JOHN ENGLER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF EDUCATION
LANSING

THOMAS D. WATKINS, JR.
SUPERINTENDENT OF
PUBLIC INSTRUCTION

July 24, 2002

TO: State Board of Education

FROM: Thomas D. Watkins, Jr., Chairman

SUBJECT: Approval of 2002 Master Plan for Michigan's Mathematics and Science Centers

The development of the 2002 Master Plan for Michigan's Mathematics and Science Centers is built on the Legislature's vision of providing resources to the 33 Centers that serve every Michigan student. Fiscal year 2001-2002 marked the first time there was funding for the 33 Mathematics and Science Centers. This Master Plan provides a strategy for executing the vision through the year 2010.

Section 99 of the State School Aid Act is the legislation that authorizes the Department of Education to provide technical assistance to regional Mathematics and Science Centers. The Centers will provide products and services to students, teachers, and the communities that they serve. The products and services will increase public awareness about the need for mathematics and science education, and will enhance the knowledge and skills of teachers in mathematics and science.

The attachments are as follows:

Attachment A – Master Plan for Michigan's Mathematics and Science Centers
Attachment B – History of Program
Attachment C – Listing of Centers, Counties Served, and Total Population
Attachment D – Examples of Center Services
Attachment E – Map

It is recommended that the State Board of Education approve the 2002 Master Plan for Michigan's Mathematics and Science Centers as described in the Superintendent's memorandum dated July 24, 2002.

Attachments

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Attachment A

2002 MASTER PLAN FOR MICHIGAN'S MATHEMATICS AND SCIENCE CENTERS

High Expectations for Mathematics and Science Education

Today's changing society and the dynamics of our economy are making increasing demands on the education community for high quality standards-based teaching and learning of mathematics and science.

Michigan stands out in its response to the widespread call for high standards in mathematics and science education. In 1988, earlier than most states, the Michigan Legislature provided targeted support for the reformation and improvement of teaching and learning in mathematics and science by establishing Mathematics and Science Centers. (Attachment B—History of Program)

In 1992, the Legislature called for the development of a Master Plan for these regional Centers. The Master Plan was developed in collaboration with the Michigan Department of Education; directors of the Centers; leaders in the House and Senate fiscal agencies; representatives from universities, community colleges, and museums; and other mathematics and science educators. The Michigan State Board of Education approved the Master Plan in February 1993, which was funded by the Michigan Legislature in 1994-1995.

The 1993 version of the master plan was designed to establish new Centers and Satellites in order to serve all areas of Michigan. It also specified the nature of the services to be provided by Centers. The Master Plan, to be a useful document, must be regularly reviewed and updated. Therefore, this 2002 revision of the Master Plan provides direction to Mathematics and Science Centers over the next several years as they seek to maintain high expectations for teaching and learning, to increase the achievement of all students, and to assist underachieving schools.

Coordination and Collaboration

Michigan's Mathematics and Science Centers are key elements in the infrastructure that connects a variety of stakeholders within defined geographic regions and across the state. Centers are partners with the Michigan Department of Education and collaborate with agencies such as professional organizations, business and industry, institutions of higher education, Intermediate School Districts, schools, and museums. These partnerships develop and coordinate programs to meet emerging needs and inform local districts, students, teachers, and parents of resources and opportunities.

To assist the regional Centers in their coordination efforts, the directors of the Centers make up the Michigan Mathematics and Science Centers Network formed in 1993. By

participating in the Network, directors of the Centers support the efficient coordination of programs and services through this statewide infrastructure and work cooperatively toward a common goal of improving mathematics and science education in Michigan.

Outcomes

Below is the foundation of the Master Plan that guides the Mathematics and Science Centers.

- Centers provide leadership that promotes collaboration and practices that embody the national and state vision for 21st Century mathematics and science education;

  Centers ensure all students in Michigan will have access to standards-based instruction as recommended by the Michigan State Board of Education;

- Centers provide opportunities for increased participation for students to pursue careers related to mathematics and science, especially among underachieving and underrepresented groups;

  Centers support districts as they strive to meet high curricular expectations set by the *Michigan Curriculum Framework*, close the achievement gap, and raise the performance of underachieving schools;

- Centers provide professional development opportunities that enable and sustain effective teaching of mathematics and science, by keeping teachers current in the field and able to develop positive learning environments for all students;

- Centers ensure that representatives of business, higher education, museums, governmental agencies, and the community at large will be informed about issues in mathematics and science education and be engaged in collaborative efforts; and

- Centers ensure human and instructional resources will be identified and shared to support the efforts of local districts and educators.

