

Project ID: 40015 - Comprehensive Literacy

School Authority: 0177- Peace Wapiti School Division No. 76

Scope:

2411 Students, Grades 1 to 9, 16 Schools

PROJECT PLAN

Project Description:

Overview

The Comprehensive Literacy (CL) Project is intended to provide a framework for developing life-long literacy and critical thinking in students through active student engagement in:

- Authentic reading and writing experiences
- Differentiated instruction and the use of formative assessment

Aspirations are to deliver a framework that will involve a balance of direct versus indirect instruction: whole class, small group, and individual activities; and intervention for students who need it. We will continue to build on the Vygotskian Social Constructivist approach which goes through a process of modeling (show me), of assistance in which expertise is gradually handed over to the student (help me), then observation as the student independently uses the learning strategies in a meaningful context (let me).

What do we plan to do and how?

Professional Development and ongoing administrative support are critical components in realizing continuous improvement within schools. To this end, we will:

- Provide professional in-servicing on the CL framework and components beginning in May (2009)
- Train two curriculum coordinators in the Writing Map of Development
- Embark upon a system of regularly scheduled school visitations by the curriculum coordinators to promote active learning opportunities.
- Facilitate school based professional learning communities for purposes of student assessment and instruction, data collection and evaluation and teacher collaboration and
- Encourage, lobby for and support school administration involvement as instructional leaders so that they may :
 - Work with teachers to create the collaboration model that best suits their school.
 - Be active participants and leaders during all in services, discussions and collaboration sessions.

We are proposing that to 'kick-start the project there will be

- A one day in service session in May where teachers of participating schools will work with coordinators (of which there will be 4) and a professional staff developer for the CL overview.
- A one to two day session in August to review assessment measures and outline start - up procedures.

We envision that for reporting and monitoring of the project that students be accessed twice yearly - in the fall (September for grades 2 and up: October or November for grade 1) and in the spring (May/June).

The yearly operation of the project will involve scheduled school visits by coordinators (approximately one day every six weeks) for purposes of working directly with teachers to model lessons, coach and to provide feedback to teachers. These visitations would also be used for purposes

of acting as facilitators for the school's professional learning community.

Section A: 5a.Improvement Goals:

	Goals	Strategies	Measures
Student Learning	1 To increase student achievement and engagement in Language Arts, Grade 1-9	1. Integrate Social Constructivist approach into the language arts daily routines.(Critical thinking, differentiated instruction) 2. To improve student engagement in language arts. 3. Use of on- going formative assessments and differentiated instruction to enhance student learning and engagement.	1. PAT Grades 3, 6, 9 Language Arts Reading and Writing, Acceptable Standard. 2. Pat 3, 6, 9 Language Arts Reading and Writing, standard of Excellence. 3. Student engagement survey 4. Fountas Pinnell Reading Benchmarks (Grades one - eight) 5. Locally Developed Writing prompts and rubrics to be used system wide to ensure a greater degree of consistency in the division in the area or writing assessments
Other Related			

Section D: 1. Student Outcomes

What **IMPACT** on student learning has this project had? Use the **EVIDENCE** from your results on quantitative, survey, and qualitative measures to support this conclusion.

2009/2010

Our main focus for the first year of the comprehensive literacy project was on guided reading and differentiated instruction.

Quantitative Results:

Analyses of the Provincial Achievement Test results reveal that six of the twelve PAT baselines were met or exceeded with one additional score being less than a percent below the baseline.

Grade 3

- All baselines and targets were met or exceeded on both the reading and writing portions of the test.

Grade 6

- Baselines and targets at both the acceptable and standard of excellence on the reading portion of the exam were met or exceeded.
- Baselines on the writing portion of the exam were not met. This may be due in part to the fact that reading was emphasized during this first year of the project. As our focus expands to also encompass writing in year two we hope to see greater improvements in this area.

Grade 9

- Targets were not met at either the acceptable or standard of excellence for the reading or the

writing portion of the PAT. However, results at the acceptable standard are less than one percent below baseline for the reading portion which is encouraging given our focus on reading this year. More improvements in the quantitative results will hopefully occur as we progress through year two and three of the project.

Reading comprehension for all students in grades one through six, as well as "at risk" students in grades seven to nine was assessed using the Fountas and Pinnell Benchmark Assessment System in September 2009 and then again in the spring of 2010. Overall results of these assessments were relatively mixed with some grades showing gains in the number of students reading at grade level and some grades showing declines. Given that it's the first year of a three year project, we feel we have made a modest impact on student learning thus far.

What is most encouraging however is that teachers are using the Fountas & Pinnell reading assessment results to more effectively guide instruction in the classrooms.

