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ABSTRACT

This paper is the second of a series of four reports that document the achievement monitoring component of a three-year study on the acquisition of addition-subtraction problem-solving skills by young children. A set of performance objectives contained in or ancillary to 10 instructional units on sentence-writing for verbal problems and algorithms specified test content. Tests measuring group progress toward these objectives were administered after each unit. Data for the tests given after the three units covered in the fall semester of grade 2 are presented in this paper. The scores for each objective, developed using matrix sampling procedures, indicated satisfactory progress on all but three objectives for which mastery had been expected. These objectives involved sentence-writing for the numbers 0-20. Performance on the other objectives was generally satisfactory and in fact frequently surpassed expectations relative to instruction, particularly for objectives associated with the numbers 0-99. Administrator's manuals and student tests forms R, S, & T; item statistics; and performance by objective are included in the appendices. (Author/JAZ)

Working Paper No. 319

DATA COLLECTION PROCEDURES AND DESCRIPTIVE STATISTICS FOR THE GRADE TWO (FALL) ACHIEVEMENT MONITORING TESTS (S-4, S-5, AND S-6), COORDINATED STUDY NO. 1

by

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Abstract

This paper is the second of a series of four reports that document the achievement monitoring component of a three-year study on the acquisition of addition-subtraction problem-solving skills by young children. A set of performance objectives contained in or ancillary to ten instructional units on sentence-writing for verbal problems and algorithms specified test content. Tests measuring group progress toward these objectives were administered after each unit. Data for the tests given after the three units covered in the fall semester of grade 2 are presented in this paper. The scores for each objective, developed using matrix sampling procedures, indicated satisfactory progress on all but three objectives for which mastery had been expected. These objectives involved sentence-writing for the numbers 0-20. Performance on the other objectives was generally satisfactory and in fact frequently surpassed expectations relative to instruction, particularly for objectives associated with the numbers 0-99.

Introduction

The Mathematics Work Group of the Wisconsin Center for Education Research is presently conducting a program of research focused on children's acquisition of concepts and skills related to addition and subtraction of whole numbers. A major aim of mathematical instruction is to enable students to acquire concepts and skills requisite for solving problems of many types. A goal of our current research is to understand how pedagogical and psychological factors are related to their acquisition.

The interrelationship of pupil performance on selected arithmetic skills, pupil cognitive processes, instructional materials, and teachers' classroom behaviors is depicted in Figure 1. Using this framework, we are proceeding to:

1. identify important addition and subtraction skills;
2. review past empirical data or collect new data on these skills;
3. re-examine these mathematical skills and hypothesize how they are related to underlying cognitive skills;
4. examine the instructional materials designed to teach these skills; and
5. conduct a series of empirical studies on the appropriateness of particular teacher classroom behaviors, the appropriateness of instructional materials, and the relationship of specific cognitive skills to mathematical skills.

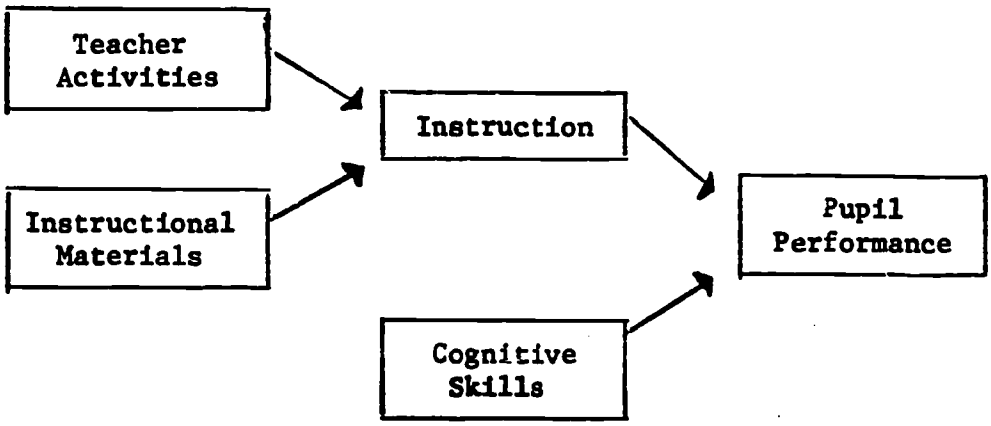

Figure 1. Factors influencing pupil performance.

The work of the Mathematics Work Group is built around the conceptual framework exemplified in Figure 1. The empirical and theoretical investigations generally involve two or more of the factors depicted and have been organized into four major categories. These are a conceptual paper series, a set of short empirical studies, a major longitudinal study, and an invitational conference of scholars.

This paper is one of a series of summary reports from the longitudinal study. Approximately 180 students in three schools were identified as subjects for the study. One school with about 60 students chose not to continue into the second year of the study. Thus, about 120 children were followed for three school years. Pupil performance was measured in several ways:

1. Individual interviews. At several times during each school year, individual children were administered a set of problem tasks dealing with addition and subtraction. The interviewer attempted to ascertain the children's solution strategy, correctness of answer, type of errors made, and modeling procedures.
2. Group-administered paper-and-pencil tests. There were two categories of tests:
   a. Achievement monitoring. These tests measured pupil progress toward a set of performance objectives contained in the instructional materials. By means of matrix sampling procedures, estimates were made of group performance. Achievement monitoring tests were given

shortly after the completion of the instructional units related to arithmetic objectives.

b. Topic inventories. These were very short tests that measured pupil progress toward mastery of the objectives of a specific instructional unit or topic. Every subject took the same test, resulting in a measure of individual performance.

Each topic inventory was given only once, providing a measure of performance on a few objectives at a single point in time; in contrast, there were repeated administrations of the same achievement monitoring test, in order to examine change in performance over time on a broad set of objectives.

Instruction and classroom environment were assessed by direct classroom observation of teacher actions, pupil behaviors, and instructional materials. A trained observer was present each day the instructional units, or topics, dealing with arithmetic objectives were used. Organizational and grouping measures were noted, along with interactions between teacher and pupils and among pupils. Measures of pupil engaged time were estimated by observing six target students.

The purpose of this paper is to report the administration of and results for the achievement monitoring tests given to grade 2 students during the fall semester of the second year of the study in the period October 1979 through February 1980. The tests were administered following instruction in the three sentence-writing topics (S-4, S-5, and S-6). The paper has four major sections: background information on the subjects and

instructional materials, description of the three-year achievement monitoring plan and the tests, report of the data collection procedures, and discussion of the results. Samples of the tests, administrator's manuals, and complete item and test statistics appear in the appendices.

Background Information

Subjects

The subjects were 120 second-grade students in six classes from two elementary schools in predominantly middle class areas.

Curriculum Materials and Instructional Objectives

Each of the schools used as their mathematics curriculum the Developing Mathematical Processes (DMP) program (Romberg, Harvey, Moser, & Montgomery, 1974). Ten new instructional topics on addition-subtraction, to be integrated into the regular DMP sequence of topics, had been developed for the three-year study. The topics covered during the fall semester of grade 2 were S-4, S-5, and S-6 which were sentence-writing topics; three sentence-writing topics (S-1, S-2, and S-3) which included the same objectives had been completed in grade 1. For the spring semester of grade 2 and first months of grade 3, four algorithm topics (A-1 through A-4) were taught. Instruction in other DMP topics was carried out as usual in all three grades, except for topics replaced by the ten special topics.

The ultimate goal of the ten topics was that children develop efficient problem-solving behavior in addition and subtraction problem situations. The specific skills believed to result in this behavior are the ability to symbolize verbal problems in the form of written addition or

subtraction sentences and the ability to retrieve addition and subtraction "facts" and/or use addition-subtraction algorithms.

The content of the three topics taught in the fall semester of grade 2 is summarized here:

Topic S-4. The simple joining, separating, and part-part-whole situations already introduced were varied by increasing the complexity of wording and context and by varying the position of the unknown part for joining and separating such that the situation was not directly translatable into a canonical sentence, i.e., "missing addends or subtrahends" were presented. Open sentences 0-20 were practiced, with stress on the 11-14 facts, and the noncanonical form was introduced.

Topic S-5. Comparison situations were focused on, including the use of the part-part-whole chart in analyzing them. Also, separating situations in which the whole is unknown were covered; that is, "missing minuends." Open sentences 0-20 were reviewed, with emphasis on the canonical form.

Topic S-6. Mastery of all three objectives was expected at the end of S-6, in which all the sentence-writing situations and the open sentences were reviewed.

The skills covered in these three topics were expressed formally by the following instructional objectives common to all six sentence-writing topics:

1. Given an open problem situation involving the numbers 0-20 that is solvable by using either addition or subtraction, writes a sentence that represents the situation.

2. Given an open sentence of the form a + b = ☐ or $\underset{+\ b}{a}$ involving the numbers 0-20,[1] solves it.
3. Given an open sentence of the form a - b = ☐ or $\underset{-\ b}{a}$ involving the numbers 0-20, solves it.

Of the many objectives included in the regular DMP topics taught in grade 2, only those which developed the notions of numerousness, ordering, and place value for the numbers 0-99 were essential in terms of the present study, since this content was prerequisite to the objectives of the algorithm topics. These prerequisite objectives were:

1. Given a set of 0-99 objects (or the spoken number), represents the numerousness of that set by writing the appropriate number.
2. Given a number 0-99, represents it physically or pictorially.
3. Given a set of numbers 0-99, orders them.
4. Given a number 0-99, written in compact/expanded notation, writes it in expanded/compact notation.

Instruction

Instruction in the sentence-writing topics S-4, S-5, and S-6 occurred in the period from October 1979 to February 1980 for all classes except the lowest achievement group in school 1 which completed S-6 in mid-March 1980. The topic pertaining to numerousness, ordering, and place value for the numbers 0-99 was completed just after S-6. The teachers cooperated with the request that the three S topics be taught according to the specifications in the instructional materials.

[1]The basic facts 0-10 were emphasized in S-1 through S-3.

The mathematics classes were homogeneously grouped at school 1 into four levels. The two classes in school 3 were heterogeneously grouped. (School 2 did not participate in the study after the first year.)

The time allowed for mathematics was:

school 1, four classes	35-minute periods daily
school 3, two classes	45-minute periods daily

It had been suggested that each topic be covered in about three weeks. The actual range of time spent by the six classes appears in Table 1 and indicates that for S-4 and S-5 most classes spent more than the recommended time. This occurred primarily because teachers expected students to master the material at S-4 and/or S-5 and were uncomfortable about moving on, even though mastery was not required by the program specifications until S-6. Since there was much variability among classes in the amount of time per topic, interesting relationships to achievement might be demonstrated. However, no attempt to do so will be made in this report which is concerned with performance of the total population.

Achievement Monitoring Plan and Tests

Overview of the Three-Year Plan

Figure 2 presents an overview of the achievement monitoring plan for the three years of the study. All objectives on which performance was assessed are listed in abbreviated form with an indication of the points in time when instruction occurred, when mastery was expected, and when achievement was monitored. The schedule called for 11 test times: the baseline test and a test after each instructional topic.

Table 1

Time Spent on Instruction in Sentence-writing Topics

Topic	Minimum	Average	Maximum
S-4	675 min., 19 days[a]	842 min., 26.3 days	1063 min., 33 days
S-5	425 min., 15 days	609 min., 18.8 days	905 min., 27 days
S-6	349 min., 12 days	462 min., 14.5 days	666 min., 20 days

[a]Minutes and days do not necessarily represent the same class.

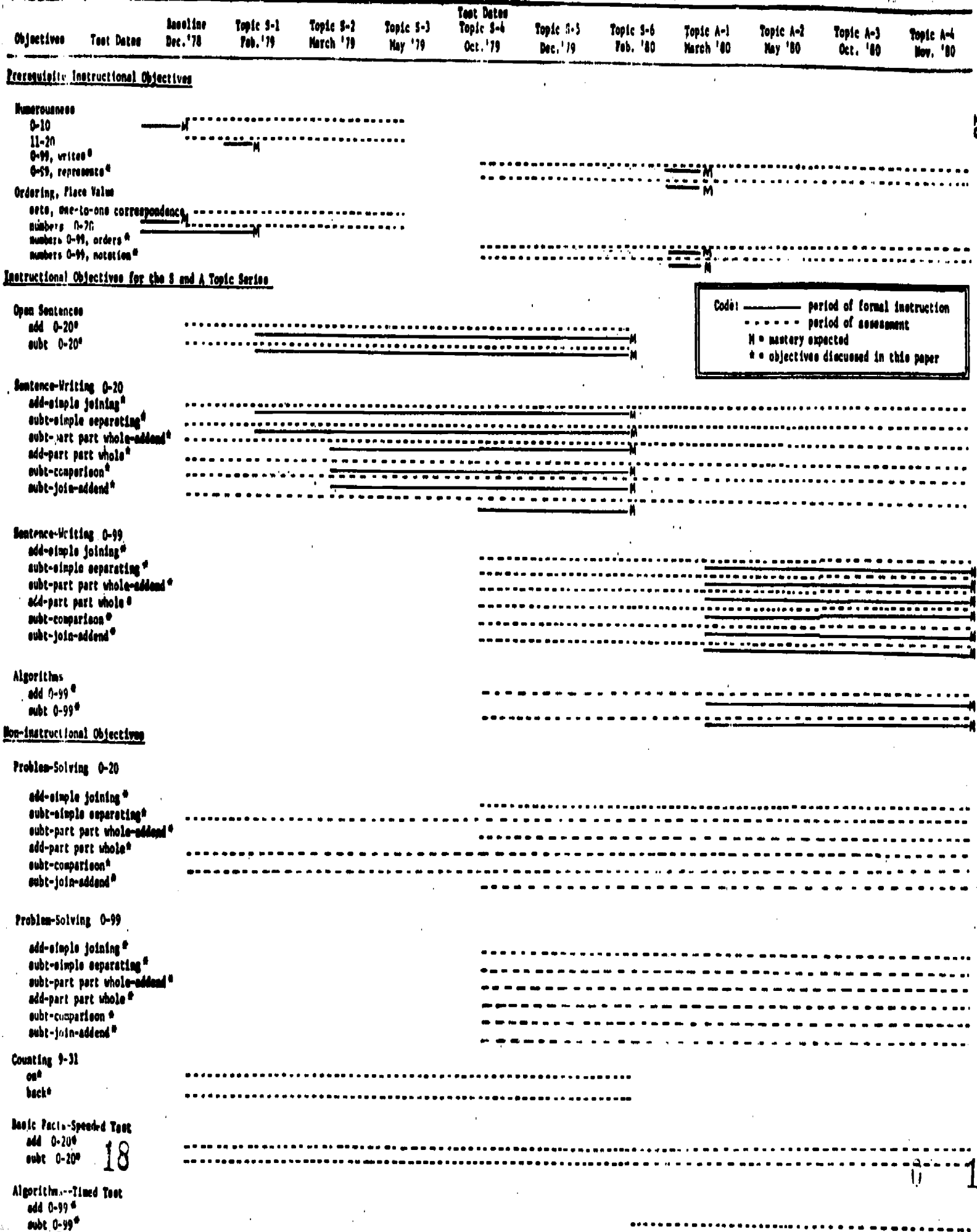

Figure 2. Overview of Achievement Monitoring Plan.

Following the general rule that objectives should be assessed both prior to and following instruction, yet avoiding test situations which would be overly frustrating or extremely easy for the students, four overlapping test periods were identified and objectives added to or dropped from the achievement monitoring schedule accordingly. The four test periods covered the middle of grade 1 to the end of grade 1 (baseline through S-3), the middle of grade 1 to the middle to grade 2 (baseline through S-6), the beginning of grade 2 to the middle of grade 3 (S-4 through A-4), and the middle to grade 1 to the middle of grade 3 (S-1 through A-4). Achievement was assessed a minimum of four times and a maximum of 11 times per objective.

In order to limit the time any student spent in a testing situation and yet to gather a maximum amount of information about progress toward each objective, a matrix sampling plan based on earlier work in this area was followed (Romberg & Braswell, 1973). All students in each class were assigned randomly to one of three test groups. Each test group was then assigned one of three test forms for each administration period. Each objective was represented by items on at least two and usually all three of the test forms. A description of the tests is given in the following section.

The objectives included in the achievement monitoring program were classified as (1) prerequisite instructional objectives, which were those considered necessary for achievement of the objectives of the S and A topics, (2) instructional objectives for the S and A topics, and (3) noninstructional objectives. The noninstructional objectives pertained to

skills which were not formally taught in the regular DMP program or the S and A topics. However, since there was potentially a relationship between growth in these skills and progress on the formal instructional objectives, they were included in the test program. The noninstructional skills were:

1. problem-solving 0-20 and 0-99
2. counting on and counting back
3. recall of basic addition-subtraction facts under a speeded test condition
4. use of addition-subtraction algorithms under a timed test condition

The problem-solving objectives were created for achievement monitoring because the instructional objectives stated for the S and A topics specified sentence-writing skills and open sentence/algorithmic skills as discrete objectives but did not actually express as objectives the ability to integrate these skills in problem-solving situations. Assessment of problem-solving per se was also of interest because these data paralleled that gathered in the individual interview component of the study.

The objectives were also organized in terms of general mathematical content areas such as numerousness, ordering, and open sentences. (See Figure 2.) Each of these areas represented what may be thought of as a composite objective. For example, in the area of numerousness, there was an individual objective related to writing 0-99 and another objective for representing 0-99; when these two objectives were treated as one, they

formed a composite objective called numerousness. The composite objectives will be used in later analyses in which aggregate data are desirable to reduce the number of variables. In the present paper, the discussion primarily concerns individual objectives.

The sentence-writing objectives were stated as composite objectives in the instructional materials; that is, there was no explicit breakdown into individual objectives for each problem type, such as joining, separating and comparison. For two reasons, the sentence-writing objectives were broken down into several discrete objectives, each reflecting a different problem situation: first, the various problem situations were introduced at different points in the sequence of sentence-writing topics; second, and more importantly, the achievement monitoring data will eventually be integrated with data from the interview component of the study which was gathered and analyzed in terms of problem type.

Objectives Assessed in Grade 2 (Fall)

The prerequisite instructional objectives and the instructional objectives for the S topics included in the test program for grade 2 (fall) were stated in full in the first section. Since two of the four algorithm topics would be covered during the spring semester of grade 2, the three objectives for those topics were also assessed during the fall semester of grade 2 for baseline purposes. These objectives, which are the same for the four algorithm topics, are:

1. Given an open addition or subtraction situation involving the numbers 0-[illegible], writes a sentence that represents the situation.
2. Given two numbers whose sum is 0-99, computes their sum.
3. Given two numbers 0-99, computes their difference.

The noninstructional skills for problem-solving, counting, and recall of basic facts were assessed throughout this phase of the achievement monitoring. The use of addition and subtraction algorithms under a free-response timed condition was assessed only at S-6, because earlier testing of these skills would have unnecessarily frustrated the children. The 38 individual objectives assessed in grade 2 (fall) are marked with an asterisk in Figure 2 and are summarized in Table 2.[2]

Mastery expectations were established for the prerequisite and S and A instructional objectives. The numerousness, ordering, and place value objectives for the numbers 0-99 were to be mastered just before the first A topic; that is, mastery was not expected until the A-1 test time. Mastery of the sentence-writing objectives for numbers 0-20 was expected after the completion of S-6. Mastery of open sentences for sums or minuends to 10 had been expected after S-3 while mastery of the remaining facts--open sentences for sums or minuends to 20--was anticipated after S-6. Since instruction on all of the instructional objectives associated with the algorithms and with sentence-writing for numbers 0-99 would occur in the spring semester of grade 2 and fall semester of grade 3 during the A-1 to A-4 topics, mastery was not expected until A-4.

[2]After the original specification of noninstructional objectives, it was decided to add 3-digit numbers (objectives) to the algorithm timed subtests and also to subdivide the timed test objectives according to criteria such as whether or not regrouping was required; therefore, the final number of objectives was > 38.

Table 2

Objectives Assessed in Grade 2 (Fall)

Numerousness
- writes 0-99
- represents 0-99

Ordering, Place Value
- ordering 0-99
- notation 0-99

Open Sentences
- add 0-20
- subt 0-20

Sentence-writing 0-20
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part part whole
- subt-comparison
- subt-join-addend

Sentence-writing 0-99
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part part whole
- subt-comparison
- subt-join-addend

Problem-solving 0-20
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part part whole
- subt-comparison
- subt-join-addend

Problem-solving 0-99
- add-simple joining
- subt-simple separating
- subt-part part whole-addend
- add-part part whole
- subt-comparison
- subt-join-addend

Algorithms
- add 0-99
- subt 0-99

Counting
- on 9-31
- back 9-31

Basic Facts Recall--Speeded Test
- add 0-20
- subt 0-20

Algorithms--Timed Test[1]
- add 0-99
- subt 0-99

[1]Assessed only at S-6.

There were no specific predictions for time of mastery for the non-instructional objectives; however, it was anticipated that performance on the recall and problem-solving skills for numbers 0-20 would be related to growth on the open sentence and sentence-writing 0-20 objectives and that there would be improvement in counting skills due to informal work in this area both at home and at school. Similarly, it was presumed that problem-solving skills for numbers 0-99 and algorithmic performance under timed conditions would be related to status on the regular objectives of the A topics.

Description of the Tests

Three forms (R, S, T) of a 35-minute paper-and-pencil test were developed for the fall semester of grade 2; each form had four subtests. Two subtests assessed recall of addition and subtraction facts under speeded test conditions; the major subtest contained 19 multiple-choice items covering all other objectives to be assessed. The fourth subtest measured performance on the sentence-writing 0-20 and 0-99 objectives in a free-response context. (These objectives were also included in the multiple-choice test.) Two additional subtests were created for S-6 only for the baseline testing of addition and subtraction algorithm proficiency under timed conditions. Copies of the tests and administrator's manuals are in Appendix A; a discussion of the test development for all three years of the study appears elsewhere (Buchanan & Romberg, 1982b).

Multiple-choice subtest. An outline of the content of each form of the multiple-choice subtest appears in Table 3. Each objective in the areas

Table 3

Outline of Multiple-choice Subtest Items

Item ID[a]	Form R	Form S	Form T
1C	Numerousness writes 0-99	Numerousness writes 0-99	Numerousness writes 0-99
2D	Numerousness represents 0-99	Numerousness represents 0-99	Numerousness represents 0-99
3E	Open Sentences subt 0-10	Open Sentences add 0-10	Open Sentences subt 0-10
4F	Open Sentences add 11-18	Open Sentences subt 11-18	Open Sentences add 11-18
5G	Problem-solving 0-20 (A) subt-simple separating 11-15	Problem-solving 0-20 (A) subt-comparison 11-15	Problem-solving 0-20 (A) add-part part whole 11-15
6H	Problem-solving 0-99 (A) subt-comparison 0-99	Problem-solving 0-99 (A) add-part part whole 0-99	Problem-solving 0-99 (A) subt-simple separating 0-99
7I	Ordering, Place Value ordering 0-99	Ordering, Place Value ordering 0-99	Ordering, Place Value ordering 0-99
8J	Ordering, Place Value notation 0-99	Ordering, Place Value notation 0-99	Ordering, Place Value notation 0-99
9K	Sentence-writing 0-20 (A) add-part part whole 11-15	Sentence-writing 0-20 (A) subt-simple separating 11-15	Sentence-writing 0-20 (A) subt-comparison 11-15
10L	Sentence-writing 0-99 (A) subt-simple separating 0-99	Sentence-writing 0-99 (A) subt-comparison 0-99	Sentence-writing 0-99 (A) add-part part whole 0-99
11M	Sentence-writing 0-20 (B) subt-join-addend 11-15	Sentence-writing 0-20 (B) subt-part part whole-addend 11-15	Sentence-writing 0-20 (B) add-simple joining 11-15

12N	Sentence-writing 0-99 (B) subt-part part whole-addend 0-99	Sentence-writing 0-99 (B) add-simple joining 0-99	Sentence-writing 0-99 (B) subt-join-addend 0-99
13O	Problem-solving 0-20 (B) subt-join-addend 11-15	Problem-solving 0-20 (B) subt-part part whole-addend 11-15	Problem-solving 0-20 (B) add-simple joining 11-15
14P	Problem-solving 0-99 (B) add-simple joining 0-99	Problem-solving 0-99 (B) subt-join-addend 0-99	Problem-solving 0-99 (B) subt-part part whole-addend 0-99
15Q	Algorithms add 0-99	Algorithms add 0-99	Algorithms add 0-99
16R	Algorithms subt 0-99	Algorithms subt 0-99	Algorithms subt 0-99
17S	Counting on 9-18	Counting on 9-18	Counting on 9-18
18T	Counting back 9-18	Counting back 9-18	Counting back 18-31
19U	Counting back 18-31	Counting on 18-31	Counting on 9-18

[a]The numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests; items A and B are samples (see Appendix A).

of numerousness, ordering/place value, open sentences, and algorithms (not timed) was represented by one multiple-choice item on every test form; i.e., three items altogether per objective. Similarly, for counting on and counting back for numbers to 18, there was one item per form; however, an additional counting item for numbers to 31 was added to each form because information on these numbers was of potential interest in the development of interview problem situations using larger numbers.

Each of the 12 individual objectives for sentence-writing 0-20 and 0-99 was represented by a multiple-choice item in one of three forms; that is, one item per objective. Each verbal problem type (e.g., joining) was therefore represented by two items, one for numbers 11-15 and one for 0-99. The two items were on different forms.

The sentence-writing objectives (or items) were further classified into two groups: Sets A and B. This was an arbitrary division created because half (Set A) of the items were designed to reflect the interview verbal problems precisely in syntax, number order, number domain, etc., while the remainder (Set B) allowed variations in these characteristics in keeping with the instructional program which presented more variations of each problem type than it was possible to cover in the individual interview.[3]

Since there was no way in a multiple-choice format to have students actually write a sentence, the items required listening to a verbal problem read aloud and then choosing the sentence which correctly represented the

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[3]For both the sentence-writing and problem-solving objectives, Set A test verbal problems differed from interview verbal problems in that different nouns and verbs were used so that the students had a new context to consider.

verbal situation. The problem situation itself was not printed on the test page. This prevented reading difficulties and also was in keeping with the procedures for the interviews in which the problems were presented orally. Another subtest, explained below, contained sentence-writing items in a free response format.

The assignment of items to test forms for the 12 objectives for problem-solving 0-20 and 0-99 exactly paralleled the assignment of sentence-writing items. That is, there was one item per objective assigned to one of the three forms. The two items total per verbal problem type--one for 0-20 and one for 0-99--were assigned to different forms. The problem-solving items, which were also in Set A or B, required the student to listen to the story, which was not printed in the test booklet, and to choose the correct solution.

All of the questions in the multiple-choice section of the tests were read to the children and then the key phrases were repeated; in the case of the verbal problems for the sentence-writing and problem-solving objectives, the entire story situation was read twice. The children then marked an X on one of the four response choices: the solution, two distractors, and the "puzzled face," an option which indicated "I have not learned this yet." The response choices, symbols, and pictures were not read or explained to the children (except for the "puzzled face").

The "puzzled face" option was provided to avoid unnecessary frustration and to reduce the amount of random guessing. Although it was expected that the "puzzled face" choice would be used throughout the achievement testing because there would always be objectives not yet introduced and/or

mastered, this option was particularly useful for baseline assessment such as for algorithms. Marking the "puzzled face" allowed children to give a positive response indicating that they hadn't learned to find the answer to the question.

Sentence-writing free-response subtests. The 12 individual sentence-writing objectives (verbal problem types) for the numbers 0-20 and 0-99 were also assessed in a free-response format in which a verbal problem was read twice to the students who were directed to write a sentence for the situation and not solve the sentence. There were two 0-20 and two 0-99 items per form; all items were in Set A (see Table 4).

Speeded subtests. There were 12 addition and 12 subtraction facts on each of the three forms; the first six problems in each case covered the facts from 4 to 9; the last six involved 10 to 18 (see Table 5).

The addition and subtraction recall subtests were introduced by the test administrator; then specific directions on a tape recording preceded the items presented with intervals of 2 seconds' working time for both addition and subtraction. The intervals were based on previous studies in this area (Romberg, 1975). The children wrote their answers in designated spaces, leaving spaces for unknown facts empty. There was a short break between the two subtests.

Addition and subtraction algorithm timed subtests (S-6). Since it would have been unnecessarily frustrating to assess baseline algorithmic proficiency under timed conditions with the two full-length subtests (24 items) developed for achievement monitoring after the A topics (Buchanan

Table 4

Outline of Sentence-writing Free Response Subtest Items

Item ID[a]	Form R	Form S	Form T
1A	Sentence-writing 0-20 subt-comparison 11-15	Sentence-writing 0-20 add-part part whole 11-15	Sentence-writing 0-20 subt-simple separating 11-15
2B	Sentence-writing 0-99 add-part part whole 0-99	Sentence-writing 0-99 subt-simple separating 0-99	Sentence-writing 0-99 subt-comparison 0-99
3C	Sentence-writing 0-99 subt-join-addend 0-99	Sentence-writing 0-99 subt-part part whole-addend 0-99	Sentence-writing 0-99 add-simple joining 0-99
4D	Sentence-writing 0-20 add-simple joining 11-15	Sentence-writing 0-20 subt-join-addend 11-15	Sentence-writing 0-20 subt-part part whole addend 11-15

[a]The numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests (see Appendix A).

Table 5

Outline of Addition and Subtraction Facts Recall Items--Speeded Subtests

Item ID[a]	Form R	Form S	Form T
	Addition Facts Recall Subtests		
1C	1 + 5	3 + 1	2 + 4
2D	3 + 2	2 + 5	6 + 3
3E	4 + 4	1 + 6	5 + 2
4F	3 + 6	7 + 2	2 + 3
5G	4 + 3	2 + 6	5 + 0
6H	6 + 2	3 + 5	1 + 3
7I	5 + 8	4 + 8	9 + 2
8J	6 + 9	3 + 7	6 + 6
9K	9 + 3	5 + 9	4 + 7
10L	5 + 7	6 + 8	7 + 6
11M	8 + 9	8 + 7	9 + 7
12N	3 + 8	4 + 9	6 + 4
	Subtraction Facts Recall Subtests		
1C	5 - 1	7 - 1	3 - 2
2D	9 - 2	8 - 4	6 - 4
3E	8 - 7	9 - 5	9 - 1
4F	5 - 3	7 - 4	7 - 3
5G	7 - 6	8 - 6	6 - 1
6H	8 - 5	4 - 3	7 - 5
7I	14 - 7	11 - 2	10 - 4
8J	12 - 5	13 - 8	13 - 9
9K	11 - 8	12 - 7	14 - 8
10L	13 - 7	15 - 9	11 - 7
11M	12 - 9	10 - 2	12 - 4
12N	15 - 8	16 - 7	17 - 9

[a]The numeric ID refers to the items as they are labeled in the computer printout reproduced in Appendix B. The alpha ID refers to the actual tests (see Appendix A).

& Romberg, 1982b), two abbreviated subtests of 5 items each were created for S-6 only. The subtests contained a sample of three 2-digit and two 3-digit problem types, some requiring regrouping and others not (see Table 6). Although 3-digit numbers (and algorithms) were not included in instruction at any time during the study, possible generalization of algorithmic skills to those numbers was of interest in the study. One and one-half minutes were allowed for the three 2-digit problems and also for the two 3-digit problems; that is, students were required to move on to the 3-digit problems after one and one-half minutes. The total time for each subtest was three minutes.

Data Collection Procedures

Test Groups

Following the matrix sampling plan described earlier, students in each class were randomly assigned to one of three test groups containing 11-12 students per group in school 3 and 25-26 per group in school 1. The test groups were assigned to one of the three test forms (R, S, T) according to the schedule in Table 7. Since there were three test times, the students took each form of the test once. However, because some items also appeared in the grade 1 tests, students would have taken these items at least once and in some cases twice before. Because of absences and student mobility, the number of students actually tested after each topic varied somewhat. Also, because the classes moved at different paces through the topics, particularly where there was homogeneous grouping, it was not always possible to test an entire test group at one sitting.

Table 6

Outline of Addition and Subtraction Algorithm Items--Timed Subtests (S-6)

Form R	Form S	Form T
	Addition Algorithm Subtest	
2-digit + 2-digit (no regrouping)	2-digit + 2-digit (no regrouping)	2-digit + 2-digit (regrouping)
2-digit + 2-digit (regrouping)	2-digit + 2-digit (regrouping)	2-digit + 2-digit (regrouping)
1-digit + 2-digit (regrouping)	2-digit + 1-digit (regrouping)	2-digit + 1-digit (no regrouping)
3-digit + 2-digit (no regrouping)	3-digit + 3-digit (no regrouping)	3-digit + 2-digit (regrouping)
3-digit + 3-digit (regrouping)	3 addends (regrouping)	3-digit + 3-digit (regrouping)
	Subtraction Algorithm Subtest	
2-digit - 2-digit (no regrouping)	2-digit - 2-digit (regrouping)	2-digit - 2-digit (no regrouping)
2-digit - 2-digit (regrouping)	2-digit - 2-digit (regrouping)	2-digit - 2-digit (regrouping)
2-digit - 1-digit (regrouping)	2-digit - 1-digit (no regrouping)	2-digit - 1-digit (regrouping)
3-digit - 3-digit (no regrouping)	3-digit - 2-digit (regrouping)	3-digit - 2-digit (no regrouping)
3-digit - 3-digit (regrouping)	3-digit - 3-digit (no regrouping)	3-digit - 3-digit (regrouping)

Table 7

Assignment of Students to Test Form

Test Group	Administration Time		
	S-4	S-5	S-6
	Test Form Assignment		
1	T	S	R
2	R	T	S
3	S	R	T

Schedule

The achievement monitoring tests were given as soon as possible after each topic was completed. Since instruction in each sentence-writing topic generally took about three to five weeks and was followed by an intervening DMP topic which was not a part of the study, there were six to eight week intervals between administrations.

Procedure

The tests were administered by Center staff members in one 35-40 minute sitting during the regular mathematics class period. The practice of having Center administrators provided uniformity in administration procedures, relieved the teachers from this responsibility, avoided later "teaching to the test," and freed the teacher to participate in interviews with other Center staff.

Since most students had already participated in four similar test sittings in grade 1 (see Buchanan & Romberg, 1982a), there was little administrative difficulty in giving the tests. Students were familiar and comfortable with most administrators and the general procedure as well as the format and some items or item types for the multiple-choice and recall subtests. However, this familiarity also had a negative effect since some students became increasingly bored by the repetitive testing. The teachers were helpful in motivating the students but none the less some were test-weary by the S-6 test time. On the other hand, there were students who continued to enjoy the tests.

As described previously, the multiple-choice questions were read aloud. Most children had little problem following along. Pacing the

multiple-choice subtest was at the administrators' discretion, with the general policy being to move the test along by encouraging children who were pondering at length to "mark the puzzled face." Apparently because of this option, the children did not appear to be discouraged by items that they had not met in formal instruction at the time.

One problem occurred during the free response sentence-writing subtest which may have negatively affected performance on certain items. Despite reminders, some students failed to listen to the entire verbal story before beginning to write the number sentence. Since the numbers in the written sentence must be reversed from their order in the story for the comparison and join-addend situations, errors resulted when students did not correct themselves after starting the sentence with the first number they heard.

The taped subtests could not be stopped once started; however, examination of the response spaces showed that almost all children kept their place well. Even though there was only 2 seconds' working time between items, students were able to count out answers on their fingers, so that the responses represent a mixture of facts actually committed to memory and "facts" determined during the test. Some children expressed enjoyment in doing the recall tests, but for some the pressure of a timed test was continually frustrating. The baseline algorithm timed testing at S-6 did not appear to be overly threatening, though a few students were obviously discouraged by it; there were no difficulties with format.

Results

Scoring the Tests

Subtest statistics and item parameters for each form were computed for the multiple-choice subtest, the sentence-writing subtest, the addition facts recall subtest, and the subtraction facts recall subtest at each administration time using the LERTAP program (Nelson, 1974). The algorithm baseline timed tests (S-6) were scored by hand and no item or test statistics other than means were computed. Scores representing progress on the objectives were then created for each administration by combining in a single score across forms the proportion correct for all individual items related to that objective; similarly, scores for the composite objectives incorporated the scores for all objectives related to the same content area. Thus, rather than item difficulties, or p values, what might be called "objective difficulties" were calculated to represent group progress toward mastery of the objectives. Since under the matrix sampling plan most objectives were represented by items on at least two and usually all three forms, the "objective difficulties" at any one test time were less affected by possible bias in the random assignment of students to test group than the item and subtest statistics.

Subtest and Item Statistics

Although the results by objective are of primary interest in the study, a brief report of the subtest and item results is offered first as background. The multiple-choice subtest was not developed as a standard norm-referenced measure but rather as a criterion-referenced test with each item

on any one form assessing mastery of a specific objective. Therefore, the total score on the subtest is an aggregate measure of performance on several objectives. Also, rather than the usual expectation that about half of the students would respond correctly to each item, it was expected that almost none, some, or almost all of the students might answer correctly depending on the status of instruction at the time of the test. Another factor affecting the subtest and item data for the multiple-choice subtest was guessing. The "puzzled face" or "I haven't learned this yet" option was offered to prevent random guessing but guessing still occurred. Other factors affecting the item and subtest analyses for all subtests were the relatively short test length and small population of students tested.

