ABSTRACT
        This is one of a series of reports which provide
definitions of and descriptive data on the variables used in the
Comparative Study of Phase IV of the Individually Guided Education
(IEG) Evaluation Project. Phase IV investigated three curriculum
programs specifically designed to be compatible with instructional
programming for the individual student: (1) the Wisconsin Design for
Reading Skills Development (WDRSD); (2) Developing Mathematic
Processes (DMP); and (3) Prereading Skills (PRS). Information on
instructional methods and pupil outcomes for grades 2 and 5 was
collected from achievement monitoring and domain referenced tests,
teacher logs, and classroom observations. This report focuses on the
procedures used in aggregating the reading skills and mathematics
content areas. Data were grouped for analysis at three progressively
more specific levels: content area; general objective; and specific
objective. The content areas for reading skills were Word Attack,
Comprehension, and Study Skills. The math skills content areas were
Place Value and Numeration, Operations Fractions, Decimal Fractions,
Measurement, and Problem Solving. Appendix A contains a listing of
the reading skills and math content codes in the aggregated form.
Each aggregated case contains 12 digits arranged in four three-digit
fields. The fields represent the three grouping levels, and WDRSD or
DMP skill and skill level. (BS)

Phase IV
Project Paper 80-3

CONTENT AGGREGATIONS FOR READING SKILLS AND
MATHEMATICS FOR THE COMPARATIVE STUDY OF PHASE IV
OF THE IGE EVALUATION PROJECT

by Anne G. Nerenz and Norman L. Webb
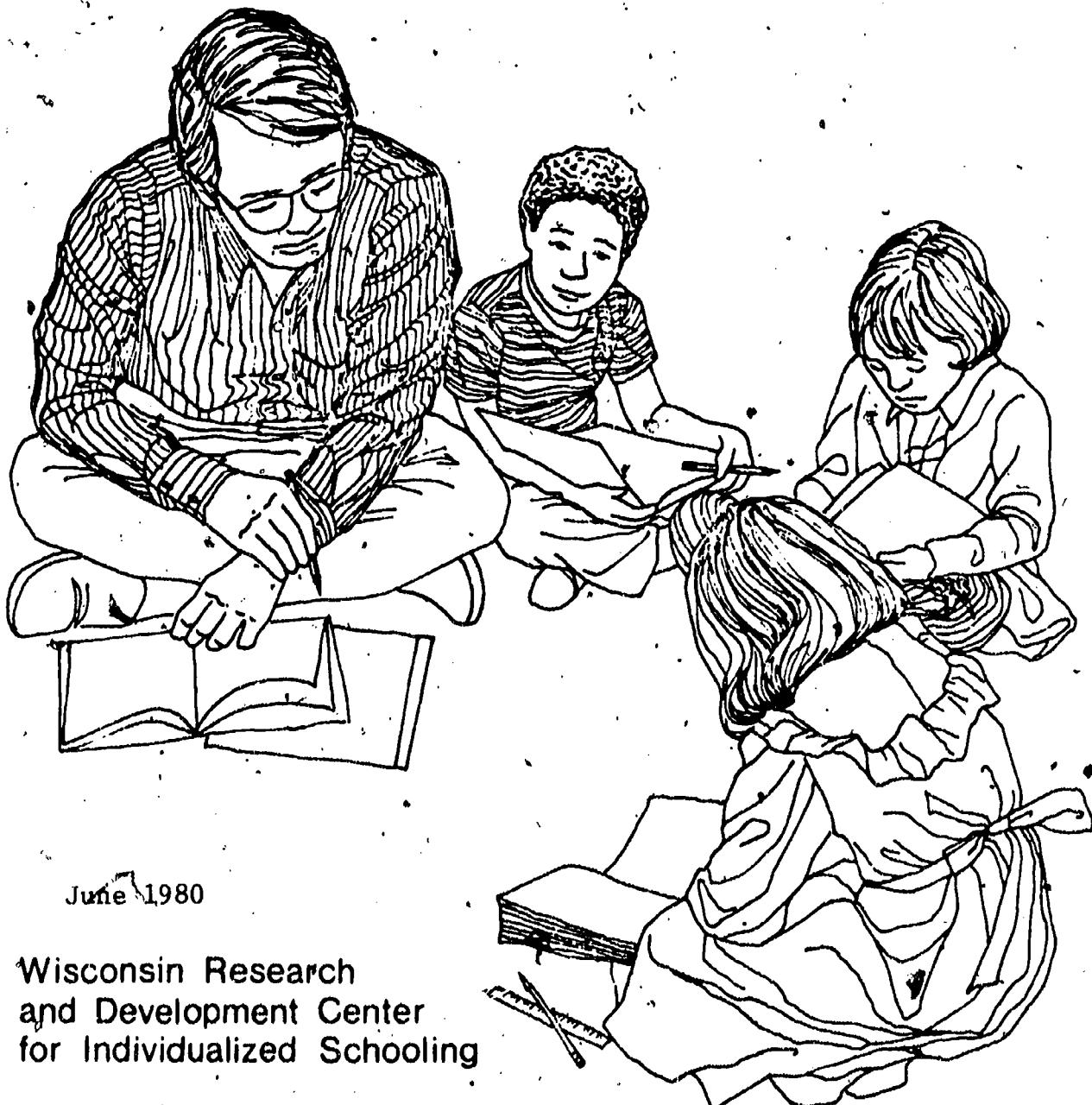
June 1980

