

# **Western UP Center for Science, Mathematics and Environmental Education**

## **FIVE YEAR STRATEGIC PLAN INCORPORATING QUALITY INDICATORS**

2009-2010 up to 2014-2015

### **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:**

- There is a need for the Center to collaborate with schools, community organizations, universities and statewide networks to develop high quality teacher and student programs and leverage resources to fund these programs.
- There is a need for the Center to provide leadership in helping school districts to develop relationships with resource organizations in their community to enhance educational programs and address needs in their community.

### **Center Five Year Goals for LEADERSHIP:**

- L1. The Center will collaborate with schools, community organizations, Finlandia University, and Michigan Technological University to develop high quality teacher and student programs and leverage resources to fund these programs.
- L2. The Center will provide assistance to schools to develop relationships with community organizations to support their educational programs.
- L3. The Center will participate in initiatives of the Michigan Math and Science Center Network and participate in regional, state and national conferences for professional growth and to contribute to the profession.

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**

**FOCUS OF PROGRAMMING YEAR 1—LEADERSHIP**

<p>L1. The Center will collaborate with schools, community organizations, Finlandia University, and Michigan Technological University (MTU) to develop high quality teacher and student programs and leverage resources to fund these programs.</p>		
<p><b>List of planned programs for Year 1:</b></p> <p>L1.1 Collaborate with the Copper Country ISD, Gogebic Ontonagon ISD, community organizations, Finlandia University and MTU to coordinate teacher and student programs.</p> <p>L1.2 Collaborate with the Copper Country ISD, Gogebic Ontonagon ISD, community organizations, businesses, Finlandia University, and MTU to pursue funding and resources for teacher and student programs.</p>	<p><b>Assessment Questions for Center Performance Effectiveness</b></p> <p>1.1 Does collaboration result in more student and teacher programs in the Center’s service area?</p> <p>1.2 Does collaboration result in more funding for student and teacher programs in the Center’s service area?</p>	<p><b>References for data gathering:</b></p> <p>1.1 Document programs that are a result of collaborative efforts with other organizations.</p> <p>1.2 Document programs that are result of collaborative efforts to write grants or pursue program funding.</p>
<p>L2. The Center will provide assistance to schools to develop relationships with community organizations to support their educational programs.</p>		
<p><b>List of planned programs for Year 1:</b></p> <p>L2.1. Provide assistance to Lake Superior Stewardship Initiative (LSSI) school teams to develop community partnerships for stewardship projects in their community</p>	<p><b>Assessment Questions for Center Performance Effectiveness</b></p> <p>2.1. Do community partnerships help schools engage students in stewardship projects in their community?</p>	<p><b>References for data gathering:</b></p> <p>2.1. Document school team projects through LSSI and the community partners that assisted with the projects.</p>
<p>L3. The Center will participate in initiatives of the Michigan Math and Science Center Network and participate in regional, state and national conferences for professional growth and to contribute to the profession.</p>		

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**

<b>List of planned programs for Year 1:</b>	<b>Assessment Questions for Center Performance Effectiveness</b>	<b>References for data gathering:</b>
<p>L3.1 Implement the activities of the Michigan Mathematics Leadership Academy (MMLA) and the Michigan Science Leadership Academy (MSLA) in the Center's service area.</p>	<p>3.1 Does MMLA and MSLA provide high quality professional development for teachers?</p>	<p>3.1 Workshop agendas and evaluations.</p>
<p>L3.2 Serve as a satellite site for the Algebra for All project.</p>	<p>3.2 Does the Algebra for All provide teachers with strategies to help all learners master the Algebra 1 content expectations?</p>	<p>3.2 Workshop agendas and evaluations.</p>
<p>L3.3 Implement the activities of the High School Math and Science Success (HSMASS) in the Center's Service area.</p>	<p>3.3 Does the HSMASS provide high quality professional development for teachers?</p>	<p>3.3 Workshop agendas and evaluations.</p>

**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:**

- There is a need for differentiated instruction and assessment that engages all types of learners in relevant learning experiences that encourage higher order thinking.
- There is a need for strategies that motivate students to take responsibility for their learning.
- There is a need for helping teachers develop an instructional plan that leads to the mastery of Michigan Content Expectations and promotes an interdisciplinary approach to teaching and learning.
- There is need for teachers to collaborate on a regular basis concerning instructional and assessment strategies and teaching resources.