Tables 8-10 report the multiple-choice and recall subtest statistics for all forms and administration periods for the total population. Information included is the number of individuals tested, number of items, mean, standard deviation, highest and lowest score, Hoyt estimate of reliability, and the standard error of measurement. Since the sentence-writing subtest had only four items per form, subtest statistics are not reported.

The means and standard deviations indicate that the three forms were about equivalent in difficulty within each of the four administration periods. The reliabilities for the multiple-choice subtest ranged from .51 to .75 which is satisfactory for tests of this type. For the addition and subtraction recall subtests, the respective reliabilities ranged from .70 to .88 and .71 to .88. The recall subtests, although short, contained only one type of item so that somewhat higher reliabilities would naturally be expected.

Table 8

Objectives Subtest Statistics

for Forms R, S, and T for Three Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
S4	R	30	19	13.10	2.44	17	7	.53	1.63
	S	35	19	10.69	3.15	19	4	.66	1.79
	T	34	19	10.97	2.62	15	6	.60	1.62
S5	R	30	19	12.63	2.46	18	8	.51	1.67
	S	30	19	12.13	3.04	18	7	.64	1.77
	T	32	19	13.81	2.80	19	7	.74	1.39
S6	R	29	19	12.76	3.19	18	6	.72	1.65
	S	27	19	12.44	3.40	18	4	.75	1.67
	T	33	19	13.64	2.45	19	8	.62	1.46

Table 9

Addition Facts--Speeded Subtest Statistics

for Forms R, S, and T for Three Administration Times

tion	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
	R	30	12	7.83	2.36	11	2	.73	1.18
	S	35	12	7.09	2.50	12	3	.76	1.17
	T	34	12	7.88	2.89	12	1	.84	1.10
	R	30	12	8.50	2.26	12	4	.70	1.19
	S	30	12	7.60	3.02	12	2	.83	1.18
	T	32	12	10.56	2.14	12	2	.81	.88
	R	29	12	8.62	3.22	12	0	.87	1.10
	S	27	12	9.19	3.04	12	0	.88	1.02
	T	33	12	10.52	2.15	12	2	.82	.88

Table 10

Subtraction Facts Recall--Speeded Subtest Statistics

for Forms, R, S, and T for Three Administration Times

Administration Time	Form	Number of Individuals	Number of Items	Mean	S.D.	Highest Score	Lowest Score	Hoyt Est. r	S.E.M.
S4	R	30	12	7.13	2.89	12	1	.79	1.26
	S	35	12	6.20	2.54	12	0	.77	1.15
	T	34	12	5.15	3.44	12	0	.88	1.12
S5	R	30	12	7.83	2.51	12	2	.78	1.13
	S	30	12	7.27	3.55	12	0	.88	1.18
	T	32	12	7.03	2.65	12	0	.78	1.18
S6	R	29	12	7.45	3.28	12	0	.85	1.23
	S	27	12	7.89	3.11	12	0	.84	1.18
	T	33	12	8.12	2.29	12	4	.71	1.18

Item statistics for all subtests (including the sentence-writing subtest) for all forms and administration periods appear in Appendix B. The tables include the number and percentage of students selecting each response (the p-value or item difficulty), the point-biserial and biserial correlations with the subtest and the total test, and the average subtest and total test scores for individuals selecting the correct response.

For the multiple-choice subtest the p-values for 15 of the 57 items (26%) remained constant (± 5%) overall from S-4 to S-6. For 31 items (54%) the p-values demonstrated an overall increase from S-4 to S-6 and they decreased for 11 items (19%). There were 8 items with p-values ≥ 90.0% at S-4; for these items at S-6, 3 p-values stayed constant (± 5%), and there were 2 increases and 3 decreases. (The decreases were very slight--to no lower than 86.2%.)

For most multiple-choice items on which there was improvement, the increase was modest, about 10 to 20 percentage points; however, for a few items improvement was dramatic. Item 9K in Form T which assessed the sentence-writing 0-20 subt-comparison objective had scores for S-4, S-5, and S-6, respectively, of 26.5%, 53.1%, and 72.7%. Another sentence-writing item, item 10L in Form T which assessed the sentence-writing 0-99 add-part part whole objective, increased from 64.7% at S-4 to 90.6% and 97.0% at S-5 and S-6. An item measuring counting back performance (item 17S in Form T) had a p-value of 38.2% at S-4 which improved to 75.0% at S-5, though thereafter the p-value dropped somewhat to 66.7% at S-6. There were no similarly dramatic decreases in p-values; most decreases were less than 10 percentage points.

The p-values for the 12 items in the sentence-writing free response subtest improved in 7 cases and remained constant in 5 from the S-4 to S-6 test times. For the 4 items which had p-values $\geq$ 90.0% at S-4, there was one increase and 3 p-values stayed constant. One of the two items for which progress was dramatic was again for a comparison sentence-writing objective, though this time for the 0-99 domain. Item 2B in Form T had consecutive p-values of 11.8%, 40.6%, and 57.6%. The item assessing the sentence-writing 0-20 subt-part part whole-addend objective (item 4D in Form T) also showed much improvement, 41.2% at S-4 to 84.4% at S-5, followed by a slight drop at S-6 to 78.8%. Since all five items for which there was the most notable improvement were on Form T, it is possible that there was some bias in the test groups or administration which deflated S-4 scores and/or inflated S-6 scores.

P-values for the individual items (basic facts) in the two recall tests varied greatly within test time according to number size. For example, in Form R at S-4, the items for the "easy" facts 6 + 2 and 4 + 4 had p-values of 86.7% and 96.7%, respectively, while the "hard" facts/items 6 + 9 and 5 + 8 had p-values of 26.7% and 40.0%. Item difficulties increased quite steadily over the test times for most items while the relative difficulties within test time remained constant. For example, the p-values for 6 + 2 and 6 + 9 increased from 86.7% and 26.7%, respectively, at S-4 to 96.7% and 36.7% at S-5, and 93.1% and 48.3% at S-6. There was some effect of item position on p-values in the recall subtests, but this was not systematically examined since the items were randomly ordered and the aggregate scores for all items associated with the objective are of primary interest in the study.

The biserial correlations for the majority of items were adequate or better ($\geq$.30) for the correct response and negative ($\leq$.20) for incorrect responses. The "puzzled face" option was used appropriately as indicated by the biserials for this response choice, which were almost always strongly negative. That is, children who chose this response for particular items also had low scores on the total subtest.

The irregular biserial correlations can sometimes be related to the criterion-referenced nature of the subtest items. When an item was extremely easy because an objective had been mastered by most students, low positive or negative biserial correlations for the correct response sometimes occurred depending on subtest scores for the few students not selecting the correct choice. For example, for Form T item 1C (writes numbers 0-99) in administration S-6, the biserial correlation for the correct response was -.34 while for the only distractor selected, it was .43. This was the case because the single child who missed the item, probably due to carelessness, had a total subtest score of 16 while the mean for the 32 children selecting the correct response was 13.56.

Similar irregular biserials occurred for very difficult items on which mastery was not expected, for instance when a few poorer students guessed the correct response while the better students appropriately described themselves by choosing the puzzled face. For some items the appropriate use of the "puzzled face" option with consequent "good" biserials probably weakened the other distractors, causing them to have

inadequate biserials. The items for the facts recall and sentence-writing--free response subtests had satisfactory biserial correlations almost without exception.

Interesting item statistics in terms of the study as a whole occurred for items assessing the sentence-writing objectives for the two addend and the comparison situations. An example (item 11M, Form R) is presented in Table 11. The distractor containing the reverse operation (plus sign) was very attractive at all test times. All of the items for these three subtraction situations included one or two distractors which were addition sentences, most of which were powerful distractors, although this varied from test time to test time according to problem type. In contrast, the distractors containing the solution obtained from reversing the operation in the problem-solving items were rarely used. The power of the sentence-writing reverse operation distractors may be related to the tendency shown in the individual interviews to use additive strategies such as counting up from a given number or adding on with manipulatives in solving some subtraction verbal problems, particularly the comparison and join-addend problems. Reversing the operation to solve the problem was quite infrequent. (See Kouba & Moser, 1980a,b.)

Progress on the Objectives

In this section the scores resulting from aggregating the item data to create "objective difficulties" will be discussed. These data which represent progress on each objective will be related to the instructional program the students experienced. The proportion correct for each individual objective

Table 11

Item Statistics for the Sentence-writing 0-20, subt-join-addend (11-15) Item, Item 11M, Form R[a]

Test Time	Response Choice	Proportion	Biserial Correlation	Total Subtest Score
S-4 N = 30	(1) 8 - 6 = ☐ (includes solution)	6.7	-.67	10.00
	(2) 14 + 8 = ☐ (reverse operation)	70.0	-.00	13.10
	(3) 14 - 8 = ☐ (correct response)	20.0	.52	14.83
	(4) puzzled face	3.3	-.77	9.00
S-5 N = 30	(1)	.0	.00	.00
	(2)	56.7	-.17	12.35
	(3)	26.7	.46	14.00
	(4)	16.7	-.34	11.40
S-6 N = 29	(1)	6.9	-.37	10.50
	(2)	51.7	.18	13.20
	(3)	31.0	.29	13.78
	(4)	10.3	-.69	9.00

[a]The item read: This number story is about a plant. Mark the number sentence that tells how to find the answer. A plant was 8 cubes tall. It grew some. Now it is 14 cubes tall. How much did it grow?

and for the composite objectives for the total population at all administration times is reported in Table 12; results for each school and class appear in Appendix C. As noted previously, only the data for individual objectives are of interest here--data for the composite objectives were prepared for subsequent analyses.

As discussed previously, the sentence-writing objectives for the S and A topics were not stated in terms of particular verbal problem types in the instructional materials, but for purposes of achievement monitoring each type was treated as an individual instructional objective. This was also true for the problem-solving objectives. Since each problem type is represented by only one item, "objective difficulty" is the same as a "p-value" or item difficulty and therefore the results for sentence-writing and problem-solving must be considered with caution.

Numerousness; ordering, place value. Even though there was no formal instruction on the four prerequisite objectives related to the numbers 0-99 prior to or during the fall semester, performance on three of the four objectives indicated that many students were familiar with the numbers 0-99 at S-4 and that they continued to make modest improvement through the fall. At S-4 and S-6, respectively, the scores were 66.7% and 77.5% for the objective writes 0-99, 72.7% and 85.4% for represents 0-99, and 72.7% and 78.7% for orders 0-99.

The fourth prerequisite objective (notation 0-99) was extremely difficult relative to the others; in fact, it was the single most difficult objective assessed in the fall achievement monitoring program with successive scores at S-4, S-5, and S-6 of 13.1%, 12.0%, and 12.4%. The low

Table 12

Progress Toward Objectives Across Administration Times as Represented by Proportion of Students Answering Items Correctly for Total Population

Description of Objectives	Results for Objectives				Results for Composite Objectives			
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Prerequisite Instructional Objectives								
Numerousness								
writes 0-99	3	66.7	69.6	77.5				
represents 0-99	3	72.7	82.6	85.4	6	69.7	76.1	81.5
Ordering, Place Value								
orders 0-99	3	72.7	82.6	78.7				
notation 0-99	3	13.1	12.0	12.4	6	42.9	47.3	45.5
Instructional Objectives for S,A Topics								
Open Sentences								
add 0-20	3	84.9	89.1	88.8				
subt 0-20	3	84.9	93.5	89.9				
$\pm$ 0-10	3	88.9	90.2	86.5				
$\pm$ 11-20	3	80.8	92.4	92.1	6	84.9	91.3	89.3
Sentence-Writing 0-20 (multiple choice)								
add-simple joining (B)	1	91.2	100.0	100.0				
subt-simple separating (A)	1	94.3	83.3	100.0				
subt-part part whole-addend (B)	1	62.9	50.0	59.3				
add-part part whole (A)	1	96.7	96.7	96.6				
subt-comparison (A)	1	26.5	53.1	72.7				
subt-join-addend (B)	1	20.0	26.7	31.0	6	65.7	68.5	77.0
Sentence-Writing 0-20 (free response)								
add-simple joining	1	96.7	93.3	96.6				
subt-simple separating	1	100.0	96.9	97.0				
subt-part part whole-addend	1	41.2	84.4	78.8				

continued

Table 12 (continued)

Description of Objectives	Results for Objectives				Results for Composite Objectives			
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing 0-20 (continued)								
add-part part whole	1	94.3	96.7	100.0				
subt-comparison	1	36.7	53.3	48.3				
subt-join-addend	1	40.0	53.3	59.3	6	68.2	79.9	80.3
Sentence-Writing 0-99 (multiple choice)								
add-simple joining (B)	1	80.0	90.0	92.6				
subt-simple separating (A)	1	86.7	86.7	72.4				
subt-part part whole-addend (B)	1	53.3	53.3	48.3				
add-part part whole (A)	1	64.7	90.6	97.0				
subt-comparison (A)	1	22.9	30.0	37.0				
subt-join-addend (B)	1	11.8	21.9	21.2	6	52.5	62.0	61.2
Sentence-Writing 0-99 (free response)								
add-simple joining	1	88.2	84.4	87.9				
subt-simple separating	1	91.4	100.0	96.3				
subt-part part whole-addend	1	62.9	70.0	74.1				
add-part part whole	1	86.7	73.3	86.2				
subt-comparison	1	11.8	40.6	57.6				
subt-join-addend	1	30.0	33.3	37.9	6	62.1	66.9	73.0
Algorithms (multiple choice)								
add 0-99	3[a]	51.5	62.0	59.6				
subt 0-99	3[a]	30.3	42.4	44.9	6	40.9	52.2	52.3
Noninstructional Objectives								
Problem-Solving 0-20								
add-simple joining (B)	1	94.1	96.9	87.9				
subt-simple separating (A)	1	93.3	86.7	86.2				
subt-part part whole-addend (B)	1	74.3	90.0	85.2				
add-part part whole (A)	1	82.4	93.8	100.0				
subt-comparison (A)	1	62.9	76.7	85.2				
subt-join-addend (B)	1	86.7	86.7	82.8	6	81.8	88.6	88.2

[a]One of the three items did not require regrouping.

continued

Table 12 (continued)

Description of Objectives	Results for Objectives				Results for Composite Objectives			
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Problem-Solving 0-99								
add-simple joining (B)	1	60.0	56.7	62.1				
subt-simple separating (A)	1	29.4	53.1	33.3				
subt-part part whole-addend (B)	1	5.9	28.1	27.3				
add-part part whole (A)	1	37.1	66.7	44.4				
subt-comparison (A)	1[a]	53.3	53.3	51.7				
subt-join-addend (B)	1[a]	42.9	53.3	59.3	6	37.4	51.6	45.5
Counting								
on 9-31	5	73.2	76.6	76.5				
back 9-31	4	58.1	63.9	67.8	9	66.7	71.0	72.7
Recall of Basic Facts (Speeded Tests)								
add 0-20					36	63.2	74.4	79.1
sub 0-20					36	51.0	61.4	65.3
Algorithms (Timed Tests)								
add 2-digit, no regrouping	3	--	--	63.7				
add 2-digit, regrouping	6	--	--	34.1	9	--	--	44.0
add 3-digit, no regrouping	2	--	--	43.2				
add 3-digit, regrouping	3	--	--	14.6	5	--	--	26.0
3 2-digit addends, regrouping	1	--	--	13.9	1	--	--	13.9
subt 2-digit, no regrouping	3	--	--	54.0				
subt 2-digit, regrouping	6	--	--	11.5	9	--	--	25.7
subt 3-digit, no regrouping	3	--	--	44.2				
subt 3-digit, regrouping	3	--	--	1.8	6	--	--	23.0

		Number of Subjects[b]		
		S-4	S-5	S-6
Form R	N =	30	30	29(38)[c]
Form S	N =	35	30	27(36)
Form T	N =	34	32	33(39)

[a] This item did not require regrouping.

[b] For those objectives for which there are three items, the number of subjects represented in the proportion correct at a particular test time is ascertained simply by summing the N's for the three forms; however, when there are more or than three items, the N is increased or decreased by 27-39 subjects per item.

[c] numbers in parentheses are the N's for the Algorithm Timed Tests which were given on a different day.

scores can be readily explained by examining the content of the three items for this objective which required the students to do fairly sophisticated regrouping of numbers, and, for two of the three items, to understand and apply the DMP notation for place value, a notation which employs parentheses and is unique to DMP. For example, item 8J in Form T contained the stem 7(10) + 18 which had to be renamed as 78, 718, or 88. Performance on this type of item was very instruction-dependent, whereas it was probably possible for students with just general familiarity with the numbers 0-99 to score quite well on the items for the other three objectives prior to instruction.

The near-mastery[4] level of performance on these prerequisite objectives undoubtedly enhanced progress on the sentence-writing 0-99 and problem-solving 0-99 objectives (discussed below). Such success was also desirable from an instructional point of view since the A topics to be taught in the spring semester assumed mastery of these objectives and there was only one topic between the S and A topics in which instruction on these numbers would occur.

Open sentences. Instruction on open sentences had been carried out in Topics S-1 through S-3 in grade 1 and was continued in S-4, S-5, and S-6 with mastery expected after S-6. Status at S-4 on both addition and subtraction open sentences approached mastery (the score for both objectives was 84.9%). There was some improvement at S-5 (89.1% for addition and 93.5% for subtraction) and then a slight drop at S-6, to 88.8% and 89.9%. Therefore, these objectives had virtually been mastered at the completion of S-6, as intended by the program.

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[4] A proportion correct $\geq$ 90% is the criterion for mastery. While it is recognized that not every student will have mastered an objective using this criterion, it allows for measurement error and assures that most students have reached mastery.

Sentence-writing 0-20. The sentence-writing data in Table 12 are annotated by the labels described earlier, Sets A and B, according to whether or not item characteristics such as syntax corresponded to interview tasks. This distinction may be useful in future analyses relating interview and achievement monitoring data.

Mastery of sentence-writing for numbers 0-20 was expected after S-6. No predictions of mastery at particular points in the series were established for the different verbal problem types; however, since the various situations were introduced and emphasized in particular topics, it is possible to relate performance to instruction.

Both addition sentence-writing objectives (joining and part part whole) and the subt-separating objective had been mastered at S-4 in both the multiple-choice and free-response setting. This status was maintained at S-5 and S-6 (though for separating there was a decrease at S-5 which was negated at S-6).

For two of the other three subtraction objectives, the two test contexts gave somewhat inconsistent results. Although there was negligible change on the subt-part part whole-addend objective from S-4 (62.9%) to S-6 (59.3%) in the multiple-choice setting, performance improved from 41.2% at S-4 to 78.8% at S-6 in the free-response mode. In contrast, there was great progress on the subt-comparison objective (from 26.5% at S-4 to 72.7% at S-6) in the multiple-choice context but considerably less growth in the free-response situation (36.7% to 48.3%). The subt-join-addend objective showed consistent but not dramatic improvement,

moving from 20.0% at S-4 to 31.0% at S-6 (multiple-choice) and from 40.0% to 59.3% (free-response).

The distractors offered for the multiple-choice sentence-writing items were restricted to (a) a canonical sentence containing the reverse operation sign and the two given numbers in appropriate order and (b) a canonical sentence containing either operation with the solution and one of the given numbers, or, containing either operation and a repeated given number. The only exception was a distractor for one item which had no operation sign and combined the given numbers (9, 4); i.e., 94 = □. As noted previously in the discussion of item data, students showed a strong tendency toward selecting the response choice or choices containing the addition sign (reverse operation) for the three nonseparating situations. This effect held true even after the instructional emphasis on these three situations. The selection of an addition sentence to represent the comparison and subt-join-addend problem situations, though an incorrect response here, may be related to the successful strategies exhibited in the individual interviews in which students solved these two tasks in an additive manner (Kouba & Moser, 1980a,b); the parallel does not appear to hold for the subt-part part whole-addend situation. These and other relationships between the achievement monitoring and interview data will be examined further in future analyses.

The emphasis of instruction in S-4, S-5, and S-6 was on the use of the part part whole chart, particularly in analyzing missing addend and comparison situations. Improved performance on the comparison objective and two addend objectives seemed to indicate that instruction was effective.

However, none of these three more difficult subtraction objectives was mastered though the intent of the S topics was mastery of all sentence-writing 0-20 objectives after S-6.

Sentence-writing 0-99. The sentence-writing objectives for 0-99 were not covered in the S topics. However, given their familiarity with the numbers 0-99, many students apparently could generalize from work with sentences 0-20 to sentences with larger numbers. In both the multiple-choice and free-response contexts, the scores for most of the 0-99 objectives at most test times were quite comparable to those for the 0-20 objectives. At S-4 the scores for sentence-writing joining and separating 0-99 approached mastery (80.0% and 86.7%) in the multiple-choice context and were even better on the free-response test (88.2% and 91.4%). For the add-part part whole objective, the free-response mode was easier (86.7%) than the multiple-choice mode (64.7%) at S-4. By S-6 mastery or virtual mastery was evident for these three situations in both test settings, except for the subt-separating objective in the multiple-choice setting which inexplicably dropped from 86.7% at S-4 to 72.4% at S-6. Since the free-response score for separating was 96.3% at S-6, there may have been some anomaly in the testing which explains the unusually low multiple-choice score.

As was true for the 0-20 domain, the other three sentence-writing objectives were more difficult and the distractors containing the addition sentence were attractive. Little change was shown on the subt-part part whole-addend objective on the multiple-choice setting (53.3% to 48.3% from

S-4 to S-6) but some growth occurred in the free-response situation (62.9% to 74.1%). There was substantial growth on the comparison objective, notably 11.8% at S-4 to 57.6% at S-6 (free-response) and 22.9% to 37.0% (multiple-choice) and a modest improvement on the join-addend objective in both modes from 11.8% to 21.2% (multiple-choice) and 30.0% to 37.9% (free-response). Thus, though no instruction in the numbers 0-99 or sentence-writing 0-99 had taken place, students were seemingly quite able to generalize instruction in sentences with smaller numbers to sentences with larger numbers.

Algorithms. There was no instruction on algorithms for addition and subtraction of 2-digit numbers during the fall semester, since these objectives were not introduced until A-1 and were to be mastered at A-4. None the less, in a multiple-choice context in which two of the three items for each objective required regrouping, students were already able to select the correct answer about one-half of the time for the 2-digit addition algorithm at S-4 (51.5%) and about one-third of the time (30.3%) for the 2-digit subtraction algorithm. Modest progress was made by S-6, to 59.6% and 44.9%, respectively. The scores may be inflated because some students were observed counting or tallying the solution rather than solving algorithmically.

Problem-solving 0-20. The problem solving items required the child to select the correct answer for the verbal situation; again the data in Table 12 are labeled for Sets A and B though this distinction is not of interest here.

Performance for four of the six problem-solving 0-20 objectives (add-joining, add-part part whole, subt-separating, and subt-join-addend) was

at or near mastery at S-4 (respectively, 94.1%, 82.4%, 93.3%, 86.7%). Scores for the subt-part part whole-addend and subt-comparison objectives were also relatively high at S-4 (74.3%, 62.9%). At S-6 scores for all problem-solving objectives were at or near mastery, though there were nominal decreases for the joining, separating, and join-addend objectives. Improvement on the comparison and add-part part whole situations was substantial and probably can be attributed to instruction.

The distractors for the problem-solving items were (a) the number resulting from a reverse operation, and (b) either a given number or a miscount just one number off from the correct response. For the more difficult subtraction problems, there was no preference shown for the reverse operation, contrary to what might have been indicated from the results for the sentence-writing items.

It is of particular interest in the study as a whole that even though only three of the six comparable sentence-writing 0-20 objectives had been mastered, problem-solving performance was excellent on all verbal situations assessed. A high level of problem-solving skill prior to any instruction had been demonstrated even in the initial interview of the study in grade 1 (Kouba, Moser, Buchanan, Carpenter, & Cookson, 1980). The discrepancy between S-6 scores on the subt-join-addend sentence (31.0%, multiple choice; 59.3% free-response) and verbal problem (82.8%) is especially striking. Sentence-writing performance suffered primarily because of a tendency to choose the distractor containing the reverse operation (multiple-choice) or to write an incorrect addition sentence

(free-response). As discussed above, this may be related to the preference for additive strategies exhibited in the interviews.

Problem-solving 0-99. Some students were apparently able to generalize their problem-solving 0-20 skills to problems with larger numbers (though not to a mastery level) despite their lack of instruction in numbers 0-99, sentences 0-99, or algorithms. However, the absence of growth and/or the erratic pattern of scores for four of the six objectives suggests that instruction in the larger numbers or algorithms is necessary before further consistent progress can be made. The modest, steady improvement on the two subtraction addend problems can probably be attributed to the emphasis in instruction on solving these situations with smaller numbers.

It is difficult to compare performance on the six problem-solving 0-99 objectives because the items for two of the objectives--the subt-comparison and subt-join-addend--did not require regrouping as did items for the other four objectives, so these items were no doubt less difficult than they might have been. Scores for both were in the 40-60% range at all test times. Among the other four objectives, the add-joining objective was easiest as would be expected with scores of 60.0% at S-4, 56.7% at S-5, and 62.1% at S-6. However, the add-part part whole objective was considerably more difficult at two of the three test times (37.1%, 66.7%, 44.4%). Scores for the subt-separating and subt-part part whole-addend objectives were generally lower than for the two addition objectives, though data for the separating objective were erratic (29.4%, 53.1%, and 33.3%). The subt-part part whole-addend objective had consecutive scores of 5.9%, 28.1%, and 27.3% and appeared to be the most difficult objective.

The somewhat unstable scores for the add-part part whole and subt- separating situations are intriguing. A partial explanation is offered by the choice of distractors. At S-4 and S-6 for the addition objective and at S-6 for the subtraction objective there was an apparent tendency to attempt to solve the problem algorithmically by using a "buggy" algorithm; thus the wrong answer was selected as a response. It may be that at S-5 relatively more students counted out or estimated the answer, possibly because the test administrator allowed more time.

Counting. There was no formal instruction in counting but it was expected that informal work, both at school and at home, or exposure to other mathematical experiences would promote growth. Modest progress on the counting back objective was evident (from 58.1% at S-4 to 63.9% and 67.8% at S-5 and S-6); however, little change was shown for counting on (73.2%, 76.6%, 76.5%).

Recall of addition and subtraction facts (speeded test). Increasing the speed with which students can respond to open sentences (basic facts) was not a formally stated objective of instruction for the S topics. However, in the course of instruction there were some worksheets used which were timed and the teachers employed standard techniques such as flash card drills to varying degrees. These factors plus practice on the facts both in open sentence and verbal problem context throughout the three topics could be expected to produce improved facility in recall.

Certain children were extraordinary in their ability to listen to the problem, lay down their pencil, count out the answer, pick up their pencil, and write the response within the time allowed. Some children seemed to be able to keep working on the previous problem(s) while at

the same time attending to the immediate problem. (For all test times there was an additional period of 3 or 4 seconds expended in pronouncing each problem, e.g., "Box F, 7 + 2.") Thus, the results represent a blend of facts actually committed to memory and of facts determined as the test progressed.

Moderate improvement for both addition (from 63.2% at S-4 to 79.1% at S-6) and subtraction (51.0% to 65.3%) facts recall was demonstrated. Although the scores were not as high as the near-mastery scores for open sentences, progress was satisfactory for these noninstructional objectives.

Algorithms (timed test) S-6. The baseline testing of algorithmic performance in a free-response, timed mode at S-6 indicated that about one-third of the time (34.1%) students could accurately solve 2-digit problems with regrouping and to a lesser extent (14.6%) 3-digit problems, despite the fact that they had had no instruction in algorithms or in 2-digit and 3-digit numbers. Performance on nonregrouping addition problems was even better (63.7%, 2-digit; 43.2%, 3-digit). Performance on subtraction for nonregrouping problems about equalled addition performance (54.0%, 2-digit; 44.2%, 3-digit) but at this point not many regrouping subtraction problems could be solved correctly (11.5%, 2-digit; 1.8%, 3-digit). Almost all students attempted all items so the timed aspect of the test was probably not a significant factor in performance.

Conclusion

In general overall progress from the S-4 to S-6 test times was modest with marked improvement for only a few objectives. The lack of substantial change can be attributed in part to the initially high scores for many

objectives. Also, instruction in the fall semester of grade 2 was directed toward only a few of the many objectives assessed.

The open sentence and sentence-writing 0-20 instructional objectives should have been mastered after S-6. Scores for the open sentence objectives indicated virtual mastery for both addition and subtraction, but only three of the six sentence-writing objectives had been mastered--add-joining, add-part part whole, and subt-separating--and they had been mastered at the first test time, S-4. There were discrepancies in scores between the multiple-choice and free-response contexts for the three remaining sentence-writing subtraction objectives, but in neither test mode was mastery demonstrated for any of these problem types. Results at S-6 for the closely related noninstructional objectives (facts recall--speeded test, problem-solving 0-20) were not entirely consistent with the preceding results. Performance on the speeded tests was somewhat lower (more so for subtraction) than for open sentences; this difference may be largely attributable to the two dissimilar test modes, however. Scores for all six problem-solving objectives were near mastery level; apparently problem-solving skill did not depend on sentence-writing skill.

Performance on three of the four prerequisite instructional objectives for the numbers 0-99 approached mastery at S-6 though there was no instruction on these objectives. Scores for the other instructional objectives containing the numbers 0-99 reflected pupil confidence with these numbers and suggested that students were able to generalize behaviors for verbal problems with numbers 0-20 to the larger numbers even though no instruction had occurred with larger numbers. Performance on sentence-writing

0-99 in both the multiple-choice and free-response modes was only slightly lower than that for numbers 0-20. There was also some success on the problem-solving 0-99 objectives though scores were considerably lower than the comparable objectives with numbers 0-20. There was some familiarity with algorithms prior to instruction as well, particularly for addition. The addition algorithm could be utilized successfully at S-6 for 2-digit numbers requiring regrouping about one-third of the time in a free-response setting; there was only nominal success with the subtraction algorithm with comparable numbers in this mode. Performance in the multiple-choice context also indicated some knowledge of algorithms.

References

Buchanan, A. E., & Romberg, T. A. Data collection procedures and descriptive statistics for the grade one achievement monitoring tests (baseline, S-1, S-2, and S-3), coordinated study no. 1 (Working Paper No. 316). Madison: Wisconsin Center for Education Research, 1982. (a)

Buchanan, A. E., & Romberg, T. A. Instrumentation for the achievement monitoring component of coordinated study #1 (Working Paper No. 322). Madison: Wisconsin Center for Education Research, 1982. (b)

Kouba, V. L., & Moser, J. M. Results from fourth individual interview (September 1979), coordinated study #1 (Working Paper No. 292). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980. (a)

Kouba, V. L., & Moser, J. M. Results from fifth individual interview (January 1980), coordinated study #1 (Working Paper No. 293). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980. (b)

Kouba, V. L., Moser, J. M., Buchanan, A. E., Carpenter, T. P., & Cookson, C. J. Results from first individual interview (October 1978), coordinated study #1 (Working Paper No. 281). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Nelson, L. R. LERTAP. University of Otago, Duneden, New Zealand, 1974.

Romberg, T. A. Four studies on aspects of assessing computational performance (Technical Report No. 297). Madison: Wisconsin Research and Development Center for Cognitive Learning, 1975.

Romberg, T. A., & Braswell, J. Achievement monitoring via item sampling: A practical data gathering procedure for formative evaluation. Journal for Research in Mathematics Education, 1973, 4, 267-270.

Romberg, T. A., Harvey, J. G., Moser, J. M., & Montgomery, M. E. Developing mathematical processes. Chicago: Rand McNally & Co., 1974.

Appendix A

ADMINISTRATOR'S MANUALS AND STUDENT TESTS

FORMS R, S, T

Directions for Administering Achievement Monitoring Test R

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice--or the key phrases are repeated after the original question is read. Read the questions at a somewhat slower than conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test, the basic facts speed test, will be administered via tape.

Since many children will not know how to do the majority of the test, expecially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this--instead, ask them to answer "as best they can" or to mark the "puzzled face" to show they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering--try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children not to solve the problem, and again, to use the "puzzled face" when they need to. The third part of the test, the taped basic facts questions is a speed test. Once the tape is started, it will not be stopped.

Preparations for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they may write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade . . . each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it--you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with a puzzled face. [*Pause.*]

Which box has a picture of a dime in it? Make an X in the box that has a dime in it. [*Pause.*] If you haven't learned this yet, make an X in the last box, the one with a puzzled face. [*Check to see that the children mark only one box in the row.*]

EXAMPLE B Now find row B. Look at the boys and girls in the arrow. Are there more boys, more girls, or the same number ... more boys, more girls, or the same number? Make an X in the box that tells your answer ... if you haven't learned how to answer yet, mark the puzzled face.

Now turn to the next page and fold your booklet.

[*Note: Starting with row C, do not assist the children with the test, except to make sure they are marking only one box . . . and at least one box.*]

C Find row C. Look at the apples in the arrow. Make an X in the box that tells how many apples there are ... how many apples there are. [*Pause.*] Remember, if you haven't learned about this yet, mark the puzzled face.

D Row D. Look at the number in the arrow. Make an X in the box which has that many marbles in it ... that many marbles in it.

E Row E. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... the number that will make the sentence true.

F Row F. Look at the problem in the arrow. Make an X on the answer ... an X on the answer.

G Row G. I am going to read a number story about pencils. I will read the story twice. Listen both times before you mark a box. John had 12 pencils. He gave 7 pencils to Tim. How many pencils did John have left? [*Repeat. Allow time for the children to figure out their answers to rows G and H.*]

H Row H. This number story is about collections of cans. For this story, you may write on the paper if you want to. Debbie has 32 cans in her collection. Her brother Bob has 56 cans. How many more cans does Bob have than Debbie? [*Repeat and give "puzzled face" reminder, if necessary, to move the test along. Also remind them to make an X on their answer, if necessary.*]

I Row I. Look at the numbers in the arrow. They are in order from smallest to largest. What number goes on the line ... what number goes on the line?

J Row J. Look at the number in the arrow. Make an X on the box that has has another name for the number ... another name for the number.

K Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about cards. After I read the story, make an X on the number sentence that tells how to find the answer. Bill has 4 football cards. He also has 9 baseball cards. How many cards does Bill have altogether? [*Repeat.*]

L Row L. This number story is about candies. Make an X on the number sentence that tells how to find the answer. Kathy had 78 candies. She gave 35 candies to Jim. How many candies did Kathy have left? [*Repeat.*]

M Row M. This number story is about a plant. A plant was 8 cubes tall. It grew some. Now it is 14 cubes tall. How much did it grow? [*Repeat.*]

N Row N. This number story is about trees. Mark the number sentence that tells how to find the answer. Mrs. Turner had 67 trees. 29 trees were pine trees and the rest were oak trees. How many trees were oak trees? [*Repeat.*]

Turn to the next page.

O Row O. This number story is about bricks. Mr. Brown needs 11 bricks. He has 8 bricks already. How many more bricks should he get? [*Repeat.*]

P Row P. This number story is about books. For this story, you may write on the paper if you want to. The library had 54 books about animals. Then the librarian bought 18 more animal books. How many animal books does the library have now? [*Repeat, use "puzzled face" and "make an X" reminders as necessary.*]

Q Row Q. Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "puzzled face."*]

R Row R. Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "puzzled face."*]

S Row S. Look at the picture of the doghouse. We can see some puppies outside the doghouse. 9 puppies are inside the doghouse. We cannot see them. How many puppies are there altogether? ... some puppies are outside ... 9 puppies are inside ... how many puppies are there altogether?

T Row T. We are going to count backwards, starting at 18. When we count backwards one number we get 17. When we count backwards two numbers we get 16. What do we get when we count backwards four numbers from 18 ... what do we get when we count backwards four numbers from 18?

Turn to the next page.

U Row U. What number is 5 less than 23 ... 5 less than 23?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

STORY A Joe has 9 whistles. His sister Debra has 15 whistles. How many more whistles does Debra have than Joe? [*Repeat.*]

STORY B Mike has 48 red leaves. He also has 26 yellow leaves. How many leaves does Mike have altogether? [*Repeat.*]

STORY C Jill has 29 nails. How many more nails does she have to put with them so she has 87 nails altogether? [*Repeat.*]

STORY D Jerry had 6 apples. His mother gave him 8 more apples. How many apples did Jerry have altogether? [*Repeat.*]

Turn to the last page.

The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems.

I am going to play a tape--the voice on the tape will say problems, like this: [*Play the four sample problems 2 + 8, 5 + 6, 7 + 4, 8 + 3.*] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page--the ones with capital letters A, B, C .... The voice on the tape will tell you where to write your answers. Do your best to keep up with the voice. Get your pencil ready. [*Start tape.*]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[*10 second pause; make sure the children are working on the top row.*]

Now I am going to say problems for all the rest of the boxes in the top row. I will not stop, so write your answers quickly. If you can't think of an answer, just leave the box empty. Ready?