Wisconsin Research
and Development Center
for Individualized Schooling

Phase IV

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Report from the
IGE Evaluation Project

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Wisconsin Research and Development Center
for Individualized Schooling
The University of Wisconsin-Madison
Madison, Wisconsin

June 1979

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The mission of the Wisconsin Research and Development Center
is to improve the quality of education by addressing the full
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processes and develop strategies and materials for use in the
schools. The Center pursues its mission by

- conducting and synthesizing research to clarify the
  processes of school-age children's learning and
  development

- conducting and synthesizing research to clarify effective
  approaches to teaching students basic skills and concepts

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WISCONSIN RESEARCH AND DEVELOPMENT
CENTER FOR INDIVIDUALIZED SCHOOLING

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Abstract

This report is one in a series of papers which provide definitions of and descriptive data on the variables used in the Comparative Study of Phase IV of the IGE Evaluation Project. Specifically, the procedures used to aggregate the reading skills and mathematics content areas are discussed in this report. A more detailed discussion of the design of the study and the application of the content aggregations to the test, log and observation data is available in Report 80-2 (Romberg, Webb, Stewart and Nerenz) and readers might find that paper helpful in understanding the information presented here.

Introduction

The IGE Evaluation Project has as a central objective the identification of features of IGE schooling which contribute to successful instruction, especially in reading skills and mathematics. Although the first four phases of this project focused on different aspects of IGE, they were designed to provide complimentary data bases resulting in a comprehensive description of this form of schooling. With this goal in mind Phase IV was designed to supplement information collected in Phases I and III by providing detailed information on a small number of curricular and instructional variables. That is, whereas these phases investigated organizational, system, general means of instruction, and general achievement variables, the main purpose of Phase IV was to investigate the three R & D Center produced curriculum programs whose instructional procedures and materials were specifically designed to be compatiable with instructional programming for the individual student. These programs are the Wisconsin Design for Reading Skills Development (WDRSD) (Otto, 1977); Developing Mathematical Processes (DMP) (Romberg, 1977); and Prereading Skills (PRS), (Venezky and Pittelman, 1977).

Phase IV was divided into two parts--the Descriptive Study and the Comparative Study--and information on the design and procedures used during each portion may be found in Project Paperes 79-42 and 80-2 (Webb and Romberg, 1979; Romberg, Webb, Stewart and Nerenz, 1980). Briefly, each part was designed to provide detailed information on two variables--means of instruction and pupil outcomes--using

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achievement monitoring and domain referenced tests, teacher logs,
and classroom observations. In addition, a smaller amount of
information on background, organizational, and program variables
was obtained using principal, unit leader, and teacher interviews.
This report focuses on the procedures used in aggregating the reading
skills and mathematics content which was included on the tests and
recorded on both the observations and the teacher logs.

I

Aggregation Procedures

Reading Content Aggregations

In the Comparative Study of Phase IV, information on the content taught during reading skills instruction was obtained from the teacher logs, classroom observations, and achievement monitoring tests. These data were grouped for analysis at three progressively more specific levels. The most inclusive is the "content area," followed by the "general objective" and the "specific objective."

As outlined in the Wisconsin Design for Reading Skills Development (WDRSD) (Otto, 1977), reading skills may be organized into three domains: Word Attack, Comprehension, and Study Skills. Within each of these content areas, from one to six general objectives were developed. These content areas, general objectives, and the specific objectives which they represent are described below. The Word Attack, Comprehension, and Study Skills aggregations for Grades 2 and 5 are shown in Figures 1, 2, and 3.

