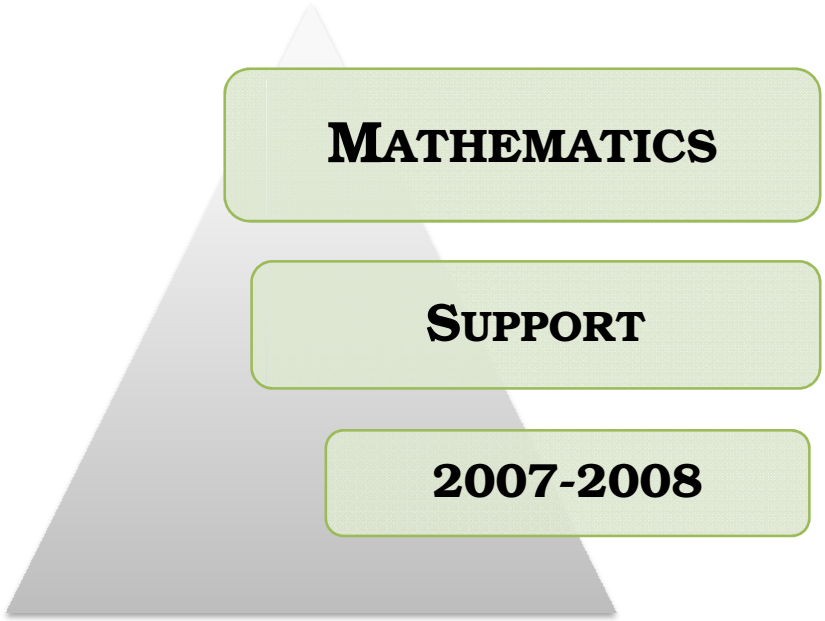

REPORT ON MATHEMATICS PRE-IMPLEMENTATION GRANT

Executive Director: Karen Egge
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Math Project Coordinator: Geri Lorway
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ACTIONS TO SUPPORT GRANT DELIVERABLES

Provide a regional consultant (minimum .5FTE) **who reports to the consortia Executive Director**

- *NRLC contracted a part time regional consultant*

Actions to support that role:

- **Serve as contact between Alberta Education (AB Ed) and Regional Advisory Committee.**
  - *Attended Zone Curriculum co-ordinators meetings*
  - *Attended Cass Issues Forum*
  - *Attended and facilitated at AB ED Summer Institute*
  - *Attended AB ED Elementary Math Leadership Group*

  Information gathered from all sources dispersed during NRLC Pd planning and advisory committee meetings as well as through direct contact with District Co-ordinators, Leads and administrators.
- **Consults with members of AB Ed Provincial Advisory Committee as deemed appropriate.**

  Attended joint meetings with AB Ed Advisors Fall 2007, Winter 2008, Spring 2008
- **Guides development of regional implementation plan**

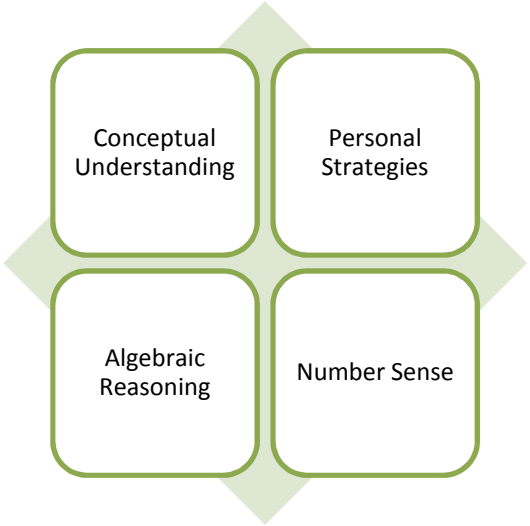
  In collaboration with regional and local advisors including Jurisdictional, District and local personnel developed and wrote plan.
- **Leads and guides progress of the plan**

