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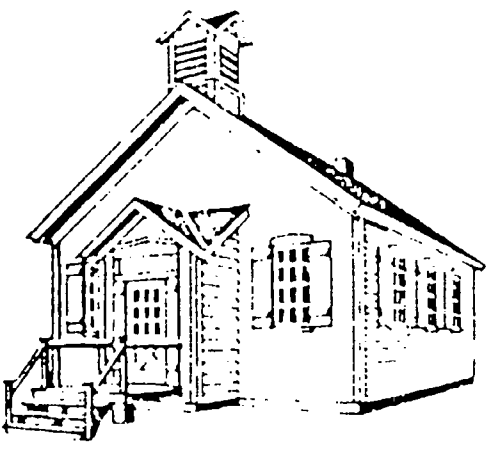
ABSTRACT

This manual provides suggestions for implementing a school improvement process using selected program and content areas from the Michigan State Board of Education-approved K-12 Program Standards of Quality. The suggestions were made by school district staffs that took part in the field test of the document during the 1983-84 school year. The first section outlines nine steps for implementing the standards: (1) establish a school improvement committee, (2) define an effective school, (3) analyze student performance, (4) analyze the school program, (5) select areas for attention, (6) develop a school improvement plan of action, (7) monitor the implementation, (8) evaluate the results, and (9) recycle (i.e., re-evaluate continuously). Thereafter, five chapters present the following instruments: (1) a checklist for determining areas to be studied, (2) directions for completing the subsequent survey, (3) directions for surveying teachers' perceptions of overall student achievement, (4) directions for determining desirability by staff of program standards, and (5) a sample of completed standards and recommendations. (TE)

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# Using Michigan K-12 Program Standards of Quality For School Improvement Planning



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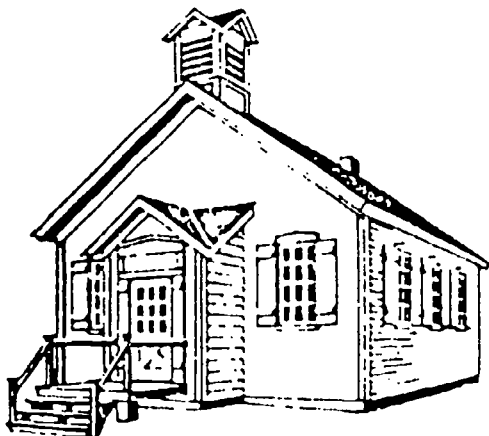


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# Using Michigan K-12 Program Standards of Quality For School Improvement Planning



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# Foreword

It is with pleasure that I share with you information regarding how the State Board of Education-approved K-12 Program Standards of Quality were used at Utica Community Schools as a foundation for their long-range planning.

The Utica Community Schools participated in the 1983-84 field testing of the document. Special appreciation is given to Superintendent Donald L. Bemis and Barbara Markle, Principal of Shelby Junior High School and coordinator of the project.

Interested teachers and administrators in the school district volunteered to serve on committees in specific content areas. This involvement became the most interesting aspect of planning for school improvement. The committees worked to develop additional surveys and checklists to make the process more valuable to them.

It is hoped that the checklists will be useful as you utilize the Michigan K-12 Program Standards of Quality in your school improvement efforts.

Instruments which each content area committee developed are included in this document as follows.

## **Chapter 1**

Determining Areas to be Studied

## **Chapter 2**

Directions for Completing Survey

## **Chapter 3**

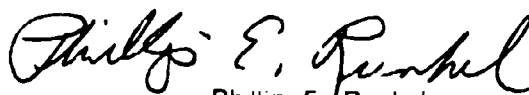
Surveying Teachers' Perceptions of Overall Student Achievement

## **Chapter 4**

Determining Desirability by Staff of Program Standards

## **Chapter 5**

Sample of Completed Standards and Recommendations



Phillip E. Runkel  
Superintendent of  
Public Instruction

The purpose of this booklet is to provide school districts with suggestions for implementing a School Improvement Process using selected program and content areas from the Standards of Quality document. The suggestions were made by school district staffs that took part in the field test of the document during the 1983-84 school year.

## **STEP I. Establish a School Improvement Committee.**

### **A. Build support for the School Improvement Process.**

Prior to beginning the implementation phase of the process, the local board of education, the teachers' association, and the administration should indicate their willingness to support a curriculum assessment through the use of the Standards of Quality and the establishment of a three to five-year School Improvement Plan.

### **B. Establish structure of School Improvement Committee.**

A School Improvement Committee should be established to direct the curriculum study. In some districts, the committee may be the group which actually assesses each particular area. In larger districts, the School Improvement Committee may serve as a committee with separate subcommittees reviewing particular areas.

Regardless of the function of the School Improvement Committee, a chairperson should be designated to assume responsibility for the coordination of the study. It is important that the coordinator involved in the project explain the purpose of the Standards of Quality and how it will be used to assess the curriculum.

### **C. Insure wide representation.**

The committee should include administrators, teachers, parents, students, board members and community representatives. It is important that content specialists, such as mathematics teachers (elementary and secondary), be included on the committee studying those areas

It is recommended that the committee function as an ad hoc committee and not as a standing curriculum committee which may have other responsibilities.

### **D. Clarify the purpose for the use of the Standards of Quality document.**

The Standards of Quality document is designed to assist school districts in a self-assessment of their instructional program. Districts may select from eighteen policy, content and program areas that they wish to study. Following the assessment phase of the study, committees may make recommendations which would then become part of the total School Improvement Plan.

### **E. Define group process procedures.**

The School Improvement Committee should determine the procedures under which it will function. For example, the committee members should decide on procedures such as how decisions will be made (by consensus or vote), and how particular committee responsibilities will be designated.

**F. Select areas to assess.**

The School Improvement Committee should determine the areas to be studied through a survey (see Chapter 1 for sample survey) of teachers and principals and/or through the Committee's discussion. In doing so, the Committee should consider time, staff and funding to complete the assessment process. It is advisable not to select areas which have been recently assessed through other means.

**G. Plan for communication among people involved.**

An agenda should be prepared for each committee meeting with a definite task and time limit. If possible, committee members should have an opportunity to review information beforehand.

After the purpose of the Standards of Quality has been clarified and the committee structure determined (Part I), the work of the committee(s) begins. Once the areas for study have been selected, the School Improvement Committee guides its subcommittees to start the curriculum assessment process.

The goal of the sub-committees is to study the subject or program through various methods of assessment, to determine priorities in the curriculum, to acknowledge strengths in the curriculum, and make recommendations.

## **STEP II. Define an Effective School.**

**A. Review available information.**

The first step in the process of assessing a particular content area is to review all information relating to the area under study. If the committee, for example, is studying mathematics in grades K-12, then the committee should review the following information in regard to mathematics:

1. Review Michigan Common Goals.
2. Review local Board of Education goals and priorities.
3. Review local Board of Education or local school minimum student performance standards.

Each of these subsections can be reviewed for each content area studied. For example, Michigan Common Goals are available for most areas, but specific Board of Education goals and priorities may vary for specific subject areas. The amount of information regarding students' level of mastery will also vary by subject area. The school district's curriculum for the area and grade level(s) under study should also be reviewed.

**B. Review the standards.**

After the information has been reviewed, the committee should begin the study of the individual standards

The committee studying a particular section of standards should first review each of the characteristics carefully and come to a mutual understanding of the intent of each of the proposed standards.

The committee may choose to modify the criteria by adding new statements, by rewording existing statements, or by deleting statements. By doing so, the standards will most clearly reflect the committee's goals.

A rating scale can be used to determine how desirable school staff believe each of the individual criterion are. (See Chapter 2 for the rating scale.)

C. Determine the desirability of each standard.

After the standards have been reviewed and discussed, the committee should select a method for determining the desirability of each of the characteristics. The committee, after reaching consensus, can make a judgment regarding the desirability of each standard.

Another option for determining desirability is to survey school personnel responsible for the subject or program area under study. The desirability for each standard can be determined by the majority response. Under either method, it is important to keep in mind the current curriculum as well as the goals and priorities of the local school district. It should be noted that, as the Standards of Quality assessment develops, the committee may wish to change some of the original desirability ratings.

### **STEP III. Analyze Student Performance.**

A major aspect of the assessment process is the design, administration and evaluation of a survey of teacher perception of student achievement for the area under study. The survey results are evaluated by the committee along with the review of test scores, local expectations and other pertinent information. A more detailed explanation follows regarding how each of these factors affects the achievement rating.

A. Development of the Teacher Perception of Student Achievement Survey.

In order to supplement available test information and respond to particular standards not measured through testing, a Teacher Perception of Student Achievement should be designed for the areas under study. The major purpose of the survey is to provide the Standards of Quality Committee with current information regarding how the teachers assess student achievement in relationship to the standards.

Another benefit of the survey is that it provides each teacher in the area under study some input into the assessment process.

In addition, the local district may include survey questions which are not directly related to the standards but will supply information for future curricular planning.

- 1 The subcommittee should develop a survey from the following:
  - (a) Local school district curriculum (scope and sequence, curriculum guides, etc.)
  - (b) Michigan Minimal Performance Objectives (if applicable)
  - (c) Michigan Common Goals
  - (d) Other sources.
- 2 Items written for the survey should refer to particular standards. (See Chapter 3 for sample surveys.)
- 3 Teachers should respond to the survey based on their overall assessment of how students should achieve during the entire school year, rather than at a particular point (See Chapter 4 for a sample letter to the teachers, describing how to complete the survey.)



