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ABSTRACT

The Michigan Educational Assessment Program (MEAP) was designed to provide information on the extent to which Michigan students have attained minimal performance objectives. This manual was written to help local Michigan school district staff read, interpret, and use MEAP data. The 1977-78 MEAP provided objective-referenced achievement measures in reading and mathematics for every fourth and seventh grade at the district, building, classroom, and student levels. A voluntary, statewide pilot project was also conducted in grade ten. The reading and mathematics objectives which were measured in grades four, seven, and ten are appended, including item numbers for each objective. Explanations are given of the individual students' report, the classroom report, the school or district summary, the test item analysis, and feeder school and research code reports. Results are not furnished. School district personnel are advised to use the data to: (1) determine which Michigan minimal objectives were taught in which grades; (2) determine which schools had lowest attainment rates and develop strategies to meet these needs; (3) administer post tests of those high priority objectives not attained in September; (4) select one or two schools willing to become demonstration sites; (5) analyze other test data available to the district and relate them to MEAP results. (Author/JAC)

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INTERPRETIVE MANUAL

The First Report of the 1977-78 Michigan Educational Assessment Program

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FOREWORD

The **Interpretive Manual** is intended to assist local school people in using the assessment results. It discusses the individual student, classroom, school, and district data and suggests some effective ways to use them. Highlights from this manual appear in the FOLDERS which are received with the test results in the districts, buildings, and classrooms.

The Michigan Educational Assessment Program (MEAP) was initiated by the State Board of Education, supported by the Governor, and funded by the Legislature initially through enactment of Act 307 of the Public Acts of 1969 and, subsequently, under Act 38 of the Public Acts of 1970. The program, now in its ninth year, has been improved and up-dated each year to provide useful information on the extent to which Michigan students have attained certain MINIMAL performance objectives. This information is of particular value to school teachers and principals as they conduct their instructional planning.

Thanks are due to a large number of Michigan teachers, school administrators, and lay citizens for their cooperation with and assistance to the Department in developing the assessment program. Educators and other citizens were involved in the development and reviews of the performance objectives which form the basis of the objective-referenced reading and mathematics tests used in the 1977-78 program. The tests were initially developed during 1972-73 in several Michigan school districts and have been reviewed yearly by representative groups of the state's reading and mathematics curriculum specialists. The program was designed and administered by Research, Evaluation and Assessment Services (REAS) with the assistance of technical support contractors and the advice of the REAS Advisory Council.

This report was prepared by the staff of the Michigan Educational Assessment Program. Comments or questions should be directed to them.

John W. Porter

Superintendent of Public Instruction

TEACHERS see pages: 3, 4, 11, 18.
PRINCIPALS see pages: 9, 11, 17.
DISTRICT PERSONNEL see pages: 9, 11, 13, 15.

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INTRODUCTION

This manual, the first in the 1977-78 series of publications, was written to help local school district staff read, interpret, and use the data from the Michigan Educational Assessment Program. The Interpretive Manual, 1977-78, will be of particular value to school principals, teachers, and others who want to understand and use the assessment test results.

The 1977-78 Michigan Educational Assessment Program included objective-referenced tests in reading and mathematics at the fourth and seventh grades, and a voluntary, statewide pilot at the tenth grade. This manual is devoted to an interpretation of the fourth and seventh grade data.

In this manual is a discussion of the assessment measures (Section I), a detailed explanation of how to read each of the data reports provided by the Program (Section II), and a set of suggested procedures for using the test results (Section III). A useful synopsis of this manual can be found on the district, building, and classroom test folders in which the results arrived.

SECTION I

DESCRIPTION OF THE EDUCATIONAL ASSESSMENT MEASURES

The 1977-78 Michigan Educational Assessment Program reports measures of student achievement in the areas of mathematics and reading.* These measures are aggregated and reported at the district, building, classroom, and student levels for grades four, seven and ten.

Achievement Measures

The 1977-78 educational assessment provided achievement measures in reading and mathematics for every fourth and seventh grade public school student. These tests were objective-referenced in design, and each contained sets of items which measured a selected set of minimal performance objectives in the two subject areas. The objectives tested (APPENDIX A) were selected from those developed by educators in the state and adopted by the State Board of Education. They represent certain minimal expectancies which almost all beginning fourth and seventh grade students should have attained.

Reading Tests. Because of testing time limitations, not all of the minimal performance objectives for reading were included in the 1977-78 educational assessment; however, all of the minimal performance objectives for grades one through nine may be found in **Minimal Performance Objectives for Communication Skills Education in Michigan.****

The fourth grade reading test measured 19 objectives and the seventh grade test measured 20 objectives.

There were five multiple choice questions to measure each objective. The tests were untimed, and student scores, classroom summaries, test item analyses, and school and district summaries with proportions data are provided.

Mathematics Tests. The mathematics objectives included in the educational assessment were taken from the mathematics minimal performance objectives. As with the reading assessment, not all of the mathematics objectives were tested. All of the minimal performance objectives for grades one through nine may be found in **Minimal Performance Objectives for Mathematics Education.****

*In previous years information was also provided on human resources, financial resources, percent minority, dropout rate, and size. These measures will be reported in a separate publication later in the year. This will enable the Program to provide more timely data than in the past.

**These can be obtained from the Instructional Specialists Program, Department of Education, P. O. Box 30008, Lansing, Michigan 48909.

The fourth grade mathematics test measured 33 objectives and the seventh grade test measured 45 objectives.

Three metric measurement objectives were added to the fourth grade mathematics test and five to the seventh grade test. Although student performance is reported for these objectives on district, building and classroom reports, these objectives are not included in the summary information presented in the Proportions data. The Proportions data are based on the original math objectives (30 for grade four and 40 for grade seven) which have been assessed since 1973-74.

Each fourth and seventh grade mathematics objective was measured by a set of five items. The untimed tests allowed students to work at their own pace.

SECTION II

UNDERSTANDING THE EDUCATIONAL ASSESSMENT REPORTS

Reading the Reports

Local school and district staff will receive various types of reports from the 1977-78 Michigan Educational Assessment Program. Many of the report forms have been redesigned this year in an effort to improve their readability and simplify their format. A new filmstrip produced this year titled "Understanding MEAP Results: A Workshop Approach" will also help to interpret the reports. The following reports are provided for grades four and seven and tenth grade volunteers with the exception of the Feeder School Report:

Individual Student Report
Classroom Listing Report
School Summary Report (includes Proportions data)
District Summary Report (includes Proportions data)
Test Item Analysis - Classroom
Test Item Analysis - School
Test Item Analysis - District
Feeder School Report (optional) - grade seven, grade ten volunteers
Research Code Report (optional)

These reports serve two functions—to describe an individual student's test performance and to summarize various groupings of students' scores.

• **Individual Student Report.** The Individual Student Report presents a student's performance on each test item for all the mathematics and reading objectives and indicates attainment or non-attainment of each objective. One report sheet is provided for each student who participated in the assessment, except that seventh graders' results are on two sheets: one for mathematics and one for reading. FIGURE 1 illustrates the report form provided for Grade 7 reading.

As can be seen in FIGURE 1, **Section A,** near the top of the report, contains identification information including the pupil name, teacher name, school building, and school district. Immediately below this is the reading section of the report.

The number assigned to each mathematics and reading objective appears in **Section B.** A brief description of each of the objectives appears in **Section C** to the right of the objective number. Each description is a brief statement of the objective. The complete wording of the objectives may be found in APPENDIX A or in the booklets of minimal performance objectives which have been sent to each school district.

Section D indicates the test item numbers that measured each objective and whether the student's response was correct or incorrect for each item. A correct response is indicated by a plus (+) sign. An incorrect response is shown by a letter which indicates the student's incorrect answer choice. An asterisk (*) is used to indicate that the student did not respond to an item, and a blank space indicates the student did not reach that item in the test.

The number of items answered correctly for each objective is shown at **E.** Students have to answer at least four out of five items correctly to attain an objective.

Objective attainment is reported at **Section F.** "Yes" indicates attainment, "No" indicates nonattainment, and "Omit" indicates that the student did not progress far enough through the test for objective attainment to be reported.

The total number of objectives attained by the student is reported at **Section G.**

This year explanatory information will be printed on the back of the Individual Student Report form for use with students and parents. An additional copy of the Report is provided so that the family can have its own copy of the test results. The information on the back of the form will help the parent (s) or student understand the assessment test results. However, a meeting with the teacher (or a counselor) to discuss the results is still strongly recommended. Parents should find the **Item and Objective Handbook** helpful in understanding the test results.

- **Classroom Listing Report.** The Classroom Listing Report summarizes, for an entire classroom, the information contained on the Individual Student Reports, and it provides a quick way to determine the status of each student in the classroom on each mathematics and reading objective.

An example of the Classroom Listing Report for grade 7 reading is shown in FIGURE 2. A similar report is provided for mathematics objectives.

Section A of the report provides indentification information: teacher name, school building, district, grade, and date tested. **Section B** contains the objective numbers, which are the same as those used on the Individual Student Report. The short description of each objective appears on the back of the Classroom Listing Report.

Section C contains information on each student in the classroom for each objective. Each student's name is printed in the left hand column and the status on each objective is printed on the line across from the name. Attained objectives are indicated with a capital letter Y (for YES); a blank space indicates that the objective was not attained; a letter O (for OMIT) indicates that the student did not progress far enough through the test for objective attainment to be determined. For more detailed information about an individual student's performance, you should consult the Individual Student Report.