Form R

Box C 1 + 5

Box D 3 + 2

Box E 4 + 4

Box F 3 + 6

Box G 4 + 3

Box H 6 + 2

Box I 5 + 8

Box J 6 + 9

Box K 9 + 3

Box L 5 + 7

Box M 8 + 9

Box N 3 + 8

Stop working. You may rest for a moment...then we will work on the bottom row.

[*10 second pause*]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[*10 second pause--make sure the children are in the bottom row.*]

Now I am going to say problems for the rest of the boxes. I will not stop, so write your answers quickly. If you can't think of an answer, leave the box empty. Ready?

Form R

Box C 5 - 1

Box D 9 - 2

Box E 8 - 7

Box F 5 - 3

Box G 7 - 6

Box H 8 - 5

Box I 14 - 7

Box J 12 - 5

Box K 11 - 8

Box L 13 - 7

Box M 12 - 9

Box N 15 - 8

Stop working. Put your pencil down.

[*Stop the tape.*]

That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

[*Collect the booklets.*]

Directions for Algorithm Timed Tests

(Distribute the tests, telling the children not to open them yet.)

SAY: Today we are going to do a new kind of math problem. Probably you have <u>not</u> learned how to do these problems yet. Don't worry about that--just do the best you can.

I will say "GO" when you should begin working. Then after a little while I will say "STOP." Please don't start working until I say "GO."

Now turn to the page that says ADD. *(Make sure children are on the right page.)* Look at the red dotted line. First you will do the problems ABOVE the red line. When I say "GO," do as many problems <u>above</u> the red line as you can before I say "STOP." Don't work <u>below</u> the red line yet. Ready? "GO!" *(Allow 1½ minutes.)* "STOP!!" Now we will work on the problems <u>below</u> the red line. Ready? "GO!" *(Allow 1½ minutes.)* "STOP!!"

"STOP!" That was a very short time, wasn't it?!! You will be learning how to do these problems faster. Now turn to the page that says SUBTRACT.

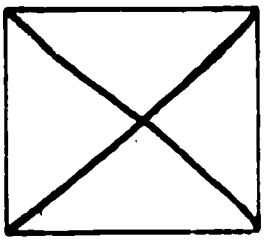
(Repeat above procedure exactly for the SUBTRACT page.)

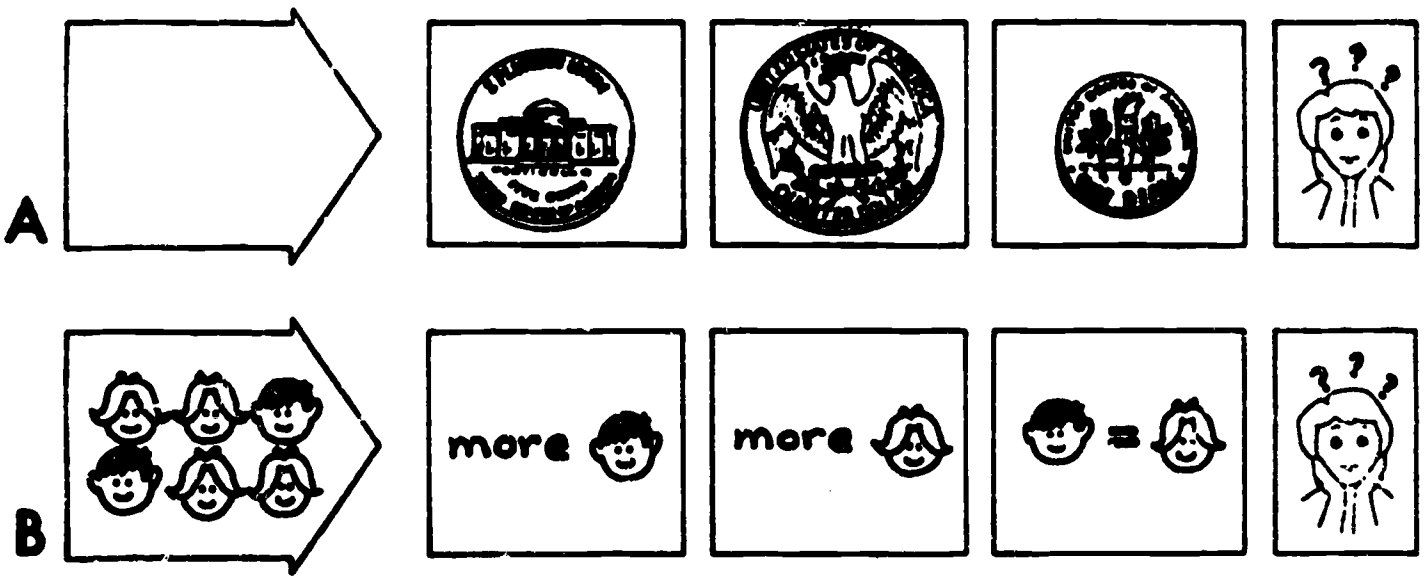
"STOP!" That was fast too, wasn't it? Next time we come, you'll be able to do more. *(Collect tests.)*

R

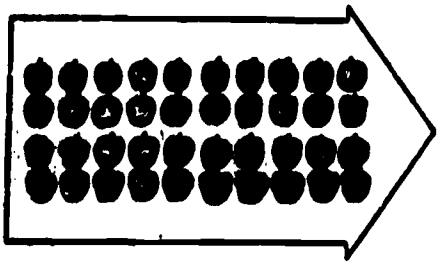
ID_ _ _ _ _ _ _ _

Name _____





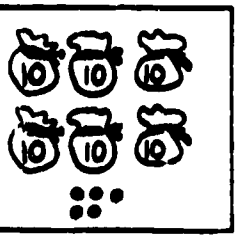
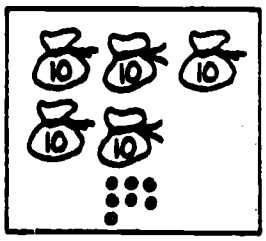
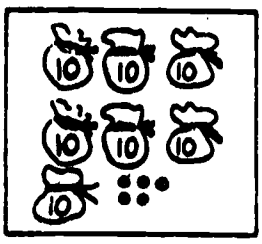
C



39	40	41	

D

75

E

$8 - 6 = \square$

14	2	3	

F

$\begin{array}{r} 7 \\ +\,6 \\ \hline \end{array}$

13	12	1	

G

6	19	5	

H

24	56	88	

I

37 39 __ 42 45

44

38

41

J

26

20(10)+6

1(10)+16

2(10)+16

K

9−4=□

4+9=□

94=□

L

43−35=□

78+35=□

78−35=□

M

8−6=□

14+8=□

14−8=□

N

67+29=□

67−29=□

67+67=□

O 

19	11	3

P 

72	64	36

Q

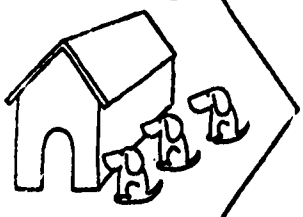
$$\begin{array}{r} 16 \\ +\,44 \\ \hline \end{array}$$

60	50	61

R

$$\begin{array}{r} 85 \\ -\,59 \\ \hline \end{array}$$

34	44	26

S 

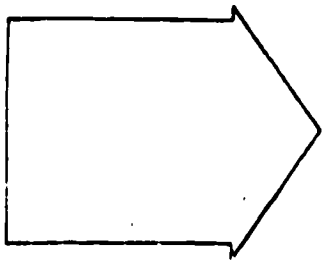
11	13	12

T

14	13	15

70

U



20

19

18

A 

B 

C 

D 

9
A B C D E F G H I J K L M N
3
a b c d e f g h i j k l m n

72 Add

$$\begin{array}{r} 30 \\ +\ 21 \\ \hline \end{array}$$

$$\begin{array}{r} 29 \\ +\ 64 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ +\ 56 \\ \hline \end{array}$$

$$\begin{array}{r} 722 \\ +\ 34 \\ \hline \end{array}$$

$$\begin{array}{r} 263 \\ +\ 459 \\ \hline \end{array}$$

Subtract

$$\begin{array}{r} 67 \\ -\ 42 \\ \hline \end{array}$$

$$\begin{array}{r} 72 \\ -\ 28 \\ \hline \end{array}$$

$$\begin{array}{r} 32 \\ -\ 5 \\ \hline \end{array}$$

$$\begin{array}{r} 698 \\ -\ 457 \\ \hline \end{array}$$

$$\begin{array}{r} 504 \\ -\ 227 \\ \hline \end{array}$$

S

Directions for Administering Achievement Monitoring Test S

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice—or the key phrases are repeated after the original question is read. Read the questions at a somewhat slower than conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test, the basic facts speed test, will be administered via tape.

Since many children will not know how to do the majority of the test, especially at the beginning of the year, they will no doubt want to ask questions or want you to repeat items yet again. Please do not allow this--instead, ask them to answer "as best they can" or to mark the "puzzled face" to show they have "not learned this yet." Note also that reading the answers to the children is not permitted.

Since this is a group-administered test, verbal exchanges with individual children can be distracting and interfering—try to establish a policy of not talking and not allowing the children to talk in between questions.

Should the above directions seem unnecessarily stringent, please realize that we are attempting to measure change over time and that we have very few questions on which to base this measurement. The children will take the other forms of this same test at 6 week intervals and then they will repeat the three forms; hopefully each time they will be able to answer the questions more successfully.

Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children not to solve the problem, and again, to use the "puzzled face" when they need to. The third part of the test, the taped basic facts questions is a speed test. Once the tape is started, it will not be stopped.

Preparations for Testing

The children will need two pencils with erasers. They will not need scratch paper for this test, since they will write in the "arrow" space. The children's names have been written on the tests in advance; distribute the tests, making sure each child has his/her own test.

Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade . . . each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it—you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with the puzzled face. [*Pause.*]

Which box has the tallest flag in it? Make an X on the box with the tallest flag. [*Pause.*] If you haven't learned about this yet, make an X in the last box, the one with the puzzled face. [*Check to see that the children mark only one box in the row.*]

EXAMPLE B Find row B. Look at the number in the arrow. Make an X on the box which has that many socks in it ... the box which has that many socks in it. If you haven't learned about this yet, mark the puzzled face.

Now turn to the next page and fold your booklet.

[*Note: Starting with row C, do not assist the children with the test, except to make sure they are marking only one box ... and at least one box.*]

C Row C. Look at the sticks in the arrow. Make an X on the box that tells how many sticks there are ... the box that tells how many sticks there are. [*Pause.*] Remember, if you haven't learned about this yet, mark the puzzled face.

D Row D. Make an X on the box that has 24 cubes in it ... 24 cubes in it.

E Row E. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... make an X on the number that will make the sentence true.

F Row F. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... make an X on the number that will make the sentence true.

G Row G. I am going to read a number story about toy airplanes. I will read the story twice. Listen both times before you mark a box. David has 9 toy airplanes. His sister Nancy has 13 toy airplanes. How many more toy airplanes does Nancy have than David? [*Repeat. Allow time for the children to figure out their answers to rows G and H.*]

H Row H. This number story is about bottle caps. For this story you may write on the paper if you want to. Tom has 24 old bottle caps. He also has 57 new bottle caps. How many bottle caps does Tom have altogether? [*Repeat. If necessary, remind the children to "make an X" on their answer. Also, use the "puzzled face" reminder as necessary.*]

I Row I. Which box shows the numbers in order from smallest to largest ... in order from smallest to largest?

J Row J. Look at the little squares in the arrow. Make an X on the box that tells how many squares there are...how many squares there are.

K Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about hats. After I read the story, make an X on the number sentence that tells how to find the answer. Karla had 15 hats. She gave 9 hats to Steve. How many hats did Karla have left? [*Repeat.*]

L Row L. This number story is about stickers. Make an X on the number sentence that tells how to find the answer. Sarah has 28 stickers. Her brother Ricky has 34 stickers. How many more stickers does Ricky have than Sarah? [*Repeat.*]

M Row M. This number story is about things to drink. There are 11 glasses on the table. 5 have orange juice in them. The rest have milk in them. How many glasses have milk in them? [*Repeat.*]

N Row N. This number story is about children swimming. There were 46 children swimming in the pool. 27 more children jumped into the pool. How many children were in the pool then? [*Repeat.*]

Turn to the next page.

O Row O. This number story is about shells. 17 shells are in a box. Some shells are little. 8 are big. How many little shells are in the box? [*Repeat.*]

P Row P. This number story is about soccer. For <u>this</u> story you may write on the paper if you want to. There were some soccer players on the field. 23 more players came. Now there are 35 players on the field. How many players were on the field at first? [*Repeat. Use "puzzled face" and "make an X" reminders as necessary.*]

Q Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "puzzled face."*]

R Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "puzzled face."*]

S Row S. We are going to count up from the number 12. When we count up one number from 12 we get 13. When we count up two numbers from 12 we get 14. What do we get when we count up five numbers from 12 ... what do we get when we count up five numbers from 12?

T Row T. Look at the garage and the cars. There are 15 cars altogether. We can see some cars outside the garage. The rest are inside the garage. How many cars are inside the garage? There are 15 cars altogether ... some are outside ... the rest are inside ... how many are inside?

Turn to the next page.

U Row U. I am going to tell you about some numbers ... listen ... 24 comes 1 number after 23 ... 25 comes 2 numbers after 23 ... what number comes 6 numbers after 23 ... what number comes 6 numbers after 23?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

STORY A Judy has 4 chocolate cupcakes. She also has 7 white cupcakes. How many cupcakes does Judy have altogether? [*Repeat.*]

STORY B Steve had 65 pennies. He gave 36 of them to Laura. How many pennies did Steve have left? [*Repeat.*]

STORY C There are 86 marbles in a jar. 54 are big and the rest are little. How many little marbles are in the jar? [*Repeat.*]

STORY D Adam has 7 puzzles. How many more puzzles does he have to put with them so he has 12 puzzles altogether? [*Repeat.*]

Turn to the last page.

78 The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems.

I am going to play a tape--the voice on the tape will say problems, like this: [*Play the four sample problems 2 + 8, 5 + 6, 7 + 4, 8 + 3.*] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page--the ones with capital letters A, B, C .... The voice on the tape will tell you where to write your answers. Do your best to keep up with the voice. Get your pencil ready. [*Start tape.*]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[*10 second pause; make sure the children are working on the top row.*]

Now I am going to say problems for all the rest of the boxes in the top row. I will not stop, so write your answers quickly. If you can't think of an answer, just leave the box empty. Ready?

Form S

Box C 3 + 1

Box D 2 + 5

Box E 1 + 6

Box F 7 + 2

Box G 2 + 6

Box H 3 + 5

Box I 4 + 8

Box J 3 + 7

Box K 5 + 9

Box L 6 + 8

Box M 8 + 7

Box N 4 + 9

Stop working. You may rest for a moment...then we will work on the bottom row.

[*10 second pause*]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[*10 second pause--make sure the children are in the bottom row.*]

Now I am going to say problems for the rest of the boxes. I will not stop, so write your answers quickly. If you can't think of an answer, leave the box empty. Ready?

Form S

Box C 7 - 1

Box D 8 - 4

Box E 9 - 5

Box F 7 - 4

Box G 8 - 6

Box H 4 - 3

Box I 11 - 2

Box J 13 - 8

Box K 12 - 7

Box L 15 - 9

Box M 10 - 2

Box N 16 - 7

Stop working. Put your pencil down.

[*Stop the tape.*]

That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

[*Collect the booklets.*]

Directions for Algorithm Timed Tests

(Distribute the tests, telling the children not to open them yet.)

SAY: Today we are going to do a new kind of math problem. Probably you have not learned how to do these problems yet. Don't worry about that--just do the best you can.

I will say "GO" when you should begin working. Then after a little while I will say "STOP." Please don't start working until I say "GO."

Now turn to the page that says ADD. *(Make sure children are on the right page.)* Look at the red dotted line. First you will do the problems ABOVE the red line. When I say "GO," do as many problems above the red line as you can before I say "STOP." Don't work below the red line yet. Ready? "GO!" *(Allow 1½ minutes.)* "STOP!!" Now we will work on the problems below the red line. Ready? "GO!" *(Allow 1½ minutes.)* "STOP!!"

"STOP!" That was a very short time, wasn't it?!! You will be learning how to do these problems faster. Now turn to the page that says SUBTRACT.

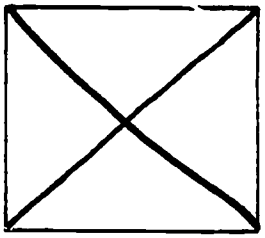
(Repeat above procedure exactly for the SUBTRACT page.)

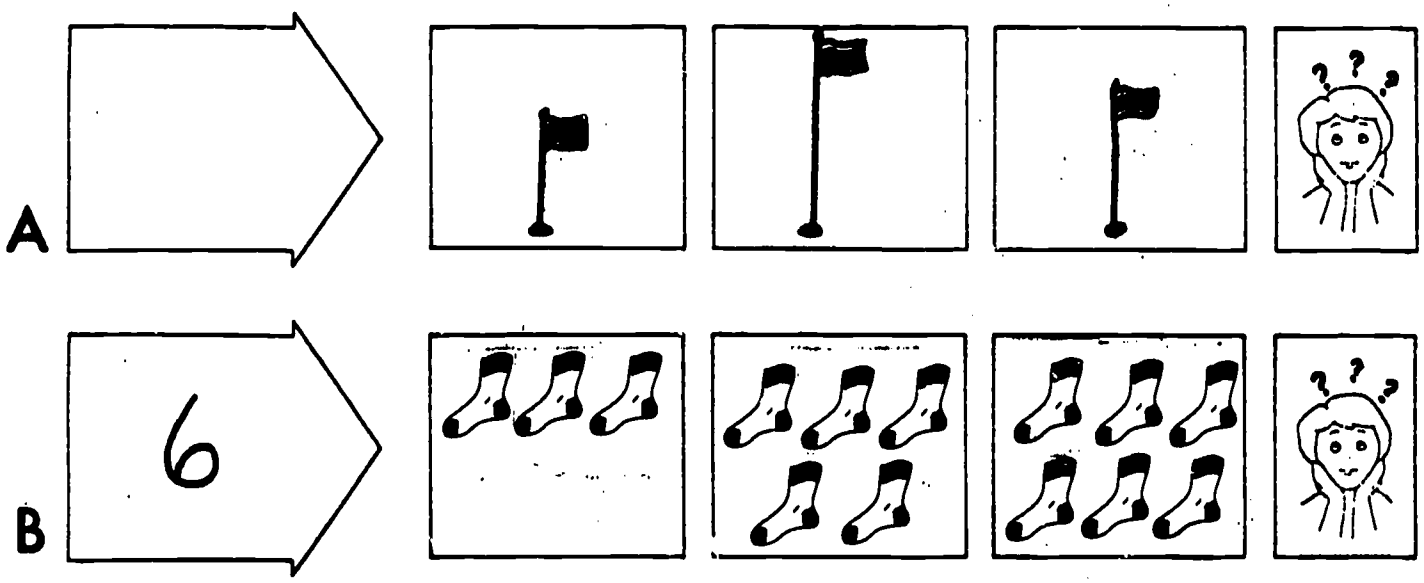
"STOP!" That was fast too, wasn't it? Next time we come, you'll be able to do more. *(Collect tests.)*

ID_ _ _ _ _ _ _ _ _

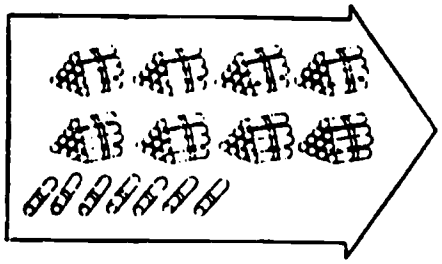
S

Name _____



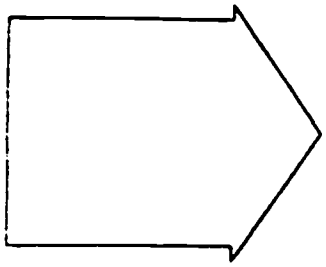


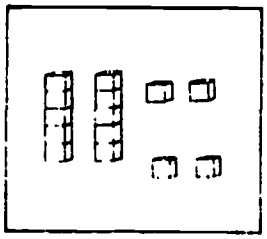
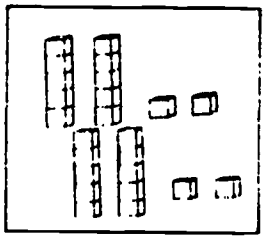
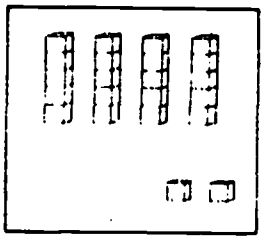
C



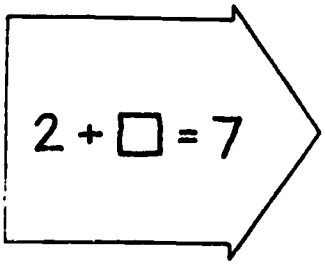
87	97	15	

D



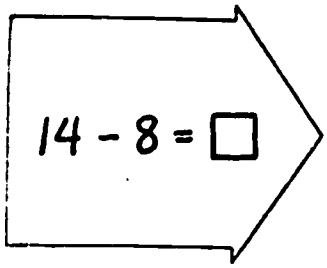
			

E



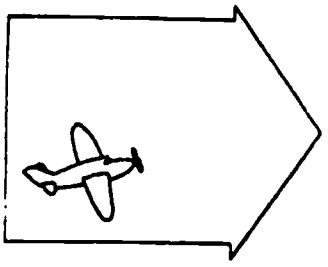
5	9	7	

F



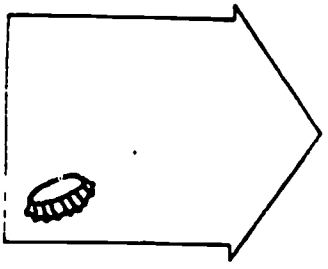
6	7	8	

G

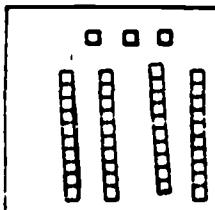


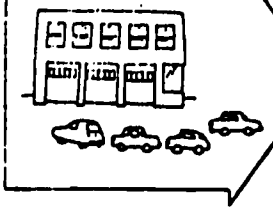
4	13	5	

H

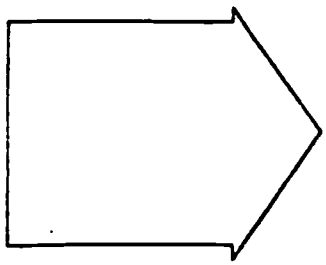


33	73	81	

I	92 98 89	37 57 63	28 82 36	
J 	3 tens + 13 ones	3 tens + 4 ones	4 tens + 13 ones	
K 	15 + 9 = ☐	15 − 9 = ☐	9 − 6 = ☐	
L 	28 + 34 = ☐	34 + 6 = ☐	34 − 28 = ☐	
M 	11 + 5 = ☐	11 + 6 = ☐	11 − 5 = ☐	
N 	46 − 27 = ☐	46 + 27 = ☐	61 + 27 = ☐	

O 	25	17	9	
P 	12	23	58	
Q $\begin{array}{r} 29 \\ +64 \\ \hline \end{array}$	83	93	813	
R $\begin{array}{r} 67 \\ -42 \\ \hline \end{array}$	32	29	25	
S	17	16	15	
T 	12	11	10	

U



28	29	30	

A 

B 

C 

D 

9
A
B
C
D
E
F
G
H
I
J
K
L
M
N

3
a
b
c
d
e
f
g
h
i
j
k
l
m
n

Add

$$\begin{array}{r} 53 \\ +34 \\ \hline \end{array}$$

$$\begin{array}{r} 45 \\ +28 \\ \hline \end{array}$$

$$\begin{array}{r} 68 \\ +\ 8 \\ \hline \end{array}$$

$$\begin{array}{r} 265 \\ +314 \\ \hline \end{array}$$

$$\begin{array}{r} 19 \\ 64 \\ +\ 58 \\ \hline \end{array}$$

88 Subtract

$$\begin{array}{r} 85 \\ -\ 59 \\ \hline \end{array}$$

$$\begin{array}{r} 53 \\ -\ 34 \\ \hline \end{array}$$

$$\begin{array}{r} 76 \\ -\ 4 \\ \hline \end{array}$$

$$\begin{array}{r} 749 \\ -\ 69 \\ \hline \end{array}$$

$$\begin{array}{r} 482 \\ -\ 231 \\ \hline \end{array}$$

Directions for Administering Achievement Monitoring Test T

Coordinated Study #1 & #2

General Directions

Reading the Test. The first part of this test is in multiple choice format and is read aloud to the children. Read the questions exactly as they are printed in the directions; do not paraphrase. Each question is read twice--or the key phrases are repeated after the original question is read. Read the questions at a somewhat slower than conversational pace. The second part of the test involves verbal problems for which the child must write, but not solve, a number sentence. Again, you will read the number story twice. The third part of the test, the basic facts speed test, will be administered via tape.

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Make sure the children mark only one box and that they mark at least one box. Encourage them to use the "puzzled face" by reminding them that this response means "I haven't learned this (how to do this) yet."

Pacing the Test. Try to keep the test moving. Expecially for the number story and algorithm problems it may take a "long" time for the children to figure out an answer. As a rule of thumb, allow the group to work on each question until only one or two children are still working. At that point, if necessary, suggest that anyone still working mark the "puzzled face" box. Then just go on to the next question without waiting longer. The second part of the test, sentence writing, may go slowly. Remind the children not to solve the problem, and again, to use the "puzzled face" when they need to. The third part of the test, the taped basic facts questions is a speed test. Once the tape is started, it will not be stopped.

Preparation for Testing

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Specific Directions

SAY: Today we are going to do some work with numbers in this booklet. You learned how to do some parts of the work last year in first grade. You will learn how to do more of the work this year in second grade. We don't expect you to know how to do all of the work today. We will come back again and again while you are in second grade ... each time you will have learned how to do more of the work.

Find your name on the line. Look at the big box with an X in it—you will answer the questions today by making a big X like this one.

EXAMPLE A Now find row A. I am going to ask you a question. You will answer by making a big X in one of the boxes. If you haven't learned about the answer yet, make an X in the last box, the one with the puzzled face. [*Pause.*]

Which box has the most sailboats in it? Make an X in the box with the most sailboats in it. [*Pause.*] If you haven't learned about this yet, make an X in the last box, the one with the puzzled face. [*Check to see that the children mark only one box in the row.*]

EXAMPLE B Find Row B. Look at the trucks in the arrow. Make an X on the box that tells how many trucks there are ... how many trucks there are. [*Pause.*] Remember, if you haven't learned about this yet, mark the puzzled face.

Now turn to the next page and fold your booklet.

[*Note: Starting with row C, do not assist the children with the test except to make sure they are marking only one box and at least one box.*]

C Row C. Make an X on the box that has a seventy-four in it ... make an X on the box that has a seventy-four in it. [*Pause.*] If you haven't learned about this yet, mark the puzzled face.

D Row D. Look at the number in the arrow. Make an X on the box that has that many stars in it ... make an X on the box that has that many stars in it.

E Row E. Look at the problem in the arrow. What number is the answer ... what number is the answer?

F Row F. Look at the number sentence in the arrow. Make an X on the number that will make the sentence true ... make an X on the number that will make the sentence true.

G Row G. I am going to read a number story about fish. I will read the story twice. Listen both times before you mark a box. Judy has 6 little fish. She also has 9 big fish. How many fish does Judy have altogether? [*Repeat. Allow time for the children to figure out their answers to rows G and H.*]

H Row H. This number story is about comics. For this story, you may write on the paper if you want to. Paul had 43 comics. He gave 28 comics to Carol. How many comics did Paul have left? [*Repeat and give "puzzled face" reminder if necessary to move the test along. You also might need to remind children to "make an X" on their answer.*]

I Row I. Look at the three purses. Which purse has the least amount of money in it ... the least amount of money?

J Row J. Look at the numbers in the arrow. Make an X on the box that means the same as the numbers in the arrow...that means the same as the numbers in the arrow.

K Row K. Look at the number sentences. One of the number sentences tells how to find the answer for this story about keys. After I read the story, make an X on the number sentence that tells how to find the answer. Sally has 8 keys. Her brother Mike has 14 keys. How many more keys does Mike have than Sally? [*Repeat.*]

L Row L. This number story is about beads. After I read the story, make an X on the number sentence that tells how to find the answer. Jack has 16 red beads. He also has 56 green beads. How many beads does Jack have altogether? [*Repeat.*]

M Row M. This number story is about links. Mark the number sentence that tells how to find the answer. Patty made a chain of links. She used 3 links first. Then she used 8 more links. How many links long is her chain? [*Repeat.*]

N Row N. This number story is about marbles. On Tuesday Melinda won 31 marbles. On Wednesday she won some more marbles. She won 64 marbles altogether. How many marbles did she win on Wednesday? [*Repeat.*]

Turn to the next page.

O Row O. This number story is about tickets. First Julie bought 7 tickets to ride on the roller coaster. Then she bought 4 more tickets to ride on the ferris wheel. How many tickets did Julie buy? [*Repeat.*]

P Row P. This story is about a dog's leash. For <u>this</u> story you may write on the paper if you want to. The dog's leash is 75 links long. A part of the leash 47 links long is around a tree. The rest of the leash is not. How long is the part that is <u>not</u> around a tree? [*Repeat. Remind about "puzzled face" and "make an X on answer" as necessary.*]

Q Row Q. Look at the problem in the arrow. What number is the answer ... what number is the answer? [*Mention "write on paper" reminder*]

R Row R. Look at the problem in the arrow. What number is the answer ... what number is the answer?

S Row S. I am going to tell you about some numbers ... listen ... 16 comes one number before 17. 15 comes two numbers before 17. What number comes 5 numbers before 17 ... 5 numbers before 17?

T Row T. What number is 3 more than 28 ... 3 more than 28?

Turn to the next page.

U Row U. Look at the picture in the arrow. Mr. Smith wants to buy 14 oranges. He has put 9 oranges in the cart already. They are on the bottom of the cart -- you cannot see them. How many more oranges does he need? [*Pause.*] Mr. Smith wants 14 oranges. He has 9 oranges in the cart. How many more oranges does he need?

Now we will do some different work. I will read a number story to you. Then I want you to write a number sentence for the story. You don't need to solve the sentence. Just write the sentence the best you can without solving it. Write it on the line.

STORY A Jenny had 13 balloons. She gave 9 balloons to Ben. How many balloons did Jenny have left? [*Repeat.*]

STORY B Mark has 16 crayons. His sister Pam has 58 crayons. How many more crayons does Pam have than Mark? [*Repeat.*]

STORY C Jean had 26 bottle caps. Her mother gave her 37 more bottle caps. How many bottle caps did Jean have altogether? [*Repeat.*]

STORY D There are 11 trucks in the sandbox. 8 are big and the rest are little. How many little trucks are in the sandbox? [*Repeat.*]

Turn to the last page.

The work on this page is different. I want to see how quickly you can think of the answers for addition and subtraction problems. 93

I am going to play a tape--the voice on the tape will say problems, like this: [*Play the four sample problems 2 + 8, 5 + 6, 7 + 4, 8 + 3.*] The problems will go very quickly, even faster than when you were in first grade. Today you probably will not know very many answers, but when I come back and we do these problems again, you will know more. Don't feel bad if you don't know the answers today.

We will start with the row of boxes at the top of the page--the ones with capital letters A, B, C .... The voice on the tape will tell you where to write your answers. Do your best to keep up with the voice. Get your pencil ready. [*Start tape.*]

Script on Tape: Look at the row of boxes at the top of the page. Find box A. I am going to say problems like 5 + 4. The answer for 5 + 4 is 9. So there is a 9 in box A. Find Box B. What is 7 + 1? 7 + 1 is 8. You write an 8 in box B.

[*10 second pause; make sure the children are working on the top row.*]

Now I am going to say problems for all the rest of the boxes in the top row. I will not stop, so write answers quickly. If you can't think of an answer, just leave the box empty. Ready?

Form T

Box C 2 + 4

Box D 6 + 3

Box E 5 + 2

Box F 2 + 3

Box G 5 + 0

Box H 1 + 3

Box I 9 + 2

Box J 6 + 6

Box K 4 + 7

Box L 7 + 6

Box M 9 + 7

Box N 6 + 4

Stop working. You may rest for a moment...then we will work on the bottom row.

[*10 second pause*]

Ready to listen again? Look at the bottom row of boxes. Find Box A. This time I am going to say problems like 9 - 6. The answer for 9 - 6 is 3. So there is a 3 in box A. Find box B. What is 4 - 2? 4 - 2 is 2. You write a 2 in box B.

[*10 second pause--make sure the children are in the bottom row.*]

Now I am going to say problems for the rest of the boxes. I will not stop, so write your answers quickly. If you can't think of an answer, leave the box empty. Ready?

Form T

Box C 3 - 2

Box D 6 - 4

Box E 9 - 1

Box F 7 - 3

Box G 6 - 1

Box H 7 - 5

Box I 10 - 4

Box J 13 - 9

Box K 14 - 8

Box L 11 - 7

Box M 12 - 4

Box N 17 - 9

Stop working. Put your pencil down.

[*Stop the tape.*]

That is all the work we will do today. Remember, we will come again and you will do work like this again. Each time I come, you will be able to do more of the work.

[*Collect the booklets.*]

Directions for Algorithm Timed Tests

(Distribute the tests, telling the children not to open them yet.)

SAY: Today we are going to do a new kind of math problem. Probably you have not learned how to do these problems yet. Don't worry about that--just do the best you can.

I will say "GO" when you should begin working. Then after a little while I will say "STOP." Please don't start working until I say "GO."

Now turn to the page that says ADD. *(Make sure children are on the right page.)* Look at the red dotted line. First you will do the problems ABOVE the red line. When I say "GO," do as many problems above the red line as you can before I say "STOP." Don't work below the red line yet. Ready? "GO!" *(Allow 1½ minutes.)* "STOP!!" Now we will work on the problems below the red line. Ready? "GO!" *(Allow 1½ minutes.)* "STOP!!"

"STOP!" That was a very short time, wasn't it?!! You will be learning how to do these problems faster. Now turn to the page that says SUBTRACT.

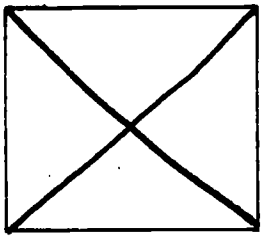
(Repeat above procedure exactly for the SUBTRACT page.)

