. To go from Pine City to Milton by bus takes 4 hours and by train only 2 hours. How many hours less does it take to go by train?  
   a 1 1/4 b 1 3/4 c 2 1/2 d 3 3/4 e not given 19  

20 How many 1-inch by 2-inch pieces of candy can be cut in a pan which is 8 inches by 10 inches?  
   f 20  g 36  h 50  i 80  j not given 20  

21 Dan says there are 2 quart and 2 pint packages of ice cream for the party. How many people will all of it serve if a pint serves 4 people?  
   a 4  b 12  c 16  d 24  e not given 21  

22 A scale drawing reads “1 inch = 12 inches.” A line 3 1/4 inches long on this drawing represents how many actual inches?  
   f 12  g 15 1/4  h 27  i 39  j not given 22  

23 The butcher says to cook a turkey 20 minutes for each pound. At what hour should a 15-pound turkey be started in order to be done at 12 o’clock noon?  
   a 6 A.M.  b 8 A.M.  c 9 A.M.  d 10 A.M.  e not given 23  

24 If campers start 2000 forest fires each year and tobacco smokers start 5000, how many times as many fires are started by tobacco smokers as by campers?  
   f \( \frac{5}{2} \)  g \( 2\frac{1}{2} \)  h 5  i 10  j not given 24  

25 George wants to buy a board to saw into 8 pieces 1 1/2 feet long. If he ignores the waste in sawing, how long will the board have to be?  
   a 9 3/4 ft.  b 14 ft.  c 16 ft.  d 56 ft.  e not given 25  

26 Mr. Wilson is going to buy 60 pounds of mixed grass seed. He says the mixture should be 1 part clover, 2 parts bluegrass, and 3 parts rye. How many pounds of the mixture will be bluegrass seed?  
   f 6  g 10  h 20  i 30  j not given 26  

27 A club has an income of $50. Of this, $20 is budgeted for food. What per cent does the club budget for food?  
   a 10  b 20  c 25  d 40  e not given 27  

28 If the sales tax is 3%, what is the tax, to the nearest cent, on a coat which costs $27.60?  
   f \( 81\frac{1}{10} \)  g \( 83\frac{3}{10} \)  h \( 84\frac{4}{10} \)  i \( 92\frac{8}{10} \)  j not given 28  

29 If a man earns $80 in a week and has deductions of 1% for unemployment insurance, 1 1/2% for old-age security, and $12 for income tax, how much does he have left?  
   a $65.50  b $66  c $67.80  d $67.97  e not given 29  

30 The speed of sound is about 1100 feet per second. Bob sees lightning and then hears it thunder 20 seconds later. To the nearest mile, how many miles away was the lightning?  
   f 4  g 6  h 8  i 10  j not given 30
DIRECTIONS: The answer to each of these examples can be thought out without doing any figuring on paper. You are to think out the answer and mark the answer space that is lettered the same as your choice.

81 Without working the examples, choose the one in which the quotient will be largest.
   \[ \frac{19}{938} \quad \frac{19}{940} \quad \frac{19}{934} \quad \frac{19}{937} \]
   a 19\(\frac{938}{937}\) b 19\(\frac{940}{937}\) c 19\(\frac{934}{937}\) d 19\(\frac{937}{937}\)

82 In which number is the 8 in the hundreds position?
   e 1089 f 1980 g 9801 h 1908

83 Which is the smallest fraction?
   \[ \frac{1}{10} \quad \frac{1}{50} \quad \frac{1}{10} \quad \frac{1}{5} \]
   a \(\frac{1}{10}\) b \(\frac{1}{50}\) c \(\frac{1}{10}\) d \(\frac{1}{5}\)

84 Without measuring, tell how many inches long this line is.
   e 1 f 2 g 3 h 4

85 How much is 19.7 rounded off to the nearest whole number?
   a 19 b 19 c 20 d 197

86 A loan which has real estate to guarantee its payment is —
   e interest f stock g capital h a mortgage

87 A kind of insurance which protects against lawsuits for damage is —
   a annuity b liability c theft d marine

88 By estimation, choose the example which will have the smallest product.
   e 806 f 8.06 g 80.6 h 8.06
   4.50 45.0 4.50 4.50

89 \(\sqrt{64} = \)
   a 8 b 32 c 64 d 4096

90 How much is 150% of 20?
   e 3 f 7.5 g 30 h 75

91 Which line is horizontal?
   \[ a \quad b \quad c \quad d \]

92 If \(b\) is the base of a triangle and \(a\) is its altitude, the area of the triangle is —
   e \(\frac{1}{2}ab\) f \(ab\) g \(a+b\) h \(2ab\)