Phonic Analysis-Consonants. Phonic Analysis-Consonants focuses on consonant sounds in real or nonsense words. Sounds may be in the initial or final position and include single consonants, two- and three-letter consonant blends, variant consonant sounds, and consonant digraphs. This general objective includes one specific objective and eight reading skills (B3, B4, B5, B8, C2, C3, C12, D2).

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General Objective			Specific Objective			
Case Number	Descriptors	Case Number	Descriptor	Case-Skill	Descriptor	
01	Phonic Analysis-Consonants	01	Phonic Analysis Consonants	111 C 1	Consonants and their variant sounds	
				112 D 1	Three-letter consonant blends	
				113 D 4	Beginning consonant sounds	
				B 5	Ending consonant sounds	
				C 2	Two-letter blends	
				C 3	More difficult two-letter blends	
				B 8	Simple consonant digraphs	
				C 1	Consonant digraphs	
02	Phonic Analysis-Vowels	02	Phonic Analysis-Vowels	115 C 5	Long vowel sounds	
				116 C 6	Diphthongs ew, oi, oy, ow	
				121 C 7	Long and short oo	
				122 C 8	Short vowel generalization	
				123 C 11	Final vowel generalization	
				124 B 2	Short vowels	
				C 5	Vowel + r, a + l, a + w	
				C 9	Silent e generalization	
				C 11	Two vowels together	
03	Phonic Analysis-Silent Letters	03	Phonic Analysis-Silent Letters	125 C 3	Silent letters	
04	Structural Analysis	04	Structural Analysis	131 B10	Contractions	
				132 B11	Base words and endings	
				133 B13	Possessive forms of nouns	
				141 D 4	Syllabication	
				142 D 5	Accent	
				143 D 7	Possessive forms	
				144 B 6	Rhyming elements	
				B 9	Compound words	
				B12	Plurals	
				C14	More difficult plural forms	
				C15	Base words with prefixes and suffixes	
				C15	Homonyms	
				D 6	Unaccented schwa	
05	Vocabulary Meaning	05	Vocabulary Meaning	135 C16	Synonyms and antonyms	
				135 C18	Multiple meanings	
				145 B 1	Sight vocabulary	
				C 1	Sight vocabulary	
				D 1	Sight vocabulary	

Figure 1. Content aggregations for grade 2 and grade 5 word attack skills.

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General Objective		Specific Objective			
Case Number	Descriptor	Case Number	Descriptor	Case-Skill	Descriptor
06	Map Skills	06	Representation	211 B 1	Uses picture symbols to interpret maps
				212 C 1	Uses non-pictorial symbols to interpret maps
				213 D 1	Uses point and line symbols to interpret maps
				214 E 1	Uses point, line, and area symbols
				C 2	Uses a color key to interpret maps
				E 1	Analyzes maps of two or more areas
				G 1	Synthesizes information about an area
		07	Orientation	215 B 2	Locates points on simple picture grids
				221 C 3	Locates points on number-letter grids
				222 D 2	Determines intermediate directions
				223 D 2	Indicates cardinal directions on globes
				E 2	Uses various projections
				G 2	Uses latitude and longitude
					Determines direction on any projection
		08	Measurement	224 C 5	Expresses relative distance
				225 D 3	Uses scale to determine whole units of distances
				231 E 4	Makes limited use of scale to determine distances
				232 E 4	Compares maps drawn to different scales
				233 B 3	Determines relative distance
				E 6	Compares sizes
				F 1	Uses inset maps to determine relative sizes of areas
				G 4	Uses scale to determine distances
07	Graph and Table Skills	09	Graphs	214 B 4	Compares amounts
				215 C 4	Extracts directly
				241 E 7	Determines differences between numbers extracted
				D 4	Determines differences between numbers extracted
				242 D 5	Extracts by interpolating
				243 E 5	Determines differences between numbers extracted
				244 E 5	Determines differences between numbers extracted
				G 5	Determines differences between numbers extracted
				245 E 5	Determines purposes and makes summary statements
				G 6	Makes projections and relates information
		10	Tables	251 C 8	Compares amounts
				252 C 9	Locates cells
				253 D 6	Determines relationships between cells
				254 E 6	Determines relationships between cells
				255 E 7	Determines purposes and makes summary statements
				311 F 6	Determines relationships between cells on schedules
				G 7	Solves problems on schedules
08	Reference Skills	11	Alphabetizing	322 C11	Applies basic alphabetizing skills
				323 D10	Applies alphabetizing skills
				324 D11	Uses guide words in simple reference books
				E12	Uses guide words and guide letters
		12	Dictionary Skills	313 E 9	Uses dictionaries independently
				314 F 8	Uses dictionaries for pronunciation
		13	Locating Information in Books	312 D 7	Begins to use indexes
				315 C10	Develops book skills
				D 8	Has beginning dictionary and glossary skills
				D 9	Uses tables of contents
				E 8	Refines use of indexes
				F10	Uses cross references
				321 F 7	Uses Subject Index
				G 8	Uses Readers' Guide
				343 G12	Uses headings and sub-headings
				345 F12	Uses catalog cards to select materials
		14	Locating Specialized Information	325 F11	Uses guide cards in catalog drawers
				331 F 9	Uses catalog card filing rules
				332 F10	Uses Dewey Decimal System
				G 9	Uses card catalog
		15	Recording	334 E14	Takes notes
				315 F11	Has beginning outlining skills
				341 G10	Makes formal outlines
		16	Evaluation	342 D13	Selects relevant sources
				C13	Uses a variety of sources
				E15	Selects specialized reference books
				E16	Considers special features of books
				343 D14	Recognizes printed statements may be fact or opinion
				344 E17	Checks facts from two sources