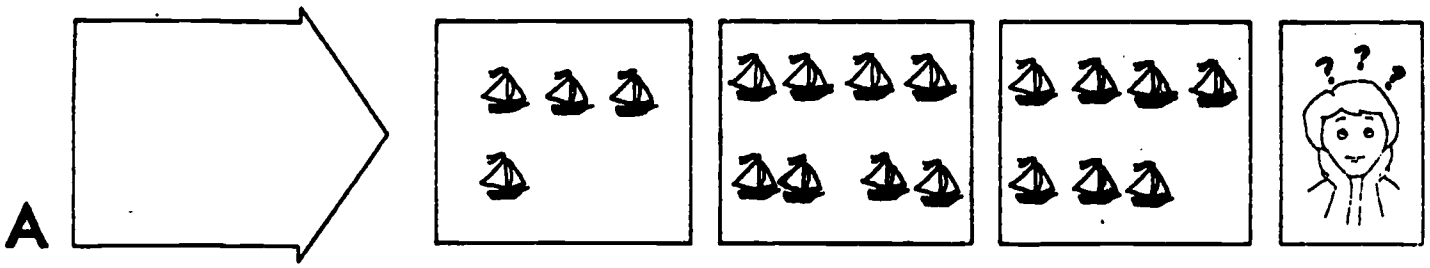
"STOP!" That was fast too, wasn't it? Next time we come, you'll be able to do more. *(Collect tests.)*

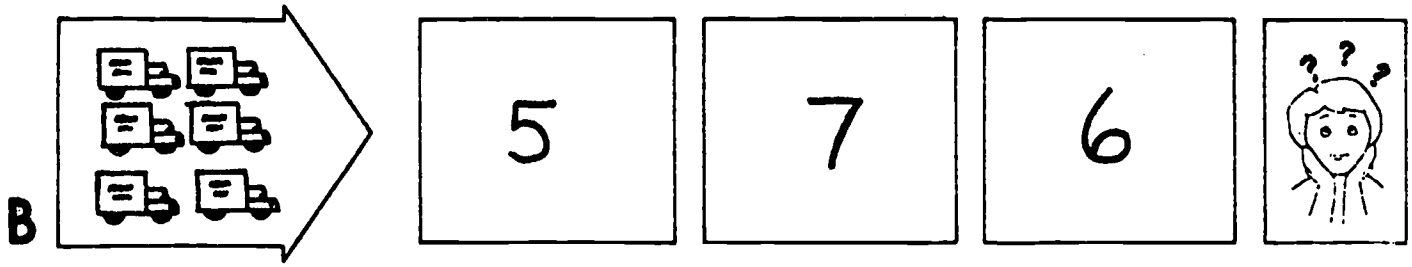
ID 96 _ _ _ _ _ _

T

Name _____







C

	44	47	74

D

36	********** ********** ********** ******	********** ********** ********** ********** ********** ********** ********** ***	********** ********** ******

E

9 − 2	7	6	11

F

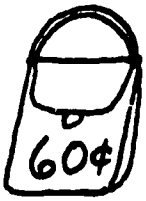
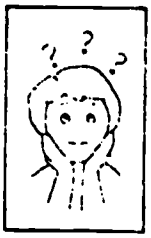
5 + 8 = □	12	13	3

G

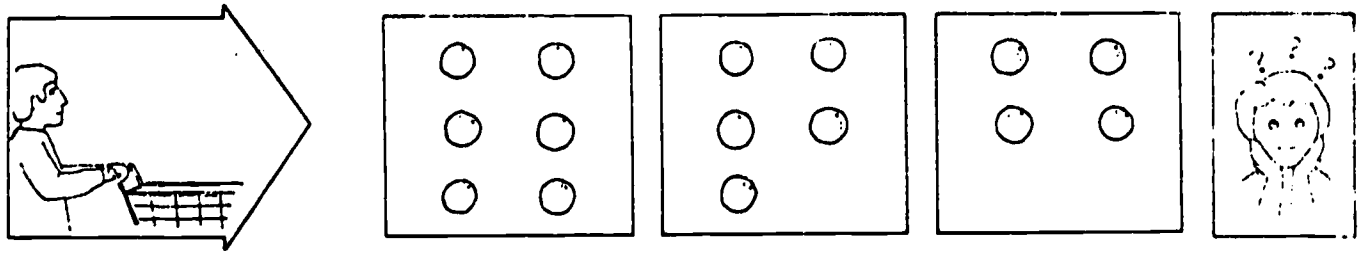
	3	14	15

H

	25	15	35

I	98				
J	7(10)+18	78	718	88	
K		14+8=□	14−8=□	14+6=□	
L		72+56=□	56−16=□	16+56=□	
M		8+8=□	8−3=□	3+8=□	
N		64=□	64−31=□	31+64=□	

O		3	12	11
P		28	32	112
Q	53 + 34	21	87	67
R	32 − 5	27	37	7
S		13	14	12
T		31	30	32

U 

A 

B 

C 

D 

9
A
B
C
D
E
F
G
H
I
J
K
L
M
N
3
a
b
c
d
e
f
g
h
i
j
k
l
m
n

102

Add

$$\begin{array}{r} 16 \\ +44 \\ \hline \end{array}$$

$$\begin{array}{r} 77 \\ +95 \\ \hline \end{array}$$

$$\begin{array}{r} 46 \\ +\ 3 \\ \hline \end{array}$$

$$\begin{array}{r} 409 \\ +\ 62 \\ \hline \end{array}$$

$$\begin{array}{r} 174 \\ +642 \\ \hline \end{array}$$

Subtract

$$\begin{array}{r} 56 \\ -\ 25 \\ \hline \end{array}$$

$$\begin{array}{r} 83 \\ -\ 67 \\ \hline \end{array}$$

$$\begin{array}{r} 61 \\ -\ 5 \\ \hline \end{array}$$

$$\begin{array}{r} 586 \\ -\ 63 \\ \hline \end{array}$$

$$\begin{array}{r} 846 \\ -\ 393 \\ \hline \end{array}$$

Appendix B

ITEM STATISTICS FOR FORMS R, S, T

FOR THE TOTAL POPULATION

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 1 ARM, NUMBER, AR-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	1	3.3	-.32	-.37	-.77	-.89	9.00	16.00
C 2	1	25	83.3 C	.41	.40	.83	.88 C	13.56	31.84
3	0	3	10.0	-.06	-.01	-.10	-.02	12.67	30.33
4	0	1	3.3	-.47	-.44	-1.14	-1.07	7.00	13.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

ITEM DESCRIPTIONS
Numerousness
Writes 0-99

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	0	.0	.00	.00	.00	.00	.00	.00
2	0	1	3.3	-.01	-.09	-.02	-.22	13.00	27.00
C 3	1	19	63.3 C	.52	.47	.67	.60 C	14.05	33.21
4	0	10	33.3	-.51	-.45	-.69	-.59	11.30	25.90
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Numerousness
Represents 0-99

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	0	.0	.00	.00	.00	.00	.00	.00
C 2	1	30	100.0 C	.00	.00	.00	.00 C	13.10	30.57
3	0	0	.0	.00	.00	.00	.00	.00	.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Open Sentences
Subtraction 0-9

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	27	90.0 C	.25	.34	.40	.56 C	13.30	31.41
2	0	2	6.7	-.07	-.15	-.13	-.28	12.50	26.50
3	0	1	3.3	-.32	-.37	-.77	-.89	9.00	16.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Open Sentences
Addition 10-18

TEST NO 1 ACH, MONITR, 4R=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	1	3.3		-.47	-.44	-1.14	-1.07		7.00	13.00
2	0	0	.0		.00	.00	.00	.00		.00	.00
C 3	1	28	93.3	C	.57	.50	.99	1.02	C	13.46	31.71
4	0	1	3.3		-.32	-.37	-.77	-.89		9.00	16.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

Problem Solving (A)
Subt-simple separating 11-15

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	16	53.3	C	.43	.33	.54	.41	C	14.06	32.81
2	0	0	.0		.00	.00	.00	.00		.00	.00
3	0	0	.0		.00	.00	.00	.00		.00	.00
4	0	14	46.7		-.43	-.33	-.54	-.41		12.00	28.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

Problem Solving (A)
Subt-comparison 0-99

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	1	3.3		-.16	.09	-.39	.21		11.00	34.00
1	0	0	.0		.00	.00	.00	.00		.00	.00
2	0	2	6.7		-.01	.18	-.02	.35		13.00	35.50
C 3	1	26	86.7	C	.26	.02	.40	.03	C	13.35	30.62
4	0	1	3.3		-.32	-.37	-.77	-.89		9.00	16.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

Order, Place Value
Ordering 0-99

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	4	13.3		.19	.44	.30	.69		14.25	38.75
C 2	1	7	23.3	C	.08	.01	.10	.02	C	13.43	30.71
3	0	4	13.3		.11	.06	.17	.10		13.75	31.75
4	0	15	50.0		-.26	-.35	-.33	-.44		12.47	28.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

Order, Place Value
Place Value 0-99

TEST NO 1 ACH, MONITOR, 4H-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	1	3.3	.30	.19	.73	.45	17.00	38.00
C 2	1	29	96.7 C	-.30	-.19	-.58	-.36 C	12.97	30.31
3	0	0	.0	.00	.00	.00	.00	.00	.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (A)
Add-part part whole 11-15

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	0	.0	.00	.00	.00	.00	.00	.00
2	0	3	10.0	-.20	-.21	-.34	-.35	11.67	26.00
C 3	1	26	86.7 C	.18	.28	.28	.43 C	13.27	31.38
4	0	1	3.3	-.01	-.19	-.02	-.46	13.00	23.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (A)
Subt-simple separating 0-99

ITEM NUMBER 11

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	2	6.7	-.35	-.38	-.67	-.74	10.00	20.00
2	0	21	70.0	-.00	.08	-.00	.11	13.10	30.95
C 3	1	6	20.0 C	.36	.31	.52	.45 C	14.83	35.17
4	0	1	3.3	-.32	-.37	-.77	-.89	9.00	16.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (B)
Subt-join-addend 11-15

ITEM NUMBER 12

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	12	40.0	-.37	-.29	-.47	-.37	12.00	27.92
C 2	1	16	53.3 C	.35	.29	.43	.36 C	13.87	32.56
3	0	1	3.3	-.01	-.19	-.02	-.46	13.00	23.00
4	0	1	3.3	.07	.19	.17	.45	14.00	38.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (B)
Subt-part part whole-addend 0-99

TEST NO 1 ACH, MONITR, 4R=POP SUBTEST 1 GENERAL OBJECTIVES

110

ITEM NUMBER 13

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	2	6,7	,04	,03	,09	,07	13,50	31,50
2	0	0	,0	,00	,00	,00	,00	,00	,00
C 3	1	26	86,7 C	-,02	-,10	-,04	-,16 C	13,08	30,27
4	0	2	6,7	-,01	,11	-,02	,21	13,00	33,50
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Problem Solving (B)
Subt-join-addend 11-15

ITEM NUMBER 14

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	18	60,0 C	,71	,68	,91	,86 C	14,50	34,67
2	0	2	6,7	-,51	-,53	-,99	-1,02	8,50	16,00
3	0	3	10,0	-,06	-,04	-,10	-,07	12,67	29,67
4	0	7	23,3	-,48	-,45	-,67	-,62	11,00	24,57
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Problem Solving (B)
Add-simple joining 0-99

ITEM NUMBER 15

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	19	63,3 C	,41	,51	,52	,65 C	13,84	33,42
2	0	5	16,7	-,21	-,19	-,31	-,29	12,00	27,40
3	0	3	10,0	-,13	-,09	-,21	-,15	14,00	28,67
4	0	3	10,0	-,52	-,49	-,89	-,84	9,33	19,67
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Algorithms
Addition Algorithm

ITEM NUMBER 16

127

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	9	30,0	,09	,36	,12	,48	13,44	34,67
2	0	4	13,3	,02	-,07	,04	-,11	13,25	29,25
C 3	1	5	16,7 C	,06	,00	,08	,00 C	13,40	30,60
4	0	12	40,0	-,15	-,29	-,19	-,37	12,67	27,92
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Algorithms
Subtraction Algorithm

128

TEST NO 1 ACH, MONITR, 4R=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
1	0	1	3,3		-,32	-,37	-,77	-,89		9,00	16,00
2	0	3	10,0		-,43	-,42	-,74	-,71		10,00	21,33
C 3	1	26	86,7	C	,55	,56	,84	,86	C	13,62	32,19
4	0	0	,0		,00	,00	,00	,00		,00	,00
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		30									

Counting On 9-18

ITEM NUMBER 18

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
C 1	1	22	73,3	C	,34	,20	,45	,27	C	13,59	31,45
2	0	3	10,0		,13	,22	,21	,37		14,00	35,33
3	0	3	10,0		-,38	-,27	-,66	-,46		10,33	24,67
4	0	2	6,7		-,29	-,29	-,56	-,56		10,50	22,50
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		30									

Counting Back 9-18

ITEM NUMBER 19

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
1	0	2	6,7		-,18	,05	-,34	,10		11,50	32,00
2	0	4	13,3		-,22	-,19	-,35	-,30		11,75	27,00
C 3	1	22	73,3	C	,50	,38	,67	,51	C	13,82	32,27
4	0	2	6,7		-,40	-,47	-,77	-,91		9,50	17,50
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		30									

Counting Back 18-31

LENTAP 2.0 SUMMARY ITEM STATISTICS PAGE 37

TEST NO 1 ACH, MONITR, 4R-PSP SUBTEST 2 SENTENCE WRITING FREE RESPONSE

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ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	11	36.7 C	.78	.34	.99	.43	C	3.55	33.82	Sentence Writing
2	0	19	63.3	-.78	-.34	-.99	-.43		1.89	28.68	Subt-comparison 11-15
TOTAL		30									

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	26	86.7 C	.57	.60	.84	.92	C	2.73	32.31	Sentence Writing
2	0	4	13.3	-.57	-.60	-.91	-.95		1.00	19.25	Add-part part whole 0-99
TOTAL		30									

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	9	30.0 C	.82	.46	1.08	.61	C	3.78	35.78	Sentence Writing
2	0	21	70.0	-.82	-.46	-1.07	-.61		1.95	28.33	Subt-join-addend 0-99
TOTAL		30									

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	29	96.7 C	.45	.19	.87	.37	C	2.59	30.83	Sentence Writing
2	0	1	3.3	-.45	-.19	-1.10	-.46		.00	23.00	Add-simple joining 11-15
TOTAL		30									

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 39.

TEST NO 1 ACH, MONITR, 4R-POP — SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1 — COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	0	,0	,00	,00	,00	,00		,00	,00	
C 1	1	30	100,0	,00	,00	,00	,00	C	7,83	30,57	1 + 5
2	0	0	,0	,00	,00	,00	,00		,00	,00	
TOTAL		30									

ITEM NUMBER 2 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	2	6,7	-,67	-,58	-1,29	-1,12		2,00	14,50	
C 1	1	28	93,3	,67	,58	1,17	1,02	C	8,25	31,71	3 + 2
2	0	0	,0	,00	,00	,00	,00		,00	,00	
TOTAL		30									

ITEM NUMBER 3 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	0	,0	,00	,00	,00	,00		,00	,00	
C 1	1	29	96,7	-,17	,01	-,33	,03	C	7,76	30,59	4 + 4
2	0	1	3,3	,17	-,01	,42	-,03		10,00	30,00	
TOTAL		30									

ITEM NUMBER 4 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	4	13,3	-,56	-,58	-,89	-,91		4,50	19,75	
C 1	1	25	83,3	,74	,74	1,08	1,08	C	8,60	33,00	3 + 6
2	0	1	3,3	-,47	-,44	-1,13	-1,07		2,00	13,00	
TOTAL		30									

ITEM NUMBER 5 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	4	13,3	-,48	-,34	-,75	-,53		5,00	24,25	
C 1	1	22	73,3	,54	,44	,72	,60	C	8,59	32,55	4 + 3
2	0	4	13,3	-,22	-,24	-,36	-,38		6,50	26,00	
TOTAL		30									

TEST NO 1 ACH, MONITH, 4R=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	4	13.3		-.65	-.56	-1.02	-.89		4.00	20.00	
C 1	1	26	86.7	C	.65	.56	.99	.86	C	8.42	32.19	6 + 2
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	18	60.0		-.61	-.48	-.78	-.61		6.67	27.67	
C 1	1	12	40.0	C	.61	.48	.78	.61	C	9.58	34.92	5 + 8
2		0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	21	70.0		-.58	-.36	-.68	-.46		7.05	28.81	
C 1	1	8	26.7	C	.46	.37	.63	.50	C	9.62	35.12	6 + 9
2	0	1	3.3		.17	.01	.42	.03		10.00	31.00	
TOTAL		30										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	5	16.7		-.31	-.30	-.47	-.45		6.20	25.60	
C 1	1	23	76.7	C	.54	.50	.74	.69	C	8.52	32.61	9 + 3
2	0	2	6.7		-.44	-.40	-.85	-.77		4.00	19.50	
TOTAL		30										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	20	66.7		-.51	-.44	-.66	-.58		7.00	28.25	
C 1	1	8	26.7	C	.59	.50	.80	.67	C	10.12	36.62	5 + 7
2	0	2	6.7		-.10	-.04	-.14	-.07		7.00	29.50	
TOTAL		30										

TEST NO 1 ACH, HUNTER, 4R-POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	18	60.0	-.41	-.48	-.52	-.61	7.06	27.67	
C 1	1	8	26.7 C	.46	.60	.63	.80 C	9.62	37.87	8 + 9
2	0	4	13.3	-.01	-.08	-.02	-.13	7.75	29.00	
TOTAL		30								

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	13	43.3	-.49	-.37	-.61	-.46	6.54	27.46	
C 1	1	16	53.3 C	.51	.35	.64	.44 C	8.94	33.00	3 + 8
2	0	1	3.3	-.07	.04	-.16	.09	7.00	32.00	
TOTAL		30								

TEST NO 1 NCM, HUNTER, 4A-FUP SUBTEST 1 FACTS SPEED--SUBTRACTION

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	ITEM DESCRIPTIONS
0	0	1	3.3	-.21	-.19	-.50	-.46		4.00	23.00	
C 1	1	28	93.3	.39	.35	.68	.61	C	7.43	31.25	5 - 1
2	0	1	3.3	-.34	-.29	-.81	-.70		2.00	19.00	
TOTAL		30									

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	3	10.0	-.41	-.40	-.70	-.69		3.67	21.67	
C 1	1	26	86.7	.54	.51	.82	.78	C	7.73	32.04	9 - 2
2	0	1	3.3	-.34	-.29	-.81	-.70		2.00	19.00	
TOTAL		30									

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	2	6.7	-.44	-.40	-.84	-.77		2.50	18.50	
C 1	1	26	86.7	.33	.40	.51	.62	C	7.50	31.73	8 - 7
2	0	2	6.7	-.01	-.15	-.02	-.28		7.00	26.50	
TOTAL		30									

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	7	23.3	-.55	-.57	-.76	-.78		4.29	23.00	
C 1	1	22	73.3	.67	.66	.89	.88	C	8.27	33.50	5 - 3
2	0	1	3.3	-.34	-.29	-.81	-.70		2.00	19.00	
TOTAL		30									

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	3	10.0	-.56	-.70	-.96	-1.20		2.33	15.00	
C 1	1	25	83.3	.68	.75	1.00	1.10	C	8.00	33.04	7 - 6
2	0	2	6.7	-.34	-.27	-.66	-.53		3.50	23.00	
TOTAL		30									

TEST NO 1 ACH, MONITR, 4R=POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	8	26,7		-,56	-,53	-,75	-,71		4,50	24,12	
C 1	1	17	56,7	C	,63	,49	,80	,61	C	8,71	33,71	8 - 5
2	0	5	16,7		-,18	-,02	-,27	-,03		6,00	30,20	
TOTAL		30										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	11	36,7		-,50	-,45	-,64	-,58		5,27	26,18	
C 1	1	19	63,3	C	,50	,45	,64	,58	C	8,21	33,11	14 - 7
2	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		30										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	21	70,0		-,53	-,53	-,70	-,70		6,14	30,00	
C 1	1	8	26,7	C	,61	,59	,82	,79	C	10,00	37,75	12 - 5
2	0	1	3,3		-,14	-,09	-,34	-,22		5,00	27,00	
TOTAL		30										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	17	56,7		-,39	-,33	-,49	-,41		6,18	28,47	
C 1	1	11	36,7	C	,40	,35	,52	,45	C	8,64	34,00	11 - 8
2	0	2	6,7		-,01	-,04	-,02	-,07		7,00	29,50	
TOTAL		30										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	12	40,0		-,54	-,54	-,69	-,69		5,25	25,67	
C 1	1	14	46,7	C	,64	,57	,80	,72	C	9,07	35,07	13 - 7
2	0	4	13,3		-,16	-,06	-,25	-,09		6,00	29,50	
TOTAL		30										

TEST NO. 1 ACH, HUNTER, JH-PAP SUBTEST 4 FACTS SPEED--SUBTRACTION

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ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	Pb-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	19	63,3	,65	,41	,83	,53	5,74	28,26	
C 1	1	11	36,7 C	,65	,41	,83	,53 C	9,55	34,55	12 - 9
2	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	Pb-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	23	76,7	,59	,51	,80	,70	6,22	28,48	
C 1	1	7	23,3 C	,59	,51	,81	,71 C	10,14	37,43	15 - 8
2	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

TEST NO 2 = MCH, MONTH, 4S=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	0	,0		,00	,00	,00	,00		,00	,00	
C 1	1	8	22,9	C	,43	,31	,59	,44	C	13,12	31,00	
2	0	1	2,9		-,09	-,14	-,24	-,36		9,00	21,00	Numerousness
3	0	23	65,7		-,27	-,10	-,34	-,13		10,09	26,35	Writes 0-99
4	0	3	8,6		-,13	-,22	-,24	-,40		9,33	21,67	
5	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		35										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	,0		,00	,00	,00	,00		,00	,00	
1	0	1	2,9		-,09	-,09	-,24	-,24		9,00	23,00	
C 2	1	28	80,0	C	,50	,32	,71	,45	C	11,46	28,00	Numerousness
3	0	2	5,7		-,17	-,15	-,35	-,30		8,50	22,50	Represents 0-99
4	0	4	11,4		-,46	-,24	-,75	-,40		6,75	22,00	
5	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		35										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	,0		,00	,00	,00	,00		,00	,00	
C 1	1	28	80,0	C	,39	,34	,55	,48	C	11,29	28,07	
2	0	7	20,0		-,39	-,34	-,55	-,48		8,29	22,00	Open Sentences
3	0	0	,0		,00	,00	,00	,00		,00	,00	Addition 0-9
4	0	0	,0		,00	,00	,00	,00		,00	,00	
5	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		35										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	,0		,00	,00	,00	,00		,00	,00	
C 1	1	24	68,6	C	,33	,27	,43	,35	C	11,37	28,17	
2	0	4	11,4		-,02	-,06	-,04	-,09		10,50	25,75	Open Sentences
3	0	2	5,7		,06	,09	,13	,18		11,50	29,50	Subtraction 10-18
4	0	5	14,3		-,46	-,37	-,71	-,57		7,20	20,40	
5	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		35										

TEST NO 2 ACH, MONTEN, 46-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	1	2.9	.07	-.09	.19	-.24		12.00	23.00	
C 1	1	22	62.9	C .47	.55	.61	.70	C	11.82	29.86	
2	0	2	5.7	-.37	-.32	-.75	-.65		6.00	17.50	Problem Solving (A)
3	0	6	17.1	-.10	-.12	-.15	-.17		10.00	25.00	Comparison 11-15
4	0	4	11.4	-.37	-.41	-.61	-.67		7.50	18.75	
5	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		35									

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	0	.0	.00	.00	.00	.00		.00	.00	
1	0	1	2.9	-.09	-.02	-.24	-.05		9.00	26.00	
2	0	10	28.6	.04	.09	.06	.12		10.90	27.90	Problem Solving (A)
C 3	1	13	37.1	C .36	.16	.46	.20	C	12.15	28.31	Add-part part whole 0-99
4	0	11	31.4	-.39	-.24	-.51	-.32		8.91	24.27	
5	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		35									

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	1	2.9	.07	.22	.19	.56		12.00	36.00	
1	0	8	22.9	-.27	-.31	-.38	-.43		9.12	22.75	
C 2	1	18	51.4	C .55	.61	.68	.77	C	12.33	31.11	Order, Place Value
3	0	3	8.6	-.10	-.38	-.18	-.68		8.67	18.00	Ordering 0-99
4	0	5	14.3	-.41	-.30	-.63	-.46		7.60	21.60	
5	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		35									

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	5	14.3	C .41	.36	.63	.56	C	13.80	33.20	
2	0	2	5.7	-.04	-.19	-.05	-.39		11.00	32.50	Order, Place Value
3	0	10	28.6	.08	.01	.11	.02		11.10	27.00	Place Value 0-99
4	0	18	51.4	-.37	-.35	-.47	-.44		9.56	24.39	
5	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		35									

TEST NO 2 ACH, MONTH, 45-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
	0	0	0	.0	.00	.00	.00	.00	.00	.00
	1	0	0	.0	.00	.00	.00	.00	.00	.00
C	2	1	33	94.3	-.02	-.02	-.04	-.04	10,87	26,82
	3	0	0	.0	.00	.00	.00	.00	.00	.00
		0	2	5.7	.02	.02	.05	.04	11,00	27,50
	5	0	0	.0	.00	.00	.00	.00	.00	.00
	TOTAL		35							

Sentence Writing (A)
Subt-simple separating 11-15

ITEM NUMBER 10

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
	0	0	0	.0	.00	.00	.00	.00	.00	.00
	1	0	22	62,9	-.19	-.06	-.25	-.08	10,23	26,50
	2	0	4	11.4	.01	-.09	.01	-.15	10,75	25,00
C	3	1	8	22,9	.30	.20	.41	.28	12,37	29,50
	4	0	1	2,9	-.20	-.14	-.52	-.36	7,00	21,00
	5	0	0	.0	.00	.00	.00	.00	.00	.00
	TOTAL		35							

Sentence Writing (A)
Subt-comparison 0-99

ITEM NUMBER 11

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
	0	0	0	.0	.00	.00	.00	.00	.00	.00
	1	0	11	31.4	-.35	-.26	-.45	-.34	9,09	24,09
	2	0	0	.0	.00	.00	.00	.00	.00	.00
C	3	1	22	62,9	.36	.26	.46	.47	11,55	28,86
	4	0	2	5,7	-.05	-.24	-.11	-.48	10,00	20,00
	5	0	0	.0	.00	.00	.00	.00	.00	.00
	TOTAL		35							

Sentence Writing (B)
Subt-part part whole-addend 11-15

ITEM NUMBER 12

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
	0	0	0	.0	.00	.00	.00	.00	.00	.00
	1	0	4	11.4	-.14	-.24	-.23	-.40	9,50	22,00
C	2	1	28	80,0	.25	.24	.35	.34	11,07	27,71
	3	0	1	2,9	-.09	-.02	-.24	-.05	9,00	26,00
	4	0	2	5,7	-.17	-.06	-.35	-.13	8,50	25,00
	5	0	0	.0	.00	.00	.00	.00	.00	.00
	TOTAL		35							

Sentence Writing (B)
Add-simple joining 0-99

TEST NO 2 MEN, MINTR, 4B-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 13 COEFFICIENTS OF CORRELATION MEANS

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	0	0	0	,0	,00	,00	,00	,00		,00	,00	
	1	0	1	2,9	-,09	-,02	-,24	-,05		9,00	26,00	
	2	0	3	8,6	-,03	,03	-,06	,06		11,00	27,67	Problem Solving (B)
C	3	1	26	74,3	,21	,17	,29	,23	C	11,08	27,58	Subt-part part whole-addend
	4	0	5	14,3	-,25	-,23	-,38	-,36		8,80	22,80	11-15
	5	0	0	,0	,00	,00	,00	,00		,00	,00	
	TOTAL		35									

ITEM NUMBER 14 COEFFICIENTS OF CORRELATION MEANS

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	0	0	0	,0	,00	,00	,00	,00		,00	,00	
C	1	1	15	42,9	,33	,38	,42	,48	C	11,67	30,00	
	2	0	8	22,9	-,25	-,35	-,35	-,49		9,25	22,25	Problem Solving (B)
	3	0	3	8,6	,20	,22	,35	,39		12,67	32,00	Subt-join-addend 0-99
	4	0	9	25,7	-,26	-,23	-,35	-,32		9,33	24,00	
	5	0	0	,0	,00	,00	,00	,00		,00	,00	
	TOTAL		35									

ITEM NUMBER 15 COEFFICIENTS OF CORRELATION MEANS

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	0	0	0	,0	,00	,00	,00	,00		,00	,00	
	1	0	8	22,9	,19	,39	,26	,54		11,75	32,00	
C	2	1	12	34,3	,50	,21	,64	,27	C	12,83	28,92	Algorithms
	3	0	4	11,4	-,28	-,28	-,46	-,46		9,25	21,25	Addition Algorithm
	4	0	11	31,4	-,49	-,37	-,64	-,49		8,45	22,91	
	5	0	0	,0	,00	,00	,00	,00		,00	,00	
	TOTAL		35									

ITEM NUMBER 16 COEFFICIENTS OF CORRELATION MEANS

151

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
	0	0	0	,0	,00	,00	,00	,00		,00	,00	
	1	0	8	22,9	-,03	-,13	-,05	-,18		10,50	25,12	
	2	0	7	20,0	-,02	-,10	-,03	-,14		10,57	28,29	Algorithms
C	3	1	10	28,6	,49	,44	,65	,58	C	13,10	31,80	Subtraction Algorithm
	4	0	10	28,6	-,45	-,40	-,6	-,53		8,50	22,30	
	5	0	0	,0	,00	,00	,00	,00		,00	,00	
	TOTAL		35									

152

TEST NO 2 ACH, MONITR, 4S-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	,0	,00	,00	,00	,00		,00	,00
C 1	1	30	85,7	C ,33	,19	,49	,28	C	11,10	27,40
2	0	2	5,7	-,05	,11	-,11	,22		10,00	30,00
3	0	0	,0	,00	,00	,00	,00		,00	,00
4	0	3	8,6	-,36	-,32	-,65	-,58		7,00	19,33
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		35								

Counting On 9-18

ITEM NUMBER 18

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	2,9	-,15	-,16	-,38	-,42		8,00	20,00
1	0	7	20,0	-,13	-,14	-,19	-,20		9,86	24,86
C 2	1	18	51,4	C ,33	,28	,41	,32	C	11,67	28,61
3	0	6	17,1	-,03	,10	-,04	,15		10,50	28,50
4	0	3	8,6	-,26	-,29	-,47	-,52		8,00	20,00
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		35								

Counting Back 9-18

ITEM NUMBER 19

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	,0	,00	,00	,00	,00		,00	,00
1	0	5	14,3	-,27	-,25	-,43	-,39		6,60	22,40
C 2	1	26	74,3	C ,49	,44	,66	,59	C	11,58	28,69
3	0	1	2,9	-,00	-,09	-,24	-,84		9,00	23,00
4	0	3	8,6	-,36	-,31	-,65	-,55		7,00	19,67
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		35								

Counting On 18-31

TEST NO 2 ACH, NORMTR, 45-POP SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	1	2.9	.02	-.02	.05	-.05	3.00	26.00
C 1	1	33	94.3 C	.37	.08	.67	.15 C	2.97	27.00
2	0	1	2.9	-.34	-.09	-1.37	-.24	.00	23.00
TOTAL		35							

COEFFICIENTS OF CORRELATION MEANS

ITEM DESCRIPTIONS

Sentence Writing
Add-part part whole 11-15

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	32	91.4 C	.52	.22	.87	.37 C	3.03	27.34
2	0	3	8.6	-.52	-.22	-.93	-.40	1.33	21.67
TOTAL		35							

COEFFICIENTS OF CORRELATION MEANS

Sentence Writing
Subt-simple separating 0-99

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	1	2.9	-.17	-.02	-.42	-.05	2.00	26.00
C 1	1	22	62.9 C	.68	.37	.86	.48 C	3.36	28.91
2	0	12	34.3	-.63	-.37	-.81	-.48	2.08	23.17
TOTAL		35							

COEFFICIENTS OF CORRELATION MEANS

Sentence Writing
Subt-part part whole-addend 0-99

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	1	2.9	.02	-.14	.05	-.36	3.00	21.00
C 1	1	14	40.0 C	.74	.48	.93	.61 C	3.71	31.07
2	0	20	57.1	-.74	-.43	-.93	-.54	2.30	24.20
TOTAL		35							

COEFFICIENTS OF CORRELATION MEANS

Sentence Writing
Subt-join-addend 11-15

TEST NO 2 ACH, MONITR, 4S=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	33	94.3 C	,36	,27	,64	,48 C	7,30	27,33
2	0	2	5.7	-,36	-,27	-,73	-,55	3,50	19,00
TOTAL		35							

ITEM DESCRIPTIONS: 3 + 1

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	4	11.4	-,45	-,38	-,74	-,63	4,00	19,25
C 1	1	29	82.9 C	,54	,37	,78	,54 C	7,69	26,07
2	0	2	5.7	-,26	-,08	-,52	-,16	4,50	24,50
TOTAL		35							

ITEM DESCRIPTIONS: 2 + 5

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	1	2.9	-,21	-,16	-,58	-,42	4,00	20,00
C 1	1	34	97.1 C	,21	,16	,42	,32 C	7,18	27,06
2	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		35							

ITEM DESCRIPTIONS: 1 + 6

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	2	5.7	-,26	-,06	-,52	-,13	4,50	25,00
C 1	1	32	91.4 C	,34	,11	,57	,18 C	7,34	27,09
2	0	1	2.9	-,21	-,09	-,55	-,24	4,00	23,00
TOTAL		35							

ITEM DESCRIPTIONS: 7 + 2

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	7	20.0	-,48	-,56	-,69	-,80	4,71	18,86
C 1	1	28	80.0 C	,48	,56	,69	,79 C	7,68	28,86
2	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		35							

ITEM DESCRIPTIONS: 2 + 6

125

TEST NO 2 ACH, MUNITN, AS=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 6 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	10	28.6	-.51	-.34	-.68	-.45		5.10	23.00
C 1	1	24	68.6	C .50	.36	.65	.48	C	7.92	28.62
2	0	1	2.9	-.01	-.09	-.02	-.24		7.00	23.00
TOTAL		35								

3 + 5

ITEM NUMBER 7 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	19	54.3	-.71	-.55	-.89	-.69		5.47	23.26
C 1	1	11	31.4	C .68	.49	.88	.65	C	9.55	32.09
2	0	5	14.3	.12	.12	.18	.19		7.80	29.00
TOTAL		35								

4 + 8

ITEM NUMBER 8 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	13	37.1	-.51	-.47	-.65	-.60		5.46	22.46
C 1	1	22	62.9	C .51	.47	.65	.60	C	8.05	29.45
2	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		35								

3 + 7

ITEM NUMBER 9 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	24	68.6	-.43	-.43	-.56	-.56		6.37	24.79
C 1	1	8	22.9	C .59	.59	.82	.82	C	9.75	34.62
2	0	3	8.6	-.18	-.18	-.32	-.32		5.67	22.67
TOTAL		35								

5 + 9

ITEM NUMBER 10 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	25	71.4	-.59	-.55	-.79	-.73		6.16	24.36
C 1	1	7	20.0	C .62	.59	.89	.84	C	10.14	35.29
2	0	3	8.6	.07	.05	.13	.09		7.67	28.00
TOTAL		35								

6 + 8

'Z ACH. MONITR, 45=POP SUBTEST 3 FACTS SPEED--ADDITION

BER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	27	77.1		-.59	-.55	-.81	-.76		6.30	24.70
C 1	1	5	14.3	C	.65	.63	1.01	.98	C	11.00	38.00
2	0	3	8.6		.07	.03	.13	.06		7.67	27.67
TOTAL		35									

8 + 7

BER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	14	40.0		-.43	-.28	-.55	-.36		5.79	24.36
C 1	1	15	42.9	C	.70	.52	.88	.65	C	9.07	31.13
2	0	6	17.1		-.35	-.31	-.52	-.46		5.17	22.00
TOTAL		35									

4 + 9

TEST NO 2 ACH, MONITR, NS-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

128

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	2.9		-.42	-.26	-1.08	-.66		.00	16.00
C 1	1	34	97.1	C	.42	.26	.83	.51	C	6.38	27.18
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		35									

COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS: 7 - 1

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	4	11.4		-.60	-.48	-.99	-.79		2.00	17.25
C 1	1	30	85.7	C	.62	.57	.94	.87	C	6.83	20.53
2	0	1	2.9		-.15	-.20	-.30	-.72		4.00	15.00
TOTAL		35									

COEFFICIENTS OF CORRELATION — MEANS — 8 - 4

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	7	20.0		-.61	-.37	-.87	-.53		3.14	21.57
C 1	1	28	80.0	C	.61	.37	.86	.52	C	6.96	28.18
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		35									

COEFFICIENTS OF CORRELATION — MEANS — 9 - 5

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	13	37.1		-.51	-.39	-.65	-.50		4.54	23.23
C 1	1	18	51.4	C	.53	.49	.78	.62	C	7.72	30.28
2	0	4	11.4		-.21	-.10	-.34	-.30		4.75	23.25
TOTAL		35									

COEFFICIENTS OF CORRELATION — MEANS — 7 - 4

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	13	37.1		-.53	-.57	-.68	-.73		4.46	21.54
C 1	1	19	54.3	C	.67	.68	.84	.85	C	7.74	31.32
2	0	3	8.6		-.27	-.22	-.48	-.40		4.00	21.67
TOTAL		35									

COEFFICIENTS OF CORRELATION — MEANS — 8 - 6

TEST NO 2 ACH, HUNTER, 46-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	6	17.1		-.46	-.19	-.68	-.28		3.67	23.83	
C 1	1	25	71.4	C	.63	.46	.84	.62	C	7.20	28.96	4 - 3
2	0	4	11.4		-.35	-.43	-.59	-.71		3.75	18.25	
TOTAL		35										

ITEM NUMBER 7

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	5	14.3		-.42	-.28	-.66	-.43		3.60	22.00	
C 1	1	25	71.4	C	.66	.51	.87	.67	C	7.24	29.16	11 - 2
2	0	5	14.3		-.42	-.38	-.66	-.59		3.60	20.20	
TOTAL		35										

ITEM NUMBER 8

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	23	65.7		-.45	-.42	-.58	-.54		5.39	24.70	
C 1	1	6	17.1	C	.63	.72	.93	1.06	C	9.67	30.17	13 - 8
2	0	6	17.1		-.07	-.19	-.10	-.28		5.83	23.83	
TOTAL		35										

ITEM NUMBER 9

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	26	74.3		-.24	-.10	-.32	-.14		5.85	26.42	
C 1	1	4	11.4	C	.40	.27	.66	.45	C	9.00	32.25	12 - 7
2	0	5	14.3		-.07	-.12	-.10	-.18		5.80	24.80	
TOTAL		35										

ITEM NUMBER 10

					COEFFICIENTS OF CORRELATION					MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	27	77.1		-.17	-.05	-.24	-.07		5.96	26.67	
C 1	1	3	8.6	C	.46	.38	.83	.67	C	10.00	35.67	15 - 9
2	0	5	14.3		-.16	-.24	-.25	-.38		5.20	22.60	
TOTAL		35										

