



**WESTERN FOOTHILLS**  
REGIONAL SCHOOL UNIT #10

**Craig King**  
Superintendent of Schools

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Dixfield, ME 04224  
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**RSU #10**

Date: 9/23/14

Send To: Diana Diron

Attention: '' ''

From: Gloria Jenkins

Fax Number: 1-877-227-9838

Total Pages Including Cover: 3/

**Fax**

- Urgent  Reply ASAP  Please Comment  Please Review  For Your Information

Comments:

**Submittal Window**

1. Indicate the submitting date.

August 18, 2014, 5 pm     September 17, 2014, 5 pm     October 18, 2014, 5 pm

**Superintendents Region**

2. Indicate the superintendent region in which your SAU is a member.

Aroostook	
Cumberland	
Hancock	
Kennebec Valley	
Midcoast	
Penquis	
Washington	
Western Maine	X
York	

3. School Administrative Unit: **RSU 10**
4. High School(s): **Buckfield J/S High School, Dirigo High School, Mountain Valley High School,**
5. Name and title of person completing the extension request: **Gloria Jenkins, Assistant Superintendent**
6. Superintendent's name, address, phone number and email: **Craig King, 33 Nash St., Dixfield, Maine 04224, cking@rsu10.org**

**Option 3 Authorization Page**

Annually the SAU will provide evidence of progress and will submit an extension renewal request to the Maine DOE by July 1. This request will include:

- evidence of progress toward the identified annual benchmarks;
- goals and benchmarks for continued progress over the next school year toward the awarding of diplomas based on proficiency of the standards of the eight content areas and the standards of the Guiding Principles; and
- a budget for use of additional proficiency-based diploma transition funds.

We certify that the information contained in the extension application accurately reflects the current status of our implementation of proficiency-based diplomas.

We certify that the criteria for awarding a diploma beginning after July 1, 2020 will be the following criteria from Maine Revised Statutes 20-A §4722-A:

- A. Demonstrate that the student engaged in educational experiences relating to English language arts, mathematics and science and technology in each year of the student's secondary schooling;
- B. Demonstrate proficiency in meeting state standards in all content areas of the system of learning results established under section 6209;
- C. Demonstrate proficiency in each of the Guiding Principles set forth in department rules governing implementation of the system of learning results established pursuant to section 6209; and
- D. Meet any other requirements specified by the governing body of the school administrative unit attended by the student.

*Chang An*  
Superintendent of Schools

9/18/14  
Date

*Bruce A. Ross*  
Chair of School Board

9/22/14  
Date

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### **Background**

In 2010 Regional School Unit (RSU) 10 was created by joining three former School Administrative Districts: SAD, 21, SAD 39, SAD 43. RSU 10 includes 4 elementary schools, 2 middle schools, 3 high schools (one of which is a 7-12 school). High school students attend two Centers for Technical Education, Region 9 and Region 11. Students who are identified with significant behavior needs attend the RSU 10 Pennacook Day Treatment Center. Two alternative education programs are available: one at Mountain Valley High School and one at Dirigo High School. RSU 10 has a student enrollment of 2600 students.

A June 2010 Future Search addressed the question, *Over the next five years, what must RSU #10 become to be responsive to the current and future needs of our children?* Guiding Beliefs and Goals created from the Future Search data guided the early development in the areas of curriculum, instruction, and assessment (Evidence #1).

“Becoming One” in the areas of curriculum, instruction, and assessment began with the formation of Curriculum Teams for each content area. The Future Search Guiding Beliefs provided parameters for this early work. Concurrently the RSU 10 Response to Intervention Teams (math and reading) chose common Universal Screeners and designed a flow chart for a 3-Tier model. An RSU 10 Writing Task Force designed a common writing prompt (Opinion/Argument) for all students K-9 (later changed to K-10). Grade Level meetings and 6-12 Content Area Teams met to build a common understanding of Learning Expectations and explore common assessments. A third RSU-wide Team, the Grading Task Force, studied grading practices, drafted Grading Practices procedures, then realized the grading practices could not be an isolated part of a school system.

The impact from this early work was only with the staff and students. Although some schools had used common writing prompts and a double scoring process, common curriculum, standards based rubrics, and double scoring was new to some teachers and students.

The second phase of Becoming One with curriculum, instruction and assessment began when the Grading Task Force morphed into the MCL Task Force, as the district became an Associate member of the Maine Cohort for Customized Learning. The partnership with MCCL (and later Western Maine Education Collaborative) provided RSU 10 with connection to a curriculum model (Evidence 2) and learning management system, PBE schools to visit (Evidence 3), a continuous improvement mindset, professional development, an instructional model that is connected to a Professional Growth/Professional Evaluation model and a change process that provides a timeline for our work. (Evidence 4) In 2012-2013 the new Superintendent instituted an overall framework for PBE work, the Correlates of Effective Schools as well as a structure for continuous learning, Professional Learning Communities.

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### **Evidence of Readiness: Policy**

The RSU 10 Board Policy Committee has established a sequence of policies to be reviewed in 2014-2015 (Evidence 5). The Committee will work on policies related to PBE in December through April. In preparation for their work on PBE policies they have collected model policies from Maine School Management as well as from Drummond and Woodsum. They have had several presentations as a full Board and within the newly established Curriculum Committee (Evidence 6) They receive copies of the Curriculum Update newsletters and attend MSMA Fall Conference where they learn about what other schools are doing with PBE. See samples of Updates at <http://district.rsu10.org/cia/#tab-id-2>. The Board members also read the book, *Inevitable*, (Schwann and McGarvey, 2011) along with all RSU 10 staff. Completed policies are posted at [www.rsu10.org](http://www.rsu10.org).

School level procedures related to PBE can be found in student handbooks. Mountain Valley High School, which has been called the trailblazer for RSU 10, posts its handbook at <http://district.rsu10.org/mvhs/wp-content/uploads/sites/5/2014/08/MVHS-1415-Student-Handbook-Final.pdf>. At this time procedures related to the use of Empower and transition from PowerSchool, grading practices, defining proficiency, and reporting to parents are considered school level procedures and/or drafts of procedures. See <http://district.rsu10.org/cia/#tab-id-4> for the Grading Procedures.

### **Evidence of Readiness: Family and Community Engagement**

All staff is required to have a web presence linked to the RSU 10 web site ([www.rsu10.org](http://www.rsu10.org)). Most schools have Facebook pages and all have a web page. PBE information is presented in several ways; print information (Evidence 7), principal presentation (see <http://district.rsu10.org/des/home/principals-page>), newsletters, and Fire Side Chats. One school has connected Habits of Mind to its PBIS work and has invited community members to plan with them around this initiative

### **Evidence of Readiness: Capacity**

Eight of the nine schools have built an intervention time and process into its schedule. All have moved to a trimester schedule with nearly identical periods to allow flexibility for staff to teach in multiple schools and for students to take classes in multiple schools. Schools have added a mid-year, afterschool Study Buddy/credit recovery opportunity. The timing allows students to catch up before failing for the entire year. K-8 schools have built schedules that allow grouping and re-grouping to meet individual needs. All schools have a weekly Late Arrival Wednesday (LAW), which provides one hour for moving school and district initiatives ahead. LAWs and four Workshop Days also provide time for staff to achieve the Staff Learning Goals for the year (Evidence 9). A third use of LAW is for Professional Learning Communities (i.e. reviewing student work and data, and planning next steps). High schools have yet to create procedures for

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external courses and student-designed learning experience as part of PBE although a there has been a two-day work session to match two CTE programs to Learning Targets (Evidence 10).

Two schools have added a teacher position whose role includes coordination of interventions and making data readily available for PLCs. Teacher Leaders have school level leadership roles and also have district level leadership roles (Evidence 11).

A Learning Management System (LMS), Empower, will allow teachers, students, and parents to track student progress from one year to another.

An additional kind of capacity is the level of professional training and implementation of the training. All staff read and held book talks at staff meetings on the book, *Inevitable*. Some schools have done the same with *Mindset*, *Strategic Teacher*, and other books. All administrators and 10 teachers attended a four day seminar with Bea McGarvey to deepen their understanding of MCL and to plan how to implement it. This was followed by a one-day workshop facilitated by Judy Enright as which all staff envisioned an MCL model for RSU 10 (See one RSU 10 teacher's vision at <https://www.youtube.com/watch?v=1BIXGqueLUc&feature=youtu.be>). All staff then attended a one-day workshop by Bea McGarvey to learn about structures and strategies for MCL (Evidence 12). Teachers and administrators visited MCL schools to see what MCL looked like in the classrooms.

All staff is required to do Basic Training, a 3-day session on PBE led by the Assistant Superintendent or by Linda Laughlin of MCCL. Other MCCL trainings (e.g. *The Art and Science of Teaching*, Complex Reasoning) have been attended by teacher leaders (Evidence 13). Staff Learning Goals are set from *Art and Science of Teaching* as well as skill with Empower.