4. The survey can be administered to teachers in specific grade level(s) or teachers K-12 teaching the subject under study.
5. The results of the survey should be analyzed to determine continuity in the curriculum.

**B. Use of test scores.**

MEAP scores for grades 4, 7 and 10 in reading and mathematics and standardized test results may be used. Each year, the Michigan Department of Education conducts a workshop on the use of MEAP results in improving the instructional program.

District-wide average test scores, which correlate with the major strands of learning in the teacher survey or with the standards themselves, should be used as one factor in assessing the achievement component of the standards.

**C. Local expectations.**

The committee should also assess the results of the teacher survey and test data in relationship to the expectations of the local school district.

**D. Determining strengths and weaknesses.**

After the review has been completed, list the strengths and weaknesses regarding student performance in each of the areas that had been reviewed.

Determine the indicators that will be used to determine levels of student performance.

## **STEP IV. Analyze the School Program.**

- A. Rate each of the characteristics within the document, focusing on the areas selected previously, judging the degree to which the characteristic has been attained.**

Compare the items identified as being desirable (from Step II) with the "attainment" levels to determine the area in which there is a difference between what is desired and what is thought to exist.

The committee should also assess the results of the ratings in relationship to curricular goals and the expectations of the local school district in determining the achievement of specific standards in the areas under study.

The final step in the assessment process is to compare the ratings for school program desirability and achievement in order to identify curriculum strengths and weaknesses.

1. Areas of strength in the curriculum can be identified through the rating of standards where both desirability and achievement are high or where the achievement rating exceeds the desirability rating.
2. Areas in need of improvement can be identified through the rating of standards when the desirability exceeds the achievement.

After the review has been completed, list the strengths and weaknesses in each of the areas that had been reviewed.

## **STEP V. Select Areas for Attention.**

- A. List the major areas of weakness in student performance from Step III.
- B. List the major area of weakness in the school program from Step IV.
- C. Describe the major areas to be targeted for attention.
- D. Describe the major area of strength and develop a plan to have the strengths recognized by the school staff and the community.

## **STEP VI. Develop a School Improvement Plan of Action.**

The committee can assess the curriculum through the comparison indicated in Section A, Step IV. In areas designated "in need of improvement," the committee can indicate recommendations based on their expertise as well as information gained through the assessment process. These recommendations can be submitted to the School Improvement Committee for inclusion in the School Improvement Plan. (See Chapter 5 for sample curriculum assessment and recommendations.)

## **STEP VII. Monitor the Implementation.**

- A. Based upon the target date listed in Step VI, monitor the school improvement plan to determine if the actions described have been accomplished.
- B. If the described actions have not been accomplished, identify the steps which will be taken to accomplish those actions.

## **STEP VIII. Evaluate the Results.**

- A. Repeat Step III to determine if there has been a change in student performance.
- B. Repeat Step IV to determine if there has been a change in the school program.

## **STEP IX. Recycle.**

Because the school curriculum is constantly changing, it should be examined continuously, using this school improvement process.

# Chapter 1

## Determining Areas To Be Studied

Dear Professional Staff:

An aspect of the Standards of Quality Program is to survey the way time is allocated to each subject at the elementary level. The purpose of the survey is to get a general district-wide average of time on task or the amount of time *students* spend on particular subjects each day, *not* including work done at home. Each elementary teacher is asked to complete the following information for each subject area.

Although every subject may not be taught every day, please indicate the number of minutes your students spend on each area during the school day, the number of days of instruction for the subject per week and the total number of minutes per week. Do not include the amount of time students spend on their work at home.

For special units (i.e. drug education, etc.), indicate how many days are spent on the units and the amount of time per day devoted to the special unit.

The time allocation for each subject will be averaged for each grade by your principal. The building averages for each grade level will be averaged with the other elementaries to produce a system-wide grade average.

Thank you for your assistance in completing this survey.

Grade Level \_\_\_\_\_

	Number of minutes per day	Days per week	Total minutes per week
Attendance, announcements and classroom organizational duties	_____	_____	_____
<b>Subject Area Taught:</b>			
Communication Skills			
Reading	_____	_____	_____
Handwriting	_____	_____	_____
Spelling	_____	_____	_____
Language	_____	_____	_____
Mathematics	_____	_____	_____
Science	_____	_____	_____
Social Studies	_____	_____	_____
Research Center Class	_____	_____	_____
Art	_____	_____	_____
Gym	_____	_____	_____
Vocal Music	_____	_____	_____

<b>Subject Area Taught:</b>	<b>Number of minutes per day</b>	<b>Days per week</b>	<b>Total minutes per week</b>
Band	_____	_____	_____
Computer Literacy	_____	_____	_____
Recess	_____	_____	_____

**Special units of study taught each year but not every month:**

<b>Special Units:</b>	<b>Number of days</b>	<b>Time per day</b>
Drug Education	_____	_____
Careers	_____	_____
Food Units	_____	_____
Environmental Education	_____	_____
Foreign Language	_____	_____
Health and Safety	_____	_____
Michigan History	_____	_____
_____	_____	_____
_____	_____	_____

Comments or suggestions \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# Standards of Quality in Michigan Education Counselor Perceived Student Understanding Levels

Please read each program item. Circle the grade response level for each item. MAKE ASSESSMENTS OF STUDENTS AT THE GRADE LEVELS YOU ARE PRESENTLY ASSIGNED.

**Response Level Code:**

- 1. Few students
- 2. Some students
- 3. Most students

**RESPONSE LEVEL (CIRCLE CHOICE)**

PROGRAM ITEM	7	8	9	10	11	12
<b>A. Do students know where to receive:</b>						
1. In-school personal counseling services	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
2. Community referrals	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
3. Scheduling information	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
4. Schedule changes	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
5. Cumulative record information	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
6. Career exploration information	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
7. Job market trend information	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
8. Alternate/adult education information	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
9. Post-high school planning information	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
10. Post-high school financial aid inform.	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
<b>B. Do students understand:</b>						
1. The role of the counselor	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
2. Curriculum and course offerings	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
3. Standardized test results in relationship to their abilities	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
4. School policies and procedures	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
5. Graduation requirements	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
6. Post-high school education/training requirements	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
<b>C. Have students developed:</b>						
1. Skills to get along with others	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
2. Decision-making skills	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
3. Realistic personal goals	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
4. Job-seeking skills	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
5. Problem-solving skills	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
6. A high school plan of study	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
7. Realistic self-understandings	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
8. A career choice	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
<b>D. Do students perceive counselors.</b>						
1. As facilitators of guidance information in the regular classroom	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
2. As disciplinarians	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
3. As too busy to see them	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3

# Chapter 2

## Directions for Completing Survey

Dear Professional Staff Member,

The Schools are engaged in a broad-based evaluation of ten curriculum areas through the Standards of Quality Project. More than one hundred teachers and administrators are members of separate content committees studying some subjects in the curriculum and comparing these areas to curriculum standards currently being field-tested throughout Michigan.

In order to accurately evaluate the curriculum for math, we need your input in the attached survey. The purpose of the *anonymous* survey is to get *your opinion* of the level of *your students'* achievement in the items presented. Areas in which teachers indicate high student achievement will be highlighted as areas of strengths in the curriculum. Areas in which the staff indicates low achievement will be targeted for future study.

As you complete the survey, please keep the following in mind:

1. Your answers are your impressions of student achievement in the specific subject area and should be rated as high (H), moderate (M), or low (L). Please try to make a judgment about each item.
2. The response N/A means "not applicable." It should be used as an answer only when the question is not applicable to the grade level you teach.
3. Consider and respond to each item in terms of the grade level of *your* students.
4. Unless otherwise indicated, you should consider the average students in your class(es) when making your judgment.

Thank you for your time and effort in this survey. Your help will assist in the improvement of our curriculum.

Sincerely,

The Math Committee  
Program Standards of Quality

# Chapter 3

## Surveying Teachers' Perceptions of Overall Student Achievement

### COMMUNICATION SKILLS SURVEY Elementary Level (K-6)

1. Please circle the grade you teach: (If you teach a split, circle both grades).

K      1      2      3      4      5      6

2. Years of experience at *this* grade level \_\_\_\_\_

3. Total years of total teaching experience \_\_\_\_\_

4. Do you teach special education? YES  NO

#### DIRECTIONS:

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class. Rate each item as high (H), moderate (M) or low (L). Use N/A if the item is not applicable to your grade level. Circle your desired response.

