

# **The Rationale, Development, and Standardization of a Basic Word Vocabulary Test**

A methodological report on the conceptual representation and measurement of American-English basic word vocabulary acquisition.

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# PREFACE

The National Health Survey Act of 1956 provides for the establishment and continuation of a National Health Survey to obtain information about the health status of the population in the United States. The responsibility for the development and conduct of that program is placed with the National Center for Health Statistics, a research-oriented statistical organization within the Health Resources Administration of the Public Health Service. The Health Examination Survey is one of three different programs employed by the National Center for Health Statistics to accomplish the objectives of the National Health Survey. It is used to collect data by drawing samples of the civilian noninstitutionalized population of the United States and undertakes to characterize the population under study by means of medical, dental, psychological, and nutritional examination and various tests and measurements.

In addition to the data collected by the examining, measuring, and testing procedures, a wide range of other data are collected concerning each of the sample persons examined. Therefore it is not only possible to study the many potential relationships of the examination findings to one another but also to investigate the relationships of these findings to demographic and socioeconomic factors.

The psychological component of the Health Examination Surveys is included to provide a more complete assessment of the health and well-being of the U.S. population. It is embedded in an interdisciplinary approach in the study of mental health, psychologic relationships with medical and nutritional conditions, and of growth, development, and aging.

Examination conditions and competing requirements for examination time dictate that each examination component must be specifically designed to fit within these constraints. A long range effort is underway to develop specific psychological examination procedures within an overall plan of psychological assessments that can be employed in these Health Examination Surveys. A first effort was directed towards developing a test that could be used in assessing level of development in verbal ability. Verbal ability was selected because of its central role in intellectual development and in formal human communications.

The result of this effort was the development of a vocabulary test, the Basic Word Vocabulary Test. The rationale and development of this test are described in this report. The test was developed to provide a measurement instrument of word knowledge acquisition with two additional properties that are not extant in any other standardized vocabulary test. These two properties are reflected in its content representation (content validity) of a carefully specified population of words and in its range of application from about the third grade level of literacy to the highest level of word knowledge acquisition. These two properties permit assessment of a wide range of vocabulary development in terms of absolute level (as estimates of the word population) and relative standing in reference to various normative groups, i.e., age-education standing, on one continuous scale. With proper developmental work, assessment of vocabulary development can be extended downward to about 2 years of age and thus extend measurement-capability along the full range of this developmental aspect of psychosocial functioning.

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### SYMBOLS

Data not available-----	- - -
Category not applicable-----	. . .
Quantity zero-----	-
Quantity more than 0 but less than 0.05----	0.0
Figure does not meet standards of reliability or precision-----	*



# THE RATIONALE, DEVELOPMENT, AND STANDARDIZATION OF A BASIC WORD VOCABULARY TEST

Harold J. Dupuy, Ph.D., *Division of Health Examination Statistics*

## FUNCTIONS OF LANGUAGE AND VOCABULARY DEVELOPMENT

Language has been devised and developed for all kinds of uses—for exciting attention, for the expression of feelings, for graphic description, for conveying instructions, for service in closely reasoned thinking, for scientific exposition, for disputation, for rhythmic delight, for gossip, and for abuse. Language serves to assist memory and facilitate thought; to communicate meaning and, when necessary or desired, to disguise it; to state intentions or merely to intimate their nature; to influence or control the actions of others; and to provide substitute satisfactions for those that would normally be gained by the exercise of bodily activity.<sup>1</sup>

Measurement of vocabulary has long interested educators and psychologists because of its importance in language development and growth, its relationship with general intellectual development, its use in human communication, and its function in symbolic thinking.

In studying the relationships of vocabulary size with language development and growth, precise definitions of terms, measurement procedures used, and the nature of the measuring situation must be clearly stated. Attention should be given not only to measuring vocabulary growth in terms of the increase in number of words available for use but also in terms of the knowledge of range of definitions and precision of meanings given words may have.

The strong relationship between vocabulary size and measures of general intellectual development has long been noted not only among individuals in the normal range of general intellectual ability and maturity but also among the gifted, mentally retarded, and for children as young as 2 years of age.

A person's ability to read and listen with understanding, to express himself accurately and precisely in speech and writing, and to use words effectively in symbolic thought processes is undoubtedly related to the number and kinds of words he understands and has at his command.

## Vocabulary and Language Development and Growth

One of the earliest studies, cited by McCarthy,<sup>2</sup> of the measurement of vocabulary in language development and growth was done by Feldmann in 1833, when he reviewed the reports of the vocabulary of 33 children. Since that time a great number of studies of language development and growth have been conducted in trying to estimate the size of the general English language and of individual vocabularies for different age and educational levels.<sup>1-3</sup> However, these efforts have not been successful. These authors<sup>1-3</sup> and others<sup>4,5</sup> have noted some of the difficulties in obtaining consistent estimates across different studies. These include differences among authors in definition, or even failure to specify some or all of the following:

- (1) definition of the unit of measurement—the word,
- (2) estimates of the word population,
- (3) basis for sampling, e.g., the size of the dictionary or the nature of the use situation from which the sampling for the test was taken, and
- (4) criteria used in determining word knowledge.

For example, criteria of word knowledge which may be applied are:

- (1) recognition of the commonest meaning of a word,
- (2) definition in the subject's own words,
- (3) proper use of the word in a sentence, citing an illustration, or naming an object, or
- (4) simply counting the number of different words used in a given context.

Thus it is important when using a measure of vocabulary size in studying language development and growth that all these aspects of measurement be clearly stated and explicitly defined.

#### Vocabulary and General Intellectual Development

The strong relationship between vocabulary and general intelligence was noted as early as 1838 by the French physician Esquirol in his studies of mental retardates.<sup>6</sup> He concluded that the individual's use of language provides the most dependable criterion of his intellectual level. The first acceptable measure of general intelligence, the Binet-Simon Scale developed in 1905, also put special emphasis on verbal skills.<sup>6</sup> Terman<sup>7</sup> in 1918 reported a correlation of .91 between mental age and vocabulary with the Stanford Revision of the Binet-Simon Scale. He concluded that a mental age based on a vocabulary test could serve as well as the entire scale. Miner<sup>8</sup> in 1957 reviewed 21 different studies of the relationship of vocabulary with more comprehensive tests of general intellectual functioning and found a median correlation of .83. Practically all major general educational achievement tests and aptitude test batteries for use in school and occupational

counseling and personnel selection and classification include a test of verbal ability.<sup>6</sup> Those which do not are usually explicitly labeled as non-verbal or as performance tests of intelligence. Thorndike and Gallup in 1944<sup>9</sup> indicated the need, both in research and in practical projects, for some yardstick with which to measure adult intelligence. Thorndike and Gallup,<sup>9</sup> and Miner<sup>8</sup> used a 20-item structured vocabulary test in their respective studies of American adult intelligence. In the two major tests used for individual testing of general intelligence, the correlations between the vocabulary subtest scores and the total test scores are .83, .82, and .83 for three adult age levels in the Wechsler Adult Intelligence Scale<sup>10</sup> and range from .86 to .96 for four levels of adult intelligence in the Stanford-Binet Form L-M.<sup>11</sup> Miner concludes from his review that vocabulary tests correlate at least as well with tests of general intelligence as the more comprehensive instruments correlate with each other. It is also worthwhile to note that tests of vocabulary or verbal ability can be used as early as age 2 years if not earlier in the measurement of general intellectual attainment.

#### Vocabulary and Human Communication

Words are our principal means of communication with one another. A limited vocabulary hinders, restricts, and confines the possible use of one's social and intellectual potential. Educational level and attainment of positions in higher level occupations are closely related to the size of one's vocabulary. A person's vocabulary can be divided into two categories: active, composed of speaking and writing vocabularies, and passive, composed of listening and reading vocabularies. Among literate adults speaking vocabulary is generally the most limited while reading and listening vocabularies are the largest. Young children, of course, first build listening and speaking vocabularies and these predominate until the time when reading and writing skills have been sufficiently developed for effective use and further development. Note should also be taken of the many specialized vocabularies in technical fields and occupational trades, among cultural subgroups, and geographic region to mention only a few. Also, there are many meanings or definitions for a given

word as well as differences in the depth or breadth of meaning expressed in a definition of a word. Vocabulary size alone does not insure effective communication but is a major tool in such efforts.<sup>1,4,12-14</sup>

### Vocabulary and Symbolic Thinking

Words may be regarded as "thought elements" in the complicated and intricate process of symbolic thinking. Watts,<sup>1</sup> for example, expressed the relationship between language and thought along the following lines: "We find sometimes that we have been thinking only after we have said what we have thought." He quotes other sources. "I talk so as to find out what I think—don't you?" "We must continue to talk about ourselves... till we know ourselves." "I endow'd thy purposes with words that made them known." He cites others who have indicated that intellectual insights may have to be expressed and thus seen for what they really are before the individual himself can accept or reject them. For example, an artist does not, in general, first form a complete image of what he wants to express but finds out what he wants to express by expressing it; he does not know what he will say until he has said it, and it comes as a revelation to himself. A great many thoughts, of course, occur before they are expressed in words. However, when thought is tentatively following new tracks and breaking fresh ground we must put our thoughts into words to make them known. Then we are able to find out what we think by expressing it.

### Vocabulary Tests and Cultural Bias

A common criticism of vocabulary tests is that they are unfair to culturally disadvantaged persons. Every psychological test measures a behavior sample. Insofar as culture affects behavior, its influence will and should be reflected in the test. The same cultural differentials that impair an individual's test performance are likely to handicap him in schoolwork, job performance, or any other activity correlated with performance on the test. Tests are designed to show what an individual can do at a given point in time. They cannot tell why he performs as he does nor can

they tell how well he might have performed if he had been reared in a more favorable environment. Tests should reveal the effects of cultural deprivation (and the effects of other conditions) so that appropriate remedial steps can be taken. To conceal the effects of cultural disadvantages by rejecting tests can only retard progress toward a genuine solution of certain social problems.<sup>6</sup>

Certainly an English vocabulary test should not be given to a non-English speaking person and then interpreted as an indicator of his general intellectual development. However, it can be used to ascertain the level of acquisition of English word knowledge. While there are many different vocabularies, for example baseball, mathematics, carpentry, and gambling, a general purpose vocabulary test should be based on a good sample of basic American-English words that reflect the vocabulary acquisition of the mainstream of the American-English speaking culture. Verbal communication is important in most of our activities both in receiving and transmitting useful information to the individual and to society.

## RATIONALE OF THE BASIC WORD VOCABULARY TEST

### Conceptual Representation

The fundamental conceptual formulation is based on an assumption that if there is a population, or subset, of basic or core words in the American-English language that can be identified and defined by a set of criteria, then the acquisition of knowledge about these words can be viewed as a sample of behavior of psychological interest. The construct term "basic word vocabulary" when applied to a person or persons will be used to refer to a sample of behavior presumed to reflect the acquisition of knowledge about this subset of words. It is postulated that if the acquisition of a basic word vocabulary reflects growth and development in basic word knowledge, in general verbal ability, and in general intellectual ability, then the measured level of basic word vocabulary will increase with age in the early years and will be positively correlated with other

indicators of verbal and intellectual ability. For a given measure of basic word vocabulary, its psychometric properties, functional relationship with early age, and magnitude and direction of relationships with other indicators of verbal and intellectual abilities for specific samples of individuals are questions for empirical investigation.

### **Purposes and Objective**

The importance and value of measuring vocabulary size are consistent with the current view among some psychologists<sup>6</sup> that psychological tests, including tests of general intellectual development or intelligence, measure the level of one's developed abilities. If a suitable means can be developed to measure the size of one's basic word vocabulary, then methods, techniques, and conditions can be explored and developed whereby the size of one's basic word vocabulary can be further increased.

A distinction can be made between the size of vocabulary in absolute and relative terms. By "absolute" is meant the total number of words in one's vocabulary. This can be estimated by one's knowledge of a representative sample of a given population of words. By "relative" is meant the size of one's vocabulary in relation to the vocabularies of other groups of persons. There is a need for having some idea of the absolute size of vocabulary at the elementary and high school levels so that growth in size can be assessed through the school years.<sup>3</sup> At the adult level such information would be useful in determining the extent of cultural or environmental deprivation, vocabulary deficiency, and the amount of change over long time periods in vocabulary development due to educational enhancement and other influences and in assessing the level of communication skills required in different occupations.

Thus the purposes for developing a structured basic word vocabulary test are to provide a measure, within certain limits, of the approximate size of an individual's basic word vocabulary and to provide a standard of comparison of his level of verbal development with others of similar characteristics such as age, education, and education within age.

The need to develop such a vocabulary test is based upon the fact that no current vocabulary

test exists which purports to measure both the absolute and relative size of one's vocabulary. Two previous studies were found in review of the literature in which attempts have been made to develop vocabulary tests of absolute size.<sup>5,12</sup> However, both of these studies are outdated and they suffer from some weaknesses in methodology and procedures. They do not provide clearly stated criteria of the population of words that their sample represents, or the criteria used in defining their "basic" words (they appear to be main entry words from the 1937 and 1940 editions of the Funk and Wagnall's Dictionary), nor do they provide explicit criteria of word meanings used in determining whether one knows a word.

Thus the objective was to develop a basic word vocabulary test which can serve as a measure of both the absolute and relative size of one's vocabulary. This required developing and explicitly stating the criteria to be used in (1) defining the basic unit of measurement—the basic word, (2) defining the population of basic words, and (3) determining whether one knows a given basic word for the measurement of the absolute size of one's vocabulary. To measure the relative size of one's vocabulary requires administering the test to a number of individuals and developing standards of performance on representative samples with certain characteristics.

The results of this research and development effort should provide a useful tool or instrument that can be used in studying the development and growth of language, the effects of experimental procedures to promote language growth, and that can be used as a measure of general verbal and intellectual development with results comparable to individually or group administered tests or test batteries of these general abilities.

## **DEVELOPMENT OF THE TEST**

### **Defining the Unit of Measurement and Estimating the Word Population**

The following procedures were used in defining the unit of measurement and in estimating the size of the population of words. First a set of criteria was prepared for drawing a sample

of main entry words from *Webster's Third New International Dictionary*.<sup>15</sup> This dictionary has three columns of main entries per page which are labelled herein as A, B, or C from left to right. The criteria for defining a main entry word were:

1. Only main entries were considered, i.e., those words appearing in boldface type and printed at the left margin of the column.
2. All homographs (main entry words spelled the same) for a given word were counted as one word. In the dictionary they are preceded by a superscript number. If the first homograph appeared in the column, it was counted as one word while succeeding homographs were ignored. If the second, third, etc., homographs appeared in the column but the first homograph did not, the word was not counted at all.
3. Prefixes and suffixes were not counted as words, but abbreviations were counted.
4. The letters of the alphabet were not counted as words in any case.

The procedures used in selecting the pages for the sample count were:

1. Pages which were numbered but contained no main entry words, only charts or graphs, were counted and subtracted from the total number (2,662) of dictionary pages. There were 13 such pages.
2. The first and last pages for each letter of the alphabet were counted separately. The middle column was used to obtain an estimate of the number of words on these pages. The number of main entry words was estimated by this method for 49 pages. The letter itself was never counted as a word.
3. Of the remaining 2,600 pages, a sample of 300 pages was drawn. Every 10th page was used, starting with page 10, unless the page to be used was a first or last page of a letter or was a chart page. In that case, the next page was used. Forty additional page numbers were selected randomly in order to get exactly 300 pages. A count was made of the number of words in a column, either the left-hand column (A), the middle column (B),

or the right-hand column (C). Columns A, B, or C were counted alternately and only one column per page was counted. Thus for each column A, B, and C 100 separate pages were counted and the count by columns was recorded separately. An analysis of variance among the three columns was computed and the differences in mean number of words per column were not significant at  $P = .10$  level ( $F = 2.102$  with 2:297 df). The mean or average number of main entry words per column for these 300 pages was 30.2.

The estimated number of main entry words in *Webster's Third New International Dictionary*, based on the 300 sampled columns, was 235,693. An additional 3,813 words were estimated from the first and last pages of each letter. The estimated total number of main entry words was 239,506 with a 95-percent confidence limit of  $\pm 10,610$  words.

The next step in the procedure was to select a 1-percent sample of main entry words from a rounded population estimate of 240,000 for further consideration. One word was taken from every page of the Webster dictionary except from pages whose numbers ended in 1 (e.g., 1, 521, 831, 1061). The third word from the top of the column was chosen. In determining which word was the third, the same criteria were applied as were used for counting words in the population (i.e., not counting prefixes and suffixes, ignoring all but first homographs, etc.). If the page number ended in 2, 5, or 8, the third word from the top of the left column (column A) was chosen. The third word down in the middle column (column B) was chosen from pages with numbers ending in 3, 6, or 9. Column C, the right column, was used for pages ending in 4, 7, or 0. An example of the procedure follows:

Column and Page Numbers

A	B	C
2	3	4
5	6	7
8	9	10
12	13	14
	etc.	

Pages 1, 11, 21, and so forth were skipped. If there were fewer than three usable main entries in the column, the page number was noted and the page was omitted. When this procedure was completed, the total word count in the sample was 56 words short of the 2,400, the number necessary for a 1-percent sample, so 56 pages ending in the number 1 were sampled. Every fourth page ending in 1, (31, 71, ...) was sampled until 2,400 words in all were obtained. Columns A, B, and C were successively chosen as in the original procedure.

The words thus chosen were classified into four categories: (1) compounds of two or more words and hyphenated entries, (2) proper names, (3) abbreviations, and (4) others or remainders. Compounds were entries made up of two or more separate words such as "cough drop." Hyphenated words were any entries in which a hyphen appeared in the spelling of the word. Words classified as proper names were main entries followed by an indication that the first letter was always, usually, or sometimes capitalized. Abbreviations were entries followed by the dictionary indication *abbrev.* Only those words designated as "others or remainders" were further considered. There were 1,360 main entry words in this category.

Next, three other major American dictionaries were consulted: *The Random House Dictionary of the English Language*,<sup>16</sup> *the World Book Dictionary*,<sup>17</sup> and *Funk and Wagnalls New Standard Dictionary of the English Language*.<sup>18</sup> (See Appendix I for a brief description of the four dictionaries used.) Any main entry from Webster's dictionary which was in the "other" category but was not a main entry word in any one of these other three dictionaries was put into a separate category. There were 979 such words. The 381 remaining words were main entries in all four dictionaries that were not compounds, hyphenated, proper names, or abbreviations in Webster's. The Random House dictionary was used next to determine if a given word among the 381 remaining words was defined as foreign, archaic (including obsolete or rare), slang or informal, or technical. This dictionary precedes a given definition with an italicized indication of these categories. If the italicized limited-usage indicator preceded all the definitions, the word was appropriately classified. If there was more than one kind

of limited-usage indicator, the first meaning was used to classify the word. A total of 74 words fell within one of these categories.

If the word was listed as a main entry in all four dictionaries and was not of limited usage as specified in Random House, it was considered further. The remaining 307 words were classified as either derived or basic according to a set of criteria developed for this purpose. A main entry was considered a derived or variant word form if in any of the four dictionaries

1. The definition mentioned or referred to another form of the same word (e.g., *beck*: a beckoning gesture) or was simply a different tense form (e.g., *supposed*: suppose).
2. The definition was simply a different spelling (e.g., *calimanco*: calamanco).
3. The definition was a different word which provided a fuller definition (e.g., *boxberry*: the checkerberry).
4. The entry was a combination of two or more words and the definition included a reference to one or more of the words (e.g., *bookkeeper*: one who keeps account books).
5. The entry word was a derived form with a base word and affix whose meaning could be understood with knowledge of the meaning of the word and affix (e.g., *adiabatic*: not diabatic).

Thus a basic word is a single word form and not a proper name, abbreviation, affix or letter with a main entry common to the four major American dictionaries whose referent terms furnish a comprehensive definition, and it is not subordinate to another basic word form of the same term or classified as foreign, archaic, slang, or technical. This procedure also eliminates simple, regular, or common variations of basic word forms such as words formed with affixes, plurals, comparatives, adjectives, verb forms, etc.

The complete set of procedures used here resulted in a final sample of 123 main entry basic words in Webster's which were also main entry basic words in the other three major American dictionaries. Since these words came from a 1-percent sample, the population estimate is 12,300 (123 X 100) basic vocabulary words that were main entries in the four major American

Table A. Number and percent distribution of 1-percent sample of main entry words selected from Webster's Third International Dictionary by categorization of words

Categorization of words	Number of words		Percent distribution
	1-percent sample	Population estimate	
All main entry words <sup>1</sup> -----	2,400	240,000	100.0
Checked only in Webster's-----	1,040	104,000	43.3
Compound or hyphenated-----	775	77,500	32.3
Proper nouns-----	239	23,900	9.9
Abbreviations-----	26	2,600	1.1
Not a main entry in 3 other major dictionaries <sup>2</sup> -----	979	97,900	40.8
A main entry in all 4 dictionaries-----	381	38,100	15.9
Classified in Random House as:			
Technical-----	50	5,000	2.1
Foreign-----	14	1,400	.6
Slang-----	7	700	.3
Archaic-----	3	300	.1
Derived, variant, or redundant <sup>3</sup> -----	184	18,400	7.7
Basic-----	123	12,300	5.1

<sup>1</sup>Excludes main entries which were prefixes, suffixes, letters, and other than the first-listed homographs.

<sup>2</sup>Random House, World Book, and Funk and Wagnalls Dictionaries.

<sup>3</sup>Categorized by three psychologists (1 Ph.D.; 2 B.S.'s) according to specified criteria (see text). One basic word, penis, was replaced by the next closest basic word, pennant, following penis in Webster's.

dictionaires. With a population estimate of 240,000, a sample size of 2,400, and a 5.125-percent incidence of basic words in the sample, under simple random sampling statistics the population estimate of 12,300 could be expected to fall within the range of 10,200 to 14,400 with a 95-percent level of confidence (Guilford,<sup>19</sup> p. 168). See table A for a detailed breakdown of results of these procedures.

#### Criteria for Establishing Knowledge of the Basic Words

Having concluded the process of sampling and having arrived at a final list of 123 basic words, the next step was that of developing criteria for establishing knowledge of the words.

This was accomplished by specifying criteria to be used in the actual test formulation and construction. Thus the whole procedure provides an *operational definition* for establishing knowledge of the words for the Basic Word Vocabulary Test (BWVT). Of course, many other operational definitions are possible and if used, could be compared with this procedure. The form used was a five-choice multiple-choice test with each item containing a stem word or phrase, the correct response, and four distractors.

Several criteria were developed to act as guidelines in the item construction. These criteria were stringently adhered to to assure consistency within and between items. Where possible, the stem was the single word being tested.

In a number of cases, however, it was advantageous to use a phrase to make the item clearer and to aid in adherence to other specified criteria.

The criteria used for constructing the correct responses were:

1. The correct responses were chosen to represent the most common meaning of the stem word as indicated by the *World Book Dictionary*.
2. The correct response was a less difficult word than the stem word; that is, it was a more frequently used word as determined by the Thorndike and Lorge<sup>20</sup> word count.<sup>a</sup>
3. Where possible, the correct response was a single word synonym of the stem word. Where this was not feasible, a word or phrase was used to set the context of the stem word.
4. Explicit attention was given to avoiding alliteration between the stem word and the correct response in order to prevent giving clues. Where this was not feasible, distractors were chosen that also sounded like the stem word.
5. Explicit attention was given to balancing the length of words or phrases so that the correct responses were not consistently longer or shorter than the stem word and distractors.
6. Where applicable, the correct response was given in parallel form to the stem

word in relation to tense and part of speech.

