

WRAPSC Minutes

Feb 3, 2015 7:00 to 9:15 pm

Forest Heights Collegiate Library



Attendance:

- 31 representatives from 30 different schools
- 4 guests
- 7 Members of the 2014-15 WRAPSC Steering Committee

Agenda & Approval of January Minutes: Laurie Tremble

- No revisions/additions. Motion to approve: Jillian Anger. Second: Hend Shalon. Approved.

Co-Chairs report: Laurie Tremble

1. WRAPSC and PIC posters and brochures are now ready! Via inter-office mail, each school will be receiving a poster to be put on their School Council board and two of the brochures, also to be posted and to share at your next Council meetings.
2. Calendar Committee (1): Joe Ortiz is our parent representative on school board. Every 6 or 7 years, we have a situation where the 194 teaching days do not fit in the timespan after Labour Day Monday and the end of June. The 1516 school year falls into this situation.
 - Looking for parental feedback; send to wrapsc@gmail.com and we will forward it along.
3. Early Years Advisory Committee: Seamless Early Learning Symposium Conestoga College Feb 4/15, registration required! See <http://goo.gl/wWDkd2>
4. Safe, Caring and Inclusive Schools (SCIS)
 - a) To be added to their mailing list, email us at wrapsc@gmail.com and we will get you added.
 - b) Team event – **Wednesday March 11/15 from 7-9 pm** in the St. Clements Room, Education Centre (51 Ardelt Ave, Kit). SCIS parents and community members will come together to share best practice ideas and learn from small group facilitators. For more information please contact wrapsc@gmail.com.
 - c) SCIS electronic forum - still in the works; stay tuned!
5. Director's Report on board website: <http://www.wrdsb.ca/blog/2015/01/27/2014-directors-annual-report/>

PIC Event: Alicia Sumner

- **Sat, April 18, 2015** – all day parent conference FREE!
- "Building Skills to Navigate the School Years" at Bluevale Collegiate in Waterloo.
- Registration is now open on Eventbrite.
- Flyers now available for distribution! Schools will be receiving some from the board office soon.
- Volunteers still needed for the night before and the day of. Know a teenager who needs some volunteer hours? Contact Alicia Sumner alicia.m.sumner@gmail.com to help!

6. Dr. Donna Kotsopoulos

Ontario Certified Teacher, and is the Associate Vice-President: Research, a Professor in the Faculty of Education with a cross appointment to the Dept. of Math, as well as being the director of the Mathematical Brains Laboratory. (Contact at dkotsopo@wlu.ca)

Research indicates that early learning is the biggest impact and what you do with your kids before kindergarten is the most important contributor to their future with numbers. Daily in school/daycare/home, there is less time spent on math but 65% read a story every day!

Aunio et al 2015 Research Study

- Those who come into the school environment with a low math level learn faster and really benefit from kindergarten environment. However, they never catch up with the high achievers. Can use this to predict where the learners will be in a year's time since, as they progress, the gap actually widens!

“Top Ten Ways to Help Your Child Succeed in Math”

#10: Learn where to look for help

Most kids don't need a tutor; are they not getting their homework done or not getting math support?

Homework is not always as good as the teaching that is going on in the classroom.

Guideline = 5 minutes per day, per grade

The most important contributing factor is how supportive and engaged the parents are. Do you ask your kids about their work? Do they work at the dining room table where you can watch what they are doing and talk about the work?

#9: Find the mathematics in every day routines.

Look for and elaborate on some form of counting. Example: when playing with toy cars, “How many red cars are there?” or when drawing a bath, “How many cups of water to fill the tub?”

#8: Play more games & puzzles

Excellent skills can be learned with:

a) Snakes & Ladders

Rolling the dice/counting is great but try changing the rules. “Every time we roll the dice, let's add 2 or multiple by 3”

Start at the end of the game and work backwards.

b) Lego/blocks

More than any other toy, blocks increase visual and spatial reasoning skills which directly impacts counting skills.

“What happens if I take a block off?” “Can you add another row?” “Can you make a bridge?”

c) Cards – both playing cards and flash cards can have a huge impact

#7: Partner with your child's teacher. Teachers, partner with the parents.

The greater your network is with your child's teacher, the more chance of success.

Teachers unfortunately, get very little training in this. However the newest program has a required course to help teachers learn these skills

#6: Get involved with the homework – even if you think you can't do it.

Parent engagement is very influential!

#5: There is more than one way - "Hum, this is how I would do it."

Example: Add 17 and 24. It is likely that most of us immediately started putting the numbers into columns: i.e.:

$$\begin{array}{r} 17 \\ +24 \\ \hline \end{array}$$

What about these other ways? Our natural instinct is to actually think the problem like this:

$$17 + 4 + 20 \quad 20 + 21 - 3 \quad 24 + 10 + 7 \quad (10+20) + (7+4)$$

Don't say: "I don't know how you do it." "I don't know how you were taught." "I'll teach you the right way."