#### What is your opinion of student achievement in the following areas?

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. How well do your students follow directions?  | H | M | L | N/A |
| 2. How well do your students organize materials?   | H | M | L | N/A |
| 3. How do you rate your students' study skills as they pertain to communication skills?  | H | M | L | N/A |
| 4. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |
| 5. To what extent do you use peer-tutoring and/or cross-age tutoring as an alternative teaching strategy?  | H | M | L | N/A |
| 6. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?                             | H | M | L | N/A |

#### K-6 READING:

#### To what extent do you believe your students achieve in the following areas?

- |  |   |   |   |     |
|--|---|---|---|-----|
| 7. Recognize words through phonetic, structural and contextual analysis? | H | M | L | N/A |
| 8. Apply comprehension skills, both literal and inferential?             | H | M | L | N/A |
| 9. Use study skills through content type materials?                      | H | M | L | N/A |

- |   |   |   |   |     |
|---|---|---|---|-----|
| 10. Apply reading skills through practice and reinforcement in all content area material? | H | M | L | N/A |
|---|---|---|---|-----|

**To what extent do you believe your students have the opportunity to?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 11. Share reading experiences with others?                   | H | M | L | N/A |
| 12. Read independently and self-select reading material?     | H | M | L | N/A |
| 13. Reinforce reading experiences for a variety of purposes? | H | M | L | N/A |

**K-6 WRITING:**

**To what extent do your students achieve in the following areas?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 14. Organize their thoughts into written expression?   | H | M | L | N/A |
| 15. Write in a variety of styles and for a variety of audiences, such as school newspaper, research papers, journals, letters? | H | M | L | N/A |
| 16. Apply the mechanics of writing, editing and word usage?  | H | M | L | N/A |
| 17. Evaluate, clarify and develop their writing through revision?  | H | M | L | N/A |

**To what extent do you believe your students have the opportunity to?**

- |   |   |   |   |     |
|---|---|---|---|-----|
| 18. Write on a daily basis?   | H | M | L | N/A |
| 19. Gain experience in using the mechanics of writing, editing and word usage?      | H | M | L | N/A |
| 20. Share their writing with others?  | H | M | L | N/A |
| 21. Write for a variety of purposes and audiences, such as letters, journals, etc.? | H | M | L | N/A |
| 22. Use writing in the study of subjects other than language arts?                  | H | M | L | N/A |

**K-6 SPEAKING:**

**To what extent do your students achieve in the following areas?**

- |   |   |   |   |     |
|---|---|---|---|-----|
| 23. Articulate words in standard English to express thoughts? | H | M | L | N/A |
| 24. Recite in distinctive and expressive speech?              | H | M | L | N/A |
| 25. Converse and express opinions in group discussions?       | H | M | L | N/A |

**To what extent do your students have the opportunity to?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 26. Participate in creative speaking activities, such as creative dramatics and role playings? | H | M | L | N/A |
| 27. Speak for a variety of purposes such as reports, show and tell, class discussion?          | H | M | L | N/A |



## K-6 LISTENING:

To what extent do your students achieve in the following areas?

- |  |   |   |   |     |
|--|---|---|---|-----|
| 28. Listen to a variety of spoken messages such as dictated lists, oral presentations, simple commands, i.e. "sit down," "be quiet," "not now," etc. | H | M | L | N/A |
| 29. Understand the meaning of spoken messages such as <i>following</i> directions, notetaking, the main idea of a story presented orally, etc.?      | H | M | L | N/A |
| 30. Listen critically to a variety of instructional presentations such as lectures, films, etc.?   | H | M | L | N/A |

To what extent do your students have the opportunity to?

- |  |   |   |   |     |
|--|---|---|---|-----|
| 31. Recall information presented orally?   | H | M | L | N/A |
| 32. Identify/describe the main story line or sequence of events of a story presented orally? | H | M | L | N/A |

## COMMUNICATION SKILLS SURVEY Junior High School Level

Please circle the grade level which constitutes the majority of your teaching assignment. If a tie, select the higher grade.

7                      8                      9

Years of experience at *this* grade level \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

Sex: Male  Female

### DIRECTIONS:

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) or low (L). Use N/A if the statement is not applicable to your grade level.

What is your opinion of student achievement in the following areas?

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. How well do your students follow directions?  | H | M | L | N/A |
| 2. How well do your students organize materials?   | H | M | L | N/A |
| 3. How do you rate your students' study skills as they pertain to English?   | H | M | L | N/A |
| 4. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |

- |  |   |   |   |     |
|--|---|---|---|-----|
| 5. To what extent do you see peer-tutoring, and/or cross-age tutoring as an alternative teaching strategy?   | H | M | L | N/A |
| 6. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests? | H | M | L | N/A |

**THE 7-9 READING COMPONENT OF THE ENGLISH PROGRAM:**

**To what extent do you believe your students achieve in the following areas?**

- |   |   |   |   |     |
|---|---|---|---|-----|
| 7. Skim, scan and adjust reading speed to the purpose?        | H | M | L | N/A |
| 8. Apply their reading skills in literature in related areas? | H | M | L | N/A |
| 9. Recognize words using a variety of methods?                | H | M | L | N/A |
| 10. Apply comprehension skills both literal and inferential?  | H | M | L | N/A |

**To what extent do you believe your students have the opportunity to?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 11. Share outside reading experiences with others?   | H | M | L | N/A |
| 12. Select and read a wide variety of books and other materials that includes classic, adolescent, and multicultural literature?         | H | M | L | N/A |
| 13. Reinforce reading experiences for a variety of purposes such as recreational reading, fact finding, and/or studying?                 | H | M | L | N/A |
| 14. Participate in advanced and improved reading skill courses including study skills, speed reading, functional reading and literature. | H | M | L | N/A |

**THE 7-9 WRITING COMPONENT OF THE ENGLISH PROGRAM:**

**To what extent do you believe your students achieve in the following areas?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 15. Organize their thoughts into a written expression?                               | H | M | L | N/A |
| 16. Use the mechanics of writing, editing and word usage?                            | H | M | L | N/A |
| 17. Discover with experimentation their own voice, audience and purpose for writing? | H | M | L | N/A |
| 18. Evaluate, clarify and develop their writing through revision?                    | H | M | L | N/A |
| 19. Use the evaluation of teachers to improve writing skills?                        | H | M | L | N/A |

**To what extent do you believe your students have the opportunity to?**

- |   |   |   |   |     |
|---|---|---|---|-----|
| 20. Write on a regular daily basis?   | H | M | L | N/A |
| 21. Gain experience in using the mechanics of writing, editing and word usage?                                  | H | M | L | N/A |
| 22. Share their writing with others?  | H | M | L | N/A |
| 23. Write for a variety of purposes such as creative writing, report writing, essays, and journalistic writing? | H | M | L | N/A |

## THE 7-9 LISTENING COMPONENT OF THE ENGLISH PROGRAM:

To what extent do you believe your students achieve in the following areas?

24. Listen for a variety of purposes such as note taking, following directions and receiving information? H M L N/A
25. Understand the meaning of spoken messages such as lectures, directions, media presentations? H M L N/A

To what extent do you believe your students have the opportunity to?

26. Identify/describe the main story line or sequence of events of a story or event presented orally? H M L N/A
27. Identify the most appropriate summary of a selection presented orally? H M L N/A

## THE 7-9 SPEAKING COMPONENT OF THE ENGLISH PROGRAM:

To what extent do you believe your students achieve in the following areas?

28. Articulate words in standard English to express thoughts? H M L N/A
29. Recite in distinctive and expressive speech? H M L N/A
30. Converse and express opinions in group discussions? H M L N/A

To what extent do you believe your students have the opportunity to?

31. Participate in creative speaking activities such as creative dramatics and role playing? H M L N/A
32. Speak for a variety of purposes such as reports and class discussion? H M L N/A

## COMMUNICATION SKILLS SURVEY Senior High School Level

Please circle the grade level which constitutes the majority of the students in your classes.

9                      10                      11                      12

Years of experience teaching high school English \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

### DIRECTIONS:

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) or low (L). Use N/A if the item is not applicable to your grade level.

What is your opinion of student achievement in the following areas?

1. How well do your students follow directions? H M L N/A

2. How well do your students organize materials?	H	M	L	N/A
3. How do you rate your students' study skills as they pertain to English?	H	M	L	N/A
4. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned?	H	M	L	N/A
5. To what extent do you use peer-tutoring and/or cross-age tutoring as an alternative teaching strategy?	H	M	L	N/A
6. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?	H	M	L	N/A

**The reading component of the English program:**

7. How well can your students skim, scan and adjust their reading speed to purpose?	H	M	L	N/A
8. To what degree do your students use a variety of methods to attack and/or recognize words?	H	M	L	N/A
9. To what degree do your students apply both literal and inferential comprehension skills to their reading?	H	M	L	N/A
10. How well do your students apply their reading skills in all literature and class related materials?	H	M	L	N/A
11. To what degree do your students have an opportunity to select and read a wide variety of books and other materials that include classic, adolescent and multicultural literature?	H	M	L	N/A
12. What is the availability of advanced and improved reading skill courses including study skills, speed reading, functional reading and literature?	H	M	L	N/A
13. What opportunity do your students have to reinforce their reading experiences for a variety of purposes, such as recreational reading, fact finding and/or study?	H	M	L	N/A

**The writing component of the English program:**

14. How well do your students use all the stages of the composing process				
a. Pre writing stimulus	H	M	L	N/A
b. Writing	H	M	L	N/A
c. Revision	H	M	L	N/A
15. To what extent do your students use the evaluation of peers and or teachers to improve their writing skills?	H	M	L	N/A
16. How well do your students use correct usage and mechanics in their writing?	H	M	L	N/A