Prior to the start of last year, most teachers were not using small group instruction and/or a guided reading approach. By the end of June, guided reading was being done consistently in approx forty percent of the classrooms involved in the project. Now, approximately 75% of our classes (in the sixteen literacy schools) now use guided reading consistently, 15% occasionally, and 10% rarely or not yet.

And even though, not all teachers use this instructional approach to the same degree, throughout the division, teachers are now meeting more students where the students are at and moving them forward from that point rather than teaching to the middle or trying a one size fits all approach. Leveled classroom libraries, guided reading groups, some based on ability and some strategy groups are emerging. One size fits all novel studies are becoming less common in some schools.

Qualitative Anecdotes:

Student and Teacher Comments:

"Through the assessment and guided reading, teachers are better able to provide the students with differentiated instruction across the subject areas. With some kids we have also noticed an improvement in behaviour. This is likely, at least in part, due to the fact that we have gathered valuable information about their literacy skills to more appropriately plan learning activities/experiences that meet their needs across the subjects."

"I love reading this year!" proclaimed a grade two student as she was leaving the guided reading area. "Why" asked her teacher.

It's just so much more fun this year.", the child responded.

"Is it our turn for guided reading?" is a frequent question in many of our classrooms this year.

"I've also noticed how much their confidence has increased with reading and I think that is a result of both the success they are having as well as their exposure to such a variety of texts and experiences."

2010/2011

Section D: 2. Effective Classroom Practices

What has changed in your classroom(s) to impact student learning? (E.g. instructional strategies, student assessment, parental involvement, etc).

2009/2010

We have seen significant classroom changes for students in two main areas this year; assessment for learning and guided reading. During the initial professional development days in August 2009, teachers received inservicing from the curriculum coordinators on the use of the Fountas and Pinnell Benchmark Assessment Systems 1 & 2 as well as on the process of guided reading.

1. Assessment for Learning

As a requirement of the project, teachers were then expected to use the Fountas & Pinnell kits to individually test and determine the reading level of each student during the first month of school. This type of individualized assessment meant to drive instruction was not previously being done on any significant scale within the division.

Comments:

"The best part of the project for me has been the benchmark testing. It gives a clear beginning for each student."

"I have conducted the Fountas & Pinnell testing which has been MOST HELPFUL because now we all have a common assessment tool and can all be on the same page when students are entering or leaving our classrooms."

"The Fountas & Pinnell assessment has provided a useful tool in assessing each child's level of reading. It has allowed me to track their progress in a uniform manner. It is also helpful in allowing me to see where students will be leaving off at the end of May so I have an idea of starting places for September."

"I know my students at a whole new level than I have in previous years. I feel that I know the needs of each child and am better able to meet each student exactly where they are at. It has given me a lot of confidence in my teaching and reporting to parents."

2. Guided Reading/ Differentiated Instruction

Following the initial testing with Fountas & Pinnell, teachers were then encouraged and supported in using guided reading/small group instruction with leveled reading materials in their classrooms. Student perceptions about what makes a "good reader" are also changing. In the past, students equated "fast" reading with "good" reading but now the perception has changed and students are more aware that reading should be a process of "meaning making". This is leading to fewer students "fake" reading or word calling.

Comments:

"Teaching guided reading opened my awareness to at least 10 new reading strategies focused in the areas of comprehension, accuracy, fluency, and word meaning."

"I have enjoyed the instructional organization for teaching reading using guided/leveled reading materials. Students are more focused, for extended periods of time, when reading at their level."

"With the focus being on guided reading - we are spending more time reading! I think in my class I have seen students about to quickly engage in a book either on their own or with a partner. They enjoy finding books at their level and are happier to read."

"This year in my grade three classroom I have noticed more enjoyment of reading. Students are, on average, more engaged when reading independently and are usually very engaged during guided reading."

2010/2011

Section D: 3. Overall Summary of Project Practices

Provide an overall summary of project practices. Your response should include the following:

I. What worked well (successes)

2009/2010

One of the greatest successes this year was the increase in teacher collaboration. We work in a school division that covers a large geographical area, so it is easy for teachers to become isolated. Many of the teachers in small rural settings play many roles within their school in addition to teaching a split grade, so their work load is heavy and sometimes coupled with little available support from peers.

This project has started to give teachers common goals, vocabulary, and focus. In addition, some time has been provided for collaboration. As a result there is an improved connection between schools and teachers resulting in a shared excitement.

Teachers have taken part in school visits and large group PD days that have provided time for discussion amongst grade level groups. In addition, teachers have been introduced to colleagues with the help of the internet in hopes of providing connections and increasing sharing opportunities.