Near the bottom of the form at **Section D** appears a score distribution for each objective. This distribution shows the percentage of pupils answering 0, 1, 2, 3, 4, or 5 items correctly for each objective. Below the distribution, in **Section E,** is the percentage of pupils attaining each objective. Note that this is the sum of 4 and 5 items correct. If all students (100%) attained an objective, the letter A appears. The number of objectives attained by each student is shown at **Section F.**

STUDENT: CASEWELL, MARTIN
A→ STUDENT NO: 9724
CHRONOLOGICAL AGE: 12.1
DATE OF TESTING: 10/77

TEACHER: MR. MAESTRO
SECTION: 05
SCHOOL: JONES MIDDLE
C↓ DISTRICT: MICHVILLE

INDIVIDUAL STUDENT REPORT

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
1977-78 (YEAR 9)

D↓ E↓

GRADE 7

B→

	OBJECTIVE							
1	MATCH WORDS WITH DEFINITIONS	30 +	79 A	80 +	90 G	92 +	3	NO
2	INDICATE PHRASES WITH SAME MEANINGS	70 +	71 +	72 G	73 B	74 J	2	NO
3	IDENTIFY METHOD OF ARRANGING DATA	101 *	102 *	103 +	104	105	1	OMIT
4	ALPHABETIZE WORDS THROUGH FIRST THREE LETTERS	6 +	7 +	8 +	9 +	10 +	5	YES
5	INDICATE FACTUAL SELECTIONS	24 +	25 A	26 J	27 C	28 H	1	NO
6	INDICATE FICTIONAL SELECTIONS	46 *	47 *	48 *	49 *	50 *	0	OMIT
7	INDICATE AUTHOR'S PURPOSE	15 +	31 +	35 +	54 +	83 A	4	YES
8	INDICATE TITLE MOST APPROPRIATE FOR SELECTION	13 +	51 +	66 +	81 +	97 +	5	YES
9	INDICATE PICTURES BEST DESCRIBING MAIN IDEA IN SELECTIONS	59 +	60 +	61 +	68 +	93 A	4	YES
10	CHOOSE BEST SUMMARY OF A SELECTION	12 +	32 F	33 +	55 B	76 H	2	NO
11	CHOOSE SELECTIONS ALIKE IN IDEAS EXPRESSED	84 +	85 +	86 +	87 C	88 J	3	NO
12	MATCH QUOTATION FROM STORY WITH SPEAKER	63 A	64 E	78 J	89 +	91 +	2	NO
13	ANSWER QUESTIONS RELATING TO SEQUENCE IN STORIES	11 +	29 B	53 C	62 +	94 H	2	NO
14	CHOOSE ANSWER BEST DESCRIBING HOW CHARACTER FEELS IN STORY	14 C	52 K	65 B	98 G	99 B	0	NO
15	ANSWER QUESTIONS RELATING TO MOTIVATION	17 B	57 +	67 +	75 +	96 +	4	YES
16	MATCH CAUSES WITH EFFECTS	16 G	34 J	58 J	77 E	100 H	0	NO
17	SELECT MEANINGS, GENERALIZATIONS, CONCLUSIONS NOT EXPRESSED	18 +	56 H	69 B	82 G	95 +	2	NO
18	ANSWER LOCATIONAL QUESTION ABOUT REFERENCE SOURCES	36 +	37 +	38 +	39 +	40 +	5	YES
19	ANSWER LOCATIONAL QUESTION ABOUT NEWSPAPERS	19 +	20 +	21 +	22 +	23 +	5	YES
20	CHOOSE MOST APPROPRIATE CONCLUSION FOR A STORY	41 +	42 +	43 A	44 F	45 C	2	NO
	TOTAL OBJECTIVES ATTAINED							***07***

← F

← G

FIGURE 1: INDIVIDUAL STUDENT REPORT

A → GRADE: SEVEN

TEACHER: MR. MAESTRO

SECTION: 05

DATE TESTED: 10/77

SCHOOL: JONES MIDDLE

B → DISTRICT: MICHVILLE

CLASSROOM LISTING REPORT

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
1977-78 (YEAR 9)

SEE REVERSE SIDE FOR OBJECTIVE DESCRIPTION

C → STUDENT NAME	READING OBJECTIVE NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL OBJECTIVES ATTAINED ← F
BOVARY EMILY	Y	Y		Y	Y	0	Y	Y		Y	0	Y			Y	Y		Y	Y		12
BRICK PAMELA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y	Y	18
CARTER JAMES	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	20
CASEWELL MARTIN			0	Y		0	Y		Y						Y			Y	Y		7
DRELLES SUSAN	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	16
FOX PAULA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	17
HAMLET TOM		Y	Y	Y	Y	Y	Y		Y				Y	Y	Y	Y	Y	Y	Y	Y	12
MONTAGUE ROMEO		Y		Y	Y	Y	Y		Y					Y	Y	Y	Y	Y			11
MOOR OTELLO		Y	Y	Y	Y	Y	Y	Y	Y	Y	0	Y	Y	Y			Y	Y	Y	Y	13
ROBER TED					Y	Y	Y		Y											Y	10
RODRIGUEZ MARIA	Y	Y	Y	Y	Y	Y	Y		Y	Y	0	Y	Y	Y	0	Y	Y		Y	Y	14
YOUNG BILLY		Y	Y	Y	Y	Y	Y		Y	Y	Y	Y		Y		Y	Y		Y	Y	15
D → PERCENT OF PUPILS ANSWERING 0 ITEMS CORRECT	2	0	5	0	3	17	0	0	0	5	25	25	0	0	8	12	8	2	0	5	
1 ITEM CORRECT	10	15	5	0	5	8	0	0	0	5	13	8	0	10	10	15	2	10	0	10	
2 ITEMS CORRECT	10	5	10	0	4	8	0	10	0	10	10	0	25	15	0	0	0	0	25	10	
3 ITEMS CORRECT	28	5	13	0	5	0	0	40	8	13	10	0	25	25	15	15	15	30	0	0	
4 ITEMS CORRECT	3	3	7	2	3	5	98	0	2	7	12	2	0	25	7	8	5	2	0	15	
5 ITEMS CORRECT	47	72	60	98	80	70	2	50	90	60	30	65	50	25	60	60	70	56	75	60	
E → PERCENT ATTAINING OBJECTIVE	50	75	67	A	83	75	A	50	92	67	42	67	50	50	67	58	75	58	75	75	

FIGURE 2: CLASSROOM LISTING REPORT

SUMMARY REPORT MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM 1977 - 78 (YEAR 9)

FIGURE 3: SCHOOL SUMMARY

A

SUMMARY LEVEL: SCHOOL

DISTRICT: MICHVILLE CODE: 87-010

SCHOOL: JONES MIDDLE CODE: 4100

GRADE: SEVEN DATE TESTED: 10/77

NUMBER OF STUDENTS INCLUDED IN THIS SUMMARY: 100

H

PROPORTIONS REPORT

PERCENT OF PUPILS ATTAINING INDICATED PROPORTIONS OF OBJECTIVES

READING

Year	Proportion of Objectives Attained .00-.24	.25-.49	.50-.74	.75-1.00	Number of Pupils	Status*	Change †
1977	20.0	12.1	12.0	55.9	100	1975-77	
1976	20.2	11.9	12.3	55.6	100	M	STABLE
1975	20.4	11.1	12.0	56.6	110	1974-76	
1974	20.2	12.0	12.5	55.2	120	M	STABLE

MATHEMATICS

1977	4.7	13.1	28.1	54.1	100	1975-77	
1976	4.9	12.9	29.2	53.0	100	M	STABLE
1975	5.2	12.3	26.8	55.7	110	1974-76	
1974	5.7	14.7	32.1	47.5	120	M	STABLE

*Status is designated as "H" for high needs; "M" for moderate needs; "L" for low needs; "U" for undetermined; or "I" for insufficient data.

*†Consult the Interpretive Manual for further information.

B C D E F G

PERCENT OF STUDENTS ANSWERING						C	D	E	F	G
									READING OBJECTIVE	OBJECTIVE CODE*
6	11	11	13	24	35	59	96	1	MATCH WORDS WITH DEFINITIONS	18.1
4	8	7	8	24	49	73	98	2	INDICATE PHRASES WITH SAME MEANINGS	18.2
5	9	8	10	19	47	66	97	3	IDENTIFY METHOD OF ARRANGING DATA	20.1
2	5	6	10	16	61	77	100	4	ALPHABETIZE WORDS THROUGH FIRST THREE LETTERS	21.1
4	6	5	5	11	69	80	100	5	INDICATE FACTUAL SELECTIONS	22.1
5	8	8	10	11	58	69	98	6	INDICATE FICTIONAL SELECTIONS	22.2
4	8	11	13	22	43	65	98	7	INDICATE AUTHOR'S PURPOSE	23.1-23.3
3	8	11	13	21	43	64	98	8	INDICATE TITLE MOST APPROPRIATE FOR SELECTION	24.1
2	5	7	14	32	40	72	100	9	INDICATE PICTURES BEST DESCRIBING MAIN IDEA IN SELECTIONS	24.2
5	8	10	13	21	43	64	97	10	CHOOSE BEST SUMMARY OF A SELECTION	24.3
6	11	13	17	23	31	54	96	11	CHOOSE SELECTIONS ALIKE IN IDEAS EXPRESSED	24.4
3	8	11	13	24	41	65	98	12	MATCH QUOTATION FROM STORY WITH SPEAKER	25.3
3	9	14	17	23	34	57	96	13	ANSWER QUESTIONS RELATING TO SEQUENCE IN STORIES	26.3
4	10	13	15	23	35	58	96	14	CHOOSE ANSWER BEST DESCRIBING HOW CHARACTER FEELS IN STORY	27.2
2	8	12	15	22	41	63	98	15	ANSWER QUESTIONS RELATING TO MOTIVATION	28.1
3	9	12	15	21	40	61	98	16	MATCH CAUSES WITH EFFECTS	29.1
4	10	12	13	22	38	60	98	17	SELECT MEANINGS, GENERALIZATIONS, CONCLUSIONS NOT EXPRESSED	29.4
3	7	7	8	19	55	74	100	18	ANSWER LOCATIONAL QUESTION ABOUT REFERENCE SOURCE	31.1
2	6	8	19	28	38	66	98	19	ANSWER LOCATIONAL QUESTION ABOUT NEWSPAPERS	31.2
4	9	9	13	28	37	65	98	20	CHOOSE MOST APPROPRIATE CONCLUSION FOR A STORY	32.1

