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An Item Analysis Comparison between Teaching and Achievement Testing in the Intermediate School of Wapato, Washington

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AN ITEM ANALYSIS COMPARISON BETWEEN TEACHING AND ACHIEVEMENT TESTING IN THE INTERMEDIATE SCHOOL OF WAPATO, WASHINGTON

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CHAPTER I

THE PROBLEM

The Intermediate building of the Wapato School District administered the Iowa Tests of Basic Skills (hereafter referred to as the ITBS) twice during the school year. The primary purpose of this testing was to measure the annual growth in skills of each student. The ITBS was used to measure those skills gained between the fall and spring testing.

The results of the comparison of the spring and fall testing reflected that students were not gaining a school year's advance on the test results for a school year's instruction. Appendix A, page 28, illustrates the spring and fall test scores for the 1969-1970 school year.

Several reasons could account for the small annual gain in student skill development. Beggs (2:10), in a study under Heironymous, the founder of the ITBS, stated that monthly growth does not proceed in a continuous, measurable and predictable rate. Motivating factors, either intrinsic or extrinsic, surely affect the learning during the school year. An example of this could be a student's dislike for his teacher. Parental or peer problems during the school term could impede skill development. One last reason might be the ineffectiveness of the

test being used to measure the students' growth. The test might not be testing the school programs effectively.

Research was needed to determine the relevancy of the ITBS to the course of study in the Intermediate building.

I. THE PROBLEM

Statement of the Problem

The study was undertaken to determine the appropriateness of the Iowa Tests of Basic Skills to the course of study in the Intermediate School of the Wapato School District.

Hypothesis

The hypothesis of this paper was formulated by the author through experiences in ITBS test administration and cross checking of curriculum materials and test items. The researcher believes that the ITBS does not adequately test what is being offered at the Intermediate School in Wapato.

Importance of the Study

Many schools have used the results of the ITBS as one facet of the determination of the approximate grade placement of the students. Wapato schools and the Yakima school district have used the ITBS for over ten years. One of the concerns of educators is the continual re-evaluation of curriculum and especially the means by which that curriculum is evaluated. Keeping the test as current as the course of study is an important task (19:23). Katz (9:52) states in

his article entitled, "Selecting an Achievement Test: Principles and Procedures", that testing should cover the areas prescribed in the curriculum objectives.

A study was needed in Wapato to determine whether or not the ITBS was testing the curriculum objectives.

Limitations of the Study

This study encompasses an item analysis of what was being taught in sixteen intermediate classrooms in the Wapato school district, six fourth-, six fifth-, and four sixth-grade rooms, and therefore is limited to them. An item analysis of what was specifically tested by the ITBS was also undertaken. A comparison of the two analyses was completed. One limitation is, then, to the concurrence between these two analyses.

The study was also limited in that the exterior validity was primarily dependent on the degree of objectivity maintained by each teacher in his self-evaluation of what was taught in his classroom.

II. PROCEDURES USED IN THE STUDY

This study began with each teacher in the building listing those items on the item analysis of the ITBS that he taught directly and indirectly. This information was compiled with a list of items that the teachers had assigned through workbooks, spelling books, and texts, to form a common core of study at each grade level. This core of study was then compared to the item analysis of the ITBS to

determine which items were taught that were also tested and which items were tested but not taught. Finally, some conclusions were made concerning the appropriateness of the testing to the course of study.

III. ORGANIZATION OF THE REMAINDER OF THE STUDY

The present chapter identified and stated the problem. Chapter II contains a review of related literature. Chapter III describes the procedures used in the study to gather the data. An analysis of the data is reported in Chapter IV. Chapter V presents a summary, conclusions, suggested courses of action, and recommendations implied by the study.

CHAPTER II

REVIEW OF RELATED LITERATURE

The Background and Current Use of the Iowa Tests of Basic Skills

Much of the research being done in elementary education uses some type of testing as an integral part. An often used test for this purpose is the Iowa Tests of Basic Skills (ITBS).

The ITBS was known earlier as the Iowa Every Pupil Test of Basic Skills. It was published in 1935. In 1940, grades three, four, and five were included in the test. By 1950, the battery was available to schools out of the state of Iowa (21:94-5). The present form of the ITBS was published in 1955 (8:172).

The ITBS has been used for many types of research projects: (1) It was used in psychological studies concerning personality comparisons (4:635-48); (2) It was used in bi-variate studies in reading (17:1063-68); (3) It has been compared to other tests of its type in an intensive study to determine which test battery was the best evaluative tool; (4) It has been used to compare experimental and control groups in subject matter studies (10:9-13); and finally (5) It has been used as a control for the evaluations of other tests (18:305-19). The test is respected by many

researchers in the field of education. But, the ITBS has some limitations.

One of the purposes of this review of the literature was to illustrate some of the problems that result when the ITBS is used in a school district for a long period of time. The analysis of the ITBS entails a brief discussion of its construction, advantages, and disadvantages.

The Construction of the Iowa Tests of Basic Skills

The ITBS consists of eleven separate tests for grades three through nine. All of the test items are included in one booklet. Each pupil takes only those items that are appropriate to his grade level. The time limits and answer sheets are the same in all grade levels, making it possible to test more than one group at a time (12:3).

The ITBS has five basic categories of subject matter skill testing. The test types and time limits are listed in Appendix B, page 29.

The reading section tests cover such items as: paragraph comprehension; locating and understanding significant details; organization of details; organization of ideas; and the appreciation of meanings. The general objective is to evaluate the students as to ability to read for meaning (8:172).

The math section of the test battery includes problems emphasizing the number system, terms, processes and operations, and units of measurement (8:194-5).

The complete list of the item analysis of the entire battery is included in Appendix C, pages 30 through 37. The content of each test emphasizes the use of knowledge skills rather than rote memory of facts (11:62). This is one of the many advantages of the ITBS.

Advantages of Using the Iowa Tests of Basic Skills

The most often mentioned merit of the ITBS was that it tested skills rather than knowledge retained (1:147). Many tests can be used that test the student on what he has learned through memorization. The ITBS tests the skills that the student has learned concerning the finding of information.

