Livingston and Washtenaw Mathematics and Science Center

FIVE YEAR STRATEGIC PLAN INCORPORATING QUALITY INDICATORS

2006-07 to 2011-12

Performance Effectiveness Indicator for Leadership:

Centers assess needs, leverage resources, and promote collaboration in improving mathematics and science education

Identified Leadership Needs Based on a Current Comprehensive Needs Assessment:

- Enhance collaboration with colleagues within and across disciplines and grade levels to plan and implement curriculum.
- Continue to align curriculum, instruction and assessment with the state educational standards.
- Learn how to integrate other curricular topics into science or mathematics

Center Five Year Goals for LEADERSHIP:

L1. Enhance collaboration with colleagues within and across districts and grade levels to use effective instructional practices

L2. Continue to promote effective practices in instruction and assessment

L3. Develop and promote a shared vision of high expectations across Washtenaw and Livingston counties in mathematics and science through collaboration between schools and other organizations, agencies, businesses and professionals.

FOCUS OF PROGRAMMING YEAR 1—LEADERSHIP

L1. Enhance collaboration with colleagues within and across districts and grade levels to use effective instructional practices		
List of planned programs for Year 1: L1.1 Build communication networks for math and science educators L1.2 Create on-line discussion forum for educators to share ideas / lesson plans with other local educators (pilot with one school) L1.3 Establish and maintain Professional Learning Communities (PLC) within and across disciplines and grade levels to support instructional improvement L 1.4 Establish a collaboration between mathematics, science and CTE teachers to promote math/science interdisciplinary learning	**Assessment Questions for Center Performance Effectiveness** 1. Are there consistent communications of opportunities to learn? 2. Are teachers accessing on-line discussions and lesson sharing? 3. Are teachers changing their instructional practice? 4. Are teachers invested in the PLC process? 5. Are the High School Content Expectations for Mathematics/Science being met in CTE courses?	**References for data gathering:** 1. Record of communications 2. On-line community registration list and access log 3. Pre- and post-PLC instructional practices survey 4. Plus/Delta's from PLC meetings 5. Collegial observation forms and team teaching evaluations.

L2. Continue to promote effective practices in instruction and assessment		
List of planned programs for Year 1: L2.1. Math Institutes for all grade bands L2.2 Lenses on Learning for administrators L2.3 Build awareness of effective practices through Mathematics Steering Committee work	**Assessment Questions for Center Performance Effectiveness** 1. Did teachers make significant and meaningful improvement in knowledge of mathematics content and pedagogy? 2. Are administrators using tools from the Lenses on Learning program in their evaluations of teachers? 3. Are there representatives from all levels of math education and districts on the MSC?	**References for data gathering:** 1. Pre and Post Institute MTTC items, Balanced Assessment items, and LMT items. 2. Pre and post Lenses survey of teacher evaluation techniques 3. Steering Committee registration, meeting sign-in sheets, and meeting notes

L3. Develop and promote a shared vision of high expectations across Washtenaw and Livingston counties in mathematics and science through collaboration between schools and other organizations, agencies, businesses and professionals.		
List of planned programs for Year 1: L2.1. Continue to work with University of Michigan, Easter Michigan University, Gear Up, Early College Alliance, and the Young People's Project on the Math Literacy Project L2.2 Co-plan and host a community support program focusing on high expectations in mathematics, the new Michigan Merit Curriculum, and the importance of mathematical literacy for all	**Assessment Questions for Center Performance Effectiveness** 1. Are a variety of community groups working together to promote and define high expectations across counties? 2. Is the community engaged in the process of promoting mathematics literacy? 3. Is community awareness of mathematics expectations increased? 4. Are institutions providing parental support?	**References for data gathering:** 1. Registration for Math Literacy Project, meeting agendas and notes. 2. Roster of participants in community support program. 3. Survey of participants in community support program 4. Listing of parental support resources and the providers of these resources

Performance Effectiveness Indicator for Professional Development:

Educators who participate in Center Professional Development reflect best instructional practices in their own settings.