SUMMARY REPORT MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM 1977 - 78 (YEAR 9)

A

SUMMARY LEVEL: DISTRICT

DISTRICT: MICHVILLE CODE: 87-010

SCHOOL: CODE:

GRADE: SEVEN DATE TESTED: 10/77

NUMBER OF STUDENTS INCLUDED IN THIS SUMMARY: 200

H

PROPORTIONS REPORT

PERCENT OF PUPILS ATTAINING INDICATED PROPORTIONS OF OBJECTIVES

READING

Year	Proportion of Objectives Attained .00-.24	.25-.49	.50-.74	.75-1.00	Number of Pupils	Status*	Change †
1977	13.2	13.9	~~14.3~~	~~58.6~~	200		1975-77
1976	18.5	11.0	12.3	58.1	190		
1975	18.3	12.7	10.7	58.3	200		1974-76
1974	12.6	13.0	16.1	58.3	210		

MATHEMATICS

1977	1.8	11.7	33.3	53.1	200		1975-77
1976	3.1	10.6	26.4	39.9	190		
1975	4.4	12.7	34.9	48.0	200		1974-76
1974	6.3	17.7	36.6	39.4	210		

* Status is designated as "H" for high needs; "M" for moderate needs; "L" for low needs; "U" for undetermined; or "I" for insufficient data.

† Consult the Interpretive Manual for further information.

B C D E F G

PERCENT OF STUDENTS ANSWERING							NUMBER OF PUPILS	OBJ NO	READING OBJECTIVE	OBJECTIVE CODE
							194	1	MATCH WORDS WITH DEFINITIONS	18.1
6	11	12	13	23	36	59	196	2	INDICATE PHRASES WITH SAME MEANINGS	18.2
5	8	7	7	17	56	73	195	3	IDENTIFY METHOD OF ARRANGING DATA	20.1
6	10	8	10	19	47	66	196	4	ALPHABETIZE WORDS THROUGH FIRST THREE LETTERS	21.1
3	5	5	8	15	64	79	200	5	INDICATE FACTUAL SELECTIONS	22.1
3	6	6	5	10	70	80				
6	9	6	4	9	66	75	198	6	INDICATE FICTIONAL SELECTIONS	22.2
4	8	10	14	23	40	63	194	7	INDICATE AUTHOR'S PURPOSE	23.1-23.3
3	8	11	13	21	44	65	193	8	INDICATE TITLE MOST APPROPRIATE FOR SELECTION	24.1
2	5	8	13	31	40	71	197	9	INDICATE PICTURES BEST DESCRIBING MAIN IDEA IN SELECTIONS	24.2
5	8	8	10	22	47	69	195	10	CHOOSE BEST SUMMARY OF A SELECTION	24.3
5	11	11	13	24	36	60	194	11	CHOOSE SELECTIONS ALIKE IN IDEAS EXPRESSED	24.4
4	9	11	13	23	41	64	194	12	MATCH QUOTATION FROM STORY WITH SPEAKER	25.3
4	10	14	17	24	32	56	194	13	ANSWER QUESTIONS RELATING TO SEQUENCE IN STORIES	26.3
4	9	12	15	23	37	60	195	14	CHOOSE ANSWER BEST DESCRIBING HOW CHARACTER FEELS IN STORY	27.2
3	7	11	13	20	46	66	195	15	ANSWER QUESTIONS RELATING TO MOTIVATION	28.1
4	9	12	15	21	39	60	195	16	MATCH CAUSES WITH EFFECTS	29.1
4	10	11	13	22	40	62	196	17	SELECT MEANINGS, GENERALIZATIONS, CONCLUSIONS NOT EXPRESSED	29.4
3	7	9	13	24	44	68	199	18	ANSWER LOCATIONAL QUESTION ABOUT REFERENCE SOURCE	31.1
3	5	8	25	26	34	60	196	19	ANSWER LOCATIONAL QUESTION ABOUT NEWSPAPERS	31.2
4	8	9	13	28	38	66	197	20	CHOOSE MOST APPROPRIATE CONCLUSION FOR A STORY	32.1

FIGURE 4: DISTRICT SUMMARY

• **School or District Summary.** The School or District Summary is used to report the assessment data for each school and district.

An example of the first page of each of these two-page reports is shown in FIGURES 3 and 4. The second page is a continuation of the information. As with the previous illustrations, FIGURES 3 and 4 are marked with various letters for purposes of explanation.

Section A of these reports contains identification information: the type of report (whether a school or district summary), the district name and code, the school name and code (for a school report), the grade tested, along with the number of students on which this report is based.

Section B shows a percentage distribution of students answering 0, 1, 2, 3, 4, or 5 items correctly.

Section C of these reports shows the percentage of students who attained each objective. The number of students scored for each objective is included in **D. Sections E** and **F** contain the objective numbers and short objective descriptions.

The objective codes in **Section G** refer to the coding system used in the complete set of mathematics and reading objectives published by the Department of Education which have been made available to all Michigan school districts. The fourth and seventh grade objectives tested in 1977-78 and the list of item numbers measuring each objective are included in APPENDIX A.

Section H presents the **Proportions data** for the school or district. These are reported for reading and mathematics. The Proportions data show the percentage of students attaining specific proportions of the objectives—.00-.24, .25-.49, .50-.74, and .75-1.00. This information is given for four years, the most recent year's data on the first line followed by the data from each preceding year. To the right of the "Proportions of Objectives Attained" is the "Number of Pupils" on which the data are based.

A school's "Status" is given for both reading and math. A school must meet an established criterion for two out of three years in order to fit into a given classification. The following are the Needs Criteria for Michigan Schools:

High Needs Schools

fewer than 50% of the students attained 75% or more of the objectives.

Moderate Needs Schools

50-74% of the students attained 75% or more of the objectives.

Low Needs Schools

75% or more of the students attained 75% or more of the objectives.

Status Undetermined

The school does not fit any one category for two out of the three years.

Insufficient Data

Only one year's data or no data available.

The "Change" ("Improving/Declining") classification* was developed to assist local and state level educators in monitoring achievement trends in Michigan schools. The purpose of identifying "Improving" schools is to recognize the fine efforts local educators are making to improve instruction in the basic skills. Identification of schools in which scores are declining will assist in determination of potential problems. The "Improving/Declining" designation is based on the examination of three years of Michigan assessment results: 1975, 1976, and 1977. Each school is classified in reading and math.

Improving Schools

A school is classified as "Improving" between 1975 and 1977, if it meets ALL of the following criteria:

(a) there has been an **increase** of 5% or more in the number of students attaining 75-100% of the objectives,
(b) there has been a 5% **decrease** in the number of students attaining 0-24% of the objectives,
(c) in the 75-100% category, attainment was no **lower** in 1976 than in 1975, and
(d) in the 0-24% category, attainment was no **higher** in 1976 than in 1975.**

Declining Schools

A school is classified as "Declining" between 1975 and 1977, if it meets ALL of the following criteria:

(a) there has been a **decrease** of 5% or more in the number of students attaining 75-100% of the objectives,
(b) there has been a 5% or more **increase** in the number of students attaining 0-24% of the objectives,
(c) in the 75-100% category, attainment was no **higher** in 1976 than in 1975, and
(d) in the 0-24% category, attainment was no **lower** in 1976 than in 1975.

Stable Schools

All schools not classified as "Improving" or "Declining" are classified "Stable."

Only the district proportions data are reported on the District Summary and only a school's proportions data are reported on a School Summary.

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*The staff of the Assessment Program is currently studying the usefulness of these criteria and exploring the possibility of using alternative criteria for identifying improving and declining schools.

**If the percentage of students who attained less than 25% of the objectives has been below 5% since 1974, an improving school is identified by the increase of 5% or more in the percentage of students who attained at least 75% of the objectives.

The **Proportions data** may be used to examine the percentage of students attaining specific proportions of the objectives in your school or district. The Proportions data provide information in a readily accessible form, on the level of overall student performance on the entire set of performance objectives tested in contrast to the other reports provided by the Michigan Educational Assessment Program which show student performance on an objective-by-objective basis. Because of the minimal nature of the performance objectives, it is expected that most beginning fourth and seventh graders will attain most (75-100%) of the performance objectives in each subject area.