The ITBS was carefully researched in the early stages of its construction. Consequently, a test that aims toward the basic goals of education was developed (15:36). The ITBS is a product of the mistakes made in the construction of the Iowa Every Pupil Test of Basic Skills, which to some authors was a poor test (7:30). Lindquist and Hieronymus, the editors of the ITBS, used the failures of the Every Pupil Test to initiate the development of the ITBS. The total content of the ITBS is planned well and the format is effective and shows much forethought (11:64).

Many critics think the ITBS has reliability and validity. According to Katz (9:53-4) the ITBS has content, concurrent, predictive, and construct validity. Mehrens stated: "Content validity was emphasized in the construction

of the test, and the very thoroughness with which it was done is a major strength of the battery" (14:163).

The procedures and cross section of pupils used in establishing the national norms for the test were upheld strongly by Bauernfeind, an avid supporter of the test battery. Bauernfeind contended that: "The ITBS national norms appear to be as good as we are going to find" (1:278).

In analyzing the advantages of the ITBS, the battery appeared to be a practical instrument to use at the elementary level. As Herrick stated: "The real strength of the tests lies in their curricular validity, careful construction, provision of adequate norms based on national sample, and high reliabilities" (7:33). However, there are several authors who forwarded criticisms of the total battery.

The Criticisms of the Iowa Tests of Basic Skills

The criticisms of the ITBS were in the areas of content, mechanical handling, and interpretation of the results. The authors of the criticisms all preceded or followed their criticisms with comments typified by Morgan. He criticized the language section of the battery and immediately followed with this statement: "Nevertheless, the reviewer would strongly recommend the tests as a whole as the best of their kind and a model of test construction (15:36).

In an attempt not to discredit the ITBS it should be known, before an analysis of the criticisms is undertaken, that all of the authors cited herein made similar statements to the effect that although the ITBS has certain drawbacks, it is still the best test available. The purpose of referring to the criticisms is to amplify the hypothesis that in local areas the battery might not test exactly what is being taught.

Many critics attacked the ITBS for having discrepancies in the content areas of the individual subtests. Herrick criticized the arithmetic section of the ITBS for being concept oriented. He thought that it should not be used for the purposes of evaluation of computational skills because this facet is not effectively tested in the subtest (7:33). Herrick also stated: "The test will be extremely hard for students in an area where heavy emphasis is placed on computational skills" (7:33).

The reading subtest also came under attack by Herrick who contended that the skills of knowing and comprehending, critical thinking, and creative thinking were overlooked (7:31).

The subtests in reading and arithmetic may have been good general test devices, but they must be evaluated as to the appropriateness in administering them at the local level. This point is again illustrated by Mehrens who criticized the work-study skills subtest. His basic opposition to the test was that it was of little use where the individual

skills were not taught (14:164). Mehrens also attacked the language subtest for relying too much on capitalization and spelling (14:164).

The ITBS has been criticized for having certain mechanical problems in the administrating of the battery and too much emphasis being placed on the expedition of the scoring process. Lindon (11:64) contended that although the battery was a good one, the time required to take it makes its selection as an evaluative tool prohibitive in some school districts. He felt that the validation data should be more readily available to the teacher and in a more readable form in the teacher's manual (11:64).

Thorndike (20:283) felt that due to the length of time given in the reading subtest that it did not test the expertise of the reader. He felt that a slow powerful reader could not be differentiated from the fast, non-comprehending reader. This fact leads to the misinterpretation of the test scores.

Oftentimes, tests were limited in scope to accommodate the individual involved in grading the test. Morgan contended that this was the situation in the language subtest:

> The language tests tend to lack width and imagination; too high a price may have been paid here for the advantage of technical efficiency in objective response form and rapid scoring (15:36).

McCracken (13:367) points out that the scores given by the various companies that provide the service for the

ITBS can often be misleading. The reading levels given were much too high for the teachers to regard them seriously. McCracken stated that the use of these grade level placements in student grouping should be used with care (13:368).

Grade placements were criticized by Beggs in his study under Heironymous, the founder of the ITBS. Beggs, in his research, suggests that students may not advance at exactly one month of progress for every one month of instruction (2:10). This comment should be used in any analysis of the ITBS as a testing instrument.

Summary

The Iowa Tests of Basic Skills has a background of validity and reliability as an elementary school evaluative tool. All of the authors mentioned recommended it highly as a good example of a test battery of skill development. The criticisms of the ITBS focus at the problem that needed clarification in this paper. Was the situation in the Intermediate building of Wapato, Washington, one that fits the many examples given? Did the ITBS effectively test what was being taught? The authors suggest that the answers depend on the situation in the local community. The hypothesis of this paper is, "No, the test does not test what is being taught in Wapato." The next two chapters will proceed to accept or reject this hypothesis.

CHAPTER III

PROCEDURES

Procedures Used in the Study

The purpose of this study was to discover if the ITBS were testing what was being taught in the Intermediate building of the Wapato School District. To accomplish this task, an item analysis of what was being tested by the ITBS was used as a guideline for conducting an interview with each teacher. The results of this interview and an analysis of teaching materials were compiled and reduced to table form. These tables were then compared to the original item analysis to determine which items were taught and tested, and which items were not taught and tested by the ITBS. This procedure was used on the following sample of teachers.

Sample Selection

There were seventeen regular classroom teachers in the intermediate school at Wapato. Six fourth-, six fifth-, and four sixth-grade teachers volunteered to be in the study. An interview was conducted with each of these teachers to obtain the data needed to complete the study. This sample of teachers provided the sources of data.

Sources of Data

The primary sources of information were the sixteen classroom teachers discussed in the last section. During an interview these teachers recorded on the item analysis of the ITBS which items they taught directly, which items they taught indirectly, and which items they did not teach at all. Appendix C, pages 30 through 37, illustrates the item analysis of the ITBS. During this interview, copies of all of the workbooks, texts, and other supplementary materials assigned were collected for further analysis. This analysis was performed to detect other indirectly taught items. A list of related readings were analyzed to illustrate the need for the study and aid in the formulation of the problem. These data were then analyzed to produce the findings of the study.

