



Mathematics Council NEWSLETTER

The Alberta Teachers' Association

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President's Message

Math education times are changing. **M**As some or all of you are aware, Alberta Education is embarking on a new approach for developing curriculum. Over a span of six years, work will be done simultaneously on six subject areas: arts, language arts (English, French, Français), mathematics, social studies, science and wellness. New curriculum will be developed for kindergarten to Grade 4 by late 2018, followed by Grades 5 to 8 by late 2019. High school curriculum will be developed in phases from 2020 to 2022.

The new curriculum will allow us to build better connections across subjects and will include First Nations, Métis, Inuit and francophone content in all curriculum. Teachers, consultants, coaches, mathematicians, mathematics education professors, First Nations, Métis, Inuit, francophone experts and ATA representatives from all across the province will be working on the development of the new mathematics curriculum in conjunction with the same makeup of people in the other subject disciplines. The process has been several years in the making, but, to my knowledge, nothing of this scope has been attempted before.

As part of the expert working group, I'm working on the math curriculum as the ATA advisor. This is an exciting endeavour. We met in October for an orientation that gave us the scope and focus of the project. We then spent time discussing the First Nations, Métis, Inuit and francophone perspectives that will be embedded in the curriculum. In late October, we had three days of intense work to get started, and we will meet several more times in the next two years.

As information comes out, please take the time to complete the surveys and questions. The more information the committee has the better the decisions.

Remember, do math and you can do anything. Teach students to love math and they can do anything.

*Marj Farris
Past President*

From the Editor

At the 2010 MCATA Conference, I was introduced as the Dr Arthur Jorgensen Chair Award recipient. As this position expired, I was recruited into the position of newsletter editor. I have greatly enjoyed being part of this organization, which is full of math enthusiasts, professionals and explorers. Participating in PD opportunities is always energizing and creates an excitement to take back into the classroom.

But this is the final message coming from my laptop. I am sad to say goodbye to you and the great group of people who make up the executive, but it is time. So one more shout out—if you are excited about math, get involved!

Karen Bouwman

Notes from the Executive

New Executive Member

Jan Olson, Alberta Education liaison, has been involved in K–12 mathematics education for more than 20 years; first, as an elementary and junior high math specialist in Calgary, then as a high school math teacher in Ontario and China.

During his role as school principal for more than 10 years, Jan's instructional leadership focused on supporting teachers in math programming and delivery. As well, at the district and provincial level, Jan has supported Ontario principals and assistant superintendents with math leadership. Through these varied roles, Jan has embraced many opportunities to be involved in reshaping the way we envision aspects of mathematics education, including summer school program development and, more recently, in the exciting world of Indigenous ways of knowing and western views of math.

As a relative newbie to Alberta Education, Jan is very excited to colearn with all of the great math people in Alberta!

Executive Meeting Summary

The significant agenda items for the first meeting of the 2016/17 year held September 10, 2016, included the 2016 conference, the 2017 conference (River Cree Resort and Casino, Edmonton) and the 2018 joint mathematics science conference (Edmonton), mathematician panel, Alberta Education expert working groups, Beginning Teachers' Conference presentations, Truth and Reconciliation Commission presentations, 2017 spring symposium (April 29), and format change to Gra3de 6 PATs.

Positions Open for Nomination

For the 2017/18 year, the positions of treasurer and vice-president of professional development are up for vote. Please see the nomination form for more information.

PEC

Provincial Executive Council Report

The Student Learning Assessment (SLA) pilot is now in its third year. The Association's ongoing work to support Grade 3 teachers in SLAs has been unsuccessful despite significant efforts, a survey and research, and responses from over 600 Grade 3 teachers. Our concerns were not considered, and we were unsuccessful in changing the direction of ministry officials.

All four metro boards will participate; 60 per cent of Grade 3 teachers will be affected; tests are to be administered within a window; teachers cannot exempt students or decline to participate; SLAs will be administered in addition to jurisdiction-mandated standardized tests.

The Association will continue to try to effect change.

Carol Henderson

Announcements

Math Educator of the Year

We are pleased to recognize Holly Hudema for her important work in Two Hills, Alberta. She not only teaches rules of math, she is > than most in areas of assessment and mentoring. To Σ it up, she is the math teacher many of us wish we could be.



Holly Hudema receiving the Math Educator of the Year Award from President John Scammell.

ATA Specialist Council Conference Grants

Congratulations to the following recipients of the ATA Educational Trust Specialist Council Grant. The grant will be used to attend the mathematics conference this year or next.