**Center Five Year Goals for Professional Development:**

PD1 The Center will provide high quality professional development opportunities that help teachers implement state and national standards, model effective teaching and assessment strategies for all learners, and promote an interdisciplinary approach.

PD2 The Center will provide opportunities for teachers to participate in professional learning communities to explore effective teaching resources and develop strategies to motivate students to take responsibility for their learning.

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**  
**FOCUS OF PROGRAMMING YEAR 1—PROFESSIONAL DEVELOPMENT**

<p>PD1 The Center will provide high quality professional development opportunities that help teachers implement state and national standards, model effective teaching and assessment strategies for all learners, and promote an interdisciplinary approach.</p>		
<p><b>List of planned programs for Year 1:</b></p> <p>PD1.1 Provide quality professional development on the Lake Superior Watershed and community based education.</p> <p>PD1.2 Provide quality and sustained professional development on mathematics content and practice through the Rethinking Elementary Math Instruction (REMI) project.</p> <p>PD1.3 Develop and implement Educators Professional Development Institute Series (EPDIS) in Physical Science</p> <p>PD1.4 Develop and implement the Global Change Institute</p> <p>PD 1.5 Develop and implement the Future Fuels from Forests Institute.</p> <p>PD 1.6 Develop and implement the Great Lakes Maritime Transportation Institute</p>	<p><b>Assessment Questions for Center Performance Effectiveness</b></p> <p>1.1 Does this professional development help schools engage students in community-based projects that have an impact on their community and the Lake Superior Watershed?</p> <p>1.2 Does the REMI project increase the content knowledge of the participating teachers and improve the teaching and learning of mathematics?</p> <p>1.3 Does EPDIS provide teachers with resources and strategies to engage students in real world application of the physics and chemistry content expectations?</p> <p>1.4 Does this institute provide teachers with resources and strategies to engage students in scientific research on climate change?</p> <p>1.5 Does this institute provide teachers with resources and strategies to engage students in scientific research concerning alternate forms of energy?</p> <p>1.6 Does this institute provide teachers with resources and strategies to engage students in learning about the various aspects of maritime transportation?</p>	<p><b>References for data gathering:</b></p> <p>1.1 Workshop agendas and evaluations, projects plans, reported outcomes, and documentations of community partnerships.</p> <p>1.2 Pre and post -tests of the participating teachers' content knowledge and classroom observations of participating teachers.</p> <p>1.3 Workshop agendas and evaluations. Pre and post -tests of the participating teachers' content knowledge.</p> <p>1.4 Workshop evaluations and examples of unit plans created by participating teachers.</p> <p>1.5 Workshop evaluations and examples of unit plans created by participating teachers.</p> <p>1.6 Workshop evaluations and examples of unit plans created by participating teachers.</p>
<p>PD2 The Center will provide opportunities for teachers to participate in professional learning communities to explore effective teaching resources and develop strategies to motivate students to take responsibility for their learning.</p>		

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**

<b>List of planned programs for Year 1:</b>	<b>Assessment Questions for Center Performance Effectiveness</b>	<b>References for data gathering:</b>
PD2.1 Build and facilitate learning communities for teachers to share teaching resources.	2.1 Do learning communities help teachers grow professionally and provide an opportunity for teachers to network?	2.1 Surveys of teacher participants

**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:**

- There is a need to engage students in relevant learning experiences that give them the tools to be productive citizens in their community.
- There is a need to engage students in learning experiences that promote higher order thinking and allow them to develop real world connections of mathematics and science concepts.