- |  |   |   |   |     |
|--|---|---|---|-----|
| 17. To what extent are your students able to share their writing with others?  | H | M | L | N/A |
| 18. What is the availability of advanced writing courses?  | H | M | L | N/A |
| 19. To what extent do your students write for a variety of purposes, such as creative writing, report writing, essays, and journalistic writing? | H | M | L | N/A |

**The listening component of the English program:**

- |   |   |   |   |     |
|---|---|---|---|-----|
| 20. How well do your students listen for a variety of purposes, such as notetaking, following directions, reviewing information, etc.           | H | M | L | N/A |
| 21. How well do your students understand the meaning of spoken messages, such as lectures, directions and media presentation?                   | H | M | L | N/A |
| 22. To what extent are your students able to identify/ describe the main story line or sequence of events of a story or event presented orally? | H | M | L | N/A |
| 23. How well are your students able to identify the most appropriate summary of a selection presented orally?                                   | H | M | L | N/A |

**The speaking component of the English program:**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 24. To what extent do your students recite in distinctive and expressive speech?   | H | M | L | N/A |
| 25. To what extent do your students have a chance to converse and express opinions in group discussions?                 | H | M | L | N/A |
| 26. How often may your students participate in creative speaking activities such as creative dramatics and role playing? | H | M | L | N/A |
| 27. What is the availability of advanced speech courses, including forensics?  | H | M | L | N/A |

**The language and literature component of the English program:**

- |   |   |   |   |     |
|---|---|---|---|-----|
| 28. How aware are your students of the history and structure of the English language?   | H | M | L | N/A |
| 29. To what extent is instruction in literature directed primarily at improving students' reading?  | H | M | L | N/A |
| 30. To what extent do your students have an opportunity to appreciate literature by understanding its form, structure, genre and history? | H | M | L | N/A |

**Instructional materials:**

- 31. What is the availability of a variety of multi-level reading materials and other media for students, including literature, practical information and newspapers to reinforce listening, speaking, reading and writing skills? H M L N/A
- 32. How available is a balanced selection of independent reading materials including the classics in the classroom or building? H M L N/A

**FOREIGN LANGUAGE STRANDS**

Please circle the number corresponding to the subject you teach. If you teach more than one area, circle the number corresponding to the majority of your assignment:

- |                                       |                |
|---------------------------------------|----------------|
| 1. Seventh grade Exploratory Language | 8. Spanish II  |
| 2. Eighth grade Exploratory Language  | 9. Spanish III |
| 3. French I                           | 10. Spanish IV |
| 4. French II                          | 11. German I   |
| 5. French III                         | 12. German II  |
| 6. French IV                          | 13. German III |
| 7. Spanish I                          | 14. German IV  |

Years of experience teaching this subject/language \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

**DIRECTIONS:**

As you respond to the items, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) or low (L) Use N/A if the statement is not applicable to your level.

**What is your perception of student achievement in the following areas?**

- I. How do you assess your students:
  - A Skills of listening. H M L N/A
  - B Skills of speaking. H M L N/A
  - C. Stress and intonation patterns. H M L N/A
  - D Ability to speak with a diversity of contexts:
    - 1 Reading aloud. H M L N/A
    - 2 Answering questions. H M L N/A
    - 3 Conversation. H M L N/A
    - 4 Presenting one's own ideas or informational accounts. H M L N/A
  - E Skills of reading. H M L N/A
  - F Skills of writing. H M L N/A

G.	The use of gestures.	H	M	L	N/A
H.	Ability to use a vocabulary in context.	H	M	L	N/A
I.	Ability to use a bilingual dictionary.	H	M	L	N/A
J.	Knowledge of the cultural features of the people who speak/spoke the foreign language.	H	M	L	N/A
K.	Skills in grammar and syntax.	H	M	L	N/A
L.	Analytical skills.	H	M	L	N/A
M.	Memorization techniques.	H	M	L	N/A
II.	To what degree have your students been provided with an opportunity to:				
A.	Learn about the following achievements of the relevant country:				
1.	Historical.	H	M	L	N/A
2.	Political.	H	M	L	N/A
3.	Artistic.	H	M	L	N/A
B.	Learn about current events in the relevant country.	H	M	L	N/A
C.	Learn about the contemporary life in the relevant country.	H	M	L	N/A
D.	Learn idiomatic expressions.	H	M	L	N/A
E.	Read the literature of the language.	H	M	L	N/A
F.	Learn about career opportunities for which the language is essential or highly desirable.	H	M	L	N/A
G.	Learn of the importance of foreign language in today's world.	H	M	L	N/A
H.	Engage in extracurricular activities involving the use of the language.	H	M	L	N/A
I.	Have contact with individuals and/or institutions in the appropriate country.	H	M	L	N/A
III.	To what degree have students in grades K-6 been provided with an opportunity to.				
A.	Participate on a regular basis in foreign language activities during the school day.	H	M	L	N/A
B.	Participate in foreign language enrichment activities after school	H	M	L	N/A
IV.	To what degree are students in grades 7-8 permitted to select Exploratory Language				
A.	How do you assess your Exploratory Language students:				
1.	Skills of listening	H	M	L	N/A

2. Skills of speaking.	H	M	L	N/A
3. Skills of reading.	H	M	L	N/A
4. Skills of writing.	H	M	L	N/A
5. Culture of the respective countries.	H	M	L	N/A
<b>V. To what degree is equipment:</b>				
A. Available to monitor individual student performance.	H	M	L	N/A
B. Able to allow students to listen and respond to recordings in the foreign language.	H	M	L	N/A
<b>VI. To what degree are the following provided:</b>				
A. Adequate textbooks.	H	M	L	N/A
B. Workbooks.	H	M	L	N/A
C. Dictionaries.	H	M	L	N/A
D. Supplementary materials:				
1. Current periodicals.	H	M	L	N/A
2. Recordings.	H	M	L	N/A
3. Films.	H	M	L	N/A
4. Realia from language community.	H	M	L	N/A

## MATHEMATICS SURVEY

### ELEMENTARY TEACHERS:

Please circle the grade you teach: (if you teach a split, circle both grades).

K      1      2      3      4      5      6

### SECONDARY TEACHERS:

Please circle the number of the class which constitutes the *majority* of the classes you teach. If a tie, circle the higher grade.

### JUNIOR HIGH:

- |             |                                 |
|-------------|---------------------------------|
| 1. 7th Math | 3. 9th Introductory Algebra (A) |
| 2. 8th Math | 4. 9th Algebra I                |

### SENIOR HIGH:

- |                                  |                                |
|----------------------------------|--------------------------------|
| 5. Introductory Algebra (B)      | 10. Algebra II                 |
| 6. Introductory Geometry (C)     | 11. Trigonometry               |
| 7. Introductory Trigonometry (D) | 12. Analytical Geometry        |
| 8. Algebra I                     | 13. Pre-Calculus               |
| 9. Geometry I                    | 14. Computer Science           |
|                                  | 15. Practical Algebra-Geometry |



Do you teach special education? Elementary  Junior High  Senior High

**ALL TEACHERS:**

Years of experience at this grade or subject level \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

Sex: Male  Female

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) or low (L). Use N/A if the statement is not applicable to your grade level.

**What is your opinion of student achievement in the following areas?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. How well do your students follow directions?  | H | M | L | N/A |
| 2. How well do your students organize materials?   | H | M | L | N/A |
| 3. How do you rate your students' reading skills that pertain to math?   | H | M | L | N/A |
| 4. How do you rate your students' study skills as they pertain to math?  | H | M | L | N/A |
| 5. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |
| 6. To what extent do you use peer-tutoring, and/or cross-age tutoring as an alternative teaching strategy?   | H | M | L | N/A |
| 7. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?                             | H | M | L | N/A |

**To what extent do your students achieve in the following areas?**

- |                            |   |   |   |     |
|----------------------------|---|---|---|-----|
| 8. Whole numbers:          |   |   |   |     |
| a. Place value.            | H | M | L | N/A |
| b. Addition                | H | M | L | N/A |
| c. Subtraction.            | H | M | L | N/A |
| d. Multiplication.         | H | M | L | N/A |
| e. Division                | H | M | L | N/A |
| f. Rounding whole numbers. | H | M | L | N/A |
| 9. Fractions               |   |   |   |     |
| a. Recognizing             | H | M | L | N/A |
| b. Equivalence             | H | M | L | N/A |
| c. Addition                | H | M | L | N/A |
| d. Subtraction             | H | M | L | N/A |
| e. Multiplication.         | H | M | L | N/A |
| f. Division                | H | M | L | N/A |