Identified Professional Development Needs Based on a Current Comprehensive Needs Assessment:

- Enhance skills in using calculators (CBL/CBR) interface for collecting and analyzing real-world data.
- Increase teacher knowledge in the areas (science) of cells, heredity and evolution (and/or equivalent HSCE)
- Increase teacher knowledge in the areas (mathematics) of number sense/numeration, geometry and data analysis/statistics (and/or equivalent HSCE)
- Continue to assist districts in aligning curriculum, instruction and assessment with the state educational standards

Center Five Year Goals for Professional Development:

PD1 Increase educators' knowledge and use of effective instructional practices that address the goals of mathematics and science content expectations.

PD2 Increase educators' content knowledge of mathematics and science as disciplines

PD3 Provide leadership development in mathematics and science

FOCUS OF PROGRAMMING YEAR 1—PROFESSIONAL DEVELOPMENT

PD1 Increase educators' knowledge and use of effective instructional practices that address the goals of mathematics and science content expectations.

List of planned programs for Year 1:	**Assessment Questions for Center Performance Effectiveness**	**References for data gathering:**
PD1.1 Math Institutes PD1.2 Lenses on Learning PD1.3 Math Steering Committee PD 1.4 Content-Focused Coaching with select high priority school districts PD1.5 Create on-line discussion forum for educators to share ideas / lesson plans with other local educators (pilot with one school) PD1.6 Use data collection to inform practice PD1.7 Algebra Critical Friends Group to support and develop effective instructional practices	1. Did teachers make significant and meaningful improvement in knowledge of mathematics pedagogy? 2. Are administrators seeing an increase in the use of effective instructional practices in the mathematics classroom? 3. Are representatives from all levels of math education and districts on the Math Steering Committee 4. Is there an observed increase in the use of effective instructional practices in the mathematics classroom? 5. Are teachers being exposed to creative and effective lesson plans in their content area? 6. Are educators exposed to their schools' data? Are they using that data to plan? 7. Are teachers being exposed to effective instructional practices that address content expectations?	1. Pre and Post Institute LMT items. 2. Pre and post Lenses survey of observed teacher practices. 3. Sign-in sheets from Math Steering Committee meetings 4. Center director's classroom observation notes from work with high priority school districts 5. On-line catalog of available lesson plans 6. Survey of educators 7. List of protocols performed throughout the year in CFG

Goal PD 2: Increase educators' content knowledge of mathematics and science as disciplines		
List of planned programs for Year 1: PD2.1 Math Institutes PD2.2 Laboratory Safety Training PD2.3 CBL/CBR Training PD2.4 Starlab training	**Assessment Questions for Center Performance Effectiveness** 1. Did teachers make significant and meaningful improvement in knowledge of mathematics content knowledge? 2. Did teachers increase their knowledge of laboratory science safety procedures? 3. Are teachers connecting the hands-on lessons of CBL/CBR training with course content knowledge? 4. Were teachers provided access to information about how the available Star lab equipment is applicable to their curriculum?	**References for data gathering:** 1. Pre and post Institute MMTC and Balanced Assessment items. 2. Post-training survey 3. Follow-up survey evaluating frequency and type of use of equipment 4. Registration for Starlab Training

Goal PD 3: Provide leadership development in mathematics and science		
List of planned programs for Year 1: PD3.1 Involve 3 members from each district in Mathematics Steering Committee and all offered professional development opportunities to build teacher leaders in each district PD3.2 Sponsor teachers in attending Mathematics Leadership Academies if offered PD3.3 MMSTLC participation	**Assessment Questions for Center Performance Effectiveness** 1. Are steering committee members seen as teacher leaders in their buildings? 2. Did teachers participate in provided leadership activities? 3. Are teachers from high priority schools invested in the MMSTLC process?	**References for data gathering:** 1. Pre- and post- steering committee membership survey 2. Registration for leadership activities 3. Commitment to continue participation in MMSTLC

Performance Effectiveness Indicators for Student Services:

Students impacted (directly and indirectly) by Center programs demonstrate progress toward mathematics and science literacy

Students will elect to participate in mathematics and science opportunities in greater numbers

Identified Student Service Needs Based on a Current Comprehensive Needs Assessment:

- Incorporate real-world opportunities for students to learn mathematic and science lessons
- Challenge students to accept and share responsibility for their own learning
- Encourage and facilitate collaboration among students

Center Five Year Goals for Student Services:

SS1 Increase opportunities for students to learn mathematics and science

SS2 Connect students to contextual mathematics and science in real time.