Figure 2. Content aggregations for grade 2 and grade 5 study skills.

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General Objective		Specific Objective		Case-Skill	Descriptor
Case Number	Descriptor	Case Number	Descriptor		
9	Word Meaning Skills	17	Word Parts	411 E 1 / 412 A 1 / C 1 / C 2	Suffixes / Prefixes / Combining forms / Word roots
		18	Context Clues	413 F 2 / 414 B 1 / C 2 / C 3	Indirect context clues: application / Identifies direct context clues / Identifies direct context clues: application / Identifies direct context clues: obscure meanings
10	Sentence Meaning Skills	19	Detail	41x C 1 / 421 B 1 / D 2 / C 3	Notes detail in positive and negative sentences / Notes detail / Notes detail in active and passive voice sentences / Notes detail in sentences with more than one subordinate clause
		20	Paraphrase	422 A 3 / 423 C 4 / D 3 / E 4 / C 4	Paraphrases complex sentences with two or more prepositional phrases / Pharaphrases positive and negative sentences / Pharaphrases active and passive voice sentences / Paraphrases complex sentences / Rewrites sentences
11	Passage Meaning Skills	21	Central Thought	424 C 4 / 425 E 5 / 431 B 2 / D 4 / E 5 / C 5	Identifies a topic without organizer / Identifies central thought without organizer / Identifies a topic with organizer / Identifies relevant information / Identifies central thought with organizer / Generates central thought
		22	Reasoning	432 C 4 / 433 F 5 / 434 B 3 / D 5 / E 6 / C 6 / C 7	Identifies conclusions: one relationship / Identifies conclusions: indirect relationships / Predicts outcomes / Identifies cause-effect relationship / Identifies conclusions: direct relationships / Recognizes supported and unsupported conclusions / Modifies conclusions
		23	Sequence	435 C 5 / 441 E 6 / 442 B 4 / B 5 / D 6 / E 7 / C 8	Event before or after / Implicit clues / Event before / Event after / Calendar markers / Explicit clues / Implied and stated events
12	General Reading	24	General Reading	443 / 444 / 445	Self-directed reading / Interpretive reading / Creative reading

Figure 3. Content aggregations for grade 2 and grade 5 comprehension skills.

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Phonic Analysis-Vowels. In this general objective, children were to attend to vowels in real or nonsense words. Long and short vowels, vowels in the final position, vowels plus r, l, or w, two vowels together, and vowel combinations including diphthongs were considered. This objective included nine word attack skills (B7, C4-C11).

Phonic Analysis-Silent Letters. This general objective includes a single specific objective (D3) in which children were asked to identify silent letters and pronounce words containing them. Particular attention is given to seven high frequency consonant combinations (kn, gn, wr, mb, bt, igh, tch), although silent vowels are also considered.

Structural Analysis. Reading skills in this general objective deal with word structure; and children were asked to identify and use particular inflected forms. The specific objective includes skills in seven areas: possessives (B13, D7), rhymes (B6), word structure (B9, B11, C13), plurals (B12, C14), contractions (B10), word analysis (D4, D5, D6), and special meanings (C15).

