

1962

## Development of an Automated Basic Spelling Program for Retarded Children

William Gilbert Woods  
*Central Washington University*

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DEVELOPMENT OF AN AUTOMATED BASIC SPELLING  
PROGRAM FOR RETARDED CHILDREN

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A Thesis

Presented to

The Graduate Faculty

Central Washington State College

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In Partial Fulfillment

of the Requirements for the Degree

Master of Education

---

by

William Gilbert Woods

August 1962

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APPROVED FOR THE GRADUATE FACULTY

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Edward A. Hungerford, COMMITTEE CHAIRMAN

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Theodor F. Naumann

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H.L. Anshutz

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## CHAPTER I

### INTRODUCTION

#### I. THE PROBLEM

##### Statement of the Problem

The purpose of this study was to write a competent teaching machine (TM) program on spelling for handicapped pupils at the upper primary level and to indicate possibly fruitful areas for further research with the program at this level.

##### Background and Theory

Recent studies have shown the TM to be an effective instructional method at a number of grade levels and in a number of subject areas. As yet, however, little effort has been made to apply TM instruction to special education and the handicapped pupil.

Since such an application has not been made, the researcher working in this area can gain little assistance from the limited literature available. However, some general background in programming techniques (2, 5, 6), TM theory (7, 8), and spelling instruction at the primary level (1, 3, 4) is valuable preparation.

The TM would be extremely useful for enriching and diversifying special education curricula if programmed instruction can be



successfully prepared for handicapped pupils. Two attributes of programing seem to have special value for such pupils: (1) a program is written so as to present information or knowledge in gradual, minute, organized steps through which a pupil progresses at his own speed; and (2) a suitable program acts with minimal supervision as a tutor for the individual pupil.

The steps of the learning process as utilized in programmed instruction are noted in Appendix A, Attachment B.

#### Definition of Terms

For this study a "handicapped pupil" is one whose learning capabilities are sufficiently impaired by mental, physical, or emotional impediments (established after a thorough clinical evaluation by a qualified psychologist) as to require placement in special education classes.

The parts of a TM program should also be clarified. Just as a book is divided into chapters, a program is divided into "units." Each unit is composed of a number of "frames," statements or questions or both, usually requiring a response, in this study a written response.

## II. APPROACH TO THE PROBLEM

### Selection of Pupils

The subject pupils for the initial program exercises were selected on the basis of their performance on certain sections of the Gates Reading Diagnostic Tests and a clinical evaluation provided by the psychology consultant of the Ellensburg Public Schools.

The size of the sample was limited to six pupils by the time available for program exercises. As it turned out, of the sixteen pupils available for the study and tested, only the six chosen seemed to meet all five prerequisites (Appendix A, Attachment B) to be met by program pupils. If time had permitted after the initial six pupils had completed the exercises, one or two additional pupils whose test scores had been borderline would have been given the program.

The range in intelligence quotients (IQ) among the selected six pupils as measured by the full scale WISC was from a low of 59 to a high of 74, the latter score being shared by two of the pupils.

The clinical diagnosis shows that all six pupils have some degree of mental deficiency. One pupil was emotionally disturbed and another was handicapped with cerebral palsy. Generally, the diagnosis shows the handicaps exhibited by the program pupils to be common among special education pupils.

The sections of the Gates tests given the pupils (Table I) were the Oral Vocabulary, the Reversal Test, Phrase Perception, Word Perception (Untimed Presentation), Reading Capital Letters (errors only), Reading Small Letters (errors only), and the Spelling Test. The time necessary for the pupil to complete any of these tests was not considered even when directions specifically called for it.

The spelling section of the Gates test, using another form, was given a second time after completion of the program exercises.

### The Spelling Program

The spelling program itself consisted of 15 units each composed of 25 to 34 frames. Twelve of the units introduced new words; three of the units reviewed the more difficult words introduced in earlier programs. The program units are labelled consecutively A, B, C, etc., with the exception of the review programs, labelled R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and inserted between Unit F and Unit G. The frames are numbered consecutively within each unit (e.g., A-1, A-2, B-1, etc.).

The objective of the spelling program was to teach pupils a number of basic words. The words presented in this program consisted of 37 found in both the Dolch Basic Sight Vocabulary List (1) and the first list of Keller and Forster's A to Z Spellers (4), an additional 16 nouns and pronouns found in the first list in the A to Z

TABLE I  
TEST RESULTS OF SIX HANDICAPPED PUPILS  
WITH THE ORIGINAL PROGRAM

Pupil			Clinical Data		Gates Reading Diagnostic Tests <sup>1</sup> (Grade Level)				
No.	Age	Sex	Diagnosis	WISC FS IQ	Oral Voc.	Phrase Percep.	Word Percep.	Initial Spelling	Final Spelling <sup>2</sup>
1	13-3	M	mental deficiency (moderate)	71	4.8	2.8	1.9	2.5	2.7
2	13-0	F	mental defic. (mod.), prob. limited organicity (convul.)	74	3.3	3.6	2.9	2.9	3.3
3	16-2	M	CP (all extremities involved) mental deficiency (moderate)	59	3.8	4.0	4.0	4.0	4.5
4	10-1	F	mental defic. (mod.), emo- tional disturb., (had convul.)	72	3.8	4.0	3.3	3.3	3.4
5	13-10	M	mental deficiency (moderate), sociopathic tendencies	74	4.4	3.6	2.6	0	2.5
6	12-2	F	mental deficiency (moderate)	67	2.8	3.2	2.7	0	2.2

<sup>1</sup>All tests used as power tests

<sup>2</sup>After nine weeks of programed instruction with two to three sessions each week, each session lasting about 15 to 30 minutes

Spellers, the word "car," and six proper names commonly encountered in first readers. Of these original 60 words, only 52 were broken down in the original program for the pupils, the other 8 words, the simplest of the list (e.g., in, a, it), are used but not broken down.

The program presents each word, first to be copied by the pupil, then with letters and syllables missing, until the pupil has been led through an examination of all its parts. Finally, the pupil is required to write the entire word without hints or obvious cues. One of the greatest problems of a spelling program is providing satisfactory cues for the final test frame. In this program the repetition of the accompanying sentence structure and some use of pictures served that purpose.

### Procedure

The study was undertaken in the following order and manner:

1. The words to be taught were selected from recognized spelling lists for the primary level.
2. The six pupils were selected using the WISC, sections of the Gates tests, and the clinical diagnosis of the psychology consultant.
3. Each pupil was scheduled to work a program unit during each of three work sessions during a week (Monday,

Wednesday, and Friday between 9:00 and 11:30 a.m.)  
for nine weeks (Appendix A, Attachment C).