The Proportions data enable educators at the district or school level to determine the extent to which students in a school building are or are not attaining the performance objectives in each subject area. The "Status" of each school or district can help determine the extent to which needs are present. A High Needs school may want to emphasize the teaching of basic skills more than a Low Needs school. Programs which appear to be working in a Low Needs school might be of value if implemented in a High Needs school. The particular objectives which need further work can be determined by referring to the School or District Summary Reports. It may be of value to examine selected characteristics of the student population in schools with varying degrees of objective attainment. Such characteristics may be related to the proportion of objective attainment within schools. The overview provided by the Proportions data can be useful when making decisions regarding the allocation of resources and the implementation of remedial programs on a building level.

This report is provided to help all educators in your district in their efforts to provide the best education possible for their students.

• **Test Item Analysis.** The Test Item Analysis is provided to assist school and district staff in interpreting the test results. It is a display of the percentage of students selecting each possible answer for each test question. The Test Item Analysis has been prepared at the classroom, school and district levels.

FIGURE 5 shows an example of the Test Item Analysis at the school level. Identification information, including subject area, appears at the top of the form in **Section A.** Each objective tested is numbered, **Section B,** following the same pattern described earlier. For each objective, the numbers of the matching test items are listed in the shaded columns from left to right across the page in **Section C.**

The letters representing each answer choice for each test item are shown in **Section D.** In the fourth and seventh grade tests, the letter sequence varied for each item. It was either A, B, C, D, E or F, G, H, J, K. Reference should be made to a copy of the test to ascertain which sequence was used for each item.

The percentage of students selecting each answer choice is shown in **Section E** along with the percentage omitting the item, **Section F.** If all students chose the correct answer, which is indicated by an asterisk, a capital letter A appears.

Information about incorrect answers chosen by a large percent of students may be diagnostically useful. Common misconceptions, partial information and inappropriate methods of solving problems are often the basis for students choosing the wrong answers. Analysis of this wrong answer data can help educators to plan remedial work and to redesign instructional strategies.

A → GRADE SEVEN SCHOOL: JONES MIDDLE CODE: 4100

SUBJECT: MATHEMATICS DISTRICT: MICHVILLE CODE: 87-010

TEACHER: SECTION:

NUMBER OF STUDENTS INCLUDED IN THIS REPORT: 100

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
1977-78 (YEAR 9)
TEST ITEM ANALYSIS
SCHOOL LEVEL MANIFOLD

C → Percent Choosing | D → Percent Choosing | E → Percent Choosing | F → Percent Choosing

B →

OBJ	A or F	B or G	C or H	D or J	E or K	OMIT	A or F	B or G	C or H	D or J	E or K	OMIT	A or F	B or G	C or H	D or J	E or K	OMIT	A or F	B or G	C or H	D or J	E or K	OMIT
1	*77	17	3	2		0	4	10	*76	10		0	5	5	*85	4		0	1	2	*83	13		0	3	16	2	*78		0
2	*94	1	1	3		1	0	3	1	*95		1	*97	1	0	1		1	2	*93	2	3		1	2	1	*94	2		1
3	2	2	*95	1		0	3	2	1	*95		0	2	4	*90	3		0	*97	1	1	1		0	4	*94	1	1		0
4	4	2	*92	2		0	1	6	*91	1		0	5	*90	3	2		0	3	15	6	*76		0	*89	7	2	2		0
5	2	1	1	*96		0	*85	3	6	5		0	5	*76	10	9		0	2	5	*88	5		0	*58	4	6	2		0
6	*88	5	2	3		0	2	7	2	*88		0	*87	3	8	1		0	*93	4	2	1		0	6	2	*90	1		0
7	*96	2	1	1		0	1	*95	2	1		0	*96	1	1	1		0	2	1	*96	1		0	3	6	2	*89		0
8	1	3	*93	3		0	2	*93	4	1		0	2	3	*94	1		0	3	2	3	*92		0	1	3	4	*92		0
9	3	6	*89	2		0	*92	3	4	1		0	4	*91	3	1		0	2	2	6	*90		0	8	4	*86	3		0
10	4	4	*89	2		0	3	*87	7	3		0	*87	6	4	2		0	2	2	*93	2		0	2	2	*94	2		0
11	*90	3	5	1		0	5	4	4	*86		0	6	5	*87	2		0	3	*88	6	2		0	3	*87	7	2		0
12	4	8	*85	3		0	5	11	*77	5		1	8	9	11	*70		2	7	8	7	*77		1	7	6	*81	5		1
13	7	*78	9	6		1	*68	13	11	7		1	8	12	*74	5		1	7	*76	9	7		1	9	9	*73	9		1
14	5	8	*77	9		1	*76	8	8	8		1	8	9	7	*75		1	6	*76	10	7		1	8	6	*78	7		1
15	15	15	*66	3		0	*76	9	10	5		0	12	13	4	*71		0	*73	5	10	12		0	13	*73	3	12		0
16	13	3	*69	14		0	3	4	23	*70		0	5	*78	8	9		1	*76	8	10	5		1	7	10	*75	6		1
17	3	5	19	*73		0	3	19	*74	3		0	19	3	3	*73		0	*74	4	20	2		0	22	*72	4	2		1
18	2	14	*80	2		0	2	6	5	*86		1	2	18	*77	2		1	21	*62	12	4		1	*36	8	11	43		1
19	*80	8	8	3		1	6	7	*80	6		1	8	7	*79	6		1	7	*69	16	7		1	6	*81	7	6		1
20	5	*67	8	19		1	6	*45	27	21		1	*42	24	15	18		1	8	11	*59	21		1	*46	24	9	20		1
21	13	14	*67	5		1	*75	12	8	4		1	*77	11	7	4		1	5	*77	11	6		1	*76	7	12	4		1
22	*88	4	3	5		0	3	4	*88	5		0	2	3	6	*88		1	*84	3	8	4		1	2	5	3	*89		0
23	10	41	10	*39		0	8	11	*52	28		1	6	49	*37	7		1	9	*37	31	22		1	*42	31	18	8		1
24	6	*79	4	11		0	6	*85	4	5		0	7	3	*87	2		0	8	4	3	*85		0	3	3	4	*89		0
25	5	11	*80	4		0	5	*87	4	3		0	*63	10	20	6		0	*77	7	7	8		1	3	5	7	*84		0
26	10	3	4	*82		0	9	*77	8	6		0	36	7	*50	6		1	*66	10	9	14		1	*38	7	45	9		1
27	32	8	7	*52		1	8	*44	34	13		1	18	*47	22	11		2	9	*54	16	19		2	10	*47	16	26		1
28	*46	20	17	17		1	9	*58	7	26		1	8	7	*60	24		1	13	*51	10	25		1	*62	28	6	4		1
29	*78	5	13	3		0	3	11	*66	20		0	8	8	*64	19		0	26	*64	6	4		0	9	21	11	*58		0
30	2	*94	2	2		0	1	4	3	*92		0	7	3	*78	13		0	*49	10	19	22		0	*69	10	13	8		0
31	19	*75	4	2		0	5	4	*82	9		0	4	4	*85	7		0	*84	11	3	2		0	5	3	21	*71		0
32	1	1	5	*93		0	2	*89	3	6		0	12	6	*80	2		0	3	*78	9	9		0	*81	9	7	3		0
33	7	11	*75	7		0	*63	11	14	11		1	12	*65	12	11		1	12	10	*63	14		1	*57	10	21	12		1
34	1	5	*90	4		0	4	*75	5	15		0	7	*89	3	1		0	1	3	*94	2		0	6	2	3	*88		0
35	*86	3	9	1		0	4	2	10	*84		0	*68	4	13	14		1	*73	7	17	3		0	3	5	14	*78		0
36	5	*75	5	15		0	4	8	10	*77		0	5	*84	5	6		0	9	*78	7	6		0	5	7	6	*82		0
37	2	22	2	*73		0	*89	3	4	4		0	4	4	*90	2		0	4	*88	6	2		0	21	3	*72	4		0
38	*71	11	18			0	*72	9	18			0	36	9	*55			0	*65	17	17			0	11	*77	12			0
39	2	6	5	*86		0	*78	1	21	0		0	1	11	*88	1		0	1	*92	7	1		0	1	2	8	*89		0
40	15	*70	8	6		1	*63	11	12	13		2	*60	12	16	10		2	9	12	*70	7		2	8	13	13	*65		2
41	30	*42	20	1		7	30	20	5	*40		5	15	20	*40	5		20	10	15	*32	23		20	42	10	26	*12		10
42	20	15	*30	25		10	26	*37	17	14		6	*40	40	12	8		0	26	30	22	*17		5	*28	14	33	21		4
43	*46	16	11	12		1	9	*41	22	18		10	11	*37	43	4		5	3	19	*16	60		2	8	*70	13	4		5
44	32	*47	18	2		1	42	21	*30	6		1	15	11	24	*49		1	11	35	*48	6		0	21	*33	19	26		1
45	*40	17	33	10		0	26	14	20	*39		1	19	27	*34	20		0	*16	40	21	36		3	13	9	17	*60		1

FIGURE 5: TEST ITEM ANALYSIS

• **Feeder School and Research Code Reports.** School districts are offered two optional reports: the Feeder School and the Research Code Reports. Since these were district options, the reports were not prepared unless requested by the district.

For districts choosing the Feeder School option, a summary report, similar to the one shown in FIGURE 3, was prepared for each school which "feeds" students into the junior high or high school(s). These optional reports should be read in the same manner as a school or district summary.