Vocabulary Meaning. Skills included in this general objective deal with the meaning of words, generally in a particular context. Data were obtained for three specific word attack skills: synonyms and antonyms (C16), multiple meanings (C18), and sight vocabulary (B1, C1, D1).

Study Skills

Map Skills. This general objective is designed to provide students with skills in deriving information from maps. It includes instruction

in interpreting pictorial and non-pictorial symbols, using color keys, analyzing maps and synthesizing information, using grids, applying conventional directional systems, using latitudinal and longitudinal information, measuring size and distance, and using various scaling units. Specific objectives include: representation (B1, C1, C2, D1, E1, F1, G1), orientation (B2, C3, D2, E2, F2, G2, G3), and measurement (B3, C4, C5, D3, E3, F3, F4, G4).

Graph and Table Skills. Helping children interpret graphs and tables is the focus of this general objective. Instruction in comparison and direct extraction, manipulation of extracted values, location and comparison of cells, and development of purpose and summary statements is included. The specific objectives are: graphs (B4, C6, C7, D4, D5, E4, E5, F5, G5, G6) and tables (C8, C9, D6, E6, E7, F6, G7).

Reference Skills. Skills in this general objective focus on locating and deriving meaning from varied standard reference sources, and on recording and evaluating the obtained information. There are six specific objectives: alphabetizing (C11, D10, D11, D12), dictionary skills (E9, F8), locating information in books (C10, F7, D8, D9, D12, E8, E10, F7, F12, G8), locating specialized information (E13, F9, F10, G9), recording (E14, F11, G10), and evaluation (D13, D14, E11, E15, E16, E17).

Comprehension

Word Meaning Skills. The first general objective in the Comprehension Content Area deals with skills which help children derive meaning

from unfamiliar words. Both word analysis and contextual strategies are included. The specific objectives are: word parts (E1, F1, G1, G2) and context clues (D1, E2, F2, G3).

Sentence Meaning Skills. This general objective focuses on skills which are useful in understanding sentences of varied complexity in short written selections. Two specific objectives are included: detail (B1, C1, D2, E3) and paraphrase (C2, D3, E4, F3, G4).

Passage Meaning Skills. Instruction in passage meaning skills is designed to help children derive meaning from longer texts, presented either orally or in writing. Children are to focus on the central thought in passages with and without an organizer, on the sequence of events, and on the validity of outcomes or conclusions. This general objective includes instruction in three specific domains: central thought (B2, C3, D4, E5, F4, G5), reasoning (B3, C4, D5, E6, F5, G6, G7), and sequence (B4, B5, C5, D6, E7, F6, G8).

General Reading Skills. This general objective represents a single specific objective and includes instruction in the three "expressive" elements of the WDRSD (Creative, Interpretive, and Self-directed Reading) and in more general enrichment and application activities.

Math Aggregations

Information on the content taught during instruction was obtained from the teacher logs, classroom observations, and achievement monitoring and domain referenced tests. As part of the analyses, the data on

math objectives were aggregated to form composite groupings of objectives with the most inclusive being the content area followed by the general objective level and then the specific objective level. The aggregations of objectives for Grade 2 and Grade 5 are in Figures 4, and 5.

Grade 2

Place Value and Numeration

The content area includes three general objectives: Writing Numbers, Inequalities, and Other Place Value or Numeration. The Writing Numbers objective requires students to count the number of objects in a set and then write or recognize the appropriate numeral. Specifically, it includes compact, grouping, and expanded notations. The Inequalities objective focuses on ordering whole numbers, usually in sets of three, using appropriate symbols. Other Place Value or Numeration objectives include any other objectives asking students to identify and specify place values, count, or write the numerical value of sets of objectives or measurements.

Operations

The operations content area focuses on the manipulation of whole numbers using addition/subtraction or multiplication. For each of these two general objectives, children were to solve open sentences or