At the recent WMEC PBE Boot Camp, each school listed its accomplishments. All schools listed accomplishment of the Staff Learning Goals for 2013-14 (communicating learning goals and classroom procedures), an RTI structure, ongoing professional learning, and curriculum work using standards (e.g. integrated units, teaching of Habits of Mind and/or Complex Reasoning Skills). Most listed vision and/or mission creation, systems for recording and reporting data as well as a goal setting and reflection system for teachers, with some using student goal setting and student tracking of their own progress. Three schools listed the use of formative assessment as an accomplishment. Four listed grouping and regrouping of students. A common vocabulary was listed as an accomplishment by one school and standards-based proficiency as a condition of earning credit by one school. Multiple pathways include college coursework and middle school students taking high school courses. One high school that is implementing PBE for the class of 2017 listed the following as an accomplishment: *Freshmen students in core classes were held to a 2.5 on each assessment to show proficiency in every core class. (Over 90% of all freshmen met those criteria). This compares to the typical trend of 20% of our freshmen failed two or more classes. Out of 130 Freshmen only 14 failed multiple courses this year.*

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Another secondary school listed its success with PBE as:

*Common Language*

*20% teachers use a workshop model and matrices*

*Increased opportunities for students to move at their own pace*

*We have a much better idea of the level of proficiency of each student*

*Learning Targets are explicit*

*Habits of Mind are being taught and assessed*

*PBIS lessons support the development SOPS school wide*

*The use of SOPS is resulting in efficient learning*

*Improved student scores*

*Aligning instruction & assessment with learning targets and taxonomy level*

*Classroom engagement is heightened*

*Self discipline & behaviors are more positive*

### **Evidence of Readiness: Learning Expectations**

Learning Expectations for K-12 are in Empower. Although RSU 10 holds the belief that students learn in different ways and at different times, the Vertical Teams have posted Learning Expectations by grade level on First Class. Teachers will gradually transition to using only student progress information on Empower to plan instruction (Evidence 14). Learning Expectations include Complex Reasoning, Content, and Habits of Mind/Guiding Principles.

Three schools are beginning to expand their use of integrated curriculum units that include some student choice, the workshop model, and seminars are a way to engage students in the Learning Expectations.

### **Evidence of Readiness: Leadership**

The Teacher Leader role is described above. Administrative leadership for PBE comes from one 9-12 principal, one 6-12 principal, one 7-12 principal, one 6-8 principal, one PreK-6 principal, three PreK-5 principals, one Assistant Superintendent, one Director of Special Services, and the Superintendent. The RSU 10 Board, its Curriculum Committee and its Policy Committee also provide leadership.

The Board has begun a process to create goals. The Steering Committee has a created district wide mission statement. Each school and many classrooms have created mission and/or vision statements. Each school has created a Code of Conduct and each school has annual goals that are tied to staff learning goals and Correlates of Effective Schools. Literacy Leaders have created a Literacy missions and vision as well as an action plan. In all cases the process for creating these used input from a diverse group of stakeholders. The process used a consensus model while allowing for individual voice.

### **Evidence of Readiness: System of Supports**

The RSU 10 Data Specialist maintains and trains for use of INFORM, which can be used for Progress Monitoring. Some school teams use data walls and/or data collections other than INFORM. RSU 10 has purchased ST Math as its first, evidenced

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based math intervention. It is also available for all grade five students. RSU 10 has also hired a Math Interventionist who has developed an identification process for students in grades 3-5 and is now scheduling both push in and pull out intervention times.

All elementary schools provide a full day Pre-K program. This year a summer program included incoming Pre-K students.

Literacy supports are available at the elementary schools for Tier 2 and 3 and at one middle school. In the other middle schools teachers are learning to use the Workshop Model that will allow time for teachers to work with groups of students with different needs. Technology will be used to provide some Tier 2 interventions for both math and ELA. One high school has a scheduled intervention time and requires students who are not showing proficiency to attend a Target Time. The other high schools have a scheduled time for interventions with teachers scheduling the students that they need to see based on classroom performance. One of the high schools has a .5 interventionist to work with struggling students. One elementary school has an alternative experience available for students in grades 3-5, which allows flexible grouping, community service, and attention to relevance.

#### **Evidence of Readiness: Alignment to Standards**

One high school has done much work with creating units based on standards. Unpacking standards with students, or some other form of communicating learning targets with students is required in all classes. The use of a standards-based rubric/scale is required (See Grading Procedures at [www.rsu.10.org](http://www.rsu.10.org). Departments>Student Learning>Downloads). However, staff has not established a common definition for proficiency nor practiced the mechanism for determining proficiency for graduation.

#### **Information Technology**

RSU 10 has multiple information technology platforms. SWIS tracks data on behavior and is part of our PBIS system. Empower is our Learning Management System and provides tracking and reporting of student progress. It also provides transparency to students and parents about the intended curriculum. INFORM stores student test data as well as progress monitoring data. It is connected to our SIS, which is PowerSchool. PowerSchool is also used for grading and available to parents.

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**“Getting to Proficiency”  
Plan**

<b>Appendix A: 2014-2015 Policy and School Level Procedures</b>	
K-12	<ul style="list-style-type: none"> <li>Board policy development (e.g. Graduation Requirements, Curriculum Development, Progress through the School System)</li> <li>Grading Procedures implemented (RSU 10 Making Decisions about Proficiency (<a href="http://district.rsu10.org/wp-content/uploads/2014/09/Grading-Procedures-Aug.-.pdf">http://district.rsu10.org/wp-content/uploads/2014/09/Grading-Procedures-Aug.-.pdf</a>))</li> <li>Establish consensus on Replacement/Retake section of Grading Procedures</li> <li>By third trimester all staff will be at Level 3 on the Empower Capacity Matrix <a href="http://distributedpd.wordpress.com/">http://distributedpd.wordpress.com/</a> (This means that staff have at least the basic skills with Empower.)</li> </ul>
K-8	<ul style="list-style-type: none"> <li>By third trimester, report cards will be created in Empower</li> </ul>
9-12 (All)	<ul style="list-style-type: none"> <li>Determining conversion and algorithm for GPA, Honor parts, diploma</li> <li>Determine recording and reporting procedures for classes that are not standards-based</li> <li>Determine school level procedures for intervention</li> </ul>
9-12: Mountain Valley High School	<ul style="list-style-type: none"> <li>All Class of 2018 and Class of 2017 required to demonstrate Emerging Proficiency (2.5) or higher on all graded assignments in 8 content areas</li> <li>An average of assignment grades must be a 2.7 or higher for course credit</li> <li>Recording and reporting in PowerSchool</li> <li>Determine opportunities to learn Guiding Principles</li> </ul>
9-12: Dirigo High School	<ul style="list-style-type: none"> <li>Implement Grading Procedures (e.g. Separate attendance, behavior from academic achievement)</li> <li>Identifying the differences among practice work, formative work, and summative work</li> <li>Scoring formative assessments with scoring guides (1-4 scores), as well as 1-100</li> <li>Scoring summative assessments with scoring guides (1-4 scores) as well as 1-100</li> <li>Continue to use PowerSchool and conversions to 1-100 for recording and reporting</li> <li>Prepare to grade, assess, and report using 1-4 with the Class of 2019</li> </ul>
Buckfield Jr/Sr High School	<ul style="list-style-type: none"> <li>For the Class of 2018: 2.5 on all Learning Targets required for graduation</li> <li>Use of PowerSchool for recording and reporting.</li> <li>Scores are also entered into Empower,</li> <li>By third trimester there will be a PowerSchool report card and a pilot of an Empower Report Card,</li> <li>1-4 are converted to letter grades on the transcript and report cards</li> </ul>
K-12	<ul style="list-style-type: none"> <li>Board continues to refine policies</li> </ul>

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	<ul style="list-style-type: none"> <li>Procedures for certifying Learning Targets and Measurement Topics</li> <li>Procedures for scoring and reporting of Habits of Mind/Guiding Principles</li> <li>Procedures established for certifying Multiple Pathways (e.g. external learning opportunities, individual student plans)</li> <li>Recording and reporting with Empower (1-4 grades)</li> <li>Final grades and transcripts from PowerSchool for Class of 2019 and mixed classes (also Class of 2017 and 2018 at MVHS, Class of 2018 at BJSHS). This will mean that students and parents receive 2 report cards.</li> <li>Re-learning/re-teaching opportunities required for students not achieving 2.5 or higher on all assignments</li> <li>2.75 average on Learning Targets of a course, with none less than 2.5, for course credit</li> </ul>
9-12	<p><b>Handbook for 2017-2018 Policy and School Level Practices</b></p> <ul style="list-style-type: none"> <li>Board continues to refine policies to match PBE language and vision</li> <li>Class of 2020: All student required to demonstrate at least a 2.5 on all assignments or participate in required re-learning/re-teaching process</li> <li>An average of 2.75 on all course Learning Targets is needed for course credit</li> <li>Habits of Mind/Guiding Principles are included in the grades</li> </ul>
K-12	<p><b>Handbook for 2017-2018 Policy and School Level Practices</b></p> <ul style="list-style-type: none"> <li>Classes of 2021 and beyond: All students required to demonstrate a 2.75 on assignments or participate in required re-learning/re-teaching process.</li> <li>A score of 3.0 on Measurement Topics (i.e. graduation standards) for graduation and credit.</li> </ul>
9-12	<p><b>Responsible Person: Superintendent, Assistant Superintendent, Board, Principals</b>  <b>Evidence: Policies on RSU 10 Website, Student Handbooks, Principal Observation</b>  <b>Impact: Public's awareness of PBE, increase levels of student proficiency, consistency among schools, clear graduation targets</b></p>
K-12	<p><b>Responsible Person: Superintendent, Assistant Superintendent, Board, Principals</b>  <b>Evidence: Policies on RSU 10 Website, Student Handbooks, Principal Observation</b>  <b>Impact: Public's awareness of PBE, increase levels of student proficiency, consistency among schools, clear graduation targets</b></p> <ul style="list-style-type: none"> <li>Teacher Training on Empower</li> <li>Tech staff attend Empower User Group</li> <li>Media campaign about PBE (Evidence 15)</li> <li>Community and Parent Discussions</li> <li>Determine the core message (check-and-adjust, plans, timelines, examples)</li> <li>Parent informational sessions about Empower</li> <li>Parent access to PowerSchool and Empower by third trimester</li> <li>Report cards from Empower K-8, if ready</li> </ul>