  On-going monitoring, facilitating PD sessions, maintaining open communication with all stakeholders, gathering feedback both formally and informally
- **Plans for coordination of resources and supports collaboration provincially.**
  - *Participated in AB ED Leadership Training Modules*
  - *Disseminated implementation support materials provided by AB ED*
  - *Provided leadership to regional facilitators*
  - *Facilitated AB ED Module Workshops*
  - *Participated in Alberta Regional Professional Development Consortia(ARPDC) Math co-ordinators meetings*
  - *Integrated AB ED materials into workshop packages and PD day presentations*
- **Provides instructional leadership to local schools, jurisdictions and region.**
  - *Demonstration lessons provided*
  - *PD Day overview sessions*
  - *Coaching/mentoring support to principals, AISI leaders, provincial trainers, classroom teachers*
  - *Lesson, unit planning support, exemplars provided*
  - *Facilitated PLC's*
  - *Provided mentoring and coaching to promote teacher leadership*

- **Gathers evidence to inform future planning and demonstrate the effectiveness of the collaboration and coordination across the province.**
  Evidence gathered from a wide variety of stakeholders and participants indicates the menu of supports offered met the NRLC goal:
  to provide strategies and professional development support that will lead teachers to develop their knowledge and understandings of the Program of Studies for Mathematics K to 9, 2007, so as to be able to implement the program as intended.

EVIDENCE OF SUCCESS

Evident throughout the outcomes K to 9, is the expectation that teachers will focus instruction and assessment around…



1) Results from reflective feedback sheets filled in by workshop participants indicate teachers found the professional development experiences to be satisfactory or above satisfactory. In follow up sessions they consistently reported changes in attitudes and practises. Due to overwhelming participant requests, a fourth session was added on to what were originally planned to be three day series'.

"I've been teaching my grade 5 students the area model for multiplication (up to 3 digit by 2 digits and using decimals) as well using the area model when dividing 3 digit by one digit (with decimals) numbers. I have not been teaching using the multiplication and division algorithms that we grew up learning. My entire class is now entirely engulfed in this new way to solve multiplication and division problems. When I did demonstrate the traditional algorithm they said "this is stupid and makes no sense." *(Grade 4/5 teacher)*
My thoughts are that how I'm teaching makes sense to me and to my students."
(Grade 5 teacher)

"This is awesome! I've gone through the material and integrated a lot into what I'm doing. I've also made some materials of my own. I'll share these once I get the finishing touches done." *(Grade 7 teacher)*

"I really enjoyed my day today. My students are struggling, but I will keep working on dot patterns and number sense and try to avoid the temptation to push ahead"

(Grade 1 teacher)

2) Evaluative feedback gathered from curriculum co-ordinators and AISI leaders indicates that the professional development opportunities offered in mathematics met their needs.

"The NRLC has addressed our concerns/needs and provided much support in terms of: 1) curriculum implementation; 2) interpreting curriculum; 3) practical demonstrations of teaching and assessment methodology; and 4) the pedagogy that is required in order to properly present our new Mathematics Curriculum to students.

Our findings indicate that where Administrators attended AISI workshops and classroom visitations (from the NRLC), those schools moved forward on a much more independent basis in regards to setting school improvement goals (around mathematics), and utilizing collaborative days to analyze and further pursue the pedagogy in mathematics.
NRLC classroom visitations and demonstrations have guided us toward the "lesson study" approach for our Professional Learning Communities. Teachers are seeing first-hand how to present and assess the new Mathematics Curriculum and what changes will need to occur in their existing classrooms. Questioning techniques from students are actively discussed, as well as differentiation in the mathematics classroom. This "first step" toward teachers-teaching-teachers that the NRLC has exposed us to will more than likely be the foundation for our Cycle 4 Proposal."