93 17.5% is equal to the decimal —
   a .175 b 1.75 c 17.05 d 17.50

94 By estimation, choose the example whose quotient will be smaller than 1.
   e 126\(\frac{127}{127}\) f 138\(\frac{137.2}{137.2}\) g 156.3\(\frac{157}{157}\) h 125\(\frac{125}{125}\)

95 Which is the same as "4 less than 5 times a number = 21"?
   a \(4 - 5 = 21\) N b \(\frac{5N}{4} = 21\) c \(21 \times 5 - 4 = N\) d \(5N - 4 = 21\)

Stop.
DIRECTIONS: Work each example. Then compare your answer with the answers given at the right of the example. If your answer is one of those given, mark the answer space that has the same letter as your answer. Sometimes the correct answer is not given. If the correct answer is not given, mark the answer space under the letter for not given. Look carefully at each example to see what it tells you to do. If you need to do any figuring, use a separate sheet of paper.

<table>
<thead>
<tr>
<th>Example</th>
<th>Operation</th>
<th>Number 1</th>
<th>Number 2</th>
<th>Result</th>
<th>Option A</th>
<th>Option B</th>
<th>Option C</th>
<th>Option D</th>
<th>Option E</th>
<th>Option F</th>
<th>Option G</th>
<th>Option H</th>
<th>Option I</th>
<th>Option J</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Multiply</td>
<td>450</td>
<td>7</td>
<td>3050</td>
<td>a</td>
<td>b</td>
<td>c</td>
<td>d</td>
<td>e</td>
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<tr>
<td>2</td>
<td>Add</td>
<td>$4.80</td>
<td>9.65</td>
<td>$14.35</td>
<td>f</td>
<td>g</td>
<td>h</td>
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<tr>
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<td>$0.52</td>
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<td>b</td>
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<td>3</td>
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<td>759</td>
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<td>c</td>
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<td>14</td>
<td>1010</td>
<td>f</td>
<td>g</td>
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<td>h</td>
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<td>i</td>
<td>j</td>
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<td>7</td>
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<td>474,868</td>
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<td>b</td>
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<tr>
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<td>Multiply</td>
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<td>203</td>
<td>613</td>
<td>a</td>
<td>b</td>
<td>c</td>
<td>d</td>
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<tr>
<td>10</td>
<td>Subtract</td>
<td>160</td>
<td>7 3/4</td>
<td>14 7/16</td>
<td>f</td>
<td>g</td>
<td>h</td>
<td>i</td>
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<td>j</td>
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<tr>
<td>11</td>
<td>Add</td>
<td>1/5</td>
<td>1/5</td>
<td>1/3</td>
<td>a</td>
<td>b</td>
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<td>e</td>
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<tr>
<td>12</td>
<td>1/4 × 3/4</td>
<td>1/4</td>
<td>1/3</td>
<td>3/8</td>
<td>i</td>
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<tr>
<td>13</td>
<td>6 ÷ 2/3</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>a</td>
<td>b</td>
<td>c</td>
<td>d</td>
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<tr>
<td>14</td>
<td>4% of $800</td>
<td>$32</td>
<td>$200</td>
<td>$804</td>
<td>f</td>
<td>g</td>
<td></td>
<td>h</td>
<td>i</td>
<td>j</td>
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<tr>
<td>15</td>
<td>Add</td>
<td>$1/8</td>
<td>$2 1/12</td>
<td></td>
<td>a</td>
<td>b</td>
<td>c</td>
<td>d</td>
<td>e</td>
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</tr>
</tbody>
</table>
16. \( 0.2 \times 0.12 = \)

\[
\begin{array}{cccccc}
& f & .024 & g & .06 & h & .6 & i & 24 & j & \text{not given}
\end{array}
\]

17. Add

\[
\begin{array}{cccccc}
4474.59 & a & 12,022.80 & b & 12,822.90 & c & 12,931.80 \\
7668.98 & a & 12,022.80 & b & 12,822.90 & c & 12,931.80 \\
90.67 & d & 12,932.80 & e & \text{not given} & & \\
698.56 & d & 12,932.80 & e & \text{not given} & & \\
\end{array}
\]

18. \( \frac{6424}{84} \)

\[
\begin{array}{cccccc}
& f & 84 & g & 94 & h & 904 & i & 940 & j & \text{not given}
\end{array}
\]

19. Selling Price \( = \$250 \)

Rate of Commission \( = 4\% \)