Guided reading was modelled by a curriculum coordinator in approx 40 classrooms.

Peace Wapiti teachers were able to view guided reading in action at three schools within the Grande Prairie Public School Division.

33 teachers attended four different "open houses" where they were able to view guided reading in action and to discuss its implementation at Clairmont Community School.

2010/2011

II. What did not work well (challenges)

2009/2010

The vastness of the school division posed challenges. At the onset of the year we used a large group professional development model. All 120+ teachers involved in the project travelled to Grande Prairie for workshops. However, this proved problematic because the group was so large and the venue was not designed to foster interaction and collaboration on such a large scale. This challenge, coupled with the fact that the schools have different needs and are at different places on the journey of embracing balanced literacy, has been challenging.

Another area of challenge, is teacher 'buy-in'. Some of the teachers have been reluctant to embrace the concept of balance literacy. For some teachers there is a sense of trepidation 'what if I am doing it wrong?' and 'how can I fit it all in?'. Partly this is a result of not wanting to 'give up' parts of their program to provide room for change. The encouraging fact is that this resistance is dissipating as the excitement grows amongst their peers. Ultimately, the teachers desire student achievement and success so when 'new ways' have provided successful results the reluctant teachers are enticed to try them as well.

The amount of new information (not just in literacy) that the teachers were expected to learn last year. New math curriculum, changes to the program used for student information reporting, introduction and expectations surrounding technology integration in the classrooms.

2010/2011

III. What changes (if any) did you make to enhance the success of the project? (project adjustments)

2009/2010

We are looking at restructuring our professional development strategies to provide small group opportunities for two or more schools to join together for collaboration and support.

An educational technology coordinator has become a more involved part of the literacy project team to assist with the integration of technology as it relates specifically to literacy.

Presentations to the admin group will occur on a more regular basis for the 2010/2011 school year. Presentations will focus more on the specific things that administrators need to know to help support the implementation of comprehensive literacy within their schools.

2010/2011

Project ID: 40116 - Core Subject: Comprehension & Critical Thinking

School Authority: 0177- Peace Wapiti School Division No. 76

Scope:

1752 Students, Grades 10 to 12, 6 Schools

PROJECT PLAN

Project Description:

Our Core Subject Project has been developed to improve student's critical thinking skills. In particular, the focus will be geared towards assisting students in being better able to interpret (analyze, synthesize and evaluate) information from a variety of sources and then properly express their interpretations in oral and written form and possibly a variety of forms using technology... The collateral development will be to provide students with the core subject Literacy skills and techniques that will enable them to use critical thinking to express themselves and engage themselves in their learning. As such, basic reading comprehension, writing, core vocabulary, and debating skills (U-shaped and Four Corner debates), in addition to source interpretation political, historical, geographical and economic literacy will be addressed for social studies. In the case of physics, the appropriate vectors sections (Science 10, Physics 20 and 30) will be the vehicle used to address such areas as the vocabulary of physics, general scientific terminology - using critical thinking strategies.

Teachers will work collaboratively in a Professional Learning Format dealing with assessment for learning (both formative and summative), reading comprehension, questioning techniques based on differentiated instruction and Bloom's taxonomy. It is our intention to have student and parental input in the development of our project. One area would be the creation of a relevant and interactive Peace Wapiti student resource webpage. This webpage would include resources, links, diploma information, question corner for students and/or parents, all grade level unit research starting points and a vocabulary dictionary. Students activate critical thinking while they are reading, their reciting voice strategies and differentiated learning strategies will be developed. The focus will be to improve students understanding, learning and ultimately, performance in the diploma exams and teacher awarded marks. System wide tests and rubrics, for better consistency in grading, will also be developed.

Inquiry based teaching techniques/projects would be used to foster critical thinking and encourage student engagement--"Asking Powerful Questions" lesson that involves 'Skyping' with guest speakers or other school divisions. Assessment strategies and differentiated learning will also facilitate our FNMI population. Another facet of differentiated learning involves using debate, and discussion for verbal learners to improve their expressive language skills and essay writing skills.

Professional Development in the areas of Inquiry base teaching techniques and some assessment strategies will be provided under the auspices of an external expert. Further professional development and workshops in the use of Blooms taxonomy for critical thinking in the development of the rubrics, common exams, strategies regarding reading comprehension, core vocabulary development and literacy skills will be provided by the assigned curriculum coordinator.

Collaborative meetings and workshops will be held ten times throughout the year.