Use of the Research Code option was designed to produce summary reports, similar to the example in FIGURE 3, for as many as 10 different groupings of students depending on the district's selection of categories. Read and interpret the Research Code Report in the same manner as the School or District Summary Report.

Interpreting the Assessment Data

Importance of Interpretations. The educational assessment program provides a large amount of information. Teachers, principals, and other district personnel should reach an understanding of what the assessment data mean to them. In the absence of an "official" interpretation, newspaper reporters, citizens, parents, or students will provide their own meanings of the data. If these interpretations are improper or based on limited information, they may be difficult for school personnel to correct.

At the building and district levels, principals and other administrators should provide public interpretive reports of the data. Ideally, interpretations should be made with the involvement of teachers and other staff members who are capable of contributing experience and expertise to any interpretive effort. The meanings of the data should then be reported to the media and the public as soon as possible.

Teachers are advised to make an effort to interpret the test results to students and parents and discuss the test with them. Teachers should also study the classroom data carefully and attempt to relate this information to their instructional practices.

Considerations in Interpretation of the Assessment Data. Many factors affect student attainment of particular objectives. The following are some possibilities but are not meant to be all-inclusive.

• Objectives. Local educators should consider the appropriateness of the objectives tested for their school or district. Consideration should also be given to whether the skills tested had been taught prior to testing.

• Test Quality. Although a concerted effort was made to create test items that measured the objectives, some lack of matching might have occurred. Other considerations might be: difficulty of the items; confusion in directions; inappropriate terminology or reading level difficulty.

• Test Administration. Conditions during test administration may account for unexpected test results.

• Instructional Material Used. The objectives tested must be related to existing curriculum and materials.

• Instructional Effectiveness. Poor test performance may be the result of instructional methods which have been inappropriate for some children.

In addition, "Do You Use MEAP Results Appropriately?" may help you understand more fully the uses for which MEAP is and is not appropriate. This section can be removed for easy reference.

SECTION III

UTILIZING THE ASSESSMENT DATA

District Utilization

Local school administrators and staff should disseminate the test results and reach some understanding of what the assessment information means to the district. This, however, is not the fullest utilization of the assessment data. District officials may read the data, may share it with school staff, and may make a report to the board and citizens; however, IF TEST RESULTS ARE NOT USED, NOTHING DIFFERENT WILL HAPPEN in the district to meet the educational needs of students.

The following few steps may be used as a beginning in the development of utilization strategies:

- Appoint a curriculum study group in reading and one in mathematics with teachers, counselors and administrators from grades 1-3 and 4-6 to review the test results, relate them to current instruction and programs, and to find out which of the Michigan minimal objectives are being taught in which grades.

- Establish a district-wide criterion of success (student attainment rate) for the MEAP objectives and then determine which objectives have not been met successfully.

- Determine which schools have the lowest attainment rates on the priority objectives and determine strategies to meet these needs. (The seventh grade Feeder School Report may facilitate this process.)

- Administer posttests in May of those high priority objectives which were not attained in September.

- Select one or two schools at the fourth and seventh grade levels which are willing to become "demonstration sites" to concentrate on utilizing the assessment data.

- Analyze other test data available to the district (and other evidence that may be present) and relate them to the MEAP results.

- Provide inservice activities for K-12 staff in the development and implementation of district-wide, objectives-based instructional programs.

- Establish two or three year improvement goals for the district leading to increased attainment rates for key objectives.

- Report to the board of education throughout the year on the progress being made in interpretation of the data and utilization of the results. The chart that follows suggests some reporting procedures.

In addition, review the "Do YOU Use MEAP Results Appropriately?" booklet included in this manual.

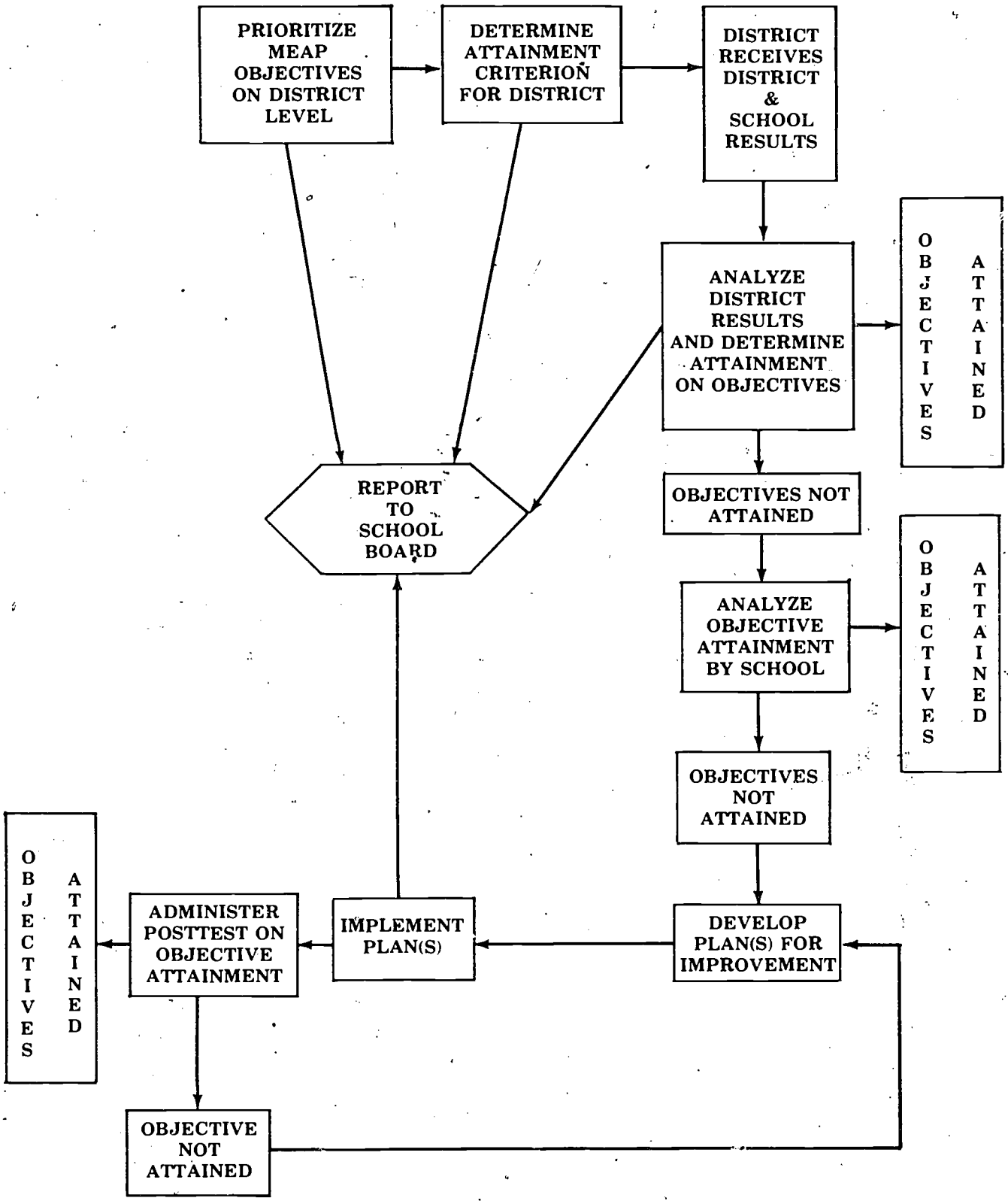

FIGURE 6. STEPS FOR DISTRICT USE IN REPORTING MEAP RESULTS TO SCHOOL BOARD

School Utilization

The school unit is a key element in the utilization of assessment data. The school principal and his/her staff form a team which can make instructional changes most easily.

The steps listed in the previous section set the stage for the suggestions outlined below. As before, the emphasis is on having people pull together in an agreed upon direction. The suggestions are as follows:

- Establish realistic criteria by which objective attainment can be judged as acceptable, encouraging, low, or unacceptable. Staff, curriculum specialists, and administrators should all be involved in determining the criteria.

- Categorize objective attainment according to your established criteria for acceptable, encouraging, low, or unacceptable levels of attainment. (The State has established suggested criteria for categorizing objective attainment. See The Status Report on Michigan Basic Skills Education, 1976-77 for further information.)

- Conduct a study to determine where the MEAP objectives are currently being presented in the instructional sequence in the building. Determine if there are objectives which staff are not teaching at this time.

- Having identified objectives with low or unacceptable attainment rates, staff can then develop instructional plans or programs to address these needs. (Classroom teachers and curriculum specialists for your building should also address the needs of students not attaining objectives categorized on a building level as acceptable or encouraging.)

- Because the assessment test results reflect skills and knowledge acquired by students over time, all teachers should be aware of the test results—not just fourth and seventh grade teachers. Teachers in K-3 and 4-6 should all be familiar with students' performance on the assessment tests. (The Feeder School Reports present information of interest to teachers at all levels.)

- Inservice activities should be planned to assist staff in the implementation of an objective-based instructional system.

- Review the Proportions data to determine attainment trends. Compare these trends to the trends visible in other types of achievement results.

- Give each family a copy of the child's Individual Student Report form and provide them an opportunity to discuss this information with the classroom teachers or counselor.

- Individual student attainment should be documented as part of the student's cumulative achievement record.

- Additional educational experiences should be provided for those students not meeting minimal educational expectations (i.e. enrichment coursework, summer study programs, and supplemental home-study opportunities.)