Six Basic Services

Centers serve as catalysts and resources for improvement in the teaching and learning of mathematics and science. They provide services that enhance and extend beyond those available at local districts within their region. Each Center must provide educational leadership and services in professional development, curriculum support, and student services while providing resources and promoting community involvement.

Common basic services provided by all Centers are:

Leadership

- Centers promote a shared vision of high expectations in mathematics and science education. Centers ensure through their leadership that all programs and services, whether offered by the Center or its partners, will:

  offer equal access to students and educators;
  correlate with Michigan curriculum documents, MI CliMB, *Education YES!* and other materials as adopted by the Michigan State Board of Education;
  reflect effective instructional practices; and
  promote interest in and exploration of mathematics and science career pathways.

- Centers promote themselves as a "first-line" resource for teaching and learning in mathematics and science.

- Centers provide leadership in support of all six basic services.

- Centers develop shared leadership and collaboration with organizations, agencies, businesses, and professionals at a regional level and statewide through the Network of Centers.

Professional Development

- Centers provide professional development for mathematics and science educators based on identified needs.

- Centers ensure that professional development reflects and models state professional development standards, as well as state and national standards in content, teaching and learning, and assessment.

- Centers advocate that all educators who participate in Center professional development programming work toward attaining best instructional practices in their classrooms.

- Centers provide leadership development in mathematics and science.

Curriculum Support

- Centers aid districts in aligning local curriculum to implement the standards and benchmarks as outlined in the *Michigan Curriculum Framework*.

- Centers facilitate and model the integration of technology into the mathematics and science curriculum.

- Centers assist the Michigan Department of Education with initiatives in mathematics and science.

- Centers assist districts with statewide mathematics and science test alignment and analysis as they strive to close the gap in student achievement.

- Centers partner with regional stakeholders to support science and mathematics achievement in identified underachieving schools.

Student Services

- Centers provide accelerated and/or enrichment programs for students.

- Centers encourage equal access to accelerated/enrichment programs and services for students.

- Centers advocate that programs and services for students are correlated with current state and national curriculum documents and reflect effective instructional practices.

- Centers work to ensure that accelerated/enrichment programs and services promote interest in and exploration of careers in mathematics and science.

Community Involvement

- Centers collaborate with community groups to co-sponsor mathematics and science programs and services.

- Centers involve the community in planning and implementing programs through advisory boards and task forces.

- Centers acquire and leverage direct and in-kind human and financial resources to provide the six basic services in mathematics and science.

- Centers promote public understanding of the goals and issues in mathematics and science education.

Resource Clearinghouse

- Centers furnish information and access to educational materials (e.g., books, documents, and electronic resources) and classroom teaching equipment in mathematics and science.

- Centers create and sustain an Internet presence to support mathematics and science education.

- Centers work with the Eisenhower National Clearinghouse for Mathematics and Science (ENC).

- Centers maintain an inventory of available human and material resources in mathematics and science.

Delivery of Services

Centers deliver the six basic services in different ways. The regions vary considerably in geographic area, population, and educational needs. (Attachment C—Listing of Centers, Counties Served, and Total Population) Services are determined by needs and priorities of all stakeholders through collaborative strategic planning as identified in each Centers' bi-laws and governance structure. This planning results in various combinations of programs, resources, and consultative arrangements to build the capacity of teachers, administrators, parents, and other community members to provide the kind of mathematics and science education needed for success. (Attachment D—Examples of Center Services)

Programs are offered directly to teachers through professional development and to students through enrichment activities and/or accelerated programs. Increasing the participation and achievement of underrepresented students is a high priority for Centers to assist schools in their efforts to ensure that no child be left behind.

Centers are expected to provide curriculum enhancement program options for students. In addition, some Centers provide a full-year program for students with high ability. These full-year programs must include a multi-year, coordinated curriculum for a minimum of 180 contact days per year with a minimum of two and one-half contact hours per student per day. Students receive high school credit in mathematics, science, and technology from their local schools for successfully participating in such a program.

Center Status

A major goal of this Master Plan is to ensure that all students and educators in Michigan have access to Center services. A sufficient number and an appropriate distribution of Centers are essential to achieving this equity without duplication of services. (Attachment E—Map) A fully operational Center is subject to all Department of Education requirements and provides the full range of services as described in this Master Plan and implemented according to its individual strategic plan.