TEST NO 2 ACH, MONITH, 4S=POP SUBTEST 4 FACTS SPEED--SUBTRACTION

130

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	7	20.0		.02	.20	.02	.28		6.29	29.71	
C 1	1	23	65.7	C	.35	.21	.45	.27	C	6.83	27.96	10 - 2
2	0	5	14.3		-.49	-.52	-.76	-.80		3.20	17.80	
TOTAL		35										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	27	77.1		-.26	-.08	-.35	-.11		5.85	26.56	
C 1	1	2	5.7	C	.37	.16	.76	.32	C	10.00	31.50	16 - 7
2	0	6	17.1		.05	-.01	.08	-.02		6.50	26.67	
TOTAL		35										

TEST NO 3 ACH, MONITH, 4T-POV SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1 C — COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	0	,0	,00	,00	,00	,00	,00	,00	
2	0	1	2,9	-,07	-,10	-,17	-,25	10,00	22,00	Numerousness
C 3	1	33	97,1 C	,07	,10	,13	,19 C	11,00	26,55	Writes 0-99
4	0	0	,0	,00	,00	,00	,00	,00	,00	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		34								

ITEM NUMBER 2 D — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	25	73,5 C	,38	,26	,51	,38 C	11,56	27,72	
2	0	4	11,8	-,07	-,04	-,11	-,07	10,50	25,50	Numerousness
3	0	2	5,9	,00	,04	,01	,07	11,00	27,50	Represents 0-99
4	0	3	8,8	-,52	-,42	-,92	-,74	6,67	16,00	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		34								

ITEM NUMBER 3 E — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	30	88,2 C	,14	,18	,22	,29 C	11,10	26,93	
2	0	4	11,8	-,14	-,18	-,22	-,30	10,00	22,50	Open Sentences
3	0	0	,0	,00	,00	,00	,00	,00	,00	Subtraction 0-9
4	0	0	,0	,00	,00	,00	,00	,00	,00	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		34								

ITEM NUMBER 4 F — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	1	2,9	,00	-,08	,01	-,14	11,00	23,00	
C 2	1	29	85,3 C	,38	,30	,57	,45 C	11,38	27,38	Open Sentences
3	0	0	,0	,00	,00	,00	,00	,00	,00	Addition 10-18
4	0	4	11,8	-,42	-,29	-,69	-,47	8,00	20,25	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		34								

TEST NO 3 ACH, MONITH, 4T-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0	.00	.00	.00	.00		.00	.00	
1	0	0	.0	.00	.00	.00	.00		.00	.00	
2	0	2	5.9	-.24	-.22	-.48	-.45		8.50	19.50	
C 3	1	28	82.4	C .29	.23	.43	.34	C	11.32	27.25	Problem Solving (A)
4	0	4	11.8	-.17	-.11	-.28	-.19		9.75	24.00	Add-part part whole 11-15
5	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		34									

ITEM NUMBER 6

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0	.00	.00	.00	.00		.00	.00	
1	0	4	11.8	.07	.22	.12	.35		11.50	31.00	
C 2	1	10	29.4	C .18	-.18	.24	-.24	C	11.70	24.20	
3	0	3	8.8	.08	.02	.15	.04		11.67	27.00	Problem Solving (A)
4	0	16	47.1	-.26	.08	-.33	.10		10.25	27.06	Subt-simple separating 0-99
5	0	1	2.9	.00	-.19	.01	-.48		11.00	18.00	
TOTAL		34									

ITEM NUMBER 7

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	28	82.4	C .29	.51	.43	.74	C	11.32	28.25	
2	0	2	5.9	.15	-.06	.30	-.12		12.50	24.50	Order, Place Value
3	0	2	5.9	-.29	-.40	-.58	-.80		8.00	14.00	Ordering 0-99
4	0	2	5.9	-.34	-.37	-.67	-.74		7.50	15.00	
5	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		34									

ITEM NUMBER 8

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0	.00	.00	.00	.00		.00	.00	
1	0	1	2.9	.27	.21	.69	.54		15.00	36.00	
2	0	18	52.9	-.15	-.15	-.19	-.19		10.61	25.28	
C 3	1	1	2.9	C .20	-.03	.52	-.08	C	14.00	25.00	Order, Place Value
4	0	14	41.2	-.01	.09	-.02	.12		10.93	27.29	Place Value 0-99
5	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		34									

TEST NO 3 ACH, PGM 4-UOP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
	0	0	0	,0	,00	,00	,00	,00	,00	,00	
	1	0	13	38,2	,08	,14	,10	,18	11,23	27,77	
C	2	1	9	26,5	,45	,29	,60	,39	12,89	30,11	Sentence Writing (A)
	3	0	5	14,7	-,19	-,24	-,29	-,36	9,80	22,00	Subt-comparison 11-15
	4	0	7	20,6	-,42	-,27	-,59	-,38	8,86	22,29	
	5	0	0	,0	,00	,00	,00	,00	,00	,00	
	TOTAL		34								

ITEM NUMBER 10

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
	0	0	0	,0	,00	,00	,00	,00	,00	,00	
	1	0	0	,0	,00	,00	,00	,00	,00	,00	
	2	0	6	17,6	-,32	-,09	-,48	-,14	9,17	24,83	Sentence Writing (A)
C	3	1	22	64,7	,54	,24	,69	,30	12,00	27,77	Add-part part whole 0-99
	4	0	6	17,6	-,35	-,20	-,52	-,30	9,00	23,00	
	5	0	0	,0	,00	,00	,00	,00	,00	,00	
	TOTAL		34								

ITEM NUMBER 11

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
	0	0	0	,0	,00	,00	,00	,00	,00	,00	
	1	0	0	,0	,00	,00	,00	,00	,00	,00	
	2	0	1	2,9	-,33	-,39	-,85	-,99	6,00	9,00	Sentence Writing (B)
C	3	1	31	91,2	,52	,40	,86	,67	11,39	27,39	Add-simple joining 11-15
	4	0	2	5,9	-,38	-,21	-,77	-,41	7,00	20,00	
	5	0	0	,0	,00	,00	,00	,00	,00	,00	
	TOTAL		34								

ITEM NUMBER 12

	OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
	0	0	0	,0	,00	,00	,00	,00	,00	,00	
	1	0	4	11,8	,07	,18	,12	,29	11,50	30,25	
C	2	1	4	11,8	,36	,20	,58	,33	13,50	30,75	Sentence Writing (B)
	3	0	19	55,9	-,06	-,11	-,07	-,13	10,84	25,68	Subt-join-addend 0-99
	4	0	7	20,6	-,28	-,18	-,39	-,25	9,57	23,71	
	5	0	0	,0	,00	,00	,00	,00	,00	,00	
	TOTAL		34								

TEST NO 3 ACH, MONITR, 4T-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 13

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	0	.0	.00	.00	.00	.00	.00	.00
2	0	1	2.9	-.33	-.39	-.85	-.99	6.00	9.00
C 3	1	32	94.1 C	.24	.17	.43	.31 C	11.12	26.75
4	0	1	2.9	.00	.15	.01	.37	11.00	33.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		34							

Problem Solving (B)
Add-simple joining 11-15

ITEM NUMBER 14

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	2	5.9 C	.10	.05	.20	.10 C	12.00	28.00
2	0	10	29.4	.38	.15	.51	.20	12.50	28.20
3	0	5	14.7	.00	-.03	.01	-.05	11.00	25.80
4	0	17	50.0	-.40	-.11	-.50	-.17	9.94	25.35
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		34							

Problem Solving (B)
Subt-part part whole-addend 0-99

ITEM NUMBER 15

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	5	14.7	-.06	-.04	-.09	-.07	10.60	25.60
C 2	1	20	58.8 C	.27	.19	.34	.24 C	11.55	27.65
3	0	1	2.9	.27	.21	.69	.60	15.00	37.00
4	0	8	23.5	-.37	-.28	-.51	-.39	9.25	22.50
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		34							

Algorithms
Addition Algorithm

ITEM NUMBER 16

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	15	44.1 C	.40	.25	.50	.32 C	12.13	28.60
2	0	9	26.5	-.15	-.10	-.20	-.14	10.33	25.11
3	0	3	8.8	-.12	-.07	-.21	-.12	10.00	24.67
4	0	7	20.6	-.25	-.15	-.35	-.21	9.71	24.14
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		34							

Algorithms
Subtraction Algorithm

TEST NO 3 ACH, NUMITH, 4T-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17 COEFFICIENTS OF CORRELATION MEANS

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	0	.0		.00	.00	.00	.00		.00	.00
	1	0	6	17.6		-.02	.13	-.04	.20		10.83	28.67
	2	0	4	11.8		-.10	-.27	-.17	-.43		10.25	20.75
C	3	1	13	38.2	C	.55	.36	.70	.46	C	12.77	30.00
	4	0	11	32.4		-.48	-.30	-.62	-.40		9.18	23.00
	5	0	0	.0		.00	.00	.00	.00		.00	.00
	TOTAL		34									

Counting Back 9-18

ITEM NUMBER 18 COEFFICIENTS OF CORRELATION MEANS

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	0	.0		.00	.00	.00	.00		.00	.00
C	1	1	21	61.8	C	.67	.41	.85	.52	C	12.33	28.90
	2	0	5	14.7		-.38	-.19	-.59	-.30		8.60	22.80
	3	0	4	11.8		-.10	-.01	-.17	-.01		10.25	26.25
	4	0	4	11.8		-.49	-.40	-.80	-.65		7.50	18.00
	5	0	0	.0		.00	.00	.00	.00		.00	.00
	TOTAL		34									

Counting On 18-31

ITEM NUMBER 19 COEFFICIENTS OF CORRELATION MEANS

	OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
	0	0	0	.0		.00	.00	.00	.00		.00	.00
	1	0	6	17.6		-.11	-.30	-.17	-.45		10.33	21.33
C	2	1	20	58.8	C	.34	.56	.43	.71	C	11.70	30.05
	3	0	4	11.8		.18	-.04	.30	-.07		12.25	25.50
	4	0	4	11.8		-.56	-.45	-.92	-.74		7.00	16.75
	5	0	0	.0		.00	.00	.00	.00		.00	.00
	TOTAL		34									

Counting On 9-18

TEST NO 3 [illegible] SUBTEST 2 SENTENCE WRITING FREE RESPONSE

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ITEM NUMBER 1 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	34	100.0	C	.00	.00	.00	.00	C	2.41	26.41
2	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		34									

Sentence Writing
Subt-simple separating 11-15

ITEM NUMBER 2 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	2	5.9		-.14	.02	-.28	.04		2.00	27.00
C 1	1	4	11.8	C	.67	.45	1.00	.74	C	3.75	36.00
2	0	28	82.4		-.48	-.39	-.69	-.57		2.25	25.00
TOTAL		34									

Sentence Writing
Subt-comparison 0-99

ITEM NUMBER 3 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	2.9		-.10	-.17	-.25	-.42		2.00	19.00
C 1	1	30	88.2	C	.33	.22	.52	.34	C	2.50	27.03
2	0	3	8.8		-.32	-.15	-.56	-.27		1.67	22.67
TOTAL		34									

Sentence Writing
Add-simple joining 0-99

ITEM NUMBER 4 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	14	41.2	C	.84	.36	1.06	.46	C	3.14	29.79
2	0	20	58.8		-.84	-.36	-1.06	-.46		1.90	24.05
TOTAL		34									

Sentence Writing
Subt-part part whole-addend
11-15

ADMINISTRATION TIME: 84

ITEMAP 2.0 SUMMARY ITEM STATISTICS PAGE 73

TEST NO 3 ACH, MONITR, 4T-POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	4	11.8	.43	.45	.71	.74		4.50	16.75
C 1	1	26	76.5	C .54	.52	.74	.71	C	8.73	20.65
2	0	4	11.8	.27	.31	.46	.38		5.75	21.50
TOTAL		34								

COEFFICIENTS OF CORRELATION MEANS

ITEM DESCRIPTIONS

2 + 4

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	8	23.5	.49	.56	.67	.77		5.37	18.62
C 1	1	23	67.6	C .68	.71	.84	.82	C	9.22	20.22
2	0	3	8.8	.39	.34	.69	.60		4.33	18.00
TOTAL		34								

COEFFICIENTS OF CORRELATION MEANS

6 + 3

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	2.9	.24	.19	.60	.48		4.00	18.00
C 1	1	29	85.3	C .60	.42	.90	.63	C	8.59	27.76
2	0	4	11.8	.53	.36	.87	.59		3.75	18.75
TOTAL		34								

COEFFICIENTS OF CORRELATION MEANS

5 + 2

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	3	8.8	.39	.30	.69	.53		4.33	19.00
C 1	1	28	82.4	C .58	.45	.84	.65	C	8.64	28.04
2	0	3	8.8	.39	.31	.69	.55		4.33	18.67
TOTAL		34								

COEFFICIENTS OF CORRELATION MEANS

2 + 3

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	2.9	.36	.37	.91	.93		2.00	10.00
C 1	1	32	94.1	C .56	.54	1.00	.97	C	8.28	27.47
2	0	1	2.9	.42	.39	1.06	.99		1.00	9.00
TOTAL		34								

COEFFICIENTS OF CORRELATION MEANS

5 + 0

TEST NO 3 ACH, MUNITK, 4T=POP SUBTEST 3 FACTS SPEED--ADDITION

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ITEM NUMBER 6 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	1	2.9		-.12	.01	-.29	.03		6.00	27.00	
C 1	1	32	94.1	C	.38	.27	.69	.48	C	8.16	26.94	1 + 3
2	0	1	2.9		-.42	-.39	-1.06	-.99		1.00	9.00	
TOTAL		34										

ITEM NUMBER 7 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	3	8.8		-.50	-.44	-.88	-.79		3.33	15.33	
C 1	1	30	88.2	C	.66	.60	1.04	.94	C	8.57	28.10	9 + 2
2	0	1	2.9		-.42	-.39	-1.06	-.99		1.00	9.00	
TOTAL		34										

ITEM NUMBER 8 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	6	17.6		-.36	-.24	-.53	-.36		5.67	22.33	
C 1	1	27	79.4	C	.52	.39	.72	.55	C	8.63	27.96	6 + 6
2	0	1	2.9		-.42	-.39	-1.06	-.99		1.00	9.00	
TOTAL		34										

ITEM NUMBER 9 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	15	44.1		-.55	-.53	-.69	-.66		6.13	21.80	
C 1	1	12	35.3	C	.74	.67	.96	.86	C	10.75	33.42	4 + 7
2	0	7	20.6		-.21	-.14	-.30	-.20		6.71	24.29	
TOTAL		34										

ITEM NUMBER 10 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	20	58.8		-.56	-.44	-.71	-.56		6.55	23.55	
C 1	1	11	32.4	C	.65	.55	.84	.72	C	10.55	32.64	7 + 6
2	0	3	8.8		-.10	-.15	-.17	-.27		7.00	22.67	
TOTAL		34										

TEST NO 3 ACH, MONTGM, 4T-P&P SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	25	73.5	-.31	-.35	-.41	-.48	7.36	24.76	
C 1	1	5	14.7 C	.54	.56	.83	.86 C	11.60	36.80	9 + 7
2	0	4	11.8	-.19	-.13	-.29	-.20	6.50	23.75	
TOTAL		34								

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	15	44.1	-.46	-.39	-.58	-.49	6.40	23.00	
C 1	1	13	38.2 C	.78	.70	.99	.89 C	10.69	33.31	6 + 4
2	0	6	17.6	-.39	-.38	-.57	-.56	5.50	20.00	
TOTAL		34								

TEST NO 3 ACH. MONITR, 4T-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 1 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	4	11.8		-.39	-.50	-.64	-.82		1.50	15.75
C 1	1	26	76.5	C	.68	.70	.93	.96	C	6.42	29.42
2	0	4	11.8		-.50	-.42	-.82	-.68		.50	17.50
TOTAL		34									

ITEM DESCRIPTIONS: 3 - 2

ITEM NUMBER 2 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	10	29.4		-.64	-.50	-.84	-.66		1.80	20.40
C 1	1	21	61.8	C	.80	.70	1.02	.90	C	7.29	30.71
2	0	3	8.8		-.35	-.40	-.62	-.72		1.33	16.33
TOTAL		34									

6 - 4

ITEM NUMBER 3 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	4	11.8		-.23	-.28	-.38	-.45		3.00	20.50
C 1	1	26	76.5	C	.56	.53	.76	.73	C	6.19	28.69
2	0	4	11.8		-.50	-.42	-.82	-.68		.50	17.50
TOTAL		34									

9 - 1

ITEM NUMBER 4 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	15	44.1		-.67	-.57	-.84	-.71		2.60	21.47
C 1	1	15	44.1	C	.77	.71	.96	.89	C	8.07	32.60
2	0	4	11.8		-.15	-.22	-.25	-.36		3.75	21.75
TOTAL		34									

7 - 3

ITEM NUMBER 5 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	6	17.6		-.52	-.47	-.77	-.69		1.33	18.50
C 1	1	26	76.5	C	.68	.65	.93	.90	C	6.42	29.23
2	0	2	5.9		-.38	-.42	-.76	-.83		.00	13.50
TOTAL		34									

6 - 1

TEST NO 3 ACH, MONITR, 4T=POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	12	35.3		-.58	-.47	-.74	-.60		2.50	21.50	
C 1	1	16	47.1	C	.71	.63	.89	.78	C	7.69	31.56	7 - 5
2	0	6	17.6		-.20	-.23	-.30	-.34		3.67	22.50	
TOTAL		34										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	14	41.2		-.53	-.30	-.67	-.38		3.00	23.64	
C 1	1	17	50.0	C	.72	.55	.90	.69	C	7.59	30.71	10 - 4
2	0	3	8.8		-.35	-.46	-.62	-.61		1.33	15.00	
TOTAL		34										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	24	70.6		-.39	-.26	-.52	-.34		4.29	25.12	
C 1	1	6	17.6	C	.64	.55	.94	.81	C	9.83	35.67	13 - 9
2	0	4	11.8		-.20	-.29	-.33	-.47		3.25	20.25	
TOTAL		34										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	20	58.8		-.42	-.33	-.53	-.41		3.95	24.30	
C 1	1	8	23.5	C	.67	.52	.93	.71	C	9.25	33.62	14 - 8
2	0	6	17.6		-.20	-.15	-.30	-.23		3.67	23.83	
TOTAL		34										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	24	70.6		-.49	-.30	-.64	-.39		4.08	24.92	
C 1	1	7	20.6	C	.71	.57	1.00	.71	C	9.86	35.14	11 - 7
2	0	3	8.8		-.23	-.34	-.40	-.60		2.67	18.00	
TOTAL		34										

TEST NO 3 ACH, MONITH, 4T-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

142

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	20	58,8	-,25	-,16	-,31	-,21		4,45	25,35
C 1	1	6	17,6	C ,57	,53	,84	,78	C	9,33	35,33
2	0	8	23,5	-,23	-,29	-,32	-,40		3,75	22,37
TOTAL		34								

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ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	29	85,3	,07	,08	,10	,11		5,24	26,66
C 1	1	1	2,9	C ,35	,33	,89	,83	C	12,00	41,00
2	0	4	11,8	-,26	-,25	-,42	-,42		2,75	21,00
TOTAL		34								

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TEST NO 1 ACH, MONITR, 5R-POS — SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	3	10.0	-.09	-.03	-.15	-.04	12.00	31.00
C 2	1	21	70.0 C	.38	.29	.50	.38 C	13.24	32.71
3	0	5	16.7	-.23	-.25	-.34	-.37	11.40	28.00
4	0	1	3.3	-.36	-.19	-.86	-.46	8.00	25.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

ITEM DESCRIPTIONS: Numerousness Writes 0-99

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	1	3.3	-.05	-.13	-.12	-.32	12.00	27.00
2	0	0	.0	.00	.00	.00	.00	.00	.00
C 3	1	21	70.0 C	.56	.44	.74	.58 C	13.52	33.33
4	0	8	26.7	-.56	-.40	-.76	-.54	10.37	27.25
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

ITEM DESCRIPTIONS: Numerousness Represents 0-99

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	0	.0	.00	.00	.00	.00	.00	.00
C 2	1	30	100.0 C	.00	.00	.00	.00 C	12.63	31.50
3	0	0	.0	.00	.00	.00	.00	.00	.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

ITEM DESCRIPTIONS: Open Sentences Subtraction 0-9

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	28	93.3 C	.29	.34	.51	.59 C	12.82	32.07
2	0	1	3.3	-.20	-.31	-.49	-.74	10.00	21.00
3	0	1	3.3	-.20	-.16	-.49	-.39	10.00	26.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

ITEM DESCRIPTIONS: Open Sentences Addition 10-18

143

TEST NO 1 ACH, 40 ITR, 5R=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT	MEANS ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	2	6,7	-,01	-,04	-,03	-,08	12,50	30,50	
2	0	0	,0	,00	,00	,00	,00	,00	,00	
C 3	1	26	86,7 C	,22	,23	,34	,35 C	12,85	32,08	Problem Solving (A)
4	0	2	6,7	-,29	-,27	-,56	-,53	10,00	25,00	Subt-simple separating 11-15
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

ITEM NUMBER 6

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT	MEANS ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	16	53,3 C	,49	,41	,62	,55 C	13,75	34,12	
2	0	3	10,0	,14	-,13	,24	-,22	13,67	29,00	Problem Solving (A)
3	0	2	6,7	-,01	,00	-,03	,00	12,50	31,50	Subt-comparison 0-99
4	0	9	30,0	-,62	-,39	-,82	-,52	10,33	27,67	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

ITEM NUMBER 7

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT	MEANS ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	0	,0	,00	,00	,00	,00	,00	,00	
2	0	4	13,3	-,43	-,40	-,68	-,63	10,00	25,00	
C 3	1	26	86,7 C	,43	,40	,66	,62 C	13,04	32,50	Order, Place Value
4	0	0	,0	,00	,00	,00	,00	,00	,00	Ordering 0-99
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

ITEM NUMBER 8

OPTION	WT	N	P	COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT	MEANS ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	10	33,3	,22	,30	,29	,39	13,40	34,20	
C 2	1	3	10,0 C	,00	-,15	-,01	-,25 C	14,67	28,67	
3	0	4	13,3	,34	,09	,54	,15	14,75	33,00	Order, Place Value
4	0	13	43,3	-,45	-,26	-,57	-,33	11,38	29,62	Place Value 0-99
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

TEST NO 1 ACH, MONITR, SN-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	0	.0	.00	.00	.00	.00	.00	.00	
C 2	1	29	96.7 C	.13	.19	.24	.37 C	12.69	31.72	Sentence Writing (A)
3	0	1	3.3	-.13	-.19	-.30	-.46	11.00	25.00	Add-part part whole 11-15
4	0	0	.0	.00	.00	.00	.00	.00	.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		30								

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	0	.0	.00	.00	.00	.00	.00	.00	
2	0	4	13.3	-.06	.00	-.10	.00	12.25	31.50	Sentence Writing (A)
C 3	1	26	86.7 C	.06	.00	.10	.00 C	12.69	31.50	Subt-simple separating 0-99
4	0	0	.0	.00	.00	.00	.00	.00	.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		30								

ITEM NUMBER 11

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	0	.0	.00	.00	.00	.00	.00	.00	
2	0	17	56.7	-.13	-.19	-.17	-.23	12.35	30.47	Sentence Writing (B)
C 3	1	8	26.7 C	.34	.31	.46	.41 C	14.00	34.75	Subt-join-addend 11-15
4	0	5	16.7	-.23	-.12	-.34	-.18	11.40	29.80	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		30								

ITEM NUMBER 12

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	11	36.7	-.03	-.17	-.04	-.22	12.55	30.09	Sentence Writing (B)
C 2	1	16	53.3 C	.19	.26	.24	.33 C	13.06	33.06	Subt-part part whole-addend 0-99
3	0	0	.0	.00	.00	.00	.00	.00	.00	
4	0	3	10.0	-.27	-.17	-.46	-.28	10.67	28.33	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		30								

TEST NO 1 ACH, MONTH, SR-POP SUBTEST 1 GENERAL OBJECTIVES

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ITEM NUMBER 13

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
1	0	2	6.7		-.13	.08	-.24	.16		11.50	33.50	
2	0	2	6.7		-.01	.06	-.03	.12		12.50	33.00	
C 3	1	26	86.7	C	.10	-.11	.16	-.17	C	12.73	31.23	Problem Solving (B) Subt-join-addend 11-15
4	0	0	.0		.00	.00	.00	.00		.00	.00	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 14

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	17	56.7	C	.02	.43	.70	.54	C	13.94	33.06	
2	0	4	13.3		-.22	-.09	-.35	-.15		11.25	30.00	Problem Solving (B) Add-simple joining 0-99
3	0	3	10.0		-.18	-.22	-.31	-.37		11.33	27.33	
4	0	6	20.0		-.44	-.29	-.63	-.41		10.50	27.83	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 15

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	16	53.3	C	.52	.40	.66	.50	C	13.81	33.87	
2	0	1	3.3		.03	-.01	.07	-.04		13.00	31.00	Algorithms
3	0	6	20.0		-.17	-.10	-.24	-.15		11.83	30.17	Addition Algorithm
4	0	7	23.3		-.47	-.37	-.65	-.51		10.57	27.29	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

ITEM NUMBER 16

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
1	0	8	26.7		.12	.28	.17	.38		13.12	34.50	
2	0	0	26.7		-.10	-.01	-.13	-.02		12.25	31.37	
C 3	1	7	23.3	C	.34	.03	.48	.04	C	14.14	31.86	Algorithms Subtraction Algorithm
4	0	7	23.3		-.37	-.32	-.52	-.44		11.00	27.86	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		30										

TEST NO 1 AC4, MONITR, 5R-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	2	6.7	-.35	-.29	-.67	-.57	9.50	24.50	
2	0	3	10.0	-.18	-.15	-.31	-.25	11.33	28.67	
C 3	1	25	83.3 C	.38	.32	.55	.46 C	13.04	32.40	Counting On 9-18
4	0	0	.0	.00	.00	.00	.00	.00	.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		30								

ITEM NUMBER 18 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
C 1	1	22	73.3 C	.13	.33	.17	.45 C	12.82	32.77	
2	0	2	6.7	-.07	-.15	-.14	-.28	12.00	28.00	Counting Back 9-18
3	0	6	20.0	-.10	-.28	-.14	-.39	12.17	28.00	
4	0	0	.0	.00	.00	.00	.00	.00	.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		30								

ITEM NUMBER 19 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	0	.0	.00	.00	.00	.00	.00	.00	
2	0	6	20.0	.14	.18	.21	.26	13.33	33.83	
C 3	1	16	53.3 C	.41	.23	.52	.29 C	13.56	32.87	Counting Back 18-31
4	0	8	26.7	-.60	-.43	-.80	-.57	10.25	27.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		30								

TEST NO 1 ACH, WRITING, SR-PAP SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEAN	TT MEAN	ITEM DESCRIPTIONS
0	0	2	6.7	-.25	-.15	-.49	-.28	1.50	28.00	
C 1	1	16	53.3 C	.77	.25	.96	.32 C	3.31	33.00	Sentence Writing
2	0	12	40.0	-.65	-.18	-.83	-.23	1.67	30.08	Subt-comparison 11-15
TOTAL		30								

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEAN	TT MEAN	
0	0	1	3.3	-.09	-.01	-.22	-.04	2.00	31.00	
C 1	1	22	73.3 C	.57	.50	.77	.67 C	2.91	31.41	Sentence Writing
2	0	7	23.3	-.56	-.51	-.77	-.71	1.43	25.57	Add-part part whole 0-99
TOTAL		30								

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEAN	TT MEAN	
0	0	6	20.0	-.09	-.16	-.13	-.22	2.33	29.50	
C 1	1	10	33.3 C	.69	.43	.90	.56 C	3.60	35.40	Sentence Writing
2	0	14	46.7	-.58	-.28	-.73	-.36	1.86	29.57	Subt-join-addend 0-99
TOTAL		30								

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEAN	TT MEAN	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
C 1	1	28	93.3 C	.50	.06	.87	.11 C	2.68	31.61	Sentence Writing
2	0	2	6.7	-.50	-.06	-.96	-.12	.50	30.00	Add-simple joining 11-15
TOTAL		30								

ADMINISTRATION TIME: 85

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TEST NO 1 MCM, NUMTH, 5R=POP — SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1				COEFFICIENTS OF CORRELATION				MEANS		ITEM DESCRIPTIONS
OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	30	100,0 C	,00	,00	,00	,00 C	8,50	31,50	1 + 5
2	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

ITEM NUMBER 2				COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	2	6,7	-,06	-,04	-,12	-,08	8,00	30,50	
C 1	1	27	90,0 C	,03	,01	,04	,01 C	8,52	31,52	3 + 2
2	0	1	3,3	,04	,04	,10	,11	9,00	33,00	
TOTAL		30								

ITEM NUMBER 3				COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	30	100,0 C	,00	,00	,00	,00 C	8,50	31,50	4 + 4
2	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		30								

ITEM NUMBER 4				COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	3	10,0	-,33	-,34	-,56	-,58	6,33	25,00	
C 1	1	25	83,3 C	,46	,42	,68	,61 C	8,96	32,68	3 + 6
2	0	2	6,7	-,30	-,21	-,58	-,41	6,00	26,50	
TOTAL		30								

ITEM NUMBER 5				COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	3	10,0	-,38	-,39	-,64	-,67	6,00	24,00	
C 1	1	25	83,3 C	,63	,49	,92	,71 C	9,12	32,88	4 + 3
2	0	2	6,7	-,48	-,25	-,93	-,49	4,50	25,50	
TOTAL		30								

TEST NO 1 ACH, NORTH, SR=POP SUBTEST 3 FACTS SPEED--ADDITION

150

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	29	96,7 C	,29	,04	,57	,08 C	8,62	31,55	6 + 2
2	0	1	3,3	-,29	-,04	-,71	-,11	5,00	30,00	
TOTAL		30								

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	16	53,3	-,66	-,56	-,83	-,70	7,12	28,19	
C 1	1	13	43,3 C	,77	,58	,97	,73 C	10,46	35,69	5 + 8
2	0	1	3,3	-,29	-,04	-,71	-,11	5,00	30,00	
TOTAL		30								

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	15	50,0	-,38	-,32	-,47	-,40	7,67	29,47	
C 1	1	11	36,7 C	,76	,60	,98	,77 C	10,73	36,55	6 + 9
2	0	4	13,3	-,53	-,39	-,84	-,61	5,50	25,25	
TOTAL		30								

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	3	10,0	-,38	-,38	-,64	-,64	6,00	24,33	
C 1	1	22	73,3 C	,54	,47	,73	,64 C	9,23	33,32	9 + 3
2	0	5	16,7	-,34	-,26	-,51	-,39	6,80	27,80	
TOTAL		30								

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	15	50,0	-,68	-,50	-,85	-,62	7,00	28,33	
C 1	1	13	43,3 C	,77	,63	,97	,79 C	10,46	36,00	5 + 7
2	0	2	6,7	-,18	-,25	-,35	-,49	7,00	25,50	
TOTAL		30								

TEST NO 1 ACH, NUMBER, 5R-POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	16	53.3		-.36	-.52	-.45	-.65		7.75	28.44
C 1	1	11	36.7	C	.42	.60	.54	.77	C	9.73	36.55
2	0	3	10.0		-.08	-.11	-.13	-.19		8.00	29.33
TOTAL		30									

8 + 9

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	20.0		-.34	-.26	-.48	-.37		7.00	28.17
C 1	1	19	63.3	C	.36	.27	.46	.34	C	9.11	32.79
2	0	5	16.7		-.10	-.06	-.15	-.09		8.00	30.60
TOTAL		30									

3 + 8

TEST NO 1 ACH, MOULTON, SM-POW SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 1 COEFFICIENTS OF CORRELATION MEANS ITEM DESCRIPTIONS

OPTION	*T	N	P	PB*ST	PB*TT	B*ST	B*TT		ST	TT	
0	0	0	,0	,00	,00	,00	,00		,00	,00	
C 1	1	30	100,0	C ,00	,00	,00	,00	C	7,83	31,50	5 - 1
2	0	0	,0	,00	,00	,00	,00		,00	,00	
TOTAL		30									

ITEM NUMBER 2 COEFFICIENTS OF CORRELATION MEANS

OPTION	*T	N	P	PB*ST	PB*TT	B*ST	B*TT		ST	TT	
0	0	4	13,3	-,53	-,39	-,84	-,61		4,50	25,25	
C 1	1	25	83,3	C ,59	,43	,86	,63	C	8,48	32,72	9 - 2
2	0	1	3,3	-,21	-,16	-,52	-,39		5,00	26,00	
TOTAL		30									

ITEM NUMBER 3 COEFFICIENTS OF CORRELATION MEANS

OPTION	*T	N	P	PB*ST	PB*TT	B*ST	B*TT		ST	TT	
0	0	1	3,3	-,44	-,42	-1,06	-1,03		2,00	17,00	
C 1	1	29	96,7	C ,44	,42	,85	,82	C	8,03	32,00	8 - 7
2	0	0	,0	,00	,00	,00	,00		,00	,00	
TOTAL		30									

ITEM NUMBER 4 COEFFICIENTS OF CORRELATION MEANS

OPTION	*T	N	P	PB*ST	PB*TT	B*ST	B*TT		ST	TT	
0	0	1	3,3	-,44	-,42	-1,06	-1,03		2,00	17,00	
C 1	1	29	96,7	C ,44	,42	,85	,82	C	8,03	32,00	5 - 3
2	0	0	,0	,00	,00	,00	,00		,00	,00	
TOTAL		30									

ITEM NUMBER 5 COEFFICIENTS OF CORRELATION MEANS

OPTION	*T	N	P	PB*ST	PB*TT	B*ST	B*TT		ST	TT	
0	0	1	3,3	-,44	-,42	-1,06	-1,03		2,00	17,00	
C 1	1	29	96,7	C ,44	,42	,85	,82	C	8,03	32,00	7 - 6
2	0	0	,0	,00	,00	,00	,00		,00	,00	
TOTAL		30									

TEST NO 1 ACH, MONTH, SR=POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	5	16.7		-.33	-.30	-.50	-.45		6.00	27.20	
C 1	1	24	80.0	C	.41	.42	.57	.59	C	8.33	32.83	8 - 5
2	0	1	3.3		-.21	-.31	-.52	-.74		5.00	21.00	
TOTAL		30										

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	9	30.0		-.43	-.33	-.56	-.43		6.22	28.33	
C 1	1	17	56.7	C	.62	.48	.79	.57	C	9.18	34.00	14 - 7
2	0	4	13.3		-.33	-.22	-.52	-.34		5.75	28.00	
TOTAL		30										

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	13	43.3		-.54	-.50	-.68	-.63		6.31	27.85	
C 1	1	14	46.7	C	.58	.50	.73	.63	C	9.36	34.93	12 - 5
2	0	3	10.0		-.07	-.01	-.12	-.01		7.33	31.33	
TOTAL		30										

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	16	53.3		-.44	-.40	-.56	-.50		6.81	29.12	
C 1	1	10	33.3	C	.68	.62	.88	.81	C	10.20	37.10	11 - 8
2	0	4	13.3		-.29	-.28	-.46	-.44		6.00	27.00	
TOTAL		30										

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	16	53.3		-.61	-.43	-.76	-.54		6.44	28.94	
C 1	1	11	36.7	C	.73	.52	.93	.66	C	10.18	36.82	13 - 7
2	0	3	10.0		-.16	-.11	-.27	-.19		6.67	29.33	
TOTAL		30										

TEST NO. 1 ACH, QUANTM, SR-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	15	50.0		-.69	-.54	-.86	-.68		6.13	28.07	
C 1	1	10	33.3	C	.65	.41	.84	.53	C	10.10	35.20	12 - 9
2	0	5	16.7		-.10	-.20	-.15	-.30		8.40	24.40	
TOTAL		30										

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	21	70.0		-.63	-.57	-.83	-.75		6.81	29.14	
C 1	1	7	23.3	C	.64	.65	.89	.90	C	10.71	39.00	15 - 8
2	0	2	6.7		.07	-.06	.14	-.12		8.50	30.00	
TOTAL		30										

TEST NO 2 ACH, MONITR, 85=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
C 1	1	13	43.3	.43	.26	.55	.33	C	13.62	32.85
2	0	9	30.0	-.00	-.07	-.12	-.11		11.00	28.00
3	0	6	20.0	-.13	.02	-.19	.02		11.33	30.50
4	0	5	16.7	-.32	-.32	-.48	-.47		10.00	24.00
5	0	1	3.3	-.07	.04	-.17	.09		11.00	32.00
TOTAL		30								

ITEM DESCRIPTIONS: Numerousness Writes 0-99

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
1	0	1	3.3	-.26	-.15	-.62	-.37		0.00	23.00
C 2	1	27	90.0	.35	.34	.57	.55	C	12.48	31.19
3	0	1	3.3	-.26	-.32	-.62	-.78		8.00	15.00
4	0	1	3.3	-.07	-.09	-.17	-.22		11.00	26.00
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		30								

ITEM DESCRIPTIONS: Numerousness Represents 0-99

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
C 1	1	22	73.3	.13	-.01	.17	-.02	C	12.36	30.14
2	0	7	23.3	-.05	.07	-.07	.09		11.86	31.29
3	0	0	.0	.00	.00	.00	.00		.00	.00
4	0	1	3.3	-.19	-.13	-.47	-.32		9.00	24.00
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		30								