Content		General Objective		Specific Objective		Objective
Case Number	Descriptor	Case Number	Descriptor	Case Number	Descriptor	Case Number
01	Place value and Numeration	01	Writing numbers	01	Compact notation	11
				02	Compact notation 100-999	12
				03	Grouping or expanded notation	13
		02	Inequalities	04	Order numbers	14
				05	Other (symbols, order sentences)	15
		03	Other place value or numeration	06	Other place value or numeration (i.e. reads)	21
02	Operations (whole numbers)	04	Addition/ Subtraction	07	Computes sum 0-99	22
				08	Computes difference 0-99	23
				09	Solves open sentence 0-20	24
				10	Solves open sentence 0-99	25
		05	Multiplication	11	Computes product 0-100	31
03	Fractions	06	Fractions	12	Represents fractional names	32
				13	Identifies fractional part	33
				14	Other	34
04	Decimal Fractions					
05	Measurement	07	Measurement	15	Length	35
				16	Capacity	41
06	Problem Solving	08	Word Problems	17	Writes sentence 0-99	42
				18	Solves word problems	43
		09	Applications	19	Solves application problems	44
						45
07	Geometry	10	Geometry	20	Geometry	45
08	Miscellaneous	11	Miscellaneous	21	Time, money, tables, graphs, properties, attributes	51

Figure 4   Grade 2 mathematics content aggregations.

Content		General Objective		Specific Objective		Objective
Case Number	Descriptor	Case Number	Descriptor	Case Number	Descriptor	Case Number
01	Place value and Numeration					
02	Operations	01	Addition/ Subtraction	01	Computes sum 0-99,999	34
				02	Computes difference of 3 to 5 digit numbers	35
		02	Multiplication	03	Finds product 0-9,999	32
				04	Finds product 0-999,999	33
		03	Division	05	Divides by 1-digit using algorithm	25
				06	Divides 3-digit numbers by 2-digits	31
03	Fractions	04	Concept	07	Concept	11
				08	Equivalent fractions	12
				09	Orders fractions	13
		05	Computes	10	Solves fraction sentences (+ or -)	14
				11	Solves a x b = ☐ involving fractions	15
04	Decimal fractions	06	Concept	12	States equivalent decimal for common fraction	21
		07	Computes	13	Finds product of whole number and decimal	22
				14	Computes decimal sum	23
				15	Computes decimal difference	24
05	Measurement	08	Measurement	16	Measurement	43
06	Problem Solving	09	Word Problems	17	Writes x or ÷ sentence	44
				18	Solves word problems	45
		10	Applications	19	Solves application problems	51
07	Geometry	11	Geometry	20	Geometry	42
08	Miscellaneous	12	Miscellaneous	21	Other Computations	41
				22	Numeration system, place value, number theory, graphs, tables	52

Figure 5   Grade 5 mathematics content aggregations.

to compute sums, differences, or products given two or more numbers to
be added, subtracted, or multiplied. The numbers used in all computa-
tions ranged from 0 to 100.

Fractions

This content area and its general objective require the student
to understand the basic concept of a fraction. Specifically, children
are to identify a fractional part of a set or area and to use fractions
in other elementary contexts.

Decimal Fractions

This general objective includes all objectives that involve decimal
fractions. The general objective is not subdivided into specific ob-
jective levels since decimals are generally not taught at Grade 2.

Measurement

Measurement includes objectives that involve the assigning of a
standard measure to a physical object or picture. The two dimensions
of measurement which are included in this area are length and capacity.

Problem Solving

This content area includes two objectives--Word Problems and
Applications--in which students were asked to find the solution to a
verbal or pictorial problem. Word problems were stated in two or three
units and could be solved by writing and then solving a mathematical

sentence. Word problems were mainly restricted to one-step problems requiring the student to add or subtract two numbers. Unlike the Word Problems, Applications Problems require the student to apply and combine different computing skills and more than one operation and step is generally necessary.

Geometry

Objectives concerning geometric shapes, movement or direction on a grid, and transformation of figures are included in this general objective.

Miscellaneous

This general objective includes any objective that cannot be classified under one of the other general objectives, such as time and money.

Grade 5

Although the Grade 5 content is aggregated into the same content areas which were used at Grade 2, the general and specific objectives are different, as outlined below.

Place Value and Numeration

This content area includes all objectives related to place value, counting with whole numbers, using different notational forms (compact, grouping, and expanded notation), and number theory (primes, odd, even, lowest common denominator).

Operations

The Operations content area focuses on three general objectives: Addition/subtraction, Multiplication, and Division. The objectives included in this content area require students to apply computational algorithms and recall basic facts. The objectives include finding sums with numbers from 0-99,999, finding the difference of 3- to 5-digit numbers, finding products up to 999,999, and dividing 3-digit numbers by 2-digit numbers.

Fractions

The Fractions content area includes objectives pertaining to fractions in a ratio form $(\frac{a}{b})$. The content area is divided into two general objectives. The Concept area includes general understanding and representation of equivalent forms, and ordering of fractions. The Computes general objective includes solving addition, subtraction, and multiplication sentences involving fractions.