Each Center, on a rotating basis, must submit a five-year strategic plan. This strategic plan is reviewed by an external panel, which makes recommendations to the Department of Education for funding approval. The external panel consists of Department staff and Center representatives. It may include mathematics and science educators, representatives from universities and community colleges, and personnel from business and industry. A Center whose plan is approved by the Department maintains its operational status.

Each year Centers submit an application that includes an updated strategic plan and budget. The yearly application must address the following:

delivery of basic services described in the Master Plan;
employment of a qualified full-time director and staff designated to coordinate and deliver services;
detailed budget with rationale;
participation as a member of the Michigan Mathematics and Science Centers Network; and
other criteria as defined by the Department of Education.

Each Center must provide an annual report that outlines accomplishments, defines resources compiles statistical indicators, and details expenditures. Evidence of defined outcomes described in the Center's five-year plan is part of the annual report.

In interim years, funding approval for Centers is based on a review of the Center's annual report and updated application as defined by the Department of Education. Approval by the Department permits the Center to maintain its operational status.

Governance

Each Center shall have a governance structure that brings together diverse stakeholders to support the mission and strategic plan of the Center. The governance plan is part of the foundational documentation of the Center. While the governance structure is unique to each Center, all Centers shall include representation from teachers with knowledge, skills and interest in mathematics and/or science, from all three grade group levels: elementary, middle, and high school. It is also important that one or more principals with knowledge/interest in these subject areas be represented. It may also include non-school partners (colleges, museums, business, higher education) in its governance structure. Centers may use various mechanisms to build stakeholder representation into their governance structure. To the extent possible, the governance structure should be representative of the population for which it serves. Changes in the governance structure will be subject to peer review and external review with final recommendation by the Michigan Department of Education, in the same manner as changes to the Center's strategic plan.

State and Leveraged Funding for Centers

To maintain and strengthen Michigan's leadership in mathematics and science education, it is essential that the Centers receive stable and significant state funding to support basic infra-structure for their services, facilities, and staff. Through the delivery of the six basic services, the Mathematics and Science Centers support the efforts of the Michigan Department of Education in its program to assist underachieving schools, support high expectations, and help to close the gap in achievement. Some Centers successfully raise funds and with this in-kind support, offer special programs and projects in their service area. Equipment, facilities, and human resources are provided to many Centers by schools, universities and community colleges, businesses, industries, and community and other governmental agencies.

However, few funding agencies are positioned to provide sustained support for the basic operation of Centers.

The funding of Mathematics and Science Centers is based on the appropriations made by the Michigan Legislature under Section 99 of the State School Aid Act, 2002 Public Act 191. Funding is based on services and population, and adjusted by specific appropriation amendments made by the Legislature over the years. The allocation to a Center shall not be changed unless the Legislature changes the appropriation. If the total allocation is increased, the formula will be revisited to address the issue of equity of the number of students and teachers served by each Center.

Annual funding recommendations are presented by the Michigan Department of Education to the Governor through the Department of Management and Budget. The Legislature acts on the Governor's recommendation in its approval of the State School Aid Act. Based upon the Department of Education's review of each application and strategic plan, individual awards are given under the State School Aid Act.

Data Collection and Evaluation of Center Operations

The State of Michigan has made a significant commitment to reform and restructure education through innovative policies and programs such as accreditation plans related to school improvement, core curriculum, and state-level testing. Investment in the Mathematics and Science Centers represents a 13-year commitment to support and provide high-quality mathematics and science education to all students.

To ensure that state funds are used effectively, Centers evaluate their programs and services continuously on an informal and formal basis. Evaluation of the goals and outcomes of each Center's Strategic Plan is a necessary step in obtaining continued funding and has three major purposes to:

- provide information to Center staff to guide decision-making and strengthen efforts;
- determine the impact of programming on students, teachers, and schools; and
- communicate progress and achievement to stakeholders.

Centers participate in common data collection around key indicators that provide the Department of Education, the Network, and the Centers themselves with knowledge about performance of the Centers and their effectiveness in reaching teachers and students in their regions, about dollars leveraged to support mathematics and science education in their regions, and about the staff and facilities they provide. Areas of common data collection may include performance indicators of services provided to each district in the region as well as outcome measures for district improvement in mathematics and science.