Treatment of the Data

After the data were gathered it was necessary to group them. The items directly taught by the teachers were grouped by grade level. The items commonly taught by all of the teachers or all of the teachers less one at a particular grade level were sufficient to constitute a common core of directly taught materials. To be considered directly taught, an item had to be presented to the class by the teacher. The next treatment was to determine the indirectly taught items.

Each teacher designated on the ITBS items analysis those items they felt were indirectly taught in their

classrooms. An indirectly taught item was one that was encountered in assigned work but not formally presented to the class by the teacher. A sample of all of the supplementary materials assigned in each classroom was examined for items indirectly taught at each grade level. These two lists were combined in Appendix D, page 38. The next step was to compare this data to the original item analysis of the ITBS.

The item analysis of directly and indirectly taught information was compared to the original ITBS item analysis. The results of that comparison are discussed in Chapter IV.

Summary

It was the purpose of this chapter to present the procedures used in this study. The data were analyzed and placed in table form. The findings which follow are based on the analysis described.

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of this study was to determine if the items tested by the ITBS in the Intermediate building of the Wapato School District were being taught by the teachers at the three grade levels. The teachers were interviewed, the materials were perused, and the data were reduced to table form for analysis.

Appendix D, pages 38 through 46, lists which items are tested in each of the four forms of the ITBS and which items were taught directly or indirectly at each grade level. Each numerical listing corresponds to the item analysis illustrated in Appendix C, pages 30 through 37. Appendix D, page 38, graphically illustrates what is being taught at each grade level in the Intermediate building at Wapato. The following is an analysis of Appendix C, page 30, and Appendix D, page 38, made to combine the grade levels into catagories of items taught in the Intermediate building.

Vocabulary

The areas of phonics, context clues, word meanings and fine differences in meanings were all taught at the fourth grade level. These were the basic items included in the ITBS item analysis. The fifth-grade teachers did not teach the areas of context clues or fine differences in

meaning. The sixth-grade teachers eliminated phonics and fine differences in meaning from their offerings.

Reading Comprehension

The teachers in all three grade levels taught several of the items under the heading of Reading Comprehension. The teachers presented materials for the development of skills in the general area of reading for and recognizing details and facts. All levels forwarded lessons on deducing the meanings of the author from context, determining the main idea of a paragraph or selection, purpose of a selection, and the evaluation of reading materials. The areas least taught were in the realm of teaching the student to recognize viewpoint, attitude, tone style, and the comparison of ideas of different authors.

Spelling

In the area of Spelling, the three grade levels commonly taught skills in working with double letter, plurals, final e, and substitutions using the letters f, ft, ph, v, t, and ed. The area most commonly ignored in all three grade levels was the area of letter substitution. The letter substitutions not taught were c, ck, k, l, el, le, all vowels, w, u, ou, ue, x, xs, xc, cc, y, r, er, or, and ey.

Capitalization

The teachers at the three grade levels taught fifteen of the twenty-three capitalization rules listed on the ITBS

item analysis. The areas not taught encompassed primarily the more difficult parts of speech such as proper adjectives or nouns designating definite geographic locations.

Punctuation and Usage

The area of Punctuation and Usage is quite comprehensively tested in the ITBS. In the Intermediate building, the three grade levels commonly taught several areas listed on the ITBS item analysis. All rules for using the period were taught at all three levels. Other areas commonly taught were: six of the thirteen rules for the use of the comma; two of the three rules for apostrophe use; none of the rules for the use of quotation marks; one of the five uses of the colon; one of the three uses of pronouns; and one of the three verb usage rules, adjective rules, and adverb rules. Homonyms were covered at all three levels. The avoidance of double negatives and usage redundancies was not taught at any level.

Map Reading

There were twenty skills listed on the ITBS item analysis under the area of Map Reading. Only seven of the twenty items were commonly taught at the three grade levels. Parallels and meridians in determining direction, map symbols, key use, latitude and longitude, scales of miles, seasonal differences in geographic areas, and time zones were the concepts taught by the teachers at the three grade levels.

The thirteen concepts not taught were basically inference and comparison skills. These skills are at the upper levels of the cognitive domain.

Reading Graphs and Tables

One of the thirteen concepts in the area of Graphs and Tables was commonly taught at the three grade levels. The concept taught was that of reading amounts by the use of bar, line, and picture graphs. The twelve areas not taught dealt with interpretation, determination of comparisons, and parallel comparisons in graphs and tables.

Knowledge and Use of Reference Materials

There are twenty-three skills listed on the item analysis of the ITBS in the area of Reference Materials. Eleven of the twenty-three items were commonly taught at the three grade levels. The items taught were in the following areas: alphabetizing; use of the table of contents; use of the dictionary for spelling, pronunciation use, and meanings of words; use of the calendar, maps, globes, textbooks, and encyclopedias. The areas not taught were the uses of the more difficult reference materials and finer usage of the dictionary.

Arithmetic Concepts

In the ITBS item analysis, the area of Arithmetic Concepts is divided into ten areas. Each area is then subdivided. In the area of currency, one of the four items listed is commonly taught at the three grade levels.

The ratio of taught items as compared to items listed on the ITBS item analysis was as follows: currency, one of four; decimals, four of seven; equations, none of one; fractions, two of six; geometry, two of six; measurement, one of eight; numerals and number systems, four of eight; and whole numbers, five taught of the eight listed. The area of Arithmetic Concepts was one area showing the least school year gain in skill development.

Arithmetic Problem Solving

The three grade levels in the Intermediate building commonly taught two of the eight areas listed under the title of Arithmetic and Problem Solving. Items comprehensively covered at all three grade levels were in the areas including skills in using fractions and whole numbers. The items not commonly covered in the grade level offerings were in the areas of currency, decimals, geometry, measurement, per cents, and ratio and proportion.

Appendix D, page 38, gives an exact delimitation of the material presented in the text above.