Commission \( = ? \)

\[
\begin{array}{cccccc}
a & $10 & b & $100 & c & $240 & d & $254 & e & \text{not given}
\end{array}
\]

20. \( 8 \div 16 \)

\[
\begin{array}{cccccc}
f & .002 & g & .2 & h & 2 & i & 20 & j & \text{not given}
\end{array}
\]

21. Subtract

\[
\begin{array}{cccccc}
3 \frac{7}{8} & a & 0 & b & \frac{1}{3} & c & \frac{7}{16} & d & \frac{13}{16} & e & \text{not given}
\end{array}
\]

22. \( 4 \frac{3}{8} \times 3 \frac{3}{4} = \)

\[
\begin{array}{cccccc}
f & 7 \frac{1}{2} & g & 12 & h & 12 \frac{1}{2} & i & 15 & j & \text{not given}
\end{array}
\]

23. If \( d + 5 = 15 \), \( d = \)

\[
\begin{array}{cccccc}
a & 3 & b & 10 & c & 20 & d & 75 & e & \text{not given}
\end{array}
\]

24. \( \frac{5}{8} \div \frac{3}{10} = \)

\[
\begin{array}{cccccc}
f & 3 \frac{1}{16} & g & \frac{4}{9} & h & \frac{12}{25} & i & \frac{1}{12} & j & \text{not given}
\end{array}
\]

25. What per cent of the grass seed is rye?

\[
\begin{array}{cccccc}
a & 38\% & b & 40\% & c & 60\% & d & 62\% & e & \text{not given}
\end{array}
\]

26. How many times as much bluegrass is there as clover?

\[
\begin{array}{cccccc}
f & 2 & g & 8 & h & 16 & i & 18 & j & \text{not given}
\end{array}
\]

A Grass Seed Mixture

27. Subtract

\[
\begin{array}{cccccc}
11 \text{ ft. 4 in.} & a & 2 \text{ ft. 6 in.} & b & 2 \text{ ft. 8 in.} & c & 3 \text{ ft. 4 in.}
\end{array}
\]

\[
\begin{array}{cccccc}
8 \text{ ft. 8 in.} & d & 20 \text{ ft. 0 in.} & e & \text{not given}
\end{array}
\]

28. Add

\[
\begin{array}{cccccc}
4 \text{ hr. 27 min.} & f & 11 \text{ hr. 41 min.} & g & 12 \text{ hr. 1 min.} & h & 12 \text{ hr. 31 min.}
\end{array}
\]

\[
\begin{array}{cccccc}
4 \text{ hr. 36 min.} & f & 12 \text{ hr. 51 min.} & i & \text{not given}
\end{array}
\]

29. On which day of these two weeks were the most pupils absent?

\[
\begin{array}{cccccc}
a & \text{Tues.} & b & \text{Wed.} & c & \text{Thurs.} & d & \text{Fri.} & e & \text{not given}
\end{array}
\]

30. How many more pupils were absent on Wednesday of this week than on Thursday of last week?

\[
\begin{array}{cccccc}
f & 2 & g & 5 & h & 6 & i & 9 & j & \text{not given}
\end{array}
\]

31. Find the average

\[
\begin{array}{cccccc}
16 \text{ ft.} & a & 12 \text{ ft.} & b & 12 \frac{1}{2} \text{ ft.} & c & 16 \text{ ft.} & d & 20 \text{ ft.} & e & \text{not given}
\end{array}
\]

\[
\begin{array}{cccccc}
32 \text{ ft.} & a & 12 \text{ ft.} & b & 12 \frac{1}{2} \text{ ft.} & c & 16 \text{ ft.} & d & 20 \text{ ft.} & e & \text{not given}
\end{array}
\]

\[
\begin{array}{cccccc}
12 \text{ ft.} & a & 12 \text{ ft.} & b & 12 \frac{1}{2} \text{ ft.} & c & 16 \text{ ft.} & d & 20 \text{ ft.} & e & \text{not given}
\end{array}
\]
32. \( \frac{43}{3} \)  \( f \) \( .075 \)  \( g \) \( \frac{3}{4} \)  \( h \) \( .75 \)  \( i \) \( 7.5 \)  \( j \) not given

33. Add 21 m. 66 cm.  \( a \) 53 m. 38 cm.  \( b \) 54 m. 38 cm.  \( c \) 65 m. 8 cm.  \( d \) 66 m. 8 cm.  \( e \) not given