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9-12	<ul style="list-style-type: none"> <li>Parent meetings for incoming freshmen</li> </ul> <p>Responsible Person: High School Principals, Technology Staff, Assistant Superintendent                      Evidence: # of parents who access Empower and PowerSchool, agendas and Parking Lots from forums                      Impact: Parent and community engagement</p>
K-12	<p><b>Benchmark for 2015-2016 Community Engagement</b></p> <ul style="list-style-type: none"> <li>Student &amp; Parent Conferences use data from Empower and exemplars of proficient work</li> <li>Community partners provide External Learning Opportunities</li> <li>Media resources are used to track school improvement</li> <li>Parent access to Empower</li> <li>Student Handbooks, Parent meetings with the principals, etc used to communicate PBD</li> </ul>
9-12	<p>Freshman Parent meetings and course registration include PBE information (Policy and Practices)</p> <p>Person Responsible: Guidance, Principals, Assistant Superintendent, Teachers                      Evidence: Parent Survey, inventory of external learning opportunities, examples of media                      Impact: Community and Parent engagement</p>
	<p><b>Benchmark for 2015-2016 Community Engagement</b></p> <ul style="list-style-type: none"> <li>External learning opportunities are available</li> <li>Increased student achievement is highlighted with local media</li> </ul>
	<p>Person Responsible: Guidance, media liaison                      Evidence: # of opportunities for external learning experiences                      Impact: Student learning, community engagement</p>
K-12	<p><b>Benchmark for 2015-2016</b></p> <ul style="list-style-type: none"> <li>Use DQ 2 and DQ 3 in instructional practices (What will I do to support students to engage in new information? What will I do to help students practice and deepen understanding of new knowledge?)</li> <li>Track student progress in Empower</li> <li>All staff trained on Empower</li> </ul>
9-12: Buckfield Junior/Senior High School	<ul style="list-style-type: none"> <li>For the Class of 2018 enter grades in Empower</li> <li>Certify Learning Targets anytime</li> <li>Convert for GPA and course grade for transcripts</li> <li>Students begin to move at their own pace</li> <li>Increase personalized instructional</li> <li>Articulate Habits of Mind</li> </ul>
	<p>For the Class of 2019- same as above as well as Walkthroughs focused on Learning Targets and curriculum transition, 2-3 Habits of Mind focus of all staff</p>

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<p>9-12: Dirigo High School</p>	<ul style="list-style-type: none"> <li>• Learning to use Empower,</li> <li>• Differentiating formative and summative assessments,</li> <li>• Scoring student work for proficiency,</li> <li>• Using scoring guides with students but not for grades,</li> <li>• Surveying staff for planning professional development,</li> <li>• Embedding the learning targets into regular instructional practice, including unit plans and daily plans</li> <li>• Sharing (unpacking) learning targets with students</li> </ul>
<p>9-12: Mountain Valley High School</p>	<ul style="list-style-type: none"> <li>• 100% of staff have attended Basic Training,</li> <li>• Staff Book Study of <i>Effective Supervision: Supporting the Art and Science of Teaching</i>,</li> <li>• Content Area Reflective Practice Time</li> </ul>
	<p>Person Responsible: Teacher Leaders, Principals, Assistant Superintendent, Vertical Teams, Technology staff                  Evidence: Agendas and minutes from meetings, Report Card, Scales that include Level 4 wording, exemplars from Grade Level Meetings                  Impact: Parent engagement, consistency across the district, exemplars of Proficiency</p>
<p>K-12</p>	<p style="text-align: center;"><b>Benchmarks 2015-2016: Practices</b></p> <ul style="list-style-type: none"> <li>• Use DQ 4 and DQ5 in instruction (What will I do to help students generate and test hypotheses about new knowledge; What will I do to engage students)</li> <li>• Define, teach and score Habits of Mind/Guiding Principles</li> <li>• Define, teach, and score Complex Reasoning Skills</li> <li>• Grouping and regrouping of students</li> <li>• Feedback/formative assessment is used for Learning Targets</li> <li>• Complex Reasoning skills are taught and tracked</li> <li>• Progress Monitor students who require intervention (e.g. re-learning/re-teaching, a different way or pace)</li> <li>• Add resources to Empower</li> </ul> <p>*****                  Person Responsible: Teacher Leaders, teachers, Principals, Assistant Superintendent                  Evidence: Curriculum units, Principal observation, progress monitoring data                  Impact: Student learning</p>

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<b>Benchmarks for 2016-2017: Practices (if Extension request is continued)</b>	
K-12	<ul style="list-style-type: none"> <li>• Teachers continue to refine their understanding of Learning Targets</li> <li>• Administrators and teachers continue to refine assessment practices to include feedback, a variety of assessment modes</li> <li>• Professional Development is customized to staff members need</li> <li>• Certify learning process cross content</li> </ul> <p>.....</p> <p>Person Responsible: Teacher Leaders, Administrators</p> <p>Evidence: Exemplars of proficiency are celebrated in the schools and on the web site, student survey data shows engagement in learning</p> <p>Impact: Student engagement</p>

**Budget 2014-2015 (9/17/14-6/30/15): \$40,490.81**

**Policy: \$4000**

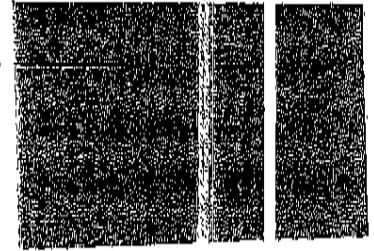
- Consultation on policy language
- Board workshop on PBE
- Consultation with Linda Laughlin, Maine Cohort for Customized Learning, about graduation and transcripts

**Practice: \$32,000**

- Staff time for learning Empower, Grading Procedures, Formative Assessment
- Staff time for unit development
- Staff time for integrating Habits of Mind/Guiding Principles
- Substitute teachers
- Registration costs and mileage to MCCL workshops on complex reasoning skills, Habits of Mind Books and Materials

**Community Engagement: \$4490.81**

- Stipend for Media work
- Community Discussion with Steering Committee



## Welcome to Western Foothills Regional School Unit (RSU#10)

### Mission Statement

*RSU #10 provides opportunities for all students to realize their potential.*

### Vision Statement

*RSU 10 will provide a rigorous and engaging curriculum that empowers all students to take responsibility for their learning.*

### Guiding Beliefs

*We believe:*

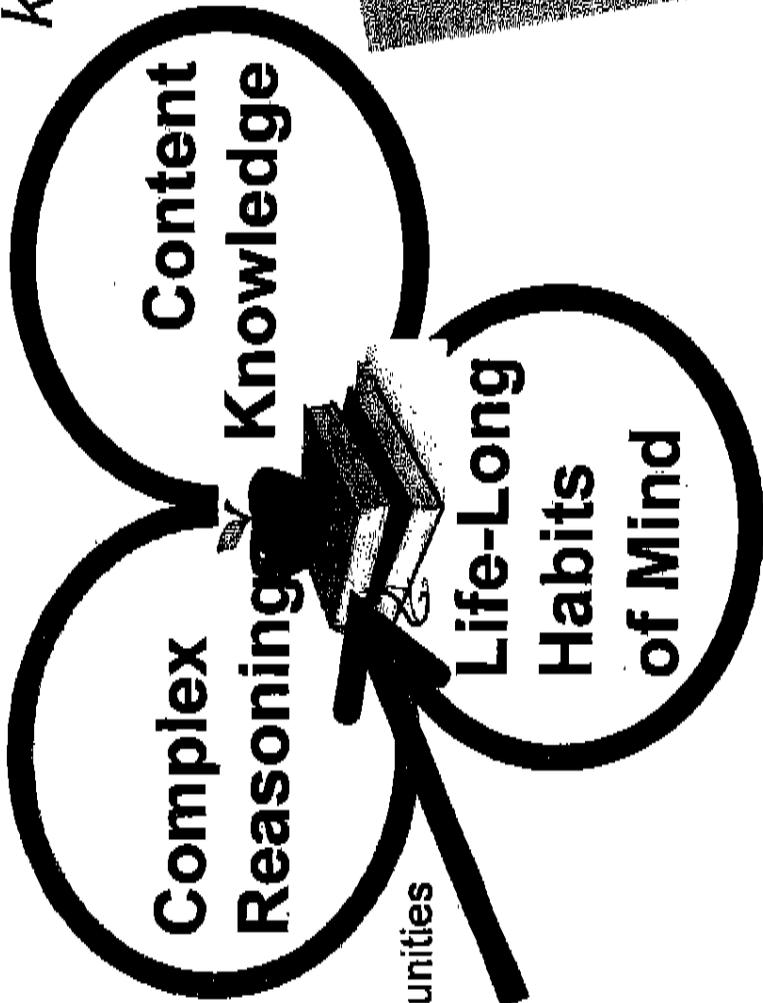
- ❖ Every student is unique. All students can succeed; all students can learn; all students have unique and diverse learning needs, pace, and styles.
- ❖ Students and staff are global and digital citizens. Therefore, technology will be used to expand student educational experiences.
- ❖ Data will be used in decision-making
- ❖ Educational/behavioral expectations will happen in home, school, and community
- ❖ Diversity must be respected, celebrated and valued
- ❖ Students and staff must feel and be safe
- ❖ Innovative staff will provide all students with a wide range of learning experiences
- ❖ Physical, emotional, mental well being of staff and students is important.
- ❖ Students have a strong foundation for success (academically, emotionally, and physically)
- ❖ Interventions must be in place at all levels of learning. Effective support ensures success for all students.
- ❖ With staff support, students will accept responsibility for their own learning
- ❖ Students require diverse resources to meet their needs, interests, and learning styles
- ❖ The curriculum needs to be diverse and rigorous; engaging; authentic experiences; inspires innovative and creative thinking
- ❖ Continuous improvement should be a theme every school uses
- ❖ Students will benefit from parent and community involvement in education
- ❖ Each school will maintain its own identity
- ❖ Education needs strong community/parent/school relationship
- ❖ Students must be engaged in authentic learning experiences by passionate, dedicated staff