Assessment and data collection activities occur at individual Centers and across the entire group of Centers. This data is reviewed and summarized with a formal yearly report prepared by an external technical assistance provider (currently provided by the Science and Mathematics Program Improvement office, SAMPI, Western Michigan University). Each Center evaluates itself with a common Michigan set of program and organizational performance indicators that provide evidence used to improve Center programming and ensure accomplishment of goals. Each Center summarizes the results of its self-evaluation in an annual report organized around the six basic services and tied to the goals and outcomes of the Center's strategic plan. This annual report is submitted to the Michigan Department of Education and reviewed by the State Superintendent.

Summary

The Master Plan for Michigan's Mathematics and Science Centers is a unique initiative in the history of education in Michigan. Based on a partnership among the Legislature, the Department of Education, and the Centers, the Master Plan provides direction, focus, and accountability to strengthen mathematics and science education while supporting local involvement and authority.

The Master Plan is based on a vision of high standards and expectations for all of Michigan's students to achieve mathematical power and scientific literacy. It includes a planning process, a common language for reporting the Center's activities, and a system of accountability for Centers that reaches farther and is more sustained than a year-to-year approach. It is a description of the nature and scope of Centers' services and a verification of results that affirms to local constituents, state officials, and the general public that resources are used effectively.

The first Master Plan, approved by the State Board of Education in 1993, established the concept of Centers so that all teachers and their students would have access to their services. This revision enhances and expands that intent by supporting the initiatives of the State Board of Education to leave no child behind by supporting schools and improving teacher abilities so all students will have even greater opportunities to achieve success.

Attachment B

HISTORY OF PROGRAM

The Mathematics and Science Centers Program, established during the 1988-1989 school year, provided grants to establish Mathematics and Science Centers in cooperation with local and intermediate school districts, universities and community colleges, science museums, and state and national mathematics and science associations, as well as with leaders from business and industry. Since its inception, the Program has undergone several changes through revised legislation.

The name of the Program changed from the Mathematics and Science Challenge Grant to Mathematics and Science Center Program Grant. The Program initially required that public or private sources provide matching funds; that requirement no longer exists. Today, however, nearly every Center obtains external funding in addition to that provided through the state's Mathematics and Science Centers Program. Some Centers have formed excellent partnerships with local businesses and industries, while others have tapped community groups or foundations. The result has been an impressive and collaborative effort by the schools, Centers, and communities to improve the quality of mathematics and science education in Michigan.

The initial Program required each Center to conduct both accelerated programs for secondary students and outreach activities to improve mathematics and science in kindergarten through 12th grade. Today, all Centers provide the opportunities for intensive student programs. Several Centers provide academic-year, shared accelerated programs for students with high ability.

In 1988-1989 potential Centers applied for grants totaling $1,000,000 from the Department of Education Appropriation Bill. Twenty-five awards went to 17 Centers. The initial categories included planning (create a five-year plan-$25,000), start-up and development (develop an accelerated program-$200,000), and outreach (extend the impact of the Center, coordinate K-12 curriculum reform, and facilitate systemic change-$100,000). The Mathematics and Science Centers Network (coordinated body of directors) was established to foster developing and operating Centers by providing communication channels, leadership, and resources for their evolution.

In 1989-1990, 27 awards totaling $2,117,100 went to 20 Centers which now included a continuing support category (support accelerated program-$75,000). In 1990-1991, 24 grants totaling $1,872,100 went to 16 Centers.

In 1991-1992, funding was transferred from the Department Appropriation Bill to Section 99 of the State School Aid Act in the categories of Planning, Start-up and Development, Outreach, and Continuing Support. Twenty Centers received awards totaling $2,372,100. Six Centers received legislatively-designated grants based on the population of their service area. The other 14 Centers received competitive grants. Planning, start-up, and

development became one category with funding also based on the population of the service area. Centers serving populations of over 500,000 received the maximum grant award of $250,000; $200,000 was provided for Centers serving populations of 100,000 to 500,000; and $150,000 for populations of 100,000 or fewer. Since 1991 the Network has used the services of the Science and Mathematics Program Improvement program (SAMPI) at Western Michigan University to assist in the Centers' data collection and program evaluation.

In 1992-1993, Section 99 of the State School Aid Act awarded $2,372,100 to all Centers funded in 1991-1992, in the same amounts that they received in 1991-1992. The legislation also required the Department, in cooperation with the House and Senate Fiscal Agencies, to develop a Master Plan for funding and operating the Centers. The Master Plan, approved by the State Board of Education, was submitted to the House and Senate appropriations subcommittees in February 1993. In 1993-1994, the House and Senate raised appropriations for the 20 Centers to $2,850,000.