Jessie Shirley, AISI Co-ordinator, GPCSD

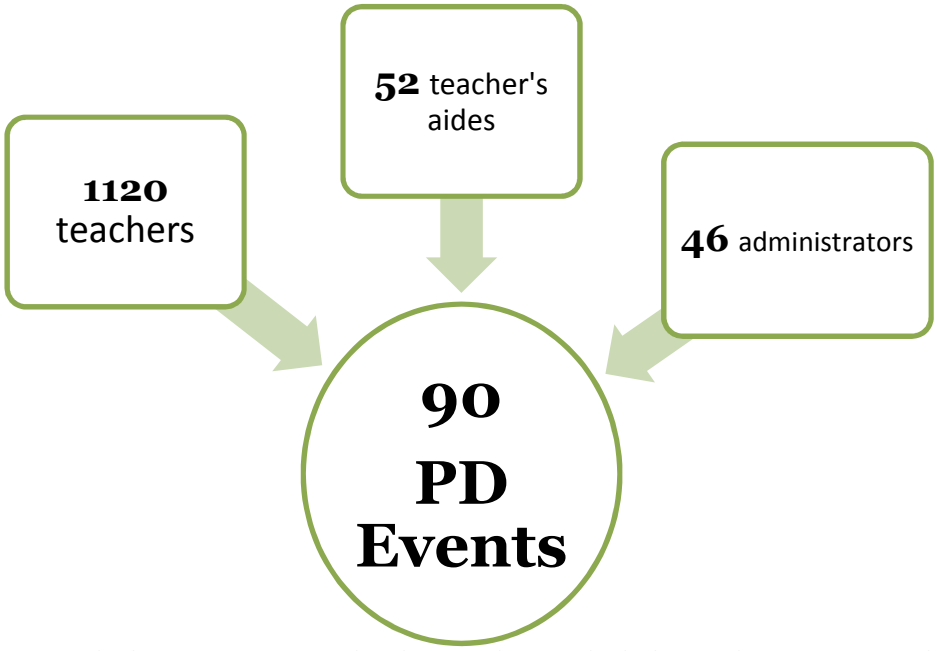
"As you all are aware the new math curriculum kicks in this year for K/1/4 and 7. This is a huge paradigm shift for most of us in our teaching and requires more P.D. than we are traditionally used to accessing in order to become very comfortable with new curriculum. Geri Lorway, the NRLC's math consultant spent the last year putting on workshops through the Consortia as well as modeling lessons and follow-up discussions around teaching and learning this new curriculum. Most of our schools have had her in their schools already and teachers have sat at the back of the class watching her. The follow-up discussion and planning has been challenging and interesting but very worthwhile. It has been excellent P.D. We need to continue it this year and hope to engage all our schools.

Dana Laliberte, Assistant Superintendent, HFCSD

3) **Results from the responses of 213 of 603 teachers who participated in classroom demonstration events indicate:**

- 100 % of those surveyed believe that the classroom demonstration had a positive effect on their knowledge of the revised curriculum
- 93% indicated that continuing this kind of model would be likely to increase their confidence with teaching the revised curriculum
- 87% indicated that the support they believed to be most likely to move them toward a sustainable change in their current practice would need to include more modeling.
- 85% indicated that the support they believed to be most likely to move them toward a sustainable change in their current practice would need to include grade specific collaboration.

4) **As we look at the plans for the current year it is apparent that requests for classroom demonstrations are up. Not only are school representatives who participated last year asking for repeat visits, more schools wish to be included. Workshop series registrations continue to increase across the timeline of the sessions. More workshops are being planned to meet the growing requests.**



90 Math PD Events includes 41 visits to school sites that included 102 demonstration lessons

FINAL REFLECTIONS

As awareness of the implementation schedule for the revised Program of Studies for mathematics grew throughout the year, the demands for support grew. Once teachers gained some initial understandings of the revisions, requests for "tell me what is different, what can I leave out" became requests for grade specific workshops to examine approaches to develop conceptual understanding, to make better sense of assessment and to learn how to plan for integration. As they become more familiar with the intent and philosophy of the revised Program of Studies, teachers want to inquire more deeply into the mathematics they teach, the instructional strategies that support understanding and the research on how children learn. They do not want to work alone. Levels of need have emerged that will require NRLC to develop multi leveled professional opportunities to match the diverse needs and levels of understanding of teachers.