ITEM DESCRIPTIONS: Open Sentences Addition 0-9

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
C 1	1	25	83.3	.17	.17	.25	.25	C	12.36	30.88
2	0	2	6.7	.12	.19	.24	.37		13.50	36.50
3	0	2	6.7	-.15	-.19	-.28	-.36		10.50	24.00
4	0	1	3.3	-.32	-.36	-.77	-.88		7.00	13.00
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		30								

ITEM DESCRIPTIONS: Open Sentences Subtraction 10-18

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TEST NO 2 ACH, MONTH, SS-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	23	76,7 C	,34	,29	,47	,40 C	12,70	31,61
2	0	3	10,0	-,13	-,01	-,22	-,01	11,00	30,00
3	0	3	10,0	-,16	-,18	-,28	-,32	10,67	25,33
4	0	1	3,3	-,32	-,36	-,77	-,88	7,00	13,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Problem Solving (A)
Comparison 11-15

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	1	3,3	,05	-,03	,13	-,06	13,00	29,00
2	0	4	13,3	-,31	-,12	-,49	-,19	9,75	27,50
C 3	1	20	66,7 C	,27	,10	,35	,14 C	12,70	30,85
4	0	5	16,7	-,08	-,01	-,12	-,02	11,60	30,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Problem Solving (A)
Add-part part whole 0-99

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	4	13,3	-,15	-,25	-,24	-,40	11,00	24,50
C 2	1	20	66,7 C	,32	,24	,41	,31 C	12,80	31,70
3	0	1	3,3	,12	,14	,28	,35	14,00	37,00
4	0	5	16,7	-,32	-,14	-,48	-,21	10,00	27,40
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Order, Place Value
Ordering 0-99

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	7	23,3 C	,27	,24	,37	,33 C	13,57	34,00
2	0	4	13,3	,21	,05	,34	,07	13,75	31,25
3	0	6	20,0	-,25	-,34	-,35	-,49	10,67	24,17
4	0	13	43,3	-,17	,04	-,22	,05	11,54	30,62
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		30							

Order, Place Value
Place Value 0-99

TEST NO 2 ACH, MONITR, 5S=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	3	10.0	-.24	-.27	-.41	-.47	10.00	23.00
C 2	1	25	83.3 C	.44	.53	.64	.78 C	12.72	32.28
3	0	2	6.7	-.37	-.46	-.71	-.89	8.00	15.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (A)
Subt-simple separating 11-15

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	20	66.7	-.03	-.56	-.02	-.72	10.00	26.75
2	0	1	3.3	.05	-.03	.13	-.06	13.00	29.00
C 3	1	9	30.0 C	.63	.58	.83	.77 C	15.00	38.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (A)
Subt-comparison 0-99

ITEM NUMBER 11

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	12	40.0	-.45	-.35	-.57	-.45	10.50	26.42
2	0	2	6.7	-.19	-.11	-.37	-.22	10.00	26.50
C 3	1	15	50.0 C	.65	.53	.81	.67 C	14.07	34.07
4	0	1	3.3	-.32	-.36	-.77	-.88	7.00	13.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (B)
Subt-part part whole-addend 11-15

ITEM NUMBER 12

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	3	10.0	-.09	-.16	-.15	-.27	11.33	26.00
C 2	1	27	90.0 C	.09	.16	.15	.26 C	12.22	30.67
3	0	0	.0	.00	.00	.00	.00	.00	.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Sentence Writing (B)
Add-simple joining 0-99

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TEST NO 2 ICH, NUMER, RS-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 13

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	1	3.3	-.26	-.32	-.62	-.78	8.00	15.00
2	0	2	6.7	-.37	-.34	-.71	-.66	8.00	19.00
C 3	1	27	90.0 C	.46	.48	.75	.77 C	12.59	31.59
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Problem Solving (B)
Subt-part part whole-addend
11-15

ITEM NUMBER 14

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	16	53.3 C	.53	.35	.67	.44 C	13.62	33.06
2	0	5	16.7	-.23	-.31	-.34	-.46	10.60	24.20
3	0	3	10.0	-.31	-.06	-.53	-.10	9.33	28.67
4	0	6	20.0	-.22	-.11	-.31	-.15	10.83	28.33
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Problem Solving (B)
Subt-join-addend 0-99

ITEM NUMBER 15

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	5	16.7	-.02	-.02	-.03	-.03	12.00	29.80
C 2	1	16	53.3 C	.49	.31	.61	.39 C	13.50	32.75
3	0	4	13.3	-.31	-.14	-.49	-.23	9.75	27.00
4	0	5	16.7	-.35	-.27	-.52	-.40	9.80	25.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Algorithms
Addition Algorithm

ITEM NUMBER 16

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	5	16.7	-.29	-.29	-.43	-.43	10.20	24.60
2	0	10	33.3	-.08	-.02	-.10	-.03	11.60	29.90
C 3	1	8	26.7 C	.48	.51	.64	.69 C	14.50	37.62
4	0	7	23.3	-.16	-.26	-.22	-.35	11.29	26.14
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		30							

Algorithms
Subtraction Algorithm

TEST NO 2 ACH, MONTH, SS=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	25	83.3	C	.05	.18	.07	.27	C	12.20	30.92
2	0	1	3.3		.18	-.07	.43	-.16		13.00	27.00
3	0	4	13.3		-.15	-.17	-.24	-.26		11.00	26.50
4	0	0	.0		.00	.00	.00	.00		.00	.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

Counting On 9-18

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	4	13.3		-.05	.05	-.08	.07		11.75	31.25
C 2	1	16	53.3	C	.24	.32	.31	.40	C	12.81	32.81
3	0	5	16.7		-.05	-.26	-.07	-.38		11.80	25.20
4	0	5	16.7		-.23	-.21	-.34	-.32		10.60	26.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

Counting Back 9-18

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	5	16.7		-.29	-.18	-.43	-.27		10.20	26.60
C 2	1	23	76.7	C	.50	.45	.69	.62	C	12.96	32.39
3	0	2	6.7		-.41	-.49	-.80	-.95		7.50	14.00
4	0	0	.0		.00	.00	.00	.00		.00	.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		30									

Counting On 18-31

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TEST NO 2 ACH. SPLIT, 55%POP — SUBTEST 2 SENTENCE WRITING FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	29	96.7	C	.28	.24	.54	.46	C	3.24	30.59	Sentence Writing
2	0	1	3.3		-.28	-.24	-.60	-.57		2.00	19.00	Add-part part whole 11-15
TOTAL		30										

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	100.0	C	.00	.00	.00	.00	C	3.20	30.20	Sentence Writing
2	0	0	.0		.00	.00	.00	.00		.00	.00	Subt-simple separating 0-99
TOTAL		30										

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	21	70.0	C	.72	.36	.94	.48	C	3.57	32.29	Sentence Writing
2	0	9	30.0		-.72	-.36	-.94	-.48		2.33	25.33	Subt-part part whole-addend 0-99
TOTAL		30										

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	16	53.3	C	.83	.50	1.04	.63	C	3.81	34.31	Sentence Writing
2	0	14	46.7		-.83	-.50	-1.04	-.63		2.50	25.50	Subt-join-addend 11-15
TOTAL		30										

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TEST NO 2 ACH, MONTH, 3S=POP — SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	28	93.3	C	.19	.16	.33	.28	C	7.75	30.57	3 + 1
2	0	2	6.7		-.19	-.16	-.36	-.31		5.50	25.00	
TOTAL		30										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	1	3.3		-.04	-.09	-.09	-.22		7.00	26.00	
C 1	1	26	86.7	C	.30	.27	.50	.41	C	8.04	31.12	2 + 5
2	0	3	10.0		-.40	-.25	-.69	-.42		4.00	23.67	
TOTAL		30										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	3	10.0		-.48	-.45	-.82	-.77		3.33	18.33	
C 1	1	26	86.7	C	.57	.57	.88	.87	C	8.27	32.15	1 + 6
2	0	1	3.3		-.29	-.32	-.70	-.78		3.00	15.00	
TOTAL		30										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	27	90.0	C	.37	.45	.59	.73	C	7.96	31.52	7 + 2
2	0	3	10.0		-.37	-.45	-.63	-.77		4.33	18.33	
TOTAL		30										

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	3	10.0		-.33	-.17	-.56	-.29		4.67	25.67	
C 1	1	22	73.3	C	.73	.63	.90	.71	C	8.91	33.00	2 + 6
2	0	5	16.7		-.60	-.49	-.90	-.73		3.60	20.60	
TOTAL		30										

ITEM NUMBER 6 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	4	13.3		-.21	-.17	-.33	-.26		6.00	26.50	
C 1	1	22	73.3	C	.48	.46	.64	.62	C	8.45	32.64	3 + 5
2	0	4	13.3		-.41	-.43	-.65	-.69		4.50	20.50	
TOTAL		30										

ITEM NUMBER 7 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	10	33.3		-.45	-.27	-.59	-.34		5.70	26.90	
C 1	1	16	53.3	C	.75	.59	.94	.74	C	9.69	35.06	4 + 8
2	0	4	13.3		-.47	-.50	-.75	-.79		4.00	19.00	
TOTAL		30										

ITEM NUMBER 8 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	5	16.7		-.48	-.34	-.72	-.50		4.40	23.60	
C 1	1	21	70.0	C	.69	.60	.91	.78	C	8.95	33.62	3 + 7
2	0	4	13.3		-.41	-.43	-.65	-.69		4.50	20.50	
TOTAL		30										

ITEM NUMBER 9 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	13	43.3		-.52	-.48	-.65	-.60		5.85	25.38	
C 1	1	12	40.0	C	.77	.69	.98	.87	C	10.42	37.58	5 + 9
2	0	5	16.7		-.33	-.27	-.49	-.40		5.40	25.00	
TOTAL		30										

ITEM NUMBER 10 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	14	46.7		-.37	-.27	-.46	-.33		6.43	27.71	
C 1	1	10	33.3	C	.59	.55	.77	.71	C	10.10	37.00	6 + 8
2	0	6	20.0		-.24	-.32	-.34	-.45		6.17	24.67	
TOTAL		30										

TEST NO 2 ACH, MONTIR, SS=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	18	60.0	-.50	-.54	-.63	-.68		6.39	26.33	
C 1	1	5	16.7	C .60	.58	.90	.87	C	11.60	41.60	8 + 7
2	0	7	23.3	.05	.11	.07	.16		7.86	32.00	
TOTAL		30									

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	13	43.3	-.56	-.43	-.71	-.55		5.69	25.85	
C 1	1	13	43.3	C .77	.72	.97	.91	C	10.23	37.46	4 + 9
2	0	4	13.3	-.31	-.42	-.49	-.67		5.25	20.75	
TOTAL		30									

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 60

TEST NO 2 ACH, MULTIR, SS=POP — SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 1 — COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	1	3,3	-,33	-,24	-,81	-,57	1,00	19,00	
C 1	1	26	86,7 C	,68	,66	1,04	1,01 C	8,19	32,46	7 - 1
2	0	3	10,0	-,57	-,60	-,97	-1,03	1,33	14,33	
TOTAL		30								

ITEM NUMBER 2 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	27	90,0 C	,60	,53	,97	,86 C	7,96	31,74	8 - 4
2	0	3	10,0	-,60	-,53	-1,02	-,90	1,00	16,33	
TOTAL		30								

ITEM NUMBER 3 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	2	6,7	-,21	-,10	-,41	-,19	4,50	27,00	
C 1	1	22	73,3 C	,52	,50	,70	,68 C	8,36	32,86	9 - 5
2	0	6	20,0	-,44	-,50	-,63	-,71	4,17	21,50	
TOTAL		30								

ITEM NUMBER 4 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	6	20,0	-,37	-,20	-,53	-,29	4,67	26,67	
C 1	1	20	66,7 C	,80	,65	1,04	,84 C	9,25	34,20	7 - 4
2	0	4	13,3	-,68	-,66	-1,07	-1,04	1,25	15,50	
TOTAL		30								

ITEM NUMBER 5 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	9	30,0	-,32	-,29	-,42	-,38	5,56	26,33	
C 1	1	17	56,7 C	,66	,64	,84	,81 C	9,29	35,12	8 - 6
2	0	4	13,3	-,54	-,55	-,85	-,86	2,50	18,00	
TOTAL		30								

TEST NO 2 ACH, MONITH, SS-POP SUBTEST 4 FACTS-SPEED-SUBTRACTION

ITEM NUMBER 6 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	3	10,0	-,31	-,07	-,53	-,12	4,00	28,33	
C 1	1	24	80,0 C	,68	,45	,96	,63 C	8,46	32,17	4 - 3
2	0	3	10,0	-,60	-,51	-1,02	-,90	1,00	16,33	
TOTAL		30								

ITEM NUMBER 7 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	6	20,0	-,28	-,22	-,40	-,31	5,33	26,33	
C 1	1	21	70,0 C	,59	,46	,78	,59 C	8,62	32,76	11 - 2
2	0	3	10,0	-,53	-,39	-,91	-,66	1,67	20,00	
TOTAL		30								

ITEM NUMBER 8 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	19	63,3	-,24	-,21	-,31	-,27	6,63	28,79	
C 1	1	7	23,3 C	,59	,57	,81	,79 C	11,00	39,29	13 - 8
2	0	4	13,3	-,39	-,41	-,62	-,65	3,75	21,00	
TOTAL		30								

ITEM NUMBER 9 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	11	36,7	-,34	-,32	-,43	-,41	5,73	26,55	
C 1	1	14	46,7 C	,75	,73	,94	,91 C	10,07	37,00	12 - 7
2	0	5	16,7	-,57	-,56	-,85	-,84	2,80	19,20	
TOTAL		30								

ITEM NUMBER 10 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	13	43,3	-,41	-,37	-,52	-,47	5,62	26,46	
C 1	1	11	36,7 C	,77	,69	,99	,89 C	10,82	38,18	15 - 9
2	0	6	20,0	-,42	-,37	-,60	-,53	4,33	23,67	
TOTAL		30								

TEST NO 2 ACH, MONITR, SS=POP SUBTEST 4 FACTS SPEED--SUBTRACTION

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ITEM NUMBER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	7	23.3		-.27	-.13	-.37	-.18		5.57	28.14	
C 1	1	18	60.0	C	.63	.55	.80	.69	C	9.06	34.11	10 - 2
2	0	5	16.7		-.32	-.37	-.78	-.85		3.20	19.00	
TOTAL		30										

ITEM NUMBER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	17	56.7		-.34	-.37	-.43	-.47		6.24	27.35	
C 1	1	11	36.7	C	.62	.59	.79	.76	C	10.09	37.00	16 - 7
2	0	2	6.7		-.52	-.40	-1.00	-.78		.50	17.00	
TOTAL		30										

TEST NO 3 ACH, MONITH, ST-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	1	3.1	.01	-.13	.03	-.31	14.00	30.00
2	0	1	3.1	-.44	-.24	-1.10	-.59	7.00	26.00
C 3	1	30	93.8 C	.31	.26	.55	.47 C	14.03	34.90
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

ITEM DESCRIPTIONS: Numerousness Writes 0-99

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	28	87.5 C	.66	.43	1.03	.67 C	14.50	35.50
2	0	2	6.3	-.50	-.41	-.98	-.80	8.50	24.50
3	0	1	3.1	-.12	.02	-.29	.04	12.00	35.00
4	0	1	3.1	-.44	-.27	-1.10	-.66	7.00	25.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

ITEM DESCRIPTIONS: Numerousness Represents 0-99

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	31	96.9 C	.31	.58	.61	1.12 C	13.97	35.13
2	0	1	3.1	-.31	-.58	-.78	-1.43	9.00	14.00
3	0	0	.0	.00	.00	.00	.00	.00	.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

ITEM DESCRIPTIONS: Open Sentences Subtraction 0-9

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	0	.0	.00	.00	.00	.00	.00	.00
C 2	1	32	100.0 C	.00	.00	.00	.00 C	13.81	34.47
3	0	0	.0	.00	.00	.00	.00	.00	.00
4	0	0	.0	.00	.00	.00	.00	.00	.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

ITEM DESCRIPTIONS: Open Sentences Addition 10-18

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TEST NO 3 ACH, MONITR, ST=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
1	0	0	.0		.00	.00	.00	.00		.00	.00	
2	0	2	6.3		-.31	-.12	-.61	-.24		10.50	31.50	Problem Solving (A)
C 3	1	30	93.8	C	.31	.12	.55	.21	C	14.03	34.67	Add-part part whole 11-15
4	0	0	.0		.00	.00	.00	.00		.00	.00	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
1	0	6	18.8		-.00	.07	-.12	.09		13.33	35.33	
C 2	1	17	53.1	C	.39	.35	.49	.43	C	14.82	36.53	Problem Solving (A)
3	0	2	6.3		.02	-.04	.03	-.08		14.00	33.50	Subt-simple separating 0-99
4	0	7	21.9		-.40	-.46	-.56	-.64		11.71	29.00	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
C 1	1	30	93.8	C	.45	.28	.80	.50	C	14.13	34.93	
2	0	1	3.1		-.18	-.15	-.45	-.38		11.00	29.00	Order, Place Value
3	0	1	3.1		-.44	-.24	-1.10	-.59		7.00	26.00	Ordering 0-99
4	0	0	.0		.00	.00	.00	.00		.00	.00	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	0	.0		.00	.00	.00	.00		.00	.00	
1	0	0	.0		.00	.00	.00	.00		.00	.00	
2	0	25	78.1		-.01	.19	-.01	.27		13.80	35.12	Order, Place Value
C 3	1	1	3.1	C	.34	.24	.84	.60	C	19.00	43.00	Place Value 0-99
4	0	6	18.8		-.14	-.31	-.21	-.45		13.00	30.33	
5	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		32										

TEST NO 9 ACH, MO-ITR, SU-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		,00	,00	,00	,00		,00	,00
1	0	9	28.1		-,03	,02	-,04	,03		13,67	34,67
C 2	1	17	53.1	C	,32	,31	,40	,38	C	14,65	36,29
3	0	1	3.1		,01	-,13	,03	-,31		14,00	30,00
4	0	5	15.6		-,41	-,38	-,62	-,58		11,20	28,80
5	0	0	.0		,00	,00	,00	,00		,00	,00
TOTAL		32									

Sentence Writing (A)
Subt-comparison 11-15

ITEM NUMBER 10 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		,00	,00	,00	,00		,00	,00
1	0	0	.0		,00	,00	,00	,00		,00	,00
2	0	1	3.1		-,18	-,10	-,45	-,24		11,00	31,00
C 3	1	29	90.6	C	,37	,34	,60	,57	C	14,14	35,17
4	0	2	6.3		-,31	-,34	-,61	-,68		10,50	26,00
5	0	0	.0		,00	,00	,00	,00		,00	,00
TOTAL		32									

Sentence Writing (A)
Add-part part whole 0-99

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		,00	,00	,00	,00		,00	,00
1	0	0	.0		,00	,00	,00	,00		,00	,00
2	0	0	.0		,00	,00	,00	,00		,00	,00
C 3	1	32	100.0	C	,00	,00	,00	,00	C	13,81	34,47
4	0	0	.0		,00	,00	,00	,00		,00	,00
5	0	0	.0		,00	,00	,00	,00		,00	,00
TOTAL		32									

Sentence Writing (B)
Add-simple joining 11-15

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		,00	,00	,00	,00		,00	,00
1	0	2	6.3		,21	,22	,40	,44		16,00	40,00
C 2	1	7	21.9	C	,50	,44	,70	,61	C	16,43	39,71
3	0	19	59.4		-,26	-,13	-,33	-,16		13,21	33,79
4	0	4	12.5		-,39	-,52	-,62	-,83		11,00	25,75
5	0	0	.0		,00	,00	,00	,00		,00	,00
TOTAL		32									

Sentence Writing (B)
Subt-join-addend 0-99

TEST NO 3 ACH, MONITR, ST=POP SUBTEST 1 GENERAL OBJECTIVES

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ITEM NUMBER 13

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	0	.0	.00	.00	.00	.00	.00	.00
2	0	0	.0	.00	.00	.00	.00	.00	.00
C 3	1	31	96.9 C	.44	.27	.86	.52 C	14.03	34.77
4	0	1	3.1	-.44	-.27	-1.10	-.66	7.00	25.00
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

Problem Solving (B)
Add-simple joining 11-15

ITEM NUMBER 14

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	9	28.1 C	.24	.11	.33	.14 C	14.89	35.56
2	0	7	21.9	.15	.26	.20	.36	14.57	37.57
3	0	5	15.6	-.16	-.11	-.24	-.17	12.80	32.80
4	0	11	34.4	-.24	-.24	-.31	-.31	12.91	32.36
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

Problem Solving (B)
Subt-part part whole-addend 0-99

ITEM NUMBER 15

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
1	0	2	6.3	.16	.22	.31	.44	15.50	40.00
C 2	1	25	78.1 C	.51	.46	.71	.63 C	14.56	36.00
3	0	2	6.3	-.50	-.41	-.98	-.80	8.50	24.50
4	0	3	9.4	-.45	-.50	-.78	-.86	10.00	24.67
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

Algorithms
Addition Algorithm

ITEM NUMBER 16

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	24	75.0 C	.64	.58	.87	.78 C	14.83	36.58
2	0	5	15.6	-.31	-.18	-.48	-.23	11.80	32.20
3	0	0	.0	.00	.00	.00	.00	.00	.00
4	0	3	9.4	-.56	-.66	-.98	-1.16	9.00	21.33
5	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

Algorithms
Subtraction Algorithm

TEST NO 3 ACH, MJ-ITR, ST-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	4	12.5		-.28	-.16	-.45	-.26		11.75	31.75
2	0	2	6.3		-.64	-.36	-1.26	-.72		7.00	25.50
C 3	1	24	75.0	C	.67	.51	.91	.69	C	14.87	36.33
4	0	2	6.3		-.17	-.32	-.33	-.64		12.00	26.50
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		32									

MEANS — COEFFICIENTS OF CORRELATION

Counting Back 9-18

ITEM NUMBER 18

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
C 1	1	25	78.1	C	.76	.72	1.06	1.00	C	14.92	36.88
2	0	2	6.3		-.36	-.49	-.70	-.96		10.00	22.50
3	0	4	12.5		-.56	-.37	-.90	-.59		9.75	28.25
4	0	1	3.1		-.25	-.32	-.61	-.80		10.00	23.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		32									

MEANS — COEFFICIENTS OF CORRELATION

Counting On 18-31

ITEM NUMBER 19

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	3	9.4		-.33	-.19	-.57	-.34		11.00	30.67
C 2	1	20	62.5	C	.44	.52	.56	.67	C	14.75	37.05
3	0	6	18.8		-.11	-.29	-.16	-.42		13.17	30.67
4	0	3	9.4		-.25	-.29	-.44	-.51		11.67	28.67
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		32									

MEANS — COEFFICIENTS OF CORRELATION

Counting On 9-18

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 71

TEST NO 3 ACH, MONITH, ST-POP — SUBTEST 2 SENTENCE WRITING — FREE RESPONSE

172

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	31	96,9 C	,50	-,02	,96	-,03 C	3,13	34,45	Sentence Writing
2	0	1	3,1	-,50	-,02	-1,21	-,04	1,00	16,00	Subt-simple separating 11-15
TOTAL		32								

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	2	6,3	-,19	,02	-,38	,04	2,50	35,00	
C 1	1	13	40,6 C	,70	,23	,88	,29 C	3,69	36,23	Sentence Writing
2	0	17	53,1	-,59	-,24	-,74	-,30	2,65	33,06	Subt-comparison 0-99
TOTAL		32								

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	2	6,3	-,02	-,12	-,04	-,24	3,00	31,50	
C 1	1	27	84,4 C	,15	,23	,22	,35 C	3,11	35,11	Sentence Writing
2	0	3	9,4	-,17	-,19	-,30	-,34	2,67	30,67	Add-simple joining 0-99
TOTAL		32								

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	27	84,4 C	,73	,14	1,08	,21 C	3,30	34,85	Sentence Writing
2	0	5	15,6	-,73	-,14	-1,10	-,21	1,80	32,40	Subt-part part whole-addend 11-15
TOTAL		32								

TEST NO 3 ACN, MONITH, ST-HOP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1 COEFFICIENTS OF CORRELATION MEANS ITEM DESCRIPTIONS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	1	3.1	-.73	-.58	-1.81	-1.43	2.00	14.00
C 1	1	30	93.8 C	.80	.65	1.42	1.15 C	11.00	35.53
2	0	1	3.1	-.39	-.32	-.96	-.80	6.00	23.00
TOTAL		32							

2 + 4

ITEM NUMBER 2 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	1	3.1	-.73	-.58	-1.81	-1.43	2.00	14.00
C 1	1	30	93.8 C	.80	.65	1.42	1.15 C	11.00	35.53
2	0	1	3.1	-.39	-.32	-.96	-.80	6.00	23.00
TOTAL		32							

6 + 3

ITEM NUMBER 3 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	32	100.0 C	.00	.00	.00	.00 C	10.56	34.47
2	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

5 + 2

ITEM NUMBER 4 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	1	3.1	-.73	-.58	-1.81	-1.43	2.00	14.00
C 1	1	29	90.6 C	.65	.53	1.06	.87 C	11.00	35.55
2	0	2	6.3	-.25	-.22	-.50	-.44	8.50	29.00
TOTAL		32							

2 + 3

ITEM NUMBER 5 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	32	100.0 C	.00	.00	.00	.00 C	10.56	34.47
2	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		32							

5 + 0

TEST NO 3 ACH, MONITR, ST=POP SUBTEST 3 FACTS SPEED--ADDITION

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ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS	
0	0	1	3.1	-.73	-.58	-1.81	-1.43	2,00	14,00	
C 1	1	30	93.8 C	.56	.59	.99	1.04 C	10,87	35,43	1 + 3
2	0	1	3.1	-.05	-.21	-.12	-.39	10,00	26,00	
TOTAL		32								

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS	
0	0	1	3.1	-.73	-.58	-1.81	-1.43	2,00	14,00	
C 1	1	31	96.9 C	.73	.58	1.42	1.12 C	10,84	35,13	9 + 2
2	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		32								

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS	
0	0	3	9.4	-.00	-.46	-1.01	-.81	6,67	25,33	
C 1	1	28	87.5 C	.50	.34	.78	.53 C	10,96	35,29	6 + 6
2	0	1	3.1	.04	.13	.09	.32	11,00	39,00	
TOTAL		32								

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS	
0	0	5	15.6	-.73	-.68	-1.10	-1.03	7,00	24,40	
C 1	1	27	84.4 C	.73	.68	1.08	1.01 C	11,22	36,33	4 + 7
2	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		32								

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS	
0	0	6	18.8	-.77	-.63	-1.12	-.91	7,17	26,17	
C 1	1	22	68.8 C	.66	.61	.96	.80 C	11,50	37,09	7 + 6
2	0	4	12.5	-.01	-.12	-.02	-.19	10,50	32,50	
TOTAL		32								

TEST NO 3 ACH, NOWITR, ST=POP SUBTEST 3 FACTS SPEED-ADDITION

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		Pb-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	9	28,1		-,70	-,41	-,93	-,54		8,22	30,33	
C 1	1	21	65,6	C	,72	,53	,93	,68	C	11,67	36,90	9 + 7
2	0	2	6,3		-,13	-,20	-,26	-,56		9,50	27,50	
TOTAL		32										

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		Pb-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	5	15,6		-,44	-,17	-,67	-,25		8,40	32,00	
C 1	1	26	81,3	C	,47	,12	,67	,18	C	11,04	34,85	6 + 4
2	0	1	3,1		-,13	,07	-,33	,18		9,00	37,00	
TOTAL		32										

LERTAP 2.0

SUMMARY ITEM STATISTICS

TEST NO 3 ACH, NU-4TH, ST-POV — SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	ITEM DESCRIPTIONS
0	0	1	3.1		-.48	-.58	-1.20	-1.43		.00	14.00	
C 1	1	30	93.8	C	.65	.51	1.15	.90	C	7.47	35.30	3 - 2
2	0	1	3.1		-.42	-.13	-1.03	-.31		1.00	30.00	
TOTAL		32										

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	ITEM DESCRIPTIONS
0	0	6	18.8		-.62	-.58	-.90	-.84		3.67	26.83	
C 1	1	23	71.9	C	.75	.64	1.00	.72	C	8.26	36.61	6 - 4
2	0	3	9.4		-.33	-.06	-.58	-.10		4.33	33.33	
TOTAL		32										

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	ITEM DESCRIPTIONS
0	0	1	3.1		-.48	-.58	-1.20	-1.43		.00	14.00	
C 1	1	30	93.8	C	.65	.51	1.15	.90	C	7.47	35.30	9 - 1
2	0	1	3.1		-.42	-.13	-1.03	-.31		1.00	30.00	
TOTAL		32										

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	ITEM DESCRIPTIONS
0	0	3	9.4		-.46	-.39	-.80	-.69		3.33	26.67	
C 1	1	25	78.1	C	.65	.44	.90	.62	C	7.92	35.96	7 - 3
2	0	4	12.5		-.40	-.21	-.65	-.33		4.25	31.00	
TOTAL		32										

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	ITEM DESCRIPTIONS
0	0	4	12.5		-.37	-.40	-.59	-.64		4.50	27.75	
C 1	1	27	84.4	C	.53	.42	.79	.63	C	7.63	35.63	6 - 1
2	0	1	3.1		-.42	-.13	-1.03	-.31		1.00	30.00	
TOTAL		32										

TEST NO 3 ACH, NUMITM, ST-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	18.8		-.50	-.36	-.72	-.53		4.33	29.67
C 1	1	25	78.1	C	.56	.48	.78	.67	C	7.80	36.08
2	0	1	3.1		-.21	-.32	-.52	-.00		4.00	23.00
TOTAL		32									

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ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	18.8		-.65	-.62	-.94	-.89		3.50	26.33
C 1	1	24	75.0	C	.59	.48	.80	.63	C	7.92	36.17
2	0	2	6.3		-.00	.16	-.01	.32		7.00	38.50
TOTAL		32									

10 - 4

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	21	65.6		-.52	-.52	-.67	-.67		6.05	32.10
C 1	1	8	25.0	C	.55	.49	.73	.67	C	9.50	39.87
2	0	3	9.4		.04	.11	.06	.19		7.33	36.67
TOTAL		32									

13 - 9

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	21	65.6		-.32	-.35	-.41	-.45		6.43	32.86
C 1	1	6	18.8	C	.42	.29	.62	.42	C	9.33	38.33
2	0	5	15.6		-.04	.11	-.06	.22		6.80	36.60
TOTAL		32									

14 - 8

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	19	59.4		-.43	-.32	-.54	-.40		6.11	32.79
C 1	1	11	34.4	C	.42	.38	.54	.49	C	8.55	37.82
2	0	2	6.3		.05	-.10	.09	-.20		7.50	32.00
TOTAL		32									

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TEST NO 3 NCH, NU=ITR, ST=POP SUBTEST 4 FACTS SPEED=SUBTRACTION

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ITEM NUMBER 11

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	23	71,9		-,53	-,52	-,70	-,69		6,17	32,39	
C 1	1	7	21,9	C	,55	,53	,76	,75	C	9,71	40,86	12 - 4
2	0	2	6,3		,05	,06	,09	,12		7,50	36,00	
TOTAL		32										

ITEM NUMBER 12

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	19	59,4		-,21	-,31	-,27	-,39		6,58	32,84	
C 1	1	9	28,1	C	,39	,33	,52	,43	C	8,67	37,78	17 - 9
2	0	4	12,5		-,22	,02	-,36	,03		5,50	34,75	
TOTAL		32										

LERTAP 2.0 — SUMMARY ITEM STATISTICS —

TEST NO 1 ACH, MONITR, 6k=POP — SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	1	3,4	-,35	-,49	-,83	-1,16	7,00	9,00	
C 2	1	25	86,2 C	,57	,50	,88	,77 C	13,48	33,28	Numerousness
3	0	2	6,9	-,24	-,16	-,46	-,30	10,00	26,50	Writes 0-99
4	0	1	3,4	-,41	-,25	-,97	-,60	6,00	20,00	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		29								

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	0	,0	,00	,00	,00	,00	,00	,00	
2	0	1	3,4	-,29	-,29	-,69	-,70	8,00	16,00	Numerousness
C 3	1	24	82,8 C	,49	,37	,71	,54 C	13,46	33,00	Represents 0-99
4	0	4	13,8	-,38	-,25	-,60	-,40	9,75	26,00	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		29								

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	,0	,00	,00	,00	,00	,00	,00	
1	0	1	3,4	-,05	-,14	-,11	-,34	12,00	25,00	
C 2	1	27	93,1 C	,11	,08	,19	,14 C	12,85	31,70	Open Sentences
3	0	1	3,4	-,11	-,03	-,25	-,08	11,00	33,00	Subtraction 0-9
4	0	0	,0	,00	,00	,00	,00	,00	,00	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		29								

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	,0	,00	,00	,00	,00	,00	,00	
C 1	1	26	89,7 C	,48	,50	,77	,81 C	13,27	33,00	
2	0	1	3,4	-,05	-,10	-,11	-,23	12,00	27,00	Open Sentences
3	0	1	3,4	-,35	-,49	-,83	-1,16	7,00	9,00	Addition 10-18
4	0	1	3,4	-,41	-,25	-,97	-,60	6,00	20,00	
5	0	0	,0	,00	,00	,00	,00	,00	,00	
TOTAL		29								

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1 ACH, MONITR, 6R=POP SUBTEST 1 GENERAL OBJECTIVES

BER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
1	0	3	10.3	-.15	-.42	-.26	-.71		11.33	20.67
2	0	0	.0	.00	.00	.00	.00		.00	.00
C 3	1	25	86.2	C .29	.56	.44	.85	C	13.12	33.48
4	0	1	3.4	-.29	-.36	-.69	-.85		8.00	15.00
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		29								

Problem Solving (A)
Subt-simple separating 11-15

BER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
C 1	1	15	51.7	C .56	.41	.71	.52	C	14.47	35.00
2	0	3	10.3	-.15	-.12	-.26	-.21		11.33	28.33
3	0	5	17.2	-.23	-.10	-.34	-.15		11.20	29.60
4	0	6	20.7	-.37	-.32	-.52	-.46		10.50	26.00
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		29								

Problem Solving (A)
Subt-comparison 0-99

BER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
1	0	0	.0	.00	.00	.00	.00		.00	.00
2	0	5	17.2	-.20	-.28	-.29	-.41		11.40	26.20
C 3	1	19	65.5	C .36	.23	.46	.30	C	13.58	33.00
4	0	5	17.2	-.26	-.02	-.38	-.02		11.00	31.20
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		29								

Order, Place Value
Ordering 0-99

BER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	.0	.00	.00	.00	.00		.00	.00
1	0	8	27.6	.32	.37	.43	.49		14.37	36.75
C 2	1	4	13.8	C .09	-.00	.15	-.00	C	13.50	31.50
3	0	2	6.9	-.46	-.56	-.87	-1.07		7.50	13.50
4	0	15	51.7	-.12	-.05	-.15	-.06		12.40	31.13
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		29								

Order, Place Value
Place Value 0-99

TEST NO 1 ACH, MONITR, 6R=POP SUBTEST 1 GP OBJECTIVES

ITEM NUMBER 9 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	0	,0	,00	,00	,00	,00	,00	,00
C 2	1	28	96,6 C	,41	,25	,78	,48 C	13,00	31,93
3	0	1	3,4	=,41	=,25	=,97	=,60	6,00	20,00
4	0	0	,0	,00	,00	,00	,00	,00	,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Sentence Writing (A)
Add-part part whole 11-15

ITEM NUMBER 10 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	2	6,9	=,15	=,41	=,29	=,77	11,00	18,50
2	0	5	17,2	=,31	=,23	=,46	=,33	10,60	27,20
C 3	1	21	72,4 C	,47	,57	,63	,75 C	13,67	34,57
4	0	1	3,4	=,29	=,36	=,69	=,85	8,00	15,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Sentence Writing (A)
Subt-simple separating 0-99

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	2	6,9	=,20	=,16	=,37	=,30	10,50	26,50
2	0	15	51,7	,15	,25	,18	,31	13,20	33,60
C 3	1	9	31,0 C	,22	,11	,29	,14 C	13,78	32,89
4	0	3	10,3	=,41	=,43	=,69	=,74	9,00	20,33
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Sentence Writing (B)
Subt-join-addend 11-15

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	14	48,3	=,45	=,34	=,57	=,43	11,29	28,43
C 2	1	14	48,3 C	,56	,47	,70	,59 C	14,57	35,79
3	0	0	,0	,00	,00	,00	,00	,00	,00
4	0	1	3,4	=,29	=,36	=,69	=,85	8,00	15,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Sentence Writing (B)
Subt-part part whole-addend 0-99

181

TEST NO 1 ACH. MONITR. 6R=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 13

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	3	10,3	-,08	,01	-,14	,01	12,00	31,67
2	0	1	3,4	-,1	,03	-,25	,08	11,00	33,00
C 3	1	24	82,8 C		,07	,29	,10 C	13,04	31,79
4	0	1	3,4	-,	-,18	-,40	-,44	10,00	23,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Problem Solving (B)
Subt-join-addend 11-15