### Goals Areas

1. A Parent/School Partnership for Behavior and Social Skills
2. Safe Schools that Provide a foundation for Health and Wellness
3. Appropriate Technology Use Throughout the District (Digital Natives)
4. Student Empowerment to Take Responsibility for Their Learning through a Rigorous Curriculum and the Use of Personal Learning Plans
5. Appropriate Academic and Behavior and Supports at All Levels
6. Community/Family Involvement
7. Funding for Programs and Maintenance of Fiscal Responsibility

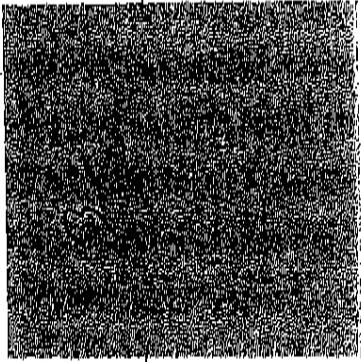
**We want learners to be:**

*doing these reasoning processes with this content knowledge*



*to practice getting better at these life-long learning habits*

*continued, pg. 3*



	Set up an elementary principals and me visit	And DES-3 lower elementary Danielle Afari Andrea York Deb Touchette
Feb. 27	Atwood Elementary in Oakland: Lower Elementary: Principal Jenny McGee 19 Heath Street Oakland, ME 04963 Ph (207) 465-3411 Fx (207) 465-9133 contacted Have requested Monmouth, waiting for Matt Shea's reply	MES: 3 Lower Elem. Shelly, Jane, Heidi S. DES:3 Lower Elem.
March 28		
Dec. 5	Gray New Gloucester MS 5-8 Sherry Levesque <a href="mailto:slevesque@sad15.org">slevesque@sad15.org</a> Prior to the visit, email the names and confirmation List sent to GNS Have sent list of names asked for information Have called and left a message	2 from BJSHS: Seal (Lucille) Rossignol, ELA Donna Whitney (Social Studies) 2 from DMS: Dave Buck (Science), Nancy Carr (Health) 3 from MVMS Kristen Garbarini Science 8th Grade Marilyn MacMillan Science 7th Grade

**Phases of Introducing Customized Learning  
"Form Follows Function" (Adapted for RSU 10, original from Dr. Mike Muir)**

Awareness Phase (In the Traditional System)	Classroom Culture Phase (Voice & Choice) (In the Traditional System)	Instructional Design Phase (On the Traditional System)	Instructional Implementation Phase (In an Evolving System)	Structure Phase (The New System)
<ul style="list-style-type: none"> <li>Awareness Training: What is customized learning and why do we do it</li> <li>Vision and Guiding Principles</li> <li>Organization of the curriculum</li> <li>Students know what they need to learn and how well they need to know it</li> </ul>	<p style="text-align: center;"><b>Readiness in Classroom Culture Deliverables</b></p> <ul style="list-style-type: none"> <li>Basic Customized Learning Training: How to begin using customized learning in the classroom</li> <li>Classroom culture in which students know what to expect and make some choices</li> <li>Classroom rules and procedures</li> <li>Student progress is tracked by the teacher and by the student</li> <li>Students set goals</li> <li>Vision and guiding principles are used for making decisions</li> <li>Teachers and students know many different ways check on and change the classroom culture and procedures (Standard Operating Procedures, flow charts, Code of Cooperation)</li> </ul>	<ul style="list-style-type: none"> <li>Teachers and administrators use the book, <i>Art and Science of Teaching</i>, to have a similar language about teaching</li> <li>Teachers and students know what the standards expect</li> <li>Teachers use the standards to teach</li> <li>Students know when they need more, or less, time to learn a topic and what they will learn next</li> <li>Teachers can teach both higher level and lower level skills and concepts. They have resources to do both.</li> <li>Consistent Use of Vision, and Guiding Principles in Decision-Making</li> <li>Grading procedures separate what a student knows (academics) from work habits, attendance, and other aspects of education</li> </ul>	<ul style="list-style-type: none"> <li>Staff use <i>The Art and Science of Teaching</i> to teach in similar ways</li> <li>Grading includes student progress on the standards</li> <li>Use of Individualized Learning Plans</li> <li>Teachers give students frequent feedback on their learning (Formative Feedback)</li> <li>Grading procedures encourage improvement and grades are based on rubrics/scales rather than points and percentages</li> <li>Applies Effective Practices in Student Motivation &amp; Engagement</li> <li>Students have different ways to show that they are proficient on the standards (know and can do what the standards expect)</li> </ul>	<ul style="list-style-type: none"> <li>Grading and Reporting System</li> <li>Student progress is based on proficiency on the standards</li> <li>Multiple schedules are in place</li> <li>Grouping and Regrouping of Students based on what they need to learn next and sometimes on what their interests/aspirations are</li> <li>Multiple forms of "courses" are used to help student become proficient with the standards (out of school clubs, jobs, college classes)</li> <li>Staff and students understand continuous learning and improvement</li> </ul>
<p style="text-align: center;"><b>Deliverables for Phase</b></p> <p>2012-2013</p>	<p>2013-2014</p>	<p>2014-2015</p>	<p>2015-2016</p>	<p style="text-align: center;">4</p>

The Always On To Deliver, To Guide, To Engage & Observe on Time Ahead of Wilkes V.

**Throughout: Reflection, Continuous Improvement, Collaborative Problem-Solving, Supporting Colleagues, Sharing Ideas**



# Education in a Proficiency Based World

#7

Per PSC

## RSU 10 Vision

Motivating

Engaging

Empowering

Today and Tomorrow

Where...

Instruction is student-centered, standards-based, and differentiated for pace and individual student need.

Where...

Students develop complex, creative, and critical thinking skills through a wide range of authentic learning opportunities and community collaboration.

Where...

Learners are active participants in setting learning goals and monitoring their progress.



### Why should we change?

Maine law now requires that students meet standards in order to graduate from high school. Also new research has shown educators better ways to teach. Technology can now be used to help students learn and to help teachers keep data on each student's learning.

### What will the changes look like?

RSU 10 will be using personalized learning, which is also called customized learning. Students may work with teachers and students from other grade levels. There will be flexibility in the way that standards can be met. Teachers will expect continuous progress rather than the right answer the first time.

### Are the standards difficult?

The standards are more difficult than in the past. They expect high levels of thinking skills such as reasoning and analysis. Some students also expect that students can analyze what they learn



### Glossary for Proficiency-Based Education

#### **Proficiency-Based (a.k.a. Standards-Based)**

Standards are used to guide curriculum. Student progress on the standards is measured and determines advancement during the school year and through the grade levels.

#### **Proficiency-Based Diploma (a.k.a. Standards-Based Diploma)**

A diploma that is awarded to the learner upon demonstration of proficiency of the standards.

#### **Standard**

A description of skill or knowledge deemed essential. Maine Learning Results are the standards for Maine students. The curriculum in RSU 10 uses a technology called Educate to organize the standards for teacher and student use.

#### **Customized Learning (aka personalized learning or student-centered learning)**

A system of education which provides students with multiple ways of learning, in which students have some choices and are encouraged to be engaged in decisions about their education.

Watch for more information during the 2013-14 school year to learn more about RSU 10's Proficiency-based system.

### Education in a Proficiency-based World

#### **What will be the same for my child?**

- Teachers will still provide instruction to students.
- Students will still have a homeroom or Advisory teacher.
- A few students will still graduate early while a few will take an additional year. Parents will still have access to their child's assignments and grades.