Table 1, pages 20 through 21, offers comparisons of the items included in Appendix D, page 38. The data listed in Table 1, page 20, constituted the findings of this study. As an example of the data found and grouped in Table 1, page 20, the following discussion of grade four and Form 1 was offered.

Table 1

Summary of Testing and Teaching in the Intermediate School In the Wapato School District During the 1969-70 School Year

Appendix D Data for Forms 1, 2, 3, and 4	Grade 4	Grade 5	Grade 6
Total number of items included in the ITBS	231	231	231
Total number of items directly taught	84	78	61
Total number of items indirectly taught	13	16	66
FORM 1			
Number of items tested	125	134	139
Number of items directly taught and tested	70	57	42
Number of items indirectly taught and tested	6	13	46
Per cent of tested items directly taught	56.0	42.5	30.2
Per cent of tested items indirectly taught	4.9	9.7	33.1
Number of items directly taught and not tested	14	21	19
Number of items indirectly taught and not tested	7	3	20
FORM 2			
Number of items tested	115	123	132
Number of items directly taught and tested	66	52	41
Number of items indirectly taught and tested	5	11	43
Per cent of tested items directly taught	57.4	42.3	31.1
Per cent of tested items indirectly taught	4.3	8.9	32.6
Number of items directly taught and not tested	18	26	20
Number of items indirectly taught and not tested	8	5	23

Table 1 (continued)

Appendix D Data for Forms 1, 2, 3, and 4	Grade 4	Grade 5	Grade 6
FORM 3			
Number of items tested	117	132	141
Number of items directly taught and tested	61	57	48
Number of items indirectly taught and tested	5	11	41
Per cent of tested items directly taught	52.1	43.2	34.0
Per cent of tested items indirectly taught	4.3	8.3	29.1
Number of items directly taught and not tested	23	21	13
Number of items indirectly taught and not tested	8	5	25
FORM 4			
Number of items tested	124	131	137
Number of items directly taught and tested	67	57	46
Number of items indirectly taught and tested	7	11	42
Per cent of tested items directly taught	54.0	43.5	33.6
Per cent of tested items indirectly taught	5.6	8.4	30.7
Number of items directly taught and not tested	17	21	15
Number of items indirectly taught and not tested	6	5	24

It is noticed on Form 1 that out of 125 items tested for grade four, 56 per cent of those items were directly taught and 4.9 per cent indirectly taught. Seventy-six out of 125 items were taught, therefore meaning that forty-nine of the 125 or 25.5 per cent of the items were tested but not taught by the teachers in the fourth grade. Also, there were twenty-one items taught by the fourth-grade teachers that were not tested by the same test.

Appendix E, page 47, is a numerical listing of the items tested by one or more of the forms of the ITBS, but not tested at the three separate grade levels. The numbers listed correspond to the numbered items in Appendix C, pages 30 through 37.

Several points were important enough to be enumerated in the following analysis of Table 1, page 20:

1. The number of items and the type of items tested on each form differed;
2. Less than 58 per cent of the items tested in the fourth grade were directly taught in the fourth grade. Less than 6 per cent were indirectly taught;
3. Less than 44 per cent of the items tested in the fifth grade were directly taught in the fifth grade. Less than 10 per cent were indirectly taught;
4. Less than 34 per cent of the items tested in the sixth grade were directly taught in the sixth grade. Less than 34 per cent were indirectly taught;

5. Many items taught in the Intermediate building were not tested.

The Intermediate building used the ITBS as a tool to test those skills attained from the fall testing to the spring testing. This type of testing arrangement did not account for skills already taught at a previous grade level. Skill testing should be used on those skills taught, if a testing device is to be totally efficient. A summary and several possible courses of action were made in Chapter V. These courses of action could increase the efficiency of the skill testing in the Intermediate building of the Wapato School District.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the appropriateness of the Iowa Tests of Basic Skills to the course of study in the Intermediate School of the Wapato School District. Sixteen teachers volunteered to submit their individual curricula to be reduced to an item analysis and compared to the item analysis of the ITBS. When this task was accomplished, some conclusions, possible courses of action, and recommendations were formulated.

Conclusions of the Study

The study revealed that those items tested in the Intermediate School in Wapato, Washington, were not all taught in the grade level for which they were being tested. Of the total items tested by the ITBS, less than 58 per cent in the fourth grade, 44 per cent in the fifth grade, and 34 per cent in the sixth grade were directly taught. The indirectly taught items percentages were: 6 per cent in the fourth grade; 10 per cent in the fifth grade; and 34 per cent in the sixth grade.

Many items taught in the three grade levels studied were not tested by the four forms of the ITBS. Thus, the test results did not reflect all of the skills attained at each grade level.

The study revealed that the four forms tested different numbers of items and different types of items; therefore, an analysis of fall and spring testings was comparing some unlike items.

Several courses of action were implied by this study that could be considered in Wapato to make the results of the testing program more valid as one of the tools used for student placement and evaluation.

Possible Courses of Action Implied by the Study

Some possible changes in the testing and teaching situation in the Intermediate building of the Wapato School District were implied by the results of this study:

1. The district could alter their curriculum offerings in the Intermediate building to coincide with those items tested by the ITBS at each grade level;
2. The district could engage a new testing device that tested those items taught in the Intermediate building at each grade level and retain the program offered;
3. The district could eliminate the use of any testing device in the Intermediate building and retain the curriculum offerings;
4. If the district retained the testing device and the curriculum offered at the Intermediate building, then the district should limit the testing to one testing each year to offset the form differences.

This one testing period would also reflect accumulated knowledge rather than annual skill growth between fall and spring testing periods.

Recommendations

A recommendation implied by the study is that the Intermediate building in Wapato launch a curriculum study of all subjects in the three grade levels studied. This curriculum study should be made by the entire staff to insure the outcome would be implemented in all of the classrooms. After the new curriculum is established, the members of the study committee should seek or construct an evaluative tool to measure the student progress under the new curriculum.

The procedure of testing in the Intermediate building of the Wapato School District did not accurately predict or evaluate student progress. Further research was needed to correct the discrepancies noted by this item analysis of teaching and testing in the Intermediate building of the Wapato School District.