Section A: 5a.Improvement Goals:

	Goals	Strategies	Measures
Student Learning	<p>1. Social Studies: To Increase the percentage of students who perform at the standards of excellence and acceptability at the Diploma Exams and common exams in grades 10 and 11.</p> <p>2. Physics: To increase the overall understanding of 'Vectors' as it pertains to applications in the physics curriculum</p>	<p>1. Specific focus and teaching of improving Literacy Skills of students by teaching reading strategies as gleaned from research (see section A4)</p> <p>2. Teaching strategies to engage students in critical thinking.</p> <p>3. Concentrate on skills for source interpretation'</p> <p>4. Assessment for Learning Lessons using self/peer and teacher evaluations, exemplars, rubrics and Standards Confirming practices needed for core course skill development.</p>	<p>1. For Grade 12 Students - Diploma exams. - Also map the progress (averages) of understanding of the vectors by reporting the averages of questions pertaining to vector applications</p> <p>2. Social studies common year end exams</p> <p>3. Physics Common Unit Exams - Science 10: Physics unit - Physics 20: Kinematics Unit</p>
Other Related			

Section D: 1. Student Outcomes

What IMPACT on student learning has this project had? Use the EVIDENCE from your results on quantitative, survey, and qualitative measures to support this conclusion.

2009/2010

Main Objectives:

1. Social Studies: To Increase the percentage of students who perform at the standards of excellence and acceptability at the Diploma Exams and common exams in grades 10 and 11.
2. Physics: To increase the overall understanding of 'Vectors' as it pertains to applications in the physics curriculum

Quantitative Results:

Social Studies-

Analyses of the Diploma Testing results for Social Studies reveal that only one of the four DIP baselines and/or targets were met or exceeded for the 2009/2010 school year. However, these baselines were calculated on the 3 year average from the previous Social Studies 30 and 33 courses which have now been changed to 30-1 and 30-2 and may partially account for the results.

Social Studies 30 -1 Acceptable - Baseline not met

- 75.9% of Peace Wapiti students (n = 190) achieved the acceptable standard which is below our baseline of 78.4% and still significantly below the province's acceptable result of 84.5%.

Social Studies 30 -1 Excellence - Baseline not met

- 9.6% of Peace Wapiti students (n = 190) achieved the standard of excellence which is below our baseline of 15.2% and still significantly below the province's standard of excellence result of 16.1%

Social Studies 30-2 Acceptable

- Baseline and targets were exceeded at the acceptable standard

Social Studies 30-2 Excellence

- 8.6% of Peace Wapiti students (n = 186) achieved the standard of excellence which is only one percent below our baseline of 9.6% but still significantly below the province's standard of excellence result of 13.7%.

Only one of the other four baselines and/or targets for locally chosen measures for Social Studies was met for the 2009/2010 school year. Again this could be due in part to the changing of assessments and curriculums in Grade 12. A more accurate picture will hopefully emerge at the end of year two.

Social Studies 10

- Baseline and targets were exceeded

Social Studies 20

- Baseline and target were not met

Social Studies 30-1 - School Awarded Marks - Standard of Excellence

- 25.8% of Peace Wapiti students (n = 190) achieved the standard of excellence which is below our baseline of 30.1% and significantly below the province's standard of excellence result of 34.6%

Social Studies 30-2 - School Awarded Marks - Standard of Excellence

- 12.4% of Peace Wapiti students (n = 186) achieved the standard of excellence which is below our baseline of 14.5% but slightly above the province's standard of excellence result of 11.4%

Physics-

Analyses of the Diploma Testing results for Physics reveals that all of the DIP baselines and/or targets were met or exceeded for the 2009/2010 school year.

Physics 30 Acceptable

- Baselines and targets were exceeded at the acceptable standard

Physics 30 Excellence

- Baselines and targets were exceeded at the standard of excellence

For locally chosen measures baselines have now been established for the vector questions (baseline - 53%) on the physics 30 diploma and common vector questions will be developed and used for Science 10 and Physics 20 during the 2010/2011 school year.

The other goal of our project is to improve scientific vocabulary and reading comprehension, and to address the higher-order levels of thinking in Bloom's Taxonomy. We have chosen the theme of Vectors to focus on, as it spans from Science 10 through Physics 30. Our measures are common assessment questions in the Physics unit in Science 10 and in the Kinematics unit in Physics 20, and the vector questions on the Physics 30 diploma exams.

Analysis:**Social Studies-**

Our intent is to improve student's critical thinking, source interpretation, and vocabulary skills. Our measures include quantitative measurements through common final exams for the grade 10 and 11 students, as well as the diploma exam for grade 12. The fact that it was the first year for implementing a new Social Studies curriculum and the first year for our new AISI cycle complicated

our results for 2009-2010. We hope to see gains in the following years, especially in our weaker schools.