In 1994-1995, Section 99 of the State School Aid Act, adopting and adapting the words and ideas of the Master Plan, awarded $6,240,000 to the Centers and eight Satellites as specified in the Master Plan. Great growth in equity was experienced during this time. For the first time ever, all students, teachers, and schools had access to the services of their own regional Mathematics and Science Center. In 1995-1996, Section 99 of the State School Aid Act awarded $7,614,000 to the Centers. With the increase in funding, the 28 Centers and eight Satellites were able to expand services as detailed in the Master Plan.

Legislative action in 2000-2001 brought Full-Center status to four of the eight Satellite Centers and requested an update of the Master Plan. In the State School Aid Act of 2001-2002, the remaining four Satellite Centers achieved Full-Center funding, bringing the total Centers to 33 with funding totaling $10,232,300.

For the fiscal year 2002-2003, total funding to the Centers will remain the same as they were funded in 2001-2002. This amount is a decrease to each Center since fiscal year 2000-2001. This decrease is due to several factors; state budget cuts; the eight Satellite Centers receiving Full-Centers status; and the movement of one Center into a new funding level as a result of an increase in the total population based upon the 2000 census figures.

Attachment C

LISTING OF CENTERS, COUNTIES SERVED AND TOTAL POPULATION

Center Name	Counties	County Population	Total Population
Allegan County M/S Center 2879 116th Avenue Allegan, MI 49010	Allegan Van Buren	105,665 76,263	181,928
AMA/Iosco M/S Center Educational Service District 2118 US-23 South Alpena, MI 49707	Alpena Iosco Montmorency Alcona	31,314 27,339 10,315 11,711	80,679
Battle Creek Public Schools M/S Center 765 Upton Avenue Battle Creek, MI 49015-4894	Calhoun Branch Barry	137,985 45,787 56,755	240,527
Berrien County M/S Center Science Center 711 St. Joseph Avenue Berrien Springs, MI 49103	Berrien Cass	162,453 51,104	213,557
Central Michigan S/M/T Center 101 Ronan Hall- CMU Mt. Pleasant, MI 48859	Clare Gladwin Isabella Gratiot	31,252 26,023 63,351 42,285	162,911
COOR M/S Center 11051 North Cut Road Roscommon, MI 49930	Crawford Ogeman Roscommon Oscoda	14,273 21,645 25,469 9,418	70,805
Western UP Center for S/M/EE Copper Country ISD, P. O. Box 270 Hancock, MI 49930	Keweenaw Baraga Ontonagon Gogebic Houghton	2,301 8,746 7,818 17,370 36,016	
Northwoods M/S/T Center 2525 Third Avenue South Escanaba, MI 49829	Delta Schoolcraft	38,520 8,903	
Detroit M/S Center 5057 Woodward, Room 932 Detroit, MI 48202	Detroit	951,270	951,270
Dickinson-Iron-Menominee M/S Center 1074 Pyle Drive Kingsford, MI 48902	Iron Dickinson Menominee	13,138 27,472 25,326	

Center Name	Counties	County Population	Total Population
Eastern UP M/S Center 315 Armory, P. O. Box 883 Sault Ste. Marie, MI 49783	Chippewa Luce Mackinac	38,543 7,024 11,943	57,510
Genesee Area M/S/T Center 2413 West Maple Avenue Flint, MI 48507-3493	Genesee	436,141	436,141
GVSU Regional M/S Center 224 Padnos Hall Allendale, MI 49401	Ottawa Kent Montcalm	238,314 574,335 61,266	873,915
Huron M/S/T Center 711 East Soper Road Bad Axe, MI 48413	Huron	36,079	36,079
Capital Area S/M Center 212 Museum Drive Lansing, MI 48933	Eaton Ingham Clinton Shiawassee Ionia	103,655 279,320 64,753 71,687 61,518	580,933
Jackson County M/S Center 6700 Browns Lake Road Jackson, MI 49201	Jackson	158,422	158,422
Kalamazoo Area M/S Center 600 West Vine Street, Suite 400 Kalamazoo, MI 49008	Kalamazoo St. Joseph	238,603 62,422	301,025
Lapeer County M/S Center 1996 West Oregon Lapeer, MI 48446	Lapeer	87,904	87,904
Hillsdale-Lenawee-Monroe M/S/T Center 4107 North Adrian Highway Adrian, MI 49221-9309	Hillsdale Lenawee Monroe	46,527 8,890 145,945	201,362
Livingston/Washtenaw M/S Center 1425 West Grand River Avenue Howell, MI 48843	Livingston Washtenaw	156,951 322,895	479,846
Macomb County M/S/T Center 44001 Garfield Road Clinton Township, MI 48038	Macomb	788,149	788,149