APPENDICES

APPENDIX A

REPORT OF GRADE LEVEL AVERAGES FOR SPRING AND FALL TESTING SESSIONS FOR THE 1969-70 SCHOOL YEAR*

Item	4th Grade			5th Grade			6th Grade		
	Fall	Spring	Growth	Fall	Spring	Growth	Fall	Spring	Growth
Vocab.	35.1	40.4	5.3	46.9	52.4	5.5	56.3	62.5	6.2
Read.	34.8	40.9	6.1	47.4	52.6	5.2	60.3	62.3	2.0
Spell.	37.0	44.1	7.1	49.1	59.8	10.6	62.9	63.7	.8
Capit.	33.0	39.7	6.7	42.1	54.8	12.7	61.1	62.1	1.0
Punct.	34.2	41.7	7.5	44.0	55.9	11.9	60.7	61.0	.3
Usage	32.3	38.6	6.3	44.0	49.9	5.9	52.4	58.3	5.9
Tot. Lang.	34.1	41.1	7.0	44.8	55.1	10.3	59.3	61.3	3.0
Maps	37.3	43.1	6.8	50.1	55.2	5.1	66.7	66.5	- .2
Graphs	38.0	43.0	5.0	49.0	52.6	3.6	61.3	62.1	.8
Ref.	37.3	43.3	5.0	49.4	57.0	7.6	60.5	63.7	3.2
Tot.	37.5	43.2	5.7	49.6	54.9	5.3	62.8	64.1	1.3
Arith. Concept	35.6	41.7	6.1	46.2	49.0	2.8	54.6	60.2	5.6
Arith. Problem	34.5	40.7	6.2	45.9	49.7	3.8	60.0	62.0	2.0
Total Arith.	35.0	41.2	6.2	46.0	49.3	3.3	57.3	61.1	3.8
Compos.	35.3	41.3	6.0	46.9	52.9	6.0	59.2	62.3	3.1

*All numerals recorded in months.

APPENDIX B

SUBJECT AND TIME LIMITATIONS OF THE IOWA TESTS OF BASIC SKILLS

Test Heading	Test Subheading	Test Title	Time Allowance
Test V		VOCABULARY	17 minutes
Test R		READING COMPREHENSION	55 minutes
Test L		LANGUAGE SKILLS	67 minutes
	L-1	Spelling	12 minutes
	L-2	Capitalization	15 minutes
	L-3	Punctuation	20 minutes
	L-4	Usage	20 minutes
Test W		WORK-STUDY SKILLS	80 minutes
	W-1	Map Reading	30 minutes
	W-2	Reading Graphs and Tables	20 minutes
	W-3	Knowledge and Use of Reference Materials	30 minutes
Test A		ARITHMETIC SKILLS	60 minutes
	A-1	Arithmetic Concepts	30 minutes
	A-2	Arithmetic Problem Solving	30 minutes

(12:3)

APPENDIX C

ITEM ANALYSIS OF THE IOWA TESTS OF BASIC SKILLS

Item No.	Item Title
	VOCABULARY
1	Phonics
2	Context clues
3	Knowledge of word meanings
4	Sensitivity to fine differences in meaning
	READING COMPREHENSION
5	Reading for detail
6	To recognize and understand important facts and details
7	To recognize and understand implied facts and relationships
8	To deduce the meaning of words or phrases from context
9	Purpose to reading
10	To detect the main purpose of a paragraph or selection
11	To recognize the main idea or topic of a paragraph or selection
12	To develop ability to organize ideas
13	To recognize common elements or parallel topics in incidents or paragraphs
14	To recognize proper time sequence
15	To develop skill in evaluating what you read
16	To develop generalizations from a selection
17	To recognize the writer's viewpoint, attitude, or intention
18	To recognize the mood or tone of a selection
19	To recognize outstanding qualities or style or structure
	SPELLING
20	Double letter
21	Final e and e before a suffix
22	f, ft, ph, v substitutions
23	Interchanged letters
24	c, ck, k substitutions
25	l, el, le substitutions
26	Plural forms
27	r, er, or substitutions
28	s, sc, sh, c, ch, t, z substitutions
29	t, ed substitutions
30	Vowel substitutions
31	w, u, ou, ue substitutions
32	x, xs, xc, cc substitutions
33	y, ey, i substitutions

APPENDIX C (continued)

Item No.	Item Title
	CAPITALIZATION
34	The pronoun I
35	Names of persons or animals and initials of persons
36	Words indicating family relationship, when used specifically and without a possessive pronoun
37	Titles of respect, honor, or rank
38	First word of a sentence
39	First word in a quotation
40	In writing letters, the first word and the word which stands in place of the person's name in the salutation
41	In writing letters, the first word of the complimentary close
42	Abbreviations
43	Days of the week
44	Names of the months
45	Names of holidays and religious days
46	Titles of books, music, magazines, etc.
47	Names of cities and states
48	Names of countries and continents
49	Nouns which designate definite geographic portions of the country
50	Names of streets, avenues, etc.
51	Names of rivers, oceans, canals, mountains, etc.
52	Names of buildings, schools, parks, etc.
53	Names of racial, political, or religious bodies
54	Proper adjectives
55	Names of specific organizations
56	Names of important historical periods or events
	PUNCTUATION: USE OF THE PERIOD
57	At end of complete declarative sentence
58	With abbreviations
59	With initials standing for name
60	PUNCTUATION: USE OF THE QUESTION MARK
	PUNCTUATION: USE OF THE COMMA
61	To separate words in series
62	To separate names of city and state
63	To separate date of month and year
64	At end of complimentary close of letter
65	At end of salutation in friendly letter
66	To set off introductory or parenthetical adverbs
67	To set off "yes" and "no"
68	To set off words in apposition

APPENDIX C (continued)