**Center Five Year Goals for Student Services:**

SS1 The Center will provide support to schools to engage students in stewardship projects or service learning projects in their community.

SS2 The Center will provide programs that engage students in activities that promote higher order thinking and develop real world connections of mathematics and science concepts.

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**  
**FOCUS OF PROGRAMMING YEAR 1—STUDENT SERVICES**

SS1 The Center will provide support to schools to engage students in stewardship projects or service learning projects in their community.		
<b>List of planned programs for Year 1:</b>  SS1.1 Provide financial and logistical support to Lake Superior Stewardship Initiative (LSSI) school teams to implement stewardship projects in their community	<b>Assessment Questions for Center Performance Effectiveness</b>  1.1 Does involvement in stewardship project develop productive citizens and stewards of the Great Lakes?	<b>References for data gathering:</b>  1.1 Student, parent and community surveys, and report of project outcomes.

SS2 The Center will provide programs that engage students in activities that promote higher order thinking and develop real world connections of math and science concepts.		
<b>List of planned programs for Year 1:</b>  SS2.1 Develop and implement the Western Upper Peninsula Science Fair for students in grades 4-8.  SS2.2 Work with local schools to conduct science fairs in their own buildings.  SS2.3 Develop and implement afterschool science and math classes.  SS2.4 Develop and implement ecology field trips for students and teachers at school forests, state parks and local wildlife areas.  SS2.5 Develop and implement TIVITZ mathematics program for grades 4-8.  SS2.6 Develop and implement an assembly program that addresses topics in math, science and environmental science.	<b>Assessment Questions for Center Performance Effectiveness</b>  2.1 Does the science fair develop understanding of the scientific research?  2.2 Do the local science fairs develop understanding of the scientific research?  2.3 Do afterschool classes motivate students to be involved in more science and math activities?  2.4 Do field trips promote understanding of ecosystems in the Lake Superior Watershed and promote environmental stewardship?  2.5 Does the TIVITZ program engage more students in problem solving activities?  2.6 Does the assembly program enhance the teaching of science and math topics in the curriculum?	<b>References for data gathering:</b>  2.1 Interviews with students, teachers and judges and examples of student work.  2.2 Interviews with students, teachers and examples of student work.  2.3 Student Surveys.  2.4 Student and Teacher Surveys  2.5 Student and Teacher Surveys.  2.6 Student and Teacher Surveys.



**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**

**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:**

- There is a need for school districts to develop an instructional plan (scope and sequence) that leads to the mastery of Michigan Content Expectations and promotes an interdisciplinary approach to teaching and learning.
- There is a need for school districts to effectively use student assessment data to guide their instructional plans and classroom instruction.

**Center Five Year Goals for Curriculum Support:**

CS1 The Center will work through the school improvement process to support districts as they develop an instructional plan that allows all students to master the Michigan Content Expectations.

CS2 The Center will provide professional development on how to use student assessment data to guide instructional planning.

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**  
**FOCUS OF PROGRAMMING YEAR 1—CURRICULUM SUPPORT**

<p>CS1 The Center will work through the school improvement process to support districts as they develop an instructional plan that allows all students to master the Michigan Content Expectations.</p>		
<p><b>List of planned programs for Year 1:</b></p> <p>CS1.1 Provide quality professional development for teachers and administrators on the school improvement process and curriculum mapping.</p>	<p><b>Assessment Questions for Center Performance Effectiveness</b></p> <p>1.1 Does this professional development provide educators with the tools to use the school improvement process to improve student achievement?</p>	<p><b>References for data gathering:</b></p> <p>1. Workshop agendas and evaluations.</p>
<p>CS2 The Center will provide professional development on how to use student assessment data to guide instructional planning.</p>		
<p><b>List of planned programs for Year 1:</b></p> <p>CS2.1 Provide professional development on the Data for Student Success database and how to use the database to guide instructional planning.</p>	<p><b>Assessment Questions for Center Performance Effectiveness</b></p> <p>2.1 Does this professional development provide educators with the tools to plan effective instruction?</p>	<p><b>References for data gathering:</b></p> <p>2. Workshop agendas and evaluations.</p>

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**

**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:**

- There is a need to provide opportunities for families to be involved in relevant learning experiences that strengthen the family unit as an important teaching and learning resource.
- There is a need for schools and community organizations to work together to address community needs and promote stewardship of the Great Lakes watershed.