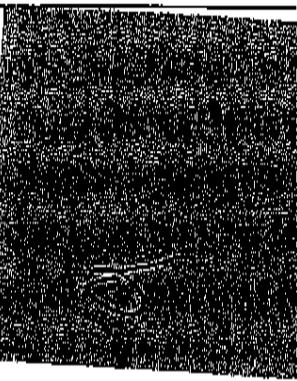
#### **How will my child know what the targets are?**

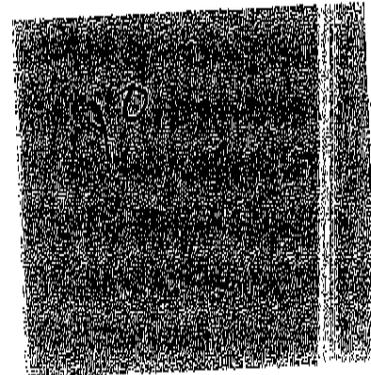
- Teachers will post the targets in the classroom or on the class's website. They will talk about the targets frequently with the students. They will also describe or show examples of student work that meet the standards.

#### **What if my child does not reach the target?**

- Students learn in different ways and at different times. Some students may have more time on different kinds of lessons. Others may have more ongoing topics.

## RSU #10 Staff Learning Goals, 2014-2015

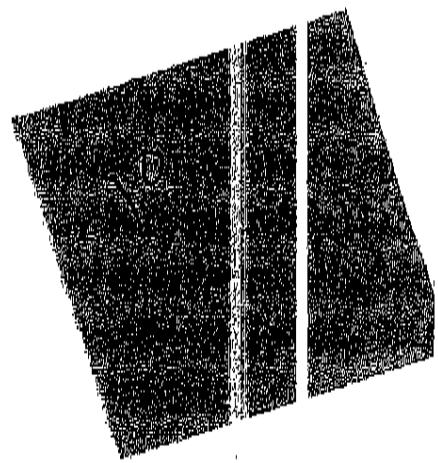
Measurement Topic/Learning Targets	Taxonomy	Evidence	Resources
<p>1. Is skilled at helping students interact with new knowledge (Design Question 2)</p> <ul style="list-style-type: none"> <li>• Identifying critical information</li> <li>• Organizing students to interact with new knowledge</li> <li>• Previewing new content</li> <li>• Chunking content into "digestible bites"</li> <li>• Group processing of new information</li> <li>• Elaborating on new information</li> <li>• Recording and representing knowledge</li> <li>• Reflecting on learning</li> </ul>	<p>Knowledge Utilization</p>	<p>Students state why the content is important</p> <ul style="list-style-type: none"> <li>• Routines are in place for students working in groups</li> <li>• Graphic organizers, brainstorming, anticipation guides and other preview strategies are in place</li> <li>• Reteaching is done, if necessary</li> <li>• Students can explain linkages to prior learning.</li> <li>• Students can provide a purpose of learning the content.</li> <li>• Stops and pauses are taken at strategic places</li> <li>• Students can summarize what they have learned.</li> <li>• Students discuss and predict about what to expect next.</li> <li>• Teacher uses group processing strategies (e.g. jig saw, reciprocal teaching, concept attainment)</li> <li>• Questioning, answering, defending answers</li> <li>• Students create notes, graphics, flowcharts</li> <li>• Students state what they are clear and confused about</li> </ul>	<p><i>Art and Science of Teaching</i> p. 47-81</p> <p><i>Becoming a Reflective Teacher</i> p. 191-198</p> <p>iObservation videos</p> <p>"Common Core in Practice: Great Teachers Demonstrate Moving to Deeper Learning America" Achieves.org</p> <p>webinar: Critical Content (Marzano web page)</p> <p>Teacher Leaders</p>
<p>2. Is skilled at helping students practice and deepen new knowledge (Design Question 3)</p> <ul style="list-style-type: none"> <li>• Review content</li> <li>• Organize students to practice and deepen knowledge</li> <li>• Use homework</li> <li>• Examine similarities and differences</li> <li>• Examine errors in reasoning</li> <li>• Practice skills, strategies and processes</li> <li>• Revise knowledge</li> </ul>	<p>Knowledge Utilization</p>	<p>Review of content</p> <ul style="list-style-type: none"> <li>• Summaries</li> <li>• Problem to be solved using the content</li> <li>• Questions that require the new information</li> <li>• Demonstration</li> <li>• Practice test or exercise</li> <li>• Students in groups ask each other questions and give each other feedback</li> <li>• States purpose of the homework</li> <li>• Extends an activity that was begun in class</li> <li>• Use of comparisons, classifications, analogies, metaphor, summaries</li> <li>• Find errors in reasoning in information</li> <li>• Judge strength of support in a claim</li> <li>• Find common statistical errors</li> <li>• Use of massed and distributed practice</li> <li>• Use of guided practice, when necessary</li> <li>• Use of independent practice</li> </ul>	<p><i>Becoming a Reflective Teacher</i></p> <p><i>Art and Science of Teaching</i></p> <p>iObservation</p> <p>Teacher Leaders</p> 
<p>3. Is skilled at tracking student progress in learning</p>	<p>Comprehension</p>	<p>Is skilled at: a) Creating and Adding an Activity, b) Adding an Activity, and c) Marking a Learning Target as Proficiency for a student</p>	<p>Teacher Leaders, Teachers, other schools, &amp; videos</p>



## Metal Trades

Measure- Identifier	Learning Target	Duties and Skills Metal Trades	Complex Reasoning	Skill
Forces and Motion: 2	Understands an unbalanced force acting upon an object changes its speed or direction of motion or both.  Understands the role of friction in motion.	direct experience with tools  Lubricants		
Forces and Motion: 3	Understands that the motion of an object is always judged with respect to some other object or point.	how fast a cut is made; cutting speed; lathe; mill; (how fast the outer diameter is moving past a point)		
F & M: 4	Understands how to use speed to predict distance traveled and time of travels.	RPM (how long to remove some quantity of material?)		
F & M: 5	Understands how forces can be exerted by contact, gravity, magnets, and electrically charged materials.			
F & M: 6	Understands the relationship between force, mass, and acceleration.	Safety and risks inherent to fast moving heavy objects.		
F & M: 7	Understands how to use graphs to interpret motion.	Foundational level vocabulary		

continued



### Building Construction

Unit/Topic	Learning Objectives	Skills and Skills Building Construction	Complex Reasoning	Assessment
Forces and Motion: 2	<p>Understands an unbalanced force acting upon an object changes its speed or direction of motion or both.</p> <p>Understands the role of friction in motion.</p>	driving a nail - choosing the right type of hammer for a task		
F & M: 5	Understands how forces can be exerted by contact, gravity, magnets, and electrically charged materials.	(gravity) How objects (e.g. shed) are lifted, moved and stopped once in motion. Proper lifting techniques.		
Heat Energy: 1	Understand what happens to the temperature of objects when a warmer object is near a cooler object.	warm air moves to cold		
Heat Energy: 2	<p>Understands how conduction, convection, and radiation describe transfer of heat energy in a variety of systems (house, atmosphere).</p> <p>Understands some materials transfer heat well and some transfer heat poorly (conductors and insulators).</p>	<p>stack effect, creating a thermal break</p> <p>conduction - wood can transfer heat</p> <p>convection - hot and cold air circulates inside wall spaces</p> <p>conduction - heat emitted by wood stove, sunshine through a window</p> <p>air units; radiant heating systems in concrete floors - or not</p> <p>draft, wind chills</p> <p>types of insulation and trade offs</p>		

*continued*

## RSU 10 Teacher Leader Job Description

**Teacher Leaders:** are regular classroom teachers who serve in an official capacity to help guide building level and RSU initiatives around curriculum, instruction, and assessment. Teacher leaders will be paid a stipend based on negotiated agreement. The work of the teacher leaders will occur on late-start Wednesdays, professional development days, and after regular school hours. Teacher leaders will report directly to the building principal and will work closely with the assistant superintendent of schools.

### Key Tasks

- Teacher leaders **help their colleagues** by being knowledgeable about instructional resources and sharing these resources with colleagues.
- Teacher leaders are knowledgeable about best instructional practices and are able to **model best instructional practices** for other teachers. They may also observe other teachers' practice and **provide professional advice as an instructional coach**.
- Teacher leaders are knowledgeable about current trends in curriculum and instruction and are able to **share their knowledge with other teachers**.
- Teacher leaders **work closely with the building principal and assistant superintendent to support professional development** at the building and RSU level.
- Teacher leaders **review school data** and contribute to data-based decision-making.
- Teacher leaders are committed to the continuous improvement of the school and help **promote a culture of continuous improvement** and support the tenets of the DuFour model of the Professional Learning Community.
- Teacher leaders **demonstrate excellence in teaching and learning** by their commitment to their professional practice, commitment to their own professional growth, and commitment to the learning of all students.
  - \*When a principal who has no assistant principal is absent from the building for a short period of time, a teacher leader may supervise the building.
  - \*\*When a principal who has no assistant principal is absent from the building for a long period of time, the central office will provide support with administrative supervision.