Center Name	Counties	County Population	Total Population
Manistee Regional M/S Center 225 Ninth Street Manistee, MI 49660	Manistee Wexford Missaukee	24,527 30,484 14,478	69,489
Mason-Lake-Oceana M/S Center 2130 West US Highway 10 Ludington, MI 49431-9307	Mason Lake Oceana	28,274 11,333 26,873	
Mecosta-Osceola M/S/T Center 15760 190th Avenue, P. O. Box 1137 Big Rapids, MI 49307	Mecosta Osceola	40,553 23,197	
Muskegon-Newaygo M/S Center 630 Harvey Street Muskegon, MI 49442-2398	Muskegon Newaygo	170,200 47,874	218,074
Oakland Schools M/S/T Center 2100 Pontiac Lake Road Waterford, MI 48328-2735	Oakland	1,194,156	1,194,156
SVSU Regional M/S Center 7400 Bay Road, University Center Saginaw, MI 48710-0001	Arenac Bay Midland Saginaw Tuscola	17,269 110,157 82,874 210,039 58,266	478,605
St. Clair ISD M/S Center 499 Range Road, Box 5001 Port Huron, MI 48061-5001	St. Clair	164,235	164,235
Sanilac County M/S Center 175 East Aiken Road Peck, MI 48466	Sanilac	44,547	44,547
SEE-North Center P. O. Box 619 Harbor Springs, MI 49740	Emmet Charlevoix Cheboygan Otsego Presque Isle	31,437 26,090 26,448 23,301 14,411	121,687
The Seaborg Center – NMU 1401 Presque Isle Marquette, MI 49855	Marquette Alger	64,634 9,862	74,496

Center Name	Counties	County Population	Total Population
Grand Traverse Area Regional M/S/T Center	Antrim	23,110	
880 Parsons Road	Benzie	15,998	
Traverse City, MI 49686	Kalkaska	16,571	
	Grand Traverse	77,654	
	Leelanau	21,119	154,452
Wayne County M/S Center	Wayne	2,061,162	
33500 Van Born Road	Detroit	*-951,270	1,109,892
Wayne, MI 48184			

* Number reflects the population of Detroit being removed from the Wayne County total population

Attachment D

EXAMPLES OF CENTER SERVICES

Leadership:

- Assuming leadership roles in national, state, and local professional organizations.
- Maintaining a collaborative working relationship with the Michigan Department of Education.
- Promoting of a shared vision of mathematics and science education.
- Advocating for mathematics and science reform at all levels.
- Facilitating networking and collaboration.
- Stimulating communication and collaboration with other Centers and agencies.
- Building public awareness and community support.
- Providing focus and direction for curricular and instructional change.
- Making mathematics and science specialists and resource teachers available to support teachers and schools.
- Monitoring research, state and national initiatives, legislation, etc., and disseminating information to schools and teachers.
- Promoting opportunities for teachers to take advantage of professional development and leadership opportunities.
  Offering leadership training for teachers, students, and community mentors.
- Coordinating community-based programs and linking these to school programs.
- Identifying and recruiting mentors and resource persons.
- Providing technical assistance to teachers and schools.
- Enhancing their staff's knowledge and expertise through professional development.
- Offering grant-writing assistance.
- Carrying out data collection, needs assessments, and evaluation activities.

Student Services:

- Offering full-year, half-day programs in mathematics, science, and technology to students with high ability.
  Offering accelerated and enriched programs.
- Offering summer programs and camps (both day and residential).
- Providing ready-to-use units and accompanying kits for elementary science instruction.
  Sponsoring mathematics problem-solving events carried out through local classrooms.
  Offering career guidance.
- Encouraging females and minorities to study mathematics and science.
- Sponsoring Science Olympiad competitions.
  Sponsoring mathematics competitions.
- Sponsoring and judging science fairs.
- Offering enrichment activities.
  Offering weekend and evening programs.
- Arranging research apprenticeships and independent student research.
- Arranging mentorships.
- Conducting outdoor environmental projects.
- Providing access to technology and facilities.
- Offering distance-learning opportunities.
- Tutoring at-risk students.