Item No.	Item Title
	PUNCTUATION: USE OF THE COMMA (continued)
69	In a compound sentence, to set off independent clauses joined by such conjunctions as "and" and "but"
70	In direct discourse, to separate quotation from the rest of the sentence
71	In direct address, to set off name of person addressed
72	To set off dependent clauses and phrases preceding the main clause
73	To set off non-restrictive phrases or clauses
	PUNCTUATION:USE OF THE APOSTROPHE
74	In contractions
75	In forming the possessive of nouns
76	In specific words
	PUNCTUATION: USE OF DOUBLE QUOTATION MARKS
77	Before and after a direct quotation
78	With titles
79	Position with reference to other punctuation
	PUNCTUATION: USE OF THE COLON
80	After salutation of a business letter
81	Preceding an enumeration of items
82	To separate numbers indicating clock time
83	Use of semicolon to separate co-ordinate clauses not joined by a conjunction
84	Use of exclamation mark
	USAGE: USE OF PRONOUNS
85	Case forms
86	Agreement with antecedent
87	Order of first person pronouns in compound construction
	USAGE: USE OF VERBS
88	The past tense
89	The past participle
90	Agreement of subject and verb
	USAGE: USE OF ADJECTIVES AND ADVERBS
91	Forms commonly confused
92	Articles
93	Comparative and superlative forms

APPENDIX C (continued)

Item No.	Item Title
	USAGE: GENERAL
94	Avoidance of double negative
95	Avoidance of redundancies
96	Homonyms commonly confused
	MAP READING
	Ability to orient map and determine direction
97	To determine direction from orientation
98	To determine direction from parallels or meridians
99	To determine direction of river flow or slope of land
	Ability to locate places on maps and globes
100	Through the use of standard map symbols
101	Through the use of a key
102	Through the use of distance and/or direction
103	Through the use of latitude or longitude
	Ability to determine distances
104	Determining distance on a road map
105	Determining distance by using a scale of miles
106	Determining distance on a globe
107	Comparing distances
108	Ability to determine or trace routes of travel
109	Ability to visualize landscape features
	Ability to infer man's activities or way of living
110	From physical detail
111	Ability to recognize differences in seasons and hours of daylight in different latitudes
112	Ability to determine differences in time zones
	Ability to read and interpret facts from pattern maps
113	To read and compare facts from a single pattern map
114	To read and compare facts from two or more pattern maps
115	To visualize landscape features
116	To infer man's way of living
	READING GRAPHS AND TABLES
117	To comprehend from the title, the topic on which a graph gives information
118	To recognize from subtitles and row or column headings what is shown by each part of a graph or table
	To read amounts
119	By using the scale (or scales) on bar, line, and picture graphs
120	By interpreting the sectors of a circle on circle graphs

APPENDIX C (continued)

Item No.	Item Title
	READING GRAPHS AND TABLES (continued)
121	By locating a cell in a table
122	By using special symbols and a key
	To compare two or more values read from a graph or table
123	By determining how many times greater one amount is than another
124	By determining the relationship between amounts
125	To determine relative rates or trends
126	To realize that percentages and proportions do not give absolute amounts
127	To determine underlying relationships through correct interpretations of a graph
128	To grasp the outstanding facts portrayed by a graph
129	To determine rank from an unordered list, graph, or chart
	KNOWLEDGE AND USE OF REFERENCE MATERIALS
130	Skill in alphabetizing
131	Using the Table of Contents
132	Using the dictionary to find spelling
133	Using the dictionary to find pronunciation
134	Using the dictionary to find syllabification
135	Using the dictionary to find plural forms
136	Using the dictionary to find parts of speech
137	Using the dictionary to find the meaning
138	Use of the Encyclopedia
139	Using dictionary guide words
140	Using the index
141	Using key words
	Using general reference materials
142	Use of a calendar
143	Use of maps and globes
144	Use of textbooks
145	Use of the dictionary
146	Use of atlases
147	Use of encyclopedias
148	Use of special references such as "Who's Who" or "Almanac"
149	Use of current magazines
150	Use of the parts of a book: index, table of contents, etc.
151	Book selection
152	Using a word list

APPENDIX C (continued)

Item No.	Item Title
	ARITHMETIC CONCEPTS
	Currency (Money)
153	Reading and writing amounts
154	Counting
155	Relative values of coins
156	Making change
	Decimals
157	Reading and writing
158	Relative sizes
159	Rounding
160	Fraction, decimal, per cent equivalents
161	Fundamental operations: ways to perform
162	Fundamental operations: estimating results
163	Equations
	Fractions
164	Part of a whole and part of a group
165	Relative sizes
166	Reducing
167	Terms
168	Fundamental operations: ways to perform
169	Fundamental operations: estimating results
	Geometry
170	Parallel and perpendicular lines
171	Recognizing kinds of geometric figures
172	Angles and triangles
173	Dimensions, perimeters, and areas of polygons
174	Parts and areas of circles
175	Use of a protractor and compass
	Measurement
176	Quantity
177	Time
178	Temperature
179	Weight
180	Length (use of a ruler, precision)
181	Area and volume
182	Liquid and dry capacity
183	Fundamental operations with compound denominate numbers
	Numerals and number systems
184	Counting
185	Ordinals
186	Place value and zero as a place holder
187	Roman numerals
188	Odd and even numbers
189	Positive and negative numbers

APPENDIX C (continued)

Item No.	Item Title
	ARITHMETIC CONCEPTS (continued)
190	Per cents: meaning and use
191	Ratio and proportion
	Whole numbers
192	Reading and writing
193	Relative sizes
194	Rounding
195	Partition and measurement: average
196	Fundamental operations: terms
197	Fundamental operations: number facts
198	Fundamental operations: ways to perform
199	Fundamental operations: estimating results
	ARITHMETIC PROBLEM SOLVING
	Currency
200	Addition
201	Subtraction
202	Multiplication
203	Division
	Decimals
204	Addition
205	Subtraction
206	Multiplication
207	Division
	Fractions
208	Addition
209	Subtraction
210	Multiplication
211	Division
	Geometry
212	Addition
213	Subtraction
214	Multiplication
215	Division
	Measurement
216	Addition
217	Subtraction
218	Multiplication
219	Division
	Per Cents
220	Addition
221	Subtraction
222	Multiplication
223	Division

APPENDIX C (continued)