4. The program units were written prior to each session as required.
5. Starting with Unit B, each pupil session began with a short quiz on the spelling words to be introduced by that unit. The monitor read the directions for operating the TM to the pupil before each of a pupil's first six sessions. The pupil worked each unit, having been advised to ask any questions though encouraged to work each frame himself first. The monitor kept a running log of pertinent observations on the pupil's performance.
6. After a pupil completed all units of the program, he was retested with the Gates spelling test and given a written quiz (orally dictated by monitor) of the ten most difficult words encountered in the program.
7. The results were tabulated and evaluated.
8. The program was revised in accordance with the results (Table II).
9. The revised program was given to three pupils to gain an indication of the worth of the revisions.

TABLE II

ERRORS (e) AND ASSISTS (a) ON EACH PROGRAM FRAME: ORIGINAL PROGRAM

UNIT:	A	B	C	D	E	F	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	G	H	I	J	K	L	
FRAME	e	a	e	a	e	a	e	a	e	a	e	a	e	a	e	a
1	6	1					1		1	1	1				2	
2	1	1														
3											1					
4				1				1								
5																
6								1		1	1	1		1	1	
7			1	1	1	1		1		1	2	1				
8		1	1	2												
9			1		1	1										
10			2					1		1	1					
11						2	2					1		1	1	
12	1			1							1					
13				1		1								1		
14		1			5	1	2	1			2	1				
15		2	1						1	2						
16							1	1		1				1		
17		1			1				1			1		1		2
18	1	1	1	1	1		1				1	1				1
19		1		1		4					1					1
20						1										
21		1				2						1		1		1
22			1					2					5			
23		1			4	2		2	2		2				1	3
24				1												
25					1	1	6	2		1		1	1	1		
26						1	1			1				1	3	2
27	1	2	2	1		2	3	5	2			1		1	1	1
28			1	1										1		
29							1	2			1					
30										2	1	1				2
31																
32			1													
33	2	3														
34																
No. of Frames	33	32	25	27	28	32	28	25	30	32	34	25	28	30	30	
Total No. of Frames Worked	198	189	149	160	164	192	168	150	150	192	204	150	168	180	180	
No. of Errors	5	11	10	15	23	4	1	3	5	6	12	6	7	7	12	
Error %	2.5	5.8	6.7	9.4	14.	2.1	.6	2.0	3.3	3.1	5.9	4.0	4.2	3.9	6.7	
No. of Assists	15	8	3	10	8	8	4	1	3	1	8	1	2	2	2	

## CHAPTER II

### RESULTS AND EVALUATION

#### I. FINDINGS

##### Original Program

Pupil One, boy, age 13-3. Pupil One had the highest grade for oral vocabulary of any of the six pupils. His other scores (Table I) were generally lower than those of his companions, notably the Phrase Perception, Word Perception, and Reversal Test sections of the Gates tests.

During the program lessons, though enthusiastic during the first 2 units, Pupil One demonstrated some recalcitrance toward participation. On a number of occasions his reply when asked to come to the work room was, "Ah, do I have to go?" On other occasions he asked of future units, "How many more?" When finally told that he had worked his last unit, he vigorously replied, "Good!" The monitor had the impression that the pupil felt pushed by the programmed learning situation.

One difficulty which showed itself during his exercises was an inability to sound out his words. For example, during a spelling test he was given the word "where" and wrote "with" carefully,



deliberately, and spelled correctly. He made the same error on the final test after working program exercises on both words.

Indications of progress for Pupil One are minimal. The second Gates spelling test indicated a two month (2.5 to 2.7) increase in achievement. On the final test of the hardest words in the program, he failed to spell any word correctly. On the pre-unit tests he had spelled one of these words correctly (said). On the final he reversed the middle vowels (siad).

In summary, Pupil One's minimal progress may be partially due to a deficiency in phonics. Such a deficiency hampers an organized attack on written words.

Pupil Two, girl, age 13-0. Pupil Two, showing an IQ of 74 on the WISC, had only average scores on the Gates tests. Her progress in spelling achievement is more noticeable than that of Pupil One. The second Gates spelling test indicated she had made an advance of four months (2.9 to 3.3) on a scale designed for normal children. On the written test she missed only one of the ten words. On the pre-unit tests she had missed two of seven test words. This pupil was not given tests prior to Units A and B, which contained three of the final test words.

Throughout the work periods on the programmed exercises, Pupil Two seemed enthusiastic and involved in her work. The average

elapsed time for working through any of the units was approximately ten minutes.

In summary, the record of Pupil Two provides indications of definite spelling improvement.

Pupil Three, boy, age 16-2. Pupil Three, a Cerebral Palsy child, had gained the necessary physical dexterity to write in the limited space available on the TM. He had made the best overall performance on the Gates tests though his IQ as measured by the WISC was 59, lowest of the six pupils involved. He was chronologically the oldest of the six pupils.

During the programmed exercises Pupil Three was enthusiastic despite the fact that few words on the program gave him difficulty. His slow writing speed seemed to account for the longer time required to complete the various units.

Pupil Three's performance on the second Gates spelling test, an advancement of five months (4.0 to 4.5), is his only definite indication of improvement. His showing of no errors on the written test was anticipated since he had spelled all ten of the words correctly on the pre-unit tests.

Pupil Three seems to have found the program helpful as a review and learning device despite his general familiarity with the words the program offered.

Pupil Four, girl, age 10-1. Pupil Four showed well in all of the Gates tests except Reversals, where her scores indicated a marked tendency to reverse letters within a word. During the initial tests it was also noticed that she had a relatively short attention span. The clinical diagnosis showed her to be emotionally disturbed.

During the program exercises the short attention span made itself evident as she required two work periods to complete each of two program units. As opposed to the continuing enthusiasm of Pupils Two and Three, Pupil Four would quickly lose interest and disregard instructions (especially in Units G and following). She seemed to let her thoughts drift from the program. On a number of occasions she questioned the monitor concerning general matters irrelevant to the program. When left alone by the monitor (but still within observation), she seemed only half-attentive to the work before her.

Her final test indicated little or no progress. The second Gates spelling test indicated an advancement of only one month (3.3 to 3.4). On her final written test she missed four of ten words. Her performance on the same words in pre-unit tests was two errors of eight words given.

The program seems to have contributed little or nothing to the spelling achievement of Pupil Four.

Pupil Five, boy, age 13-10. Pupil Five had an especially good score on his Oral Vocabulary test, but on his initial Gates spelling test, he was unable to return even the simplest words.

During the program exercises he worked quickly and with enthusiasm, giving himself what seemed to be a running pep talk. He made few errors in either the program or the instructions.

When given the Gates spelling test the second time, he was able to record a graded score of 2.5. He had one word correct on the final written test. On his pre-unit tests he had missed all eight of the final words given.

In summary, some improvement in spelling achievement is indicated by Pupil Five's performance.

Pupil Six, girl, age 12-2. Pupil Six showed average scores throughout her preliminary testing except for the initial Gates spelling test where she was unable to give even the simplest words of the test.