- Obtain copies of the Michigan Reading Association (MRA) and the Michigan Council of Teachers of Mathematics (MCTM) monographs which offer suggestions for educators in utilizing the assessment results.*

Teacher Utilization

With a minimum amount of effort, an individual teacher can begin to use MEAP results to focus attention on specific minimal skill needs of students. An excellent beginning place is the Classroom Listing Report. Other reports provided by the Program will appear more useful as you become more familiar with them as instructional tools.

The following list suggests some steps which may be used to incorporate the use of test results in your instructional planning.

- Look at the Classroom Listing Report for reading (mathematics).
- At the bottom of the page is the percentage of students in your classroom who attained each objective. Circle any objective which many of your students did not attain.
  a) Do you need to review the skills?
  b) Do you need to group some students to work on the skill?
  c) Can the students "brush up" on the skill by being reminded of it in their regular, daily work?
  d) Do you think the students have the skill and the test didn't show it?
- You should know if the tested objectives are part of the curriculum in earlier grades.
- You may need to obtain additional classroom resources to address the problem areas you find.
- You should know which objectives you and the other teachers are responsible for teaching and/or reviewing.
- Be sure to give each parent a copy of the Individual Student Report. Parent cooperation in encouraging student effort can help your teaching endeavors.

If you have further questions about using your classroom's assessment results, please call an Assessment staff member at (517) 373-8393 or write to Michigan Educational Assessment Program, Michigan Department of Education, P.O. Box 30008, Lansing, Michigan 48909.

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*The reader should contact a member of these organizations for copies of the booklets.

APPENDIX A

MINIMAL PERFORMANCE OBJECTIVES AND LISTS OF ITEM NUMBERS, GRADES FOUR, SEVEN, AND VOLUNTARY TEN

READING OBJECTIVES MEASURED IN THE 1977-78 MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM* Grade 4

	Objective Number	
1.	2.1	Given a reading selection at the third grade level, the learner will match a series of words in the selection with appropriate definitions.
2.	2.2	Given a set of phrases, the student will indicate those phrases which have the same meaning.
3.	3.2	Given a reading selection at the third grade level in which every fifth word has been replaced with a blank, the learner will choose the exact word appropriate to the blank space at 50% accuracy.
4.	4.1	Given a method of arranging data, the learner will identify the method (e.g., color, size, importance, time, etc.)
5.	4.4	Given a series of randomly placed words, the learner will be able to alphabetize the words through the first three letters.
6.	5.1	Given a series of reading selections, the learner will indicate those which are factual.
7.	5.2	Given a series of reading selections, the learner will indicate those which are fictional.
8.	6.1-6.3	Given a reading selection, the learner will be able to identify the author's purpose (e.g., persuasion, entertainment, propaganda, etc.)
9.	7.1	Given a reading selection at the third grade level, the learner will select from a list of possible titles the one most appropriate as the title for that selection.
10.	7.2	Given a reading selection at the third grade level, the learner will select from a series of still pictures the one picture most appropriate in depicting the main idea of the selection.
11.	7.3	Given a reading selection at the third grade level, the learner will select from a number of short summaries the one which best summarizes the selection.

*This list contains only the objectives which are included in the every-pupil portion of the 1977-78 MEAP tests. A complete set of the objectives is available in **Minimal Performance Objectives for Communication Skills Education in Michigan,** Michigan Department of Education.

12.	8.4	Given a reading selection at the third grade level, the learner will match a series of direct quotations from the story with the character who is speaking.
13.	10.3	Given a reading selection at the third grade level, the learner will choose from a series of sentences that sentence which best describes how a given character feels in a story.
14.	10.6	Given a selection containing figurative language, the learner will identify from a series of descriptive phrases the phrase that most accurately describes the mood expressed in the selection.
15.	11.1	Given a reading selection at the third grade level, the learner will correctly match a series of causes with a corresponding series of effects.
16.	11.2	Given a reading selection at the third grade level with the conclusion of the story deleted, the learner will select from a series of possible conclusions the one most appropriate to the selection.
17.	13.1	Given a locational question, the learner will choose from a series of reference sources where that item will be found.
18.	13.2	Given a locational question about newspapers, the learner will select the section where the answer would be found.
19.	14.1-14.3	Given a reading selection at the third grade level, the learner will answer correctly a series of multiple choice questions relating to meanings, generalizations, or conclusions not expressed in the selection itself.

MATHEMATICS OBJECTIVES MEASURED IN THE 1977-78 MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM*
Grade 4

	Objective Number	
1.	AR-I-A-6	Given a set of objects, the learner will recognize objects that are the same **size.**
2.	AR-I-A-8	Given an object shaped like a circle, triangle, square, or rectangle, the learner will choose the shape the object represents.
3.	AR-I-A-16	Given a set of three containers, one full, one empty, and one half-filled, the learner will choose the containers that are arranged from full to empty.
4.	AR-I-A-24	Given a collection of five objects of varying lengths, the learner will identify the **longest** or the **shortest,** as requested.
5.	AR-I-A-39	Given five small toys in a line, the learner will identify the **first** toy and the **last** one.
6.	AR-I-B-7	Given a set with less than ten objects, the learner will identify an equivalent set.
7.	AR-I-B-32	Given a set of two to eight objects, the learner will identify a set having fewer members than the original set.
8.	AR-I-B-40	Given a line marked with congruent segments and a set of number cards (0-10), the learner will choose the appropriate number card for the point on the line.
9.	AR-I-B-43	Given any three numbers, 0-10, the learner will identify which number is the greatest and which is the least, on request.
10.	AR-I-B-44	Given two consecutive even or odd numbers, 0-9, the learner will name the number that comes **between** the two given numbers.
11.	AR-I-B-45	Given a number from 1 to 8, the learner will identify the number that comes **before** or **after** the given number.
12.	AR-I-B-64	Given a set of tens and ones representing a number less than 100, the learner will identify the numeral.

*This list contains only the objectives which are included in the every-pupil portion of the 1977-78 MEAP tests. A complete set of the objectives is available in the **Minimal Performance Objectives for Mathematics in Michigan,** Michigan Department of Education.

13.	AR-I-B-65	Given a set of sequentially ordered whole numbers within a decade less than 100, such as 31, 32,...40, the learner will identify the number that comes immediately before or after a given number, as requested.
14.	AR-I-B-67	Given 2 two-digit numbers, the learner will tell which number is greater and which number is less.
15.	AR-I-B-70	Given a set of dimes and pennies valued between 11 and 99 cents (one dime, one penny to nine dimes, nine pennies), the learner will state the value.
16.	AR-I-B-81	Given a random list of two- or three-digit numbers, the learner will identify the list that is in ascending order.
17.	AR-I-B-82	Given 2 three-digit numbers which have the same digits but in different positions, the learner will compare them to determine which is greater and which is less.
18.	AR-I-B-84	Given a counting sequence of two or four numbers, the learner will write the next number in the sequence.
19.	AR-I-B-85	Given the counting numbers 1-10, the learner will indicate those that are multiples of 2.
20.	AR-I-B-86	Given a set of objects, the learner will select another set that will have twice as many objects.
21.	AR-II-A-10	Given addition exercises involving a two-digit number plus a one-digit number requiring no regrouping (carrying), the learner will find the sums with or without the use of aids.
22.	AR-II-B-9	Given a set of objects or pictures showing a subtraction relationship with combinations to 18, the learner will identify an appropriate number sentence.
23.	AR-II-B-11	Given a subtraction word problem read by the teacher involving combinations to 18, the learner will: 1) identify the operation, 2) identify an appropriate number sentence, and 3) identify the answer.
24.	AR-II-B-13	Given two sets of objects, one with more objects than the other, the learner will identify how many more members it has.
25.	AR-II-B-15	Given a two-digit number, the learner will subtract one-digit numbers with no regrouping (borrowing) with or without the use of aids.
26.	AR-II-B-16	Given a two-digit number, the learner will subtract a two-digit number with no regrouping (borrowing).
27.	M-II-A-6	Given the reading "____o-clock" and a clock face, the learner will identify the clock showing the appropriate time.

28.	M-II-B-3	Given three to five different amounts of money, all less than or equal to $5.00, the learner will identify the greatest or the least.
29.	M-II-C-1	Given a Fahrenheit or Centigrade thermometer, the learner will identify the temperature (above zero) to the nearest degree.
30.	G-I-A-2	Given pictures of various shapes, the learner will identify circles, triangles, squares, and rectangles as requested.
31.	02-03-001	Given a Celsius thermometer with boiling, freezing, and room temperature indicated, the learner will indicate whether a given temperature is above or below freezing, normal room temperature, boiling.
32.	02-03-002	Given a Celsius thermometer, the learner will read and record the temperature to within two degrees, using the degree (°) symbol.
33.	02-04-003	Given a metric bathroom scale, the learner will state his/her own weight to the nearest labelled kilogram.