The following criteria were used for constructing the distractors:

1. The distractors were less difficult than the stem word and at the same or slightly lower difficulty level than the correct response.<sup>b</sup>
2. The distractors were in parallel form to the stem word, the correct response, and each other in regard to tense and part of speech.
3. Spelling and sound similarities were avoided between the stem word and the distractors except where necessitated because of sound or spelling similarities between the stem word and the correct response.
4. Distractors were chosen to assure that they had no relationship to any of the definitions of the stem word.
5. Effort was made to keep repetition of distractors (and correct response) to a minimum throughout the test.

With the use of the above lists of criteria, the actual test items were constructed. The items were then ordered from easiest to most difficult according to the frequency of occurrence in the Thorndike and Lorge word count. Where there was more than one stem word at any specific level, they were listed alphabetically. There were 39 words which were not listed at all in Thorndike, and they were placed alphabetically at the end of the list. This was a tentative order of difficulty to be used until empirical data could be obtained and used to order the items by level of difficulty.

The next procedure was to assign the position of the correct response (A, B, C, D, or E) to each item. The format used was that of randomly assigning within each group of 20 items an equal

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<sup>a</sup>A few exceptions to this criterion exist.

1. Some items were at such a low level of difficulty (AA,A in Thorndike and Lorge) that it was impossible to construct adequate, correct responses at a lower level of difficulty; therefore, they are at the same level of difficulty. This is the case for the following stem words: *car, poor, thus, shore, advice, desert, event, stage, witness*.
2. In the item with the stem word *destitute*, the possible correct responses (other than *poor* which was avoided because earlier in the test it was a stem word) were all at a more difficult level. In this case, the word *needy*, which was at the closest level of difficulty to *destitute*, was chosen.
3. In the item with the stem word *glib*, there was a lack of any feasible correct responses at a lower level of difficulty; therefore, the word *fluent*, which is at the same level of difficulty, was used.

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<sup>b</sup>One exception to this criterion exists, that being the item with the stem word *piñon* and correct response *pine*. Because of spelling and sound similarities between stem word and correct response, it was necessary to choose distractors with similarities in spelling and sound. Since none were available at the same or lower levels of difficulty, more difficult distractors were chosen.



number of A, B, C, D, or E correct response positions. Equalizing the number of times any particular response (A, B, C, D, or E) was the correct answer was done to compensate for the effect of any tendency among some subjects to choose particular response options merely by position. This also insured that no particular position was overselected or underselected for the correct answer, thus eliminating a possible response cue.

## STANDARDIZATION

### Procedure

The next step in the development of the Basic Word Vocabulary Test was that of pretesting. This process was conducted in two phases and served the purpose of collecting data on subjects' actual performances. The pretesting also provided the opportunity to obtain a critical evaluation of the test by the subjects.

In phase one of the pretesting, 15 adults varying in age (19 to 45 years), occupation (secretary, statistician, physician), and level of education (high school to M.D. and Ph.D.) from the National Center for Health Statistics were tested. The second pretesting phase was more extensive, as it included 133 subjects from a variety of sources with an age range from 11 to 61 years. The range of occupations and the educational levels of these subjects included housewives and students with as little schooling as the sixth grade and as much as the doctorate level.

About 50 of the subjects who participated in one of the two pretests were personally interviewed and asked to evaluate each item in regard to several criteria:

1. Could the correct response be logically derived even though the meaning of the stem word was not known?
2. Were there any alternatives which could be eliminated immediately because of lack of plausibility?
3. Were there any grammatical inconsistencies within an item?
4. Were there any clues given as to the correct response by spelling or sound similarities between the stem word and the right answer?

5. Were there any items in which there was more than one possible correct response?
6. Were there any other general faults such as ambiguity within an item, poor item construction, or spelling?

After each of the two pretests, this evaluative information along with the actual data on test performance was used to revise and reorder the test items from easiest to most difficult.

The development of age and educational norms on the BWVT, studying criterion-related validity by comparison with scores on standardized tests of verbal achievement and performing other test and item analyses, required that the standardization study be conducted on a rather massive scale. Help from the public schools in Fairfax County, Virginia, was obtained, and 3,100 students in grades 1 through 12 were given the second revision of the BWVT. Data from the standardization study also served as a basis for selecting items for shortened forms of the test and for making final test alterations.

Students at three elementary schools (1st-6th grades), at one junior-senior high school (7th-11th grades), and at two high schools (12th grade only) were given the test at a time that was midway in the academic year (January 1970). Parents of these children were mostly military, government, or construction employees and thus represent a diversity of parental background with respect to geographic origin, occupation, and social status.

Children in 1st and 2d grades answered only the first 45 items of the second test revision, 3d graders the first 71, 4th through 6th graders the first 99 items, and students in grades 7 through 12 took the entire test of 123 items.

In administering the test, teachers read only the instructions to the children. Since part of the purpose of this testing situation was to develop a measure of reading vocabulary level, no help was given on reading any test items or answer choices even in the primary grades. Given orally the test would not have achieved the same purpose. There was no time limit for completing the test; however, most examinees finished in about 30 minutes. The instructions also called for the examinee to guess when he did not know the answer.

To provide external criteria for validity and standardization studies of the BWVT, scores on established nationally standardized tests of verbal achievement were obtained from the children's school records. Date of birth, sex, and school grade were obtained directly from each student but were also verified from school records when questionable or incomplete responses were noted.

### Sex and Grade Relationships

In scoring the tests, a formula to adjust for guessing was used. Scores were arrived at by the formula

$$S = R - \frac{W}{n-1} \text{ or in this particular case } S = R - \frac{W}{4}$$

(S = score, R = number of right answers, W = number of wrong answers, n = number of response options). Omitted items were not counted. Frequency distributions of the corrected scores and

of the standardized test scores were prepared for each grade for each sex.

Chi square was used to determine if there were any significant differences by sex on the vocabulary and standardized tests within grades. The distributions of scores for those students with both standardized and vocabulary test scores were split at their medians for each grade. There were no significant (.05 level or better) sex differences by grade for the standardized tests, and only the second grade had a significant difference (chi square = 5.76; 1 df;  $p = .02$ ) on the vocabulary test, with girls scoring higher than boys. An overall test combining all grades 1-12 except grade 2 was performed next. The sex difference was not significant (chi square = 1.735; 1 df;  $p = .20$ ), although girls scored slightly higher.

Table B shows how the distribution of scores through the 12 grades assumes a definite pattern. The expected relationship between grade in school and vocabulary score can be seen here.

Table B. Grade in school distributions by sex and by BWVT scores

Score range and sex	All grades	Grade in school											
		1st	2d	3d	4th	5th	6th	7th	8th	9th	10th	11th	12th
Total--	3,100	255	274	309	288	259	239	243	175	248	228	257	325
Sex													
Male-----	1,566	123	142	172	142	140	129	129	70	104	104	134	177
Female-----	1,534	132	132	137	146	119	110	114	105	144	124	123	148
Score range													
91-104-----	68	-	-	-	-	-	-	-	3	5	9	15	36
81-90-----	224	-	-	-	-	-	-	2	15	23	36	52	96
71-80-----	379	-	-	-	-	1	11	12	29	72	65	79	110
61-70-----	390	-	-	-	3	16	35	39	47	68	66	62	54
51-60-----	330	-	-	1	16	49	57	43	38	49	26	30	21
41-50-----	294	-	-	11	36	62	53	52	27	18	20	9	6
31-40-----	233	-	1	30	58	45	32	41	8	7	3	6	2
21-30-----	236	-	12	47	72	42	25	24	7	1	2	4	-
11-20-----	281	8	45	91	61	29	22	19	1	4	1	-	-
1-10-----	459	141	157	97	37	14	3	9	-	1	-	-	-
Less than 1--	206	106	59	32	5	1	1	2	-	-	-	-	-

The results of these analyses indicated that sex differences in vocabulary level by grade were not sufficiently great to warrant separate distributions by sex and that vocabulary development has a strong positive relationship with grade level attainment as expected.

### Item Analyses

Item analyses were performed to determine difficulty level, internal consistency, distractor effectiveness, and sex differences for each of the 123 words on the test. Starting with the 302 tests with scores of 81-109, frequency counts of right answers were compiled for each vocabulary item. (Note: 10 adults scoring 91 or more were added to the 68 students scoring 91-104 to provide more stability in the analyses at this level.) Even for this high level group, less than 20 percent (below chance) correctly answered five of the words.

Of the 302 subjects in the 81-109 score group, only 9.5 percent chose the correct answer for the word *durbar*, which was the most difficult item on the test and was accordingly assigned the rank of 123. The 41 items which were answered correctly by less than 70 percent of the subjects in this top score group were assigned ranks on the basis of the percent passing each item. To continue the rank ordering of the items for difficulty, eight overlapping vocabulary score groups of 20 points each were used (groups scoring 71-90, 61-80, 51-70, 41-60, 31-50, 21-40, 11-30, 1-20), and the performance of the subjects within these score groups served as the basis for ranking the remaining items. These tallies made computation of percent passing each item possible and provided necessary information for checking for sex differences by items and for studying overchosen or underchosen distractors (see table C).

The percent of correct responses to an item was used to place the items in rank order within a given group. Items with greater than 70 percent correct responses were carried on to the next lower score level for ordering by difficulty level.

When the final order had been established, Spearman rank order correlations were computed to compare this order with the Thorndike-Lorge word-count order and with the order used in the second revision. In the first case, the result was a rho coefficient of .794; in the second, a rho of

.964. These results indicate that using the Thorndike-Lorge ordering to select correct answer options and distractors at equal or lower frequency of occurrence than the stem word was appropriate and that the rank ordering finally arrived at should be relatively stable across different samples of subjects.

With the items arranged in order of difficulty, a measure of internal consistency was computed. Chi square values were computed for each item by comparing the number of correct answers for the item with total vocabulary score within score groups of 40-point ranges at about the 40-percent to 70-percent passing level for the item. There were 19 items with chi square values which did not reach the .01 level of significance. These were all from the top 34 most difficult items and probably reflect a lack of subjects with scores high enough (110 or better) to provide differential results. Table C summarizes these data, giving the final rank order of item difficulty, the percent passing each item in its score group, the internal consistency contingency coefficient, and estimated product-moment correlation for each item within groups with a score range of 40.

The pulling power of the four distractors for each item was evaluated by computing the percent selecting each distractor among those failing the item within the 20-point score ranges used to rank order the items for difficulty. Distractors that drew more than 40 percent or less than 10 percent of the incorrect answers were replaced. These limits were beyond two standard errors for all groups from an expected 25 percent level. There were 90 distractors outside these limits and almost one-half of the test items had one or more distractors falling outside this range. These distractors were replaced based on the initial criteria of distractor selection.

Sex differences were checked for every word, using the data groups of 20-point score ranges, to determine which items were correctly answered more often by one sex or the other. There were 25 words on the BWVT with sex differences within these restricted score ranges that had a chi square value significant at the  $p = .05$  level or better (two-tail test). Fourteen were significant at the .01 level or better and the other 11 were significant at the .01-.05 level. Of these

Table C. Rank order of difficulty, percent passing, and coefficients of internal consistency within total test score groups for each BWWT word

Rank order of difficulty	Score group and basic word	Percent of students passing item	Internal consistency <sup>1</sup>	
			<i>c</i>	<i>r</i>
81-109 (median 86.3, <i>N</i> = 302) <sup>2</sup>				
123	durbar-----	9.5	.209	.28
122	centaury-----	13.6	(3)	
121	seecatch-----	18.5	(3)	
120	jaconet-----	19.6	(3)	
119	redact-----	19.8	.358	.48
118	garganey-----	20.3	(3)	
117	pyrope-----	20.7	.216	.29
116	edacious-----	22.6	(3)	
115	lempira-----	23.8	( )	
114	diabolo-----	24.5	.241	.32
113	maenad-----	25.0	( )	
112	pocourante-----	26.5	(3)	
111	fuscous-----	26.6	(3)	
110	tringle-----	27.1	(3)	
109	flabellum-----	28.6	(1)	
108	larine-----	29.5	(3)	
107	qua-----	32.0	.213	.29
106	anthemion-----	32.9	(1)	
105	sarcophagus-----	33.4	.384	.51
104	dint-----	34.9	.281	.38
103	glib-----	34.9	.376	.50
102	soredium-----	37.2	(3)	
101	cinereous-----	37.7	.223	.30
100	rummer-----	38.8	(3)	
99	scintillate-----	41.1	.415	.56
98	emir-----	45.8	.315	.42
97	bezant-----	46.8	.399	.53
96	conventicle-----	47.0	(1)	
95	terrine-----	51.3	(3)	
94	pinon-----	52.7	.262	.35
93	abstracted-----	53.0	(3)	
92	fetid-----	54.6	.402	.54
91	whist-----	55.1	.325	.44
90	brob-----	56.3	(1)	
89	triphthong-----	60.1	.225	.32
88	nubilous-----	60.5	.221	.30
87	pomander-----	61.5	.260	.37
86	yew-----	61.9	.218	.31
85	apropos-----	62.5	.262	.37
84	grackle-----	68.7	.239	.34
83	picador-----	69.3	.229	.32
71-90 (median 77.7, <i>N</i> = 592) <sup>2</sup>				
82	trajectory-----	50.1	.350	.50
81	mackintosh-----	55.4	.362	.52
80	afflux-----	55.9	.321	.46
79	forgo-----	56.8	.305	.44
78	bastion-----	59.8	.277	.37
77	mullet-----	64.4	.201	.27
76	sputum-----	64.4	.269	.36
75	jujube-----	64.9	.241	.32
74	isopod-----	66.8	.359	.48
73	discreet-----	68.2	.408	.55
61-80 (median 70.8, <i>N</i> = 704) <sup>2</sup>				
72	destitute-----	47.4	.470	.63
71	mesquite-----	52.2	.477	.64
70	albacore-----	55.6	.341	.46
69	concrete-----	58.6	.433	.58
68	potpourri-----	62.4	.384	.51
67	sumac-----	62.9	.328	.44
66	manipulate-----	66.4	.577	.77
65	horde-----	69.1	.547	.73
51-70 (median 62.4, <i>N</i> = 545) <sup>2</sup>				
64	console-----	57.1	.486	.65
63	decelerate-----	62.4	.559	.75
62	faction-----	62.5	.366	.49
61	gristle-----	63.2	.399	.53

<sup>1</sup>Internal consistency coefficients: *c* = contingency coefficient; *r* = estimated product-moment coefficient (see P-338 of reference 19).

<sup>2</sup>*N* = number of persons.

<sup>3</sup>Not significant at .05 level.

<sup>4</sup>Not significant at .01 level.

Table C. Rank order of difficulty, percent passing, and coefficients of internal consistency within total test score groups for each BWVT word—Con.

Rank order of difficulty	Score group and basic word	Percent of students passing item	Internal consistency <sup>1</sup>	
			c	r
60	51-70 (median 62.4, N = 545) <sup>2</sup> —Con. lank-----	64.4	.456	.61
	41-60 (median 49.3, N = 451) <sup>2</sup>			
59	curriculum-----	49.1	.524	.70
58	rafter-----	49.5	.392	.52
57	scavenge-----	51.1	.396	.53
56	thus-----	52.7	.419	.56
55	situate-----	56.9	.320	.43
54	demote-----	57.4	.336	.45
53	aghast-----	59.2	.315	.42
52	cardiac-----	60.3	.381	.51
51	gratify-----	60.4	.524	.70
50	jolt-----	61.3	.482	.65
49	gorge-----	63.1	.404	.54
48	stage-----	65.6	.268	.36
47	juvenile-----	67.7	.500	.67
46	mango-----	67.9	.251	.34
	31-50 (median 41.8, N = 443) <sup>2</sup>			
45	exclude-----	57.5	.596	.80
44	pennant-----	61.0	.470	.63
43	muff-----	61.7	.440	.59
42	ghetto-----	64.4	.541	.72
41	sassafras-----	65.7	.521	.70
40	gust-----	68.2	.547	.73
	21-40 (median 30.3, N = 417) <sup>2</sup>			
39	eligible-----	48.8	.533	.71
38	sneer-----	49.8	.506	.68
37	mutiny-----	50.5	.496	.66
36	minus-----	52.7	.521	.70
35	barely-----	53.4	.531	.71
34	tarantula-----	54.0	.476	.64
33	abandon-----	55.0	.493	.66
32	bristle-----	55.2	.465	.62
31	event-----	56.2	.566	.76
30	approach-----	56.3	.447	.60
29	jurist-----	57.4	.467	.63
28	plateau-----	58.4	.546	.73
27	tremendous-----	59.1	.500	.67
26	seamstress-----	67.6	.583	.78
25	dame-----	69.2	.403	.54
24	burlap-----	69.7	.553	.74
23	corps-----	69.9	.549	.73
	11-30 (median 19.6, N = 490) <sup>2</sup>			
22	tomb-----	49.3	.535	.72
21	advice-----	53.5	.596	.80
20	crisp-----	56.5	.399	.53
19	phony-----	58.5	.528	.71
18	encyclopedia-----	61.0	.559	.75
17	puss-----	62.4	.389	.52
16	quit-----	64.8	.421	.56
15	howl-----	67.4	.581	.78
14	ambush-----	68.4	.522	.70
13	witness-----	69.7	.590	.79
	1-20 (median 9.7, N = 573) <sup>2</sup>			
12	desert-----	43.5	.625	.84
11	violet-----	44.1	.541	.72
10	mistake-----	47.4	.594	.80
9	stable-----	48.0	.608	.81
8	combat-----	55.6	.582	.78
7	tricycle-----	63.5	.672	.90
6	eagle-----	67.4	.669	.90
5	shower-----	68.6	.569	.75
4	poor-----	70.3	.670	.90
3	ink-----	72.5	.656	.88
2	shore-----	75.8	.611	.82
1	car-----	84.7	.363	.49

<sup>1</sup>Internal consistency coefficients: c = contingency coefficients; r = estimated product-moment coefficient (see p. 338 of reference 19).

<sup>2</sup>N = number of persons.

Table D. BWVT words correctly identified significantly more often by one sex in rank order of difficulty with percent of students passing item and chi square

BWVT word	Rank order of difficulty	Percent of students passing		Chi square
		Male	Female	
<u>Words better known by males</u>				
1. edacious-----	116	29.9	17.6	+4.6
2. sarcophagus-----	105	42.2	24.3	10.8
3. rummer-----	100	46.1	32.4	+4.6
4. emir-----	98	54.5	37.8	7.4
5. grackle-----	84	59.9	49.7	+5.7
6. picador-----	83	63.9	45.9	20.3
7. trajectory-----	82	75.5	20.7	137.6
8. afflux-----	80	62.6	49.0	11.5
9. bastion-----	78	52.7	39.4	13.5
10. mullet-----	77	64.6	51.1	13.1
11. rafter-----	58	59.6	42.0	12.2
12. scavenge-----	57	58.2	46.6	+5.1
13. jolt-----	50	69.0	55.0	7.9
14. pennant-----	44	68.2	52.2	13.6
15. plateau-----	28	62.9	52.8	+5.1
16. ambush-----	14	39.9	30.5	+5.8
17. combat-----	8	60.1	50.2	+5.7
<u>Words better known by females</u>				
1. abstracted-----	93	45.5	62.2	9.2
2. fetid-----	92	48.7	60.1	+3.9
3. whist-----	91	45.3	60.8	14.8
4. pomander-----	87	41.4	50.0	+4.5
5. mackintosh-----	81	47.4	65.5	18.9
6. aghast-----	53	50.7	68.9	17.3
7. sneer-----	38	42.0	53.8	+6.0
8. howl-----	15	36.5	45.3	+4.0

<sup>1</sup>Dagger indicates significance level between .01 and .05. All others significant at .01 level or better.

words, 17 favored males, and 8 favored females, which is not a significant difference from an even split (table D). Thus while sex differences in terms of total score within grades were not great, certain specific words appear to be better known by one sex over the other at comparable levels of overall vocabulary development. Although this finding is not surprising, what is notable is that this was found for about one-fifth of all the words.

These analyses indicate that the words in the BWVT form an orderly pattern of item dif-

ficulty at various levels of attainment, the order of difficulty was very stable across samples, the items have a high degree of internal consistency except at the highest level of difficulty, and that sex differences in word knowledge for about 20 percent of the BWVT items were significant.

#### Grade and Age Norms

Nationally standardized test scores of verbal achievement were obtained from school records for over 70 percent of the students who had

Table E. Standardized tests from which scores were obtained from school records, by type of score, date test administered, and number and grade in school of students to whom administered

Grade in school	Standardized test	Type of score	Date administered	Number of students
12th---	SCAT <sup>1</sup>	10th grade: verbal-grade percentile	9/67	41
		12th grade: verbal-grade percentile	9/69	235
11th---	SCAT <sup>1</sup>	verbal-grade percentile	9/69	227
10th---	SCAT <sup>1</sup>	verbal-grade percentile	9/69	222
9th----	SCAT <sup>1</sup>	verbal-grade percentile	9/69	238
8th----	DAT <sup>2</sup>	verbal reasoning grade-sex percentile	10/69	166
7th----	CTMM <sup>3</sup>	language I.Q.	9/69	212
6th----	L-T <sup>4</sup>	verbal-grade percentile	1/70	225
5th----	L-T <sup>4</sup>	verbal-grade percentile	9/68	106
	CTMM <sup>3</sup>	language I.Q.	9/68	27
4th----	L-T <sup>4</sup>	verbal-grade percentile	9/69	261
3d-----	CTMM <sup>3</sup>	language I.Q.	9/68	29
	L-T <sup>4</sup>	verbal-grade percentile	1/69	120
2d-----	MRRT <sup>5</sup>	grade percentile	9/68	98
	CTMM <sup>3</sup>	language I.Q.	11/68	27
1st----	MRRT <sup>5</sup>	grade percentile	6/69	112
			9/69	51

<sup>1</sup>SCAT - School and College Ability Tests

<sup>2</sup>DAT - Differential Aptitude Test

<sup>3</sup>CTMM - California Test of Mental Maturity

<sup>4</sup>L-T - Lorge-Thorndike Intelligence Test

<sup>5</sup>MRRT - Metropolitan Reading Readiness Test

taken the BWVT. Table E lists these tests, which scores were used, when they were given, and the number of students by grade level. The means, standard deviations, and the product-moment correlation coefficients for the BWVT and standardized tests are shown in table F by grade.

Because the BWVT was too difficult for grades 1 and 2, and ages 6 and 7, these groups were not considered in the development of the normative tables. Development of age norms based on students 18 years of age and over were not attempted because these subjects had a sharp drop in mean vocabulary scores compared to the peak mean level for 17-year-olds. The BWVT means, standard deviations, and total number with BWVT test scores for all students are shown in table G by education and age.

The decision was made to construct a 23-level percentile normative table by grade with a median at the 50th percentile and an age deviation table showing a BWVT Vocabulary Development Quotient (BWVT\_VDQ or VDQ) with a mean of 100.0, standard deviation of 15.0, and a scale midpoint range of 72 points (plus or minus 2.40 standard deviations on the normal curve). These values correspond, respectively, to the Differential Aptitude Test grade norms and the Wechsler intelligence scales IQ means and standard deviations based on age specific means and deviations. Table H presents some psychometric properties of the grade and age norm scales. Standardized test score distributions were ordered into the same percentile intervals as shown in table H.