THE CHALLENGES FOR TEACHERS

- Finding the time within their already busy working days to engage in deep and connected study of their practice.
- Finding substitute teachers so their inquiry can be embedded into the working day.
- Learning to teach in ways they were never taught:

  "Making changes to the complex, internalized skills, beliefs and knowledge of classroom teachers is recognized as difficult and time-consuming. We teach as we were taught. There is a great deal of unlearning to do." Philippa Cordingley

THE CHALLENGES FOR NRLC

- Building a coaching, mentoring, leadership support system to promote the growth of teacher leaders who can facilitate and maintain inquiry groups as they emerge.
- As awareness of the revised curriculum grows and more teachers become involved the range of needs and levels of understanding increases. Demands for grade specific, topic specific supports increase. NRLC must continue to diversify our approaches and offerings so as to meet those needs.
- Making DL opportunities relevant, timely and accessible to teachers.
- Building expertise with DL approaches.
- Providing support that is embedded within the working day.

Designing and implementing effective professional development is a cyclical, recursive process that requires thoughtful planning, over time. Throughout the process, our challenge is to continually scan the environment and the horizon to identify emerging need and newly developing concerns in order to revise, adapt and adopt our professional development offerings. The recently announced multi-year funding allows us to plan for long term change.

APPENDICES

Survey administered to participants in classroom demonstration lessons.

Please rate your awareness of the revisions to the Alberta Program of Studies as reflected in the 2007 document. *A 0 would indicate no awareness, have never seen or read the document, did not know there was a change. A 10 would indicate the highest level of awareness. You feel very clear as to the nature of the revisions, the key ideas that are involved in changing your practice to meet the revisions and could lead others in the change*

0 1 2 3 4 5 6 7 8 9 10

Please rank the effectiveness of participating in a demonstration lesson as a professional development experience likely to influence a change in your practise.

Not effective at all Somewhat Effective Effective Highly Effective

Please rank the effectiveness of participating in the mini workshop/debrief that followed the demonstration lesson as a professional development experience likely to influence a change in your practice.

Not effective at all Somewhat Effective Effective Highly Effective

What of the following professional development activities would be most effective in helping you adapt and revise your practice as you implement the revised program of studies? Please rank choices.

___ Classroom demonstration lessons
___ Workshops
___ Study Groups (after school)
___ Speakers
___Unit/Lesson Planning Sessions

Other: *please be specific*

I prefer pd sessions for math to be scheduled on
Instructional Days PD days only

I prefer full day half day sessions

Moving teachers to teaching mathematics for understanding means allowing them to transition through the following levels:

Level One

- Children cannot solve problems without being taught how.
- Expectation that all children will solve problems the same way.
- Outside experts are the authority who will tell them what to teach, how and when to teach it
- When asked about students' mathematical thinking, this teacher talks about the procedures children have been taught because doing the steps correctly is equated with understanding. All questioning relates to "doing the procedure".

Level Two

- This teacher has begun to see that children can solve problems in a variety of ways each of which has value in relation to their developing understanding.
- **Maybe** children can solve problems without being taught specific strategies so he or she expands the types of problems used but continues to demonstrate specific procedures and talks about when it is necessary to tell a strategy to a child.

Level Three

- Students can solve problems without being given or shown strategies and finds very few exceptions to this belief.
- Children will differ in their strategies and different problems will lead to different strategies
- Children should be allowed to solve their own way as it builds their understanding
- This teacher begins to consider that what students explain should have an impact on how he or she teaches but will not adjust the problems or questions asked in response to what children are saying.
- Issues such as Curriculum coverage drive the selection of problems.