10. Decimals:				
a. Place value.	H	M	L	N/A
b. Addition.	H	M	L	N/A
c. Subtraction.	H	M	L	N/A
d. Multiplication.	H	M	L	N/A
e. Division.	H	M	L	N/A
f. Conversion of decimals to fractions and fractions to decimals.	H	M	L	N/A
g. Rounding decimals.	H	M	L	N/A
11. Ratios and Proportions:				
a. Working with ratios.	H	M	L	N/A
b. Working with proportions.	H	M	L	N/A
12. Percents:				
a. Conversion of decimals to percents and percents to decimals.	H	M	L	N/A
b. Finding (calculating) percents.	H	M	L	N/A
13. Integers:				
a. Recognizing a negative number.	H	M	L	N/A
b. Addition	H	M	L	N/A
c. Subtraction.	H	M	L	N/A
d. Multiplication.	H	M	L	N/A
e. Division.	H	M	L	N/A
14. Problem solving:				
To what extent do you think students are able to:				
a. Choose the appropriate operation or relationship in solving a problem.	H	M	L	N/A
b. Translate oral or printed information into mathematical symbols or sentences.	H	M	L	N/A
c. Make up a real-life situation to fit a given mathematical sentence or model.	H	M	L	N/A
d. Select or apply strategies that may be used to solve a given problem.	H	M	L	N/A
e. Give a reasonable estimate to a given problem.	H	M	L	N/A
f. Give a reasonable solution to a given problem.	H	M	L	N/A
15. How do you assess your students' ability in figuring or using measurement?				
a. Linear.	H	M	L	N/A
b. Area.	H	M	L	N/A
c. Volume	H	M	L	N/A
d. Time	H	M	L	N/A
e. Money	H	M	L	N/A
f. Temperature.	H	M	L	N/A

16. How do you assess your students' ability to use metric units of measurement?
- a. Weight. H M L N/A
- b. Linear. H M L N/A
17. Geometry:
- a. Identify geometric shapes. H M L N/A
- b. Characteristics of geometric figures. H M L N/A
- c. Construction of geometric shapes. H M L N/A
- d. Identify relationships between points and lines. H M L N/A
18. Proper mathematical vocabulary and symbols. H M L N/A
19. Picture drawing and use of objects in concept development. H M L N/A
20. Application of reading and study skills including practice and reinforcement. H M L N/A
21. Equations:
- a. Determine whether a number sentence is true or false. H M L N/A
- b. Supplying the missing number or symbol to make a sentence true. H M L N/A
- c. Reading and making graphs using coordinates. H M L N/A
- d. Solving and analyzing formulas and equations. H M L N/A
22. To what degree do you perceive your students' understanding of the importance of mathematics? H M L N/A
23. How do you assess your students' interest in mathematics according to sex?
- a. Male students. H M L N/A
- b. Female students. H M L N/A
24. Elementary teachers: Please indicate text used and copyright date: \_\_\_\_\_

**SCIENCE SURVEY  
Elementary Level (K-6)**

Please circle the grade you teach: (If you teach a split, please circle both grades).

K      1      2      3      4      5      6

Years of experience at this grade or subject level \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

Sex    Male                  Female

## DIRECTIONS:

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) or low (L). Use N/A if the statement is not applicable to your grade level.

### What is your opinion of student achievement in the following areas?

- |    |   |   |   |   |     |
|----|---|---|---|---|-----|
| 1  | How well do your students follow directions?  | H | M | L | N/A |
| 2. | How well do your students organize materials?   | H | M | L | N/A |
| 3. | How do you rate your students' reading skills that pertain to science?  | H | M | L | N/A |
| 4. | How do you rate your students' study skills as they pertain to science?   | H | M | L | N/A |
| 5. | To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |
| 6. | To what extent do you use peer-tutoring and/or cross-age tutoring as an alternative teaching strategy?  | H | M | L | N/A |
| 7. | To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?                             | H | M | L | N/A |
| 8  | How accurately do your students identify laboratory equipment used in your class?   | H | M | L | N/A |
| 9. | To what degree do your students get to use other instructional technology, such as audio-visual materials, video tapes, micro-computers, video-discs, etc.?                 | H | M | L | N/A |
| 10 | To what degree do your students have a chance to experience field trips, museum visits, school camping and outdoor laboratories?  | H | M | L | N/A |
| 11 | How well do your students use the scientific method?  | H | M | L | N/A |
| 12 | How well do your students take notes on lectures and printed materials on science?  | H | M | L | N/A |
| 13 | How well do your students understand and graph science data?  | H | M | L | N/A |
| 14 | What is the availability of computer use in your science classes?   | H | M | L | N/A |
| 15 | How well do your students use the following elements of the scientific method.  |   |   |   |     |
|    | a Observing or identifying the problem.   | H | M | L | N/A |
|    | b Formulating and using hypotheses.   | H | M | L | N/A |
|    | c Design experiments and control variables  | H | M | L | N/A |
|    | d Classifying, measuring, ordering and investigating scientific data  | H | M | L | N/A |

e. Interpreting scientific data.		H	M	L	N/A
f. Predicting, inferring and communicating results of experiments.		H	M	L	N/A
16. Attitudes and interests in science by sex:					
a. How would you describe your students' interest in science?					
	Female	H	M	L	N/A
	Male	H	M	L	N/A
b. How would you describe your students' awareness of the value of studying science?					
	Female	H	M	L	N/A
	Male	H	M	L	N/A
17. How well do your students relate science to their:					
a. Personal lives.		H	M	L	N/A
b. Society.		H	M	L	N/A
c. Environment.		H	M	L	N/A
18. How interested are your students in furthering science education in high school?					
	Female	H	M	L	N/A
	Male	H	M	L	N/A
19. How aware are your students of the occupational opportunities available in science?					
	Female	H	M	L	N/A
	Male	H	M	L	N/A
20. How well do your students understand the following <i>Earth Science</i> concepts:					
a. Weather and how it's caused.		H	M	L	N/A
b. Climate.		H	M	L	N/A
c. Atmosphere of the earth.		H	M	L	N/A
d. Changes in the earth such as earthquakes, volcanoes, etc.		H	M	L	N/A
e. Solar system and the relationship between sun, earth, moon, stars and planets.		H	M	L	N/A
f. Types of rocks.		H	M	L	N/A
g. Rock formations (rock cycle) such as sedimentary, metamorphic and igneous.		H	M	L	N/A
h. Oceanography.		H	M	L	N/A
i. Erosion of the earth due to ice, wind, water, etc.		H	M	L	N/A
j. Land forms and the changing earth's surface.		H	M	L	N/A
k. Geologic history of the earth.		H	M	L	N/A
l. Natural resources such as coal, oil, minerals, water.		H	M	L	N/A
m. Usage and pollution of natural resources.		H	M	L	N/A

21. How well do your students understand the following *Physical Science* concepts
- |  |   |   |   |     |
|--|---|---|---|-----|
| a. The structure of matter such as atoms, molecules, elements and compounds. | H | M | L | N/A |
| b. The states of matter such as liquids, solids and gases.                   | H | M | L | N/A |
| c. The reactions of matter such as acids, bases and salts.                   | H | M | L | N/A |
| d. Forms of energy such as electricity, heat, sound, light, etc.             | H | M | L | N/A |
| e. Simple machines such as gears, levers and pulleys.                        | H | M | L | N/A |
| f. Measurement of matter such as density, volume and mass.                   | H | M | L | N/A |
22. How well do your students understand the following *biological* concepts:
- |   |   |   |   |     |
|---|---|---|---|-----|
| a. The functions and systems of the human body such as digestion, respiration, nervous system, etc. | H | M | L | N/A |
| b. The structures of the human body such as the bones and muscles.                                  | H | M | L | N/A |
| c. Human senses such as hearing, taste, smell, etc.   | H | M | L | N/A |
| d. Cell growth and reproduction.  | H | M | L | N/A |
| e. Classification of plants by seeds, leaves, stems and flowers.                                    | H | M | L | N/A |
| f. Invertebrates — animals without backbones such as sponges, worms and insects.                    | H | M | L | N/A |
| g. Vertebrates — animals with backbones such as fish, reptiles, birds, mammals and amphibians.      | H | M | L | N/A |
| h. Heredity.  | H | M | L | N/A |
| i. Tobacco, alcohol and drugs.  | H | M | L | N/A |
| j. Importance of good nutrition.  | H | M | L | N/A |
| k. Ecology — animal-plant relationships.  | H | M | L | N/A |
| l. Environmental use and associated problems.   | H | M | L | N/A |

**SCIENCE SURVEY**  
**Secondary Level (7-12)**

Please circle the number of the class which constitutes the *majority* of the classes you teach. If a tie, circle the higher grade.

7            8            9            10            11            12

**JUNIOR HIGH:**

- |               |                        |
|---------------|------------------------|
| 1 7th Science | 3. 9th Biology I       |
| 2 8th Science | 4. 9th General Biology |

**SENIOR HIGH:**

- |                    |                        |
|--------------------|------------------------|
| 5 Biology I        | 11. Chemistry          |
| 6 Biology II       | 12. Physiology         |
| 7 Physical Science | 13. Consumer Chemistry |
| 8 Geo-Geography    | 14. Energy             |
| 9 Physics          | 15. Astronomy          |
| 10 Anthropology    |                        |

Years of experience at this subject level \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

Sex. Male  Female

**DIRECTIONS:**

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) and low (L). Use N/A if the statement is not applicable to your grade level.