Table F. Means, medians, and standard deviations for the BWVT and standardized tests and correlation coefficients, by grade in school and number of students

Grade in school	Number of students	Correlation coefficient	BWVT			Standardized tests		
			Mean	Median	Standard deviation	Percentiles		Standard deviation <sup>2</sup>
						Mean <sup>1</sup>	Median	
12th-----	276	.756	78.0	78.2	10.8	77.3	79.0	.84
11th-----	227	.766	71.5	72.8	13.9	63.6	64.0	1.02
10th-----	222	.772	68.4	69.4	13.9	64.7	62.5	.88
9th-----	238	.788	65.1	66.9	14.2	70.3	70.5	.89
8th-----	166	.603	60.7	62.5	15.3	55.5	60.6	.98
7th-----	212	.664	45.5	47.8	17.5	60.6	65.0	.98
6th-----	225	.839	45.3	47.4	16.9	67.7	65.5	.94
5th-----	133	.760	38.2	40.2	17.0	54.4	54.1	.94
4th-----	261	.801	26.6	24.9	14.3	54.9	58.4	.86
3d-----	149	.461	14.4	11.6	12.2	56.2	58.6	.76
2d-----	125	.450	5.8	3.9	7.8	59.7	63.0	1.04
1st-----	163	.282	1.5	1.0	4.2	70.7	68.0	.89

<sup>1</sup>Percentile ranks were converted to midpoint standard scores and then the means were transformed back to percentile scores.

<sup>2</sup>Standard deviations are in standard score units for the standardized tests.

The basic method used in developing the normative tables was to transform the BWVT raw scores to represent a normal curve distribution of cases and then into the distributions shown in table H. However, the sample had higher means and generally lower standard deviations on the standardized tests than the expected values of 50.0 and 1.00, respectively (table F). Significant skewness in distributions were also noted on the BWVT for some education and age groups when means and medians were compared. So rather than doing a direct transformation on the sample cases, the following procedure was used to transform the BWVT raw scores.

The mean BWVT scores were computed for each percentile level of the standardized tests for each grade. The average of the mean BWVT scores in the nine percentile levels from 30 to 70 were then computed to obtain a mid-50th percentile score for each grade. These averages were plotted on a graph along with the grade medians. The mid-50th percentile values were then smoothed by inspection and judgment to ob-

tain the "constructed" midpoint values. These values are shown below.

Grade in school	Median	Midpoint average	Constructed midpoint value
12th-----	77.2	69.6	69.5
11th-----	72.4	67.4	67.5
10th-----	69.2	64.6	64.5
9th-----	66.8	59.3	59.5
8th-----	62.4	<sup>a</sup> 58.5	53.5
7th-----	47.0	46.8	46.5
6th-----	47.3	39.1	39.5
5th-----	40.4	<sup>a</sup> 37.4	31.5
4th-----	25.4	22.3	22.5
3d-----	13.2	10.7	10.5
2d-----	4.7	4.2	4.5
1st-----	1.0	0.7	0.5

<sup>a</sup>These two values appear to be seriously out-of-line as midpoint indications and probably reflect a perturbation due to the standardized test score used in these determination.



Table G. Number of cases, Basic Word Vocabulary Test (BWVT) means, medians, and standard deviations of all sample cases by education and age

Grade in school	Number of students	Mean	Median	Standard deviation	Age	Number of students	Mean	Median	Standard deviation
12th-----	325	75.94	77.18	11.67	17 years---	271	74.22	76.68	14.44
11th-----	257	70.57	72.43	14.22	16 years---	250	71.22	72.17	13.57
10th-----	228	68.02	69.25	14.55	15 years---	222	65.50	67.59	15.27
9th-----	248	64.65	66.77	14.32					
8th-----	175	60.14	62.40	15.23	14 years---	221	65.18	67.56	15.53
7th-----	243	44.19	47.00	18.26	13 years---	190	52.43	57.10	21.32
6th-----	239	45.29	47.27	16.72	12 years---	247	44.55	47.09	17.94
5th-----	259	38.74	40.35	16.68					
4th-----	288	27.04	25.39	14.52	11 years---	234	41.31	44.25	20.55
3d-----	309	15.32	13.25	12.54	10 years---	304	34.24	35.21	19.32
2d-----	274	6.38	4.70	7.87	9 years---	277	23.40	22.00	15.54
1st-----	255	1.54	1.02	4.04	8 years---	264	13.21	10.50	12.03

Table H. Some psychometric properties of the BWVT grade and age normative scales

Percentile interval	Grade scale		BWVT VDQ interval	Age scale		
	Percentile level	Mid-point standard score		Mid-point	Percent of area under normal curve	
					Within	Cumulative
98.5+-----	99	2.40	135-137-----	136	1.07	100.0
96.5-98.4-----	97	1.96	132-134-----	133	0.72	98.9
92.5-96.4-----	95	1.60	129-131-----	130	1.08	98.2
87.5-92.4-----	90	1.28	126-128-----	127	1.59	97.1
82.5-87.4-----	85	1.04	123-125-----	124	2.22	95.5
77.5-82.4-----	80	.84	120-122-----	121	3.00	93.3
72.5-77.4-----	75	.67	117-119-----	118	3.89	90.3
67.5-72.4-----	70	.52	114-116-----	115	4.84	86.4
62.5-67.4-----	65	.39	111-113-----	112	5.79	81.6
57.5-62.4-----	60	.25	108-110-----	109	6.65	75.8
52.5-57.4-----	55	.13	105-107-----	106	7.65	69.2
			102-104-----	103	7.81	61.8
47.5-52.4-----	50	.00	99-101-----	100	8.04	54.0
42.5-47.4-----	45	-.13	96-98-----	97	7.81	46.0
37.5-42.4-----	40	-.25	93-95-----	94	7.65	38.2
32.5-37.4-----	35	-.39	90-92-----	91	6.65	30.8
27.5-32.4-----	30	-.52	87-89-----	88	5.79	24.2
22.5-27.4-----	25	-.67	84-86-----	85	4.84	18.4
17.5-22.4-----	20	-.84	81-83-----	82	3.89	13.6
12.5-17.4-----	15	-1.04	78-80-----	79	3.00	9.7
7.5-12.4-----	10	-1.28	75-77-----	76	2.22	6.7
3.5-7.4-----	5	-1.60	72-74-----	73	1.59	4.5
1.5-3.4-----	3	-1.96	69-71-----	70	1.08	2.9
0.0-1.4-----	1	-2.40	66-68-----	67	0.72	1.8
			63-65-----	64	1.07	1.1

Table J. Cumulative percent of sample cases across grade and age groups by normative scale values for the BWVT and grade for standard tests

Percentile level scale	Percent for grades 3-12		BWVT V DQ scale	Percent for ages 8-17
	Standard test	BWVT		
99-----	100.0	100.0	136----	100.0
97-----	97.6	97.1	133----	98.1
95-----	95.0	93.5	130----	97.3
90-----	86.7	87.3	127----	96.2
85-----	78.9	79.5	124----	94.2
80-----	70.4	71.3	121----	91.6
75-----	64.9	64.3	118----	87.0
70-----	60.0	58.9	115----	82.1
65-----	55.0	52.5	112----	74.5
60-----	48.0	48.4	109----	66.4
55-----	42.2	41.7	106----	55.8
50-----	37.6	36.5	103----	47.4
45-----	32.3	32.3	100----	39.1
40-----	28.5	27.4	97-----	30.4
35-----	23.6	24.1	94-----	24.7
30-----	19.4	19.5	91-----	18.7
25-----	16.1	15.8	88-----	14.1
20-----	13.1	13.1	85-----	11.3
15-----	9.5	9.6	82-----	8.5
10-----	5.6	5.4	79-----	5.4
5-----	2.8	2.6	76-----	3.6
3-----	1.0	1.3	73-----	2.1
1-----	0.3	0.2	70-----	1.1
			67-----	0.5
			64-----	0.2
Actual scale median-----	62.8	61.3	Actual scale median----	104.0
Scale midpoint cumulative percent---	35.0	34.4	Scale midpoint cumulative percent--	34.8
Number of students--	2,109	2,109	Number of students-	2,500

The area under the normal curve for each median was then obtained in terms of standard deviation units (table G) above the constructed midpoints. The BWVT raw scores were then normalized for the upper end of the distributions from the medians. Since the distribution of cases falling below the constructed midpoints appeared to be fairly normal, the raw scores were normalized for the bottom half below the constructed

midpoints of the distributions. The standard deviation values for the raw scores from the constructed midpoint values to the medians were used to complete the normalizing procedure for that portion of each grade distribution. Some score adjustments were then made within grades to provide a set of symmetrical values across grades for the full grade and normative table array. Case distributions were then compared between the normative table and the standardized test distributions by percentile intervals for each grade. The distributions were very close and thus indicated that the normalizing procedure provided a scale representative of the normal curve for a normally distributed sample.

The age normative table was constructed in the same way as the table for education except that the constructed midpoint values were derived differently. The mean educational level for each age was computed and plotted on the educational abscissa and the corresponding BWVT score was read from the ordinate. After the normative table was constructed, case distributions were made and carefully inspected. The distributions appeared to be well in line with what could be expected for this sample in terms of medians, standard deviations, and lower and upper limits of case distributions. The overall distributions for education and age are shown in table J.

#### Adult Norms

After completing the grades 3-12 and ages 8-17 normative tables, projections for higher educational levels and the adult population were made. Pretest results from 84 cases beyond the high school level, including 9 cases at the doctorate level, indicated a fairly orderly progression of BWVT scores for the upper educational levels. The projection was made basically through use of normative data from the Nelson-Denny Vocabulary Test<sup>21</sup> and, of course, on some assumptions. The Nelson-Denny is a five-choice vocabulary test with norms for 9-16 years of education based on thousands of cases. Gains in mean vocabulary scores from the 9th grade upward were computed for the two tests based on each test's 12th grade standard deviation. The relative gains in standard deviation units from 9th to 10th, 9th to 11th, and 9th to 12th

grades were then computed for each test and are as follows:

Grade change	BWVT	Nelson-Denny
9th to 12th-----	.86	.86
9th to 11th-----	.68	.60
9th to 10th-----	.43	.32

These relative gains were accepted as being close enough for projection purposes for constructing midpoint values to the higher grades. The Nelson-Denny relative gains were then computed for 12 through 16 years of education and applied to the BWVT. The decision was made to use the standard deviation method for obtaining score distributions within each educational level on the assumption that basic word knowledge development would be fairly normally distributed about the median at these educational levels. Since the standard deviations decreased from grade 7 upward on the BWVT, a further decrease at higher grade levels was assumed. The standard deviation was decreased from 11.67 at 12th grade to 10.0 for grades 13, 14, and 15 and then further decreased slightly for higher educational levels as shown in the normative table. Midpoint values beyond those obtained through grade 16 were also assumed to increase with a slightly greater increase from 16 to 17 (entering graduate school) than from 15 to 16 and then to show only a very small increase by educational level thereafter. Note should be taken that a gain of one score represents an increase in basic word vocabulary knowledge of a hundred words and that these values are beginning to approach the upper limits of the estimated population of basic words.

In developing the general adult normative table, figures from a U.S. Bureau of the Census report on the educational attainment of adults as of March 1970 were used to estimate the midpoint BWVT score. The median school years completed by age groups as of March 1970 are shown in the table below. The median of 12.2 years of completed education for the age group 21 years and over was used as the midpoint value for the adult population. The estimated BWVT score equivalent to this educational level was obtained by linear extrapolation between the normative

Age	Median school years completed
18-19 years-----	12.2
20-21 years-----	12.8
22-24 years-----	12.7
25-29 years-----	12.6
30-34 years-----	12.5
35-44 years-----	12.4
45-54 years-----	12.2
55-64 years-----	10.7
65-74 years-----	8.8
75 years and over-----	8.5
(21 years and over)-----	(12.2)

midpoints of the 12th and 13th grades which represent completed educational attainment of 11.5 and 12.5 years, which is equal to a BWVT score of 73.85. The distribution of scores on the BWVT for the Vocabulary Development Quotient (VDQ) was assumed to be similar to the distribution of the 17-year-olds. The derived VDQ distribution was then plotted on normal distribution graph paper to obtain the corresponding percentile level distribution.

These projections for adult norms are offered as a guide to what could reasonably be expected based on the methods and assumptions used. Calibration and standardization on large representative samples would provide a more desirable basis for such norms. However, these norms should be worthwhile and usable for reporting research for comparison purposes across studies until more definitive norms are established.

#### Other Norms

Two additional sets of tables were constructed in order to provide more precise normative values for education and age.

Grade and age equivalent values were derived graphically by connecting the grade and age midpoint normative values with straight lines between the points and then reading the BWVT score ordinate value corresponding to a given grade and age abscissa value for years and months of education and age. Adjustment factors for time of testing other than the midgrade and age periods used in the normative tables for children were also derived by the same method used for the grade and age equivalent values.

Table K. Midgrade percentile norms for the BWVT

Percentile level	Grade in school									
	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
99-----	45+	58+	65+	71+	77+	83+	88+	92+	95+	97+
97-----	40-44	53-57	61-64	67-70	73-76	79-82	84-87	88-91	91-94	93-96
95-----	35-39	48-52	56-60	63-66	69-72	75-78	80-83	84-87	87-90	89-92
90-----	30-34	43-47	52-55	59-62	65-68	71-74	76-79	81-83	84-86	86-88
85-----	26-29	39-42	48-51	55-58	61-64	68-70	73-75	78-80	81-83	83-85
80-----	23-25	36-38	45-47	52-54	58-60	65-67	71-72	76-77	79-80	81-82
75-----	20-22	33-35	42-44	49-51	56-57	63-64	69-70	74-75	77-78	79-80
70-----	18-19	30-32	39-41	47-48	54-55	61-62	67-68	72-73	75-76	77-78
65-----	16-17	28-29	37-38	45-46	52-53	59-60	65-66	70-71	73-74	75-76
60-----	14-15	26-27	35-36	43-44	50-51	57-58	63-64	68-69	71-72	73-74
55-----	12-13	24-25	33-34	41-42	48-49	55-56	61-62	66-67	69-70	71-72
50-----	10-11	22-23	31-32	39-40	46-47	53-54	59-60	64-65	67-68	69-70
45-----	8-9	20-21	29-30	37-38	44-45	51-52	57-58	62-63	65-66	67-68
40-----	7	18-19	27-28	35-36	42-43	49-50	55-56	60-61	63-64	65-66
35-----	6	16-17	24-26	32-34	39-41	47-48	53-54	58-59	61-62	63-64
30-----	5	13-15	21-23	29-31	36-38	45-46	51-52	56-57	59-60	61-62
25-----	4	9-12	17-20	25-28	33-35	42-44	49-50	54-55	57-58	59-60
20-----	3	5-8	13-16	21-24	29-32	38-41	46-48	51-53	54-56	56-58
15-----	0-2	3-4	8-12	16-20	24-28	34-37	42-45	47-50	50-53	52-55
10-----		0-2	3-7	10-14	19-23	29-33	37-41	42-46	45-49	47-51
5-----			0-2	3-9	12-18	22-28	30-36	35-41	38-44	40-46
3-----				0-2	3-11	10-21	18-29	23-24	26-37	28-39
1-----					0-2	0-9	0-17	0-22	0-25	0-27
Median-----	10.5	22.5	31.5	39.5	46.5	53.5	59.5	64.5	67.5	69.5

The six sets of normative and adjustment values are shown in tables K-P.

#### Use of the Tables

While an individual's earned score on the BWVT is the best estimate of his performance, the user should be aware that the standard error of measurement is about 3 raw scores on the BWVT.

The grade percentile level is read as a mid-point value. Thus if an individual's score places him in the 60th percentile level for his grade, he did about as well as or better than 60 percent of students in general do at his grade level.

The age Vocabulary Development Quotient scale is based on a mean of 100.0 and a standard deviation of 15.0 and has the same order of relationship in basic word vocabulary development interpretation as other test scores reported in

IQ terms. As an aid in qualitative interpretation the classification is shown below.

Midpoint VDQ	Qualitative classification	Percent included
130 and above-----	Very superior	2.9
121-127-----	Superior	6.8
112-118-----	Above average	14.5
91-109-----	Average	51.6
82-88-----	Low development	14.5
73-79-----	Very low development	6.8
70 and below-----	Deficient	2.9

Table L. Projected higher educational norms for the BWVT

Percentile level	College education <sup>1</sup>							
	Undergraduate				Graduate			
	Freshman	Sophomore	Junior	Senior	Master's level		Doctorate level	
	13	14	15	16	17	18	19	20+
99-----	97+	101+	104+	105+	108+	109+	110+	111+
97-----	94-96	98-100	101-103	102-104	105-107	106-108	107-109	108-110
95-----	90-93	94-97	97-100	98-101	101-104	102-105	103-106	104-107
90-----	87-89	91-93	94-96	95-97	99-100	100-101	101-102	102-103
85-----	85-86	89-90	92-93	93-94	97-98	98-99	99-100	100-101
80-----	83-84	87-88	90-91	91-92	95-96	96-97	97-98	98-99
75-----	81-82	85-86	88-89	89-90	93-94	95	96	97
70-----	79-80	83-84	86-87	88	92	94	95	96
65-----	78	82	85	87	91	93	94	95
60-----	77	81	84	86	90	92	93	94
55-----	76	80	83	85	89	91	92	93
50-----	75	79	82	84	88	90	91	92
45-----	74	78	81	83	87	89	90	91
40-----	73	77	80	82	86	88	89	90
35-----	72	76	79	81	85	87	88	89
30-----	70-71	74-75	77-78	80	83-84	86	87	88
25-----	68-69	72-73	75-76	78-79	81-82	85	86	87
20-----	66-67	70-71	73-74	76-77	79-80	83-84	84-85	85-86
15-----	64-65	68-69	71-72	74-75	77-78	81-82	82-83	83-84
10-----	61-63	65-67	68-70	71-73	75-76	79-80	80-81	81-82
5-----	57-60	61-64	64-67	67-70	71-74	75-78	76-79	77-80
3-----	54-56	58-60	61-63	64-66	68-70	71-74	72-75	73-76
1-----	0-53	0-57	0-60	0-63	0-67	0-70	0-71	0-72
Median-----	75.0	79.0	82.0	84.0	88.0	90.0	91.0	92.0
Standard deviation-----	10.0	10.0	10.0	9.0	9.0	8.0	8.0	8.0

<sup>1</sup>Highest year attending, completed, or attended to or beyond the midyear.

Table M. Midage vocabulary development quotients (VDQ) for the EWVT

VDQ <sup>1</sup>	Age in years									
	8	9	10	11	12	13	14	15	16	17
136-----	46+	55+	64+	71+	77+	83+	88+	92+	96+	98+
133-----	44-45	53-54	63	70	76	82	87	91	95	97
130-----	42-43	51-52	61-62	68-69	74-75	80-81	85-86	89-90	93-94	95-96
127-----	39-41	48-50	59-60	66-67	72-73	78-79	83-84	87-88	91-92	93-94
124-----	36-38	45-47	56-58	64-65	70-71	76-77	81-82	85-86	89-90	91-92
121-----	33-35	42-44	53-55	61-63	67-69	73-75	78-80	82-84	86-88	88-90
118-----	30-32	39-41	50-52	58-60	64-66	70-72	75-77	79-81	83-85	85-87
115-----	27-29	36-38	47-49	55-57	61-63	67-69	72-74	76-78	80-82	82-84
112-----	23-26	32-35	43-46	51-54	58-60	64-66	69-71	73-75	77-79	79-81
109-----	19-22	28-31	39-42	47-50	54-57	61-63	66-68	70-72	74-76	76-78
106-----	15-18	24-27	35-38	43-46	50-53	57-60	63-65	67-69	71-73	73-75
103-----	11-14	20-23	31-34	39-42	46-49	53-56	60-62	64-66	68-70	70-72
100-----	8-10	17-19	27-30	35-38	42-45	49-52	57-59	61-63	65-67	67-69
97-----	5-7	14-16	24-26	31-34	38-41	45-48	54-56	58-60	62-64	64-66
94-----	4	11-13	21-23	27-30	34-37	41-44	51-53	55-57	59-61	61-63
91-----	3	9-10	18-20	23-26	30-33	37-40	48-50	52-54	56-58	58-60
88-----	0-2	7-8	15-17	19-22	26-29	33-36	44-47	49-51	53-55	55-57
85-----		5-6	12-14	15-18	22-25	29-32	40-43	46-48	50-52	52-54
82-----		3-4	9-11	11-14	18-21	25-28	36-39	42-45	46-49	48-51
79-----		0-2	6-8	8-10	14-17	21-24	32-35	38-41	42-45	44-47
76-----			3-5	5-7	10-13	17-20	27-31	33-37	37-41	39-43
73-----			0-2	3-4	6-9	12-16	21-26	27-32	31-36	32-38
70-----				0-2	3-5	6-11	14-20	20-26	23-30	24-31
67-----					0-2	3-5	7-13	11-19	14-22	15-23
64-----						0-2	0-6	0-10	0-13	0-14
Median	9.0	18.0	28.5	36.5	43.5	50.5	58.0	62.0	66.0	68.0

<sup>1</sup>Mean = 100.0; standard deviation = 15.0.

To use the grade equivalent values, locate the individual's score in the body of table O and then read his grade and school month coordinate values. Thus if the score is 45, the grade equivalent is 7th grade, 4th month. If the score is 72 or above, table L can be used to obtain higher grade level equivalence by reference to the nearest grade level midpoint (50th percentile) value. The grade equivalent values thus correspond to BWVT scores equal to the midpoint performance at that educational level.

The age equivalent values are used and interpreted in the same way as the grade equivalent values. Thus a score of 66 is equivalent to the midpoint attainment of individuals 16 years and 5 to 9 months of age, or 16 years 7 months.

To use the grade and age score adjustments for time of testing in table P, note the time of testing and add (or subtract) the given value to the individual's BWVT raw score and use that score in the grade or age norms table.

Table N. Projected adult norms by percentile level and BWVT vocabulary development quotient

Percentile level	BWVT scores	BWVT VDQ	BWVT scores
99-----	103+	136-----	103+
97-----	99-102	133-----	102
95-----	95-98	130-----	100-101
90-----	91-94	127-----	98-99
85-----	88-90	124-----	96-97
80-----	85-87	121-----	93-95
75-----	83-84	118-----	90-92
70-----	81-82	115-----	87-89
65-----	79-80	112-----	84-86
60-----	77-78	109-----	81-83
55-----	75-76	106-----	78-80
50-----	74	103-----	75-77
45-----	72-73	100-----	73-75
40-----	70-71	97-----	70-72
35-----	68-69	94-----	67-69
30-----	66-67	91-----	64-66
25-----	64-65	88-----	61-63
20-----	61-63	85-----	58-60
15-----	57-60	82-----	54-57
10-----	51-56	79-----	50-53
5-----	41-50	76-----	45-49
3-----	26-40	73-----	38-44
1-----	0-25	70-----	30-37
		67-----	21-29
		64-----	0-20
Median	74.0		74.0

For individuals of 18 years and older the educational norms tables should be used, since basic word vocabulary development is presumed to be highly related to educational level due to selective factors as well as formal learning among adults. However, if a general adult comparison is to be made, then table N should be used.