### Required Qualifications

- A continuing contract teacher in RSU 10

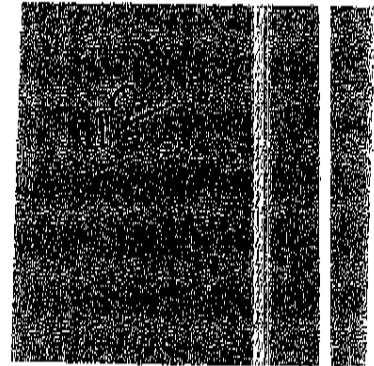
### Other Desired Qualifications

- A teacher who has demonstrated skills and accomplishments as outlined in the Key Tasks above
- A teacher who works well collaboratively with other teachers
- A teacher who has held leadership positions in the past
- M.Ed. or other graduate degree is advantageous
- National Board Certification, Advanced Placement Institute Training, Maine Learning Technology Summer Institutes, Standards-Based Teaching and Learning Training, or other notable teacher training is advantageous

### Caveat

Although this is a leadership position, the teacher leader does not have any authority in the formal evaluation of other teachers.

**March 18 Workshop Day**  
**Mountain Valley High School**  
**MVHS Gym**  
**7:45-2:45**  
**(6:50 Bus leaves BJSHS, then HSES)**



**Agenda**

- 7:00           • Breakfast
- 7:45           **Welcome:**
- 8:00           **Introduction of Bea McGarvey**
- 8:00-11:30    Bea
- 11:30          Lunch
- 12:00-2:30    Bea
- 2:30           Closing Comments
- 2:45           **End of Day**

**Dr. Tom**

**Dr. Tom**

## Assets and Needs

Topic	Those who said they could lead/teach/make arrangements/or model	# that have this an immediate need
Using formative data	Heather, Chandele, Laura, Eileen, Karen, Sarah, Kim, Nancy, Cheryl, Lisa, Denise, Beth, Gretchen, D'Ann, Linda	6
Analyzing summative data	Heather, Laura, Eileen, Sarah, Kim, Nancy, Cheryl, Lisa, Denise, Beth, Gretchen, D'Ann, Linda	5
Teaching complex reasoning skills (e.g. summarizing, inferring, reasoning, problem solving, revising, representing)	Heather, Laura, Chandele, Eileen, Karen M., Mike, Cheryl, Lisa, Beth, Gretchen, D'Ann, Linda	6
Tracking student proficiency on Educate	Chandele, Nancy, Lisa, Gretchen	9
Creating units using Learning Targets	Laura, Chandele, Eileen, Sarah, Kim, Mike, Cheryl, Robin, Nancy, Lisa, Denise, Beth, Gretchen, Jeff, Karen P.	3
Engaging students	Heather, Laura, Chandele, Eileen, Karen M., Sarah, Kim, Mike, Robin, Nancy, Cheryl, Lisa, Denise, Beth, Gretchen, D'Ann, Linda, Karen P.	4
Using technology to meet individual student needs	Laura, Sarah, Kim, Mike, Robin, Nancy, Cheryl, Lisa, Gretchen, Jeff, Karen P.	2
Professional Evaluation	Chandele, Kim, Nancy, Cheryl, Lisa, Denise, Beth	2
Leading a PLC	Heather, Eileen, Kim, Lisa, Mike, Robin, Nancy, Cheryl, Denise, Gretchen, D'Ann, Linda, Karen P.	2
Art and Science: Design Questions 2,3: Interacting with New Content, Practice and Deepen New Knowledge	Heather, Laura, Eileen, Cheryl, Sarah, Nancy, Lisa, Beth, Gretchen, Jeff	6

Other: What additional Assets do you have that the Team should know about?

**Use of Empower (Educate) and PowerSchool  
2014-2015**

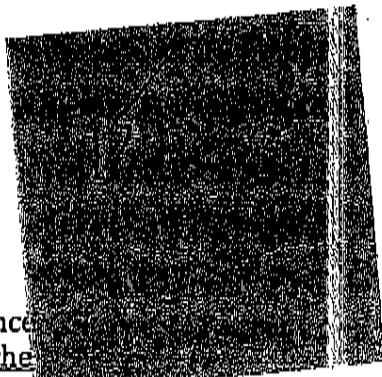
	<b>First and Second Trimester</b>	<b>Third Trimester</b>
<b>K-8</b>	Track student progress in Empower  Begin adding assignments/tasks to Empower  Report cards from Empower  Use grades of 1-4, with .5 increments  Honor Roll  Eligibility	Same  Record all assignments/tasks in Empower
<b>Grade 9/Class of 2018</b>	Track student progress in Educate  Record all summative assessments in Empower  Use grades of 1-4, with .5 increments  Record final trimester grade in PowerSchool  Report cards come from PowerSchool  Credits	Same  Record all assignments/tasks in Empower  GPA  Transcript
<b>Mixed Classes/some students are class of 2018, some are later classes</b>	Same as above	Same
<b>Classes with students only from grades 10, 11, 12</b>	Track complex reasoning skills in Empower  Assignments/tasks are in PowerSchool  Report cards come from PowerSchool  Grades are as they were in 2013-2014 (1-100 or 1-4 or letters)  Credits	GPA  Transcript  14

TO: Gloria Jenkins, Mike Poulin, Mike Hutchins, Jen Whittemore,  
Matt Gilbert, Al Cayer, Trina Fortin, George Reuter, Ann Bell,  
Mike Webber, Ryan Casey, Brenna Parent, Kate Clough,  
Kevin Kaulback, & Brian Carrier

FROM: Craig King  
Superintendent of Schools

DATE: June 25, 2014

RE: Proficiency-Based Diplomas  
Communication Plan



Gloria and I attended the Superintendent's Summer Conference this year were Proficiency Based Diplomas and the new Teacher regulations. The best presentation I saw was by Steve Abbott of the Great Maine Schools who talked about the need for schools to have a good communication plan around initiatives. Some key points included:

1. Jargon and acronyms tend to alienate the lay person
2. Many school initiatives fail because of poor communication plans. Poor communication plans allow for misinformation to take hold
3. A good communications plan is a strong foundation for the success of any new initiative

I agree with all these points. For the first time in the history of RSU 10, every town in the RSU voted to pass the school budget. I think this was in large part due to: (a) the many public presentations where principals presented their priorities, (b) the excellent RSU 10 Budget Newsletter developed by Reinetta Chenard and Mary Gamble that featured not only budget information but photos from every school, and (c) lots of press releases and press coverage that demonstrated our deliberate, sensible approach to the budget. We defined our budget process, not others. We were proactive with our communication.

We know that the new law on proficiency-based diplomas is somewhat controversial. Many people, including educators, do not fully understand what this law means for students, schools, and teachers. This new law threatens people who have very firm beliefs about the traditional nature of high schools. People have a natural aversion to change.

For all of the reasons I've referred to, I think it is important the RSU develop a strong communications plan for our work with proficiency-based diplomas. Some of the media I would like to use are:

1. Development of TED talk type videos
2. Development of YouTube type videos
3. Tri-folds
4. Local Press

## 5. Feature our own students and teachers

The questions/topics that need to be addressed in the communication include:

- What** is a proficiency-based diploma?
- Why** is Maine (and RSU 10) moving to a proficiency-based diploma?
- What** is the time-line for moving to the proficiency based diploma?
- How** will the change towards proficiency-based learning affect students?
- What** are some examples of proficiency-based grading and reporting?
- What** are some examples of how a student can demonstrate proficiency towards earning a high school diploma?
- What** work has been done to date in RSU 10 in preparation for proficiency-based diplomas?
- How** can I find out more information about proficiency-based diplomas?

When we return in the late summer, I'd like us all to participate in the development of a communication plan around proficiency-based diplomas. I look forward to those initial meetings and ideas you will bring to the table.

All of our expenses were for Practices with 47% in Carryover.

Dr. Gloria Jenkins  
Assistant Superintendent for Curriculum, Instruction and Assessment  
RSU#10  
33 Nash St.  
Dixfield, ME  
(207) 562-7254  
[gjenkins@rsu10.org](mailto:gjenkins@rsu10.org)

## Defining Proficiency in Career and Technical Education Programs

A student is considered Proficient on the following Learning Targets when they have completed the 2-year Metal Trades program and met the Duties and Skills of the program as determined by state and national tests.