Level Four

- Believes that children should drive many of their instructional decisions.
- Children's mathematical thinking should determine the evolution of the Curriculum and the ways teachers interact with children
- What they learn about children's thinking can help them make instructional decision
- Understanding their student's thinking and what it means in terms of understanding the mathematics is critical to enable them to make instructional decisions
- This teacher is inconsistent in his or her ability to enact these beliefs: the pressures of the next grade or lack of knowledge about children's thinking take precedence and impact decision making

Level Five

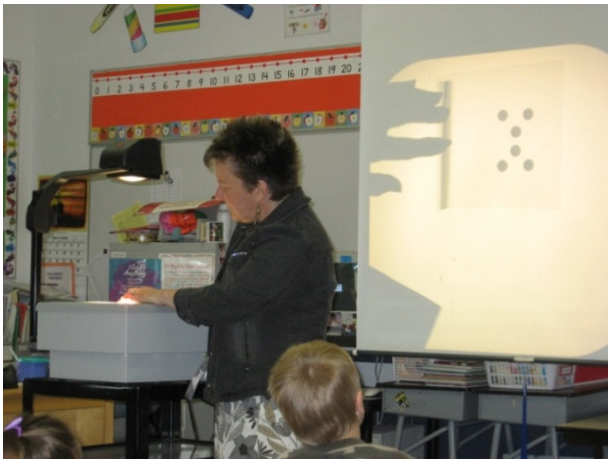
- This teacher consistently talks about and uses the thinking of individual children actively creating opportunities to build on students' thinking and ways for the children to build on their own thinking.
- This teacher believes he or she can and must use what they learn about children's thinking to drive instruction. Knowing the individual child is of the utmost importance.
- This teacher consistently makes use of what he or she knows about individual students throughout his/her interactions with them never doing things that could be considered to be counter to the child's mathematical thinking.

Adapted from: (Carpenter, Fenemma, Franke, 1996)

2007-2008 Math Implementation 2007-2008 Budget Report

Math Implementation 2007-2008	Actual 2007-2008
Grant Funds	
K-9 Math Grant (07-08)	117000
Elementary Math (05-07) Deferred Beginning (note 1)	62125
Interest Income	16422
Total Income	195547
Programming Expenditures	
K-9 Math Programming	50369
Elementary Math Programming	42933
Project Coordinator/Facilitator/Fees	43177
Programming 2008-09 (note 2)	-4747
Committed Funding to K-9 (08-09)	30441
Committed Funding to EM (08-09)	19192
Total Program Expenditures	181365
Net Balance (-over)	14182

note 1: These funds have been identified with specific expenditures through 2007-2009
note 2: These expenditures will be reflected in the 2008-09 Budget



Mathematics Pre-Implementation Support

Year-at-a-Glance 2007-2008

August 2007		
August 21	Coming to Know K/1	Workshop
August 22	Coming to Know 2/3	Workshop
August 23	Coming to Know 4/5	Workshop
August 29	PRSD	PLC Junior High Support
August 30	AB ED Modules	Peace River K to 3 and 4 to 6
September 2007		
Sept. 7	ARPDC	Provincial Meeting
Sept 8	ARPDC	Provincial Meeting
Sept 18	HFCRD	Demonstration in Classrooms
Sept 21	FVSD	PD Day
Sept 26	HPSD	Demonstration in Classrooms
Sept 27	HPSD	Demonstration in Classrooms
October 2007		
Oct 5	Nelson Series	GP
October 9	Math Advisory Meeting	GP
Oct 10	HPSD	Demonstration in Classrooms
Oct 11	HPSD	Demonstration in Classrooms
Oct 15	AB ED Modules	Peace River K to 3 and 4 to 6
Oct 16	Coming to Know K/1	Workshop
Oct 18	McAta Leadership	Provincial Liaise
Oct 19	McAta	Provincial Liaise
Oct 24	Coming to Know 2/3	Workshop
Oct 27	Nelson Series	PR
Oct 30	Coming to Know 4/5	Workshop
Oct 31	Peace River Meeting	Zone Meet/Advisory
November 2007		
Nov 7	PWSD	Demonstration in Classrooms
Nov 8	PWSD	Demonstration in Classrooms
Nov 9	AB ED Modules	Harry Balfour K to 3 and 4 to 6
Nov 13	PWSD	Demonstration in Classrooms
Nov 15	AB Ed Train	Provincial Liaise
Nov 16	AB Ed Train	Provincial Liaise
Nov 20	PWSD 4 to 6	Workshop
Nov 26	AB ED Modules	Workshops K to 3 and 4 to 6
December 2007		
Dec 3	Nelson Series	PR
Dec 4	Nelson Series	GP
Dec 6	HFCSD St Stephens	Demonstration in Classrooms
Dec 12	PLC Support	PLC Capacity Building
Dec 13	PLC Support	Capacity Building