#### Alternate Short Forms of the BWVT

Two alternate 40-item forms of the BWVT were developed from the pool of 123 items in the BWVT (short forms X and Y, appendix VI). Eighty items based on no significant sex differences and

with less than three distractor changes were selected. A sample of 111 boys and 111 girls was drawn with equal score distributions from -8 to 104. The percent failing each of the 80 items was computed for this sample, and two pools of 40 items each were selected by cumulating the percent failing each item with those below it starting with the easiest two items to form the two pools. A second sample of 103 boys and 102 girls with equal and full score distributions was drawn for cross-validation purposes. Test papers were rescored for the two short forms for both samples. Means, standard deviations, and product-moment correlations are shown for the two forms in table Q. Score distributions were checked for each form and were fairly uniform throughout the scale length. Since the correlations between the two forms were uniformly high (.92 and above across sex and samples) and since both forms correlated .98 with the full scale BWVT for the total of 427 cases, equivalent score transformations to the BWVT were constructed. The increment in total score for each short form score was obtained by taking the average standard deviation for both forms and dividing into the standard deviation for the full scale BWVT for these cases. Then the Y intercept "a" was derived. The resultant equation is  $Y' = 2.729(X) - 3.769$ . Scores 0, 1, and 2 were given unit weights; then the Y' value was used for each short form score. Table R shows the BWVT full scale equivalent scores for both forms.

When the short forms are used, the equivalent full scale BWVT scores can be used in the normative tables. These forms are recommended for use when *two* short forms are needed. The special short form described next should be used when only *one* short form is needed.

#### Special Short Form of the BWVT

A special short form of the BWVT with 41 items (short form Z, appendix VI) was constructed by selecting those items from the full scale which correlated highest with the verbal scores on the nationally standardized tests for grades 1, 2, 3, 4, 8, and 12. The procedure used was to divide the first grade into two groups, a high and a low score group based on their standardized test

Table O. Grade and age equivalent scores for the BWVT

Grade in school	School month									
	1	2	3	4	5	6	7	8	9	10
12th-----	69	69	69	69	70	70	70	70	70	71
11th-----	66	67	67	67	68	68	68	68	68	69
10th-----	63	63	64	64	65	65	65	66	66	66
9th-----	57	58	58	59	60	60	61	61	62	62
8th-----	50	51	52	53	54	54	55	55	56	57
7th-----	43	43	44	45	46	47	47	48	49	49
6th-----	36	37	37	38	39	39	40	41	41	42
5th-----	29	29	30	31	32	32	33	34	34	35
4th-----	19	20	21	22	23	24	25	26	27	28
3d-----	6	7	8	9	10	12	13	14	16	17
Usual school month-----	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun

Age	Months of age to the nearest 15th day											
	0	1	2	3	4	5	6	7	8	9	10	11
17 years-----	67	67	67	68	68	68	68	68	69	69	69	69
16 years-----	64	64	65	65	65	66	66	66	66	66	67	67
15 years-----	60	60	61	61	61	62	62	62	63	63	63	64
14 years-----	54	55	55	56	57	57	58	58	59	59	59	60
13 years-----	47	48	48	49	49	50	50	51	52	52	53	54
12 years-----	40	40	41	41	42	43	43	44	44	45	46	46
11 years-----	32	33	34	34	35	36	36	37	38	38	39	39
10 years-----	23	24	25	26	27	28	28	29	30	30	31	32
9 years-----	13	14	15	16	16	17	18	19	20	21	22	22
8 years-----	4	4	5	6	7	8	9	10	11	11	12	13

Table P. Grade and age BWVT score adjustments for time tested from midpoint

Grade in school	3-month intervals			Age	4-month age intervals		
	Sept. 1- Nov. 30	Dec. 1- Feb. 28	Mar. 1- May 31		0-3	4-7	8-11
12th-----	1.0	0.0	-1.0	17 years-----	1.0	0.0	-1.0
11th-----	1.0	0.0	-1.0	16 years-----	1.0	0.0	-1.0
10th-----	2.0	0.0	-1.0	15 years-----	1.0	0.0	-1.0
9th-----	2.0	0.0	-2.0	14 years-----	2.0	0.0	-2.0
8th-----	3.0	0.0	-3.0	13 years-----	2.0	0.0	-2.0
7th-----	3.0	0.0	-3.0	12 years-----	2.0	0.0	-2.0
6th-----	3.0	0.0	-3.0	11 years-----	3.0	0.0	-3.0
5th-----	3.0	0.0	-3.0	10 years-----	3.0	0.0	-3.0
4th-----	3.0	0.0	-3.0	9 years-----	3.0	0.0	-3.0
3d-----	4.0	0.0	-3.0	8 years-----	4.0	0.0	-3.0

<sup>1</sup>To nearest 15 days of age. Thus 12 years, 3 months, and 16 days would fall in the interval 12 years, 4-7 months.



Table Q. Means, standard deviations, and product-moment correlations of full scale BWVT and short forms X and Y, by sex within samples

Item	Total	Sample 1		Sample 2	
		Male	Female	Male	Female
Number of students-----	427	111	111	103	102
<u>Full scale BWVT</u>					
Mean-----	47.4	48.8	48.9	46.4	45.5
Standard deviation-----	30.7	31.7	31.8	29.5	29.4
<u>Short form X</u>					
Mean-----	18.6	18.8	19.2	18.1	18.2
Standard deviation-----	11.4	11.6	11.5	11.0	11.3
<u>Short form Y</u>					
Mean-----	18.9	18.9	19.6	18.2	18.8
Standard deviation-----	11.1	11.1	11.4	11.0	10.8
<u>Correlations</u>					
Full scale BWVT and:					
Form X-----	.98	.98	.98	.97	.98
Form Y-----	.98	.98	.99	.96	.97
Form X and Form Y-----	.95	.94	.99	.93	.92

score distributions. Chi square was used to select the most discriminating BWVT item. Item 1 was highly significant and was selected first. Thereafter the two most discriminating items out of each block of six items arranged by item difficulty level were selected. If the chi square values were not significant at the .001 level, the next higher grade was used. The last nine items were selected based on their internal consistency chi square values (table D), again selecting two in each block of six items.

The 222 cases used in sample 1 for developing alternate test short forms were scored on the 41 selected items. Total scores were obtained first by the conventional R - W/4 scoring method and

then by scoring the number of right answers through the 3d, 4th, and 5th errors and omitted items. Scoring through the 4th error and omits (4 - EO) yielded the same mean score as the R - W/4 method. The correlation coefficients between the full scale scores and the short form scores were .948 and .979 for the R - W/4 and the 4 - EO methods, respectively. The latter two correlated .965. The 4 - EO scores also correlated .961 with the scores obtained from the 82 items not in the short form scale.

Seventh grade students were selected to further study the relationships of the short form Z, scored 4 - EO, and the BWVT full scale scores obtained by the R - W/4 method and scoring the

Table R. Equivalent full scale BWVT scores for both short forms X and Y

Short form score	Full scale score	Short form scores	Full scale score
40-----	105	20-----	51
39-----	103	19-----	48
38-----	100	18-----	45
37-----	97	17-----	43
36-----	94	16-----	40
35-----	92	15-----	37
34-----	89	14-----	34
33-----	86	13-----	32
32-----	84	12-----	29
31-----	81	11-----	26
30-----	78	10-----	24
29-----	75	9-----	21
28-----	73	8-----	18
27-----	70	7-----	15
26-----	67	6-----	13
25-----	64	5-----	10
24-----	62	4-----	7
23-----	59	3-----	4
22-----	56	2-----	2
21-----	54	1-----	1
		0-----	0

NOTE: Equation:  $Y' = 2.729(x) - 3.769$

number of right answers through the 10th error (10 - E method, described in the next section). The relationships of these three scores with the standardized test scores from the California Test of Mental Maturity (CTMM) were also considered. The items for the short form had been selected based on four other nationally standardized tests (see table E). The seventh grade had not been used in this item selection procedure, and very few students used in grades 2 and 3 had CTMM test scores. Thus these students and the CTMM test scores can be considered an independent cross-validation sample. The product-moment inter-correlations among the three BWVT test scores and with the language, nonlanguage, and full scale CTMM scores are shown in table S. The short form correlated slightly higher with the BWVT

full scale 10 - E scores than with the BWVT full scale R - W/4 scores. It also correlated as well with the three CTMM scores as did the BWVT full scale R - W/4 scores. The BWVT full scale 10 - E scores correlated somewhat higher with all variables compared to the BWVT full scale R - W/4 method. These results indicate that the short form correlated as well with the criteria as the BWVT full scale and that the 10 - E method may be a slightly more accurate scoring method than the conventional R - W/4 method.

In order to check the relationship of the short form with the full scale BWVT at high score levels, 168 cases scoring from 70 through 109 on the full scale were also scored on the short form. The means were 86.18 and 30.24 for the full scale and short form, respectively. The product-moment correlation was .881, which indicates that the short form functions quite well even at the high end of the full scale.

The linear regression equations for the BWVT full scale (Y) from the short form Z (indicated as X) for the 222 persons in sample 1, for the 212 7th graders, and the high level sample of 168 persons are shown below. The general equation is:

$$Y' = r_{xy} \frac{(sy)}{(sx)} (X - \bar{X}) + \bar{Y}$$

Sample 1

$$Y' = .979 \frac{(31.758)}{(10.752)} (X - 17.87) + 48.85$$

$$Y' = .979 (2.954X) - 2.83 = 2.892X - 2.83$$

7th grade

$$Y' = .906 \frac{(17.524)}{(5.896)} (X - 15.97) + 45.63$$

$$Y' = .906 (2.986X) + 2.43 = 2.705X + 2.43$$

Both groups

$$Y' = .962 \frac{(25.856)}{(8.769)} (X - 16.94) + 47.27$$

$$Y' = .962 (2.949X) - 0.79 = 2.837X - 0.79$$

High level group

$$Y' = .881 \frac{(10.063)}{(4.999)} (X - 30.24) + 86.18$$

$$Y' = .881 (2.013X) + 32.56 = 1.773X + 32.56$$

Short form Z score	Full scale score	Short form Z score	Full scale score
41-----	108	20-----	56
40-----	106	19-----	53
39-----	104	18-----	50
38-----	102	17-----	47
37-----	100	16-----	44
36-----	98	15-----	42
35-----	96	14-----	39
34-----	94	13-----	36
33-----	92	12-----	33
32-----	90	11-----	30
31-----	88	10-----	27
30-----	86	9-----	24
29-----	83	8-----	21
28-----	80	7-----	18
27-----	77	6-----	15
26-----	74	5-----	12
25-----	71	4-----	9
24-----	68	3-----	6
23-----	65	2-----	3
22-----	62	1-----	1
21-----	59	0-----	0

The increment in the full scale scores for each form Z score was obtained by dividing the standard deviation of the full scale by the standard deviation of the short form scored 4 - EO for the combined sample 1 and the 7th graders. The Y intercept "a" was also derived. The equation is  $Y' = 2.49X - 2.686$ . However, when the equation was applied at the higher scoring levels, the equivalent full scale scores were higher than the mean full scale values obtained from the high level sample. The equation for this sample is  $Y' = 2.013X + 25.307$ . Full scale equivalents were computed by both methods and compared. Equivalent values converged at a full scale score of 86 for a short form score of 30 and then diverged for scores above and below 30. The first equation was used for deriving full scale equivalents below 30, and the second equation was used for scores 30 and above on the short form. Equivalent score transformations to the full scale are shown at left. Scores of 0 and 1 were given

Table S. Intercorrelations of some BWVT and CTMM scores of 7th grade students, by sex  
[115 male; 97 female]

Test and sex	BWVT full scale scored R - W/4	BWVT full scale scored 10 - E	CTMM language scores	CTMM non-language score	CTMM full scale score
<u>BWVT short form scored 4 - EO<sup>1</sup></u>					
Male-----	.907	.947	.725	.439	.675
Female-----	.892	.920	.646	.426	.592
<u>BWVT full scale scored R - W/4</u>					
Male-----	...	.954	.722	.360	.633
Female-----	...	.944	.643	.450	.610
<u>BWVT full scale scored 10 - E</u>					
Male-----	...	...	.744	.396	.673
Female-----	...	...	.654	.467	.627
<u>CTMM language score</u>					
Male-----	...	...	...	.679	...
Female-----	...	...	...	.614	...

Variables:

<sup>1</sup>41 items selected in terms of correlations with standardized test scores. Scored through 4th error or omitted item.

unit weights, and then the equations were applied to all scores 2 and above.

### Recommended Scoring Method

Since the BWVT was developed from a sample (1 percent) of words selected from a defined sub-population of main entry words common to the four major American dictionaries, and since it is a five-choice test, adjusting or correcting for chance or guessing is necessary in estimating the number of words from the subpopulation that an individual would know if he were actually tested on all the words in exactly the same way as is done in the BWVT. The usual method for making adjustments for chance is to subtract the number of items incorrectly answered (wrongs) divided by one less than the number of choices from the number of items answered correctly. Omitted items are not counted. The formula for the BWVT is  $R - W/4 = \text{adjusted score}$ . This formula of course assumes that when the individual has to make a guess, any one of the five choices is equally likely to be chosen. When the individual can accurately reject any of the distractors, his chance of selecting the correct answer is better than one in five. A common observation in the BWVT pretesting, however, was that when the words were in rank order of difficulty and the individual had missed several words he would indicate that he was "just guessing." Thus it appeared that when an individual had reached his upper limit of certainty of the correct answers, he in fact began to make random guesses for most of the remaining items. It was reported even from the school testing program that the items were easy up to a point and then they suddenly became difficult for the individual. In reviewing scored test records it was very apparent that after only a few errors the remaining correctly answered items assumed a random pattern. Thus for the BWVT there is an abrupt change from known to unknown words for each individual as he reaches the upper limits of the BWVT words known by him. These observations led to trying an alternative method of scoring the

BWVT. This method was to find the point where beyond a certain number of errors the number of correct answers for the remaining items would be at about the chance level of one-fifth and the score would be about equal to the adjusted score. The point beyond the first 10 errors was found to satisfy both of these conditions when tried on 265 12th grade records. The method was simply to score through the 10th error and count the number of items answered correctly below that point, not counting omitted items. Since out of 10 errors one probably guessed correctly 2.5 items, then the number of items answered correctly beyond 10 errors when corrected for guessing should be close to this figure. Another way of studying this is to compare total scores from the adjusted method with the 10-error (10 - E) method. This was done for the 427 cases used in developing short forms X and Y of the BWVT. Tables T and U present the results of this study for mean differences and the product-moment correlations for the two methods. Since the mean differences are minor and the two scores correlate .994, the 10 - E method provides essentially the same scores as the adjusted method. As can be noted in table T, the 10 - E method shows a much higher score than the adjusted method for the two intervals at 5 and below. This is because the 10 - E method does not yield a negative score. Since the norm tables place scores 0-2 in the lowest scale value for each group, this will not have any important effects.

Since the standard error for guessing can be computed from these data a further analysis was performed. Assuming that the obtained mean of 47.4 by the adjustment method is a true score for the 427 cases, guessing then occurred on the remaining 75.6 items (123-47.4). The standard error for guessing would be equal to  $3.48 (\sqrt{Npq} = \sqrt{75.6 \times .2 \times .8})$ . The standard deviation of the actual score differences was 3.87. Also the variance due to guessing increases as the adjusted scores get lower and more items are guessed at, while in the 10 - E method this variance remains constant with a standard error of only 1.41. This suggests that the 10 - E methods actually reduces the error variance due to guessing.

Table T. Number of students participating in the BWVT and comparison of 10 - E and R - W/4 scoring methods

Numbers of students	Score interval	R - W/4 Mean	10 - E Mean	Difference
427--	...	47.4	47.5	.1
43-----	91-104	95.1	95.3	.2
38-----	81-90	85.3	85.2	-.1
40-----	71-80	75.5	74.7	-.8
40-----	61-70	65.5	65.0	-.5
41-----	51-60	55.3	54.6	-.7
44-----	41-50	45.0	45.4	.4
33-----	31-40	34.7	33.7	-1.0
42-----	21-30	25.8	25.4	-.4
41-----	11-20	15.2	15.4	.2
19-----	6-10	7.8	8.1	.3
20-----	1-5	3.0	5.4	2.4
26-----	-6-0	-2.8	1.6	4.4

The 10 - E method is also much easier to use in scoring, since one stops at the 10th error; it is also much easier to use in computing the final score, since only 10 errors have to be counted plus only omitted items up to that point, which are rare inasmuch as most omitting occurs beyond the 10 - E level. When there are no omitted items, the

most usual case, all one has to do is subtract 10 from the number of the 10th error item. Thus if the 10th error occurred at item 67 and there were no omits to that point, 10 is subtracted and the final score is 57.

Another final point in favor of the 10 - E method is that whole number scores are obtained at all points. In the adjusted method for the BWVT one obtains decimal scores most of the time, i.e., in R - W/4 with 62 right, 61 wrong, the adjusted score would be  $62 - 61/4 = 62 - 15.25 = 46.75$ . The practice used in the scoring of the BWVT was to round to the nearest whole number. However since the decimal values include .25, .50, and .75, the values .25 and .50 were dropped in all cases before subtracting from the number of right answers. Since the even-odd rounding practice is hard to explain and use by most test scorers, this was not used. However, when scoring the BWVT this way, score gaps occur at every five-point interval, i.e., 120, 115, 110, 105, etc., unless some of the 123 items were omitted. The 10 - E method is the recommended procedure for scoring the full length BWVT.

The short forms are scored through the 4th error but omitted items are counted as errors and 4 subtracted from the 4th error or omitted item number. Thus if an individual made two errors and omitted one through item 15 and then missed or omitted item 16, his score would be 12 (16-4).

Table U. Product-moment correlations of 10 - E scoring method with R - W/4 scoring method by sex within samples

Score range	Total	Sample 1		Sample 2	
		Male	Female	Male	Female
Number of students-----	427	111	111	103	102
Full range-----	.994	.989	.994	.993	.998
R - W/4 Scores 51 and more-----	.972	.971	.972	.974	.971
R - W/4 Scores 50 and less-----	.970	.949	.980	.973	.976

## RELIABILITY AND VALIDITY

### Reliability of the BWVT

Test reliability refers to the accuracy (consistency and stability) of measurement by a test. Several estimates of the internal consistency of the BWVT were obtained from the standardization sample.

As indicated in the subsection on Item Analyses, chi square values were computed for each item within groups with a 40 score range. All chi square values were significant except for 19 items in the top 34 most difficult items. Table C also shows the contingency coefficients derived from chi square and estimated product-moment coefficients for each item. Eighty-four of the items had contingency coefficients above .300, which corresponds to product-moment coefficient estimates of .400 and above.

Internal consistency estimates of reliability were also computed at different test score levels as shown below.

BWVT score range	Number of items	Reliability
81-109-----	43	.693
71-90-----	20	.892
61-80-----	20	.889
51-70-----	20	.905
41-60-----	20	.896
31-50-----	20	.915
21-40-----	20	.950
11-30-----	20	.948
1-20-----	20	.932

These results are consistent with the item analyses data and indicate very high levels of internal consistency even within ranges of only 20 score points.

The correlation of .95 between the two short forms X and Y of the BWVT also provides a basis for estimating full scale internal consistency reliability by the Spearman-Brown formula (p. 458 of reference 19). The coefficient is .97. The 41-item short form Z also correlated .961 with the scores obtained on the remaining 82 items.

Taking the mean of 60.14 and the standard deviation of 15.23 for the 8th grade (table G), the

following estimate is made. The standard error for guessing is 3.165; dividing this by 15.23, squaring the results and subtracting from 1.000 gives an estimated reliability of .957.

These results indicate that the overall internal consistency reliability of the BWVT is close to .96, which is about as reliable as a five-choice test can be, which is about .96. Assuming a standard deviation of 15.0, the standard error of measurement is 3.00 raw score points. No data are available on test-retest overtime or alternate form reliabilities.

### Validity of the BWVT

Validity information indicates the degree to which a test is capable of achieving certain aims. The Standards for Educational and Psychological Tests<sup>23</sup> describe three aspects of validity corresponding to three aims of testing and are named criterion-related validity, content validity, and construct validity.

*Criterion-related validity.*—Criterion-related validity aims at estimating an individual's present or future standing on some variable of particular significance that is different from the test. It is demonstrated by comparing the test scores with one or more external variables considered to provide a direct measure of the characteristic or behavior in question. This comparison is most commonly shown by correlating the test score to a criterion measure.

The BWVT scores were correlated with several criteria obtained from the standardization sample. These were education, age, test scores on the verbal sections of five different nationally standardized tests, and test scores from five different tests of the Sequential Tests of Educational Progress (STEP) and the School and College Ability Tests (SCAT) published by the Educational Testing Service. Table F presents the 12 correlations of the BWVT with the verbal sections of the five standardized tests. The median correlation was .76. The low correlations for grades 1, 2, and 3 are consistent with the findings that the BWVT is too difficult at these levels when given as a reading test. Thus there was not enough differentiation on the BWVT to show the full range of individual differences. Also the standardized tests had been administered up to 18 months

earlier than the BWVT (see table E) which means that at the early ages of 6, 7, and 8 considerable differential changes in level of achievement had probably occurred.

Eta correlation coefficients were computed for education and age because the BWVT had a curvilinear relationship with them. The BWVT test score was the dependent variable. Eta coefficients were also computed for the STEP and SCAT tests. These test scores were the dependent variables. The correlations are shown in table V. The means of the arrays for STEP and SCAT were linear and positive. All the correlations are statistically significant at better than the .01 level

Table V. Eta correlations of BWVT with various criteria

Item	Number of students	Correlation
<u>Educational level</u>		
Grades 3-12-----	2,571	.806
Grades 3-7-----	1,338	.600
Grades 8-12-----	1,233	.361
<u>Age</u>		
Ages 8-17 years---	2,500	.773
Ages 8-12 years-----	1,326	.551
Ages 13-17 years-----	1,174	.412
<u>Sequential Tests of Educational Progress<sup>1</sup></u>		
Reading-----Boys---	99	.696
Girls--	116	.756
Writing-----Boys---	102	.683
Girls--	117	.707
Science-----Boys---	99	.606
Girls--	119	.662
Math-----Boys---	98	.532
Girls--	119	.515
<u>School and college ability tests<sup>1</sup></u>		
Quantitative-----Boys---	104	.602
Girls--	119	.577

<sup>1</sup>Grade 10

and are as high as, if not higher than, most correlations found between two tests specifically designed to measure the same general factor from two different nationally standardized tests. These results indicate that basic word knowledge level of attainment as measured by the BWVT is highly related to educational and age level for children and relates quite well to subject matter achievement in four areas including science and mathematics.

*Content validity.*—Content validity aims at determining how an individual performs at present in a universe of situations that the test situation is claimed to represent. The Standards give an example of content validity wherein a vocabulary test might be used simply as a measure of present vocabulary, the universe being all words in the language. A useful way of looking at this universe of words is to consider it to comprise a *definition* of the achievement to be measured by the test.

The BWVT test was developed from a 1-percent sample of words that were defined as basic words based on several explicitly stated criteria. The population source of basic words was also explicitly defined.

Two problems of content validity seem particularly relevant for the BWVT. The first problem is concerned with the size of the estimated population of basic words. This population was estimated based on a 1-percent sample of the estimated number of main entries in *Webster's Third International Dictionary of the English Language*. The best method for determining this population is to go through all the main entries and the other steps that were taken to obtain the full population. Efforts are underway to do this now. Until this is accomplished an estimate of the size of one's basic word vocabulary knowledge as measured by the BWVT is subject to considerable variance.

The second problem relates to how accurate the BWVT is in estimating knowledge of the population of basic words even though it may be somewhat more or less than a 1-percent sample of such words. Results from the item and the internal consistency analyses and short forms analyses indicate that the BWVT covers a wide enough range of basic word knowledge acquisition and provides reliable measurements throughout the range except possibly at the very top; hence

accurate estimates can probably be made when the population of basic words is finally determined.