During the program exercises Pupil Six performed well with the shorter words but would hesitate frequently on the test frames of longer words (e.g., school, children). In the course of repeated absences from school, she missed taking Review Unit Three.

Her final Gates spelling test indicated a grade score of 2.2 and was her best indication of improvement. On the written test she

had two words correct of the ten given against none of the same words correct on the pre-unit tests of the eight test words included.

Pupil Six showed some improvement in spelling achievement.

### Revised Program

Thirteen months after completing the examination of the original program, a revised version teaching the same words was tested on three mentally retarded pupils (Table III). Two of these pupils had participated in the original presentation reported above; the third pupil had been tested for that exercise but scheduling did not permit his taking the program at that time.

Pupil Seven, boy, age 13-0. Pupil Seven had been marked as a marginal candidate for the original TM program the year before, but time had not permitted him to take the program before the end of the school year. On his initial test for the revised program, he was able to spell correctly six of the fifteen test words. He spelled correctly ten of the fifteen after completing the program.

During the program presentation he was encouraged to rest between units though he was always anxious to hurry on. He showed a tendency to ignore sentence context as a cue to the word to be spelled and made a number of errors by writing in the wrong word (often spelled correctly). However, his performance on test frames

TABLE III

ERRORS (e) AND ASSISTS (a) ON EACH PROGRAM FRAME: REVISED PROGRAM

UNIT:	A	B	C	D	E	F	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	G	H	I	J	K	L	R <sub>4</sub>	R <sub>5</sub>	
FRAME	e	a	e	a	e	a	e	a	e	a	e	a	e	a	e	a	e	a
1	3													1				
2																		
3																		
4								1	1									
5																		
6					2		1	1	1									
7		1			1	1	1	1							1			
8		1						1						1		1		
9				2												1	1	
10			1												1			
11		1	1		1	1												
12															1			
13													1				2	
14			3	1												1		
15		1								1								
16																1		
17																		
18						1	1											
19																		
20			1		1	1			1									
21		2		1				1						1	1			
22	1																	
23						1				1	2	1		1	1			
24																		
25		1		2					1	1								
26			1		1				1						1			
27				1											1			
28				1	1						1				1			
29		1				1			1	1								
30									1						1			
31															1			
32										1								
33																		
34											1							
No. of Frames	33	32	31	29	29	32	28	25	30	32	34	25	28	30	32	26	27	
Total No. of Frames Worked	99	96	93	87	87	96	84	75	90	96	102	75	84	90	96	78	81	
No. of Errors	1	6	7	7	6	4	5	5	7	3	4	0	1	3	10	4	3	
Error %	1.0	6.3	7.5	8.0	6.9	4.2	6.0	6.6	7.7	3.1	4.0	0	1.2	3.3	10.	5.1	3.7	
No. of Assists	4	1	1	2	1	0	0	0	1	1	1	0	0	1	1	0	0	

indicated the presentation sequence was usually successful.

Pupil Eight, girl, age 14-2. This pupil is the same as Pupil Two of the original test group. She showed an ability to spell twelve of the fifteen words before taking the revised program and made a perfect score of fifteen after completing the program. Her handling of the frame sequence was almost without "error" or "assist." Under normal program use the initial test might have been used to select only those units including the words on which she needed help.

Pupil Nine, boy, age 14-5. This pupil improved his score on the 15-word test from an initial ten correct to fourteen correct. For the word missed on the final test, want, he had substituted went (correctly spelled). The confusion of these two words and those of what and where were indicated by his performance in the program. Pupil Nine's performance in the review units seemed to indicate this confusion had been corrected. This pupil also had taken the original program thirteen months earlier and is referred to elsewhere as Pupil One. His performance on the revised program was a considerable improvement over that on the original program. His enthusiasm, too, was much higher this time.

The score improvement and the lower "error" and "assist" marks seem to indicate that both pupil and program had improved.

## II. EVALUATION

In keeping with the original aims of the pilot study--writing a TM program to teach spelling to handicapped children at the upper primary level and indicating or recommending possible areas for future research in this same area--a program has been written, given its initial test with promising results, and revised.

All six of the handicapped pupils who took the original program during ten to thirty minute sessions held two or three times weekly for nine weeks showed indications of improvement in spelling achievement. Advancement in spelling achievement ranged from one month to five months on a scale designed to show achievement levels of normal children. The fact that this advancement was made by mentally and physically handicapped children makes the progress noteworthy.

Three of the six pupils scored poorly on the final written test; however, many of their misses showed partial improvement in spelling individual words over those efforts made on the pre-unit tests. Whereas initial efforts produced a combination of letters having little or no resemblance to the correct spelling, final efforts often missed by single letters or a syllable. In two cases a wrong word (correctly spelled) was substituted for the word dictated. Such an error might



possibly be attributed to lack of attention on the part of the pupils or to pupil deficiencies in phonics.

## CHAPTER III

### CONCLUSIONS AND RECOMMENDATIONS

#### I. CONCLUSIONS

The results of the work exercises and the tests indicated a need to revise the program in three ways: (1) revision of specific frames and series of frames where ambiguity was indicated by a large number of errors and assists, (2) revision of the review procedure for Units F through L to include two or three additional review units, and (3) the possible addition of picture cues with specific frames of Units A and B to make the program easier to follow for the new pupil. The revisions as indicated in (1) and (2) were performed.

A need to revise program prerequisites to include some measure of attention span seems to be indicated by the performance of Pupil Four (the emotionally disturbed girl) whose progress for the program exercises was minimal.

A three-pupil check of the revised program indicated a more successful sequence of steps had been achieved. As the program now stands, it should be an adequate starting point for additional test applications in the area of programmed instruction of handicapped children.

## II. RECOMMENDATIONS

It is recommended that later research in the area of programed instruction for handicapped pupils concern itself directly or indirectly with the following: the influence of attention span on programed instruction, both from the aspect of establishing minimum limits or prerequisites and as a program organization problem wherein the frame presentations are kept in units of such length as to permit a greater flexibility in work time per sitting; the comparison of learning performance of different combinations of programed instruction with other (i. e., classroom) techniques; and the investigation of tailoring programed instruction to meet specific physical and mental handicaps (e.g., the cerebral palsy child).

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## BIBLIOGRAPHY

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## APPENDICES

## APPENDIX A

### PROGRESS REPORTS

March 27, 1961

Progress Report of Wm. G. Woods for Dr. Naumann

The application of teaching machines to instruction  
to handicapped pupils

Since assignment to the project at the beginning of Winter Quarter, the following has been accomplished:

1. Background information in operant conditioning, teaching machines, and spelling methods has been accumulated.
2. The objectives of the study--teach spelling by means of the teaching machine to handicapped pupils of the upper primary level--has been determined. The initial sixty words have been selected (Attachment D).
3. The approach to be followed through the study has been stipulated (Attachment A).
4. The pupil prerequisites have been determined (Attachment B).
5. The logical steps followed in learning to spell a word (Attachment B) have been outlined and retained to serve as a guide in noting prompts available to the programmer.
6. A tentative time table for the remaining time of the project has been prepared (Attachment C).
7. Testing of prospective subjects for program testing with the Peabody Picture Vocabulary Test and selected

sections of the Gates Reading Diagnostic battery has been completed.