Kristi Allen	Gerald Krabbe
Margo Cahn	Chris Kuly
Karen Campbell	Jason MacDonald
Erin Chessor	Tammie Pedersen
Donna Colborne	Suzanne Pitts
Arlene Doshewnek	Amanda Thomson
Chantal Gallant	Sarah Trombetta

Student Math Contest Winners

Edmonton Junior High Mathematics Contest (2016)

First place David Luo, Vernon Barford School
Second place Andrew Carlson, Vernon Barford School
Third place Edmond Tuong, Londonderry School

Calgary Junior High Mathematics Contest (2015)

First place Richard Kang, John Ware School
Second place Jaeyoon Cha, Queen Elizabeth High School
Third place Kevin Lin, Webber Academy

Alberta High School Mathematics Competition (2016)

First place Ruiming Xiong, Western Canada High School, Calgary
Second place Brian Kehrig, The Renert School, Calgary
Third place (tie) Richard Kang, E P Scarlett High School, Calgary, and Alex Rutar, Tempo School, Edmonton

For details about the contests, solutions and winners, visit www.mathteachers.ab.ca and follow the links under the Resources tab.

Free Money for Math PD

Grants are available for schools and teachers who plan professional development initiatives that support current learning and teaching practices or current priorities as outlined by or through Alberta Education, local school districts, MCATA, NCTM, ATA or other reputable education associations.

For more information, go to www.mathteachers.ab.ca/MCATA%20GRANTS%2005.htm.

TERM

Teachers of Mathematics in the Edmonton Region (TERM) will meet on Monday, April 10, 2017, at 5 PM in St Albert. For more information, please contact Donna Chanasyk at donnajc@telus.net.

The following information was previously shared by Alberta Education during the 2015/16 school year through a variety of communication means; we would like to share this information directly with MCATA members.

The *Alberta Mathematics Kindergarten to Grade 9 Program of Studies* has been updated for September 2016 in order to clarify program expectations. The updates include

- removal of “such as” in specific outcomes in the Number strand,
- clarification of “addition facts up to and including $5 + 5$ and $9 + 9$,”
- addition of maintenance notes in specific outcomes in the Number strand in Grades 4–9 and
- addition of notes regarding strategies in the Number strand in Grades 2–5.

The strategies listed in the “such as” have been removed from the specific outcome but are listed in the indicators. This is to clarify that the strategies chosen to achieve the outcome are at the discretion of the teacher. The clarifications to the addition facts are to indicate that the addends cannot exceed 5 in the first case and cannot exceed 9 in the second case. The maintenance notes indicate, for teachers, opportunities where prior learning can be reinforced in the teaching of that specific outcome. The notes regarding strategies in the Number strand in Grades 2–5 state that, “Students investigate a variety of strategies, including standard/traditional algorithms, to become proficient in at least one appropriate and efficient strategy that they understand.”

Alberta Education has created a number of documents to support these clarifications. These include

- a fact sheet Clarification of Expectations Regarding Strategies and Maintenance,
- a fact sheet Clarification of Expectations Regarding Number Facts and
- a PowerPoint presentation outlining the clarifications.

Additionally the Alberta Regional Professional Development Consortia (ARPD) has archived a webinar explaining the clarifications.

Building on these clarifications, Alberta Education is focused on continuous improvement and is using feedback to take a systemic approach to further refine the Alberta mathematics curriculum. This includes expanded professional learning opportunities for teachers at no cost, identifying additional program support resources and reinforcing the basics through provincial assessment.

Mathematics Professional Learning Opportunities

Elementary Mathematics Professional Learning

In the 2015/16 school year, a series of learning opportunities were offered across the province at no cost to teachers. These learning opportunities included webinars and learning guides, which are now archived on the ARPD Learning Portal. These learning opportunities will extend throughout the 2016/17 school year and beyond. Check the ARPD Learning Portal or contact your Regional Consortium for updates and registration.

Mathematics Resources

Alberta Mathematics K–9 Achievement Indicators 2016

The *Alberta K–9 Mathematics Achievement Indicators* have been updated for September 2016. To support the implementation of these 2016 updates, Alberta Education has prepared a *Summary of Updates to: Alberta K–9 Mathematics Achievement Indicators*, which is posted on Alberta Education’s website.

Additional Support Resources for K–9 Mathematics

Alberta Education developed a list of resources in collaboration with teachers and administrators throughout Alberta to provide further support for the Kindergarten to Grade 9 Mathematics Program of Studies. These resources are not part of Alberta Education’s Authorized Resource List, but are additional support resources for teachers to consider for use in their classroom. Teachers use their professional judgment and knowledge to select the most appropriate resources that best meet the needs of their students. The list of additional support resources is posted on Alberta Education’s website and is updated on an ongoing basis.