The heart of the notion of content validity is that the test items constitute a representative sample of the content universe to which a generalization can be made. The procedures that were used in drawing the sample were designed with the explicit purpose of providing a basis for inferring content validity. How adequately this was accomplished must be checked by a logical evaluation of these procedures and by comparing this sample of words with other samples or the population itself.

*Construct validity.*— Construct validity aims at providing a basis for inferring the degree to which an individual possesses some hypothetical trait or quality (construct) presumed to be reflected in the test performance. The Standards provide an example where a vocabulary test might be used as a means of making inferences about "intellectual capacity." Construct validity is evaluated by investigating what qualities a test measures, that is, by determining the degree to which certain explanatory concepts or constructs account for performance on the test. To examine construct validity requires a combination of logical and empirical attack. A simple procedure for investigating what a test measures is to correlate it with other measures or tests. Construct validity is relevant when no existing measure is acceptable as a definitive criterion of the quality of interest, or when a test will be used in so many diverse decisions that no single criterion applies.

The logical basis from which the BWVT test was constructed was to develop a vocabulary test with content validity as a sample from an explicitly defined subpopulation of words to which the construct term "basic word vocabulary" was applied. The properties of this construct, and the behavioral domain it represents, were explicated by means of a set of specific criteria which provides its operational definition rather than by logical linguistic analyses. An assumption implicit in the construct formulation is that one's basic word vocabulary forms the core of one's larger vocabulary.

Webster's Dictionary was selected as the population from which to start because of its comprehensive coverage and its authoritative

standing. Abbreviations, hyphenated words, compounds of two or more separate words, and proper nouns were included and recorded separately in the 1-percent sample count but not considered later because they were viewed as developed, perhaps fairly temporal, phrases or expressions which did not coincide with the objective of determining the fairly basic or core words in the American-English language. The other three major American dictionaries were used to arrive at a set of words on which there was a type of consensus of their relevance in the American-English language. Foreign, archaic, slang, and technical words were considered as representing specialized vocabularies. The derived, variant, or redundant words, of course, were not considered as basic words by definition.

The procedures followed to the point of differentiating basic from derived words were straightforward and mechanical. However, the development of the criteria used for differentiating basic from derived words represent considerable thought, evaluation, and deliberation. The criteria were applied by other individuals in the tedious and detailed work of sample selection, population estimation, and cross-checking the four dictionaries. The whole procedure should be given careful attention in evaluating the properties of the basic word vocabulary construct and in using these criteria, because any deviation will yield different results.

The method used in arriving at the operational definition of a basic word was logico-heuristic. The task was not begun with a well-defined or explicit idea of what constitutes a basic word but began with the general notion of a basic word vocabulary domain from which a sample could be extracted for use as a basic word vocabulary test. The general notion and the method to follow had been germinating for 10 years in thought and studies of vocabulary development. The decisions related to starting with main entries from Webster's, what to consider as a main entry word, the size of the sample (1 percent), and the major categories used in classifying the sample of main entries were made prior to actually starting the final task. The elimination of certain categories and the use of the other three dictionaries were decided on after looking at the sample of main entries. The criteria that were used for differ-



entiating basic from derived words were developed by careful study of the last 307 words and their definitions. If a word and its definitions appeared not to fit the general notion of what constitutes a basic word the question "Why not?" was asked. This led to the development of an explicit statement of how it differed from other words in the sample which had been considered as "basic." Each word and its definitions were then evaluated by the resulting criteria. The total process thus led to sequential sets of explicitly stated decision logic rules which were applied to each word.

Loevinger<sup>23</sup> provides three criteria for evaluating the construct validity of a test. These criteria require that the substance or content of the items shall be consistent with the proposed interpretation, that the structural relations of the items shall be consistent with the structural relations of nontest manifestations of the same trait, and that the external correlations of the test score shall not all be zero and shall be consistent with predictions based on what is known of the postulated trait. Evidence for construct validity, according to Loevinger, can be broken down into evidence that the test measures something systematically and evidence for the particular interpretation of what it measures. The degree of internal structure of the items and the magnitude of external correlations are the former, or psychometric, evidence; the nature of the structure, content of the items, and nature of the external relations are the latter, or psychological, evidence.

The procedures used in sampling, in defining the unit of measurement—the basic word—and in developing the BWVT test were used to provide assurance that the substance or content of the BWVT items are consistent with the proposed interpretation. Since it was assumed that basic word knowledge is acquired and would increase with educational attainment and age in the early years, the high correlations of the BWVT with education and age (table U) indicate that the structural relations of the BWVT items form a scale that is consistent with the structural relations of nontest manifestations of basic word knowledge development. The external correlations of the BWVT with other tests of verbal ability (tables F and U) were all high and consistent with the postulate that the BWVT measures growth in verbal ability related to reading and

writing. Evidence that the BWVT measures something systematically has been presented by showing the degree of internal structure of the items by item correlations with subsections of the test at several levels of difficulty (table C), the internal consistency reliability of items within these levels (see section on reliability), and by the magnitude of the external correlations of the BWVT with other factors. Evidence on the nature of the structure of the BWVT was presented which indicated that the items form a progressive series or scale and the content of the items can be inferred to reflect the progressive acquisition of basic word knowledge in the early years. Evidence on the nature of the external relations of the BWVT was presented showing a positive relationship with growth and acquisition of knowledge in other areas.

These findings present positive evidence for the construct validity of the BWVT as a measure of the level of acquisition of basic word knowledge, vocabulary development, and more general aspects of verbal ability.

## DISCUSSION

### Limitations

A major limitation of the BWVT is that it is too difficult at the lower education and age range when given as a reading test. This is due mainly to limited reading ability at the early ages. Perhaps a pictorial type of vocabulary test can be developed for individual and/or group administration at the earlier ages which can be tied in with the BWVT. Orally given and responded to vocabulary tests can be given at about age 6. Pictorial materials can be used as early as age 2 as vocabulary measures. It appears that a full-range test of basic word vocabulary could be constructed for use from age 2 onward.

A larger sample of basic words would have been useful for selecting a 1-percent sample more evenly distributed in terms of difficulty levels and for selecting more words at the easiest levels for better differentiation among individuals at the lower grades and ages.

Since the standardization sample of individuals was drawn from a limited geographic area, certain biases in word difficulty levels probably

occurred compared to a nationwide sample. This sample also was well above average in verbal ability as measured by the nationally standardized tests. The median percentile score was 61.4 instead of 50.0, which is about .29 standard scores above the national level. This problem led to the need for using constructed values for the normative means and distributions rather than those provided directly by the sample. The number of cases per grade was also low for good standardization, although having a wide range of grade coverage tended to compensate for this. While standardized test scores were obtained for most of the students, they came from five different tests reflecting verbal ability. Since the content of these tests varied, their correlations with the BWVT probably varied more than if one standardized test had been available for all 12 grades, and the normative standards among these five tests probably differ quite a bit. Also only language IQ instead of grade percentile scores were available for the 7th grade and in some cases in grades 2, 3, and 5. The time interval between the administration of the standardized tests and the BWVT also varied from less than a month to almost 2½ years in some cases. Grade 12 students were obviously much higher in comparative verbal ability on the standardized tests than the other grades, and for some unknown reason the 7th grade students did not show the typical grade progression pattern above the 6th graders on the BWVT.

All these factors contributed to some uncertainty in establishing midpoint values and score distributions for the normative tables.

### Growth and Development of Basic Word Vocabulary

The BWVT was developed with the notion that it could serve as an indicator of the growth and development of basic word vocabulary by education and age among children. The findings derived from the standardization sample provide some indication of the growth function of basic word vocabulary.

The fact that the words in the BWVT could be fairly evenly ordered in terms of difficulty levels and the observations and findings for the 10 - E scoring method indicate that the acquisition of knowledge about given basic words does not occur in a random fashion. If there are no

theoretical reasons for assuming that one basic word should be learned earlier than another one, then exposure to, interest in, and awareness of these words may be the most important reasons for acquiring knowledge about them.

*Growth with education and age.*—When the BWVT score distributions are studied by education and age (tables K and M) a definite pattern can be seen. Using age for example, the range of scores is much higher above than below the midpoint for years 8 and 9 and then shifts over to a larger range below the midpoint from about age 11 and above. Thus at age 17 the lower range for a VDQ of 67 is 43 raw scores below the median, while the upper range for a VDQ of 133 is only 29 raw scores. The differences between the means and medians (table G) also show this skew pattern in distribution of scores.

The growth rate pattern by educational level is shown in figure 1. The actual median values

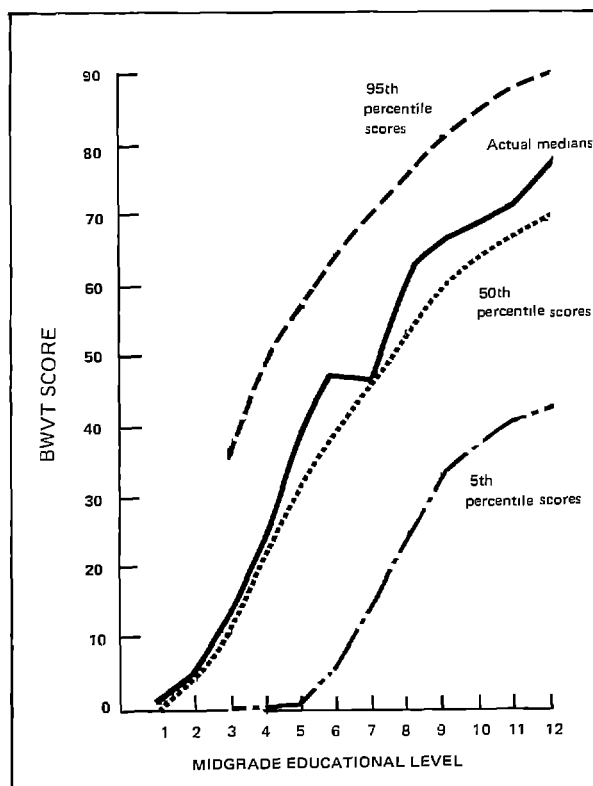


Figure 1. Basic word vocabulary growth pattern of children by educational level.

show a fairly orderly pattern of growth from grade to grade except for the 7th and 12th grades which was discussed in the previous section on limitations. The constructed normative values for the 5th, 50th, and 95th percentile levels are also shown. The growth pattern of basic word vocabulary as shown by the BWVT increases fairly rapidly up to grade 9 and then begins to slow down rapidly.

*Estimated absolute size of basic word vocabulary.*—An estimate of the absolute size of basic word vocabulary represented by a given score on the BWVT can be obtained by multiplying that score by 100. The percent level of attainment can be obtained by dividing the given score by 123. These estimates are, of course, subject to error. The two major sources of error are the standard error of the sample to population estimate of basic words and the standard error of measurement as reflected in the measurement reliability of the test. The standard error of the sample estimate is 1,073 and the standard error of measurement for the BWVT is about 3 raw scores or about 300 for the population estimate. Thus if an individual's raw score on the BWVT is 60, the estimated absolute size of his basic word vocabulary is 6,000 with a combined standard error of about plus or minus 1,114 words.

Another feature of the BWVT is that a given score reflects quite accurately the actual items that were passed. Thus the midpoint score of 60 for 9th grade students indicates that about half of the students at this grade level know the BWVT word Item 60, which is "lank."

### Applications of the BWVT

Probably the two most widespread applications of the BWVT will be in education and in personnel selection and training. Since the BWVT is easy to administer, score, and interpret, teachers and personnel officers who have reasons to believe that a basic word vocabulary is important in learning their course materials or for effectively handling a given job can give the BWVT and evaluate the individual as to his probable competence in the given situation.

The BWVT can also be used as a standardized

test for evaluating growth and development of individuals and of groups. One of the advantages of the BWVT over many other standardized tests is that the content of what is being measured is easily grasped both by the individual taking the test and by the person who must interpret it and translate the findings into some action programs. Another application of the BWVT, particularly the short forms, would be in research studies. Not only the level of basic word vocabulary of the research subjects could be ascertained but experimental and control groups could be equated on this factor whenever it had a bearing on the dependent variables of interest.

### Further Research and Development

The most immediate research and development need for the BWVT is to obtain more precise normative data for educational, age, and occupational groups as well as for specific school courses and subject matter areas. Efforts could also be made to extend the BWVT content notion down to about 2 years of age. Development of other basic word vocabulary tests from other samples of basic words would permit recurrent testing for evaluating growth and development during each school year. Validation studies of the relationship of the BWVT with school course grades, occupational success, and measures of general intellectual attainment can be undertaken.

The research and development implications that can be generated are almost limitless if the construct properties of a basic word vocabulary prove to be sound. Some possibilities that are opened up are for studying the relationships of the development of a basic word vocabulary with language growth and development, learning to read, effective verbal communication, and changes in symbolic thinking and reasoning as well as its relationship with general intellectual development. If a large basic word vocabulary is related to effective coping with a number of practical problems such as formal learning and occupational success, then ways and means of effectively developing a large usable basic word vocabulary should be explored.

## SUMMARY AND CONCLUSION

The results of the studies to date indicate that the Basic Word Vocabulary Test provides a range of items in terms of item difficulty levels useful in printed form from about the third grade to the highest educational levels. Since pictorial and orally given vocabulary tests are used from about ages 2 to 8 years, further work should be done to extend the scale downward so that a single comprehensive vocabulary scale ranging from age 2 years to the highest level of verbal development is available for general use.

Validation studies should also be conducted with other well-known intelligence tests so that scores can be compared. Alternate forms need

to be developed to allow for longitudinal studies of growth and development.

The use of a single standard of measurement of vocabulary development, suitable over a wide range of age and ability levels, by different investigators should materially aid in comparing results across studies and samples and lead to more consistent findings, advances in knowledge, and wider application of findings in practical circumstances.

The findings presented in this report indicate that the Basic Word Vocabulary Test adequately measures basic word knowledge acquisition and development. The BWVT is suitable for evaluation of individuals and for use in making group comparisons in levels of basic word knowledge attainment, growth, and development.

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## APPENDIX I

### BRIEF DESCRIPTION OF DICTIONARIES

The following brief descriptions were obtained from the self-description of each dictionary used in developing the Basic Word Vocabulary Test. Entries or terms as used by these dictionaries are not main entries, that is, the alphabetic entry, but are probably used to designate all the main entries plus derived forms and sub-entries that are defined.

Webster's:<sup>15</sup> More than 450,000 entries; 2,662 pages

Funk and Wagnalls:<sup>15</sup> 458,000 terms defined; 2,757 pages

World Book:<sup>17</sup> Over 200,000 entries; 2,415 pages

Random House:<sup>16</sup> 260,000 entries; 1,664 pages

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package	valedictorian	nasute
padodite	vaporize	nullipora
palpitation	varioid	
pantaloons	venturesome	orthogonal
papyraceous	visionary	
parsimonious	visitant	placebo
payable		prussiate
persuasive	warranter	pygidium
pestilential		
politesse	zip	retinitis
proa		rousant
pregnancy	<b>Technical, Archaic, Foreign, and Slang Words</b>	
provisional		sonorant
	<u>Technical</u>	superciliary
radiant	alopecia	thionyl
rampancy	anaphase	tribach
rarefy	antienzyme	
reality	antilogarithm	vacuole
relict	aposematic	viosterol
reproachful	architrave	voltage
respectively	aril	
resupine		zamindar
rhombohedron	buccinator	
robustious	buntline	<u>Archaic</u>
rookery		amusive
rusticate	carpellate	
	cessionary	lucarne
sacramental	chalaza	
scorching	choripetalous	paly
scuta	coda	
sedulity	concha	
seepage	corody	
seismoscope	courmarin	<u>Foreign</u>
serving	creosol	agee
severalty		
silviculture	digitalin	byre
singularity	dourine	
skeletonize		claught
slaty	epigastrium	
slumberous	euplastic	
smithy		grutch
spreader	fantigue	
strength	fluor	jillet
stylographic	forestay	
subsurface	formaldehyde	licht
sulfatize		
sunken	grippe	makimono
superstratum		
supposed	herpes	ruddock
	holmium	
threadfin		sel
titled	interplead	
toothache		tirl
tragedion	lymphadenitis	trachle
trainee	lytic	
transformation		wa'
turnabout	martensite	waggon
	methyl	wyte
unbelief		

Slang

batty  
benny

confab

offish

snotty  
splendiferous

walloping

**Words Not Main Entries In  
All Four Dictionaries**

abembryonic  
abolitionism  
abruptly  
academician  
accelerograph  
accipitrid  
acephalina  
acknowledgeable  
acridan  
actability  
ada  
administrable  
adorno  
aeration  
aesthetician  
affability  
agal  
agpaite  
akepiro  
alif  
alkyd  
allactite  
allophanamide  
allothimorph  
allylene  
alternamente  
alumnal  
alveon  
ambassadorship  
amenably  
amis  
amor  
amphid  
ampyx  
anaerobian  
anamite  
anchimonomineral  
andrite  
anhungered  
anionotyopy  
anonymuncule

antagonistically  
antiquitarian  
anxiously  
aphelinidae  
apocha  
applicableness  
apting  
arborary  
archband  
arcticize  
aristoi  
arrayer  
arrowplate  
ashery  
assailment  
assever  
asthenobiosis  
astonishable  
attrist  
aurinasal  
autarchic  
autoerotism  
autoing  
autotomy  
avulse  
axe  
azon

babbling  
backwoodsy  
bacteriofrenic  
badmash  
baledos  
balloonberry  
banjoist  
barbarousness  
barmote  
barns  
basichromatin  
bataleur  
batoneer  
beezer  
befrogged  
behite  
belonite  
benday  
benzal  
beringite  
besetment  
betitle  
bibliolatrous  
bieberite  
bikini  
binds  
bismoclite  
blackacre  
blas  
blazingly

blowback  
bobachee  
boildown  
bolted  
bondar  
boozer  
bority  
bosse  
bowden  
brachyblast  
braveness  
breezeway  
butterball  
butyrate  
byzant

caballer  
calathos  
calcifuge  
calimanco  
canniness  
cantilate  
capriciousness  
caraibe  
cartilaginous  
caseinate  
cassing  
catalytic  
catskin  
cattleman  
cause  
cavitoma  
caza  
celebrator  
cembalist  
cephalization  
ceremonialism  
changeroom  
channelbill  
charaban  
chased  
chaussure  
chenfish  
chidra  
chiffonade  
chitosan  
chloroanemia  
chloroma  
choirwise  
chondropharyngeus  
choosy  
chroman  
chromoisomer  
chrysography  
churchless  
circumvene  
citoler  
clasmatocyte



cliqueless  
closefisted  
closestool  
cloudlet  
coactive  
coastways  
coccosphere  
cockier  
codehydrogenase II  
coerulignol  
coho  
coleoptile  
collogen  
colophene  
columbate  
comfiest  
commendatore  
committeeman  
compensability  
complanation  
compromission  
configurative  
confusingly  
conjury  
consonantal  
conster  
contravindicate  
convalescent  
convertend  
roracobrachialis  
cornerbind  
corticoafferent  
cosmologist  
countercheck  
counterslope  
countinghouse  
coupled  
crazyweed  
creeded  
crooked  
crosnes  
crownbeard  
cruisie  
cumbersomely  
cupidon  
cupressineous  
curioso  
cutbank  
cyclopedist  
cytogamy  
  
dacent  
daughterly  
davy  
deathtrap  
decrassify  
deducible  
deplacement

degreed  
dehrnite  
delegator  
delorenzite  
demonstrability  
dendrophysis  
dentiform  
dependableness  
depraver  
derangeable  
deridingly  
des  
designata  
desmoneme  
deuced  
devilry  
dibutyl  
diminutival  
dimpsy  
dipcoat  
diphtheroid  
dipotassium  
disally  
discission  
disgracious  
dismask  
disposability  
dispositions  
dissave  
dissolvable  
distinctiveness  
diting  
dividedly  
dizoic  
doctorhood  
dogana  
doltish  
dopehead  
doryline  
dozened  
dragged  
drawing  
dromic  
drostdy  
drunkery  
dudleyite  
dwined  
dysgonic  
  
ecstatically  
editorialist  
effectible  
eidetic  
eightfoil  
ekhimi  
electroanalysis  
electroplexy

elementarily  
elongation  
embroiler  
emulsifier  
encephalosis  
endolimax  
engrained  
ennobling  
entrad  
enthrallment  
entireness  
entropion  
epibolic  
epiphytic  
epizootiological  
equatorially  
eremitic  
erogeny  
escaped  
escaping  
esotery  
essoin  
estoque  
etherification  
etiolation  
evactor  
exceptionless  
execrator  
expiator  
exploitee  
eyne  
  
fagoter  
falcula  
familiarization  
farmhand  
farruca  
fatcake  
federacy  
feeless  
feelingly  
fenceless  
fertileness  
filopodium  
flakeless  
flavorpurpurin  
fleshless  
floodboard  
flosculus  
fluoriform  
flyway  
foldaway  
footback  
formularize  
forslow  
foundationary  
freezes  
fretize

frightenedly  
fronting  
fronts  
fumigatory  
funo  
  
gadge  
galacrocele  
gallas  
gallused  
gangs  
gant  
gastroptosis  
gayatri  
geisotherm  
gener  
generalcy  
gentlefolk  
geomagnetician  
geoselenic  
germinator  
gidgee  
gilling  
gimlety  
glady  
gliffing  
glode  
glossopyrosis  
glutonously  
gnawing  
gonif  
gonosome  
griffonne  
groundier  
groutite  
gul  
gymnosophical  
gyrocompass  
  
habitally  
habronemiasis  
hairstane  
halloth  
hamble  
handlebar  
hangbird  
haploid  
harmal  
hatband  
hatchettine  
haustration  
headrail  
hemipteroid  
heptyne  
heresiologist  
heterachrome  
hexamethylene  
hexed

hideout  
highveld  
hinderlands  
histogenesis  
hitching  
hiveless  
hockeyist  
hohlfloete  
homeotic  
homolateral  
hooplike  
husbandly  
husked  
hydrazobenzene  
hydrocarbonate  
hypaethral  
hypermotility  
hypochloremia  
hypophysectomize  
hypsometry  
  
ichthammol  
ideological  
idyllium  
illustrational  
imitational  
impartment  
implementation  
impostrous  
imprinting  
inbearing  
inconnected  
inconstantness  
incubational  
indenter  
inducing  
infatuator  
informalize  
informingly  
inheritage  
inquistively  
intellectualist  
intercreedal  
interdictory  
interjaculatory  
intimation  
intolerability  
intrauterine  
intuitionalist  
inundable  
inversion  
invited  
iodhydrin  
ironize  
ironback  
irremissive  
isard

ishikawaite  
isodrin  
iteming  
ivybells  
  
javali  
jellybread  
jocundness  
joining  
  
kampferol  
kayles  
keelbill  
keffiyeh  
kiaki  
kif  
kinder  
kirkman  
knicht  
knobwood  
knucklebone  
kommetje  
kweek  
k'ri  
kurveyor  
  
labellate  
labyrinthian  
ladkin  
lampless  
lapetted  
latherer  
laverwort  
laxist  
leeve  
legitimation  
leontiasis  
leptotene  
leucoindigo  
leveled  
lexicostatistics  
lieutenantry  
lifted  
ligg  
liked  
limbs  
limnephilid  
lineable  
linolein  
liquifiable  
lithocyst  
loamless  
localite  
locustarian  
looked  
lovey  
lovingly