Decimal Fractions

The Decimal Fractions content area involves fractions in decimal form. The two general objectives focus on concepts and computations with decimal fractions. The Concept general objective includes finding an equivalent decimal form for common fractions. The Computes general objective includes finding the product of a whole number with a decimal, finding a sum of two or more decimal numbers, and finding a difference using two decimal numbers.

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Measurement

All objectives dealing with measurement (lengths, areas, and volumes) are included under the general objective.

Problem Solving

The Problem Solving content area includes objectives that are divided into two general areas. Word Problems require students to solve problems that are generally stated in two or three lines and whose solution can be found by writing and then solving a sentence. Applications require students to apply or combine different computing skills in solving problems and usually require more than one operation or step.

Geometry

All objectives relating to geometry are classified under this content area, including objectives regarding geometric shapes, movement or direction on a grid, or the transformation of figures.

Miscellaneous

The miscellaneous content area includes any objective that cannot be classified under one of the other content areas. The area is sub-divided at the specific objective level into two classes of objectives. Other Computations include objectives where students are asked to compute averages or percentages and to use processes which are not directly

related to the objectives under the Operations content area. Other

Miscellaneous includes such objectives as numeration systems, number

theory, or graphs and tables.

Aggregated Content Files

A listing of the reading skills and math content codes in
their aggregated form is included in Appendix A. Each aggregated case
contains 12 digits arranged in four three-digit fields as shown below.

Content Area			General Objective Level			Specific Objective Level			WDRSD Skill and WDRSD Skill Level		
0	1	4	0	1	4	0	1	4	1	1	1

For the reading skills content aggregations, the first two digits
represent the content area (01 - Word Attack; 02 - Study Skills; 03 -
Comprehension) and are followed by a 4. This digit was used as a place
holder in columns three, six, and nine in order to maintain a comparable
format in the reading and mathematics file. The next two columns refer
to the General Objective level (01-12) and the seventh and eighth digits
represent one of the 24 Specific Objectives. Individual reading skills
from the WDRSD program are represented by the last three digits in each
case.

Similarly the first two digits of the math content cases represent
the Content Area with columns four and five representing the General
Objective, seven and eight the Specific Objective, and ten and eleven
the DMP objective. The third digit in each field (columns 3, 6, 9, and

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12) represents the type of lesson:

        1 - preparatory lessons

        2 - regular lessons

        3 - review lessons

A 4 in these columns represents the sum of preparatory, regular, and review times.

APPENDIX A

Listings of the Aggregated Content Files
for Grade 2 and Grade 5
for Reading Skills and Math Instruction

GXREAD

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 1  014014014111
 2  014014014112
 3  014014014113
 4  014024024114
 5  014024024115
 6  014024024121
 7  014024024122
 8  014024024123
 9  014024024124
10  014034034125
11  014044044131
12  014044044132
13  014044044133
14  014044044141
15  014044044142
16  014044044143
17  014044044144
18  014054054134
19  014054054135
20  014054054145
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22  024064064212
23  024064064213
24  024064064214
25  024064074215
26  024064074221
27  024064074222
28  024064074223
29  024064084224
30  024064084225
31  024064084231
32  024064084232
33  024064084233
34  024074044234
35  024074044235
36  024074044241
37  024074044242
38  024074044243
39  024074044244
40  024074044245
41  024074104251
42  024074104252
43  024074104253
44  024074104254
45  024074104255
46  024074104311
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51  024084124314
52  024084134312
53  024084134315
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24

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54  0240841434321
55  0240841434333
56  0240841434315
57  0240841444325
58  0240841443341
59  0240841443332
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61  0240841543335
62  0240841543341
63  0240841643342
64  0240841643345
65  0240841643344
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76  0341142143431
77  0341142243432
78  0341142743433
79  0341142243434
80  0341142343435
81  0341142343441
82  0341142343442
83  0341242743443
84  0341242443444
85  0341242143445
86  0441342543723
87  0441342543771
88  0441342543772
89  0441342543773
90  0441342543771
91  0441342543775
92  0441342543776
93  0541142643456
94  0541142643461
95  0541142643462
96  0541142643463
97  0541142643464
98  0541142643465
99  0541142643456
100 0541142643467
101 0541142643468
```

*Content areas 04 and 05 refer to Non-applied Time
categories from the observations and Off-time categories
from the teacher logs and thus no reading skills or
mathematics objectives are directly associated with them.

G2MATH