For more information or questions about the mathematics programs of study and resources, please contact Jan Olson, senior manager, Mathematics K–9, at 780-427-3588, Jan.Olson@gov.ab.ca; or Diane Stobbe, French team leader, Mathematics K–12, at 780-427-7489, Diane.Stobbe@gov.ab.ca. All phone numbers are toll free in Alberta by first dialing 310-0000.

Assessment

Mathematics 30-1

- In the fall of 2016, Mathematics 30-1 released a complete diploma examination, in English and in French. All released materials for the mathematics diploma examinations can be found on the Alberta Education website at <https://education.alberta.ca/writing-diploma-exams/exemplars/>. Additional diploma exam questions can be found on Quest A+ at <https://questaplus.alberta.ca>.
- Revisions to the Mathematics 30-1 Assessment Standards and Exemplars were completed during the summer. The revised document was posted, in English and in French, on the Alberta Education website in the fall of 2016 at <https://education.alberta.ca/mathematics-10-12/diploma-exam-exemplars>.
- To ensure fairness for all students and to maintain consistent standards, Mathematics 30-1 will be confirming a baseline exam this school year in order to begin the equating process.
- Mathematics 30-1 will continue to offer year-end field tests in both digital and hybrid formats. Exams are available in 50-, 65- and 180-minute lengths. Teachers can request a digital field test up to five days before the preferred field test administration date. The deadline to request a hybrid field test for Semester 2 is April 14. More information about field testing can be found in the General Information Bulletin on the Alberta Education website at <https://education.alberta.ca/diploma-exam-administration/general-information-bulletin/everyone/general-information-bulletin-2016-17>.

For more information, please contact Ross Marian, senior manager, Mathematics 30-1, Provincial Assessment Sector, at Ross.Marian@gov.ab.ca, 780-427-0010 (dial 780-310-0000 for toll free connection in Alberta).

Mathematics 30-2

- In the fall of 2016, Mathematics 30-2 released an additional diploma exam in both English and French. All released materials for the mathematics diploma examinations can be found on the Alberta Education website at <https://education.alberta.ca/mathematics-10-12/diploma-exam-exemplars/> as well as on Quest A+ at <https://questaplus.alberta.ca>.
- Assessment highlights from last year's diploma exams can be found in the commentary section in the Mathematics 30-2 Information Bulletin at <https://education.alberta.ca/mathematics-10-12/diploma-exam-info/>.
- Final minor adjustments were made to Mathematics 30-2 Assessment Standards and Exemplars, and it was posted in both English and French in the fall of 2016 at <https://education.alberta.ca/mathematics-10-12/diploma-exam-exemplars>.
- The Graphing Calculator Policy, which is updated annually, can also be found on the Alberta Education website at <https://education.alberta.ca/mathematics-10-12/diploma-exam-info/>. Please ensure that the latest version of the calculator operating system is used in the classroom.
- Mathematics 30-2 will continue to offer year-end field tests and topic field tests, all 60 minutes in length. The year-end field tests will be offered in both digital and hybrid formats. The two topic field tests, Logical Reasoning and Probability, and Relations and Functions, will be offered in digital format only. The request deadline for hybrid format field tests for Session 2 is April 14, 2017. Requests for digital format field tests must be submitted at least five working days prior to the preferred field test administration date.
- To ensure fairness for all students and to maintain consistent standards, Mathematics 30-2 will be confirming a baseline exam this school year in order to begin the equating process.

For more information, please contact Jenny Kim, senior manager, Mathematics 30-2, Provincial Assessment Sector at Jenny.Kim@gov.ab.ca, 780-415-6127 (dial 310-0000 first for toll-free access in Alberta).

C³ (Current Commentary by Council)

Using Games to Improve Basic Fact Competency

In conversations with mathematics educators across North America, the topic of basic facts and students' lack of proficiency with them comes up time and time again. Teachers all the way from upper elementary to high school express this concern. How can we address this common gap in students' math competency?

History shows us that rote memorization does not work for all students. Ask any group of adults and you will find several who are quite proud of the fact that they were not good at math. However, they still want their children taught using the same methods that didn't work for them.

There are better ways to develop students' fluency and recall of basic math facts that work for all students while putting the fun back in fundamentals. Using math games allows us to do this.

There is a vast array of games available for teachers to use. "Everybody is starting to understand the power of games, and they're remembering what is fun about them—what's fantastic about games is that we can use them at any point in time," said Barbara Chamberlin, project director at the New Mexico State University Learning Games Lab (<http://aces.nmsu.edu/mediaproductions/bchamberlin/>).