luller	mythicist	paleothermal
lurdane	myxine	palimbacchius
luringly		palmaceous
lutulent		pand
	napalm	paralyzing
macroblast	nativeness	paradoxology
magniloquence	naturally	parallelogrammatic
majoration	navigational	parcellation
malleableness	nebby	pard
mantellone	nectarean	patrilocality
marimonda	neighboring	paulin
marketability	nephograph	pedimented
mashed	nephrosis	pegasoid
massivity	nestable	pellicula
matchboarding	neurine	peloric
matureness	neuroglia	penciled
matie	nicotinate	pensionnaire
mattness	nightshirt	pentose
memoryless	nitraniline	peracete
meningioma	niyoga	perfidiousness
mercurialism	nominatively	pericarpoidal
meriter	noncontagious	perishableness
merocyanine	nonmedical	peroxidation
mesosphere	nonoptical	persifleur
metachromatism	nontheistic	perspectivist
metonym	northwards	petrifactive
metensomatosis	normalness	petzite
microfiche	notacanthid	phenomenality
microlepidopterist	notharctid	philomath
microsporon	notifiable	phloroglucinal
middler	noticeably	photomural
millering	nucleocytoplasmic	phrenological
millable		phyllozooid
mineralocorticoid	oater	physiologue
misadjustment	obeah	pickover
misdescriptive	obstructive	picudilla
misogynist	oilskinned	piezochemistry
misput	oleoplast	piked
mitochondrion	omohyoid	pinacolone
mockage	ontogenesis	pingle
monaxial	onychosis	pintadoite
monetite	oppilate	piratical
mononucleosis	optimity	platyfish
monotriglyph	orchiectomy	pleuracantha
monumentality	orthopsychiatric	plombage
moosewood	osteolepiformes	plumpness
morsal	osteria	poggy
mosaicist	outgoer	pointes
motory	outpouching	pollenizer
mouthbreeder	outstep	polycomponent
muliebral	outvalue	polyene
mower	overpayment	polymicrobic
munga	overedger	polyps
munitioneer	oversimplify	polyspore
musaf		portability
mycotrophic	paddleboard	portsider
myelopathic	paints	possessingly
myrmecophilism	palatability	postclypeus

practicedness  
prakarana  
preanimism  
precipitately  
precisionist  
predicator  
prefilter  
prepalatal  
presentably  
presiding  
presigious  
pretypify  
prevelar  
primmer  
prickier  
procaviid  
proctorize  
profligateness  
proliferous  
prolongate  
proneness  
propalinal  
properdin  
prosciutto  
prosternation  
proportioning  
protocolist  
protohistoric  
provolette  
pseudozoea  
pteridoid  
ptero paedic  
Puericulture  
pulmonate  
pulpiter  
puncturation  
puppetize  
pursiness  
purringly  
putrescine  
pyrazoline  
pyrotechny

quadruplicity  
quaters  
quickbeam  
quivering

rachitic  
rageous  
ransomer  
ratherish  
rattlebag  
reactivity  
rebuter  
recondemn  
reconstructional

recruiting  
redeemable  
reech  
reformade  
refusable  
regulant  
reimbursable  
relatedness  
relentment  
reluctate  
reminiscently  
remix  
renting  
repenter  
rephotograph  
repost  
reproductionist  
requin  
resentiment  
respiteless  
resolutioneer  
retablo  
renaturation  
retrocessive  
reused  
revokingly  
revolvable  
rhapontin  
ribaldrous  
ridgebone  
rimate  
risen  
ritualization  
robing  
roestone  
romanticness  
rootiest  
rostralis  
rowed  
rotlerin  
rückumlaut  
ruggedize  
rumpot

saddlenose  
sadly  
sagaciously  
sainting  
salmonfly  
salutariness  
samel  
sanded  
sapien  
satisfier  
sauropod  
scenarist  
scobicular  
scolding

scrapler  
screenlike  
scripter  
scrupulousness  
scutiped  
sectoral  
sellaite  
semiround  
sensile  
sentimentalist  
sequestree  
serpolet  
serriferous  
shadbelly  
shaping  
shareef  
sheaveman  
shroudless  
shutten  
sidescraper  
sig  
sighted  
simlin  
simplified  
sisalana  
skipdent  
slangish  
slapdab  
slickens  
slouchily  
snoopy  
soapbox  
soaring  
sociometrist  
solderless  
solubilize  
somer  
soroche  
sourberry  
souths  
sparger  
spasmogenic  
spatuliform  
speechcraft  
spirocyclic  
spewy  
spies  
spindleberry  
spiracular  
splathering  
sportful  
sprug  
squares  
stalworth  
startling  
stearic  
stenion  
sterning

stockinged  
 stoury  
 straightways  
 stretchberry  
 strikingness  
 striving  
 strontianiferous  
 strutter  
 stuffer  
 stupendously  
 subduedly  
 subfauna  
 subjunctively  
 subnutrition  
 subsidizable  
 subvertical  
 sucken  
 suff  
 sufficientness  
 suggestiveness  
 superlunary  
 supportation  
 surfer  
 surrenderor  
 susception  
 susuration  
 swashbucklery  
 swilling  
 swingingly  
 swoosh  
 swordsplayer  
 symbion  
 symphyliid  
 synkinesia  
 synonymic  
  
 tablecloth  
 talari  
 tallygalone  
 tamperer  
 ranglehead  
 tautness  
 tawery  
 teched  
 tegu  
 teloblast  
 tempestuousness  
 tendenz  
 tenorist  
 terai  
 termine  
 testability  
 tetchiness  
 tetrapterous  
 tetramethylenediamine  
 textus  
 thermoclinal  
 thinghood

thisness  
 thundercrack  
 tiddler  
 tiewig  
 tinsmithy  
 toa  
 toddick  
 tongawalla  
 tongueless  
 topeng  
 toucher  
 towable  
 toxigenic  
 transfusionist  
 translator  
 transplantor  
 trapball  
 treating  
 trellage  
 trestleman  
 triazo  
 trichoid  
 trihydrated  
 tritencephalon  
 trocheameter  
 trothless  
 truxilline  
 tubectomy  
 tumbled  
 turbiner  
 typecase  
  
 unadjusted  
 uncessant  
 unchristianize  
 unconsonant  
 undelude  
 underair  
 underleaf  
 understanded  
 undissected  
 unemployability  
 unexpended  
 unfraternal  
 unhang  
 unhelped  
 unimagined  
 unital  
 unliteral  
 unmown  
 unneutrality  
 unpossible  
 unrecollected  
 unrelievable  
 unscale  
 unsimilar  
 unstudious  
 untillable

unwandered  
 unweeing  
 upstander  
 uranoscopid  
 urva  
  
 vancourier  
 varnisher  
 velveret  
 vengefully  
 verdit  
 vernacularize  
 vertically  
 vestural  
 virtuose  
 vitaminology  
 vraicking  
  
 walkaway  
 wardwalk  
 wasteless  
 whatman  
 wiggly  
 winterkill  
 wolframine  
 worthily  
 wouldst  
 wreather  
 wronged  
  
 xeromorphic  
 xiphisternum  
  
 yad  
 yarner  
 yawner  
 yous  
  
 zwinger

#### Abbreviations

abn.  
 appd.  
  
 dol.  
  
 E.O.H.P.  
 extl.  
  
 fgn.  
 F.O.R.  
 F. P.O.

gl.	average bond	bull oak
IM	azimuthal equidistant projection	bull thistle
INA		bum steer
		bush doe
lit.	backache brake	bustard quail
	back load	butterfly crab
Me	bail below	cab-over
MOH	balance coil	cadency mark
MPI	banded olive snake	calendar stone
	barren brome grass	call price
	basal wall	calyx tooth
Ubl	basket salt	cameo glass
OCS	beam and scales	camphorated oil
OE	bearded argali	canal cell
OTS	beat back	canary cedar
	beaver dam	candlestick lily
prof.	bed rot	cance cedar
	bell crown	cap-and-ball
refd.	binomial expansion	capital assets
	biotic formation	carbonic oxide
SC and S	bird's-foot violet	cardinal climber
Sing.	bitter aloes	carnation rose
	black-backed gull	carrion beetle
S.S.W.	black flag	cartridge starter
	black oyster catcher	castor oil
THI	black root	catch colt
	blade back	cellulose ester
U and O	blind tire	cera flava
	blister canker	cervical canal
<b>Hyphenated Words and</b>	blood pheasant	chaff-flower
<b>Word Compounds</b>	blood type	charge-a-plate
	blue asbestos	chevron molding
	blue beam	chime maul
absorption band	blue nevus	chip carving
acetaldehyde ammonia	blur circle	chunk honey
achievement test	boathouse rum	cidar apple
activated sludge process	body cell	cinnamon teal
addition polymerization	bois cotelet	circulating decimal
addressing machine	bosun bird	clam catcher
adjutant's call	bottom break	claver grass
agent intellect	boundary layer	cleaning mark
ahead of	branch circuit	clearing bath
air engine	breach of trust	climb-down
all-fired	break and entry	clip-clop
alphabet book	breast-beating	clumphead grass
angle iron	bridge bird	cognovit note
angular displacement	bright aqua blue	collective bargaining
annual bluegrass	bright peach	commissioning pennant
apple leafhopper	broadleaf tree	comparative literature
arabonic acid	brokers' board	complement-fixation test
arrack punsch	brood capsule	composite dike
art form	brown brush	compressibility effect
artificial nucleation	brush arbor	conditional complex
artist's proof	bubble chamber	con gusto
asexual spore	buck sail	contact bed
aspect ratio	buffalo currant	content analysis
atom smasher	bulk eraser	cone-bearing

contingent fund  
contract bond  
contraction joint  
cook cheese  
coordinate geometry  
copper nickel  
coralline limestone  
core bit  
corn bran  
correspondence theory  
cossack post  
cough drop  
courtesy card  
cover charge  
crab plover  
crack arrester  
cramp iron  
crape jasmine  
cribriform plate  
crinkum-crankum  
crossed belt  
cross-staff  
crowfoot grass  
cry back  
crypt-analyst  
crystal vinegar  
cuckoo-bread  
curry powder  
cushion dance  
cut-and-cover  
cut square

dandy fever  
dark beaver  
dead-smooth  
declaration of war  
dependent variable  
detention home  
dew-drink  
dialectical theology  
diaphragm horn  
direct control  
direct salesman  
directional gyro  
discharge coefficient  
distribution box  
dog cockle  
donkey engine  
doppio movimento  
double-action  
double capital  
double-talk  
dove's-foot  
down-and-out  
dragon boat festival  
dray horse  
dress circle

dropping bottle  
dry-waxed  
dual union  
dumb ague  
dung worm  
dyer's cleavers

ear rot  
earth lichen  
eau de Javelle  
economy coil  
effective horsepower  
egg albumin  
elbow chair  
elementary body  
empire building  
empty-headed  
en passant  
equilateral arch  
equivalence zone  
essential hypertension  
eudemis moth  
even court  
evil eye  
executive session  
experimental psychology  
express car  
extended family  
extreme fiber  
eye appeal

face and fill  
fair use  
false annual ring  
faucal plosive  
favorite son  
feather bed  
fellow feeling  
fender bolt  
fern clubmoss  
fictitious person  
field kitchen  
fifty-three  
fighter-bomber  
file signal  
finder switch  
fingernail clam  
fire and brimstone  
fire blanket  
fire-retarded  
fish-and-chips  
fissure of Rolando  
five-finger  
flare gun  
flat back  
flax-sick  
flight pay  
flowering straw

fly-about  
focal area  
fool hay  
force account  
force of friction  
foreign-born  
forty-second  
foul berth  
four-poster  
freak of nature  
free field  
freeze-drying  
frogbit family  
fruit bark beetle  
fuel dope  
full bottom  
functional calculus  
fur breeder  
future tense

games-all  
gas bacillus  
gas helmet  
gaudy night  
gentleman-ranker  
give off  
glass run  
glove box  
going forth  
gold bloc  
old import point  
go to  
governor's council  
grade beam  
grain beetle  
grand father-in-law  
grapple plant  
gray antimony  
great anteater  
greater omentum  
green adder's mouth  
green-striped mapleworm  
greeting card  
grooving saw  
growing zone  
guardian by custom  
guide card

halfhead bedstead  
hand and foot  
hand nut  
harmonic interval  
harsh-furred hare  
hawkbilled  
hawthorne rust  
heart attack  
heather ale

heavy spar  
heel-and-toe watch  
hell driver  
helve hammer  
hemp tree  
herald of arms  
high-angle fire  
hight court  
hokus-pokus  
hold over  
hollow newel  
holy day  
homogeneous reaction  
honey badger  
honor system  
hooded milfoil  
horny laminae  
horseshoe bat  
hot-air furnace  
hotel dieu  
hue circle  
human ecology  
house board  
hum note  
hunter's moon  
hybrid coil  
hysteresis loss

ice partridge  
icterus gavis  
ill at ease  
imperial city  
in chief  
included sapwood  
indefinite proposition  
indirect lighting  
inductive inference  
infinite canon  
innominate vein  
inside quire  
intentional species  
intermittent pulse

jaal goat  
jack-by-the-hedge  
jet black  
judgment by default  
jumble sale  
jus in re

kahili ginger  
kick around  
king ortolan  
knot garden

lag fault  
last clear chance  
last-ditch

laughing jackass  
law of the minimum  
layon  
leaf-and-tongue  
leaf-cushion  
lead arsenate  
leave in  
legal jointure  
let down  
licensed premises  
lightning calculator  
line space lever  
listener-in  
litle house  
livery cupboard  
living language  
long hundred  
look down  
loose scrum  
lord register  
lowland plover  
lug chair  
lumpy skin disease

magazine safety  
magnesium hydroxide  
magpie moth  
mail clerk  
make-peace  
malignant hypertension  
man-about-town  
mandarin orange  
manrope knot  
many-valued  
masked bobwhite  
master station  
meadow nematode  
mean place  
meat chopper  
mechanical aptitude  
medium chrome green  
melon fruit  
mesh knot  
metropolitan borough  
mine detector  
minister plenipotentiary  
minute hand  
miter joint  
mixtie-maxtie  
modern figure  
molding book  
mole crab  
molybdic acid  
monotorial system  
mooring board  
moral sense  
mother bulb  
mother ship

mountain hare  
mountain rosebay  
muck soil  
multiplier onion  
mushroom jelly fish  
mussel poisoning

naked boys  
nature philosophy  
negative angle  
neutral conductor  
night hitch  
ninety-seventh  
nodding lily  
novel assignment  
nurse's aide

obscure glass  
occupational therapy  
offset well  
one-night stand  
open-tank  
ophthalmic glass  
optical pyrometer  
orange scale  
organ neurosis  
original contract  
orographic rain  
osmic acid  
out and away  
oxeye daisy  
oyster agaric

package bees  
paper bail  
para-analgesia  
parietal eye  
parlor game  
parrot blue  
partial correlation  
parting pulley  
partition coefficient  
pass out  
pastry bag  
patent right  
pat hand  
peacock butterfly  
pear thrips  
pectoral ridge  
pep talk  
perfecting press  
periodic acid  
periodic comet  
permanent hardness  
perpetual canon  
pharyngopalatine arch  
phase-contrast  
phosphorus trioxide



pilaster strip  
pillow fight  
pinch bar  
pipe-band  
pit canal  
pitch-and-run shot  
pit-pair  
place name  
plain clothes  
plain sailing  
plantago seed  
plaster base  
plate metal  
play back  
play-pretty  
plug flow  
plunge pool  
pocket beach  
poker-faced  
polecat tree  
pond-scum parasite  
poor man's orchid  
population pressure  
post-office  
potassium ferrocyanide  
potato-leaved tomato  
pound cake  
pour batter  
power appendant  
pre-med  
prerogative writ  
press agent  
primary alcohol  
principle of association  
prison camp  
private bank  
progressive dies  
protein crystal  
pseudogeneric name  
psychological distance  
public assistance  
puddle duck  
pump-action  
purchase-money mortgage

quail call  
quantitative inheritance  
quarter butt  
quenching bath  
quick match  
quinine flower

radiohumeral bursitis  
rain barrel  
raked joint  
raking course  
range-bred

range of accomodation  
rate basis  
raw water  
rayless goldenrod  
reasonable care  
recessed arch  
re-claim  
red seaweed  
red-tailed hawk  
reference line  
regimental combat team  
remade milk  
remittance man  
residual estate  
resting nucleus  
reverse bearing  
rift-sawed  
rigging loft  
right-handed rope  
rind disease  
ring plover  
rip-rap  
road brand  
rocking pier  
roi fainéant  
rolling eight  
roseate spoonbill  
rose family  
rubber belt  
r unit  
rural servitude

sales check  
sand mullet  
sanitary cordon  
scale bark  
scarf cloud  
screw arbor  
sea devil  
sea mail  
season crack  
second angle  
second-story man  
self-analysis  
self-involved  
semicircular canal  
semipalmated snipe  
sense-datum  
sepa a tilage  
series parallel  
set aid  
settle bed  
seventy-three  
sex cord  
shagbark hickory  
shamanistic dance  
shave hook

sheet chain  
shield bearer  
shift bid  
shingle tow  
ship of war  
shock bump  
short line  
shoulder arm  
shoulder-of-mutton sail  
shrinkage rule  
sib test  
side arm  
significant figures  
silica gel  
silicone rubber  
silver ash  
single transferable vote  
six-wheeler  
skill facet  
skirmish line  
sky hook  
sleeper shark  
sling unloader  
slip stitch  
sliver lapper  
slugging match  
small-beer  
smash fixer  
smooth-tongued  
snake fly  
snap bean  
snuffbox bean  
social ascidian  
sodium fluosilicate  
sodium propionate  
soft solder  
solar parallax  
sou markee  
sour dock  
space-charge effect  
spangled glass  
special deposit  
specific surface  
speckled turtle  
spencer mast  
spheroidal state  
spike bull  
spiral spring  
split-board  
spoils system  
spontaneous generation  
spool heel  
spotted nemophila  
spot welding  
square body  
squeeze off  
stained paper

standing rope  
starch blue  
star thistle  
statute fair  
steady load  
steering arm  
step trench  
stereo camera  
stick rider  
stinging nettle  
stinking badger  
stitch aloft  
stock-share lease  
stomodaeal food  
stoop crop  
storage car  
straight grain  
strangulated hernia  
strawberry cactus  
straw man  
stripe smut  
stubborn disease  
substitution instance  
sulfonated oil  
summum jus  
superior conjunction  
swamp ash  
sweep check  
sweet oil  
synchronous telegraph  
systemic circulation

tableau curtain  
tack and half tack  
tailored gardenia  
take in  
tall bellflower  
tank barge  
tap drill  
tarragon oil  
tassel-gentle  
tea borer  
teasel gourd  
telephone transmitter  
ten-cent store  
ten-week stock  
terrestrial magnetism  
theater-in-the-round  
then and there  
third basemen  
thorough-band  
threshing floor  
through arch  
through-composed  
thrush lichen  
tile ore  
time allowance  
tittle-tattle

toilet set  
token money  
tossed salad  
total-annular eclipse  
tower clock  
trade agreement  
transcendental equation  
traveling post office  
trigonal tristetrahedron  
triple-space  
troop duck  
truck light  
true balsam  
trunk call  
try for point  
tuck box  
tungsten bronze  
turntable ladder  
twenty-nine  
twin valve  
two-gun  
two-sided

umbilical cord  
unfair method of competition  
universal mill  
upper alveolar index  
uric acid  
usuræ usurarum  
utter barrister

vacuum-tube voltmeter  
vegetable leather  
vegetative mutation  
vestibular nerve  
vicar apostolic  
voice glottis  
vulturine guinea fowl

wandering tattler  
wantage rod  
warp and woof  
washer-up  
water bailiff  
water-ground  
water purslane  
water-smoke  
wave band  
weak feints  
weathered oak  
wedge gage  
weigh-in  
welfare factor  
western ring-necked snake  
whack-up  
wheel scraper  
whet slate

whing-ding  
whip crane  
white-crested touraco  
white flesher  
white pelican  
white work  
whole-time  
wicket dam  
wild allspice  
wild peach  
willow beauty  
window-efficiency ratio  
wing cover  
wise guy  
wood alloy  
wood snail  
word association  
work-and-back  
working ball  
worm conveyor  
wrinkle-lipped bat

yellow azalea  
yellow sedge  
youthful offender

zenith telescope  
zero drift  
zone of mobility

#### Proper Names

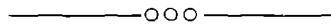
Accra  
Acnida  
Africanization  
Afro-European  
Aida trumpet  
Aix  
Alcyonacea  
Alexandrine rat  
American scoter  
Andaman padauk  
Anno Hegiræ  
Argasidae  
Anthropomorphidae  
Ascarops  
Asurini  
Atheoidea  
Athiorhodaceae  
Attalea  
Audubon's shearwater  
Aureomycin  
  
Balahi  
Balling scale  
Bamba

Bantam	Florida moss	Mangania
Barbarea	Frankfurt horizontal	Marchantia
Bauré	French vermilion	Marquis of Queensbury rules
Bdellonemertea	Fuchsine	Maxwell triangle
Bellacoola		Megaloceros
Bignoniaceae	Gaelicize	Megarhyssa
Blenheim spaniel	Geneva crystal	Melanoplus
Blockflöte	Girdle of Venus	Michael.nas
Bonpa	Goa Bean	Monstera
Brahman	Goodyera	Mormoness
Branchiopoda	Grantia	
Brownism	Guatemalteean	Nabothian cyst
Buprestidae		Naticidae
Burow's solution	Hamitic languages	Nelumbium
	Hebrician	Neo-Lamarckian
Caçoulard	Helenium	New England aster
Calyceaceae	Hemigalus	New Yorky
Cariama	Heteropidae	Ngbaka
Castalia	Hippophae	Nyctimone
Central American cedar	Hyenja	
Chamar		Odacidae
Cheilodactylidae	Iatmul	Odontosyllis
Cherokee	Igneri	Old German Baptist Brethren
Chinese bush cherry	Indian cherry	Olmec
Christmas begonia	Indicatoridae	Ona
Cloutie	Ingaevonic	Ordines
Cocceian		Oxypolis
Colaciales	Jagatai	
Connecticut	Jane Doe	Pace egg
Conservative Baptist	Japan lacquer	Pan-Hispanism
Cotonerol A	Job's tears	Parascaris
Crescentia	Jove	Paschens law
Cyathaspis	Junebud	Passalus
Cyclostoma		Pathan
Cynoglossidae	Karmatian	Pauropodidae
Cystophora	Kepler's Law	Pedicellinidae
	Keres	Percopsis
Dahomean	Keyauwee	Phallales
Dardanian	Kingdom Hall	Philippize
Debye-Hückel theory	Kiwanian	Phthalogen Brilliant Blue IF3G
Demerara sugar	Klemantan	Physopsis
Deuterostomata		Plectospondyli
Diapensiales	Lacrima Christi	Plymouth Rock
Dictyonina	Lagos rubber	Polish berry
Dutch bargain	Lambeth Delft	Porphyra
Dutch pink	Lancashire	Primates
	Landolphia	Procellariiformes
Echinopanax	Laudnum Bunches	Protura
Englemann spruce beetle	Leblanc process	Purkinje's network
Epanorthidae	Linum	
Erwinia	London brown	Rabbinics
European apple sawfly	Loricati	Receptaculida
Exogyra		Redjang
Expectation week	Macedonian	Reinecke acid
	Madagascar	Rhinonyssidae
Ferungulata	Malayic	Rhizidiaceae
First Reader	Mammalia	Richardson's grouse
		Rydberg

Sabbats  
Sabine  
Saint Andrew's cross  
Salop  
Samnite  
Sarcina  
Satsuma ware  
Savoyard  
Say's phoebe  
Scandahoovian  
Scheuchzeriaceae  
Schmidt telescope  
Schopenhauereanism  
Scotch stone  
Scottishness  
Senecio  
Shelta  
Sino-Japanese  
Sirenidae  
Solidago  
Springfield

Stanford-Binet test  
States' Rights  
Stegosauria  
Strigeidae  
Sub-Atlantic  
Suboscines  
Supreme Court of Judicature  
Svan  
Swave  
Symperalae  
Syphacia  
  
Taeniarhynchus  
Tagakaolo  
Therapeutae  
Thibet  
Tibareni  
Tinamiformes  
Torah  
Torreón  
Treasurer of the Household

Turdidae  
Tutchone  
Tyroglyphidae  
  
Ulotriconales  
Upland cotton  
Ustilago  
  
Valparaiso  
Vat Jade Green  
Verona earth  
Victorian hazel  
Vizsla  
  
Waiwai  
Welsh groin  
Western bezoar  
William and Mary  
Wisconsin white pine  
Wittgensteinian  
  
Yokohama fowl



### APPENDIX III

## INSTRUCTIONS FOR ADMINISTERING THE BASIC WORD VOCABULARY TEST IN A SCHOOL SITUATION

Basically the test should be administered as in any normal testing situation. Each teacher is expected to use a procedure suitable to the grade level being tested.