Item No.	Item Title
	ARITHMETIC PROBLEM SOLVING (continued)
	Ratio and Proportion
224	Addition
225	Subtraction
226	Multiplication
227	Division
	Whole numbers
228	Addition
229	Subtraction
230	Multiplication
231	Division

(12:27-50)

APPENDIX D

A COMPARISON OF THE ITEMS TESTED ON THE FOUR FORMS OF THE IOWA TESTS OF BASIC SKILLS AND THE ITEMS TAUGHT DIRECTLY (D) OR INDIRECTLY (I) IN THE THREE GRADE LEVELS IN THE INTERMEDIATE BUILDING OF WAPATO SCHOOLS

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
1		*	*	*	*	*		*	*	*	*	*		*	*	*	*		
2		*	*	*	*		*	*	*	*	*			*	*	*	*	*	
3		*	*	*	*	*		*	*	*	*		*	*	*	*	*		*
4		*	*	*	*		*	*	*	*	*			*	*	*	*		
5							*					*							*
6		*	*	*	*		*	*	*	*	*		*	*	*	*	*	*	
7		*	*	*	*			*	*	*	*			*	*	*	*		*
8		*		*	*	*		*		*	*		*	*	*	*	*		*
9							*						*						
10		*	*	*		*		*	*	*			*	*	*	*	*		*
11		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
12							*						*						*
13		*		*				*		*				*	*	*	*		
14		*	*	*	*	*		*	*	*	*			*	*	*	*		*
15							*												*
16		*	*	*	*			*	*	*	*			*	*	*	*		*
17		*	*	*	*			*	*		*				*	*	*		
18			*	*				*	*	*	*			*	*		*		
19					*						*						*		
20		*	*	*	*	*		*	*	*	*			*	*	*	*		*
21		*	*	*	*	*		*	*	*	*		*	*	*				*
22						*													
23		*		*	*			*		*	*			*	*	*	*		

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
24		*	*		*	*		*	*	*	*			*	*	*			
25		*	*	*	*	*		*	*	*	*			*		*	*		
26					*	*		*				*		*	*				*
27																			
28		*	*	*	*	*		*	*	*	*			*	*	*	*		*
29			*		*	*													
30		*	*	*	*		*	*	*	*	*			*	*	*	*		
31				*				*	*	*				*	*	*			
32								*			*			*	*		*		
33		*	*	*	*	*		*	*	*	*			*	*	*	*		
34			*	*	*	*						*						*	
35		*	*	*	*	*		*	*	*	*	*		*		*	*	*	
36		*	*	*	*			*	*	*	*			*		*	*	*	
37		*	*	*	*			*	*	*	*		*	*		*			*
38		*	*	*	*	*			*	*	*	*			*	*	*	*	
39		*				*		*				*		*		*	*	*	
40						*	*				*	*		*	*	*	*	*	
41		*	*	*	*	*		*	*	*	*	*							*
42					*	*					*	*			*	*	*	*	
43		*	*	*	*	*		*	*	*	*	*				*	*		*
44		*	*		*	*		*			*	*		*					*
45		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
46		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
47		*	*	*	*	*		*	*	*	*	*		*	*	*		*	
48		*	*	*	*	*		*		*	*	*				*		*	
49		*						*	*					*	*				*
50		*	*	*	*	*		*		*	*	*			*	*	*	*	
51		*	*	*	*	*		*		*	*	*		*	*	*	*	*	

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
52			*	*	*		*	*	*	*	*	*		*	*	*	*		*
53			*		*			*	*		*			*	*		*		
54		*	*	*	*			*	*	*	*		*	*		*	*		
55			*	*					*	*	*			*	*	*	*		*
56									*						*	*	*		
57		*	*	*	*	*		*	*	*	*	*			*	*	*	*	
58		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
59				*	*	*				*	*	*							*
60		*	*	*	*			*	*	*	*			*	*	*	*	*	
61		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
62		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
63		*	*	*	*	*		*	*			*		*	*			*	
64		*	*	*	*	*		*	*	*	*	*				*	*	*	
65		*	*	*	*	*		*	*	*	*	*						*	
66																			
67																			
68				*						*				*		*			
69														*	*	*	*		
70		*						*	*	*	*	*		*	*	*	*		*
71												*							
72																			
73																			
74		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
75		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
76		*		*	*			*		*	*				*	*			
77		*	*	*	*			*	*	*	*			*	*	*	*	*	
78								*						*		*	*		

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
79																	*		
80														*	*	*	*		
81																			
82		*		*	*				*		*								
83					*						*					*	*		
84						*						*		*			*	*	
85		*	*					*	*	*	*			*	*	*	*		*
86																			*
87		*	*	*	*			*	*	*	*								*
88								*					*	*		*		*	
89		*	*	*	*			*	*	*	*			*	*	*	*		*
90		*	*	*	*			*	*	*	*			*	*	*	*		*
91		*						*						*	*		*		
92												*						*	
93		*	*	*	*			*	*	*	*			*	*	*	*	*	
94		*	*	*	*			*	*	*	*			*	*	*	*		
95		*	*	*	*			*	*	*	*			*	*	*	*		
96																			*
97			*	*	*			*		*		*		*		*			*
98															*	*	*	*	
99			*	*	*				*	*	*			*	*	*			
100		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
101		*	*		*	*		*	*	*	*	*		*	*	*	*		*
102		*	*	*	*			*	*	*	*		*	*	*	*	*	*	
103														*	*	*	*	*	
104		*	*			*		*	*	*	*			*	*	*	*		
105		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
106									*					*	*				