Completion of the study is forecast for June 9, 1961, with initial program testing terminating June 2, 1961.

William G. Woods

BW

Attachments 4



CENTRAL WASHINGTON STATE COLLEGE

RESEARCH PROJECT (OUTLINE)

Principal Investigator: Theodor F. Naumann, Ph. D., Assoc. Prof.  
of Psychology

Title: Development of an Automated Teaching Program for Educable  
Mentally Handicapped Children in a Public School.

Purpose: The purpose of the project is to find ways and means of developing a functional machine teaching program for educable mentally handicapped pupils in a public school setting. The first area attempted shall be spelling. Other subjects may later be tried, if time, personnel, and means permit. Basically, this is an investigation of the teaching-learning process in a specific area by operant conditioning principles.

Procedure: The main steps planned are:

- (1) Studying the available published and unpublished material (which the main investigator has already partly assembled). (Materials at hand are from Drs. Skinner, Holland, Porter, and Meyer of Harvard Univ.; from Dr. Orlando of the Univ. of Washington; from Dr. Fry of Loyola Univ. at Los Angeles; and others.)
- (2) Selecting a representative and functional word list and begin outlining a first tentative program at the high primary level. It is assumed that this will be a more effective starting point for purposes of machine programming than the beginning reader level (which should be attacked later).
- (3) Typing and trying out of the first trial units and revising the program in the light of the trials' results, using operant conditioning principles as one set of criteria.

- (4) Typing and trying out units through the high primary level, and revising these units in the light of trial results.
- (5) Typing the first regular edition of the automated spelling program and first routine use with a group of handicapped children.
- (6) Summarizing the results and evaluative aspects of the project.

Evaluation: By repeated discussion among investigators and school personnel involved (to whom the guiding principles and procedures are interpreted throughout the investigation). Principles of educational psychology, particularly those of operant conditioning, and the experiences of other investigators shall furnish guiding criteria. Once a functional program has been developed, conventional research design may be used for formal statistical evaluation; this is anticipated for the second and possibly third year(s) of investigation.

Time: First Phase: January through Sept., 1961

About one year for developing the first program; a second and possibly a third year for evaluation with regular research design. (The development and evaluation of other programs, e.g., in reading readiness, arithmetic, etc., could become separate investigations.)

**ATTACHMENT B (TM Report, March 27, 1961)**

Following are five prerequisites for students who are to take the spelling program under minimum supervision:

1. The student must exhibit correct writing habits (i.e., form the letters properly with the correct hand movements).

**JUSTIFICATION:** If the student has incorrect writing habits, individual (unsupervised) work on the machine will fix these habits more firmly.

2. The student should know all letters of the alphabet which are to be used in the program--their appearance and sound.

**JUSTIFICATION:** Without knowing the letters as distinctive units possessing sound as well as visual differences, the student can apply only one sense (the visual) to his learning because of the nature of the instructing device and the absence of supervision.

3. The student must have control of a basic beginning vocabulary (be able to recognize visually as well as orally) which includes first person pronouns and common intransitive verbs (is, are, I).

**JUSTIFICATION:** These words are extremely difficult to present meaningfully in words or picture, yet they are necessary aids to so presenting many other words.

4. The student must possess a degree of discrimination acuity which will permit him to note differences in letter order and size (capitals).

**JUSTIFICATION:** A student unable to note such differences will be unable to determine error when comparing his answer to that of the program.

5. The student must possess a desire to communicate knowledge to another by means of writing.

JUSTIFICATION: Without such a desire, it is believed that the student will lack any motive to perform as the machine requires for one to obtain the desired learnings. At the machine, the student is (1) showing himself that he has the knowledge and capability of communicating should he care to do so, and/or (2) communicating to the monitor of the program that he has mastered the directions of the machine.

---

A logical cycle of steps performed in learning to spell a word with some possible prompts (\*) applicable to programming and possible actions (#) which might be required of the student to show his awareness of the step:

1. Student sees the whole word; \*underline in a sentence, show alone; #have the student copy the word.
  2. Student determines meaning, sees its relationship to other words; \*show word with a picture, define with other words, use it meaningfully in the context of a phrase or sentence; #have the student copy the word.
  3. The student sees the parts of the word; \*present the word divided or emphasizing individual letters, write word with individual letters, or several letters, left out; #have student--each time--write the full word with the missing letter or letters included and marked (underline), or write first the letters left out then the full word.
  4. The student sees the whole word with meaning and parts in relation to the whole; #have the student give the full word when the context with the word missing is presented.
-

## ATTACHMENT C (TM Report, March 27, 1961)

The time schedule for the teaching machine pilot study calls for three (3) test periods per week (between 9-11 a.m. on Monday, Wednesday, Friday) for nine weeks:

March 26 - 30

April 3 - 7

April 10 - 14

April 17 - 21

April 24 - 28

May 1 - 5

May 8 - 12

May 15 - 19

May 22 - 26

Then one week is allowed for makeups to offset absences:

May 29 - 2

No further student testing is possible after June 2 because of public school adjournment for the summer. An additional week, however, is available for writing reports:

June 5 - 9

The study should be completed by June 9, 1961.

110351

## ATTACHMENT D (TM Report, March 27, 1961)

With the exception of the five proper names, the following words are all found in both the Dolch lists and Keller and Forster's A to Z Spellers.

see	house	Jim
go	boy	I
to	school	we
the	ride	in
car	truck	a
saw	many	ball
girl	me	like
what	little	baby
zoo	it	want
cat	dog	my
where	play	with
Peter	Jane	mother
is	children	good
father	for	an
brother	sister	and
can	he	she
time	going	up
down	went	Bill
will	not	said
Miss Jones	did	have
kitty	here	

May 6, 1961

Progress Note on Teaching Machine Pilot Study

Dr. Naumann:

As of this date all six students have completed Programs A through F and three review programs. They have yet to complete Programs G through L and possibly one review program if testing shows such a program is necessary. The study is proceeding on schedule.

A preliminary report of the completed study will be forthcoming by June 9, 1961, with the final report to follow.

William G. Woods

BW

## APPENDIX B

### COMPLETE COPY OF REVISED PROGRAM

Directions	those words used but not programmed
An underlined word means it should be copied in the answer slot	in
A single dash in a word (tru_k) stands for a missing letter to be replaced with your answer	a we
A longer dash (____) stands for a missing word or part of a word to be replaced with your answer	I to
ALWAYS write the full word containing missing letters in the answer slot--UNDERLINING the missing letters. You need not underline when the complete word is missing	me it
MARK 'O' for correct when your answer matches that on the program (note the hole in the cover glass for making this mark)	
MARK 'X' for wrong when your answer does not match that on the program (if the word is correct but the directions have not been followed, mark both the circle and the X.	