January 2007		
Jan 8	HPSD	Demonstration in Classrooms
Jan 9	HFCSD St Stephens	Demonstration in Classrooms
Jan 10	HPSD	Demonstration in Classrooms
Jan 11	GPCSD	Demonstration in Classrooms
Jan 14	Nelson series	GP
An 15	Nelson series	PR
Jan 17	GPPSD	Demonstration in Classrooms
Jan 18	GPPSD	Demonstration in Classrooms
Jan 21	AB ED Modules	GP K to 3 ,4 to 6
Jan 22	Coming to Know K/1	Workshop
Jan 23	Coming to Know 2/3	Workshop
Jan 23	Coming to Know 4/5	Workshop
Jan 24	GPCSD	Demonstration in Classrooms
Jan 30	HFCSD	Demonstration in Classrooms
Jan 31	AB ED train	Provincial Liaise
February 2008		
Feb 1	AB ED train	Provincial Liaise
Feb 7	PWSD	Workshop
Feb 8	HFCSD	Demonstration in Classrooms
Feb 12	PWSD	Demonstration in Classrooms
Feb 13	PWSD	Demonstration in Classrooms
Feb 14	Northlands	Workshop
Feb 15	PWSD	Workshop
Feb 19	GPCSD	Demonstration in Classrooms
Feb 20	GPPSD	Demonstration in Classrooms
Feb 26	PRSD	Demonstration in Classrooms
Feb 27	HFCSD	Demonstration in Classrooms
Feb 28	HFCSD	Demonstration in Classrooms
Feb 29	HPSD	PLC Capacity Building
March 2008		
March 4	PRSD	Demonstration in Classrooms
March 5	HPSD	Demonstration in Classrooms
March 6	MPTC	Workshops
March 7	Support Staff	Workshops
March 10	CASS	Provincial Liaise
March 11	CASS	Provincial Liaise
March 13	GPCSD	Demonstration in Classrooms
March 14	HPSD	PLC Support
March 20	GPPSD	Demonstration in Classrooms