Much of the Core Subjects Project Proposal was rewritten and modified during the 2009/2010 school year, therefore progress toward our objectives, particularly related to the Physics, vector component is somewhat limited.

Qualitative informal feedback from teachers:

Social Studies-

- Students receive more exemplars of written assignments.
- Students get best practices from teachers as teachers discuss good lessons.
- This project has been beneficial to students in that they have been able to use different projects and assignments to enhance their learning.
- Very effective vocabulary lessons (chart) were developed for student implementation.
- Students found standards confirming lesson (Using exemplars, rubrics, self-peer evaluation and rewrites) extremely valuable for writing skills.
- I have noticed that kids are becoming better writers and particularly the lower end kids are experiencing success in comprehension of key terms.

2010/2011

Section D: 2. Effective Classroom Practices

What has changed in your classroom(s) to impact student learning? (E.g. instructional strategies, student assessment, parental involvement, etc).

2009/2010

1. We have continued to implement our standards confirming essay writing lesson with students--training them how to mark essays just like we train teachers at diploma marking and then allowing for a rewrite for a summative evaluation. Students have found this to be a valuable lesson in understanding what is truly expected of them. We are also comparing their marking to their fellow student markers (anonymously of course). Student comments were, "This is really hard, but really good!" "I see the difference now between a proficient and an excellent paper." Students are attempting to improve their critical thinking in analysing their writing skills.

2. Another major project is the use of vocabulary charts--students must find a visual representation, book definition, their own words definition, how the term applies to their life, use the term in a sentence, antonyms, synonyms, and how the term relates to the course inquiry topic. Anecdotal evidence from teachers have been positive, students are able to apply their vocabulary knowledge to multiple choice questions and use their terms in their writing to a greater extent.

3. We also developed lessons for students to read with a purpose, in order to actively engage students in their reading process--some lessons include creating a powerful title. Students must assess criteria, discuss options and analyze the reading. Teachers are reporting that students are more actively engaged, with more discussion in class, and better recall of information on exams.

Some teacher feedback:

- Students get clearer image of how province marks essays and papers.
- Multiple choice exams have become stronger as teachers share questions.
- I have changed the way I deliver course material. I have become very student centered in my approach to assessment.I have done lots of scaffolding activities with students.especially marking sessions.
- I have a ton more resources to share with the kids and students do a lot of peer editing which ultimately has helped their writing and understanding of key concepts.
- I try to set the assessment criteria of what is required prior to students starting an assignment.
- Standards Confirming Essay Writing lessons with self and peer evaluations prior to re-writes have been really effective in helping students understand how they can improve. In addition, sharing an excellent exemplar from one of their peers (for each of the essays they wrote during the year) to use for review prior to the written component of the diplomas, was well received by the students.

We met a total of 10 days this year. We had presentations from both an external expert and myself on the following topics: reading comprehension (Reading with a purpose-such as Creating a Powerful Title lesson; Reading 'T-charts' lesson; Sticky-note strategy for questioning while reading; Mental Modeling lesson, Reading Venn Diagram Circles lesson with source application to themselves and the world; Silent reading/discussion lesson; Deconstructing cartoons-explicit/implicit interpretations; and Identifying symbolic meanings lesson), critical thinking (Ranking Top Ten.and Justify lesson; Setting Criteria for Assessment, Modeled Stronger Questioning Techniques for teachers; Self and Peer evaluation using rubrics and exemplars), vocabulary (Vocabulary charts including-pictorial representation, book definition, student's definition, use in a sentence, antonyms, synonyms; Concept attainment chart; and Categorizing vocabulary activity) and writing strategies (Standards Confirming lesson, handing back excellent exemplars).

Physics-

The 2010-2011 year is the first year the Physics teachers are officially a part of AISI. We regularly met during the 2009-2010 year as a newly formed professional learning community to give input into the AISI proposal being written at the time, as well as to work on the anticipated common assessments needed for the 2010-2011 year, for a baseline and for serving in the upcoming years as measurements of progress. A central website was also created where Physics and AISI resources will be shared.

2010/2011

Section D: 3. Overall Summary of Project Practices

Provide an overall summary of project practices. Your response should include the following:

I. What worked well (successes)

2009/2010

1.Students are developing core based vocabulary that they can relate to and understand. There is greater student independence in group/project work.

2. Our Professional Learning Community and external/local expert presentations were very well received.

3. We have built a large repository of teaching strategies, lesson, and resources on our Moodle site, as well as a district SharePoint and a regional Wiki.