**Center Five Year Goals for Community Involvement:**

C11 The Center will provide family programs that engage all members in relevant learning experiences.

C12 The Center will promote school community partnerships to address community needs and stewardship of the Great Lakes Watershed.

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**  
**FOCUS OF PROGRAMMING YEAR 1—COMMUNITY INVOLVEMENT**

CI1 The Center will provide family programs that engage all members in relevant learning experiences.		
<b>List of planned programs for Year 1:</b>	<b>Assessment Questions for Center Performance Effectiveness</b>	<b>References for data gathering:</b>
CI 1.1 Develop and conduct Family Science/ Engineering and Math Nights to be held at elementary schools.	1.1 Do family nights encourage parent involvement in their children’s education?	1.1 Parent surveys.
CI 1.2 Develop and conduct the Science Festival for students, parents and younger siblings at the Western UP Science Fair.	1.2 Does the science festival encourage parent involvement in their children’s education?	1.2 Parent Surveys
CI 1.3 Develop and conduct Great Lakes Environmental Stewardship and Sustainability programs.	1.3 Do these workshops give participants a better understanding of Great Lakes Watershed, stewardship and sustainability?	Participant surveys
CI 1.4 Develop and conduct the Get Kids Outdoors Michigan Summit.	1.4 Does this summit provide participants with the resources to engage students in outdoor activities that promote stewardship of the Great Lakes area?	1.4 Participant surveys

CI2 The Center will promote school community partnerships to address community needs and stewardship of the Great Lakes Watershed.		
<b>List of planned programs for Year 1:</b>	<b>Assessment Questions for Center Performance Effectiveness</b>	<b>References for data gathering:</b>
CI 2.1 Bring together schools and community organizations through LSSI to conduct environmental stewardship projects and support their efforts.	2.1 Will the LSSI engage students in stewardship projects that have a meaningful impact on their community?	2.1 Document the impact of the LSSI stewardship projects on the ecosystem and communities in the Lake Superior Watershed.

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**

**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:**

- There is a need for effective communication plan to inform educators, communities and families of the programs offered by the Center and build support for Center programs.
- There is need for educators to find quality teaching resources to enhance the learning experience for students.

**Center Five Year Goals for Resource Clearinghouse:**

RC1 The Center will develop and implement a communication plan promoting their programs and services.

RC2 The Center will provide high quality educational resources to schools through professional development and a lending library.

**Western UP Center -FIVE YEAR STRATEGIC PLAN 2009-2010 up to 2014-2015**  
**FOCUS OF PROGRAMMING YEAR 1—RESOURCE CLEARINGHOUSE**

RC1 The Center will develop and implement a communication plan promoting their programs and services.		
<b>List of planned programs for Year 1:</b>	<b>Assessment Questions for Center Performance Effectiveness</b>	<b>References for data gathering:</b>
RC1.1 Develop and implement a communication plan to effectively promote the programs of the Center.	1.1 Are teachers, administrators, students, parents and community members more aware of the Center's programs?	1.1 Surveys of stakeholders in the service area.

RC2 The Center will provide high quality educational resources to schools through professional development and a lending library.		
<b>List of planned programs for Year 1:</b>	<b>Assessment Questions for Center Performance Effectiveness</b>	<b>References for data gathering:</b>
RC 2.1 Maintain a lending library of standards-based activity guides, children literature, activity kits and equipment.	2.1 What resources are used by educators?	2.1 Records of what materials are checked out.
RC 2.2 Provide teachers with high quality teaching resources at professional development programs.	2.2 Do teachers use these materials in their instruction?	2.2 Teacher surveys.