SS3 Identify and support low achieving districts / buildings to improve student achievement in science and/or mathematics

FOCUS OF PROGRAMMING YEAR 1—STUDENT SERVICES

Goal SS 1: Increase opportunities for students to learn mathematics and science		
List of planned programs for Year 1: SS1.1 Partner with University of Michigan and Eastern Michigan University to ensure all students are offered opportunities in enrichment programs SS1.2 Support the University of Michigan College of Engineering partnership with Ypsilanti schools' mathematics and science teachers SS1.3 Provide portable planetarium (Star Lab) to teachers.	**Assessment Questions for Center Performance Effectiveness** 1. Are at-risk students provided opportunities to learn through enrichment programs? 2. How many students are supported by the College of Engineering students? 3. Are students exposed to the portable planetarium?	**References for data gathering:** 1. List of available programs, student enrollment and at-risk status of school district/student 2. Number of classrooms supported by engineering students 3. Number of classrooms checking out the portable planetarium

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Goal SS 2: Connect students to contextual mathematics and science in real time		
List of planned programs for Year 1: SS2.1 Promote on-line learning opportunities SS2.2 Support teacher's use of technology in mathematics teaching through training in use of CBL/CBR SS2.3 Communicate outside of school opportunities to learn to community members	**Assessment Questions for Center Performance Effectiveness** 1. Are on-line learning opportunities being communicated to teachers? 2. Is training provided for using CBL/CBR to collect real-time data? 3. Are community members made aware of outside of school opportunities to learn?	**References for data gathering:** 1. Record of communications 2. Registration for CBL/CBR training and agenda for training 3. Record of communications

Goal SS 3: Identify and support low achieving school districts / buildings to improve student achievement in science and/or mathematics		
List of planned programs for Year 1: SS3.1 Work closely with high priority schools to examine and improve instructional practices and student achievement SS3.2 Partner with local universities to offer summer enrichment experiences in mathematics and science for low achieving students	**Assessment Questions for Center Performance Effectiveness** 1. Did low achieving school districts receive support? 2. Were summer enrichment programs available for low achieving students?	**References for data gathering:** 1. Record of site visits and work done during site visits 2. Record of summer enrichment program availability and registration

Performance Effectiveness Indicator for Curriculum Support:

Districts will develop and implement aligned curricula in mathematics and science classrooms

Identified Curriculum Support Needs Based on a Current Comprehensive Needs Assessment:

- Align curriculum, instruction and assessment programs with the state educational standards
- Provide content support in mathematics and science
- Enhance collaboration with colleagues within and across disciplines and grade levels to plan and implement curriculum

Center Five Year Goals for Curriculum Support:

CS1 Align curriculum, instruction and assessment programs with the state educational standards

CS2 Provide content support in mathematics and science

CS3 Facilitate and model the integration of technology into the mathematics and science curriculum

FOCUS OF PROGRAMMING YEAR 1—CURRICULUM SUPPORT

Goal CS 1: Align curriculum, instruction and assessment programs with the state educational standards		
List of planned programs for Year 1: CS1.1 Review and incorporate the alignment of curriculum, instruction and assessment with the state educational standards and graduation requirements into mathematics professional development planning process CS1.2 Establish collaboration between mathematics and CTE teachers to help align CTE coursework with new mathematics standards.	**Assessment Questions for Center Performance Effectiveness** 1. Are professional development opportunities aligned with curriculum, instruction, and assessment state standards? 2. Are CTE courses meeting mathematics fourth course standards?	**References for data gathering:** 1. Alignment documentation 2. Curriculum alignment documentation

Goal CS 2: Provide content support in mathematics and science		
List of planned programs for Year 1: CS2.1 Provide Everyday Mathematics teacher training	**Assessment Questions for Center Performance Effectiveness** 1. Was Everyday Mathematics training provided?	**References for data gathering:** 1. Record of registration.