34. If \( A = bh \), what is the area of the parallelogram shown at the left?

\( f \) 32  \( g \) 36  \( h \) 160  \( i \) 1620  \( j \) not given

35. If 10% of an amount is 25\( \$, what is the amount?

\( a \) 2.5\$  \( b \) 25\$  \( c \) 40\$  \( d \) $2.50  \( e \) not given

36. \( \frac{2}{6} = \frac{1}{?} \)

\( f \) 3  \( g \) 5  \( h \) 7  \( i \) 12  \( j \) not given

37. If 5\( r + 2 = 37 \), \( r = \)

\( a \) 5  \( b \) 7  \( c \) 30  \( d \) 35  \( e \) not given

38. Assessed Valuation = $2000
    Tax Rate per $100 = $4.50
    Amount of Tax = ?

\( f \$9 \)  \( g \$15.50 \)  \( h \$90 \)  \( i \$2450 \)  \( j \) not given

39. \( \frac{-24}{-3} = \)

\( a \) -24  \( b \) -8  \( c \) 8  \( d \) 21  \( e \) not given

40. Multiply \( \frac{-3y}{4} \)

\( f \) 12  \( g \) -12\( y \)  \( h \) 12  \( i \) -12  \( j \) not given

41. Principal = $400
    Annual Interest = $20
    Rate of Interest = ?

\( a \) .4%  \( b \) 2%  \( c \) 5%  \( d \) 40%  \( e \) not given

42. If \( B = 16 \), \( B = \)

\( f \) 14  \( g \) 16  \( h \) 18  \( i \) 32  \( j \) not given

43. Principal = $400
    Rate = 3%
    Time = 9 mo.
    Interest = ?

\( a \$1.33 \)  \( b \$9 \)  \( c \$12 \)  \( d \$108 \)  \( e \) not given

44. If \( A = \pi r^2 \), what is the area of the circle shown at the left?

\( \pi = 3.14 \)

\( f \) 24.12 sq. ft.  \( g \) 50.24 sq. ft.  \( h \) 198.24 sq. ft.  \( i \) 200.96 sq. ft.  \( j \) not given

Stop.
TEST 7 Social Studies: History, Geography, and Civics

DIRECTIONS: In each exercise, one of the four numbered answers is the best answer. Mark the answer space which is numbered the same as the best answer. The sample is marked correctly.

SAMPLE:

1. The United States flag is red, white, and — 1 black 2 green 3 blue 4 yellow

2. The highest officer of a city usually is the —
   1 alderman 2 chief of police 3 councilman 4 mayor

3. One of the first successful steamboats was built by —
   5 Hayes 6 Fulton 7 Ford 8 Wright

4. The largest country in South America is —
   1 Chile 2 Argentina 3 Peru 4 Brazil

5. A great deal of gold is mined in —
   5 Tennessee 6 Alaska 7 China 8 Ohio

6. In order to vote, a person in the United States must —
   1 be a citizen 2 own property 3 pay taxes 4 have been born in the U. S.

7. Jury service helps preserve —
   1 free speech 2 free assembly 3 fair trial 4 protection against search

8. The process of vulcanizing rubber was developed by —
   5 Ford 2 Goodyear 3 Duryea 4 Westinghouse

9. Seattle is in —
   1 California 2 Washington 3 Oregon 4 Idaho

10. An important occupation in colonial days was that of —
    1 locomotive engineer 2 plumber 3 blacksmith 4 telephone operator

11. A famous Confederate general was —
    1 George Dewey 2 Nathanael Greene 3 Stonewall Jackson 4 George Meade

12. The country with the largest area is —
    1 the U.S.S.R. 2 the United States 3 China 4 India

13. Many very large ranches are to be found in —
    1 Italy 2 Argentina 3 Japan 4 France

14. Rome is the capital of —
    1 Luxemburg 2 Tunis 3 Italy 4 Libya

15. A state producing much oil is —
    1 Iowa 2 Nebraska 3 Delaware 4 Oklahoma

16. The Sahara Desert is located in —
    1 North America 2 Africa 3 South America 4 Asia Minor

17. The highest court in the United States judicial system is the —
    1 Supreme Court 2 Probate Court 3 Court of Appeals 4 Circuit Court

18. The United States government has provided reservations for —
    1 Indians 2 Chinese 3 veterans 4 Negroes

19. The climate of the greatest portion of South America is —
    1 hot and dry 2 cold 3 cold and dry 4 hot and damp

20. Longitude is measured in —
    5 degrees 6 acres 7 miles 8 kilometers
21 Who is commonly credited with the invention of the telegraph?
   1 Howe  2 Fulton  3 Morse  4 Whitney