---



## spelling test for Unit A

boy

see

go

school

house

## spelling test for Unit B

car

ride

truck

like

## spelling test for Unit C

zoo

baby

what

little

the

## spelling test for Unit D

ball

saw

girl

where

## spelling test for Unit F

for

with

Jane

mother

## spelling test for Unit G

here

play

Peter

father

(is)

## spelling test for Unit H

will

good

children

kitty

(am)

## spelling test for Unit I

he

she

can

did

sister

## spelling test for Unit J

have

time

did

brother

## spelling test for Unit K

Miss Jones

going

down

up

## spelling test for Unit L

not

went

Bill

said

## spelling test for Unit E

where

want

Mary

dog

## Initial and Final Spelling Test

(includes every fourth word from list of Appendix A, Attachment D)

go

saw

cat

father

down

house

truck

it

children

going

here

a

want

good

up

# 33 FRAMES UNIT A

- A-1 We go to the school. go
- A-2 We g\_ to the school. go
- A-3 We \_o to the school. go
- A-4 We \_\_ to the school. go
- A-5 I see a house. see
- A-6 We \_\_ to the school. go
- 
- A-7 I see a boy in the house. see
- A-8 I se\_ a boy in the house. see
- A-9 I \_ee a boy in the house. see
- A-10 I s\_e a boy in the house. see
- A-11 A boy is in the house. boy
- A-12 I \_\_ a boy in the house. see

A-13 A \_oy is in the house. boy

A-14 A b\_y is in the house. boy

A-15 A bo\_ is in the house. boy

A-16 A \_\_\_ is in the house. boy

A-17 We \_\_ to the school. go

A-18 A \_\_\_ is in the house. boy

A-19 I \_\_\_ a boy in the house. see

A-20 We go to the school. school

A-21 We go to the sch\_\_l. school

A-22 We go to the \_chool. school

A-23 We go to the sch\_\_\_. school

A-24 We go to the s\_\_ool. school

A-25 We go to the \_\_\_\_\_. school

- |   |                |
|---|----------------|
| A-26 I see a <u>house</u> .             | house          |
| A-27 We go to the _____.                | school         |
| A-28 I see a boy in the <u>house</u> .  | house          |
| A-29 I see a boy in the _ouse.          | <u>h</u> ouse  |
| A-30 I see a boy in the h__s_.          | h <u>ou</u> se |
| A-31 I see a boy in the hou_e.          | hou <u>s</u> e |
| A-32 We <u>ride</u> in the <u>car</u> . | ride ,<br>car  |
| A-33 I see a boy in the _____.          | house          |

- B-1 We ride to school in a car. ride
- B-2 We rde to school. ride
- B-3 We rid  to school. ride
- B-4 We i\_e to school. ride
- B-5 We   to school.in a car. ride
- B-6 I like school. like
- B-7 We   to school in a car. ride
- B-8 I lie school. like
- B-9 I ike school. like
- B-10 I lk\_ school. like
- B-11 I   school. like
- B-12 We   to school in a car. ride
- B-13 I   school. like

B-13 I like school.

like

B-14 We like to ride in a truck.

truck

B-15 I like school.

school

B-16 We ride in a truck.

truck

B-17 We ride in a trck.

trck

B-18 We ride in a truk.

truk

B-19 We ride in a trucu.

trucu

B-20 We ride in a trck.

trck

B-21 We ride in a truck.

truck

B-22 What is in the house?

what

B-23 We ride in a truck.

truck

B-24 A baby is in the house.

baby

B-25 A baby is in the house. What is in the car?

car



B-26 A boy is in the ca\_.

car

B-27 A baby is in the house.

house

B-28 A boy is in the \_ar.

car

B-29 A baby is in the \_\_\_\_.

house

B-30 A boy is in the \_\_\_\_.

car

B-31 We ride to the zoo.

zoo

B-32 A boy is in the \_\_\_\_.

car

C-1 We ride to the zoo. zoo

C-2 We ride to the zoo. zoo

C-3 We ride to the zo. zoo

C-4 We ride to the oo.in a truck. zoo.

C-5 What do we do? what

C-6 We ride to the     in a truck. zoo

C-7 Wha<sup>d</sup>    do we do? What

C-8 We ride to the zoo in a truck. truck

C-9 W   <sup>d</sup>   t do we do? what

C-10 We ride to the zoo in a       . truck

C-11    hat do we do? What

C-12 We ride to the zoo. ride

C-13 \_\_\_\_ do we do?

what

C-14 We \_\_\_\_ to the zoo.

ride

C-15 We let the baby see the zoo.

baby

C-16 What does the ba\_y see?

bay

C-17 The \_aby sees the zoo.

baby

C-18 Does the b\_b\_ like the animals?

baby

C-19 She likes the little animals.

little

C-20 The \_\_\_\_ likes the animals.

baby

C-21 The little girl sees the animals.

little

C-22 The \_\_ttle girl sees the animals.

little

C-23 The li\_\_le girl sees the animals.

little

C-24 The litt\_e girl sees the animals.

little

C-25 The baby rode to the zoo in the truck.

the

C-26 The \_\_\_\_ girl sees the animals.

little

C-27 The baby is a little girl.

The

C-28 Th\_ baby is a little girl.

the

C-29 \_\_e baby is a little girl.

the

C-30 What is she?

what

C-31 \_\_\_\_ baby is a little girl.

The

- |      |  |        |
|------|--|--------|
| D-1  | The <u>girl</u> saw me.                        | girl   |
| D-2  | The _irl saw me.                               | girl   |
| D-3  | The g_rl saw me.                               | girl   |
| D-4  | The gi_l saw me at school.                     | girl   |
| D-5  | The g__l saw me at school.                     | girl   |
| D-6  | <u>Where</u> did she see me?                   | where  |
| D-7  | The ____ saw me at school.                     | girl   |
| D-8  | _here did she see me?                          | where  |
| D-9  | She saw me at _____.                           | school |
| D-10 | Whe__ is the girl?                             | where  |
| D-11 | The girl is in the truck. W__re is the ball?   | Where  |
| D-12 | The <u>ball</u> is in the truck with the girl. | ball   |
| D-13 | __ere is the girl?                             | where  |

D-14 The girl is in the \_\_\_\_\_. truck

D-15 \_\_\_\_\_ is the ball? Where

D-16 The girl has the ball. ball

D-17 The girl has the \_all. ball

D-18 The girl has the b\_\_l. ball

D-19 What did the girl do with the ba\_\_? ball

D-20 I saw the girl give it to the baby. saw

D-21 What did the girl do with the \_\_\_\_? ball

D-22 I \_aw the girl give it to the baby. saw

D-23 What did the girl do? what

D-24 I s\_\_ the girl give the ball to the baby. saw

D-25 \_\_\_\_ did the girl do? What

D-26 I \_\_\_ the girl give the ball to the baby. saw

D-27 I want the ball. want

D-28 Jim and Mary want a dog. Mary  
dog

D-29 Jim and Mary see a cat. Jim  
cat

E-1 Jim and Mary want a dog.

want

E-2 Jim and Mary w\_nt a dog.

want

E-3 Jim and Mary w\_\_t a dog.

want

E-4 Jim and Mary \_\_\_\_t a dog.

want

E-5 We give them a cat.

cat

E-6 Jim and Mary \_\_\_\_\_ a dog.

want

---

E-7 They want a dog.

dog

E-8 We give them the cat.

cat

E-9 We give them the c\_\_.

cat

E-10 They want a do\_.

dog

E-11 We give them the \_\_\_\_.

cat

E-12 They want a d\_g.

dog

E-13 Jim and Mary have the cat.