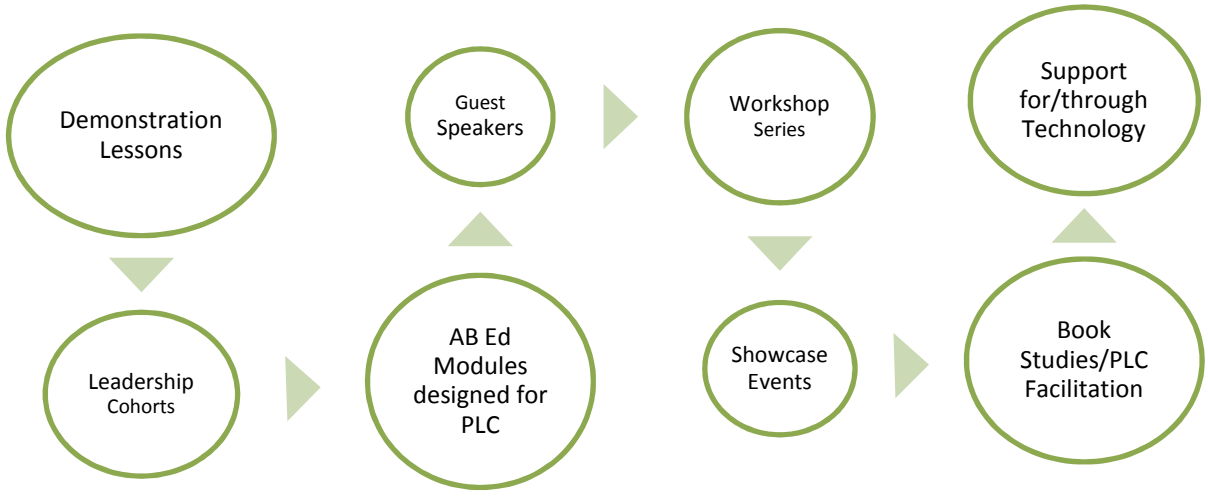
April 2008		
April 1	HFCSD	Demonstration in Classrooms
April 2	HFCSD	Demonstration in Classrooms
April 3	PRSD	Demonstration in Classrooms
April 4	GPCSD	Demonstration in Classrooms
April 8	PRSD	Demonstration in Classrooms
April 9	GPCSD	Demonstration in Classrooms
April 10	PWSD	Demonstration in Classrooms
April 11	HPSD	PLC Support
April 18	AB ED Modules	K to 3, 4 to 6
April 20	FVSD	Workshops
April 21	PD Meeting	Advisory Committee
April 22	PRSD manning	Demonstration in Classrooms
April 23	HPSD	PLC support
April 29	HPSD	Demonstration in Classrooms
April 30	HPSD	Demonstration in Classrooms
May 2008		
May 1	PRSD	Demonstration in Classrooms
May 9	AB ED Modules	GP K to 3 , 4 to 6
May 12	GPCSD	Demonstration in Classrooms
May 13	PRSD	Workshop
May 20	GPCSD	Demonstration in Classrooms
May 21	Zone Meeting/Advisory Group	
May 29	AB ED Train	Provincial Liaise
May 30	AB ED Train	Provincial Liaise
June 2008		
June 3	Coming to Know k/1	Workshop Follow Up
June 4	Coming to Know 2/3	Workshop Follow Up
June 6	FVSD	PD Day
June 9	McATA Leadership	Provincial Liaise
June 10	Meetings Edmonton	Provincial Liaise
June 11	Meetings Edmonton	Provincial Liaise
June 16	Planning	Development Work/ Liaise with Districts
June 18	Planning	Development Work/ Liaise with Districts
June 19	Planning	Development Work/ Liaise with Districts
June 23	HPSD	PLC Support
June 24	HPSD	PLC Support
June 25	Planning Peace River	Advisory Committee/Liaise with Districts

July 2008		
July 7	Planning	Development Work/ Liaise with Districts
July 8	Institute	Provincial Liaise
July 9	Institute	Provincial Liaise
July 10	Institute	Provincial Liaise
July 11	Planning	Development Work/ Liaise with Districts
July 23	AAC	Provincial Liaise
July 24	AAC	Provincial Liaise
July 25	AAC	Provincial Liaise

In order to Support teachers during implementation NRLC is committed to providing the following types of support:

- demonstration lessons delivered on site
- workshop series to support teachers and administrators who are preparing for, or in the midst of an implementation year
- study groups/leadership cohorts focused on teachers as learners, leaders and coaches: developing a Zone Math Coaching Team
- opportunities, events and activities that integrate elements from FNMI, ICT, Inquiry Learning, Understanding by Design and Assessment for Learning into mathematics instruction
- connecting teachers to teachers through innovative approaches to the use of technology and real world interfaces
- pursuing ways to communicate elements of the Alberta Program of Studies to parents and administrators
- the collection, showcasing and store-housing of artifacts, tools and materials to support assessment and instruction in mathematics to include but not be limited to exemplars of student work, lesson, unit and assessment samples, video/audio clips, performance assessment tasks, SmartBoard tools

NRLC Events Include:



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