ITEM NUMBER 14

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	18	62,1 C	,51	,24	,65	,31 C	14,00	33,17
2	0	4	13,8	-,10	,03	-,15	,05	12,00	32,25
3	0	0	,0	,00	,00	,00	,00	,00	,00
4	0	7	24,1	-,50	-,30	-,68	-,41	10,00	26,86
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Problem Solving (B)
Add-simple joining 0-99

ITEM NUMBER 15

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	17	58,6 C	,23	,19	,29	,24 C	13,35	32,94
2	0	3	10,3	-,30	-,16	-,51	-,28	10,00	27,33
3	0	5	17,2	,09	-,08	,14	-,12	13,40	30,00
4	0	4	13,8	-,16	-,05	-,25	-,07	11,50	30,50
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Algorithms
Addition Algorithm

ITEM NUMBER 16

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	10	34,5	-,06	-,03	-,08	-,04	12,50	31,10
2	0	4	13,8	-,48	-,34	-,75	-,54	9,00	24,00
C 3	1	8	27,6 C	,49	,39	,66	,52 C	15,25	37,00
4	0	7	24,1	-,06	-,09	-,08	-,12	12,43	30,14
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		29							

Algorithms
Subtraction Algorithm

TEST NO 1 ACH, MONITR, 6R=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00		.00	.00
1	0	1	3.4	-.36	-.49	-.83	-1.16		7.00	9.00
2	0	0	.0	.00	.00	.00	.00		.00	.00
C 3	1	28	96.6	.35	.49	.67	.94	C	12.96	32.32
4	0	0	.0	.00	.00	.00	.00		.00	.00
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		29								

COEFFICIENTS OF CORRELATION

Counting On 9-18

ITEM NUMBER 18

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00		.00	.00
C 1	1	19	65.5	.55	.55	.70	.71	C	14.00	35.00
2	0	2	6.9	-.46	-.61	-.87	-1.16		7.50	12.00
3	0	7	24.1	-.32	-.24	-.43	-.32		11.00	27.86
4	0	1	3.4	-.05	-.03	-.11	-.08		12.00	30.00
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		29								

COEFFICIENTS OF CORRELATION

Counting Back 9-18

ITEM NUMBER 19

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		MEANS ST	MEANS TT
0	0	0	.0	.00	.00	.00	.00		.00	.00
1	0	1	3.4	.01	-.10	.03	-.23		13.00	35.00
2	0	5	17.2	-.43	-.39	-.64	-.58		9.80	24.00
C 3	1	19	65.5	.75	.57	.97	.73	C	14.47	35.11
4	0	4	13.8	-.57	-.40	-.90	-.63		8.25	22.75
5	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		29								

COEFFICIENTS OF CORRELATION

Counting Back 18-31

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 88

TEST NO 1 ACH, MONITR, 6R=POP — SUBTEST 2 SENTENCE WRITING — FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST MEANS	TT MEANS
0	0	0	,0	,00	,00	,00	,00		,00	,00
C 1	1	14	48,3	,85	,49	1,06	,61	C	3,64	35,93
2	0	15	51,7	=,85	=,49	=1,06	=,61		1,80	27,40
TOTAL		29								

ITEM DESCRIPTIONS: Sentence Writing Subt-comparison 11-15

ITEM NUMBER 2

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST MEANS	TT MEANS
0	0	2	6,9	=,42	=,23	=,81	=,45		1,00	24,00
C 1	1	25	86,2	,53	,17	,81	,26	C	2,92	32,12
2	0	2	6,9	=,30	=,00	=,57	=,00		1,50	31,50
TOTAL		29								

Sentence Writing Add-part part whole 0-99

ITEM NUMBER 3

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST MEANS	TT MEANS
0	0	1	3,4	,05	,14	,13	,34		3,00	38,00
C 1	1	11	37,9	,81	,49	1,04	,62	C	3,82	37,00
2	0	17	58,6	=,82	=,53	=1,04	=,68		1,94	27,59
TOTAL		29								

Sentence Writing Subt-join-addend 0-99

ITEM NUMBER 4

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST MEANS	TT MEANS
0	0	0	,0	,00	,00	,00	,00		,00	,00
C 1	1	28	96,6	,47	,29	,90	,56	C	2,79	32,00
2	0	1	3,4	=,47	=,29	=1,12	=,70		,00	18,00
TOTAL		29								

Sentence Writing Add-simple joining 11-15

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 1 ACH, MONITH, 6R=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	1	3.4	=.22	=.25	=.52	=.60		5.00	20.00
C 1	1	27	93.1	C .53	.53	.92	.92	C	9.07	32.78
2	0	1	3.4	=.51	=.49	=1.23	=1.16		.00	9.00
TOTAL		29								

COEFFICIENTS OF CORRELATION MEANS

ITEM DESCRIPTIONS 1 + 5

ITEM NUMBER 2

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	3	10.3	=.17	=.12	=.29	=.21		7.00	28.33
C 1	1	24	82.8	C .49	.46	.72	.66	C	9.33	33.33
2	0	2	6.9	=.53	=.53	=1.00	=1.01		2.50	14.50
TOTAL		29								

COEFFICIENTS OF RELATION MEANS

3 + 2

ITEM NUMBER 3

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	0	.0	.00	.00	.00	.00		.00	.00
C 1	1	28	96.6	C .51	.49	.99	.94	C	8.93	32.32
2	0	1	3.4	=.51	=.49	=1.23	=1.16		.00	9.00
TOTAL		29								

COEFFICIENTS OF CORRELATION MEANS

4 + 4

ITEM NUMBER 4

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	5	17.2	=.29	=.27	=.43	=.40		6.60	26.40
C 1	1	21	72.4	C .71	.69	.94	.92	C	10.00	35.24
2	0	3	10.3	=.67	=.68	=1.14	=1.15		2.33	14.00
TOTAL		29								

COEFFICIENTS OF CORRELATION MEANS

3 + 6

ITEM NUMBER 5

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	4	13.8	=.46	=.44	=.72	=.68		5.00	22.00
C 1	1	24	82.8	C .67	.63	.97	.92	C	9.58	34.04
2	0	1	3.4	=.51	=.49	=1.23	=1.16		.00	9.00
TOTAL		29								

COEFFICIENTS OF CORRELATION MEANS

4 + 3

185

TEST NO 1 ACH. MONITR. 6R=POP SUBTEST 1 FACTS SPEED--ADDITION

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	1	3,4	-,34	-,36	-,80	-,85	3,00	15,00
C 1	1	27	93,1 C	,61	,61	1,07	1,06 C	9,15	32,96
2	0	1	3,4	-,51	-,49	-1,23	-1,16	,00	9,00
TOTAL		29							

6 + 2

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	13	44,8	-,46	-,28	-,58	-,36	7,00	28,77
C 1	1	14	48,3 C	,68	,53	,86	,66 C	10,86	36,29
2	0	2	6,9	-,44	-,48	-,84	-,92	3,50	16,00
TOTAL		29							

5 + 8

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	14	48,3	-,58	-,55	-,73	-,69	6,71	26,50
C 1	1	14	48,3 C	,77	,73	,96	,92 C	11,14	38,14
2	0	1	3,4	-,51	-,49	-1,23	-1,16	,00	9,00
TOTAL		29							

6 + 9

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	4	13,8	-,36	-,29	-,57	-,45	5,75	25,25
C 1	1	24	82,8 C	,58	,50	,84	,72 C	9,46	33,50
2	0	1	3,4	-,51	-,49	-1,23	-1,16	,00	9,00
TOTAL		29							

9 + 3

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST MEANS	TT MEANS
0	0	13	44,8	-,44	-,36	-,55	-,46	7,08	28,00
C 1	1	13	44,8 C	,70	,58	,88	,73 C	11,08	37,15
2	0	3	10,3	-,42	-,36	-,72	-,60	4,67	22,33
TOTAL		29							

5 + 7

TEST NO 1 ACH, NONITR, 6R=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB=ST	PB=TT	B=ST	B=TT		MEANS ST	TT	
0	0	10	34,5		-,60	-,52	-,77	-,67		6,00	25,30	
C 1	1	14	48,3	C	,79	,73	,99	,92	C	11,21	38,14	8 + 9
2	0	5	17,2		-,29	-,32	-,43	-,47		6,60	25,40	
TOTAL		29										

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB=ST	PB=TT	B=ST	B=TT		MEANS ST	TT	
0	0	8	27,6		-,73	-,59	-,98	-,79		4,87	23,12	
C 1	1	20	69,0	C	,74	,60	,97	,79	C	10,20	35,05	
2	0	1	3,4		-,10	-,08	-,23	-,18		7,00	28,00	3 + 8
TOTAL		29										

ADMINISTRATION TIME; 86

2.0 SUMMARY ITEM STATISTICS PAGE 94

1 ACH, MONITR, 6R-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

188

UMBER 1					COEFFICIENTS OF CORRELATION				MEANS		ITEM DESCRIPTIONS
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	1	3.4		-.32	-.36	-.76	-.85	2.00	15.00	
C 1	1	27	93.1	C	.54	.61	.95	1.06	C 7.93	32.96	5 - 1
2	0	1	3.4		-.44	-.49	-1.04	-1.16	.00	9.00	
TOTAL		29									

UMBER 2					COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	3	10.3		-.47	-.41	-.79	-.69	3.00	21.00	
C 1	1	22	75.9	C	.75	.59	1.03	.80	C 8.82	34.41	9 - 2
2	0	4	13.8		-.52	-.37	-.82	-.57	3.25	23.50	
TOTAL		29									

UMBER 3					COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	3	10.3		-.29	-.10	-.50	-.17	4.67	29.00	
C 1	1	25	86.2	C	.49	.34	.75	.52	C 8.08	32.72	8 - 7
2	0	1	3.4		-.44	-.49	-1.04	-1.16	.00	9.00	
TOTAL		29									

UMBER 4					COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	4	13.8		-.30	-.29	-.48	-.45	5.00	25.25	
C 1	1	21	72.4	C	.49	.38	.66	.51	C 8.43	33.57	5 - 3
2	0	4	13.8		-.33	-.21	-.52	-.32	4.75	27.00	
TOTAL		29									

UMBER 5					COEFFICIENTS OF CORRELATION				MEANS		
OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	1	3.4		-.38	-.05	-.90	-.13	1.00	29.00	
C 1	1	25	86.2	C	.52	.31	.79	.47	C 8.12	32.60	7 - 6
2	0	3	10.3		-.36	-.32	-.62	-.54	4.00	23.33	
TOTAL		29									

284

TEST NO 1 ACH. MONITR. 6R=PUP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

OPTION	WT	N	P		PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	7	24,1		=,58	=,43	=,79	=,59		4,14	24,86
C 1	1	20	69,0	C	,81	,64	1,06	,84	C	9,20	35,30
2	0	2	6,9		=,50	=,45	=,96	=,86		1,50	17,00
TOTAL		29									

COEFFICIENTS OF CORRELATION MEANS

8 - 5

ITEM NUMBER 7

OPTION	WT	N	P		PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	12	41,4		=,81	=,44	=,64	=,56		5,50	26,92
C 1	1	16	55,2	C	,66	,62	,83	,77	C	9,38	36,37
2	0	1	3,4		=,44	=,49	=1,04	=1,16		,00	9,00
TOTAL		29									

COEFFICIENTS OF CORRELATION MEANS

14 - 7

ITEM NUMBER 8

OPTION	WT	N	P		PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	9	31,0		=,49	=,37	=,64	=,49		5,11	26,67
C 1	1	15	51,7	C	,76	,68	,95	,85	C	9,80	37,27
2	0	5	17,2		=,40	=,44	=,60	=,66		4,60	23,00
TOTAL		29									

COEFFICIENTS OF CORRELATION MEANS

12 - 5

ITEM NUMBER 9

OPTION	WT	N	P		PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	11	37,9		=,40	=,36	=,50	=,45		5,82	27,55
C 1	1	13	44,8	C	,58	,47	,73	,59	C	9,54	36,08
2	0	5	17,2		=,26	=,16	=,39	=,24		5,60	28,40
TOTAL		29									

COEFFICIENTS OF CORRELATION MEANS

11 - 8

ITEM NUMBER 10

OPTION	WT	N	P		PB=ST	PB=TT	B=ST	B=TT		ST	TT
0	0	15	51,7		=,57	=,46	=,72	=,58		5,67	27,60
C 1	1	12	41,4	C	,71	,61	,90	,78	C	10,17	37,92
2	0	2	6,9		=,25	=,20	=,48	=,54		4,50	22,50
TOTAL		29									

COEFFICIENTS OF CORRELATION MEANS

13 - 7

189

TEST NO 1 ACH, MONITR, 6R=POP SUBTEST 4 FACTS SPEED--SUBTRACTION

190

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT
0	0	9	31,0	=,30	=,31	=,40	=,41	6,00	27,44
C 1	1	13	44,8 C	,48	,43	,60	,54 C	9,15	35,69
2	0	7	24,1	=,23	=,16	=,31	=,22	6,14	29,00
TOTAL		29							

12 - 9

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT
0	0	16	55,2	=,26	=,28	=,33	=,35	6,69	29,31
C 1	1	7	24,1 C	,55	,46	,75	,64 C	10,57	38,71
2	0	6	20,7	=,26	=,15	=,36	=,21	5,83	29,00
TOTAL		29							

15 - 8

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	12	44,4 C	,42	,33	,52	,41 C	14,00	35,92
2	0	3	11,1	,24	,06	,39	,11	14,67	34,33
3	0	9	33,3	-,19	,02	-,24	,03	11,56	33,11
4	0	3	11,1	-,61	-,62	-1,02	-1,03	6,67	18,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

ITEM DESCRIPTIONS: Numerousness Writes 0-99

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	0	,0	,00	,00	,00	,00	,00	,00
C 2	1	25	92,6 C	,55	,61	,94	1,05 C	12,96	34,28
3	0	0	,0	,00	,00	,00	,00	,00	,00
4	0	2	7,4	-,55	-,61	-1,02	-1,15	6,00	14,50
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

ITEM DESCRIPTIONS: Numerousness Represents 0-99

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	20	74,1 C	,38	,30	,52	,40 C	13,20	34,30
2	0	5	18,5	-,18	-,00	-,26	-,00	11,20	32,80
3	0	1	3,7	-,03	-,07	-,06	-,15	12,00	30,00
4	0	1	3,7	-,50	-,62	-1,16	-1,45	4,00	6,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

ITEM DESCRIPTIONS: Open Sentences Addition 0-9

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	23	85,2 C	,62	,61	,93	,91 C	13,30	34,96
2	0	0	,0	,00	,00	,00	,00	,00	,00
3	0	1	3,7	-,26	-,18	-,61	-,42	8,00	25,00
4	0	3	11,1	-,54	-,58	-,90	-,96	7,33	19,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

ITEM DESCRIPTIONS: Open Sentences Subtraction 10-18

TEST NO 2 ACH, MONITR, 6S-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	23	85,2 C	,31	,25	,46	,38 C	12,87	33,70
2	0	3	11,1	-,19	-,17	-,31	-,29	10,67	28,67
3	0	1	3,7	-,26	-,18	-,61	-,42	8,00	25,00
4	0	0	,0	,00	,00	,00	,00	,00	,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

Problem Solving (A)
Comparison 11-15

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	1	3,7	-,08	-,20	-,20	-,48	11,00	24,00
2	0	6	22,2	-,26	-,02	-,36	-,03	10,83	32,50
C 3	1	12	44,4 C	,48	,40	,61	,50 C	14,25	36,58
4	0	8	29,6	-,26	-,33	-,34	-,44	11,12	28,50
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

Problem Solving (A)
Add-part part whole 0-99

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	4	14,8	-,09	-,05	-,13	-,08	11,75	31,75
C 2	1	18	66,7 C	,47	,52	,61	,68 C	13,56	35,94
3	0	1	3,7	-,08	-,14	-,20	-,32	11,00	27,00
4	0	4	14,8	-,49	-,57	-,76	-,88	8,50	21,25
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

Order, Place Value
Ordering 0-99

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	2	7,4 C	-,04	,06	-,07	,11 C	12,00	34,50
2	0	4	14,8	,13	,21	,20	,32	13,50	37,00
3	0	6	22,2	,04	,14	,05	,19	12,67	35,00
4	0	15	55,6	-,10	-,29	-,13	-,37	12,13	30,60
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		27							

Order, Place Value
Place Value 0-99

TEST NO 2 ACH. MONITR. 6S-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00		,00	,00
1	0	0	,0	,00	,00	,00	,00		,00	,00
C 2	1	27	100,0 C	,00	,00	,00	,00	C	12,44	32,81
3	0	0	,0	,00	,00	,00	,00		,00	,00
4	0	0	,0	,00	,00	,00	,00		,00	,00
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		27								

Sentence Writing (A)
Subt-simple separating 11-15

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00		,00	,00
1	0	15	55,6	-,24	-,20	-,30	-,25		11,73	31,33
2	0	1	3,7	-,14	,00	-,34	,01		10,00	33,00
C 3	1	10	37,0 C	,50	,44	,63	,57	C	14,60	37,70
4	0	1	3,7	-,50	-,62	-1,16	-1,45		4,00	6,00
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		27								

Sentence Writing (A)
Subt-comparison 0-99

ITEM NUMBER 11

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00		,00	,00
1	0	8	29,6	-,33	-,19	-,44	-,25		10,75	30,37
2	0	2	7,4	-,04	,02	-,07	,04		12,00	33,50
C 3	1	16	59,3 C	,52	,40	,65	,51	C	13,87	35,62
4	0	1	3,7	-,50	-,62	-1,16	-1,45		4,00	6,00
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		27								

Sentence Writing (B)
Subt-part part whole-addend 11-15

ITEM NUMBER 12

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00		,00	,00
1	0	2	7,4	-,16	-,24	-,31	-,46		10,50	25,50
C 2	1	25	92,6 C	,16	,24	,28	,42	C	12,60	33,40
3	0	0	,0	,00	,00	,00	,00		,00	,00
4	0	0	,0	,00	,00	,00	,00		,00	,00
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		27								

Sentence Writing (B)
Add-simple joining 0-99

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TEST NO 2 ACH, MONITR, 6S=PDP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 13

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
1	0	1	3,7		-,03	-,04	-,06	-,10		12,00	31,00
2	0	1	3,7		-,14	,00	-,34	,01		10,00	33,00
C 3	1	23	85,2	C	,49	,47	,74	,71	C	13,13	34,48
4	0	2	7,4		-,55	-,61	-1,02	-1,15		6,00	14,50
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

Problem Solving (B)
Subt-part part whole-addend
11-15

ITEM NUMBER 14

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3,7		-,14	-,20	-,34	-,48		10,00	24,00
C 1	1	16	59,3	C	,54	,53	,68	,67	C	13,94	36,50
2	0	4	14,8		-,15	-,03	-,23	-,04		11,25	32,25
3	0	0	,0		,00	,00	,00	,00		,00	,00
4	0	6	22,2		-,44	-,51	-,62	-,71		9,67	24,83
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

Problem Solving (B)
Subt-join-addend 0-99

ITEM NUMBER 15

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
1	0	7	25,9		,10	,11	,13	,15		13,00	34,43
C 2	1	13	48,1	C	,25	,27	,31	,33	C	13,31	35,15
3	0	2	7,4		,09	,06	,17	,11		13,50	34,50
4	0	5	18,5		-,49	-,51	-,72	-,74		9,00	23,80
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

Algorithms
Addition Algorithm

ITEM NUMBER 16

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
1	0	4	14,8		-,21	-,14	-,33	-,21		10,75	30,00
2	0	5	18,5		-,29	-,17	-,42	-,25		10,40	29,80
C 3	1	12	44,4	C	,64	,53	,81	,67	C	14,83	37,83
4	0	6	22,2		-,31	-,36	-,43	-,50		10,50	27,17
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

Algorithms
Subtraction Algorithm

TEST NO 2 ACH. MONITR, 6S-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
C 1	1	23	85,2	C	,34	,24	,51	,36	C	12,91	33,65
2	0	2	7,4		,05	,11	,09	,20		13,00	36,00
3	0	1	3,7		-,20	,03	-,47	,06		9,00	34,00
4	0	1	3,7		-,50	-,62	-1,16	-1,45		4,00	6,00
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

Counting On 9-18

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
1	0	3	11,1		-,22	-,09	-,37	-,15		10,33	30,67
C 2	1	20	74,1	C	,33	,19	,45	,25	C	13,10	33,75
3	0	3	11,1		-,29	-,19	-,49	-,31		9,67	28,33
4	0	1	3,7		,09	,03	,21	,06		14,00	34,00
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

Counting Back 9-18

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
1	0	5	18,5		-,23	-,14	-,34	-,20		10,80	30,40
C 2	1	16	59,3	C	,72	,58	,91	,73	C	14,44	36,87
3	0	3	11,1		-,26	-,24	-,43	-,40		10,00	27,00
4	0	3	11,1		-,58	-,49	-,96	-,82		7,00	21,00
5	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

Counting On 18-31

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 105

TEST NO 2 ACH. MONITR. 6S=POP — SUBTEST 2 SENTENCE WRITING — FREE RESPONSE

ITEM NUMBER 1 — COEFFICIENTS OF CORRELATION — MEANS — ITEM DESCRIPTIONS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	27	100.0 C	.00	.00	.00	.00 C	3.30	32.81
2	0	0	.0	.00	.00	.00	.00	.00	.00
TOTAL		27							

Sentence Writing
Add-part part whole 11-15

ITEM NUMBER 2 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	26	96.3 C	.33	-.07	.64	-.14 C	3.35	32.69
2	0	1	3.7	-.33	.07	-.78	.17	2.00	36.00
TOTAL		27							

Sentence Writing
Subt-simple separating 0-99

ITEM NUMBER 3 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	0	.0	.00	.00	.00	.00	.00	.00
C 1	1	20	74.1 C	.67	.46	.91	.62 C	3.60	35.10
2	0	7	25.9	-.67	-.46	-.91	-.62	2.43	26.29
TOTAL		27							

Sentence Writing
Subt-part part whole-addend 0-99

ITEM NUMBER 4 — COEFFICIENTS OF CORRELATION — MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT
0	0	1	3.7	-.08	.17	-.18	.39	3.00	40.00
C 1	1	16	59.3 C	.82	.23	1.04	.29 C	3.81	34.44
2	0	10	37.0	-.80	-.30	-1.03	-.38	2.50	29.50
TOTAL		27							

Sentence Writing
Subt-join-addend 11-15

TEST NO 2 ACH. MONITR. 6S=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1 COEFFICIENTS OF CORRELATION MEANS ITEM DESCRIPTIONS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	1	3.7		-.60	-.62	-1.41	-1.45		.00	6.00	
C 1	1	26	96.3	C	.60	.62	1.15	1.19	C	9.54	33.85	3 + 1
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		27										

ITEM NUMBER 2 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	1	3.7		-.60	-.62	-1.41	-1.45		.00	6.00	
C 1	1	26	96.3	C	.60	.62	1.15	1.19	C	9.54	33.85	2 + 5
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		27										

ITEM NUMBER 3 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	1	3.7		-.60	-.62	-1.41	-1.45		.00	6.00	
C 1	1	26	96.3	C	.60	.62	1.15	1.19	C	9.54	33.85	1 + 6
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		27										

ITEM NUMBER 4 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	2	7.4		-.68	-.58	-1.27	-1.08		2.00	15.50	
C 1	1	25	92.6	C	.68	.58	1.17	1.00	C	9.76	34.20	7 + 2
2	0	0	.0		.00	.00	.00	.00		.00	.00	
TOTAL		27										

ITEM NUMBER 5 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT	
0	0	3	11.1		-.65	-.56	-1.09	-.94		3.67	19.33	
C 1	1	22	81.5	C	.64	.55	.91	.79	C	10.09	35.05	2 + 6
2	0	2	7.4		-.16	-.14	-.30	-.27		7.50	28.50	
TOTAL		27										

TEST NO 2 ACH, MONITR, 6S=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 6

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	1	3,7		-,60	-,62	-1,41	-1,45		,00	6,00	
C 1	1	24	88,9	C	,69	,61	1,10	,96	C	9,92	34,62	3 + 5
2	0	2	7,4		-,40	-,28	-,74	-,52		5,00	24,50	
TOTAL		27										

ITEM NUMBER 7

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	5	18,5		-,73	-,64	-1,07	-,94		4,60	21,40	
C 1	1	20	74,1	C	,83	,76	1,12	1,02	C	10,65	36,60	4 + 8
2	0	2	7,4		-,30	-,31	-,56	-,58		6,00	23,50	
TOTAL		27										

ITEM NUMBER 8

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	7	25,9		-,72	-,64	-,97	-,86		5,57	23,71	
C 1	1	20	74,1	C	,72	,64	,97	,86	C	10,45	36,00	3 + 7
2	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		27										

ITEM NUMBER 9

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	6	22,2		-,78	-,60	-1,09	-,84		4,83	23,33	
C 1	1	16	59,3	C	,76	,62	,96	,79	C	11,06	37,19	5 + 9
2	0	5	18,5		-,13	-,15	-,18	-,21		8,40	30,20	
TOTAL		27										

ITEM NUMBER 10

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS	
0	0	12	44,4		-,76	-,59	-,95	-,74		6,67	27,25	
C 1	1	10	37,0	C	,65	,55	,83	,71	C	11,70	38,90	6 + 8
2	0	5	18,5		,16	,07	,24	,10		10,20	34,00	
TOTAL		27										

TEST NO 2 ACH. MONITR. 66=POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT	
0	0	9	33,3	-,68	-,45	-,88	-,58	6,33	27,44	
C 1	1	14	51,9 C	,63	,44	,79	,55 C	11,00	36,36	8 + 7
2	0	4	14,8	,01	-,02	,01	-,02	9,25	32,50	
TOTAL		27								

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB=ST	PB=TT	B=ST	B=TT	ST	TT	
0	0	5	18,5	-,64	-,49	-,93	-,71	5,20	24,20	
C 1	1	19	70,4 C	,69	,60	,91	,79 C	10,53	36,11	4 + 9
2	0	3	11,1	-,22	-,27	-,36	-,45	7,33	26,33	
TOTAL		27								

200

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	1	3,7		-,51	-,62	-1,19	-1,45		,00	6,00
C 1	1	25	92,6	C	,59	,50	1,02	,85	C	8,40	34,00
2	0	1	3,7		-,31	-,07	-,73	-,15		3,00	30,00
TOTAL		27									

ITEM DESCRIPTIONS: 7 - 1

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	2	7,4		-,55	-,61	-1,02	-1,15		2,00	14,50
C 1	1	24	88,9	C	,64	,55	1,03	,88	C	8,58	34,46
2	0	1	3,7		-,31	-,07	-,73	-,15		3,00	30,00
TOTAL		27									

8 - 4

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	3	11,1		-,64	-,54	-1,07	-,89		2,33	20,00
C 1	1	24	88,9	C	,64	,54	1,03	,85	C	8,58	34,42
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

9 - 5

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	8	29,6		-,62	-,70	-,81	-,92		5,00	23,75
C 1	1	19	70,4	C	,62	,70	,81	,92	C	9,11	36,63
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

7 - 4

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT
0	0	7	25,9		-,59	-,51	-,80	-,69		4,86	25,57
C 1	1	20	74,1	C	,59	,51	,79	,68	C	8,95	35,35
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		27									

8 - 6

TEST NO 2 ACH, MONITR, 6S=POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	5	18,5	-,61	-,42	-,88	-,61		4,00	25,40	
C 1	1	22	81,5	C ,61	,42	,87	,60	C	8,77	34,50	4 - 3
2	0	0	,0	,00	,00	,00	,00		,00	,00	
TOTAL		27									

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	4	14,8	-,67	-,48	-1,03	-,74		3,00	23,00	
C 1	1	20	74,1	C ,62	,40	,83	,54	C	9,00	34,80	11 - 2
2	0	3	11,1	-,10	-,01	-,17	-,0[illegible]		7,00	32,67	
TOTAL		27									

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	16	59,3	-,72	-,69	-,91	-,87		6,06	28,00	
C 1	1	9	33,3	C ,64	,57	,84	,74	C	10,67	39,67	13 - 8
2	0	2	7,4	,20	,26	,37	,48		10,00	40,50	
TOTAL		27									

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	11	40,7	-,69	-,50	-,87	-,63		5,36	27,73	
C 1	1	13	48,1	C ,64	,53	,81	,66	C	9,92	37,46	12 - 7
2	0	3	11,1	,05	-,06	,09	-,10		8,33	31,33	
TOTAL		27									

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	
0	0	11	40,7	-,51	-,49	-,65	-,62		6,00	27,82	
C 1	1	7	25,9	C ,47	,55	,63	,75	C	10,29	40,71	15 - 9
2	0	9	33,3	,10	-,00	,13	-,00		8,33	32,78	
TOTAL		27									

TEST NO 2 ACH, MONITR, 6S-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

202

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	4	14.8		-.43	-.34	-.66	-.52		4.75	26.00
C 1	1	19	70.4	C	.59	.39	.78	.51	C	9.05	34.95
2	0	4	14.8		-.33	-.16	-.50	-.25		5.50	29.50
TOTAL		27									

10 - 2

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	13	48.1		-.65	-.62	-.81	-.78		5.85	27.38
C 1	1	11	40.7	C	.70	.58	.88	.73	C	10.45	38.73
2	0	3	11.1		-.06	.08	-.11	.13		7.33	34.67
TOTAL		27									

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LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 3 ACH, MONITR, 6T-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 1 COEFFICIENTS OF CORRELATION MEANS ITEM DESCRIPTIONS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	0	.0	.00	.00	.00	.00	.00	.00	
2	0	1	3.0	.17	.02	.43	.04	16.00	36.00	Numerousness
C 3	1	32	97.0 C	-.17	-.02	-.34	-.03 C	13.56	35.47	Writes 0-99
4	0	0	.0	.00	.00	.00	.00	.00	.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		33								

ITEM NUMBER 2 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
C 1	1	27	81.8 C	.35	.16	.51	.23 C	14.04	35.93	
2	0	2	6.1	-.23	-.19	-.45	-.36	11.50	31.00	Numerousness
3	0	2	6.1	-.23	-.08	-.45	-.17	11.50	33.50	Represents 0-99
4	0	2	6.1	-.12	.02	-.24	.04	12.50	36.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		33								

ITEM NUMBER 3 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
C 1	1	30	90.9 C	.21	.10	.38	.16 C	13.80	35.67	
2	0	0	.0	.00	.00	.00	.00	.00	.00	Open Sentences
3	0	3	9.1	-.21	-.10	-.38	-.17	12.00	33.67	Subtraction 0-9
4	0	0	.0	.00	.00	.00	.00	.00	.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		33								

ITEM NUMBER 4 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	ST	TT	
0	0	0	.0	.00	.00	.00	.00	.00	.00	
1	0	0	.0	.00	.00	.00	.00	.00	.00	
C 2	1	33	100.0 C	.00	.00	.00	.00 C	13.64	35.48	Open Sentences
3	0	0	.0	.00	.00	.00	.00	.00	.00	Addition 10-18
4	0	0	.0	.00	.00	.00	.00	.00	.00	
5	0	0	.0	.00	.00	.00	.00	.00	.00	
TOTAL		33								

TEST NO 3 ACH. MONITH. 6T-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	,0	,00	,00	,00	,00		,00	,00
1	0	0	,0	,00	,00	,00	,00		,00	,00
2	0	0	,0	,00	,00	,00	,00		,00	,00
C 3	1	33	100,0	,00	,00	,00	,00	C	13,64	35,48
4	0	0	,0	,00	,00	,00	,00		,00	,00
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		33								

Problem Solving (A)
Add-part part whole 11-15

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	,0	,00	,00	,00	,00		,00	,00
1	0	12	36,4	-,23	,11	-,29	,14		12,92	36,33
C 2	1	11	33,3	,69	,36	,90	,47	C	16,00	38,55
3	0	1	3,0	-,19	,02	-,48	,04		11,00	36,00
4	0	9	27,3	-,42	-,51	-,56	-,68		12,00	30,56
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		33								

Problem Solving (A)
Subt-simple separating 0-99

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	,0	,00	,00	,00	,00		,00	,00
C 1	1	33	100,0	,00	,00	,00	,00	C	13,64	35,48
2	0	0	,0	,00	,00	,00	,00		,00	,00
3	0	0	,0	,00	,00	,00	,00		,00	,00
4	0	0	,0	,00	,00	,00	,00		,00	,00
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		33								

Order, Place Value
Ordering 0-99

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	1	3,0	-,05	-,19	-,12	-,48		13,00	29,00
1	0	7	21,2	-,04	,19	-,06	,27		13,43	37,71
2	0	8	24,2	-,03	-,12	-,04	-,16		13,50	34,25
C 3	1	5	15,2	,41	,22	,63	,34	C	16,00	38,60
4	0	12	36,4	-,23	-,16	-,29	-,20		12,92	34,25
5	0	0	,0	,00	,00	,00	,00		,00	,00
TOTAL		33								

Order, Place Value
Place Value 0-99

TEST NO 3 ACH, MONITR, 6T-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	6	18.2		-.12	-.06	-.18	-.09		13.00	34.67
C 2	1	24	72.7	C	.39	.45	.52	.60	C	14.21	37.12
3	0	2	6.1		-.23	-.36	-.45	-.72		11.50	27.00
4	0	1	3.0		-.41	-.52	-1.03	-1.30		8.00	19.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		33									

Sentence Writing (A)
Subt-comparison 11-15

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	0	.0		.00	.00	.00	.00		.00	.00
2	0	0	.0		.00	.00	.00	.00		.00	.00
C 3	1	32	97.0	C	.12	.25	.23	.49	C	13.69	35.75
4	0	1	3.0		-.12	-.25	-.30	-.63		12.00	27.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		33									

Sentence Writing (A)
Add-part part whole 0-99

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	0	.0		.00	.00	.00	.00		.00	.00
2	0	0	.0		.00	.00	.00	.00		.00	.00
C 3	1	33	100.0	C	.00	.00	.00	.00	C	13.64	35.48
4	0	0	.0		.00	.00	.00	.00		.00	.00
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		33									

Sentence Writing (B)
Add-simple joining 11-15

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	.0		.00	.00	.00	.00		.00	.00
1	0	2	6.1		.25	.19	.50	.38		16.00	40.00
C 2	1	7	21.2	C	.39	.37	.54	.52	C	15.43	39.71
3	0	16	48.5		-.46	-.48	-.57	-.60		12.50	32.56
4	0	8	24.2		.03	.10	.04	.13		13.75	36.50
5	0	0	.0		.00	.00	.00	.00		.00	.00
TOTAL		33									

Sentence Writing (B)
Subt-join-addend 0-99

TEST NO 3 ACH. MONITR. 6T-POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 13

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	1	3,0	-,05	-,19	-,12	-,48	13,00	29,00
2	0	2	6,1	-,28	,00	-,55	,00	11,00	35,50
C 3	1	29	87,9 C	,44	,37	,70	,59 C	14,03	36,31
4	0	1	3,0	-,41	-,52	-1,03	-1,30	8,00	18,00
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		33							

Problem Solving (B)
Add-simple joining 11-15

ITEM NUMBER 14

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	9	27,3 C	,46	,29	,62	,39 C	15,44	38,33
2	0	10	30,3	-,09	,09	-,12	,12	13,30	36,30
3	0	5	15,2	-,32	-,32	-,49	-,49	11,80	31,00
4	0	9	27,3	-,11	-,13	-,14	-,17	13,22	34,22
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		33							

Problem Solving (B)
Subt-part part whole-addend
0-99

ITEM NUMBER 15

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
1	0	3	9,1	-,08	-,06	-,15	-,11	13,00	34,33
C 2	1	23	69,7 C	,45	,35	,59	,46 C	14,35	36,87
3	0	5	15,2	-,36	-,23	-,55	-,36	11,60	32,20
4	0	2	6,1	-,23	-,26	-,45	-,51	11,50	29,50
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		33							

Algorithms
Addition Algorithm

ITEM NUMBER 16

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT	COEFFICIENTS OF CORRELATION ST	MEANS TT
0	0	0	,0	,00	,00	,00	,00	,00	,00
C 1	1	20	60,6 C	,55	,45	,69	,57 C	14,70	37,65
2	0	6	18,2	-,32	-,17	-,47	-,25	12,00	33,33
3	0	0	,0	,00	,00	,00	,00	,00	,00
4	0	7	21,2	-,35	-,38	-,50	-,54	12,00	31,14
5	0	0	,0	,00	,00	,00	,00	,00	,00
TOTAL		33							

Algorithms
Subtraction Algorithm

TEST NO 3 ACH, MONITR, 6T=POP SUBTEST 1 GENERAL OBJECTIVES

ITEM NUMBER 17

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB=ST	PB=TT	B=ST	B=TT		MEANS ST	TT	
0	0	0	,0		,00	,00	,00	,00		,00	,00	
1	0	1	3,0		-,05	,05	-,12	,11		13,00	37,00	
2	0	3	9,1		,09	-,10	,16	-,17		14,33	33,67	
C 3	1	22	66,7	C	,32	,37	,41	,48	C	14,18	37,05	Counting Back 9-18
4	0	7	21,2		-,41	-,38	-,58	-,54		11,71	31,14	
5	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		33										