**What is your opinion of student achievement in the following areas?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. How well do your students follow directions?  | H | M | L | N/A |
| 2. How well do your students organize materials?   | H | M | L | N/A |
| 3. How do you rate your students' reading skills that pertain to science?  | H | M | L | N/A |
| 4. How do you rate your students' study skills as they pertain to science?   | H | M | L | N/A |
| 5. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |
| 6. To what extent do you use peer-tutoring and/or cross-age tutoring as an alternative teaching strategy?  | H | M | L | N/A |
| 7. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?                             | H | M | L | N/A |
| 8. How accurately do your students identify laboratory equipment used in your class?   | H | M | L | N/A |
| 9. To what degree do your students get to use other instructional technology, such as audio-visual materials, video tapes, micro-computers, video-discs, etc.?                 | H | M | L | N/A |
| 10. To what degree do your students have a chance to experience field trips, museum visits, school camping and outdoor laboratories?   | H | M | L | N/A |
| 11. How well do your students use the scientific method?   | H | M | L | N/A |
| 12. How well do your students take notes on lectures and printed materials on science?   | H | M | L | N/A |
| 13. How well do your students understand and graph science data?   | H | M | L | N/A |
| 14. What is the availability of computer use in your science classes?  | H | M | L | N/A |

15. How well do your students use the following elements of the scientific method.
- |  |   |   |   |     |
|--|---|---|---|-----|
| a. Observing or identifying the problem.                               | H | M | L | N/A |
| b. Formulating and using hypotheses.                                   | H | M | L | N/A |
| c. Design experiments and control variables.                           | H | M | L | N/A |
| d. Classifying, measuring, ordering and investigating scientific data. | H | M | L | N/A |
| e. Interpreting scientific data.                                       | H | M | L | N/A |
| f. Predicting, inferring and communicating results of experiments.     | H | M | L | N/A |
16. Attitudes and interests in science by sex:
- |  |        |   |   |   |     |
|--|--------|---|---|---|-----|
| a. How would you describe your students' interest in science?                        |        |   |   |   |     |
|  | Female | H | M | L | N/A |
|  | Male   | H | M | L | N/A |
| b. How would you describe your students' awareness of the value of studying science? |        |   |   |   |     |
|  | Female | H | M | L | N/A |
|  | Male   | H | M | L | N/A |
17. How well do your students relate science to their:
- |                    |   |   |   |     |
|--------------------|---|---|---|-----|
| a. Personal lives. | H | M | L | N/A |
| b. Society.        | H | M | L | N/A |
| c. Environment.    | H | M | L | N/A |
18. How interested are your students in furthering science education in high school?
- |  |        |   |   |   |     |
|--|--------|---|---|---|-----|
|  | Female | H | M | L | N/A |
|  | Male   | H | M | L | N/A |
19. How aware are your students of the occupational opportunities available in science?
- |  |        |   |   |   |     |
|--|--------|---|---|---|-----|
|  | Female | H | M | L | N/A |
|  | Male   | H | M | L | N/A |

### SCIENCE SURVEY Biology Strands

#### DIRECTIONS:

The following strands are major topic areas in the study of *biology*. Please indicate *your opinion* of your students' understanding of each of the areas examined.

#### How well do your students understand the following *biology* concepts?

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. The nature and science of life.                             |   |   |   |     |
| a. The cell and its environment.                               | H | M | L | N/A |
| b. The structural and chemical bases of life (the life cycle). | H | M | L | N/A |
| c. Photosynthesis, respiration and cell energy.                | H | M | L | N/A |
| d. Nucleic acids and protein synthesis.                        | H | M | L | N/A |



2. Continuity of life.				
a. Cell growth and reproduction.	H	M	L	N/A
b. Heredity, genetic material, population.	H	M	L	N/A
c. Variation and diversity of life.	H	M	L	N/A
3. Classification of living material.				
a. Animal kingdom.	H	M	L	N/A
b. Plant kingdom.	H	M	L	N/A
c. Protist kingdom (bacteria, viruses).	H	M	L	N/A
4. Microbiology.				
a. Viruses, bacteria and infectious disease.	H	M	L	N/A
b. Protozoa, fungi and algae.	H	M	L	N/A
5. Multicellular Plants.				
a. Mosses, ferns and seed plants.	H	M	L	N/A
b. The leaf and its function.	H	M	L	N/A
c. Roots and stems.	H	M	L	N/A
d. Plant relationship with water and light.	H	M	L	N/A
e. Plant reproduction.	H	M	L	N/A
6. Invertebrates.				
a. Sponges.	H	M	L	N/A
b. Coelentrates (jelly-fish).	H	M	L	N/A
c. Worms.	H	M	L	N/A
d. Mollusks (clams) and Echinoderms (starfish).	H	M	L	N/A
e. Arthropods (insects).	H	M	L	N/A
7. Vertebrates.				
a. Fishes.	H	M	L	N/A
b. Amphibians.	H	M	L	N/A
c. Reptiles.	H	M	L	N/A
d. Birds.	H	M	L	N/A
e. Mammals.	H	M	L	N/A
8. Human Biology.				
a. Structure of human body.	H	M	L	N/A
b. Organization of human body.	H	M	L	N/A
c. Nutrition.	H	M	L	N/A
d. Excretion and transport.	H	M	L	N/A
e. Respiration and energy.	H	M	L	N/A
f. Nervous system and sense organs.	H	M	L	N/A
g. Tobacco, alcohol and drugs.	H	M	L	N/A
h. Body regulators.	H	M	L	N/A
i. Reproduction and development.	H	M	L	N/A

9. Ecological relationships.

- |   |   |   |   |     |
|---|---|---|---|-----|
| a. Ecology-plant and animal relationships (predator versus prey). | H | M | L | N/A |
| b. Ecosystem-producer, consumer and decomposer.                   | H | M | L | N/A |
| c. Biotic and abiotic communities.                                | H | M | L | N/A |
| d. Populations.   | H | M | L | N/A |
| e. Environmental use and associated problems.                     | H | M | L | N/A |

**SCIENCE SURVEY**  
**Earth Science Strands**

**DIRECTIONS:**

The following strands are major topic areas in the study of *earth science*. Please indicate *your opinion* of your students' understanding of each of the areas examined.

**How well do your students understand the following *earth science* concepts?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. Study of the composition of the universe.     |   |   |   |     |
| a. Stars, constellations, galaxies.              | H | M | L | N/A |
| b. Solar system.                                 | H | M | L | N/A |
| 2. Study of the earth's composition and origin.  |   |   |   |     |
| a. Structure and composition of the earth.       | H | M | L | N/A |
| b. Minerals.                                     | H | M | L | N/A |
| c. Rocks and rock cycle.                         | H | M | L | N/A |
| 3. Wearing down of the earth (weathering).       |   |   |   |     |
| a. Physical                                      | H | M | L | N/A |
| b. Chemical.                                     | H | M | L | N/A |
| 4. Erosion.                                      |   |   |   |     |
| a. Water.  | H | M | L | N/A |
| b. Ground water.                                 | H | M | L | N/A |
| c. Wind  | H | M | L | N/A |
| d. Ice (glaciers).                               | H | M | L | N/A |
| e. Gravity.                                      | H | M | L | N/A |
| 5. Building of the earth.                        |   |   |   |     |
| a. Folding                                       | H | M | L | N/A |
| b. Faulting.                                     | H | M | L | N/A |
| c. Volcanism                                     | H | M | L | N/A |
| d. Earthquakes                                   | H | M | L | N/A |
| e. Plate tectonics.                              | H | M | L | N/A |
| f. Topographic maps and physiographic provinces. | H | M | L | N/A |
| 6. Land forms.                                   | H | M | L | N/A |

7	Geologic history of the earth.				
	a. Dating geologic times.	H	M	L	N/A
	b. Geologic time scale.	H	M	L	N/A
	c. Stratigraphy.	H	M	L	N/A
8	Weather, climate and the atmosphere.	H	M	L	N/A
9	The structure, composition, and changes in the hydrosphere.				
	a. Circulation of ocean waters.	H	M	L	N/A
	b. Geologic features of the ocean floor.	H	M	L	N/A
10	The earth's environment and resources.				
	a. Air, water, energy and other natural resources.	H	M	L	N/A
	b. Usage and pollution of natural resources.	H	M	L	N/A

## SCIENCE SURVEY

### Physical Science Strands

#### DIRECTIONS:

The following strands are major topic areas in the study of *physical science*. Please indicate *your opinion* of your students' understanding of each of the areas examined.

**How well do your students understand the following *physical science* concepts?**

1.	Structure of matter.				
	a. Atoms.	H	M	L	N/A
	b. Matter	H	M	L	N/A
	c. Periodic table.	H	M	L	N/A
	d. Chemical bonds.	H	M	L	N/A
2	Phases of matter.				
	a. Solids	H	M	L	N/A
	b. Liquids.	H	M	L	N/A
	c. Gases.	H	M	L	N/A
3	Reaction of matter.				
	a. Acids, bases, salts.	H	M	L	N/A
	b. Mixtures, compounds, solutions.	H	M	L	N/A
	c. Organic chemistry.	H	M	L	N/A
	d. Nucleus and nuclear power.	H	M	L	N/A
4	Study of the interaction and changes in energy and motion.				
	a. Electricity	H	M	L	N/A
	b. Magnetism	H	M	L	N/A
	c. Heat and temperature.	H	M	L	N/A
	d. Motion	H	M	L	N/A
	e. Energy and power.	H	M	L	N/A

f. Work and simple machines (gears, levers, pulleys).	H	M	L	N/A
g. Waves.	H	M	L	N/A
h. Sound	H	M	L	N/A
i. Light	H	M	L	N/A
j. Air.	H	M	L	N/A

### SOCIAL STUDIES SURVEY Elementary Level (K-6)

1. Please circle the grade you teach: (If you teach a split, circle both grades).

K      1      2      3      4      5      6

2. Years of experience at *this* grade level \_\_\_\_\_

3. Total years of total teaching experience \_\_\_\_\_

4. Do you teach special education? YES  NO

**DIRECTIONS:**

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class. Rate each item as high (H), moderate (M) or low (L). Use N/A if the item is not applicable to your grade level. Circle your desired response.