```
 1  0110011011111
 2  0120012012112
 3  0130013013113
 4  0140014014114
 5  0110011021121
 6  0120012022122
 7  0130013023123
 8  0140014024124
 9  0110011031131
10  0120012032132
11  0130013033133
12  0140014034134
13  0110021041111
14  0120022042112
15  0130023043113
16  0140024044114
17  0110021051151
18  0120022052152
19  0130023053153
20  0140024054154
21  0110031061211
22  0120032062212
23  0130033063213
24  0140034064214
25  0210041071221
26  0220042072222
27  0230043073223
28  0240044074224
29  0210041081231
30  0220042082232
31  0230043083233
32  0240044084234
33  0210041091241
34  0220042092242
35  0230043093243
36  0240044094244
37  0210041101251
38  0220042102252
39  0230043103253
40  0240044104254
41  0210051111311
42  0220052112312
43  0230053113313
44  0240054114314
45  0310061121321
46  0320062122322
47  0330063123323
48  0340064124324
49  0310061131331
50  0320062132332
51  0330063133333
52  0340064134334
53  0310061141341
```

```
54  0320621423312
55  0330631433313
56  0330681443313
57  041
58  042
59  043
60  044
61  0510711513531
62  0520721513352
63  0530731513353
64  0540741543354
65  0510711613311
66  0520721623412
67  0530731633413
68  0540741643414
69  0610311713421
70x 0620821723422
71  0630931733423
72  0640841743424
73  0610821813311
74  0620921823412
75  0630931833433
76  0640841843431
77  0610911913311
78  0620921923112
79  0630931933113
80  0640941943414
81  0711012013451
82  0721022023452
83  0731032033453
84  0741042043454
85  0811112113511
86  0821122123512
87  0831132133513
88  0841142133513
89  0941242243770*
90  0941242243771
91  0941242243772
92  0941242243773
93  0941242243774
94  0941242243775
95  0941242243776
96  1041342243661*
97  1041342243662
98  1041342243663
99  1041342243664
100 1041342243665
101 1041342243666
102 1041342243667
103 1041342243668
104 1141442253655*
```

* Content areas 09 and 10 are Non-applied Time and Off-time
   categories. Content area 11 is general math testing.

G5MATH

```
 1  011
 2  012
 3  013
 4  014
 5  0210110111341
 6  0220120121342
 7  0230130131343
 8  0240140141344
 9  0210110211351
10  0220120221352
11  0230130231353
12  0240140241354
13  0210210311321
14  0220220321322
15  0230230331323
16  0240240341324
17  0210210411331
18  0220220421332
19  0230230431333
20  0240240441334
21  0210310511251
22  0220320521252
23  0230330531253
24  0240340541254
25  0216310611311
26  0220320621312
27  0230330631313
28  0240340641314
29  0310410711111
30  0320420721112
31  0330430731113
32  0340440741114
33  0310410811121
34  0320420821122
35  0330430831123
36  0340440841124
37  0310410911131
38  0320420921132
39  0330430931133
40  0340440941134
41  0310511011141
42  0320521021142
43  0330531031143
44  0340541041144
45  0310511111151
46  0320521121152
47  0330531131153
48  0340541141154
49  0410611211211
50  0420621221212
51  0430631231214
52  0440641241214
53  0410711311221
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28

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54  0420072132222
55  043073133223
56  044074134224
57  0410711141231
58  0420072102232
59  043073143233
60  044074114234
61  041071151241
62  0420721522 12
63  043073153243
64  044074151244
65  0510811161131
66  0520821623 32
67  0530831631433
68  0540841641334
69  0610091171441
70  0620921724 42
71  0530931734 13
72  0640941744 44
73  0610091141451
74  0620921842 42
75  0630093183453
76  0640911844 54
77  0611011191511
78  0621021921512
79  0631031931513
80  0641041941514
81  0711112011471
82  0721122012422
83  0731132013473
84  0741142014424
85  0811212111411
86  0821222121412
87  0831232131413
88  0841242141414
89  0811712121521
90  0821722222522
91  0831212223523
92  0841242221524
93  0903131231771
94  0913131234771
95  0943131231772
96  0903131231773
97  0913131231774
98  0943131231775
99  0903131241776
100 1041131251651
101 1041142531662
102 1041112251663
103 1041142531664
104 1041442551665
105 1041442551666
106 1041442551667
107 1041142551668
108 1141542631555
```

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