ITEM NUMBER 18

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB=ST	PB=TT	B=ST	B=TT		MEANS ST	TT	
0	0	0	,0		,00	,00	,00	,00		,00	,00	
C 1	1	21	63,6	C	,51	,35	,66	,45	C	14,57	37,05	
2	0	5	15,2		-,11	,01	-,17	,01		13,00	35,60	Counting On 18-31
3	0	3	9,1		-,30	-,15	-,53	-,26		11,33	32,67	
4	0	4	12,1		-,37	-,39	-,60	-,63		11,25	29,25	
5	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		33										

ITEM NUMBER 19

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB=ST	PB=TT	B=ST	B=TT		MEANS ST	TT	
0	0	0	,0		,00	,00	,00	,00		,00	,00	
1	0	3	9,1		-,21	-,26	-,38	-,45		12,00	30,67	
C 2	1	26	78,8	C	,48	,40	,66	,57	C	14,23	36,73	Counting On 9-18
3	0	3	9,1		-,21	-,01	-,38	-,01		12,00	35,33	
4	0	1	3,0		-,41	-,52	-1,03	-1,30		8,00	18,00	
5	0	0	,0		,00	,00	,00	,00		,00	,00	
TOTAL		33										

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 122

TEST NO 3 ACH, MONITR, 6T-POP — SUBTEST 2 SENTENCE WRITING — FREE RESPONSE

ITEM NUMBER 1

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
C 1	1	32	97,0	C	,41	,16	,80	,32	C	3,28	35,66
2	0	1	3,0		-,41	-,16	-1,03	-,41		1,00	30,00
TOTAL		33									

ITEM DESCRIPTIONS: Sentence Writing; Subt-simple separating 11-15

ITEM NUMBER 2

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	1	3,0		-,23	,10	-,57	,26		2,00	39,00
C 1	1	19	57,6	C	,84	,50	1,06	,64	C	3,89	38,05
2	0	13	39,4		-,77	-,55	-,98	-,69		2,31	31,46
TOTAL		33									

ITEM DESCRIPTIONS: Sentence Writing; Subt-comparison 0-99

ITEM NUMBER 3

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	1	3,0		-,23	,10	-,57	,26		2,00	39,00
C 1	1	29	87,9	C	,48	,22	,74	,34	C	3,38	35,97
2	0	3	9,1		-,41	-,31	-,71	-,54		2,00	29,67
TOTAL		33									

ITEM DESCRIPTIONS: Sentence Writing; Add-simple joining 0-99

ITEM NUMBER 4

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	0	,0		,00	,00	,00	,00		,00	,00
C 1	1	26	78,8	C	,74	,25	1,04	,36	C	3,58	36,27
2	0	7	21,2		-,74	-,25	-1,05	-,36		1,86	32,57
TOTAL		33									

ITEM DESCRIPTIONS: Sentence Writing; Subt-part part whole-addend 11-15

LERTAP 2.0 — SUMMARY ITEM STATISTICS — PAGE 124

TEST NO 3 ACH, MONITR, 6T=POP — SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 1

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	3	9,1		-,72	-,56	-1,27	-,98		5,67	25,00
C 1	1	30	90,9	C	,72	,56	1,20	,92	C	11,00	36,53
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		33									

ITEM DESCRIPTIONS: 2 + 4

ITEM NUMBER 2

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	2	6,1		-,60	-,47	-1,20	-,93		5,50	24,50
C 1	1	29	87,9	C	,62	,53	,96	,83	C	11,00	36,66
2	0	2	6,1		-,24	-,26	-,48	-,51		8,50	29,50
TOTAL		33									

ITEM DESCRIPTIONS: 6 + 3

ITEM NUMBER 3

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	1	3,0		-,71	-,52	-1,78	-1,30		2,00	18,00
C 1	1	32	97,0	C	,71	,52	1,38	1,01	C	10,78	36,03
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		33									

ITEM DESCRIPTIONS: 5 + 2

ITEM NUMBER 4

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	1	3,0		-,71	-,52	-1,78	-1,30		2,00	18,00
C 1	1	32	97,0	C	,71	,52	1,38	1,01	C	10,78	36,03
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		33									

ITEM DESCRIPTIONS: 2 + 3

ITEM NUMBER 5

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST MEANS	TT MEANS
0	0	0	,0		,00	,00	,00	,00		,00	,00
C 1	1	33	100,0	C	,00	,00	,00	,00	C	10,52	35,48
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		33									

ITEM DESCRIPTIONS: 5 + 0

TEST NO 3 ACH. MONITR. 6T-POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 6

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.0	-.71	-.52	-1.78	-1.30		2.00	18.00
C 1	1	32	97.0	C .71	.52	1.38	1.01	C	10.78	36.03
2	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		33								

1 + 3

ITEM NUMBER 7

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.0	-.71	-.52	-1.78	-1.30		2.00	18.00
C 1	1	32	97.0	C .71	.52	1.38	1.01	C	10.78	36.03
2	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		3								

9 + 2

ITEM NUMBER 8

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	1	3.0	-.29	-.25	-.73	-.63		7.00	27.00
C 1	1	32	97.0	C .29	.25	.87	.49	C	10.62	35.75
2	0	0	.0	.00	.00	.00	.00		.00	.00
TOTAL		33								

6 + 6

ITEM NUMBER 9

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	6	18.2	-.67	-.62	-.98	-.91		7.50	27.67
C 1	1	25	75.8	C .64	.67	.87	.91	C	11.28	37.72
2	0	2	6.1	-.06	-.19	-.12	-.38		10.00	31.00
TOTAL		33								

4 + 7

ITEM NUMBER 10

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	7	21.2	-.72	-.59	-1.02	-.83		7.57	28.71
C 1	1	22	66.7	C .72	.64	.93	.83	C	11.59	38.18
2	0	4	12.1	-.13	-.19	-.22	-.30		9.75	32.50
TOTAL		33								

7 + 6

TEST NO 3 ACH, MONITR, 6T-POP SUBTEST 3 FACTS SPEED--ADDITION

ITEM NUMBER 11

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	11	33,3		-,75	-,62	-,97	-,81		8,27	30,27
C 1	1	21	63,6	C	,72	,61	,92	,79	C	11,67	38,24
2	0	1	3,0		,04	-,01	,10	-,04		11,00	35,00
TOTAL		33									

9 + 7

ITEM NUMBER 12

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT
0	0	6	18,2		-,56	-,48	-,82	-,69		8,00	29,50
C 1	1	27	81,8	C	,56	,48	,81	,68	C	11,07	36,81
2	0	0	,0		,00	,00	,00	,00		,00	,00
TOTAL		33									

6 + 4

LERTAP 2.0 SUMMARY ITEM STATISTICS

TEST NO 3 ACH, MONITR, 6T-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 1

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	1	3.0	-.09	-.01	-.22	-.04		7.00	35.00	
C 1	1	31	93.9	.18	-.00	.33	-.00	C	8.23	35.48	3 - 2
2	0	1	3.0	-.17	.02	-.42	.04		6.00	36.00	
TOTAL		33									

ITEM NUMBER 2

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	31	93.9	.35	.32	.63	.57	C	8.32	35.97	6 - 4
2	0	2	6.1	-.35	-.32	-.70	-.64		5.00	20.00	
TOTAL		33									

ITEM NUMBER 3

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	33	100.0	.00	.00	.00	.00	C	8.12	35.48	9 - 1
2	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		33									

ITEM NUMBER 4

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	5	15.2	-.55	-.48	-.84	-.73		5.20	28.80	
C 1	1	27	81.8	.55	.44	.79	.63	C	8.70	36.70	7 - 3
2	0	1	3.0	-.09	.02	-.22	.04		7.00	36.00	
TOTAL		33									

ITEM NUMBER 5

OPTION	WT	N	P	PB-ST	PB-TT	B-ST	B-TT		MEANS ST	MEANS TT	ITEM DESCRIPTIONS
0	0	0	.0	.00	.00	.00	.00		.00	.00	
C 1	1	33	100.0	.00	.00	.00	.00	C	8.12	35.48	6 - 1
2	0	0	.0	.00	.00	.00	.00		.00	.00	
TOTAL		33									

TEST NO 3 ACH. MONITR. 6T-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 6

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	6	18,2		-,41	-,38	-,60	-,56		6,17	30,67	
C 1	1	25	75,8	C	,53	,51	,73	,70	C	8,80	37,20	7 - 5
2	0	2	6,1		-,30	-,30	-,59	-,59		5,50	28,50	
TOTAL		33										

ITEM NUMBER 7

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	5	15,2		-,40	-,60	-,61	-,92		6,00	27,00	
C 1	1	26	78,8	C	,46	,49	,64	,69	C	8,65	37,00	10 - 4
2	0	2	6,1		-,18	,06	-,36	,13		6,50	37,00	
TOTAL		33										

ITEM NUMBER 8

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	14	42,4		-,73	-,71	-,92	-,90		6,21	30,57	
C 1	1	10	30,3	C	,58	,34	,76	,44	C	10,10	38,50	13 - 9
2	0	9	27,3		,21	,44	,28	,59		8,89	39,78	
TOTAL		33										

ITEM NUMBER 9

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	16	48,5		-,48	-,40	-,61	-,50		7,00	33,06	
C 1	1	12	36,4	C	,57	,43	,74	,55	C	9,83	38,83	14 - 8
2	0	5	15,2		-,10	-,02	-,15	-,03		7,60	35,20	
TOTAL		33										

ITEM NUMBER 10

OPTION	WT	N	P		COEFFICIENTS OF CORRELATION PB-ST	PB-TT	B-ST	B-TT		MEANS ST	TT	
0	0	18	54,5		-,68	-,62	-,85	-,78		6,72	32,11	
C 1	1	12	36,4	C	,77	,65	,99	,83	C	10,42	40,58	11 - 7
2	0	3	9,1		-,11	-,01	-,19	-,01		7,33	35,33	
TOTAL		33										

TEST NO 3 ACH, MONITR, 6T-POP SUBTEST 4 FACTS SPEED--SUBTRACTION

ITEM NUMBER 11 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	12	36,4		-,60	-,54	-,77	-,69		6,33	31,25
C 1	1	16	48,5	C	,65	,56	,81	,71	C	9,62	38,94
2	0	5	15,2		-,10	-,06	-,15	-,10		7,60	34,60
TOTAL		33									

12 - 4

ITEM NUMBER 12 COEFFICIENTS OF CORRELATION MEANS

OPTION	WT	N	P		PB-ST	PB-TT	B-ST	B-TT		ST	TT
0	0	19	57,6		-,63	-,49	-,80	-,62		6,89	33,00
C 1	1	12	36,4	C	,55	,38	,70	,49	C	9,75	38,50
2	0	2	6,1		,21	,24	,42	,47		10,00	41,00
TOTAL		33									

17 - 9

Appendix C

PERFORMANCE BY OBJECTIVE FOR THE TWO SCHOOLS AND SIX CLASSES

NOTE: For those objectives for which there are three items, the number of subjects represented in the proportion correct at a particular test time is ascertained simply by summing the N's for the three forms; however, when there are more or less than three items, the N is increased or decreased proportionately.

No data were prepared by school and class for the Algorithms (Timed Test) objectives.

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: SCHOOL 1

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Numerousness								
writes 0-99	3	69.2	71.7	71.7	6			
represents 0-99	3	70.8	80.0	85.0		70.0	75.8	78.3
Open Sentences								
add 0-20	3	83.1	91.7	86.7				
subt 0-20	3	86.2	95.0	90.0				
± 0-10	3	87.7	91.7	86.7				
± 11-20	3	81.5	95.0	90.0	6	84.6	93.3	88.3
Ordering, Place Value								
ordering 0-99	3	67.7	78.3	76.7				
notation 0-99	3	13.8	16.7	100.0	6	40.8	47.5	43.3
Problem-Solving (Set A)								
subt-simple separating	2	59.5	65.0	54.8				
add-part part whole	2	57.8	70.0	77.5				
subt-comparison	2	60.5	60.0	65.8				
11-15	3	75.4	85.0	88.3				
0-99	3	43.1	45.0	43.3	6	59.2	65.0	65.8
Problem-Solving (Set B)								
subt-join-addend	2	60.5	67.5	71.1				
add-simple joining	2	83.3	77.5	73.8				
subt-part part whole-addend	2	35.6	55.0	52.5				
11-15	3	80.0	90.0	85.0				
0-99	3	38.5	43.3	46.7	6	59.2	66.7	65.8

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	88.4	82.5	86.8				
add-part part whole	2	81.0	90.0	95.2				
subt-comparison	2	22.2	40.0	47.5				
11-15	3	75.4	76.7	85.0				
0-99	3	50.8	65.0	68.3	6	63.1	70.8	76.7
Sentence-Writing (Set B)								
subt-join-addend	2	11.9	20.0	26.2				
add-simple joining	2	82.2	95.0	95.0				
subt-part part whole-addend	2	58.1	45.0	50.0				
11-15	3	53.8	58.3	63.3				
0-99	3	49.2	48.3	50.0	6	51.5	53.3	56.7
Sentence-Writing (Free Response)								
add-simple joining	2	90.5	82.5	90.5				
subt-simple separating	2	95.6	97.5	97.5				
subt-part part whole-addend	2	40.0	80.0	72.5				
add-part part whole	2	90.7	82.5	92.1				
subt-comparison	2	14.3	40.0	45.2				
subt-join-addend	2	23.3	32.5	39.5				
Set A (as above)[1]	6	67.7	73.3	77.5				
Set B (as above)[1]	6	50.8	65.0	68.3				
11-15	6	61.5	76.7	77.5				
0-99	6	56.9	61.7	68.3	12	59.2	69.2	72.9
Algorithms								
addition algorithm	3	50.8	63.3	60.0				
subtraction algorithm	3	36.9	41.7	35.0	6	43.9	52.5	47.5

[1] ...gh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objectiv			
		Administration Time				Administration Tim		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	68.2	71.0	76.0				
back 9-31	4	55.3	66.3	61.3	9	62.6	68.9	69.4
Recall of Basic Facts (Speeded Test)								
add 0-20					36	60.9	73.6	72.8
subt 0-20					36	48.2	61.0	58.9

		Administration Time		
		S-4	S-5	S-6
Form R	N =	20	20	20
Form S	N =	23	20	18
Form T	N =	22	20	22

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: SCHOOL 3

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Numerousness								
writes 0-99	3	61.8	65.6	89.7	6			
represents 0-99	3	76.5	87.5	86.2		69.1	76.6	87.9
Open Sentences								
add 0-20	3	88.2	84.4	93.1				
subt 0-20	3	82.4	90.6	89.7				
± 0-10	3	91.2	87.5	86.2				
± 11-20	3	79.4	87.5	96.6	6	85.3	87.5	91.4
Ordering, Place Value								
ordering 0-99	3	82.4	90.6	82.8				
notation 0-99	3	11.8	3.1	17.2	6	47.1	46.9	50.0
Problem-Solving (Set A)								
subt-simple separating	2	59.1	77.3	65.0				
add-part part whole	2	62.5	100.0	70.0				
subt-comparison	2	54.6	75.0	72.2				
11-15	3	85.3	87.5	96.6				
0-99	3	32.4	81.3	41.4	6	58.8	84.4	69.0
Problem-Solving (Set B)								
subt-join-addend	2	68.2	75.0	72.2				
add-simple joining	2	68.2	77.3	80.0				
subt-part part whole-addend	2	50.0	63.6	55.0				
11-15	3	94.1	93.8	86.2				
0-99	3	29.4	50.0	51.7	6	61.8	71.9	69.0

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	95.5	90.0	83.3				
add-part part whole	2	77.3	100.0	100.0				
subt-comparison	2	29.2	45.5	75.0				
11-15	3	64.7	78.1	96.6				
0-99	3	67.7	78.1	75.9	6	66.2	78.1	86.2
Sentence-Writing (Set B)								
subt-join-addend	2	22.7	31.8	25.0				
add-simple joining	2	91.7	95.5	100.0				
subt-part part whole-addend	2	59.1	65.0	61.1				
11-15	3	70.6	62.5	69.0				
0-99	3	47.1	65.6	55.2	6	58.8	64.1	62.1
Sentence-Writing (Free Response)								
add-simple joining	2	95.5	100.0	95.0				
subt-simple separating	2	95.8	100.0	95.0				
subt-part part whole-addend	2	75.0	72.7	85.0				
add-part part whole	2	90.9	90.0	94.4				
subt-comparison	2	40.9	59.1	70.0				
subt-join-addend	2	59.1	65.0	66.7				
Set A (as above)	6	76.5	82.8	86.2				
Set B (as above)[1]	6	76.5	79.7	82.8				
11-15	6	80.9	85.9	86.2				
0-99	6	72.1	76.6	82.8	12	76.5	81.3	84.5
Algorithms								
addition algorithm	3	52.9	59.4	58.6				
subtraction algorithm	3	17.7	43.8	65.5	6	35.3	51.6	62.1

[1] Though the problem types correspond to Set B, these free response problems have the same wording etc. as the interview items; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objectiv			
		Administration Time				Administration Tim		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	82.8	87.0	77.6				
back 9-31	4	63.6	59.5	81.6	9	74.5	75.0	79.3
Recall of Basic Facts (Speeded Test)								
add 0-20					36	67.7	75.8	92.2
subt 0-20					36	56.4	62.2	78.5

		Administration Time		
		S-4	S-5	S-6
Form R	N =	10	10	9
Form S	N =	12	10	9
Form T	N =	12	12	11

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:
CLASS 1

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Numerousness								
writes 0-99	3	72.7	85.0	72.7	6			
represents 0-99	3	77.3	95.0	95.5		75.0	90.0	84.1
Open Sentences								
add 0-20	3	100.0	90.0	90.9				
subt 0-20	3	95.5	100.0	100.0				
± 0-10	3	100.0	90.0	90.9				
± 11-20	3	95.5	100.0	100.0	6	97.7	95.0	95.5
Ordering, Place Value								
ordering 0-99	3	90.9	90.0	86.4				
notation 0-99	3	18.2	15.0	9.1	6	54.6	52.5	47.7
Problem-Solving (Set A)								
subt-simple separating	2	57.1	78.6	66.7				
add-part part whole	2	50.0	75.0	86.7				
subt-comparison	2	68.8	71.4	85.7				
11-15	3	86.4	90.0	100.0				
0-99	3	31.8	60.0	59.1	6	59.1	75.0	79.6
Problem-Solving (Set B)								
subt-join-addend	2	56.3	78.6	85.7				
add-simple joining	2	92.9	85.7	80.0				
subt-part part whole-addend	2	35.7	58.3	53.3				
11-15	3	72.7	95.0	86.4				
0-99	3	50.0	55.0	59.1	6	61.4	75.0	72.7

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	93.8	100.0	100.0				
add-part part whole	2	85.7	100.0	100.0				
subt-comparison	2	35.7	58.3	66.7				
11-15	3	90.9	85.0	90.9				
0-99	3	54.6	90.0	86.4	6	72.7	87.5	88.6
Sentence-Writing (Set B)								
subt-join-addend	2	14.3	28.6	33.3				
add-simple joining	2	92.9	100.0	100.0				
subt-part part whole-addend	2	81.3	64.3	71.4				
11-15	3	63.6	65.0	68.2				
0-99	3	63.6	60.0	68.2	6	63.6	62.5	68.2
Sentence-Writing (Free Response)								
add-simple joining	2	100.0	100.0	93.3				
subt-simple separating	2	100.0	91.7	100.0				
subt-part part whole-addend	2	42.9	83.3	86.7				
add-part part whole	2	100.0	85.7	92.9				
subt-comparison	2	21.4	50.0	60.0				
subt-join-addend	2	31.3	50.0	35.7				
Set A (as above)	6	75.0	75.0	84.1				
Set B (as above)[1]	6	56.8	77.5	72.7				
11-15	6	68.2	82.5	81.8				
0-99	6	63.6	70.0	75.0	12	65.9	76.3	78.4
Algorithms								
addition algorithm	3	63.6	80.0	63.6				
subtraction algorithm	3	54.6	50.0	50.0	6	59.1	65.0	56.8

[1] Though the problem types correspond to Set B, these free response problems have the same wording etc. as the interview items; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	83.3	87.5	91.1				
back 9-31	4	76.7	78.6	79.3	9	80.3	83.3	80.3
Recall of Basic Facts (Speeded Test)								
add 0-20					36	76.9	88.8	90.2
subt 0-20					36	67.8	80.0	71.6

		Administration Time		
		S-4	S-5	S-6
Form R	N =	8	8	7
Form S	N =	8	6	7
Form T	N =	6	6	8

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR:
CLASS 2

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Numerousness								
writes 0-99	3	62.5	41.7	64.3	6			
represents 0-99	3	68.8	75.0	78.6		65.6	58.3	71.4
Open Sentences								
add 0-20	3	75.0	91.7	85.7				
subt 0-20	3	75.0	91.7	78.6				
$\pm$ 0-10	3	75.0	91.7	85.7				
$\pm$ 11-20	3	75.0	91.7	78.6	6	75.0	91.7	82.1
Ordering, Place Value								
ordering 0-99	3	56.3	66.7	71.4				
notation 0-99	3	0.0	33.3	21.4	6	28.1	50.0	46.4
Problem-Solving (Set A)								
subt-simple separating	2	62.5	57.1	50.0				
add-part part whole	2	53.9	66.7	55.6				
subt-comparison	2	45.5	50.0	44.4				
11-15	3	56.3	66.7	78.6				
0-99	3	50.0	50.0	21.4	6	53.1	58.3	50.0
Problem-Solving (Set B)								
subt-join-addend	2	63.6	50.0	55.6				
add-simple joining	2	87.5	85.7	90.0				
subt-part part whole-addend	2	38.5	55.6	44.4				
11-15	3	81.3	91.7	85.7				
0-99	3	37.5	33.3	42.9	6	59.4	62.5	64.3

Table (Continued)

Description of Objectives	Objective				Composite Objective			
	Number of Items	Administration Time S-4	S-5	S-6	Number of Items	Administration Time S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	90.9	75.0	77.8				
add-part part whole	2	87.5	85.7	80.0				
subt-comparison	2	15.4	11.1	44.4				
11-15	3	68.8	66.7	78.6				
0-99	3	50.0	41.7	57.1	6	59.4	54.2	67.9
Sentence-Writing (Set B)								
subt-join-addend	2	12.5	28.6	30.0				
add-simple joining	2	76.9	88.9	100.0				
subt-part part whole-addend	2	36.4	25.0	55.6				
11-15	3	50.0	58.3	71.4				
0-99	3	43.8	41.7	50.0	6	46.9	50.0	60.7
Sentence-Writing (Free Response)								
add-simple joining	2	75.0	42.9	80.0				
subt-simple separating	2	92.3	100.0	100.0				
subt-part part whole-addend	2	38.5	77.8	77.8				
add-part part whole	2	81.8	75.0	88.9				
subt-comparison	2	0.0	57.1	30.0				
subt-join-addend	2	27.3	37.5	33.3				
Set A (as above)	6	65.6	79.2	71.4				
Set B (as above)[1]	6	43.8	54.2	64.3				
11-15	6	56.3	70.8	75.0				
0-99	6	53.1	62.5	60.7	12	54.7	66.7	67.9
Algorithms								
addition algorithm	3	31.3	41.7	50.0				
subtraction algorithm	3	31.3	25.0	14.3	6	31.3	33.3	32.1

[1] Though the problem types correspond to Set B, these free response problems have the same wording etc. as the interview; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	75.9	61.9	69.6				
back 9-31	4	31.6	40.0	47.4	9	58.3	52.8	59.5
Recall of Basic Facts (Speeded Test)								
add 0-20					36	49.5	65.3	60.1
subt 0-20					36	31.8	43.1	51.8

		Administration Time		
		S-4	S-5	S-6
Form R	N =	3	3	5
Form S	N =	8	5	4
Form T	N =	5	4	5

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 3

Description of Objectives	Objective				Composite Objective			
	Number of Items	Administration Time S-4	S-5	S-6	Number of Items	Administration Time S-4	S-5	S-6
Numerousness								
writes 0-99	3	61.1	58.8	81.3	6			
represents 0-99	3	77.8	82.4	87.5		69.4	70.6	84.4
Open Sentences								
add 0-20	3	88.9	82.4	87.5				
subt 0-20	3	88.9	88.2	81.3				
± 0-10	3	94.4	88.2	75.0				
± 11-20	3	83.3	82.4	93.8	6	88.9	85.3	84.4
Ordering, Place Value								
ordering 0-99	3	72.2	94.1	87.5				
notation 0-99	3	11.1	0.0	25.0	6	41.7	47.1	56.3
Problem-Solving (Set A)								
subt-simple separating	2	45.5	81.8	72.7				
add-part part whole	2	73.3	100.0	63.6				
subt-comparison	2	50.0	72.7	60.0				
11-15	3	83.3	82.4	93.8				
0-99	3	33.3	88.2	37.5	6	58.3	85.3	65.6
Problem-Solving (Set B)								
subt-join-addend	2	70.0	81.8	70.0				
add-simple joining	2	63.6	81.8	72.7				
subt-part part whole-addend	2	46.7	75.0	63.6				
11-15	3	88.9	94.1	81.3				
0-99	3	27.8	64.7	56.3	6	58.3	79.4	68.8

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	90.0	81.8	70.0				
add-part part whole	2	81.8	100.0	100.0				
subt-comparison	2	33.3	16.7	63.6				
11-15	3	61.1	58.8	93.8				
0-99	3	66.7	70.6	62.5	6	63.9	64.7	78.1
Sentence-Writing (Set B)								
subt-join-addend	2	0.0	0.0	0.0				
add-simple joining	2	93.3	91.7	100.0				
subt-part part whole-addend	2	50.0	63.6	50.0				
11-15	3	72.2	58.8	50.0				
0-99	3	33.3	47.1	50.0	6	52.8	52.9	50.0
Sentence-Writing (Free Response)								
add-simple joining	2	90.9	100.0	100.0				
subt-simple separating	2	93.3	100.0	90.9				
subt-part part whole-addend	2	80.0	75.0	72.7				
add-part part whole	2	90.0	81.8	90.0				
subt-comparison	2	27.3	27.3	63.6				
subt-join-addend	2	40.0	63.6	60.0				
Set A (as above)[1]	6	72.2	70.6	81.3				
Set B (as above)[1]	6	72.2	79.4	78.1				
11-15	6	80.6	82.4	78.1				
0-99	6	63.9	67.7	81.3	12	72.2	75.0	79.7
Algorithms								
addition algorithm	3	50.0	58.8	68.8				
subtraction algorithm	3	22.2	52.9	68.8	6	36.1	55.9	68.8

1. ...ugh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview ; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	75.8	79.3	66.7				
ack 9-31	4	57.1	59.1	81.0	9	68.5	70.6	72.9
Recall of Basic Facts (Speeded Test)								
add 0-20					36	61.6	73.5	90.1
subt 0-20					36	49.5	54.9	70.3

		Administration Time		
		S-4	S-5	S-6
Form R	N =	3	5	5
Form S	N =	7	6	5
Form T	N =	8	6	6

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 4

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Numerousness								
writes 0-99	3	75.0	88.9	71.4	6	62.5	77.8	71.4
represents 0-99	3	50.0	66.7	71.4				
Open Sentences								
add 0-20	3	87	100.0	71.4				
subt 0-20	3	87.5	88.9	100.0				
± 0-10	3	87.5	100.0	85.7				
± 11-20	3	87.5	88.9	85.7	6	87.5	94.4	85.7
Ordering, Place Value								
ordering 0-99	3	37.5	77.8	57.1				
notation 0-99	3	25.0	0.0	0.0	6	31.3	38.9	28.6
Problem-Solving (Set A)								
subt-simple separating	2	50.0	66.7	40.0				
add-part part whole	2	60.0	83.3	100.0				
subt-comparison	2	60.0	50.0	60.0				
11-15	3	62.5	100.0	71.4				
0-99	3	50.0	33.3	57.1	6	56.3	66.7	64.3
Problem-Solving (Set B)								
subt-join-addend	2	80.0	50.0	60.0				
add-simple joining	2	33.3	66.7	60.0				
subt-part part whole-addend	2	40.0	33.3	50.0				
11-15	3	87.5	66.7	100.0				
0-99	3	12.5	33.3	14.3	6	50.0	50.0	57.1

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	40.0	33.3	40.0				
add-part part whole	2	66.7	66.7	100.0				
subt-comparison	2	20.0	16.7	25.0				
11-15	3	75.0	44.4	85.7				
0-99	3	12.5	33.3	28.6	6	43.8	38.9	57.1
Sentence-Writing (Set B)								
subt-join-addend	2	0.0	16.7	20.0				
add-simple joining	2	80.0	83.3	50.0				
subt-part part whole-addend	2	20.0	0.0	0.0				
11-15	3	25.0	44.4	42.9				
0-99	3	37.5	22.2	0.0	6	31.3	33.3	21.4
Sentence-Writing (Free Response)								
add-simple joining	2	66.7	66.7	80.0				
subt-simple separating	2	100.0	100.0	75.0				
subt-part part whole-addend	2	20.0	66.7	50.0				
add-part part whole	2	60.0	66.7	80.0				
subt-comparison	2	0.0	16.7	0.0				
subt-join-addend	2	0.0	16.7	20.0				
Set A (as above)[1]	6	50.0	61.1	50.0				
Set B (as above)[1]	6	31.3	50.0	50.0				
11-15	6	50.0	66.7	50.0				
0-99	6	31.3	44.4	50.0	12	40.6	55.6	50.0
Algorithms								
addition algorithm	3	37.5	66.7	57.1				
subtraction algorithm	3	12.5	22.2	42.9	6	25.0	44.4	50.0

[1] Though the problem types correspond to Set B, these free response problems have the same wording etc. as the interview; i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	23.1	53.3	72.7				
back 9-31	4	36.4	66.7	20.0	9	29.2	59.3	47.6
Recall of Ba Facts (Speeded Test,								
add 0-20					36	38.5	57.4	45.2
subt 0-20					36	26.0	44.4	38.1

		Administration Time		
		S-4	S-5	S-6
Form R	N =	3	3	3
Form S	N =	2	3	2
Form T	N =	3	3	2

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 5

Description of Objectives	Objective				Composite Objective			
	Number of Items	Administration Time S-4	S-5	S-6	Number of Items	Administration Time S-4	S-5	S-6
Numerousness								
writes 0-99	3	62.5	73.3	100.0	6			
represents 0-99	3	75.0	93.3	84.6		68.8	83.3	92.3
Open Sentences								
add 0-20	3	87.5	86.7	100.0				
subt 0-20	3	75.0	93.3	100.0				
± 0-10	3	87.5	86.7	100.0				
± 11-20	3	75.0	93.3	100.0	6	81.3	90.0	100.0
Ordering, Place Value								
ordering 0-99	3	93.8	86.7	76.9				
notation 0-99	3	12.5	6.7	7.7	6	53.1	46.7	42.3
Problem-Solving (Set A)								
subt-simple separating	2	72.7	72.7	55.6				
add-part part whole	2	44.4	100.0	77.8				
subt-comparison	2	58.3	77.8	87.5				
11-15	3	87.5	93.3	100.0				
0-99	3	31.3	73.3	46.2	6	59.4	83.3	73.1
Problem-Solving (Set B)								
subt-join-addend	2	66.7	66.7	75.0				
add-simple joining	2	72.7	72.7	88.9				
subt-part part whole-addend	2	55.6	50.0	44.4				
11-15	3	100.0	93.3	92.3				
0-99	3	31.3	33.3	46.2	6	65.6	63.3	69.2

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	100.0	100.0	100.0				
add-part part whole	2	72.7	100.0	100.0				
subt-comparison	2	22.2	80.0	88.9				
11-15	3	68.8	100.0	100.0				
0-99	3	68.8	86.7	92.3	6	68.8	93.3	96.2
Sentence-Writing (Set B)								
subt-join-addend	2	45.5	63.6	55.6				
add-simple joining	2	88.9	100.0	100.0				
subt-part part whole-addend	2	66.7	66.7	75.0				
11-15	3	68.8	66.7	92.3				
0-99	3	62.5	86.7	61.5	6	65.6	76.7	76.9
Sentence-Writing (Free Response)								
add-simple joining	2	100.0	100.0	88.9				
subt-simple separating	2	100.0	100.0	100.0				
subt-part part whole-addend	2	66.7	70.0	100.0				
add-part part whole	2	91.7	100.0	100.0				
subt-comparison	2	54.6	90.9	77.8				
subt-join-addend	2	75.0	66.7	75.0				
Set A (as above)	6	81.3	96.7	92.3				
Set B (as above)[1]	6	81.3	80.0	88.5				
11-15	6	81.3	90.0	96.2				
0-99	6	81.3	86.7	84.6	12	81.3	88.3	90.4
Algorithms								
addition algorithm	3	56.3	60.0	46.2				
subtraction algorithm	3	12.5	33.3	61.5	6	34.4	46.7	53.9

1. ...gh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	92.0	96.0	90.9				
back 9-31	4	69.6	60.0	82.4	9	81.3	80.0	87.2
Recall of Basic Facts (Speeded Test)								
add 0-20					36	74.5	78.3	94.9
subt 0-20					36	64.1	70.6	88.5

		Administration Time		
		S-4	S-5	S-6
Form R	N =	7	5	4
Form S	N =	5	4	5
Form T	N =	4	6	5

Table

PROGRESS TOWARD OBJECTIVES ACROSS ADMINISTRATION TIMES AS REPRESENTED BY PROPORTION OF STUDENTS ANSWERING ITEMS CORRECTLY FOR: CLASS 6

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Numerousness								
writes 0-99	3	68.4	68.4	76.5	6			
represents 0-99	3	73.7	73.7	82.4		71.1	71.1	79.4
Open Sentences								
add 0-20	3	68.4	89.5	88.2				
subt 0-20	3	84.2	94.7	82.4				
± 0-10	3	84.2	89.5	82.4				
± 11-20	3	68.4	94.7	88.2	6	76.3	92.1	85.3
Ordering, Place Value								
ordering 0-99	3	63.2	73.7	76.5				
notation 0-99	3	15.8	15.8	5.9	6	39.5	44.7	41.2
Problem-Solving (Set A)								
subt-simple separating	2	64.3	53.9	50.0				
add-part part whole	2	69.2	61.5	75.0				
subt-comparison	2	63.6	58.3	60.0				
11-15	3	84.2	84.2	88.2				
0-99	3	47.4	31.6	35.3	6	65.8	57.9	61.8
Problem-Solving (Set B)								
subt-join-addend	2	54.5	75.0	70.0				
add-simple joining	2	92.9	69.2	58.3				
subt-part part whole-addend	2	30.8	61.5	58.3				
11-15	3	84.2	94.7	76.5				
0-99	3	36.8	42.1	47.1	6	60.5	68.4	61.8

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Sentence-Writing (Set A)								
subt-simple separating	2	100.0	91.7	100.0				
add-part part whole	2	78.6	92.3	100.0				
subt-comparison	2	15.4	53.9	33.3				
11-15	3	63.2	89.5	82.4				
0-99	3	63.2	68.4	70.6	6	63.2	79.0	76.5
Sentence-Writing (Set B)								
subt-join-addend	2	14.3	7.7	16.7				
add-simple joining	2	76.9	100.0	100.0				
subt-part part whole-addend	2	63.6	58.3	40.0				
11-15	3	57.9	57.9	58.8				
0-99	3	42.1	52.6	47.1	6	50.0	55.3	52.9
Sentence-Writing (Free Response)								
add-simple joining	2	100.0	92.3	100.0				
subt-simple separating	2	92.3	100.0	100.0				
subt-part part whole-addend	2	46.2	84.6	58.3				
add-part part whole	2	100.0	91.7	100.0				
subt-comparison	2	21.4	30.8	58.3				
subt-join-addend	2	18.2	16.7	60.0				
Set A (as above)[1]	6	68.4	73.7	85.3				
Set B (as above)[1]	6	57.9	65.8	73.5				
11-15	6	63.2	79.0	85.3				
0-99	6	63.2	60.5	73.5	12	63.2	69.7	79.4
Algorithms								
addition algorithm	3	57.9	57.9	64.7				
subtraction algorithm	3	31.6	52.6	29.4	6	44.7	55.3	47.1

[1] ...gh the problem types correspond to Set B, these free response problems have the same wording etc. as the interview i.e., the Sentence-Writing Set B items above have alternative wording, number order, etc.

Table (Continued)

Description of Objectives	Objective				Composite Objective			
		Administration Time				Administration Time		
	Number of Items	S-4	S-5	S-6	Number of Items	S-4	S-5	S-6
Counting								
on 9-31	5	62.5	68.8	75.9				
back 9-31	4	56.0	68.0	68.2	9	59.7	68.4	72.6
Recall of Basic Facts (Speeded Test)								
add 0-20					36	61.4	70.6	72.1
subt 0-20					36	48.7	60.1	56.9

		Administration Time		
		S-4	S-5	S-6
Form R	N =	6	6	5
Form S	N =	5	6	5
Form T	N =	8	7	7

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