### Metal Trades

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Forces and Motion: 2	<p>Understands an unbalanced force acting upon an object changes its speed or direction of motion or both.</p> <p>Understands the role of friction in motion.</p>	<p>direct experience with tools</p> <p>Lubricants</p>		
Forces and Motion: 3	Understands that the motion of an object is always judged with respect to some other object or point.	how fast a cut is made; cutting speed; lathe; mill; (how fast the outer diameter is moving past a point)		
F & M: 4	Understands how to use speed to predict distance traveled and time of travels.	RPM (how long to remove some quantity of material?)		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
F & M: 5	Understands how forces can be exerted by contact, gravity, magnets, and electrically charged materials.			
F & M: 6	Understands the relationship between force, mass, and acceleration.	Safety and risks inherent to fast moving heavy objects.		
F & M: 7	Understands how to use graphs to interpret motion.	Foundational Level vocabulary		
F & M: 10	Understands that gravity pulls on a mass to create weight and can calculate weight in terms of a force.	structural needs to support heavy objects		
F & M: 12	Understands how to apply Newton's Third Law to everyday objects.  Understands the conservation of momentum.	“suck v. push”; location of a force that may be causing a problem; (air motion caused by a rotating object: if you’re feeling air being pulled from somewhere, then it is being pulled from somewhere)		
Heat Energy: 1	Understand what happens to the temperature of objects when a warmer object is near a cooler object.	How heat changes things; direct experience		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Heat Energy: 2	<p>Understands how conduction, convection, and radiation describe transfer of heat energy in a variety of systems. (house, atmosphere).</p> <p>Understands some materials transfer heat well and some transfer heat poorly (conductors and insulators).</p>	<p>—</p> <p>welding and safety in welding</p>		
Heat Energy: 3	<p>Understands how energy can be released or stored through chemical reactions.</p>	<p>welding, flux, using acetylene v. propane</p>		
Heat Energy: 4	<p>Understands and is skilled at measuring the direction of heat flow and how it impacts temperature (specific heat).</p> <p>Understands the relationship between energy, heat, and temperature.</p>	<p>—</p> <p>safety equipment and reasons</p>		
Energy - Waves: 2	<p>Understands that all waves have a source. Knows the terms wavelength, frequency, amplitude, wave velocity, medium, and vibration.</p>	<p>Vibrations in a lathe use dampening. Why aren't parts 'solid'?</p>		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Energy - Waves: 4	<p>Understands how waves act and interact.</p> <p>Understands that the behavior of waves is caused by reflection, refraction, and absorption.</p> <p>Understands how reflection and absorption of light produces color.</p>	<p>—</p> <p>use of different filters for different welding processes</p> <p>—</p>		
Energy - Waves: 5	<p>Understands the properties and uses of different parts of the electromagnetic spectrum.</p> <p>Understands the concept of wave intensity (energy delivered/area).</p> <p>Understands the properties of different types of radiation.</p>	<p>—</p> <p>—</p> <p>types of energy released during welding</p>		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Matter: 2	Understands that all objects are composed of parts and the sum of the weight of the parts equal the weight of the whole.	“done in reverse” (ex.1 - if you start with a piece of steel of known mass and remove part, the final mass of the machined object can be calculated; ex. 2 - how much do a weld add to the mass of an object?)		
Matter: 3	Understands different phases of matter (solid, liquid, gas) and that matter can change from one state to another.	welding		
Matter: 4	Understands the relationship of the motion of particles to the states of matter for gases, liquids, and solids	making a chip, extruding at a point of plastic deformation where a solid ‘flows’ (becomes ‘fluid’); everything does and can move, the similarities of how things move (ex. acetylene gas @15psi, vibration can create enough heat to trigger combustion)		
Matter: 5	Understands that atoms are arranged in different ways to compose all substances including elements, molecules, compounds, mixtures, and solutions	types of alloys; composition of different types of steel, aluminum; ‘exotic metals’ such as copper and titanium		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Matter: 6	<p>Understands a substance has physical (density, boiling point, and solubility, etc.) and chemical (reactivity, pH) properties.</p> <p>Understands mixtures can be separated into the original substances based on their physical properties.</p>	<p>reasons to not combine aluminum and steel; an acetylene torch will cut steel but only melt stainless steel - a plasma torch must be used to cut stainless</p> <p>—</p>		
Matter: 7	<p>Understands the differences between physical and chemical changes.</p> <p>Understands matter is neither created nor destroyed.</p>	<p>after a chip has been made, the chip has different properties than the source material</p> <p>—</p>		
Matter: 8	<p>Understands the structure of an atom in terms of neutrons, protons, and electrons.</p>	<p>strength, density of a metal, heat transfer of a metal; choice of metal for use; 'Why does this metal cut that metal?' electricity and free flowing electrons</p>		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Matter: 12	<p>Understands how the number and arrangement deduce the type of bond between elements of electrons in an atom determines the types of bonds it forms with other elements.</p> <p>Understands that where an element is located on the periodic table determines how many valence electrons the element contains.</p> <p>Understands the process of writing and naming chemical formulas.</p>	flux coating on metals produces different gases that allows different depths of penetration during weld		
Matter: 13	Understands writing and balancing simple chemical equations. Understands the 5 five types of chemical reactions.	combustion, synthesis (oxidation)		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Matter: 14	<p>Understands the relationship between temperature, volume, and pressure in terms of the particles present.</p> <p>Understands various factors that affect the rate of chemical reactions (concentration, pressure, temperature, enzymes, etc.).</p>	only as it pertains to specific questions from individual students		
Mechanical system: 1	<p>Understands the uses of simple machines.</p> <p>Understands that one or more simple machines can make up more complex machines.</p>	both mechanical and with respect to programming with CNC machines		
Mechanical system: 2	Understands that the potential and kinetic energy can change, but the total energy in a system remains constant.	relationship between the kinetic energy, mass and velocity and the kinetic energy of a moving object		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Mechanical system: 3	<p>Understands there are various trade offs when using simple machines.</p> <p>Understands that work is the change in energy of a system.</p> <p>Understands that factors that affect efficiency.</p>	<p>Horsepower - what is it?</p> <p>Reasons for using lubricants, dangers associated with <i>not</i> using lubricants.</p>		
Mechanical system: 4	<p>Understands how kinetic and potential energy predict motion of a complex system (e.g., car accident).</p> <p>Understands how to quantify kinetic and potential energy.</p> <p>Understands that all forms of energy (heat, light, electrical, kinetic, potential) are conserved and transformed in a system.</p>	yes???		

Measurement Topic	Learning target	Duties and Skills Metal Trades	Complex Reasoning Skill	Habits of Mind
Electricity and Magnetism: 2	Understands electric current moves through conductors.	Welding (current flow, loss of current, good/poor conductors)		
Electricity and Magnetism: 4	Understands electrical power consumption.	breaking AC waves AC to DC conversion		

A student is considered proficient on the following Learning Targets when they have completed the 2-year Building Trades program and met the Duties and Skills of the program as measured by state and national tests.

### Building Construction

Measurement Topic	Learning target	Duties and Skills Building Construction	Complex Reasoning Skill	Habits of Mind
Forces and Motion: 2	<p>Understands an unbalanced force acting upon an object changes its speed or direction of motion or both.</p> <p>Understands the role of friction in motion.</p>	driving a nail - choosing the right type of hammer for a task		
F & M: 5	Understands how forces can be exerted by contact, gravity, magnets, and electrically charged materials.	(gravity) How objects (e.g. shed) are lifted, moved and stopped once in motion. Proper lifting techniques.		
Heat Energy: 1	Understand what happens to the temperature of objects when a warmer object is near a cooler object.	warm air moves to cold		

Measurement Topic	Learning target	Duties and Skills Building Construction	Complex Reasoning Skill	Habits of Mind
Heat Energy: 2	<p>Understands how conduction, convection, and radiation describe transfer of heat energy in a variety of systems. (house, atmosphere).</p> <p>Understands some materials transfer heat well and some transfer heat poorly (conductors and insulators).</p>	<p>stack effect; creating a thermal break</p> <p>conduction - wood can transfer heat</p> <p>convection - hot and cold air circulates inside wall spaces</p> <p>conduction - heat emitted by wood stove, sunshine through a window</p> <p>air units; radiant heating systems in concrete floors - or not.</p> <p>draft, wind chills</p> <p>types of insulation and trade offs</p>		
Heat Energy: 3	<p>Understands how energy can be released or stored through chemical reactions.</p>	<p>curing concrete, concrete will cure under water</p>		
Heat Energy: 4	<p>Understands and is skilled at measuring the direction of heat flow and how it impacts temperature (specific heat).</p> <p>Understands the relationship between energy, heat, and temperature.</p>	<p>heat moves to cold; concept behind heat pumps; BTU's; R-value, U-value</p>		

Measurement Topic	Learning target	Duties and Skills Building Construction	Complex Reasoning Skill	Habits of Mind
Energy - Waves: 4	<p>Understands how waves act and interact. Understands that the behavior of waves is caused by reflection, refraction, and absorption.</p> <p>Understands how reflection and absorption of light produces color.</p>	energy of the sun is absorbed by surfaces, introduction of reflecting components to asphalt shingles		
Matter: 2	Understands that all objects are composed of parts and the sum of the weight of the parts equal the weight of the whole.	number of times a roof can be re-shingled; snow load; staging limitations		
Matter: 3	Understands different phases of matter (solid, liquid, gas) and that matter can change from one state to another.	Specific to water as it relates to the damage that can be done by water.		
Matter: 4	Understands the relationship of the motion of particles to the states of matter for gases, liquids, and solids	as it relates to water moving into, and out of, a building		

Measurement Topic	Learning target	Duties and Skills Building Construction	Complex Reasoning Skill	Habits of Mind
Matter:10	Understands the role of subatomic particles in nuclear reactions, including fusion and fission, and the energy they release. Understands radioactive decay and half-life.	radon, source of radon in buildings, mitigation of radon		
Matter: 13	Understands writing and balancing simple chemical equations. Understands the 5 five types of chemical reactions.	very general: MSDS and what is reactivity?		
Matter: 14	Understands the relationship between temperature, volume, and pressure in terms of the particles present.  Understands various factors that affect the rate of chemical reactions (concentration, pressure, temperature, enzymes, etc.).	temperature, volume and pressure: safety; heating units; mobile air compressor (safety, draining the tank); geothermal; heat pumps  —		
Mechanical system: 1	Understands the uses of simple machines.  Understands that one or more simple machines can make up more complex machines.	practiced at application level; discussed at foundational level		