Games give students a reason to practise the basic facts and to become fluent using them. Practising math is always more fun and enjoyable in a game context. Aside from wondering if games can help students learn, educators should focus on other questions—it's not the act of playing a game that makes students learn, but rather, it's the content and design of those products that lead to learning, Chamberlin said.

"Games in the classroom are especially powerful when there's a teacher there to guide. If you're using games in the classroom, that's not the time to sit and get caught up—you're still the facilitator of the learning that happens during that gameplay." www.eschoolnews.com/2014/08/04/games-ok-play-239/2/?all

Games like Trading Up (Box Cars and One-Eyed Jacks) can be adapted for any coin combination to teach skip counting as well as developing money sense. Dominoes is a game that covers many outcomes all at once, mental addition, number sense, rounding, multiples of five and reasoning. Snake can be adapted to practise addition or multiplication facts. Quip,

Bowl-a-Fact, Krypto and 24 are all variations of practising order of operations, number sense and reasoning. Crib teaches number sense, reasoning and groups of 15. Games that can be differentiated are the best ones to use.

In my experience, students enjoy practising facts in game contexts. Kindergarten students love to use the Double Six Dominoes to match the dots to either number words or ordinal numbers. When I tell students who groan and act out in a regular math class that we are going to play math games, they cheer. The downside to this is when parents ask their children what they learned in math today, the students usually respond with "We didn't learn anything. We just played games." Students who struggle in the traditional classroom are often the students who benefit the most from math games. The game aspect seems to take the stress and lack of self-confidence out of the equation. The students realize that they can shine. This self-confidence can then transfer to other areas of math.

There are a few things that need to be in place before games are successful in class. Students need to be taught the games. This is sometimes a painful process but gets easier as more games are used in the class. Self-checking games are important, so the teacher has time to focus on students who may need extra help. Games must be structured in such a way that students know when someone gives an incorrect answer. You cannot just expect the other student to know whether or not the answer is wrong. It is also uncomfortable for some students to challenge another student on whether or not the answer is correct. Teachers need to be sure that the focus is on accuracy and not speed.

If needed, use a student umpire with a calculator for the two-person games. A cooperative classroom needs to be in place. Playing games without keeping score is one way of avoiding the need to be the winner.

Games teach more than just math concepts. They teach students how to cooperate with others, coach others who may be struggling, reflect on their own learning and set personal goals for improvement. Games can teach students that it is OK to lose or win. It is how you play the game and what you learn that is important.

Debbie Duvall and Marj Farris



Mathematics Council of the Alberta Teachers' Association

*Providing leadership to encourage the continuing enhancement
of teaching, learning and understanding mathematics.*

NOMINATION FORM FOR MCATA EXECUTIVE

Ensure an active executive council by nominating teachers who will take an active role in making the Mathematics Council benefit all mathematics teachers.

Nominations for the following offices for the 2017/18 year are now being accepted:

Vice-President (Professional Development), Treasurer

To nominate a candidate, complete the form below and mail to Returning Officer, c/o Lisa Everitt, Executive Staff Officer, 11010 142 Street NW, Edmonton, AB T5N 2R1.

Nomination deadline is MARCH 15, 2017

If an election is necessary, it will be conducted by postal mail. A newsletter outlining the platform of each candidate will be sent out with ballots to all members on or about **APRIL 15, 2017**. If candidates wish to include their platform in the newsletter, it should be sent to Returning Officer, c/o Lisa Everitt, Executive Staff Officer, 11010 142 Street NW, Edmonton, AB T5N 2R1. Platforms should be a maximum of 500 words in length and shall be submitted by the nomination deadline.

DEADLINE FOR RETURN OF BALLOTS IS MAY 30, 2017. The successful candidates will be notified on that same day and the results posted on the MCATA website and printed in the next available newsletter.

We, the undersigned members of MCATA, nominate _____
(name)
of _____
(address)

MCATA Membership Number of nominee _____ For the position of _____

Signatures and addresses of threenominators:

Name _____ Teaching Certificate Number _____

Address _____

Name _____ Teaching Certificate Number _____

Address _____

Name _____ Teaching Certificate Number _____

Address _____

I _____ accept this nomination _____
(print name) (signature of nominee)

By completing this form you are voluntarily providing your personal information and consenting to its collection, use and disclosure for all purposes connected with your participation as a member of this council.

Conference 2017

2017: A Prime Year For Mathematics

MCATA Fall Conference

October 20 and 21, 2017

Edmonton Marriott at River Cree

Enoch, Alberta

www.mathteachers.ab.ca

@MCATA_Tweets

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