LIST OF ITEMS MEASURING EACH FOURTH GRADE OBJECTIVE

Reading

Objective Number	Item Number
1	45,52,73,81,92
2	83-87
3	65-69
4	16-20
5	6-10
6	27-31
7	35-39
8	24,32,33,76,98
9	41,53,74,89,97
10	21,40,51,70,96
11	34,43,80,90,99
12	42,48,72,77,88
13	47,49,75,79,93
14	11-15
15	23,44,50,91,100
16	22,46,71,82,95
17	55-59
18	60-64
19	25,26,54,78,94

Mathematics

Objective Number	Item Number
1	196-200
2	101-105
3	241-245
4	231-235
5	226-230
6	136-140
7	176-180
8	246-250
9	111-115
10	166-170
11	116-120
12	156-160
13	151-155
14	146-150
15	236-240
16	191-195
17	121-125
18	171-175
19	211-215
20	251-255
21	106-110
22	161-165
23	1-5
24	206-210
25	126-130
26	201-205
27	141-145
28	186-190
29	216-220
30	221-225
31	256-260
32	181-185
33	131-135

READING OBJECTIVES MEASURED IN THE 1977-78 MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM* Grade 7

	Objective Number	
1.	18.1	Given a reading selection at the sixth grade level, the learner will match a series of words in the selection with appropriate definitions.
2.	18.2	Given a set of phrases, the learner will indicate those phrases which have the same meaning.
3.	20.1	Given a method of arranging data, the learner will identify the method (e.g., sequence, importance, etc.).
4.	21.1	Given a series of randomly placed words, the learner will be able to alphabetize the words through the first three letters.
5.	22.1	Given a series of reading selections, the learner will indicate those which are factual.
6.	22.2	Given a series of reading selections, the learner will indicate those which are fictional.
7.	23.1-23.3	Given a reading selection, the learner will be able to identify the author's purpose (e.g., persuasion, entertainment, propaganda, etc.).
8.	24.1	Given a reading selection at the sixth grade level, the learner will select from a list of possible titles the one most appropriate as the title for that selection.
9.	24.2	Given a reading selection at the sixth grade level, the learner will select from a series of still pictures the one picture most appropriate in depicting the main idea of the selection.
10.	24.3	Given a reading selection at the sixth grade level, the learner will select from a number of short summaries the one which best summarizes the selection.
11.	24.4	Given a series of three or more reading selections at the sixth grade level, the learner will indicate the two most alike in the ideas expressed.
12.	25.3	Given a reading selection at the sixth grade level, the learner will match a series of direct quotations from the story with the character who is speaking.

*This list contains only the objectives which are included in the every-pupil portion of the 1977-78 MEAP tests. A complete set of the objectives is available in **Minimal Performance Objectives for Communication Skills Education in Michigan,** Michigan Department of Education.

13. 26.3 Given a reading selection at the sixth grade level, the learner will correctly answer a series of multiple choice questions relating to the sequence of events or ideas presented in the selection.

14. 27.2 Given a reading selection at the sixth grade level, the learner will choose from a series of sentences that sentence which best describes how a given character feels in a story.

15. 28.1 Given a reading selection at the sixth grade level, the learner will choose from a series of sentences the one which best describes a motive for some action or activity.

16. 29.1 Given a reading selection at the sixth grade level, the learner will correctly match a series of causes with a corresponding series of effects.

17. 29.4 Given a reading selection at the sixth grade level, the learner will answer correctly a series of multiple choice questions relating to meanings, generalizations, or conclusions not expressed in the selection itself.

18. 31.1 Given a locational question, the learner will choose from a series of reference sources where that item will be found.

19. 31.2 Given a location question about newspapers, the learner will select the section where the answer would be found.

20. 32.1 Given a reading selection at the sixth grade level with the conclusion of the story deleted, the learner will select from a series of possible conclusions the one most appropriate to the selection.

MATHEMATICS OBJECTIVES MEASURED IN THE 1977-78 MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM*

Grade 7

Objective Number		
1.	AR-I-B-87	Given any four-digit number, the learner will identify the number that is 100 or 1000 more or less than it is, without using formal addition or subtraction.
2.	AR-I-B-89	Given a number orally, the learner will identify the arabic numeral.
3.	AR-II-A-22	Given addition exercises involving a three-digit number plus a one-, two-, or three-digit addend, with or without regrouping (carrying), the learner will identify the sums, using any techniques.
4.	AR-II-A-26	Given addition problems involving two or three addends with three, four, five, or six digits, with or without regrouping, the learner will find the sums, using any techniques.
5.	AR-II-B-20	Given a three-digit number, the learner will subtract a two or three-digit number, with or without the use of aids.
6.	AR-II-C-6	Given a repeated addition sentence, the learner will represent it as a multiplication sentence with its product.
7.	AR-II-C-11	Given two numbers, the learner will demonstrate that the order in which they are multiplied does not change the product.
8.	AR-II-C-13	Given a one-digit number and (10,20...), (100,200...), the learner will identify the product.
9.	AR-II-C-15	Given a two-digit number to be multiplied by a one-digit number, the learner will identify the product, with or without aids.
10.	AR-II-D-5	Given a sentence with one single digit, a missing factor, and a product (whole numbers), the learner will identify the missing factor.
11.	AR-II-D-7	Given a division fact, the learner will identify it rewritten as a multiplication fact.
12.	AR-II-D-9	Given a one-digit divisor (factor) and a dividend (product) of less than 100, the learner will identify the quotient (missing factor) if there is no remainder.

*This list contains only the objectives which are included in the every-pupil portion of the 1977-78 MEAP tests. A complete set of the objectives is available in the **Minimal Performance Objectives for Mathematics in Michigan,** Michigan Department of Education.

13.	AR-II-D-15	Given an exercise with a dividend of four digits or less, and a one-digit divisor, the learner will identify the quotient.
14.	AR-III-A-1	Given several objects, some divided into congruent parts, some divided into noncongruent parts, the learner will identify congruent parts.
15.	AR-III-A-18	Given a diagram divided into congruent parts, with some parts shaded, the learner will identify the shaded area by identifying an appropriate fraction.
16.	AR-III-A-19	Given any five fractions with like denominators, in random order, the learner will identify them in order (halves, thirds, fourths, fifths, sixths, eighths, tenths); with or without the use of aids.
17.	AR-III-B-4	Given two common fractions with like denominators and a sum greater than 1, the learner will identify the sum, with or without the use of fractional cut-out parts.
18.	AR-III-B-7	Given two mixed numbers with like denominators, the learner will identify the sum.
19.	AR-III-C-4	Given a mixed number and a fraction with like denominators, of 2, 3, 4, 6 or 8, where no regrouping is necessary, the learner will find the difference.
20.	AR-III-C-6	Given a whole number and a common fraction with a denominator of 2, 3, 4, 6, or 8, the learner will find the difference with or without the use of fractional parts.
21.	AR-III-D-4	Given two unit fractions with denominators less than seven, the learner will identify the product with or without the use of a model.
22.	AR-IV-A-3	Given a model of a fraction illustrating hundredths, the learner will identify the decimal fraction as illustrated.
23.	AR-IV-A-7	Given a decimal fraction of no more than three places, the learner will name the place value of each digit, without aids.
24.	AR-IV-B-3	Given a verbal problem involving addition and subtraction of decimal numbers involving only tenths, the learner will find the answer.
25.	AR-IV-B-6	Given a verbal problem involving addition and subtraction of decimal numbers involving tenths and hundredths, the learner will find the answer.
26.	AR-IV-B-9	Given an addition and subtraction decimal problem in horizontal or vertical form with no more than five (5) digits and no more than three (3) decimal places, the learner will find the sum or difference.

27.	AR-VI-15	Given a picture of sets paired in (A) a one-to-one, (B) a many-to-one, or (C) a one-to-many ratio and part of another pair, the learner will identify the pair that keeps the ratio equivalent.
28.	M-I-B-8	Given a polygon, the learner will estimate its area in square units.
29.	M-I-C-7	Given a drawing of a rectangular solid divided into units (dimensions less than or equal to 5 units), the learner will name the number of units in it.
30.	M-II-A-10	Given a clock face with hands on it, the learner will choose the correct time notation.
31.	M-II-A-11	The learner will use A.M. and P.M. notation in writing time.
32.	M-II-B-7	Given two money values, the learner will add or subtract using dollars and cents notation.
33.	M-II-B-9	Given verbal problems consisting of one or two operations involving money values less than or equal to $20, the learner will solve the problems.
34.	M-II-C-3	Given a Fahrenheit or Centigrade thermometer the learner will identify temperatures to the nearest degree, using the degree [°] symbol.
35.	G-I-A-4	Given a set of quadrilaterals, the learner will identify and name a parallelogram, a square, and a rectangle.
36.	G-I-B-5	Given the description of a plane, and a part of a plane, the learner will identify surfaces which represent a plane or part of a plane.
37.	AL-2	Given a statement of equality involving addition, subtraction, or multiplication facts and containing a placeholder or letter, the learner will identify the missing number.
38.	AL-4	Given a pair of whole numbers or number phrases less than 1,000, the learner will identify the appropriate symbol of equality or inequality, <or = or>.
39.	AL-5	Given an equation involving one or zero, the learner will complete the sentence.
40.	AL-7	Given a numerical statement involving distributive property and a placeholder, the learner will insert the missing value.
41.	01-01-008	Given the terms "meter," "centimeter," and "millimeter," the learner will write the symbol for each term.

42.	01-01-023	Given a whole number of centimeters (1-1,000), the learner will state an equivalent number of meters.
43.	02-03-003	Given a Celsius thermometer, the learner will indicate whether the temperature is above or below freezing, normal room temperature, boiling.
44.	02-04-005	Given the request, the learner will state the names and symbols for the three most commonly used units for mass.
45.	LU 15, 16, 24	The learner will state the number of millimeters in one centimeter, millimeters in a meter, meters in one kilometer and give the correct symbol for kilometer.