Mary



E-13 Jim and Mary have the cat.

Mary

E-14 They want a \_\_\_\_.

dog

E-15 Mary is a girl.

Mary

E-16 Ma\_y lives in the house.

Mary

E-17 Mar\_ lives in the house.

Mary

E-18 \_ary lives in the house.

Mary

E-19 She is in the house.

house

E-20 \_\_\_\_ lives in the house.

Mary

E-21 Jim is a boy

Jim

E-22 Where is \_im?

Jim

E-23 Ji\_ is in the truck.

Jim

E-24 J\_m is in the truck.

Jim

E-25 The boy is in the truck.

truck

E-26 \_\_\_\_ is in the truck.

Jim

E-27 Where is Jim?

Where

E-28 The boy is in the \_\_\_\_.

truck

E-29 Jim and Mother are in the truck.

Mother

- R-1 The baby is with the mother. baby
- R-2 The ba\_y is with the mother. bay
- R-3 The ba\_\_\_is with the mother. bay
- R-4 The mother is to ride with Bill. ride
- R-5 The b\_\_\_ is with the mother. bay
- R-6 The mother is to r\_\_e in a truck. ride
- R-7 The \_\_\_\_ is with the mother. baby
- R-8 The baby likes to ri\_\_ in a truck. ride
- R-9 The baby is a girl. girl
- R-10 The baby likes to \_\_de in a truck. ride
- R-11 The baby is a \_\_rl. girl
- R-12 The baby likes to \_\_\_\_ in a truck. ride

- 
- R-13 The baby is a g\_\_\_\_. girl
- R-14 The baby likes to ride in a truck. baby  
ride
- R-15 The baby is a \_\_\_\_\_. girl
- R-16 The baby likes to \_\_\_\_\_ in a truck. ride
- R-17 Who likes to ride in a truck? truck
- R-18 The \_\_\_\_\_ likes to ride in a truck. baby
- R-19 The baby is a \_\_\_\_\_. girl.
- R-20 They ride to school. school
- R-21 They ride to s\_\_\_\_ool. school
- R-22 The \_\_\_\_de in a truck. ride
- R-23 They ride to sch\_\_\_\_. school
- R-24 They ride to s\_\_\_\_. school
- R-25 What do they do with the truck? What  
truck

R-26 They ride to \_\_\_\_.

school

R-27 They leave the house.

house

R-28 They ride to \_\_\_\_.

school

- R-1 We use the truck. truck
- R-2 We use the trucu. truck
- R-3 We use the uck. truck
- R-4 We use the truk. truck
- R-5 What do we do? What
- R-6 We use the truck. truck
- R-7 What do we do? What
- R-8 We use the trck. truck
- R-9 Wht do we do? What
- R-10 We use the truck. truck
- R-11 Wh do we do? What
- R-12 We use the truck to move the house. house

R-13	<u>h</u> at do we do?	<u>W</u> hat
R-14	We move the hou <u>e</u> .	hou <u>s</u> e
R-15	Where do we move the h <u>u</u> se?	hou <u>s</u> e
R-16	We move the <u>u</u> se three blocks.	hou <u>s</u> e
R-17	<u>W</u> hat do we do?	What
R-18	We use the truck to move the h <u>u</u> se.	hou <u>s</u> e
R-19	<u>h</u> at do we do?	What
R-20	We move the <u>u</u> se.	house
R-21	We use the <u>u</u> se to move the house.	truck
R-22	<u>W</u> here do we move the house?	Where
R-23	We <u>w</u> ant to move it three blocks.	want
R-24	We <u>l</u> ike the house.	like
R-25	A <u>l</u> ittle girl lives next door.	little

- R-1 Jim and Mary like to play. like
- R-2 Jim and Mary li\_e to play. like
- R-3 Jim and Mary \_ike to play. like
- R-4 Mary is a little girl. little
- R-5 Jim and Mary l\_\_\_ to play. like
- R-6 Mary ~~is~~ a littl\_ girl. littlee
- R-7 Jim and Mary \_\_\_\_ to play. like
- R-8 Mary is a litt\_\_ girl. littlee
- R-9 Mary is a \_\_ttle girl. little
- R-10 Where does Mary play? where
- R-11 Mary is a li\_\_le girl. littlee
- R-12 \_here does Jim play? where
- R-13 Mary is a l\_\_\_\_\_ girl. little



R-13 Mary is a l\_\_\_\_\_ girl.

little

R-14 Whe\_\_ does Jim play?

where

R-15 Mary is a \_\_\_\_\_ girl.

little

R-16 W\_ere does Jim play?

Where

R-17 Jim and Mary want to play at school.

want

R-18 \_\_\_\_re does Jim play?

Where

R-19 Jim and Mary wan\_ to play at school.

want

R-20 W\_\_\_\_\_ does Jim play?

Where

R-21 Jim and Mary \_ant to play at school.

want

R-22 \_\_\_\_\_ does Jim play?

Where

R-23 Jim and Mary w\_\_t to play at school.

want

R-24 Mary is a little girl.

little

R-25 Jim and Mary \_\_\_\_\_ to play at school.

want

R-26 Mary is a \_\_\_\_\_ girl.

little

R-27 Where does Jim play?

Where

R-28 Jim and Mary like school.

like

R-29. \_\_\_\_\_ does Jim play?