- Sponsoring Upward Bound programs.
- Arranging field trips.
- Publishing newsletters for students.

Professional Development:

- Offering leadership-development programs for teachers.
- Mentoring classroom teachers.
- Conducting demonstration teaching.
- Disseminating information.
- Coordinating programs with local school districts.
- Offering graduate programs for teachers.
- Providing teacher inservice.
- Cooperating in initial teacher education programs.
- Offering distance learning and interactive television programs.
- Providing technology resources and support and Internet access.
- Sponsoring computer bulletin boards and electronic communications resources.
- Facilitating discussion groups and networking.
- Arranging internship opportunities for teachers.
- Offering teacher sabbaticals for work in the Centers.
- Participating on school-improvement committees.
- Publishing newsletters and brochures.
- Providing a clearinghouse for information on professional development opportunities.
- Conducting conferences for teachers.
- Maintaining professional-reference libraries and resource centers.

Curriculum Support:

- Assisting schools to align curricula with recommended state and national standards.
- Serving as information clearinghouse and resource center for contemporary curriculum projects, texts, materials, etc.
- Developing area-wide common curricula.
- Developing and disseminating science curriculum guides.
- Supporting mathematics curriculum projects and workshops.
- Participating in school improvement processes.
- Offering model lesson plans and ready-to-use units and kits.
- Field-testing curriculum materials.
- Supporting a science van to provide supplemental programs for schools.
- Loaning materials to schools.
- Training curriculum development leadership teams.
- Developing and disseminating electronic resources.
- Integrating technology into curricula.
- Conducting analysis of Michigan Educational Assessment Program (MEAP) results.

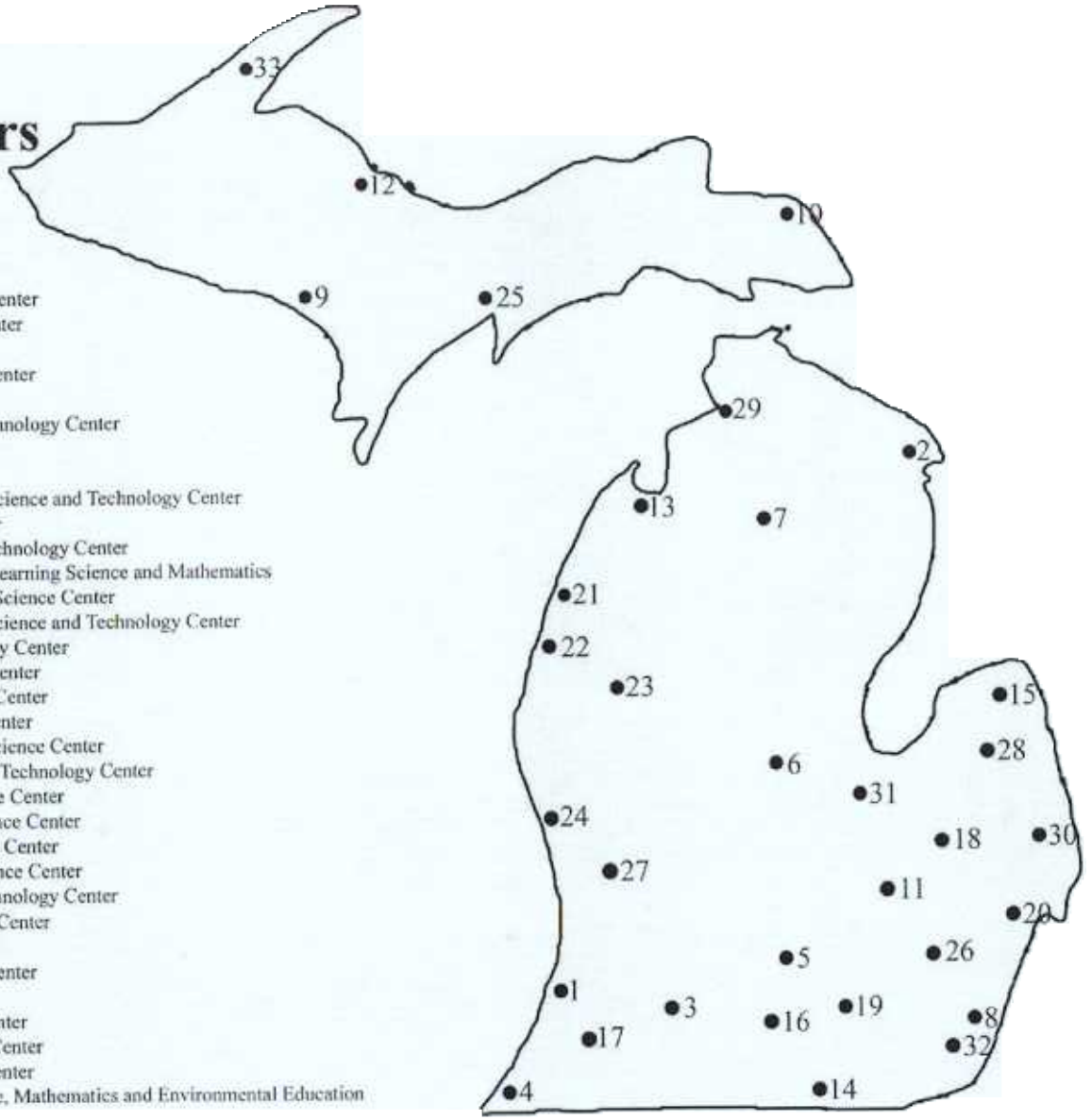
Community Involvement:

- Developing public understanding of goals and issues in mathematics and science.
- Offering programs and activities for families.
- Sponsoring community-wide science festivals.
- Conducting cooperative programs with local museums, zoos, planetariums, parks, etc.
- Coordinating activities and networking with various governmental and private agencies engaged in science education.
- Forming partnerships with local business and industry.
- Involving business, industry, and community members in Centers activities and programs and in career education.
- Involving community members in mentoring programs.
- Forming cooperative programs with local universities and colleges.
- Coordinating programs with libraries, hospitals, and community agencies.
- Offering programs in day-care centers.
- Arranging mentorship programs and internships.
- Facilitating a teachers-in-industry program.
- Offering and receiving consultant services.
- Sponsoring teleconferences and educational programming.
- Serving as a clearinghouse for activities and resources.
- Conducting community forums.
- Maintaining community-based planning and steering committees and task forces.

Resource Clearinghouse:

- Maintaining resource libraries.
- Loaning kits, materials, manipulatives, and equipment.
- Offering volume purchasing.
- Sponsoring Internet resources, bulletin boards, web sites, etc.
- Offering mini-grants to teachers.
- Providing a 1-800 Resource Hotline.
- Making available examination copies of texts, software, videos, and support materials.
- Housing regional National Aeronautics and Space Administration (NASA) collections.
- Providing technology assistance.
- Maintaining central data bases of human and materials resources.
- Offering inservice activities to support curriculum programs.
- Providing instructional and meeting space.

Mathematics & Science Centers



1 Allegan County Mathematics and Science Center
2 AMA/IOSCO Mathematics and Science Center
3 Battle Creek Area Mathematics Center
4 Berrien County Mathematics and Science Center
5 Capital Area Science and Math Center
6 Central Michigan Science/Mathematics/Technology Center
7 COOR Science and Mathematics Center
8 Detroit Mathematics and Science Centers
9 Dickinson-Iron Menominee Mathematics, Science and Technology Center
10 Eastern UP Mathematics and Science Center
11 Genesee Area Mathematics, Science and Technology Center
12 Glenn T. Seaborg Center for Teaching and Learning Science and Mathematics
13 Grand Traverse Regional Mathematics and Science Center
14 Hillsdale-Lenawee-Monroe Mathematics, Science and Technology Center
15 Huron Mathematics, Science and Technology Center
16 Jackson County Mathematics and Science Center
17 Kalamazoo Area Mathematics and Science Center
18 Lapeer County Mathematics and Science Center
19 Livingston-Washtenaw Mathematics and Science Center
20 Macomb County Mathematics, Science and Technology Center
21 Manistee Regional Mathematics and Science Center
22 Mason-Lake Oceana Mathematics and Science Center
23 Mecosta-Osceola Math/Science/Technology Center
24 Muskegon-Newaygo Mathematics and Science Center
25 Northwoods Mathematics, Science and Technology Center
26 Oakland Schools Science and Mathematics Center
27 Regional Math and Science Center (GVSU)
28 Sanilac County Science and Mathematics Center
29 SEE-North
30 St. Claire ISD Science and Mathematics Center
31 SVSU Regional Mathematics and Science Center
32 Wayne County Mathematics and Science Center
33 Western Upper Peninsula Center for Science, Mathematics and Environmental Education

Attachment E