Some teacher feedback:

- Lots of discussion and work time. Shared many lessons and ideas.
- Exemplar development was great. Created a close knit group.
- Use of moodle and SharePoint was successful.
- Collaboration, support, resource sharing
- Time to create lessons, based on new teaching strategies for reading comprehension, which were ready to be implemented.

2010/2011

II. What did not work well (challenges)

2009/2010

- Discussions need to be focused on what we can change not what the province needs to change. Getting to work on local student needs to be done earlier.
- Teachers must bring digital versions of their work not just tell about it.
- Time away from classroom to implement new ideas.
- More concrete discussions of the expectations of the new curriculum.
- More emphasis needs to put on the -2 stream (Chris Tovani's research) as often it was left behind.
- Less talk, more walk.
- Less time away from the classroom.
- More collaboration between the social and physics groups to discuss common strategies e.g. critical thinking

2010/2011

III. What changes (if any) did you make to enhance the success of the project? (project adjustments)

2009/2010

Changes occurred to our project mid-year, due to an addition to our project ie. physics PLC came on stream in order for us to look at common strategies across core subjects. While this change was a

good addition some strategy implementation will occur now in year two.

More inclusion of other school boards into our strategies.

2010/2011

Project ID: 40095 - Numeracy : Critical Thinking Through Active Inquiry

School Authority: 0177- Peace Wapiti School Division No. 76

Scope:

1752 Students, Grades 1 to 12, 16 Schools

PROJECT PLAN

Project Description:

The Numeracy Project is intended to provide a framework for developing life- long mathematical and critical thinking in students through:

1. Authentic inquiry based problem solving experiences,
2. Differentiated instruction and assessment
3. Integrated learning within content areas
4. Increased academic and intellectual engagement of students.
5. More student/teacher feedback and interaction
6. The utilization of technologies to enhance student engagement and learning
7. Project based activities.

Aspirations are to deliver a programme that supports the Social Constructivist approach to learning - a) modeling (show me) of assistance in which expertise is b) gradually handed over to the student (help me), then c) observation as the student independently uses the learning strategies in a meaningful context (let me).

It is the intention to enhance instruction through the vehicles of collaborative and differentiated projects - with appropriate degrees of sophistication contingent on levels of mathematical understanding as we progress through the grades. Scaffolding of knowledge would play an important role.

Integrating technology into our classroom instruction will also enhance our ability to use assessment FOR learning to support the student both at home and at school. Information from assessment FOR learning informs the need for differentiation and students have an expanded choice and increased ability to control their own learning with integrated technology. Student Learning Communities through our Moodle site will allow discussions and forums for each school and among students from different schools. Using Smart boards and Documented Viewers would allow students to be involved in interactive demonstrations where they are able to share their thinking with others. This may be in a variety of forms - recorded audio, powerpoint, videos.

Technology allows for ease of differentiation for each student's abilities

Professional Development is critical in realizing continuous improvement within schools. To this end, we will:

1. Provide professional in-servicing on the teaching through problem solving to facilitate student critical thinking in our students. - where they would be able to use a variety of strategies in order to reach a solution.
2. Continue using the Professional Learning Communities model by bringing teachers together to learn, grow and work collaboratively towards improving instructions in the classroom. The Learning Community is predicated on the development of trust and an atmosphere of openness and acceptance, resulting in high level of cooperation and collaboration among staff members delivering these programs. Creativity is encouraged and staff members are free to explore different approaches and

strategies for achieving the desired goals of our project. We anticipate this approach will provide a promising practice model for the effective integration of technology and Distributed Learning resources for classrooms.

Because this approach would be new to many of our teachers, we will endeavour to:

1. Work to inform students about problem solving; help them learn through problem solving and; teach for problem solving.
2. Introduce classroom practices that support Assessment for Learning which, among other strategies, would include:
 - a. Providing students opportunities to develop their own understanding of criteria for success.
 - b. Provide opportunities for demonstrating their understanding in a variety of appropriate fashions.
 - c. Provide the time for students to apply assessment criteria to improve their work using peer and self-assessment.
 - d. Create classroom cultures where both successes and failures are seen as opportunities for learning; and where students are expected to explain and expand on their knowledge.