Where

R-30 Jim and Mary \_\_\_\_\_ school.

like

F-1 The mother is with the baby.

with

F-2 The mother is w\_th the baby.

with

F-3 The mother is \_ith the baby.

with

F-4 The mother is wit\_ the baby.

withh

F-5 The mother is wi\_h the baby.

withh

F-6 Who is wi\_\_ the baby?

withh

---

F-7 Jane wants her mother.

mother

F-8 The mother is \_\_\_\_ the baby.

with

F-9 The mother is with the baby.

baby

F-10 Jane is looking for her mother.

mother

F-11 The mother is with the \_\_\_\_.

baby

F-12 Jane is looking for her \_other.

mother

32 Frames      UNIT F

F-13 Jane is looking for her m_ther.	mo <u>th</u> er
F-14 Jane is looking for her moth__.	moth <u>er</u>
F-15 Jane is looking for her mo_her.	mo <u>th</u> er
F-16 <u>Where</u> is Jane?	Where
F-17 Jane is looking for her mo__er.	mo <u>th</u> er
F-18 ____ is Jane?	Where
F-19 Jane is looking for her ____.	mother
F-20 Jane sees the <u>little</u> baby.	little
F-21 <u>What</u> does Jane see?	What
F-22 Jane sees the ____ baby.	little
F-23 ____ does Jane see?	what
F-24 <u>Jane</u> sees a little girl.with her mother.	Jane
F-25 What does Jan_ see?	Jan_

F-26 \_ane sees a little girl with her mother. Jane

F-27 What does J\_\_e see? Jane

F-28 What does she see with her mother? mother

F-29 \_\_\_\_ sees a little girl with her mother. Jane

F-30 Jane wants to play with the baby. play

F-31 Jane see the baby with her \_\_\_\_\_. mother

F-32 Jane and Peter play with Father. Father

G-1    Father is here.

here

G-2    Father is her\_.

here

G-3    Father is \_ere.

here

G-4    Father is he\_.

here

G-5    Peter is to play.

play

G-6    Father is \_re.

here

G-7    Peter is to \_lay.

play

G-8    Father is he\_e.

here

G-9    Peter is to pla\_.

play

G-10    Father is \_.

here

G-11    Peter is to p\_ay.

play

G-12    Peter is to pl\_.

play

G-13    Father is looking for the children.

Father

32 Frames      UNIT G

G-13 Father is looking for the children.

Father

G-14 Peter is to \_\_\_\_y.

play

G-15 \_ather is looking for the children.

Father

G-16 Peter is to \_\_\_\_.

play

G-17 F\_ther is looking for the children.

Father

G-18 Fath\_\_ is looking for the children.

Fatherr

G-19 Fa\_\_er is looking for the children.

Father

G-20 Peter has the ball.

Peter

G-21 Fa\_\_\_\_ is looking for the children.

Father

G-22 Peter has the ball.

Peter

G-23 \_\_\_\_er is looking for the children.

Father

G-24 \_eter has the ball.

Peter

G-25 \_\_\_\_ is looking for the children.

Father

G-26 Pe\_er has the ball.

Peter

G-27 Pe\_\_ has the ball.

Peter

G-28 Father is looking for the children.

children

G-29 \_\_\_\_r has the ball.

Peter

G-30 The children will be good.

will  
good

G-31 \_\_\_\_ has the ball.

Peter

G-32 Father is to play here.

play  
here



H-1 I am looking for the children.      children

H-2 I am looking for the childr\_\_\_.      children

H-3 I am looking for the child\_en.      children

H-4 I am looking for the chil\_\_\_n.      children

H-5 They are looking for a kitty.      kitty

H-6 I am looking for the child\_\_\_.      children

H-7 I am looking for the \_\_ildren.      children

H-8 I am looking for the chi\_dren.      children

H-9 They are looking for a kitty.      kitty

H-10 I am looking for the chi\_\_ren.      children

H-11 They are looking for a kitt\_\_\_.      Kitty

H-12 I am looking for the c\_\_\_\_\_.      children

H-13 They are looking for a \_itty.      kitty

H-14 I am looking for the \_\_\_\_\_.

children

H-15 They are looking for a ki\_\_y.

kitty

H-16 The children have been good.

good

H-17 They are looking for a \_\_\_\_y.

kitty

H-18 The children have been goo\_\_.

good

H-19 They are looking for a k\_\_\_\_.

kitty

H-20 The children have been \_ood.

good

H-21 They are looking for a \_\_\_\_\_.

kitty

H-22 The children have been go\_\_.

good

H-23 I am looking for the children.

children

H-24 The children have been g\_\_d.

good

H-25 I am looking for the c\_\_\_\_\_.

children

H-26 The children have been g\_\_\_\_\_.

good

H-27 They are looking for a kitty.

kitty

H-28 The children have been \_\_\_\_\_.

good

H-29 They are looking for a \_\_\_\_\_.

kitty

H-30 I will find them a kitty.

will

H-31 I wi\_\_ find them a kitty.

will

H-32 I \_\_ll find them a kitty.

will

H-33 My sister can find one.

sister

H-34 I \_\_\_\_\_ find them a kitty.

will

I-1 My sister is a little girl.

sister

I-2 My sist\_\_ is a little girl.

sister

I-3 My \_ister is a little girl.

sister

I-4 He can see the girl.

He

I-5 My s\_\_ter is a little girl.

sister

I-6 \_e can see the girl.

He

I-7 My \_\_\_\_\_ is a little girl.

sister

I-8 \_\_ can see the girl.

He

I-9 She is the girl.

She

I-10 Sh\_ is the girl.

She

I-11 He can see her.

can

I-12 \_he is the girl.

She

I-13 He \_an see her.

can

I-14 \_\_\_e is the girl.

She

I-15 He \_\_\_n see her.

can

I-16 \_\_\_ is the girl.

she

I-17 He \_\_\_ see her.

can

I-18 Did she run home?

Did

I-19 She d\_d run home.

did

I-20 She di\_ run home.

did

I-21 He is her brother.

brother

I-22 She is my sister.

sister

I-23 She \_\_\_ run home.

did

I-24 She is my \_\_\_\_\_.

sister

I-25 It was time for her to go home.

time

- J-1 Bill is her brother.      brother
- J-2 Bill is her broth\_\_\_.      brothere
- J-3 Bill is her \_rother.      brother
- J-4 Bill and Mary have a ride to school.      have
- J-5 Bill is her brot\_er      brothere
- J-6 They hav\_ a ride to school.      have
- J-7 Bill is her bro\_\_er.      brothere
- J-8 They \_ave a ride to school.      have
- J-9 Bill is her bro\_\_\_\_.      brothere
- J-10 They ha\_\_ a ride to school.      havee
- J-11 Bill is her brother.      brother
- J-12 They \_\_\_\_e a ride to school.      have
- J-13 Bill is her b\_\_\_\_\_er.      brother

~~J-10 Bill is her brother.~~

~~brother~~

J-14 They \_\_\_\_ a ride to school.

have

J-15 Bill is her \_\_\_\_.

brother

J-16 They must be in school on time.

time

J-17 They must be in school on tim\_.

time

J-18 Bill and Mary like to ride.

and

J-19 They must be in school on ti\_e.

time

J-20 Bill an\_ Mary like to ride.

and

J-21 They must be in school on \_ime.

time

J-22 Bill \_\_d Mary like to ride.

and

J-23 They must be in school on t\_\_.

time

J-24 Bill \_\_\_\_ Mary like to ride

and

J-25 They must be in school on \_\_\_\_.