Measurement Topic	Learning target	Duties and Skills Building Construction	Complex Reasoning Skill	Habits of Mind
Mechanical system: 4	<p>Understands how kinetic and potential energy predict motion of a complex system (e.g., car accident).</p> <p>Understands how to quantify kinetic and potential energy.</p> <p>Understands that all forms of energy (heat, light, electrical, kinetic, potential) are conserved and transformed in a system.</p>	<p>—</p> <p>—</p> <p>(very informal) How to insulate for/against heat energy</p>		
Atmosphere and Weather: 3	Understands the role of evaporation, condensation, and precipitation in the water cycle.	moisture content, dew point, relative humidity		
Atmosphere and Weather: 4	Understands the relationship between location on earth, weather patterns, and regional climate.	<p>New building codes (wind pressure, temperature extremes, zone, insulation, snow load)</p> <p>—</p>		

Measurement Topic	Learning target	Duties and Skills Building Construction	Complex Reasoning Skill	Habits of Mind
	Understands the factors that are used to predict weather.			
Atmosphere and Weather: 5	Understands how the composition of the atmosphere and its layers affect global climate.	greenhouse effect → climate change → building to meet new needs		
Composition and Structure of Earth: 1	Understands how wind, ice, waves, and water break down materials over time.			
Composition and Structure of Earth: 2	Understands how erosion, sedimentation, and deposition cause surface changes.	sedimentation plans		

Measurement Topic	Learning target	Duties and Skills Building Construction	Complex Reasoning Skill	Habits of Mind
Composition and Structure of Earth: 5	<p>Understands the theory of plate tectonics and its role in shaping the Earth.</p> <p>Understands how the Earth's internal energy source plays a role in plate tectonics, plate boundary interactions, volcanic eruptions, earthquakes, and tsunamis.</p>	New building codes (seismic activity); trenching, types of soils		
Electricity and Magnetism: 1	Understands that there is a difference between static electricity and electric current.	safety, electricity (grounding vs. ground fault interrupter, circuit breaker, double insulated materials, fire protection)		
Electricity and Magnetism: 2	Understands electric current moves through conductors.	safety, electricity (grounding vs. ground fault interrupter, circuit breaker, double insulated materials, fire protection); What size wire? What's a conductor?		
Electricity and Magnetism: 4	Understands electrical power consumption.	power tools electrical consumption; resistance creates heat; energy requirements of heat pumps		











# Metal Trades

Math Empower Measurement Topic	Learning Target SL = Scope Level	Duties and Skills Metal Trades	Complex Reasoning Skills Levels 1-4	Habits of Mind/Guiding Principles
<p>Algebra: Building Functions</p> <p>Algebra: Expressions, Equations, and Inequalities</p>	<p>SL:2 Understand new functions can be created from existing functions</p> <p>SL:2 Is skilled at solving an equation as a process of substitution that makes the statement true.</p> <p>SL:3 Understands the solution to an inequality results in an infinite set of answers as plotted on a number line</p> <p>SL:5 (equations only) Is skilled at solving one step equations using rational numbers. Is skilled at solving one-step inequalities using rational numbers.</p> <p>SL:6 (equations only) Is skilled at adding, subtracting, factoring (numbers), and expanding (distributive</p>	<p>Manipulating functions and formulas (not transformations or the use of function notation)</p>	<p>Retrieval (2)</p> <p>Comprehension (3)</p> <p>Comprehension (3)</p> <p>Retrieval (2) Equations only, missing inequalities or (3) on equations and assess only on inequalities at home school.</p> <p>“ “</p>	

	<p>property) linear expressions with rational coefficients using the properties of operations (i.e. commutative, associative, etc)</p> <p>SL:7 (equations only) Understand the process for solving multi-step equations and inequalities (using algebraic properties.</p>			
<p>Algebra: Foundational Algebra</p>	<p>SL:5 Understand how to use exponents to evaluate numerical expressions.</p>		<p>Comprehension (2) Equations only, missing inequalities or Analysis (3) on equations and assess only on inequalities at home school</p>	
<p>Algebra: Interpreting Functions</p>	<p>SL:2 Understands a function can be represented algebraically, graphically, numerically, or by verbal description</p>	<p>Everything done on a graph/blue prints. Mostly Measurement, time, units</p>	<p>Analysis (3)</p> <p>Comprehension (3)</p>	
<p>Geometry: Attributes &amp; Properties</p>	<p>SL:8 Understands supplementary, complementary, vertical and adjacent angles. Understands angle relationships; parallel lines, angle sum, and exterior angles of a</p>		<p>Comprehension (2) setting up machines will have Analysis (3)</p>	

<p>Geometry: Coordinate Systems</p>	<p>triangle</p> <p>SL:9 Understands that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections and translations</p>		<p>Comprehension (3) Setting up machines</p>	
<p>Geometry: Measurement</p>	<p>SL:8 Understands reproducing a scale drawing at a different scale of a geometric shape or drawing</p>		<p>Comprehension (3)</p>	
<p>Number and Quantity: Number Systems</p>	<p>SL:7 Understands the relationship between rational and irrational numbers</p>		<p>Comprehension (3)</p>	
<p>Number Sense: Fractions, Decimals, &amp; Percents</p>				
<p>Number Sense: Place Value</p>				
<p>Operations: Multiplication &amp; Division</p>				

<p>Statistics &amp; Probability: Data Analysis</p> <p>Tools of Measurement: Measurement</p>	<p>SL:6 Understands data can be represented and interpreted using a line graph (timeplot). SL:7 Understands data can be represented and interpreted using stem plots</p>		<p>Analysis (3)</p> <p>Analysis (3)</p>	
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## Building Trades

Math Empower Measurement Topic	Learning Target	NCCER Core Standards and Competencies	Complex Reasoning Skills	Habits of Mind/Guiding Principles
<p>Algebra: Foundational Algebra</p> <p>Geometry: Attributes &amp; Properties</p>	<p>SL:4 Understand how to use parentheses, brackets, or braces to evaluate numerical expressions.</p>	<p>Conversion and real world language (24 x 36, x=by)</p>	<p>Analysis (3)</p>	
	<p>SL:6 Understands the different attributes of triangles</p>	<p>Cover Triangle differences, 2D wall area, 3D volume with concrete Blueprint reading</p>	<p>Analysis (3)</p>	
	<p>SL:8 Understands supplementary, complementary, vertical, and adjacent angles. Understand angle relationships; parallel lines cut by a transversal, angle sum and exterior angles of a triangle</p>	<p>Somewhat cover with rafters, adjacent angles</p>	<p>Analysis (3)</p>	
<p>SL:13 s skilled at using trigonometric ratios, ratios for special right triangles, and the Pythagorean Theorem to solve triangles in applied problems</p>	<p>Pythagorean theorem, Pythagorean triples Sq. walls opposite diagonals must be equal Sq. foundation, floor, walls, roof</p>	<p>Analysis (3)</p>		

<p>Geometry: Measurement</p>	<p>SL:6 Understands the rules for converting measurement units within the same system</p> <p>SL:7 Is skilled at solving multi-step word problems requiring conversions of measurement.</p> <p>SL:8 Understands reproducing a scale drawing at a different scale of a geometric shape or drawing</p> <p>SL:9 s skilled at finding surface area of triangular and rectangular prisms, triangular and rectangular pyramids.</p> <p>SL:10 Is skilled at finding volume of cones, cylinders, spheres, prisms, and pyramids</p>	<p>Architect scale rule, scaling, drawn on paper and conversions</p> <p>Slight coverage with attics and airflow, cubic feet needed for fan needs</p> <p>Slight coverage estimating concrete</p>	<p>Retrieval (3)</p> <p>Retrieval (3)</p> <p>Comprehension (3)</p> <p>Retrieval (3)</p> <p>Retrieval (3)</p>	
<p>Number &amp; Quantity: Number Systems</p>	<p>SL:4 Is skilled at adding, subtracting, multiplying and dividing rational numbers</p>	<p>For measurement + and -</p>	<p>Retrieval (3) + and - only</p>	

<p>Number Sense: Fractions, Decimals, &amp; Percents</p>	<p>SL:1-4</p> <p>SL:6 Understands the rules for ordering and comparing fractions with like and unlike denominators.</p> <p>SL:9 Is skilled at addition and subtraction of mixed numbers. Is skilled at renaming fraction to simplest form.</p> <p>SL:13 Is skilled at finding the percent of a quantity</p> <p>SL:14 Is skilled at using proportional relationships to solve problems</p> <p>SL:15 Is skilled at converting among decimals, per cents and fractions.</p>	<p>Standards up to grade 5</p>	<p>Retrieval (3)</p> <p>Analysis (3)</p> <p>Retrieval (3)</p> <p>Retrieval (3)</p> <p>Comprehension (3)</p> <p>Retrieval (3)</p>	
<p>Statistics &amp; Probability: Data Analysis</p>	<p>SL:7 Understands data can be represented and interpreted using stem plots</p>		<p>Comprehension (2)</p>	

Tools of Measurement: Measurement	SL:6 Understands the rules for converting measurement units within the same system SL:7 Is skilled at solving multi-step word problems requiring conversions of measurement.		Retrieval (3)  Retrieval (3)	
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