Section A: 5a.Improvement Goals:

	Goals	Strategies	Measures
Student Learning	1. To Increase the percentage of students who perform at the standards of excellence and acceptability at the Diploma Exams and Achievement Tests 2. To increase student intellectual and academic engagement in mathematics at all grade levels 3. Accountability Pillar Report: GOAL TWO: EXCELLENCE IN STUDENT LEARNING OUTCOMES Outcome: Students demonstrate high standards in learner outcomes. Overall percentage of students in Grades 3, 6 and 9 and 12 who achieved the acceptable standard and the standard of excellence on provincial exams is low and is an issue.	1. based/problem solving/ collaborative approach to develop students' inquiry based problem solving abilities. 2. Use on-going formative assessments and differentiated instruction strategies to enhance student learning. 4. Integrate technologies to increase the efficacy of student learning 5. Engage parents in the development of authentic projects and practical problem solving activities.	1. PAT grades 3, 6, 9 Mathematics, Acceptable Standard. 2. PAT Grades 3, 6, 9, Mathematic, Standard of Excellence. 3. Common problem-solving tests grades 1, 2, 4, 5 4. Common Final Exams grades 7, 8. 5. Common Projects for grades 10 and 11 6. Student Engagement survey (Learning Bar - Tell Them For Me)
Other Related			

Section D: 1. Student Outcomes

What **IMPACT** on student learning has this project had? Use the **EVIDENCE** from your results on quantitative, survey, and qualitative measures to support this conclusion.

2009/2010**Project Objectives:**

1. To Increase the percentage of students who perform at the standards of excellence and acceptability at the Diploma Exams and Achievement Tests
 2. To increase student intellectual and academic engagement in mathematics at all grade levels
 3. Accountability Pillar Report: GOAL TWO: EXCELLENCE IN STUDENT LEARNING OUTCOMES
- Outcome: Students demonstrate high standards in learner outcomes.

Quantitative results:

Analyses of the Provincial Testing results reveal that four of the eight PAT or DIP baselines were met or exceeded with two other being less than two percent below the baseline (old exams only).

Grade 3 (new exam)

- Students (n = 96) from the three elementary schools involved in the numeracy project achieved an average score of 69.5% which is comparable to the provincial average of 70.6% and slightly above the district average of 67.5%.

Grade 6 (old exam)

Baselines and/or targets at both the acceptable and standard of excellence were met or exceeded.

Grade 6 (new exam)

- Students (n = 10) from the one of the three elementary schools involved in the numeracy project achieved an average score of 69.6% which is slightly above the provincial average of 64.0% and the district average of 60.8%

Grade 9 (old exam)

Targets were not met at either the acceptable or standard of excellence. However, results at the acceptable standard are within two percent of baseline.

Grade 9 (new exam)

- Students (n = 300) from seven schools involved in the numeracy project achieved an average score of 53.5% which is below the provincial average of 57.6% but above the district average of 52.2%

Grade 12 Applied

- Targets were not met at either the acceptable or standard of excellence. However, results at the standard of excellence as less than one percent below the baseline.

Grade 12 Pure

- Baselines and targets at both acceptable and standard of excellence were exceeded.

Baselines were also established for Grade 11 and 12 math projects.

Analysis:

It is of course difficult to provide a full analysis for student achievement when data is not available for most of the grade levels. The grade 12 Applied math achievements were below our expectations but the Pure Math results show significant improvement. This may be due to critical thinking strategies being easier for students working in a course that incorporates higher level thinking?

Based on qualitative data and observation we are observing the following:

Because of the AISI Numeracy project, students are being exposed to a social constructivist approach to learning. They are given opportunities to build, discuss, and create strategies in order to solve math problems. With the integration of technology, students are more engaged and excited to try things in a new way. You can see the excitement in the faces of students as they persevere and try to find yet another way to get the same answer as others in the class. The involvement and education of parents

have also played a key role at Division I and II. Parents are given the opportunity to learn information regarding the methods of teaching math while learning how to help their children with math at home. At the division IV level, work was done to establish baselines for the projects. Students were very proud of their project work and were most willing to talk about it, even on video. Students expressed satisfaction with the problem solving and project based approach, particularly in a collaborative environment. Integration of technology with self checks, self reflections, and benchmark questions helped students take responsibility for their learning while getting instant feedback for their learning at their own pace in their own place. Authentic projects enhance mathematical learning and expression.

Comments from students and teachers:

I have a range of fun openers in my classroom that both the kids and I enjoy!

I am slowly using and trying new ideas. It does take a long time to change how things are taught, even when you are willing to change. I like a lot of the new "mental math" and even though the problem solving approach is difficult (to teach), I am seeing student success.

I think family math night had a positive impact on parent concerns about "new math".

The self checks really helped me out in this course. They were a great way to study and learn things that you may have missed in class.

There should be more projects that are worked on in groups.

If I were a math teacher and my job was to make sure my students did to the best of their capabilities I suggest that teachers demonstrate and solve questions they have on the self checks with the class.

2010/2011

Section D: 2. Effective Classroom Practices

What has changed in your classroom(s) to impact student learning? (E.g. instructional strategies, student assessment, parental involvement, etc).