22 Through which of the following are citizens contacted most frequently?
   5 political conventions  6 newspapers  7 public meetings  8 scientific magazines

23 A product which comes from animals is —
   1 cheese  2 cork  3 apples  4 paper

24 Land surrounded on three sides by water is called —
   5 an island  6 a peninsula  7 a delta  8 a plateau

25 In western United States, Indian homes were usually built and cared for by the —
   1 children  2 young men  3 women  4 old men

26 An elevated tableland is called a —
   5 valley  6 cape  7 forest  8 plateau

27 Which of the following is the hottest zone?
   1 Frigid  2 North Temperate  3 South Temperate  4 Torrid

28 A leader of the Quakers was —
   5 Peter Stuyvesant  6 John Smith  7 Roger Williams  8 William Penn

29 Which of the following is used for hatching chickens?
   1 carburetor  2 pedometer  3 incinerator  4 incubator

30 The meat of the calf is called —
   5 veal  6 venison  7 pork  8 mutton

31 An American explorer, famous for his recent Antarctic expeditions, is —
   1 Peary  2 Byrd  3 Amundsen  4 Stefansson

32 The United States purchased Alaska from —
   5 Japan  6 Russia  7 France  8 Spain

33 An important river of Europe is the —
   1 Nile  2 Yukon  3 Indus  4 Danube

34 The most immediate problem caused by sudden growth of a city is in its —
   5 housing  6 form of government  7 school system  8 playgrounds

35 The Great Central Plains of the United States is a land of —
   1 farms  2 mines  3 plantations  4 sand dunes

36 Deep soils are most often found in —
   5 mountains  6 plateaus  7 steppes  8 valleys

37 The Chinese belong to which race?
   1 Negroid  2 Polynesian  3 Caucasian  4 Mongolian

38 Clara Barton is remembered as a —
   5 writer  6 pilot  7 nurse  8 officer

39 Moses was a great —
   1 lawgiver  2 author  3 poet  4 explorer

40 George Westinghouse invented the —
   5 automobile  6 air brake  7 helicopter  8 jet engine

41 The earliest form of trade was —
   1 barter  2 purchase with money  3 purchase with jewels  4 by use of credit

42 Which of the following means of travel probably was invented first?
   5 buggy  6 cart  7 stagecoach  8 bicycle

43 Many aqueducts were built by the —
   1 Romans  2 Hindus  3 Picts  4 Arabs

44 The treaty after World War I provided for the —
   5 Hague Tribunal  6 United Nations  7 League of Nations  8 Universal Postal Union

45 The laws of the United States government are made by the —
   1 President  2 Governors  3 Supreme Court  4 Congress

Go on to the next page.
Both state and federal governments can —
1. declare war  2. coin money  3. tax incomes  4. establish post offices
5. Both state and federal governments can —
Chivalry was part of the education of feudal —
1. serfs  2. freemen  3. knights  4. monks
European expansion in the Americas was discouraged by the —
Johann Sebastian Bach was a noted —
1. sculptor  2. writer  3. composer  4. architect
Of these countries, the Mohammedan religion is most common in —
Failure of an individual to obey a court decree is called —
1. indictment  2. injunction  3. slander  4. contempt
The outdoor leisure-time activity in which the most United States citizens participate is —
1. playing tennis  2. playing football  3. riding in automobiles  4. hunting
Alexander Fleming of England discovered —
1. jet propulsion  2. aureomycin  3. mesons  4. penicillin
Medieval monks copied many old books on —
1. monk's cloth  2. parchment  3. papyrus  4. printing presses
The Armada was a great fleet of —
Primary legal responsibility for education in the United States rests with the —
1. states  2. counties  3. cities  4. villages
An early leader of the woman-suffrage movement was —
The greatest peacetime use of finished steel plate in the United States is for —
1. automobiles  2. bridges  3. railroads  4. agriculture
The first great railroad was the —
Switzerland has —
1. good harbors  2. no seacoast  3. many fiords  4. a rugged seacoast
A parliament is a —
1. trust  2. court  3. legislature  4. cabinet
The first great American steel manufacturer was —
The steel mills of the world usually have been located to be close to —
1. coal mines  2. water power  3. oil fields  4. electric power
The Australian ballot has resulted in —
1. the direct primary  2. open balloting  3. bribery of voters  4. secret balloting
Federal courts have jurisdiction in all cases concerning —
1. maritime violations  2. truancy  3. highway speeding  4. property violations
The original United Nations charter provided for a Security Council with a membership of —
1. 5 nations  2. 6 nations  3. 7 nations  4. 8 nations

Stop.
TEST 8  Science

DIRECTIONS: Choose the best answer for each exercise and mark the answer space that is numbered the same as your choice.