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
107		*	*	*	*			*	*	*	*		*	*	*	*	*		
108		*	*	*	*	*		*	*	*	*			*	*	*	*		
109		*	*	*	*			*	*	*	*			*	*		*		
110		*	*	*	*			*	*	*	*			*	*	*	*		
111														*	*	*	*		*
112														*	*	*	*		*
113		*	*	*	*			*	*	*	*			*	*	*	*		
114				*						*				*	*	*	*		
115														*					
116		*			*		*	*			*			*	*	*	*		
117		*			*						*						*		
118					*		*			*						*			
119		*	*	*	*	*		*	*	*	*			*	*	*	*		*
120		*	*	*	*			*		*	*			*		*	*		*
121		*		*	*			*	*	*	*			*	*	*	*		
122		*		*		*				*				*					*
123		*	*		*			*	*	*	*				*	*	*		*
124		*	*	*	*			*	*	*	*			*	*	*	*		*
125		*		*	*			*	*	*	*			*	*	*	*		
126																			
127		*	*	*	*			*	*	*	*			*		*	*		
128			*					*	*	*	*			*	*	*	*		*
129		*	*	*	*			*	*	*				*	*	*	*		
130		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
131		*	*	*	*	*		*	*	*	*	*						*	
132		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
133		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
134		*	*	*	*	*		*	*	*	*			*	*	*	*		
135		*					*	*						*					*
136			*	*	*				*	*	*				*	*	*	*	
137		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
138		*	*	*	*	*		*	*	*	*	*		*	*	*	*		
139						*						*		*	*	*	*		
140		*	*	*	*	*		*	*	*	*	*		*	*	*	*		
141						*						*		*	*	*	*		
142						*													
143		*	*		*	*		*	*		*		*	*	*		*	*	
144				*		*				*		*				*		*	
145		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
146		*		*	*			*		*	*			*		*	*	*	
147		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
148			*	*	*				*	*	*				*	*	*		
149		*	*		*			*	*		*			*	*		*		
150		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
151		*	*	*		*		*	*	*				*	*	*			
152																			
153			*			*						*						*	
154		*		*		*				*									*
155		*			*	*					*								*
156		*	*			*		*	*	*	*					*	*		*
157														*	*			*	
158														*	*	*		*	
159														*	*				
160															*			*	
161														*	*				*

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
162		*						*	*					*	*				*
163						*	*			*									
164		*	*	*	*	*		*	*	*	*	*		*	*	*	*	*	
165								*	*	*	*	*		*	*	*	*		*
166								*	*	*		*		*	*	*	*	*	
167								*	*	*	*		*	*	*	*	*		*
168					*			*	*	*	*		*	*	*	*	*	*	
169																*			
170															*				
171				*	*							*							
172													*						
173									*					*	*	*	*		
174																			
175																			
176		*	*						*										*
177		*	*	*	*			*	*	*	*			*	*	*	*		*
178		*		*				*	*	*	*				*		*		*
179			*	*	*			*	*	*	*			*	*	*	*		
180		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
181																			
182		*	*	*	*			*	*	*	*			*	*	*	*		*
183																*	*		
184		*	*			*		*	*			*							*
185																			*
186		*	*	*	*			*	*	*	*	*		*	*	*	*	*	
187		*	*	*	*	*		*	*	*	*			*	*	*	*		
188		*	*			*		*	*	*	*	*				*	*		*
189																			

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
190																			*
191								*			*			*	*		*		*
192		*	*	*	*	*		*	*	*	*	*		*	*	*	*		*
193		*	*	*	*	*						*							
194								*		*		*		*	*	*	*		
195		*	*	*	*			*	*	*	*	*		*	*	*	*		*
196		*	*	*	*	*		*	*	*	*	*				*	*	*	
197		*	*	*	*	*		*	*	*	*	*		*				*	
198		*	*	*	*	*		*	*	*	*	*				*		*	
199											*				*		*		*
200		*	*	*	*			*	*	*	*	*		*	*	*	*	*	
201		*	*	*	*			*	*	*	*	*		*	*	*	*	*	
202		*	*	*	*			*	*	*	*			*	*	*	*		
203		*	*	*	*			*	*	*	*			*	*	*	*		
204												*		*					
205												*		*					
206												*							
207																			
208									*	*	*	*			*	*	*	*	
209									*	*	*	*			*	*	*	*	
210														*	*	*	*	*	
211																		*	
212																			
213																			
214																*			
215																*			
216																			
217				*						*									

APPENDIX D (continued)

Item No.	Test No.	Grade Four						Grade Five						Grade Six					
		1	2	3	4	D	I	1	2	3	4	D	I	1	2	3	4	D	I
218										*						*			
219		*						*		*						*			
220																			
221																			
222																			
223																			
224																			
225																			
226																			
227																			
228		*	*	*	*	*		*	*	*	*	*		*			*	*	
229		*	*	*	*	*		*	*	*	*	*		*		*	*	*	
230		*			*	*		*			*	*		*			*	*	
231		*			*	*		*	*	*	*	*		*	*	*	*	*	

(12:27-51)

APPENDIX E

A NUMERICAL LISTING OF ITEMS TESTED ON AT LEAST ONE FORM OF THE ITBS AND NOT TAUGHT AT THE THREE GRADE LEVELS IN THE INTERMEDIATE BUILDING OF THE WAPATO SCHOOLS

Fourth Grade Items Tested and Not Taught		Fifth Grade Items Tested and Not Taught		Sixth Grade Items Tested and Not Taught	
7	109	2	109	1	114
13	110	4	110	4	115
16	113	7	113	13	116
17	114	13	114	17	117
18	117	14	116	18	118
19	120	16	117	19	121
23	121	17	118	23	125
31	123	18	119	24	127
36	124	19	120	25	129
37	125	20	121	30	134
49	127	23	122	31	138
53	128	24	123	32	139
54	129	25	124	33	140
55	136	28	125	53	141
60	146	30	127	54	148
68	148	31	128	56	149
70	149	32	129	68	151
76	162	33	134	69	159
77	168	36	135	76	169
82	171	49	136	78	170
83	176	53	146	79	173
85	177	55	148	80	179
87	178	56	149	83	183
89	179	60	151	91	187
90	182	68	154	94	194
91	186	76	155	95	202
93	195	77	156	99	203
94	200	78	162	104	204
95	201	82	163	106	205
97	202	83	173	107	214
99	203	85	176	108	215
102	217	87	177	109	218
107	219	89	178	110	219
		90	179	113	
		91	182		
		93	187		
		94	191		
		95	199		
		99	202		
		104	203		
		106	217		
		108	219		

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