After handing out the tests, read to the students what they have to do (fill in name (possibly print): first name, middle initial, last name, date tested, date of birth, current grade level). Read the DIRECTIONS and the example—walk around the class to see if each student seems to understand what is required. Discourage looking at other students' answers of course! Try to insure that they answer *all* items—even if only guessing.

DO NOT READ THE TEST ITEMS TO THE STUDENTS. Do *not pronounce* any words either. Part of the function of the test is to determine literacy level; thus the ability to *read* and understand these words is part of the test's purpose. If the student cannot read, be sure the identifying information is completed on the test form.

NOTE.—Try to insure that all identifying information is correct. Note particularly the grade level and

date of birth—*often the current year* will be written instead of year of birth.

*Grade levels.*—Each person should answer every item for his grade level. Test through the following items for each grade. If a student makes fewer than 10 errors by the end of the test, return it to him to complete more items. This will be the rare case.

<u>Grade</u>	<u>Items</u>
3d-----	1-55
4th-----	1-68
5th-----	1-75
6th-----	1-81
7th-----	1-87
8th-----	1-93
9th-----	1-98
10th-----	1-102
11th-12th-----	1-107
College-----	1-123

APPENDIX IV

UNTIMED

THE BASIC WORD VOCABULARY TEST

FORM A

NAME: \_\_\_\_\_ DATE TESTED: Month Day Year

SEX: M F DATE OF BIRTH: \_\_\_\_\_

EDUCATION: Current grade level \_\_\_\_\_. If not in school, highest grade successfully completed \_\_\_\_\_. If in college, or college graduate: Academic major \_\_\_\_\_ and highest degree earned \_\_\_\_\_.

EXAMPLE

**DIRECTIONS:** Select the word or phrase which has the same meaning, or most nearly the same meaning, as the underlined word. **CIRCLE** the letter (A, B, C, D, or E) of your answer choice. Read all answer choices before making your choice. If you do not know the correct answer—guess!

- a boy is a  
 A. lip  
 B. bush  
 C. rock  
 Ⓓ child  
 E. horse

1. a car is to  
 A. start fires with  
 B. eat on  
 C. take pictures with  
 D. ride in  
 E. draw with

4. poor means having very little  
 A. money  
 B. hair  
 C. sun  
 D. time  
 E. snow

7. a tricycle is to  
 A. hear with  
 B. ride on  
 C. lie on  
 D. walk under  
 E. see through

2. the shore is by the  
 A. sea  
 B. train  
 C. letter  
 D. table  
 E. paper

5. shower:  
 A. field  
 B. doctor  
 C. rain  
 D. post  
 E. battle

8. combat:  
 A. point  
 B. report  
 C. fight  
 D. start  
 E. admit

3. ink is used to  
 A. walk on  
 B. write with  
 C. cut with  
 D. serve with  
 E. stand on

6. eagle:  
 A. family  
 B. cup  
 C. lake  
 D. coat  
 E. bird

9. stable:  
 A. husband  
 B. window  
 C. ocean  
 D. building  
 E. street

10. a mistake is something done  
 A. first  
 B. wrong  
 C. next  
 D. often  
 E. alone
11. violet:  
 A. plant  
 B. ship  
 C. story  
 D. home  
 E. river
12. a desert is very  
 A. kind  
 B. strong  
 C. dry  
 D. brave  
 E. dark
13. a witness is a person who  
 A. trains animals  
 B. bakes cakes  
 C. observes actions  
 D. fixes machines  
 E. grows wheat
14. ambush:  
 A. attitude  
 B. address  
 C. artist  
 D. attack  
 E. authority
15. howl:  
 A. roar  
 B. design  
 C. propose  
 D. depart  
 E. succeed
16. quit:  
 A. hope  
 B. trade  
 C. learn  
 D. take  
 E. stop
17. puss:  
 A. factory  
 B. devil  
 C. exercise  
 D. camp  
 E. cat
18. encyclopedia:  
 A. woman  
 B. reason  
 C. nation  
 D. food  
 E. book
19. phony:  
 A. tough  
 B. neutral  
 C. vivid  
 D. fake  
 E. hasty
20. crisp:  
 A. safe and warm  
 B. hard and thin  
 C. deep and wide  
 D. soft and short  
 E. round and heavy
21. advice:  
 A. record  
 B. visit  
 C. bridge  
 D. opinion  
 E. minute
22. tomb:  
 A. baby  
 B. market  
 C. grave  
 D. roof  
 E. scale
23. corps:  
 A. angry teacher  
 B. tired worker  
 C. sick animal  
 D. military unit  
 E. special vacation
24. burlap:  
 A. tunnel  
 B. medicine  
 C. soil  
 D. engine  
 E. fabric
25. dame:  
 A. lady  
 B. voice  
 C. bay  
 D. party  
 E. region
26. a seamstress is a woman who  
 A. writes  
 B. sews  
 C. sings  
 D. paints  
 E. bakes
27. tremendous:  
 A. serious  
 B. enormous  
 C. religious  
 D. famous  
 E. precious
28. plateau:  
 A. large post  
 B. big present  
 C. kind prince  
 D. great play  
 E. high plain
29. a jurist is an expert in  
 A. law  
 B. business  
 C. weather  
 D. art  
 E. history
30. approach means to come  
 A. through  
 B. with  
 C. into  
 D. between  
 E. near

31. event  
 A. occasion  
 B. temper  
 C. notion  
 D. monument  
 E. explanation
32. bristle:  
 A. difficult problem  
 B. stiff hair  
 C. official order  
 D. sweet fruit  
 E. broad stream
33. abandon:  
 A. look over  
 B. hold on  
 C. lift up  
 D. fall down  
 E. give up
34. tarantula:  
 A. grape  
 B. highway  
 C. button  
 D. spider  
 E. verse
35. barely:  
 A. generally  
 B. scarcely  
 C. completely  
 D. especially  
 E. gradually
36. minus:  
 A. about  
 B. through  
 C. across  
 D. less  
 E. into
37. mutiny:  
 A. stranger  
 B. puzzle  
 C. rebellion  
 D. lemon  
 E. tenant
38. sneer:  
 A. listen with interest  
 B. practice with care  
 C. look with scorn  
 D. lift with ease  
 E. dance with joy
39. eligible:  
 A. lonesome  
 B. careless  
 C. qualified  
 D. inferior  
 E. profound
40. a gust is a sudden  
 A. rush of wind  
 B. act of duty  
 C. increase of pain  
 D. loss of friends  
 E. need of money
41. sassafras:  
 A. tree  
 B. wave  
 C. egg  
 D. board  
 E. yard
42. a ghetto is a section of a  
 A. story  
 B. wall  
 C. church  
 D. city  
 E. garden
43. muff:  
 A. water heater  
 B. hand warmer  
 C. glass cleaner  
 D. paint dryer  
 E. wood burner
44. pennant:  
 A. route  
 B. flag  
 C. journal  
 D. speech  
 E. leader
45. exclude:  
 A. educate  
 B. excite  
 C. eliminate  
 D. encourage  
 E. ensure
46. mango:  
 A. fruit  
 B. army  
 C. uncle  
 D. star  
 E. stone
47. juvenile:  
 A. haunted  
 B. youthful  
 C. intimate  
 D. favorable  
 E. unable
48. stage:  
 A. step in a process  
 B. tear in a net  
 C. condition in a treaty  
 D. light in a tower  
 E. article in a newspaper
49. gorge:  
 A. circle  
 B. chain  
 C. valley  
 D. hall  
 E. queen
50. jolt:  
 A. justify  
 B. join  
 C. judge  
 D. jar  
 E. journey
51. gratify:  
 A. heat  
 B. shout  
 C. hope  
 D. charge  
 E. please



52. cardiac means of the  
 A. arm  
 B. feet  
 C. heart  
 D. legs  
 E. head
53. aghast:  
 A. similar  
 B. modern  
 C. lucky  
 D. limited  
 E. terrified
54. demote:  
 A. invite  
 B. reduce  
 C. stroke  
 D. pause  
 E. excuse
55. situate:  
 A. wear  
 B. add  
 C. take  
 D. place  
 E. study
56. thus:  
 A. not  
 B. too  
 C. why  
 D. so  
 E. do
57. scavenge:  
 A. check certificates  
 B. change residence  
 C. support legislation  
 D. divide inheritance  
 E. remove rubbish
58. rafter:  
 A. angel  
 B. canal  
 C. beam  
 D. lamb  
 E. trunk
59. curriculum:  
 A. school of fish  
 B. collection of pictures  
 C. type of window  
 D. range of mountains  
 E. program of studies
60. lank:  
 A. slender  
 B. grateful  
 C. musical  
 D. lively  
 E. rare
61. gristle:  
 A. fortitude  
 B. cartilage  
 C. graphite  
 D. arrogance  
 E. overture
62. faction:  
 A. dinner  
 B. blood  
 C. group  
 D. passage  
 E. hill
63. decelerate means reducing  
 A. velocity  
 B. disorder  
 C. enthusiasm  
 D. hazards  
 E. expenditures
64. console:  
 A. compare  
 B. conclude  
 C. comfort  
 D. command  
 E. collect
65. horde:  
 A. circle  
 B. shade  
 C. word  
 D. crowd  
 E. sand
66. manipulate:  
 A. reserve  
 B. devote  
 C. handle  
 D. inquire  
 E. introduce
67. sumac:  
 A. prayer  
 B. reward  
 C. shrub  
 D. doctrine  
 E. porch
68. potpourri:  
 A. tailor  
 B. embassy  
 C. schooner  
 D. medley  
 E. parson
69. concrete:  
 A. clean  
 B. mean  
 C. low  
 D. nice  
 E. real
70. albacore:  
 A. tire  
 B. soldier  
 C. box  
 D. fish  
 E. stick
71. mesquite:  
 A. office  
 B. tree  
 C. fire  
 D. store  
 E. gate
72. destitute:  
 A. respectful  
 B. divine  
 C. urgent  
 D. slippery  
 E. needy

73. discreet:  
 A. fragrant  
 B. prudent  
 C. unpleasant  
 D. radiant  
 E. gallant
74. isopod:  
 A. advertisement  
 B. edifice  
 C. meteorite  
 D. philanthropist  
 E. crustacean
75. jujube:  
 A. candy  
 B. echo  
 C. poem  
 D. harvest  
 E. brick
76. sputum:  
 A. saloon  
 B. sickle  
 C. shawl  
 D. saliva  
 E. sermon
77. mullet:  
 A. bird  
 B. ball  
 C. dog  
 D. stone  
 E. fish
78. bastion:  
 A. fortification  
 B. qualification  
 C. appropriation  
 D. legislation  
 E. illustration
79. forgo:  
 A. represent  
 B. sacrifice  
 C. justify  
 D. determine  
 E. display
80. afflux:  
 A. flow  
 B. fool  
 C. fall  
 D. fly  
 E. floor
81. mackintosh:  
 A. raincoat  
 B. tractor  
 C. honeybee  
 D. cartoon  
 E. saucepan
82. trajectory:  
 A. curved path  
 B. ill health  
 C. bold type  
 D. glorious spirit  
 E. strong back
83. picador:  
 A. statesman  
 B. horseman  
 C. conductor  
 D. sultan  
 E. fisherman
84. grackle:  
 A. chipmunk  
 B. pumpkin  
 C. strawberry  
 D. blackbird  
 E. caterpillar
85. apropos:  
 A. instructive  
 B. respectful  
 C. forbidden  
 D. pertinent  
 E. dominant
86. yew:  
 A. evergreen tree  
 B. dismal day  
 C. shabby house  
 D. twisty road  
 E. frightful dream
87. a pomander is  
 A. magnetic  
 B. explosive  
 C. aromatic  
 D. frail  
 E. rotten
88. nubilous:  
 A. cloudy  
 B. incredible  
 C. liberal  
 D. spiritual  
 E. ragged
89. a triphthong is a combination of three  
 A. fossils  
 B. cables  
 C. diagrams  
 D. vowels  
 E. atoms
90. brob:  
 A. jail  
 B. pouch  
 C. tax  
 D. spike  
 E. cavern
91. whist:  
 A. captain  
 B. game  
 C. soul  
 D. finger  
 E. rock
92. fetid:  
 A. exhausted  
 B. stinking  
 C. pathetic  
 D. meager  
 E. insane
93. abstracted:  
 A. unmoved  
 B. insulated  
 C. preoccupied  
 D. dominated  
 E. devastated

94. piñon:  
 A. piano  
 B. pioneer  
 C. pine  
 D. pinch  
 E. pint
95. terrine:  
 A. knife  
 B. railway  
 C. chicken  
 D. wagon  
 E. vessel
96. conventicle:  
 A. major enemy  
 B. royal gentleman  
 C. impossible question  
 D. sharp object  
 E. secret meeting
97. bezant:  
 A. hotel  
 B. coin  
 C. mill  
 D. harbor  
 E. desk
98. an emir is an Arabian  
 A. drink  
 B. farmer  
 C. chief  
 D. song  
 E. horse
99. scintillate:  
 A. develop  
 B. whistle  
 C. ruin  
 D. breathe  
 E. flash
100. rummer:  
 A. union  
 B. knight  
 C. coal  
 D. shoe  
 E. glass
101. cinereous:  
 A. ashen  
 B. precise  
 C. bashful  
 D. valiant  
 E. nimble
102. soredium:  
 A. cell  
 B. building  
 C. convention  
 D. powder  
 E. funeral
103. glib:  
 A. unaware  
 B. fluent  
 C. reluctant  
 D. philosophical  
 E. inquisitive
104. dint:  
 A. supply  
 B. wish  
 C. force  
 D. price  
 E. demand
105. sarcophagus:  
 A. coffin  
 B. insect  
 C. interview  
 D. wharf  
 E. mushroom
106. anthemion:  
 A. department  
 B. remedy  
 C. ornament  
 D. punishment  
 E. election
107. qua:  
 A. during  
 B. as  
 C. while  
 D. if  
 E. when
108. larine means like a  
 A. sleigh  
 B. mirror  
 C. wreath  
 D. gull  
 E. matron
109. flabellum:  
 A. fort  
 B. frost  
 C. fan  
 D. file  
 E. flock
110. tringle:  
 A. wave  
 B. bench  
 C. light  
 D. rod  
 E. mirror
111. fuscous:  
 A. outrageous  
 B. austere  
 C. contagious  
 D. swarthy  
 E. eloquent
112. pococurante:  
 A. ignorant  
 B. frightened  
 C. distinguished  
 D. indifferent  
 E. dainty
113. maenad:  
 A. insidious laugh  
 B. picturesque scene  
 C. unscrupulous master  
 D. caustic reply  
 E. frenzied woman
114. diabolo:  
 A. bed  
 B. dance  
 C. game  
 D. mark  
 E. record

115. lempira:

- A. chair
- B. money
- C. salt
- D. earth
- E. music

116. edacious:

- A. auspicious
- B. voracious
- C. malicious
- D. atrocious
- E. luscious

117. pyrope:

- A. reptile
- B. heather
- C. slogan
- D. mantle
- E. garnet

118. garganey:

- A. hero
- B. frame
- C. bush
- D. skirt
- E. duck

119. redact:

- A. edit
- B. invert
- C. convict
- D. inherit
- E. afflict

120. jaconet:

- A. tribe
- B. gift
- C. port
- D. treaty
- E. cloth

121. seecatch:

- A. shield
- B. scheme
- C. settlement
- D. seal
- E. sport

122. centaury:

- A. herb
- B. signal
- C. torch
- D. payment
- E. fortress

123. durbar:

- A. quarrel
- B. sailor
- C. audience
- D. painting
- E. province

— ○ ○ ○ —

**APPENDIX V**

**SCORING METHOD FOR  
FULL SCALE BASIC WORD VOCABULARY TEST  
AND ANSWER KEY**

*Recommended scoring method.*—Simply score through the 10th error and subtract 10 plus omitted items up to the 10 - E item from the item number of the 10th error. Thus if an individual's 10th error occurred on item 60 and he had omitted two items below 60, his score would be 60-(10+2) or 48.

<u>Page 54</u>	<u>Page 55</u>		<u>Page 56</u>		<u>Page 57</u>	
1 - D	10 - B	21 - D	31 - A	42 - D	52 - C	63 - A
2 - A	11 - A	22 - C	32 - B	43 - B	53 - E	64 - C
3 - B	12 - C	23 - D	33 - E	44 - B	54 - B	65 - D
4 - A	13 - C	24 - E	34 - D	45 - C	55 - D	66 - C
5 - C	14 - D	25 - A	35 - B	46 - A	56 - D	67 - C
6 - E	15 - A	26 - B	36 - D	47 - B	57 - E	68 - D
7 - B	16 - E	27 - B	37 - C	48 - A	58 - C	69 - E
8 - C	17 - E	28 - E	38 - C	49 - C	59 - E	70 - D
9 - D	18 - E	29 - A	39 - C	50 - D	60 - A	71 - B
	19 - D	30 - E	40 - A	51 - E	61 - B	72 - E
	20 - B		41 - A		62 - C	

<u>Page 58</u>		<u>Page 59</u>		<u>Page 60</u>
73 - B	84 - D	94 - C	105 - A	115 - B
74 - E	85 - D	95 - E	106 - C	116 - B
75 - A	86 - A	96 - E	107 - B	117 - E
76 - D	87 - C	97 - B	108 - D	118 - E
77 - E	88 - A	98 - C	109 - C	119 - A
78 - A	89 - D	99 - E	110 - D	120 - E
79 - B	90 - D	100 - E	111 - D	121 - D
80 - A	91 - B	101 - A	112 - D	122 - A
81 - A	92 - B	102 - A	113 - E	123 - C
82 - A	93 - C	103 - B	114 - C	
83 - B		104 - C		

APPENDIX VI  
SHORT FORMS X, Y, AND Z

UNTIMED

THE BASIC WORD VOCABULARY TEST

SHORT FORM X

NAME: \_\_\_\_\_ DATE TESTED: \_\_\_\_\_  
Month Day Year

SEX: M F DATE OF BIRTH: \_\_\_\_\_

EDUCATION: Current grade level \_\_\_\_\_. If not in school, highest grade successfully completed \_\_\_\_\_. If in college, or college graduate: Academic major \_\_\_\_\_ and highest degree earned \_\_\_\_\_.

EXAMPLE

**DIRECTIONS:** Select the word or phrase which has the same meaning, or most nearly the same meaning, as the underlined word. **CIRCLE** the letter (A, B, C, D, or E) of your answer choice. Read all answer choices before making your choice. If you do not know the correct answer—guess!

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A. lip  
B. bush  
C. rock  
D. child  
E. horse

1. a car is to  
A. start fires with  
B. eat on  
C. take pictures with  
D. ride in  
E. draw with

4. stable:  
A. husband  
B. window  
C. ocean  
D. building  
E. street

7. quit:  
A. hope  
B. trade  
C. learn  
D. take  
E. stop

2. poor means having very little  
A. money  
B. hair  
C. sun  
D. time  
E. snow

5. violet:  
A. plant  
B. ship  
C. story  
D. home  
E. river

8. crisp:  
A. safe and warm  
B. hard and thin  
C. deep and wide  
D. soft and short  
E. round and heavy

3. shower:  
A. field  
B. doctor  
C. rain  
D. post  
E. battle

6. a desert is very  
A. kind  
B. strong  
C. dry  
D. brave  
E. dark

9. burlap:  
A. tunnel  
B. medicine  
C. soil  
D. engine  
E. fabric

10. dame:  
 A. lady  
 B. voice  
 C. bay  
 D. party  
 E. region
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 E. gradually
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 B. wall  
 C. church  
 D. city  
 E. garden
19. exclude:  
 A. educate  
 B. excite  
 C. eliminate  
 D. encourage  
 E. ensure
20. mango:  
 A. fruit  
 B. army  
 C. uncle  
 D. star  
 E. stone
21. gorge:  
 A. circle  
 B. chain  
 C. valley  
 D. hall  
 E. queen
22. situate:  
 A. wear  
 B. add  
 C. take  
 D. place  
 E. study
23. curriculum:  
 A. school of fish  
 B. collection of pictures  
 C. type of window  
 D. range of mountains  
 E. program of studies
24. gristle:  
 A. fortitude  
 B. cartilage  
 C. graphite  
 D. arrogance  
 E. overture
25. decelerate means reducing  
 A. velocity  
 B. disorder  
 C. enthusiasm  
 D. hazards  
 E. expenditures
26. manipulate:  
 A. reserve  
 B. devote  
 C. handle  
 D. inquire  
 E. introduce
27. sumac:  
 A. prayer  
 B. reward  
 C. shrub  
 D. doctrine  
 E. porch
28. concrete:  
 A. clean  
 B. mean  
 C. low  
 D. nice  
 E. real
29. discreet:  
 A. fragrant  
 B. prudent  
 C. unpleasant  
 D. radiant  
 E. gallant
30. isopod:  
 A. advertisement  
 B. edifice  
 C. meteorite  
 D. philanthropist  
 E. crustacean

31. sputum:  
A. saloon  
B. sickle  
C. shawl  
D. saliva  
E. sermon
32. forgo:  
A. represent  
B. sacrifice  
C. justify  
D. determine  
E. display
33. apropos:  
A. instructive  
B. respectful  
C. forbidden  
D. pertinent  
E. dominant
34. yew:  
A. evergreen tree  
B. dismal day  
C. shabby house  
D. twisty road  
E. frightful dream
35. conventicle:  
A. major enemy  
B. royal gentleman  
C. impossible question  
D. sharp object  
E. secret meeting
36. scintillate:  
A. develop  
B. whistle  
C. ruin  
D. breathe  
E. flash
37. glib:  
A. unaware  
B. fluent  
C. reluctant  
D. philosophical  
E. inquisitive
38. flabellum:  
A. fort  
B. frost  
C. fan  
D. file  
E. flock
39. pyrope:  
A. reptile  
B. heather  
C. slogan  
D. mantle  
E. garnet
40. darbar:  
A. quarrel  
B. sailor  
C. audience  
D. painting  
E. province



NAME: \_\_\_\_\_ DATE TESTED: \_\_\_\_\_  
Month Day Year

SEX: M F DATE OF BIRTH: \_\_\_\_\_

EDUCATION: Current grade level \_\_\_\_\_. If not in school, highest grade successfully completed \_\_\_\_\_. If in college, or college graduate: Academic major \_\_\_\_\_ and highest degree earned \_\_\_\_\_.