**What is your opinion of student achievement in the following areas?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. How well do your students follow directions?  | H | M | L | N/A |
| 2. How well do your students organize materials?   | H | M | L | N/A |
| 3. How do you rate your students' reading skills that pertain to social studies?   | H | M | L | N/A |
| 4. How do you rate your students' study skills as they pertain to social studies?  | H | M | L | N/A |
| 5. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |
| 6. To what extent do you use peer-tutoring and/or cross-age tutoring as an alternative teaching strategy?  | H | M | L | N/A |
| 7. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?                             | H | M | L | N/A |
| 8. How well have your students developed a positive self-concept?  | H | M | L | N/A |
| 9. In general to what extent do your students show respect for other students?   | H | M | L | N/A |
| 10. How well do your students display classroom responsibility?  | H | M | L | N/A |

11. How well do your students understand community rules such as not littering or avoiding strangers?	H	M	L	N/A
12. How aware are your students of the ethnic/cultural background of themselves and others?	H	M	L	N/A
13. To what extent do your students take part in activities that display responsibility to the community? (Brownies, Scouts, school-connected activities).	H	M	L	N/A
14. To what extent are your students aware of their rights of democratic citizenship?	H	M	L	N/A
15. How well do your students understand the need for rules?	H	M	L	N/A
16. How well have your students learned how rules are made and changed?	H	M	L	N/A
17. How well do your students understand basic human needs, such as the need for food, shelter, etc.?	H	M	L	N/A
18. How well do your students recognize the different customs and motivations of community cultural groups?	H	M	L	N/A
19. How aware are your students of the history of the United States?	H	M	L	N/A
20. How aware are your students of career opportunities?	H	M	L	N/A
21. How well have your students learned about economics, such as making purchases, saving money or earning an allowance?	H	M	L	N/A
22. How well do your students understand the environment and its effect on humans?	H	M	L	N/A
23. How well do your students understand the concept of government, such as local, state and national?	H	M	L	N/A
24. How well do your students understand how conflict occurs between individuals?	H	M	L	N/A
25. How well do your students understand ways to <i>solve</i> conflicts between individuals?	H	M	L	N/A
26. How well do your students gather and analyze information?	H	M	L	N/A
27. How well are your students able to present, listen to and respond to ideas?	H	M	L	N/A
28. How well do your students analyze problems and identify alternatives in order to make decisions?	H	M	L	N/A

## SOCIAL STUDIES SURVEY Junior High School

Please circle the grade level which constitutes the majority of your teaching assignment. If a tie, select the higher grade.

7                      8                      9

Years of experience at *this* grade level \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

Sex: Male  Female

### DIRECTIONS:

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) or low (L). Use N/A if the statement is not applicable to your grade level.

### What is your opinion of student achievement in the following areas?

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. How well do your students follow directions?  | H | M | L | N/A |
| 2. How well do your students organize materials?   | H | M | L | N/A |
| 3. How do you rate your students' reading skills as they pertain to social studies?  | H | M | L | N/A |
| 4. How do you rate your students' study skills as they pertain to social studies?  | H | M | L | N/A |
| 5. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |
| 6. To what extent do you use peer-tutoring, and/or cross-age tutoring as an alternative teaching strategy?   | H | M | L | N/A |
| 7. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?                             | H | M | L | N/A |
| 8. How well have your students developed a positive self-concept?  | H | M | L | N/A |
| 9. How well do your students show concern for other students?  | H | M | L | N/A |
| 10. How well do your students judge and respect their own heritage?  | H | M | L | N/A |
| 11. How well do your students display classroom responsibility?  | H | M | L | N/A |
| 12. How well do your students understand the rules, laws, and their responsibility to the community, such as obeying safety rules, etc.?                                       | H | M | L | N/A |

13. How well do your students understand their rights of democratic citizenship?	H	M	L	N/A
14. How well do your students know the function and purpose of laws (how decisions are made and conflicts resolved)?	H	M	L	N/A
15. How aware are your students of:				
a. Local problems?	H	M	L	N/A
b. National problems?	H	M	L	N/A
c. Global problems?	H	M	L	N/A
16. How aware are your students of the needs, cultural values and cultural diversity of others?	H	M	L	N/A
17. How well do your students understand the history of the United States?	H	M	L	N/A
18. How well do your students understand basic economic concepts, such as free market, supply and demand, etc.?	H	M	L	N/A
19. How well do your students understand the concepts of consumer and producer activities, such as comparison shopping?	H	M	L	N/A
20. How well do your students understand the environment and its effects on human society?	H	M	L	N/A
21. How well do your students understand the purposes of government?	H	M	L	N/A
22. How well do your students understand the functions of social institutions, such as schools, churches, prisons, charitable organizations?	H	M	L	N/A
23. How well are your students able to gather and analyze information?	H	M	L	N/A
24. How well are your students able to present, listen to and respond to ideas?	H	M	L	N/A
25. How well do your students analyze problems, identify alternatives and develop strategies to make decisions?	H	M	L	N/A
26. How aware are your students of career opportunities?	H	M	L	N/A

**SOCIAL STUDIES SURVEY**  
**Senior High School**

Please circle the number of the class which constitutes the majority of your teaching assignment. If a tie, select the class which reflects higher grade students.

- |                           |                          |
|---------------------------|--------------------------|
| 1 World Geography         | 8. Sociology             |
| 2 World History           | 9. Western Civilizations |
| 3 U.S. History            | 10. Psychology           |
| 4 Government              | 11. Economics            |
| 5 International Relations | 12. Anthropology         |
| 6 Michigan History        | 13. Law                  |
| 7 Non Western World       |                          |

Years of experience at this grade or subject level \_\_\_\_\_

Total years teaching experience \_\_\_\_\_

Sex: Male  Female

**DIRECTIONS:**

As you respond to the questions, please think in terms of *your opinion* of the achievement of the *average* students in your class(es). Rate each item as high (H), moderate (M) or low (L). Use N/A if the item is not applicable to your grade level.

**What is your opinion of student achievement in the following areas?**

- |  |   |   |   |     |
|--|---|---|---|-----|
| 1. How well do your students follow directions?  | H | M | L | N/A |
| 2. How well do your students organize materials?   | H | M | L | N/A |
| 3. How do you rate your students' reading skills that pertain to social studies?   | H | M | L | N/A |
| 4. How do you rate your students' study skills as they pertain to social studies?  | H | M | L | N/A |
| 5. To what extent have your students developed their thinking patterns from knowledge and understanding levels to analyzing, synthesizing and applying what they have learned? | H | M | L | N/A |
| 6. To what extent do you use peer-tutoring, and/or cross-age tutoring as an alternative teaching strategy?   | H | M | L | N/A |
| 7. To what extent are instructional materials and/or equipment available to provide for group and individual student learning needs and interests?                             | H | M | L | N/A |
| 8. How well have your students developed a positive self-concept?  | H | M | L | N/A |
| 9. How well do your students understand ethnic and cultural backgrounds of individuals and groups?   | H | M | L | N/A |
| 10. How well do your students understand the concepts of:  |   |   |   |     |
| a. Duties of democratic citizenship?   | H | M | L | N/A |
| b. Responsibilities of democratic citizenship?   | H | M | L | N/A |
| c. Rights found in democracy?  | H | M | L | N/A |
| d. Dissent in democracy?   | H | M | L | N/A |
| 11. How well do your students understand rights, liberties, and equal opportunity in society?  | H | M | L | N/A |
| 12. How well do your students understand the rights of democratic citizenship?   | H | M | L | N/A |
| 13. How well do your students understand the function of law in democracy?   | H | M | L | N/A |
| 14. How well do your students understand:  |   |   |   |     |
| a. Local problems?   | H | M | L | N/A |
| b. National problems?  | H | M | L | N/A |
| Global problems?   | H | M | L | N/A |



15. How well do your students understand the concepts of cultural values, cultural diversity, and social and cultural change?	H	M	L	N/A
16. How well do your students understand:				
a. U.S. history?	H	M	L	N/A
b. Racial/ethnic relations?	H	M	L	N/A
c. Male/female roles in society?	H	M	L	N/A
d. Family/work patterns?	H	M	L	N/A
e. Social problems?	H	M	L	N/A
17. How well do your students understand:				
a. Basic economic concepts?	H	M	L	N/A
b. The American economic system?	H	M	L	N/A
c. Economic factors, such as taxation and inflation, etc.?	H	M	L	N/A
d. Government's role in economic system?	H	M	L	N/A
e. Banking and financial system?	H	M	L	N/A
18. How well do your students understand the concepts of consumer decisions, consumer rights, purchasing?	H	M	L	N/A
19. How well do your students understand diet and health care?	H	M	L	N/A
20. How well do your students understand the environment and its effects on human society?	H	M	L	N/A
21. How well do your students understand:				
a. The origin of laws?	H	M	L	N/A
b. Branches of government?	H	M	L	N/A
c. Powers of government?	H	M	L	N/A
d. Role of political parties?	H	M	L	N/A
e. Role of interest groups?	H	M	L	N/A
f. Nomination procedures?	H	M	L	N/A
g. Voting procedures?	H	M	L	N/A
22. How well do your students gather and analyze information?	H	M	L	N/A
23. How well are your students able to present, listen to, and respond to ideas?	H	M	L	N/A
24. How well are your students able to analyze problems, project solutions, re-evaluate goals and develop strategies to make decisions?	H	M	L	N/A
25. How well prepared are your students to handle basic financial responsibilities such as balancing a checkbook, planning a budget, and preparing an income tax return?	H	M	L	N/A
<b>Twelfth grade teachers only:</b>				
26. How well do you feel your students are prepared to assume adult roles and responsibilities in society?	H	M	L	N/A

# Chapter 4

## Determining Desirability by Staff of Program Standards

The Program Standards of Quality document is designed to be used as a part of a self-assessment. In doing so, there are two notions that should be considered:

First, are the standards desirable? In some cases a district may decide that a particular standard is not appropriate.