2009/2010

Division I and II

- Teachers assign fewer questions since more time is taken to discuss various strategies for solving and engage in critical conversations.
- Assessment for some tasks are done in groups.
- Changes in the way some teachers assess moving towards outcome-based rather than traditional methods.
- Manipulatives are frequently used to enable students to build models of their thinking and to assist with problem solving.
- Quickdraw by Grayson Wheatley is used as an opener to engage students and to promote visual-spatial awareness. When used effectively, it also covers many objectives in shape and space.
- Use of various openers engage students and promote critical conversations. Some examples of openers include balance scales, two-ways, four-ways, hundreds squares, and games.

Division III

More teachers are incorporating the "mindset" of differentiated instruction into their delivery and more project work will also be done in year two and three.

Division IV

Currently used classroom practices for assessment FOR learning

1. Assessment for learning - look over a completed test to see what questions they did well, what they

- did poorly on and what they may need to help them with the questions they did not get
2. Ideas for working on a vertical surface.. Peter Liljadahl's ideas.. Students can stand back and see various approaches from their peers. Teachers can also stand back and see what is going on with the various groups
 3. Games like scavenger hunts. students work together, hands-on, students moving around. allows for practice that is not drill and kill
 4. Self checks on Moodle with more than one attempt and automatic marking
 5. Student peer assessment on projects or work and can share feedback with each other
 6. Class set of whiteboards so students can work together to come up with solutions
 7. Benchmark questions - students complete a long answer question and then they can compare their answer with a provided detailed answer - self-reflection
 8. Daily quizzes - a couple of review questions on the board that students answer, and then the class goes through the answers together... we can call this a refresher
 9. Working on questions as a class or in groups
 10. Students working on the board so students can see various approaches to a question
 11. Limit of 15 - 20 minutes of teacher talking and then getting students moving around and up at the board
 12. Providing the projects ahead of time (not at the end) so students can see where they are going and what they need to learn (and what they already know)
 13. Teacher as facilitator. for example, when a student is working in a group and cheating... perhaps the student needs a little more support.. Maybe s/he is cheating because they do not understand, or are insecure, etc.. respecting students and understanding that not everyone is at 100% everyday.

2010/2011

Section D: 3. Overall Summary of Project Practices

Provide an overall summary of project practices. Your response should include the following:

I. What worked well (successes)

2009/2010

It was very effective to have a whole school approach (Div I and II) since all teachers are active participants in the process. It also provides a continuum so that teaching approaches which begin in kindergarten are carried on throughout the grades. Having a whole school approach also allows for common conversations to be held at monthly meetings with administration. Having teachers working in grade level groups across the three schools has given teachers an opportunity to share ideas/successes and learn from each other. Partnerships and a trusting relationship have grown among the 3 schools which allows for meaningful conversations and sharing. Having support, in the form of an Ed Tech resource person, to assist with the building of e-communities has helped teachers develop a more positive attitude toward the integration of technology and the sharing of resources.

Teacher comments (Division IV):

- Professional learning communities have become stronger as we work toward our AISI goals.
- Administrators creatively finding ways for teachers to consult and collaborate during the working day giving staff time to collaborate, share and create together. This interaction is essential in improving good teaching practices and sharing resources.
- I think the best thing that happened this year was a strong shift in pedagogy to a project based

approach to instruction. This is well supported by teacher collaboration in creating, and grading projects (together!). A most frequent comment from both teachers and students is that "we cannot go back" - an attitude essential for sustainability!

- Considering that this project was in a first year, we were surprised by the degree to which students demonstrated collaboration on projects and the quality of work produced. They were proud of the work and very willing to talk about what they had done. Students are taking responsibility for their own learning.

2010/2011

II. What did not work well (challenges)

2009/2010

Div I and II - time, time, time - there is so much to share but little time to get comfortable enough to use in the classroom.

Can be difficult at times to have a conversation that pertains to all grades (K-6) when we are in a whole group setting. This has had a benefit though since many teachers have become more familiar with what is being taught in other grade levels.

Have technology, but don't necessarily know how to use it most effectively.

Div III and IV - Our challenge is the ongoing work of providing project work for our students that are meaningful and authentic and involving students in all aspects of the process.

2010/2011

III. What changes (if any) did you make to enhance the success of the project? (project adjustments)

2009/2010

Please see planned changes in the Plans for Key Strategies and Processes.

Teacher comments

- We need to encourage both students and teachers to embrace collaboration and peer assessment in dynamic learning environments.
- Our current concern is how we create a learning environment where students engage in inquiry problem solving based on their local and global community. Perhaps we should be asking our students to join the discussion.

2010/2011