LIST OF ITEMS MEASURING EACH SEVENTH GRADE OBJECTIVE

Reading		Mathematics	
Objective Number	Item Number	Objective Number	Item Number
1	30,79,80,90,92	1	106-110
2	70-74	2	1-5
3	101-105	3	126-130
4	6-10	4	131-135
5	24-28	5	111-115
6	46-50	6	136-140
7	15,31,35,54,83	7	141-145
8	13,51,66,81,97	8	161-165
9	59,60,61,68,93	9	156-160
10	12,32,33,55,76	10	166-170
11	84-88	11	196-200
12	63,64,78,89,91	12	181-185
13	11,29,53,62,94	13	186-190
14	14,52,65,98,99	14	291-295
15	17,57,67,75,96	15	201-205
16	16,34,58,77,100	16	216-220
17	18,56,69,82,95	17	226-230
18	36-40	18	236-240
19	19-23	19	241-245
20	41-45	20	231-235
		21	246-250
		22	221-225
		23	211-215
		24	251-255
		25	256-260
		26	176-180
		27	271-275
		28	306-310
		29	311-315
		30	276-280
		31	281-285
		32	121 25
		33	261-265
		34	301-305
		35	286-290
		36	266-270
		37	191-195
		38	316-320
		39	146-150
		40	171-175
		41	116-120
		42	151-155
		43	206-210
		44	296-300
		45	321-325

READING OBJECTIVES MEASURED IN THE 1977-78 MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
Volunteer Grade 10

1.	35.1	Learners will be able to determine meaning from the context of the passage.
2.	35.2	Learners will be able to apply knowledge of roots and affixes as an aid in understanding words.
3.	35.3	Learners will be able to read specialized words related to everyday functions (e.g., highway signs and symbols, recipes, test instructions, typical institutional forms).
4.	36.1	Learners will be able to tell in their own words, orally or in writing, the major incidents as they occur in a reading passage.
5.	36.2	Learners will be able to select from a series of sentences the one best describing the content of a reading passage.
6.	36.3	Learners will be able to select passages within a reading selection showing causation.
7.	36.4	Learners will be able to select passages within a reading selection showing characterization.
8.	36.6	Learners will be able to choose from three possible conclusions the one best suited to end a reading selection wherein the conclusion has been omitted.
9.	37.1-37.2	Learners will be able to select from a number of reading selections those whose purpose is to entertain, to persuade, to provide information, to influence the reader's opinion.
10.	39.1	Learners will be able to identify various literary types, subject matter categories, individual selections, authors.
11.	39.2	Learners will be able to discuss the purposes for which people read various types of reading material.
12.	40.1	Learners will be able to alphabetize randomly chosen words.
13.	40.4	Learners will be able to scan sub-headings and relate the general nature of the contents of the material.
14.	40.5	Learners will be able to skim through the items in a given categorical listing to locate the one specified.
15.	41	Learners will be able to use graphs, charts, tables, maps, simple operating instructions, forms, etc.

MATHEMATICS OBJECTIVES MEASURED IN THE 1977-78 MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
Volunteer Grade 10

1.	AR-II-D-19	Determine the quotient for two, three, or four digit dividend and a two digit divisor - with or without remainders.
2.	AR-III-A-22	Given a fraction the learner will write a set of equivalent fractions with or without the use of fractional cut-outs.
3.	AR-III-A-24	Given two fractional numbers with unlike denominators, the learner will tell which one is greater (denominators of 2, 3, 4, 6, or 8) with or without the use of aids.
4.	AR-III-B-12	Given two mixed numbers with like or unlike denominators of 2, 3, and 6 - or 2, 4, and 8 - the learner will find the sum, with or without the use of aids.
5.	AR-III-C-10	Given two fractions with unlike denominators of 2, 3, and 6 - or 2, 4, and 8 - the learner will subtract with or without the use of aids.
6.	AR-III-C-12	Given two mixed numbers with unlike denominators of 2, 3, and 6 - or 2, 4, and 8 - the learner will find the difference.
7.	AR-III-D-6	Given two (proper) fractions with denominators less than 7, the learner will compute the product.
8.	AR-III-D-8	Given a whole number less than 5 and a proper fraction with denominator less than 7, the learner will compute the product.
9.	AR-III-D-9	Given a whole number less than 5 and a mixed number less than 5 and a denominator less than 7, the learner will compute the product.
10.	AR-IV-A-8	Given a numeral with no more than three decimal places, the learner will round to the nearest whole number, tenths or hundredths as requested.
11.	AR-IV-A-10	Given a common fraction whose decimal equivalent terminates in three (3) places or less, the learner will rename the common fraction as a decimal fraction.
12.	AR-IV-A-11	Given a set of decimal fractions of no more than three (3) places, the learner will arrange the fractions in order from greatest to least or least to greatest as instructed.
13.	AR-IV-C-8	Given a decimal fraction and a whole number of 10 or a power of 10 (100, 1000 and so on), the learner will find the product by changing the value of the decimal number by placing the decimal point in the appropriate place value position.

14.	AR-IV-C-11b	Given two two-place decimal fractions greater than 1, but less than 100, the learner will compute the product.
15.	AR-IV-D-6	Given any two decimal numbers (up to four digits divided by up to two digits) the learner will find the quotient.
16.	AR-V-1	Given a set of integers and a numberline, the learner can locate the integers by pointing at the correct location on a numberline. (Using either a horizontal or vertical numberline.)
17.	AR-V-2	Given two integers, the learner can correctly name the sum of any two integers.
18.	AR-VI-20	Given a picture of two sets or a subdivided region, the learner will write a ratio describing the indicated comparison.
19.	AR-VI-32	Given a written statement involving proportionality, the learner will write equivalent ratios by supplying the missing whole number.
20.	AR-VI-35	Given a partially completed table involving fractions with denominators of multiples of two and five, decimals and percents, the learner will complete the table.
21.	AR-VI-37	Given a whole number percent and a number the learner will determine that percentage of the given number.
22.	AR-VI-38	Given a sample written problem involving finding a percentage of a number, the learner will solve it.
23.	M-I-A-14	Given rulers specially scaled in 1/16", 1/10", 1 cm. or 1 mm., the learner will measure objects to the nearest unit as requested.
24	M-I-A-18	Given the following figures, the learner will find the perimeter of: 1) A rectangle (lengths of sides indicated — formula may or may not be given). 2) A general polygon (lengths indicated). 3) A circle (diameter or radius indicated — formula and value of π provided).
25.	M-I-A-21	Given word problems involving standard units of measure, the learner will solve the problems with or without aids.
26.	M-I-A-24	Given a map with coordinates, the learner will locate places designated by pairs of coordinates.
27.	M-I-A-26	Given a table of data in common use, the learner will be able to locate items in the table.
28.	M-I-B-12	Given a rectangle, (formula to be known), the learner will measure to the nearest whole unit and use the formula to find its area.

29.	M-I-B-16	Given word problems involving areas of rectangles (square included), triangles, and circles and the formulas for the triangle and circle (also the value of π), the learner will solve them.
30.	M-II-A-13	Given two times to the nearest half hour, the learner will find the time interval.
31.	M-II-B-10	Given a list of items with their price, the learner will select those items he could buy with a certain amount of money.
32.	M-II-B-11	Given an expressed amount of money, the learner will multiply or divide the given amount by a positive integer.
33.	G-I-A-6	Given a circle and its related parts, the learner will identify the center, radius, diameter, semicircle and circumference.
34.	G-I-C-2	Given pairs of congruent and non-congruent triangles or polygons, the learner will identify them as congruent or not congruent.
35.	A-13	Given a linear equation of the form $ax \pm b = c$, where a, b, c, and x are whole numbers, and the solution is a whole number, the learner will be able to find the solution.
36.	A-17	An expression of the form r^n, r is a whole number and n is 2, 3, or 4, the learner will write r^n as $r \cdot r \cdot r \cdot \ldots \cdot r$ (n factors).
37.	A-24	Given a common algebraic expression representing area, volume, etc., of degree ≤ 2 and the value for each of the variables, the learner will evaluate the expression.
38.	P-12	Given a bar graph, the learner will be able to answer questions comparing the data.
39.	P-19	Given the results of an experiment performed a given number of times, the learner will predict the number of times a particular event will occur if the experiment is performed many times.
40.	P-21	Given a set of up to 30 whole numbers, the learner will find the mean (the average).

LIST OF ITEMS MEASURING EACH TENTH GRADE OBJECTIVE

Reading

Objective Number	Item Number
1	1,6,11,14,24
2	61-65
3	66-70
4	5,8,18,21,30
5	2,10,12,15,26
6	9,16,20,22,27
7	3,7,17,23,28
8	4,13,19,25,29
9	36-40
10	31-35
11	41-45
12	51-55
13	46-50
14	56-60
15	71-75

Mathematics

Objective Number	Item Number
1	125-128
2	109-112
3	157-160
4	13-16
5	129-132
6	25-28
7	53-56
8	45-48
9	105-108
10	41-44
11	145-148
12	97-100
13	65-68
14	141-144
15	69-72
16	29-32
17	17-20
18	81-84
19	9-12
20	85-88
21	133-136
22	93-96
23	5-8
24	101-104
25	149-152
26	73-76
27	113-116
28	1-4
29	137-140
30	57-60
31	121-124
32	77-80
33	117-120
34	49-52
35	21-24
36	61-64
37	37-40
38	153-156
39	89-92
40	33-36