Second, to what degree have the standards been attained?

Each standard is defined in terms of processes or components that should be considered as part of the self-assessment. The definitions that follow are designed to differentiate the degree to which it is desirable and the degree to which it has been attained on the measurement scale for each standard. It is assumed that responses regarding desirability and attainment reflect an interpretation about both the appropriateness of each standard and the degree to which the standard is present.

### Definitions

**High** It should exist or it does exist and include(s) all the major components.

**Moderate** It should exist or it does exist and include(s) most of the major components

**Low** It should exist or it does exist but include(s) few of the major components.

**None** Nothing should exist or does exist.

**DK** Don't Know.

Respondents should circle the response that best reflects their perception as to (D) the desirability and (A) attainment of each standard.

The following example shows that the standard has been rated high in desirability and low in attainment.

### I. The Learning Environment

A A policy states that the educational program includes instruction which promotes equal education opportunities for all students regardless of their culture, ethnicity, race, sex, or exceptionality.

(D) (H) M L N DK  
(A) H M (L) N DK

# Chapter 5

## Sample of Completed Standards and Recommendations

### THE MATHEMATICS EDUCATION PROGRAM

Mathematics education should provide students with the understanding and proficiency that will enable further development in mathematics and will serve as a basis for those skills which have significance in the life of the individual. More mathematics skills than ever before are required as students will live and work in a technological data-filled world.

In reviewing this section, the general program standards in Part I, Part II Section A, and Part III Section A should be applied. The Michigan Minimal Performance Objectives for Mathematics should also be reviewed.\*

(\*Appendix — Section IX: Michigan Essential Skills)

#### I. The Mathematics Program (K-8)

A. At the K-8 level, students are taught:

##### 1. Computation involving:

a. Whole numbers.

(D)	Ⓜ	M	L	N	DK
(A)	Ⓜ	M	L	N	DK

*Explanation:* Michigan Educational Assessment Program scores are high in all aspects of whole numbers; addition, subtraction, multiplication, division and rounding.

*Recommendation:* Place value beyond thousands place needs to be emphasized.

b. Fractions.

(D)	Ⓜ	M	L	N	DK
(A)	Ⓜ	M	L	N	DK

*Explanation:* Recognizing, equivalence, addition, subtraction and multiplication of fractions reflected high test results on the Michigan Education Assessment Program. Division was not tested. Mastery of fractions occurs at the junior high level.

*Recommendation:* Work on identification of when to do division of fractions. More emphasis on fraction computation skills in the fourth and fifth grades.

c. Decimals.

(D)	Ⓜ	M	L	N	DK
(A)	Ⓜ	M	L	N	DK

*Explanation:* High Michigan Educational As-

assessment Program test results in addition, subtraction, multiplication, division, conversions and rounding of decimals. However, teachers give students a lower rating in this area.

*Recommendation:* Specify or re-evaluate grade responsibility in terms of knowledge of decimals at various grade levels.

d. Percents.

(D)	Ⓗ	M	L	N	DK
(A)	Ⓗ	M	L	N	DK

*Explanation:* High results of knowledge of operation of percents on the Michigan Education Assessment Program test. (10th grade)

*Recommendation:* More emphasis is needed on finding percents in the seventh grade.

2 a Problem solving.

(D)	Ⓗ	M	L	N	DK
(A)	H	Ⓜ	L	N	DK

b Applications.

(D)	Ⓗ	M	L	N	DK
(A)	H	Ⓜ	L	N	DK

c. Estimation and approximation.

(D)	Ⓗ	M	L	N	DK
(A)	H	Ⓜ	L	N	DK

*Explanation.* Students should be able to choose appropriate relationship or operation and give a reasonable estimate when solving a problem. They should be able to translate oral or printed information into mathematical symbols or sentences and should be able to apply math problems to real life situation.

*Recommendation:* Problem solving should receive emphasis at all math levels, especially elementary school. Students should also be taught how to read a math book, how to study for math and how to use a math vocabulary

d Computer literacy. (Delete)

(D)	H	M	L	N	DK
(A)	H	M	L	N	DK

*Explanation* Computer literacy should be developed in all content areas. It is not solely the responsibility of the math department.

*Recommendation.* Delete this standard from Math standards. Add to general instruction standards

e. Measurement.

(D) (H) M L N DK  
(A) H (M) L N DK

*Explanation.* Time, money and temperature objectives were met to a high degree on the MEAP. The achievement component of this standard is lower due to lack of student understanding of metric measurement.

*Recommendation:* Supplementary units on metrics should be provided for sixth grade books. Also there appears to be an inconsistency between the instructional emphasis of English and metric measurement.

f. Geometry.

(D) (H) M L N DK  
(A) (H) M L N DK

*Explanation:* MEAP scores reflect high achievement in identifying, construction and the characteristics of geometric shapes and figures.

*Recommendation:* Geometry vocabulary should be expanded at elementary level. Geometric concepts and characteristics should receive greater emphasis in the seventh and eighth grade math curriculum.

g. Integers.

(D) (H) M L N DK  
(A) (H) M L N DK

*Explanation:* Negative numbers and their operations (addition, subtraction, multiplication and division) are not covered in the MEAP. However, the understanding of integers is an integral part of the seventh and eighth curriculum.

*Recommendation:* None.

3 Proper mathematical vocabulary and symbols.

(D) (H) M L N DK  
(A) (H) M L N DK

*Explanation:* The teacher survey indicated moderate understanding of mathematical vocabulary and symbols.

*Recommendation:* Needs to be stressed at all levels.

4 Picture drawing and use of objects in concept development.

(D) (H) M L N DK  
(A) H (M) L N DK

*Explanation.* Picture drawing and use of ob-

jects facilitate student understanding of mathematical concepts.

*Recommendation:* Should be emphasized throughout the K-12 curriculum, with special emphasis in early elementary.

5. Application of reading and study skills including practice and reinforcement.

(D)  H M L N DK  
(A) H  M L N DK

*Explanation:* Teacher survey indicates a moderate rating in this area.

*Recommendation:* Students must learn how to "read" a math book and math problems. Students also need to develop study skills related to math.

- B. Students at the K-8 level will have an opportunity to.

Develop positive attitudes concerning the significance of mathematics in their environment.

(D)  H M L N DK  
(A)  H M L N DK

*Explanation:* Teacher survey indicates an increasingly positive student attitude toward math. This may be due to current importance attached to math study.

*Recommendation:* None.

- C. At the 9-12 level, students are taught:

1. Computational skills.

(D)  H M L N DK  
(A)  H M L N DK

2. Problem solving.

(D)  H M L N DK  
(A) H  M L N DK

- 3 Applications.

(D)  H M L N DK  
(A) H  M L N DK

4. Statistics.

(D)  H M L N DK  
(A)  H M L N DK

*Explanation:* The MEAP scores measuring statistics reflect high achievement. However, this score does not measure knowledge of higher math statistics. There is no formal course work in statistics.

- 5 Estimation.

(D)  H M L N DK  
(A) H  M L N DK

6. Prediction. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK
7. Computer literacy. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

*Explanation:* Delete as a standard for Math.  
 See previous explanation.

8. The application needed for personal uses and the world of work. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK
9. Application of reading and study skills including practice and reinforcement. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

D. Students at the 9-12 level will have an opportunity to:

1. Learn the disciplines of:

- a. Algebra. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

*Explanation:* Algebra I and II are included in the curriculum.

- b. Geometry. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

*Explanation:* Geometry is included in the curriculum.

- c. Trigonometry. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

*Explanation:* Trigonometry is included in the curriculum.

- d. Functions. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

- e. Probability. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

- f. Computer programming. (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

*Explanation:* Computer programming is included in the curriculum under the title of Basic I and II.

2. Prepare for successful study of advanced mathematics in college or for a trade or business career (D)  H  M  L  N  DK  
 (A)  H  M  L  N  DK

3. Improve their attitude toward mathematics.

(D)	⊕	M	L	N	DK
(A)	⊕	M	L	N	DK

*Explanation:* Teacher survey indicated that students' attitude toward math is improving. Female students are showing increased interest in math courses; however, they are somewhat less frequently involved in advanced math courses.



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