1. A “closed season” protects — 1. wild life  2. swimmers  3. hunters  4. travelers
2. Insect larvae are the chief food of some — 5. bees  6. flies  7. birds  8. worms
3. A plant that grows from a bulb is the — 1. carrot  2. tomato  3. lettuce  4. onion
4. Dew on the grass comes from — 5. rain during the night  6. moisture in the air  7. the grass itself
5. Which of the following travels fastest? 1. a bullet  2. a raindrop  3. an airplane  4. light
6. Levees are built to — 5. prevent floods  6. catch animals  7. break up snowdrifts  8. stop fires
7. All planets are alike in that they — 1. shine by their own light  2. are of the same size  3. are hot  4. rotate
8. Oil is put on water of ponds and pools to get rid of — 5. grasshoppers  6. mosquitoes  7. flies  8. beetles
9. The muscles are weakened by — 1. food  2. exercise  3. fresh air  4. disuse
10. Bees help plants produce seeds by carrying — 5. water  6. seeds  7. pollen  8. honey
11. The age of a tree may be told from its — 1. bark  2. limbs  3. leaves  4. rings
12. A disease of the lungs is — 5. measles  6. mumps  7. hay fever  8. pneumonia
13. Weather vanes show — 1. wind speed  2. wind direction  3. cloudiness  4. the amount of rainfall
14. An open draft causes fire to burn better because combustion needs — 1. oxygen  2. hydrogen  3. nitrogen  4. moist air
15. In the United States we have the most hours of daylight in — 1. June  2. September  3. December  4. March
16. For his bones to harden well, a child needs plenty of — 1. sugar  2. starch  3. fat  4. calcium
17. If a child’s ankle is sprained, he has — 1. bruised skin  2. an injured ligament  3. a broken bone  4. a diseased joint
18. Digestion is aided most by — 1. eating slowly  2. eating spicy foods  3. drinking water  4. chewing gum
19. The moon and the earth both have — 1. people  2. many rocks  3. wind  4. trees
20. If you tighten a violin string, the sound will become — 1. louder  6. higher in pitch  7. lower in pitch  8. softer
21. Coffee is not recommended for children because it — 1. makes them tired  2. overstimulates them  3. contains too much sugar  4. retards digestion
22. The explosion of an atom bomb proves that atoms are — 5. a source of energy  6. very small  7. everywhere  8. heavy
23. Malaria is best prevented by destroying — 1. wood ticks  2. flies  3. mosquitoes  4. lice
24. Chemicals that kill bacteria are called — 5. solvents  6. germicides  7. acids  8. laxatives
25. The sun is made of — 1. hot metal  2. electricity  3. glowing gases  4. reflecting material

Go on to the next page.
25. Surgery has been made painless by the use of —
   5 vaccines 6 anesthetics 7 serum 8 iodine

27. The number of phases, or changes, of the moon shown on most calendars is —
   1 two 2 four 3 six 4 eight

28. A daily lunch of doughnuts and malted milk is poor because —
   5 sweets are bad for us 6 they are fattening 7 they lack important food elements 8 doughnuts are greasy

29. To put out a fire in a pan of burning grease, do not use —
   1 baking soda 2 water 3 table salt 4 carbon dioxide

30. One's body can best resist heat with the help of its —
   5 thyroid gland 6 sweat glands 7 lymph vessels 8 pancreas

31. We know that gravity is not the same as magnetism, because gravity —
   1 is weaker 2 will attract iron 3 affects all things 4 does not depend upon electricity

32. Evaporation is most rapid from a —
   5 jug 6 flat pan 7 drinking glass 8 bottle

33. Water leaves the earth and returns in a pattern called a —
   5 water table 6 water cycle 7 water wheel 8 watershed

34. A material which does not conduct electricity makes a good —
   5 fuse 6 circuit 7 insulator 8 magnet

35. Pressure cookers are especially useful because they —
   1 are not likely to explode 2 hold much food 3 develop high temperatures quickly 4 work well at sea level

36. An electric doorbell works because electricity —
   5 causes a ringing noise 6 moves fast 7 makes a chemical change 8 produces magnetism

37. Protoplasm is —
   1 a gas 2 a living substance 3 decayed matter 4 a digestive juice

38. Thermos bottles employ the principle of —
   5 condensation 6 the siphon 7 evaporation 8 insulation

39. Cumulus clouds become thunderheads as they —
   1 gather more moisture 2 decrease in size 3 are blown more rapidly 4 settle toward the earth