time

J-26 Bill is her brother.

brother

J-27 Miss Jones is going down to her room.

going  
down

J-28 Bill is her \_\_\_\_.

brother



K-1 Miss Jones is on the path. Miss Jones

K-2 Miss Jone\_ is on the path. Miss Jones

K-3 Miss \_ones is on the path. Miss Jones

K-4 Miss Jo\_es is on the path. Miss Jones

K-5 Miss Jo\_\_ is on the path. Miss Jones

K-6 Miss \_\_\_\_\_ is on the path. Miss Jones

K-7 She is going to town. going

K-8 Miss \_\_\_\_\_ is on the path. Miss Jones

K-9 \_iss Jones is on the path. Miss Jones

K-10 Ml\_\_ Jones is on the path. Miss Jones

K-11 M\_\_ J\_\_ is on the path. Miss Jones

K-12 She is going to town. going

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K-13	_____ is on the path.	Miss Jones
K-14	She is go <u>ing</u> to town.	go <u>ing</u>
K-15	Miss Jones looked <del>down</del> into the hole.	down
K-16	She is goin <u>g</u> to town.	go <u>ing</u>
K-17	She is go___ to town.	go <u>ing</u>
K-18	Miss Jones looked <u>down</u> into the hole.	down
K-19	She is _o <u>ing</u> to town.	go <u>ing</u>
K-20	Miss Jones looked do <u>n</u> into the hole.	do <u>wn</u>
K-21	She is __ <u>ing</u> to town.	go <u>ing</u>
K-22	Miss Jones looked _o <u>wn</u> into the hole.	do <u>wn</u>
K-23	She is _____ to town.	go <u>ing</u>
K-24	Miss Jones looked d___ into the hole.	do <u>wn</u>
K-25	She looked <u>up</u> at the sky.	up

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K-25 She looked up at the sky.

up

K-26 Miss Jones looked \_\_\_\_ into the hole.

down

K-27 She looked u\_ at the sky.

up

K-28 Miss Jones looked down into the hole.

Miss Jones

K-29 She looked \_\_ at the sky.

up

K-30 \_\_\_\_ looked down into the hole.

Miss Jones

L-1	The boy is <u>Bill</u> .	Bill
L-2	The boy is B <u>il</u> .	B <u>il</u>
L-3	The boy is _ <u>ill</u> .	<u>B</u> ill
L-4	He <u>went</u> to school.	<u>went</u>
L-5	The boy is B_ <u>il</u> .	B <u>il</u>
L-6	He _ <u>ent</u> to school.	<u>w</u> ent
L-7	The boy is ____.	Bill
L-8	He we_ <u>t</u> to school.	w <u>e</u> t
L-9	He w_ <u>nt</u> to school.	w <u>en</u> t
L-10	Bill <u>said</u> he was late.	said
L-11	He w____ to school.	w <u>en</u> t
L-12	Bill _ <u>aid</u> he was late.	<u>s</u> aid
L-13	He ____ to school.	went

L-13 He \_\_\_\_ to school.      went

L-14 Bill s\_id he was late.      said

L-15 Bill sa\_d he was late.      said

L-16 He did not stop to play.      not

L-17 Bill s\_\_d he was late.      said

L-18 He did \_ot stop to play.      not

L-19 Bill s\_\_\_ he was late.      said

L-20 He did n\_t stop to play.      not

L-21 Billl \_\_d he was late.      said

L-22 He did \_\_\_\_ stop to play.      not

L-23 Bill \_\_\_\_ he was late.      said

L-24 He saw other children.      children

L-25 He wanted to play with Peter and Mary.      with

L-26 He saw other \_\_\_\_ren.

children

L-27 He wanted to play \_\_\_\_ Peter and Mary.

with

L-28 They are brother and sister.

sister

L-29 He saw other child\_\_\_\_.

children

L-30 They are brother and \_\_\_\_.

sister

L-31 He saw other \_\_\_\_.

children

L-32 They are brother and sister.

brother

## REVIEW UNIT FOUR

- R-1 My brother rides to school. brother
- R-2 My broth\_\_ rides to school. brother
- R-3 My bro\_\_er rides to school. brother
- R-4 My \_rother rides to school. brother
- R-5 My \_\_\_\_ther rides to school. brother
- R-6 He rides with his sister. sister
- 
- R-7 My bro\_\_\_\_ rides to school. brother
- R-8 He rides with his sist\_\_\_. sister
- R-9 My \_\_\_\_\_ rides to school. brother
- R-10 He rides with his sis\_er. sister
- R-11 He rides with his \_\_\_\_ter. sister
- R-12 The children play at school. children

## REVIEW UNIT FOUR

R-13 He rides with his \_\_\_\_\_.

sister

R-14 The childr\_\_ play at school.

children

R-15 The child\_\_ play at school.

children

R-16 The \_\_ildren play at school.

children

R-17 The ch\_\_ren play at school.

chilren

R-18 Mother looks down the hole.

down

~~R-19 The child\_\_ play at school.~~

~~children~~

R-20 Mother looks dow\_ the hole.

down

R-21 The \_\_\_\_\_ren play at school.

chilren

R-22 Mother looks \_own the hole.

down

R-23 The \_\_\_\_\_ play at school.

children

R-24 Mother looks d\_\_n the hole.

down

R-25 Father is with Mother.

Father



## REVIEW UNIT FOUR

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WICH

R-26 Mother looks \_\_\_\_ the hole.

down

REVIEW UNIT FIVE

- R-1 Mother likes the house. Mother
- R-2 Moth\_\_ likes the house. Motherer
- R-3 Mo\_\_er likes the house. Mother
- R-4 \_other likes the house. Mother
- R-5 M\_\_\_er likes the house. Mother
- R-6 \_\_\_\_\_ likes the house. Mother
- R-7 She is with Father. with
- R-8 \_\_\_\_\_ likes the house. Mother
- R-9 She is wi\_\_ Father. withh
- R-10 She is w\_th Father. with
- R-11 She is \_\_th Father. with
- R-12 She said he went to school. said

## REVIEW UNIT FIVE

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- R-13 She is \_\_\_\_ Father. with
- R-14 She sa\_\_ he went to school. said
- R-15 She s\_\_d he went to school. said
- R-16 She \_\_id he went to school. said
- R-17 She \_\_d he went to school. said
- R-18 Father saw the truck. Father
- R-19 She \_\_\_\_ he went to school. said
- R-20 Fath\_\_ saw the truck. Father
- R-21 Fa\_\_er saw the truck. Father
- R-22 \_\_ther saw the truck. Father
- R-23 \_\_\_\_her saw the truck. Father
- R-24 \_\_\_\_er saw the truck. Father

## REVIEW UNIT FIVE

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R-25 \_\_\_\_\_ saw the truck.

Father

R-26 Where are the children?

Where  
children

R-27 \_\_\_\_\_ saw the truck.

Father