Goal CS 3: Facilitate and model the integration of technology into the mathematics and science curriculum		
List of planned programs for Year 1: CS2.1 Provide CBL/CBR training for teachers CS2.2 Encourage participation in Moodle on-line learning communities and Moodle training	**Assessment Questions for Center Performance Effectiveness** 1. Were teachers provided an opportunity to experience the integration of CBL technology in the classroom through training? 2. Are teachers participating in online learning communities?	**References for data gathering:** 1. Agenda and registration for CBL/CBR training 2. Registration for online learning communities and Moodle training; list of newly created classroom Moodle communities

Performance Effectiveness Indicator for Community Involvement:

Individuals and groups from the community understand and support the goals and activities of the Center

Identified Community Involvement Needs Based on a Current Comprehensive Needs Assessment:

The survey indicated the need to:

- Collaborate with community groups to co-sponsor math/science programs and services.
- Involve the community in planning and implementing of math/science programs
- Promote public understanding of the goals and issues of math/science education

Center Five Year Goals for Community Involvement:

CI1 Increase knowledge of the community in supporting children to be successful in mathematics/science education

CI2 Center collaborates with business/industry, community groups, and higher education to co-sponsor mathematics and science programs and services to advance mathematics/science education

CI3 Increase awareness in the community regarding goals and standards in mathematics/science education

FOCUS OF PROGRAMMING YEAR 1—COMMUNITY INVOLVEMENT

Goal CI 1: Increase knowledge of the community in supporting children to be successful in mathematics/science education		
List of planned programs for Year 1: CI1.1 Co-plan and host a community support program focusing on high expectations in mathematics, the new Michigan Merit Curriculum, helping students to be successful in math and science and the importance of mathematical literacy for all CI1.2 Communicate outside of school opportunities to learn to community members	**Assessment Questions for Center Performance Effectiveness** 1. Is the community engaged in the process of promoting mathematics literacy? 2. Are institutions providing parental support? 3. Are opportunities to learn communicated with community members?	**References for data gathering:** 1. Roster of participants in community support program. 2. Listing of parental support resources and the providers of these resources 3. Record of communications

Goal CI 2: Center collaborates with business/industry, community groups, and higher education to co-sponsor mathematics and science programs and services to advance mathematics/science education		
List of planned programs for Year 1: CI2.1 Partner with local universities to offer summer enrichment experiences in mathematics and science for low achieving students CI2.2 Support the University of Michigan College of Engineering partnership with Ypsilanti schools' mathematics and science teachers	**Assessment Questions for Center Performance Effectiveness** 1. Are programs provided by local universities for low achieving students? 2.	**References for data gathering:** 1. List of programs provided and criteria for program admission 2.

CI 3. Increase awareness in the community regarding goals and standards in mathematics/science education

List of planned programs for Year 1:	Assessment Questions for Center Performance Effectiveness	References for data gathering:
CI3.1 Co-plan and host a community support program focusing on high expectations in mathematics, the new Michigan Merit Curriculum, helping students to be successful in math and science and the importance of mathematical literacy for all	1. Is community awareness of mathematics and science expectations increased?	1. Survey of participants in community support program

Performance Effectiveness Indicator for Resource Clearinghouse:

Resources provided by Centers are used to support best practices in mathematics/science education

Identified Resource Needs Based on a Current Comprehensive Needs Assessment:

The survey indicated the need to:

- Acquire, leverage and direct in-kind, human and financial resources to support program needs of local school districts.

Center Five Year Goals for Resource Clearinghouse:

RC1 Establish and maintain an efficient system for dissemination of information and materials to the schools and community

RC2 Create and sustain internet presence to support mathematics and science education

FOCUS OF PROGRAMMING YEAR 1—RESOURCE CLEARINGHOUSE

Goal RC 1: Establish and maintain an efficient system for dissemination of information and materials to the schools and community		
List of planned programs for Year 1: RC1.1 Create database of available materials and send listing with check-out information to all buildings RC1.2 Create a newsletter to disseminate information RC1.3 Establish math and science listservs to notify educators of opportunities	**Assessment Questions for Center Performance Effectiveness** 1. Has accurate database been created and disseminated? 2. Has newsletter been created and disseminated? 3. Have listservs been established and used?	**References for data gathering:** 1. Database records 2. Newletter archives 3. Listserv records

Goal RC 2: Create and sustain internet presence to support mathematics and science education		
List of planned programs for Year 1: RC2.1 Maintain Building a Presence contact list to communicate opportunities RC2.2 Create LAWMASC website with all pertinent information easily accessible from site	**Assessment Questions for Center Performance Effectiveness** 1. Does each building have a BaP Point of Contact? 2. Has an organized LAWMASC website with pertinent information accessible been created?	**References for data gathering:** 1. List of BaP Points of contact 2. Website archive