40. Clover and helpful bacteria together furnish soil with —
   5 nitrates 6 lime 7 water 8 iron

41. By banding birds, scientists study the birds' habits of —
   1 migration 2 hibernation 3 digestion 4 breathing

42. As a general rule, crops are grown most successfully in soil composed largely of —
   5 lime 6 sand 7 loam 8 clay

43. Severe blowing away of topsoil is prevented most efficiently by —
   1 a hard packing 2 manure 3 a cover crop 4 more plowing

44. A plant mold used to fight infection is —
   5 penicillin 6 dodder 7 lichen 8 sassafras

45. Your arm is an example of a simple machine known as —
   1 an inclined plane 2 a wedge 3 a pulley 4 a lever

46. The primary purpose of a transformer is to —
   5 change voltage 6 measure current 7 reduce shock hazard 8 reduce costs

47. A current of electricity is a flow of —
   1 atoms 2 molecules 3 electrons 4 volts

48. Cakes are baked in order to —
   5 remove the moisture 6 kill bacteria 7 produce a chemical change 8 mix the ingredients better

Stop.
DIRECTIONS: Choose the best answer for each exercise and mark the answer space that has the same letter as your choice.

Use the table below in answering questions 1–5.

Average Temperatures, Highs and Lows, and Precipitation for Selected Cities

<table>
<thead>
<tr>
<th>CITIES</th>
<th>AVE. TEMP. (In degrees)</th>
<th>EXTREMES (In degrees)</th>
<th>PRECIPITATION (In inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JAN.</td>
<td>JULY</td>
<td>HIGH</td>
</tr>
<tr>
<td>Phoenix</td>
<td>52</td>
<td>90</td>
<td>118</td>
</tr>
<tr>
<td>Boston</td>
<td>29</td>
<td>72</td>
<td>104</td>
</tr>
<tr>
<td>Omaha</td>
<td>22</td>
<td>77</td>
<td>114</td>
</tr>
<tr>
<td>Huron (S. D.)</td>
<td>13</td>
<td>73</td>
<td>111</td>
</tr>
<tr>
<td>Juneau (Alaska)</td>
<td>29</td>
<td>65</td>
<td>89</td>
</tr>
</tbody>
</table>

1. In which city was the temperature highest?
   a Phoenix  b Boston  c Omaha  d Huron

2. The lowest temperature reached at Omaha was
   e -43°  f -32°  g -21°  h -18°

3. The greatest difference between average January and July temperatures is at
   a Phoenix  b Boston  c Omaha  d Huron

4. The climate of Juneau, Alaska, is most like that of
   a Phoenix  b Boston  c Omaha  d Huron

5. One of the most unusual aspects of the Juneau climate is its
   a warm summers  b cold winters  c great changes  d heavy precipitation

Use the graph below in answering questions 6–10.

Deaths Caused by Motor Vehicles and Falls for Selected Years

6. In which year were the most deaths caused by falls?
   e 1923  f 1933  g 1943  h 1948

7. How many thousands of accidental deaths were caused by motor vehicles in 1943?
   a 18  b 23  c 29  d 30

8. In which year was the number of deaths from motor vehicles greatest?
   e 1913  f 1933  g 1943  h 1948

9. In which year was the total number of deaths from both falls and motor-vehicle accidents greatest?
   a 1923  b 1933  c 1943  d 1948

10. In which year was there the greatest difference between accidental deaths from falls and from motor vehicles?
    e 1913  f 1923  g 1933  h 1943

Use the graph below in answering questions 11–15.

Favorite Activities of Students in Grades 7 through 10

11. In the 9th grade the largest per cent of students favor
    a speech  b music  c sports  d clubs

12. In the 7th grade more students prefer art than
    e speech  f music  g sports  h clubs

13. The activity which steadily declines in per cent from the 7th through the 10th grade is
    a speech  b music  c sports  d clubs

14. Approximately what portion of the students in the 10th grade favor sports?
    e 1/6  f 1/4  g 1/2  h 1/8

15. An activity which shows an increase in the per cent preferring it every year is
    a speech  b music  c clubs  d information not given
IRECTIONS: Here are three maps of the same imaginary state. You may need to use one, two, or sometimes all three maps, to answer a question. Notice that each map is divided into eight sectors which are numbered. Read each question, then select the best answer and mark the answer space that is lettered the same as your choice.