**EXAMPLE**

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- a boy is a
- A. lip
  - B. bush
  - C. rock
  - D. child**
  - E. horse

1. the shore is by the
- A. sea
  - B. train
  - C. letter
  - D. table
  - E. paper

5. a mistake is something done
- A. first
  - B. wrong
  - C. next
  - D. often
  - E. alone

9. advice:
- A. record
  - B. visit
  - C. bridge
  - D. opinion
  - E. minute

2. ink is used to
- A. walk on
  - B. write with
  - C. cut with
  - D. serve with
  - E. stand on

6. a witness is a person who
- A. trains animals
  - B. bakes cakes
  - C. observes actions
  - D. fixes machines
  - E. grows wheat

10. tomb:
- A. baby
  - B. market
  - C. grave
  - D. roof
  - E. scale

3. eagle:
- A. family
  - B. cup
  - C. lake
  - D. coat
  - E. bird

7. puss:
- A. factory
  - B. devil
  - C. exercise
  - D. camp
  - E. cat

11. corps:
- A. angry teacher
  - B. tired worker
  - C. sick animal
  - D. military unit
  - E. special vacation

4. a tricycle is to
- A. hear with
  - B. ride on
  - C. lie on
  - D. walk under
  - E. see through

8. encyclopedia:
- A. woman
  - B. reason
  - C. nation
  - D. food
  - E. book

12. tremendous:
- A. serious
  - B. enormous
  - C. religious
  - D. famous
  - E. precious

13. approach means to come  
 A. through  
 B. with  
 C. into  
 D. between  
 E. near
14. abandon:  
 A. look over  
 B. hold on  
 C. lift up  
 D. fall down  
 E. give up
15. tarantula:  
 A. grape  
 B. highway  
 C. button  
 D. spider  
 E. verse
16. mutiny:  
 A. stranger  
 B. puzzle  
 C. rebellion  
 D. lemon  
 E. tenant
17. eligible:  
 A. lonesome  
 B. careless  
 C. qualified  
 D. inferior  
 E. profound
18. sassafras:  
 A. tree  
 B. wave  
 C. egg  
 D. board  
 E. yard
19. muff:  
 A. water heater  
 B. hand warmer  
 C. glass cleaner  
 D. paint dryer  
 E. wood burner
20. stage:  
 A. step in a process  
 B. tear in a net  
 C. condition in a treaty  
 D. light in a tower  
 E. article in a newspaper
21. gratify:  
 A. heat  
 B. shout  
 C. hope  
 D. charge  
 E. please
22. cardiac means of the  
 A. arm  
 B. feet  
 C. heart  
 D. legs  
 E. head
23. thus:  
 A. not  
 B. too  
 C. why  
 D. so  
 E. do
24. lank:  
 A. slender  
 B. grateful  
 C. musical  
 D. lively  
 E. rare
25. faction:  
 A. dinner  
 B. blood  
 C. group  
 D. passage  
 E. hill
26. console:  
 A. compare  
 B. conclude  
 C. comfort  
 D. command  
 E. collect
27. horde:  
 A. circle  
 B. shade  
 C. word  
 D. crowd  
 E. sand
28. potpourri:  
 A. tailor  
 B. embassy  
 C. schooner  
 D. medley  
 E. parson
29. albacore:  
 A. tire  
 B. soldier  
 C. box  
 D. fish  
 E. stick
30. mesquite:  
 A. office  
 B. tree  
 C. fire  
 D. store  
 E. gate
31. destitute:  
 A. respectful  
 B. divine  
 C. urgent  
 D. slippery  
 E. needy
32. jujube:  
 A. candy  
 B. echo  
 C. poem  
 D. harvest  
 E. brick
33. a triphthong is a combination of three  
 A. fossils  
 B. cables  
 C. diagrams  
 D. vowels  
 E. atoms

34. piñon:  
A. piano  
B. pioneer  
C. pine  
D. pinch  
E. pint

35. bezant:  
A. hotel  
B. coin  
C. mill  
D. harbor  
E. desk

36. cinereous:  
A. ashen  
B. precise  
C. bashful  
D. valiant  
E. nimble

37. dint:  
A. supply  
B. wish  
C. force  
D. price  
E. demand

38. qua:  
A. during  
B. as  
C. while  
D. if  
E. when

39. redact:  
A. edit  
B. invert  
C. convict  
D. inherit  
E. afflict

40. jaconet:  
A. tribe  
B. gift  
C. port  
D. treaty  
E. cloth

NAME: \_\_\_\_\_ DATE TESTED: Month Day Year

SEX: M F DATE OF BIRTH: \_\_\_\_\_

EDUCATION: Current grade level \_\_\_\_\_. If not in school, highest grade successfully completed \_\_\_\_\_. In in college, or college graduate: Academic major \_\_\_\_\_ and highest degree earned \_\_\_\_\_.

**EXAMPLE**

**DIRECTIONS:** Select the word or phrase which has the same meaning, or most nearly the same meaning, as the underlined word. **CIRCLE** the letter (A, B, C, D, or E) of your answer choice. Read all answer choices before making your choice. If you do not know the correct answer—guess!

- a boy is a  
 A. lip  
 B. bush  
 C. rock  
 (D) child  
 E. horse

- |   |   |  |
|---|---|--|
| <p>1. a <u>car</u> is to<br/>             A. start fires with<br/>             B. eat on<br/>             C. take pictures with<br/>             D. ride in<br/>             E. draw with</p> | <p>5. a <u>mistake</u> is something done<br/>             A. first<br/>             B. wrong<br/>             C. next<br/>             D. often<br/>             E. alone</p> | <p>9. <u>burlap</u>:<br/>             A. tunnel<br/>             B. medicine<br/>             C. soil<br/>             D. engine<br/>             E. fabric</p>                  |
| <p>2. <u>ink</u> is used to<br/>             A. walk on<br/>             B. write with<br/>             C. cut with<br/>             D. serve with<br/>             E. stand on</p>           | <p>6. <u>howl</u>:<br/>             A. roar<br/>             B. design<br/>             C. propose<br/>             D. depart<br/>             E. succeed</p>                 | <p>10. a <u>seamstress</u> is a woman who<br/>             A. writes<br/>             B. sews<br/>             C. sings<br/>             D. paints<br/>             E. bakes</p> |
| <p>3. <u>poor</u> means having very little<br/>             A. money<br/>             B. hair<br/>             C. sun<br/>             D. time<br/>             E. snow</p>                   | <p>7. <u>phony</u>:<br/>             A. tough<br/>             B. neutral<br/>             C. vivid<br/>             D. fake<br/>             E. hasty</p>                    | <p>11. <u>approach</u> means to come<br/>             A. through<br/>             B. with<br/>             C. into<br/>             D. between<br/>             E. near</p>      |
| <p>4. <u>combat</u>:<br/>             A. point<br/>             B. report<br/>             C. fight<br/>             D. start<br/>             E. admit</p>                                   | <p>8. <u>advice</u>:<br/>             A. record<br/>             B. visit<br/>             C. bridge<br/>             D. opinion<br/>             E. minute</p>               | <p>12. <u>abandon</u>:<br/>             A. look over<br/>             B. hold on<br/>             C. lift up<br/>             D. fall down<br/>             E. give up</p>       |

13. barely:  
 A. generally  
 B. scarcely  
 C. completely  
 D. especially  
 E. gradually
14. sneer:  
 A. listen with interest  
 B. practice with care  
 C. look with scorn  
 D. lift with ease  
 E. dance with joy
15. eligible:  
 A. lonesome  
 B. careless  
 C. qualified  
 D. inferior  
 E. profound
16. exclude:  
 A. educate  
 B. excite  
 C. eliminate  
 D. encourage  
 E. ensure
17. juvenile:  
 A. haunted  
 B. youthful  
 C. intimate  
 D. favorable  
 E. unable
18. jolt:  
 A. justify  
 B. join  
 C. judge  
 D. jar  
 E. journey
19. gratify:  
 A. heat  
 B. shout  
 C. hope  
 D. charge  
 E. please
20. rafter:  
 A. angel  
 B. canal  
 C. beam  
 D. lamb  
 E. trunk
21. lank:  
 A. slender  
 B. grateful  
 C. musical  
 D. lively  
 E. rare
22. console:  
 A. compare  
 B. conclude  
 C. comfort  
 D. command  
 E. collect
23. manipulate:  
 A. reserve  
 B. devote  
 C. handle  
 D. inquire  
 E. introduce
24. concrete:  
 A. clean  
 B. mean  
 C. low  
 D. nice  
 E. real
25. destitute:  
 A. respectful  
 B. divine  
 C. urgent  
 D. slippery  
 E. needy
26. bastion:  
 A. fortification  
 B. qualification  
 C. appropriation  
 D. legislation  
 E. illustration
27. forgo:  
 A. represent  
 B. sacrifice  
 C. justify  
 D. determine  
 E. display
28. mackintosh:  
 A. raincoat  
 B. tractor  
 C. honeybee  
 D. cartoon  
 E. saucepan
29. trajectory:  
 A. curved path  
 B. ill health  
 C. bold type  
 D. glorious spirit  
 E. strong back
30. a triphthong is  
 a combination of three  
 A. fossils  
 B. cables  
 C. diagrams  
 D. vowels  
 E. atoms
31. whist:  
 A. captain  
 B. game  
 C. soul  
 D. finger  
 E. rock
32. fetid:  
 A. exhausted  
 B. stinking  
 C. pathetic  
 D. meager  
 E. insane
33. bezant:  
 A. hotel  
 B. coin  
 C. mill  
 D. harbor  
 E. desk

34. scintillate:

- A. develop
- B. whistle
- C. ruin
- D. breathe
- E. flash

35. glib:

- A. unaware
- B. fluent
- C. reluctant
- D. philosophical
- E. inquisitive

36. dint:

- A. supply
- B. wish
- C. force
- D. price
- E. demand

37. sarcophagus:

- A. coffin
- B. insect
- C. interview
- D. wharf
- E. mushroom

38. diabolo:

- A. bed
- B. dance
- C. game
- D. mark
- E. record

39. lempira:

- A. chair
- B. money
- C. salt
- D. earth
- E. music

40. pyrope:

- A. reptile
- B. heather
- C. slogan
- D. mantle
- E. garnet

41. redact:

- A. edit
- B. invert
- C. convict
- D. inherit
- E. afflict

— ○ ○ ○ —

## APPENDIX VII

### SCORING METHOD FOR SHORT FORMS AND ANSWER KEYS

*Recommended scoring method.*—Score through the 4th error or omitted item and subtract 4 from the 4th error or omitted item number. Thus if an individual made two errors and omitted one item through item 19 and then missed or omitted item 20, his score would be 20-4 or 16.

#### Answer Keys

Form X		Form Y		Form Z	
1 - D	21 - C	1 - A	21 - E	1 - D	21 - A
2 - A	22 - D	2 - B	22 - C	2 - B	22 - C
3 - C	23 - E	3 - E	23 - D	3 - A	23 - C
4 - D	24 - B	4 - B	24 - A	4 - C	24 - E
5 - A	25 - A	5 - B	25 - C	5 - B	25 - E
6 - C	26 - C	6 - C	26 - C	6 - A	26 - A
7 - E	27 - C	7 - E	27 - D	7 - D	27 - B
8 - B	28 - E	8 - E	28 - D	8 - D	28 - A
9 - E	29 - B	9 - D	29 - D	9 - E	29 - A
10 - A	30 - E	10 - C	30 - B	10 - B	30 - D
11 - B	31 - D	11 - D	31 - E	11 - E	31 - B
12 - A	32 - B	12 - B	32 - A	12 - E	32 - B
13 - A	33 - D	13 - E	33 - D	13 - B	33 - B
14 - B	34 - A	14 - E	34 - C	14 - C	34 - E
15 - B	35 - E	15 - D	35 - B	15 - C	35 - B
16 - D	36 - E	16 - C	36 - A	16 - C	36 - C
17 - A	37 - B	17 - C	37 - C	17 - B	37 - A
18 - D	38 - C	18 - A	38 - A	18 - D	38 - C
19 - C	39 - E	19 - B	39 - A	19 - E	39 - B
20 - A	40 - C	20 - A	40 - E	20 - C	40 - E
					41 - A



NAME: \_\_\_\_\_ DATE TESTED: \_\_\_\_\_ Month Day Year

SEX: M F DATE OF BIRTH: \_\_\_\_\_

EDUCATION: Current grade level \_\_\_\_\_. If not in school, highest grade successfully completed \_\_\_\_\_. If in college, or college graduate: Academic major \_\_\_\_\_ and highest degree earned \_\_\_\_\_

DIRECTIONS: Select the word or phrase which has the same meaning, or most nearly the same meaning, as the underlined word. CIRCLE the letter (A, B, C, D, or E) of your answer choice. Read all answer choices before making your choice. If you do not know the correct answer—guess!

EXAMPLE

- a boy is a  
 A. lip  
 B. bush  
 C. rock  
 D. child  
 E. horse

1. a car is to  
 A. start fires with  
 B. eat on  
 C. take pictures with  
 D. ride in  
 E. draw with

2. the shore is by the  
 A. sea  
 B. train  
 C. letter  
 D. table  
 E. paper

3. ink is used to  
 A. walk on  
 B. write with  
 C. cut with  
 D. serve with  
 E. stand on

4. poor means having very little  
 A. money  
 B. hair  
 C. sun  
 D. time  
 E. snow

5. shower:  
 A. field  
 B. doctor  
 C. rain  
 D. post  
 E. battle

6. eagle:  
 A. family  
 B. cup  
 C. lake  
 D. coat  
 E. bird

7. a tricycle is to  
 A. hear with  
 B. ride on  
 C. lie on  
 D. walk under  
 E. see through

8. combat:  
 A. point  
 B. report  
 C. fight  
 D. start  
 E. admit

9. stable:  
 A. husband  
 B. window  
 C. ocean  
 D. building  
 E. street

10. a mistake is something done  
 A. first  
 B. wrong  
 C. next  
 D. often  
 E. alone

11. violet:  
 A. plant  
 B. ship  
 C. story  
 D. home  
 E. river

12. a desert is very  
 A. kind  
 B. strong  
 C. dry  
 D. brave  
 E. dark

13. a witness is a person who  
 A. trains animals  
 B. bakes cakes  
 C. observes actions  
 D. fixes machines  
 E. grows wheat

14. ambush:  
 A. attitude  
 B. address  
 C. artist  
 D. attack  
 E. authority

15. howl:  
 A. roar  
 B. design  
 C. propose  
 D. depart  
 E. succeed

16. quit:  
 A. hope  
 B. trade  
 C. learn  
 D. take  
 E. stop

17. puss:  
 A. factory  
 B. devil  
 C. exercise  
 D. camp  
 E. cat

18. encyclopedia:  
 A. woman  
 B. reason  
 C. nation  
 D. food  
 E. book

19. phony:  
 A. tough  
 B. neutral  
 C. vivid  
 D. fake  
 E. hasty

20. crisp:  
 A. safe and warm  
 B. hard and thin  
 C. deep and wide  
 D. soft and short  
 E. round and heavy

21. advice:  
 A. record  
 B. visit  
 C. bridge  
 D. opinion  
 E. minute

22. tomb:  
 A. baby  
 B. market  
 C. grave  
 D. roof  
 E. scale

23. corps:  
 A. angry teacher  
 B. tired worker  
 C. sick animal  
 D. military unit  
 E. special vacation

24. burlap:  
 A. tunnel  
 B. medicine  
 C. soil  
 D. engine  
 E. fabric



25. dame:  
 A. lady  
B. voice  
C. bay  
D. party  
E. region
26. a seamstress is a woman who  
 A. writes  
 B. sews  
C. sings  
D. paints  
E. bakes
27. tremendous:  
 A. serious  
 B. enormous  
C. religious  
D. famous  
E. precious
28. plateau:  
A. large post  
B. big present  
C. kind prince  
D. great play  
 E. high plain
29. a jurist is an expert in  
 A. law  
B. business  
C. weather  
D. art  
E. history
30. approach means to come  
A. through  
B. with  
C. into  
D. between  
 E. near
31. event:  
 A. occasion  
B. temper  
C. notion  
D. monument  
E. explanation
32. bristle:  
A. difficult problem  
 B. stiff hair  
C. official order  
D. sweet fruit  
E. broad stream
33. abandon:  
A. look over  
B. hold on  
C. lift up  
D. fall down  
 E. give up
34. tarantula:  
A. grape  
B. highway  
C. button  
 D. spider  
E. verse
35. barely:  
A. generally  
 B. scarcely  
C. completely  
D. especially  
E. gradually
36. minus:  
A. about  
B. through  
C. across  
 D. less  
E. into
37. mutiny:  
A. stranger  
B. puzzle  
 C. rebellion  
D. lemon  
E. tenant
38. sneer:  
A. listen with interest  
B. practice with care  
 C. look with scorn  
D. lift with ease  
E. dance with joy
39. eligible:  
A. lonesome  
 B. careless  
C. qualified  
D. inferior  
E. profound
40. a gust is a sudden  
 A. rush of wind  
B. act of duty  
C. increase of pain  
D. loss of friends  
E. need of money
41. sassafras:  
 A. tree  
B. wave  
C. egg  
D. board  
E. yard
42. a ghetto is a section of a  
A. story  
B. wall  
C. church  
 D. city  
E. garden
43. muff:  
A. water heater  
 B. hand warmer  
C. glass cleaner  
D. paint dryer  
E. wood burner
44. pennant:  
A. route  
 B. flag  
C. journal  
D. speech  
E. leader
45. exclude:  
A. educate  
B. excite  
 C. eliminate  
D. encourage  
E. ensure
46. mango:  
 A. fruit  
B. army  
C. uncle  
D. star  
E. stone
47. juvenile:  
A. haunted  
 B. youthful  
C. intimate  
D. favorable  
E. unable
48. stage:  
 A. step in a process  
B. tear in a net  
C. condition in a treaty  
D. light in a tower  
E. article in a newspaper
49. gorge:  
A. circle  
B. chain  
 C. valley  
D. hall  
E. queen
50. jolt:  
A. justify  
B. join  
C. judge  
 D. jar  
E. journey
51. gratify:  
A. heat  
B. shout  
C. hope  
D. charge  
 E. please
52. cardiac means of the  
A. arm  
B. feet  
 C. heart  
D. legs  
E. head
53. aghast:  
A. similar  
B. modern  
C. lucky  
D. limited  
 E. terrified
54. demote:  
A. invite  
 B. reduce  
C. stroke  
D. pause  
E. excuse
55. situate:  
A. wear  
B. add  
C. take  
 D. place  
E. study
56. thus:  
A. not  
B. too  
C. why  
 D. so  
E. do
57. scavenge:  
A. check certificates  
B. change residence  
C. support legislation  
D. divide inheritance  
 E. remove rubbish

58. rafter:  
A. angel  
B. canal  
 C. beam  
D. lamb  
E. trunk
59. curriculum:  
A. school of fish  
B. collection of pictures  
C. type of window  
D. range of mountains  
 E. program of studies
60. lank:  
 A. slender  
B. grateful  
C. musical  
D. lively  
E. rare
61. gristle:  
A. fortitude  
 B. cartilage  
C. graphite  
D. arrogance  
E. overture
62. faction:  
A. dinner  
B. blood  
 C. group  
D. passage  
E. hill
63. decelerate means reducing  
 A. velocity  
B. disorder  
C. enthusiasm  
D. hazards  
E. expenditures
64. console:  
A. compare  
B. conclude  
 C. comfort  
D. command  
E. collect
65. horde:  
A. circle  
B. shade  
C. word  
 D. crowd  
E. sand
66. manipulate:  
A. reserve  
B. devote  
 C. handle  
D. inquire  
E. introduce
67. sumac:  
A. prayer  
B. reward  
 C. shrub  
D. doctrine  
E. porch
68. potpourri:  
A. tailor  
B. embassy  
C. schooner  
 D. medley  
E. parson
69. concrete:  
A. clean  
B. mean  
C. low  
D. nice  
 E. real
70. albacore:  
A. tire  
B. soldier  
C. box  
 D. fish  
E. stick
71. mesquite:  
A. office  
 B. tree  
C. fire  
D. store  
E. gate
72. destitute:  
A. respectful  
B. divine  
C. urgent  
D. slippery  
 E. needy
73. discreet:  
A. fragrant  
 B. prudent  
C. unpleasant  
D. radiant  
E. gallant
74. isopod:  
A. advertisement  
 B. edifice  
C. meteorite  
D. philanthropist  
E. crustacean
75. jujube:  
 A. candy  
B. echo  
C. poem  
D. harvest  
E. brick
76. sputum:  
A. saloon  
B. sickle  
C. shawl  
 D. saliva  
E. sermon
77. mullet:  
A. bird  
B. ball  
C. dog  
D. stone  
 E. fish
78. bastion:  
 A. fortification  
B. qualification  
C. appropriation  
D. legislation  
E. illustration
79. forgo:  
A. represent  
 B. sacrifice  
C. justify  
D. determine  
E. display
80. afflux:  
 A. flow  
B. fool  
C. fall  
D. fly  
E. floor
81. mackintosh:  
 A. raincoat  
B. tractor  
C. honeybee  
D. cartoon  
E. saucepan
82. trajectory:  
 A. curved path  
B. ill health  
C. bold type  
D. glorious spirit  
E. strong back
83. picador:  
A. statesman  
 B. horseman  
C. conductor  
D. sultan  
E. fisherman
84. grackle:  
A. chipmunk  
B. pumpkin  
C. strawberry  
 D. blackbird  
E. caterpillar
85. apropos:  
A. instructive  
B. respectful  
C. forbidden  
 D. pertinent  
E. dominant
86. yew:  
 A. evergreen tree  
B. dismal day  
C. shabby house  
D. twisty road  
E. frightful dream
87. a pomander is  
A. magnetic  
B. explosive  
 C. aromatic  
D. frail  
E. rotten
88. nubilous:  
 A. cloudy  
B. incredible  
C. liberal  
D. spiritual  
E. ragged
89. a triphthong is a combination of three  
A. fossils  
B. cables  
 C. diagrams  
D. vowels  
E. atoms
90. brob:  
A. jail  
B. pouch  
C. tax  
 D. spike  
E. cavern

91. whist:  
A. captain  
 B. game  
C. soul  
D. finger  
E. rock
92. fetid:  
A. exhausted  
 B. stinking  
C. pathetic  
D. meager  
E. insane
93. abstracted:  
A. unmoved  
B. insulated  
 C. preoccupied  
D. dominated  
 E. devastated
94. piñon:  
A. piano  
B. pioneer  
 C. pine  
D. pinch  
E. pint
95. terrine:  
A. knife  
B. railway  
C. chicken  
D. wagon  
 E. vessel
96. conventicle:  
A. major enemy  
B. royal gentleman  
 C. impossible question  
D. sharp object  
 E. secret meeting
97. bezant:  
A. hotel  
 B. coin  
C. mill  
D. harbor  
E. desk
98. an emir is an Arabian  
A. drink  
B. farmer  
 C. chief  
D. song  
E. horse
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