16. Which city is between two mountain ranges?  
   a Barr  b Dawn  c Linn  d Lee
   e  
17. The lightest rainfall occurs in sector —  
   e 1  f 2  g 3  h 4
   e  
18. Which product brings the most income to this entire area?  
   a dairy products  b oil  c wheat  d timber
   e  
19. A railroad that runs parallel to a river goes through —  
   e Troy  f Dawn  g Ball  h Lee
   e  
20. A railroad goes into the oil fields from —  
   a Troy  b Gray  c Kirk  d Lee
   e  
21. The rainfall in the wheat area is —  
   e 5-10 in.  f 10-20 in.  g 20-30 in.  h 30-40 in.
   e  
22. Where the rainfall is heaviest, the most income is from —  
   a wheat  b dairy products  c cattle  d oil
   e  
23. Which city is closest to coal and iron deposits?  
   a Lee  b Ball  c Dawn  d Barr
   e  
24. A canal is shown to bypass the —  
   a mountains  b falls  c mud flats  d city
   e  
25. Which of the following is most likely to be a desert town?  
   e Linn  f Troy  g Dawn  h Barr
   e  
26. Most minerals are produced in the —  
   a northeast  b northwest  c southeast  d southwest
   e  
27. Which city might now have a population of 50,000?  
   e Gray  f Ford  g Cook  h Troy
   e  
28. The commercial forests are located in the —  
   a southeast  b southwest  c northeast  d northwest
   e  
29. The airline distance from Cook to Dawn is about —  
   e 100 mi.  f 150 mi.  g 200 mi.  h 250 mi.
   e  
30. The fork of the river is nearest —  
   a Gray  b Cook  c Ford  d Kirk
   e  
31. Which city is between Troy and Gray in population?  
   e Lee  f Kirk  g Ford  h Cook
   e  
32. The city nearest the 41st parallel and the 85th meridian is —  
   a Wells  b Gray  c Cook  d Ford
   e  
33. The rainfall on the mountain range between Linn and Lee is —  
   e 5-10 in.  f 10-20 in.  g 20-30 in.  h 30-40 in.
   e  
34. Which city would be the best location for small factories?  
   a Troy  b Cook  c Kirk  d Ford
DIRECTIONS: This part of the test is on the use of the dictionary, location of information in references, and use of an index. Choose the one best answer and mark the answer space that has the same number as your choice.

35 Where would you find the number of people born last year in the state of Iowa?
   1 encyclopedia  2 geography book  3 The World Almanac  4 history book

36 Which word comes first in the dictionary?
   5 responsory  6 responsive  7 responsibility  8 responsively

37 Where would you find a schedule of the local movies?
   1 newspaper  2 movie magazine  3 telephone directory  4 radio

38 In an encyclopedia the best description of steelmaking would be found under —
   5 Bessemer process  6 Carnegie  7 Industrial Revolution  8 steel

39 In an encyclopedia the best account of the life of Lincoln would be found under —
   1 slavery  2 Civil War  3 Lincoln  4 Lincoln Memorial

For questions 40, 41, and 42 four meanings of the word “full” are given. For each sentence, decide which meaning of “full” is used. Mark the answer space that has the same number as your choice.

full (ful) a. That can hold no more.
    b. Complete; entire.
    c. Having wide folds.
    d. Completeness; greatest degree.

40 The basket was full of blueberries.  5 a  6 b  7 c  8 d

41 They enjoyed the concert to the full.  1 a  2 b  3 c  4 d

42 They took a full supply of food for the trip.  5 a  6 b  7 c  8 d

43 Where would you find a biography of Benjamin Franklin?
   1 Who’s Who in America  2 Readers’ Guide to Periodical Literature
   3 Dictionary of American Biography  4 dictionary

44 The most direct reference to the Inca Indians of Peru, South America, would be found in an index under —
   5 Inca Indians  6 South America  7 Peru  8 Indians

45 Where would you find the election returns of the last Presidential election?
   1 encyclopedia  2 atlas  3 information or world almanac  4 civics text

46 Which of these forms is the root word?  5 outer  6 outward  7 outside  8 out

47 Where would you look for an account of the Westward Movement in the United States?
   1 dictionary  2 history book  3 weekly magazine  4 atlas

48 In the index of a science book under planets, the topic telling why planets do not wander away would be —
   5 distance from the sun  6 courses of  7 distance from earth  8 life on the

49 Where would you find information on the plant experimentation of Luther Burbank?
   1 history book  2 Readers’ Guide to Periodical Literature
   3 information or world almanac  4 encyclopedia