Rather, ask your child, "Can you explain to me how you did it?" "Pick your favourite way to do the problem." "Show me one other way you could figure this out."

#4: Talk numbers. Talk spatially.

Everyday talk influences achievement example: "First you are going to clean up. Second you are going to have a snack." While doing this, show your fingers to mark the steps visually. Use left/right and north/south.

#3: No bad talk

Do not say! "I hate math." "I was never good at math."

If a mother talks negative, the kids (especially girls) will pick up on it.

Research shows that little girls determine math is not for them, from their teachers & mothers!

#2: Believe in yourself!

Less than 7% of people have a mathematical-disability, rather than a mental block.

#1: Believe in your child!

Questions for Dr. Kotsopoulos:

Q: I expected to see something about music in the list!

- The links to math are not obvious unless we point them out. Yes, research indicates that the link between music and math are relevant, but others are more important.

Q: My daughter says "I hate math!" How do I fix this?

- Girls with an 80% to 90% average in math are still very unlikely to go into a math related career. Talk to your high school and find a teacher to make a personal connection.
- Engage them in things that are math, but don't seem like math i.e. girls engineering camps.
- Reinforce that Girls + Math = Power
- Need a peer group where it is okay to be smart!
- Need mentorship; seek female math teachers who are passionate about it!

Q: In the French immersion program, why is math taught in French?

- Yes, it is trickier to learn in French, especially if it is the second or third language.
- Must understand that math is its own language.
- Start with the English, convert the math linguistics and then convert that into French.
- Less than 7% of Ontario teachers have math qualifications!
- The province is looking at teaching math for French teachers differently.

Q: How do we set the trajectory?

- Books! Many math books are not just counting, but have crazy math problems and one excellent resource is a book called “Counting on Frank” by Rod Clement.
- Reinforce with positive feedback: “You are so good at counting!”
- Always include puzzles and games into their play. It’s a challenge to get girls involved in construction/trains/blocks but don’t build it for them. Assign them tasks.

Q: What about all of the recent focus on things like “Hour of Code”?

- This falls under computational thinking and is problem solving in its most elegant way! It is a very specific talent but has very powerful implications especially with young children.
- Great organization called “Women in Code” which has a fantastic Twitter account!

7. WRDSB Staff

Ed Enns, WRDSB Learning Services Consultant
Wendy Goulden, WRDSB Coordinator LK-6
Kim Keena, WRDSB Coordinator 7 - 12

Nothing has a greater impact, than parents!

Stanford professor, Jo Boaler says that our beliefs about math have a powerful effect on our kids and the positive power of a teachers saying they believe in the child has a huge impact!
See her website (<https://class.stanford.edu/courses/Education/XEDUC115N/Summer2014/about>) for a free online course on “How to Learn Math” which is fantastic for parents, teachers and students!

Q: What about the basic math?

Basic math remains in our curriculum; the change has been to see *how* our kids are taught.

- Encourage instruction to begin with conceptual understanding and thinking.
- Students still need practice to consolidate the facts.
- When students understand the mathematical patterns and relationships underlying the basic facts they can extend this understanding to multidigit mental computations.

Look at this question:

200
800
130
80
+120

We were taught
not to think about it,
just do it!

Now think about a bag of coins? How would you count it?
 First you would likely organize the coins.
 Sort into their denominations.
 Start counting with the big coins (easier; makes sense)

Now look at this question:

$$\begin{array}{r} 476 \\ +245 \\ \hline \end{array}$$

Wouldn't it be easier to work at the largest numbers and go down, just like the coins? i.e.:

it's easier to hold these #'s in our head and forces us to think about the place values!

$$\begin{array}{r} 476 \\ + 245 \\ \hline \end{array}$$

From L to R equals:
 600
 110
+11
 721

Memorization = committing answers to memory without thinking (no relationships between facts).

Automaticity = relies on thinking but answers still need to be produced in a few seconds. These answers will eventually be remembered. It is not about whether facts should be memorized but how they will be memorized - through thinking. More students are able to remember their facts this way.

- Increased accuracy
- Increased amount of memorization; can do it faster if they understand
- Builds efficacy ("I can build math!")

EQAO definition:

Mathematical literacy is an individual's capacity to identify and understand the role that mathematics plays in the world, to make well-founded judgements and to use and engage with mathematics in ways that meet the needs of that individual's life. Success in mathematics goes beyond knowing mathematical facts and procedures; it also means being able to reason mathematically and to have the ability to interpret and solve mathematical problems.

So why change?

- As many as 6 out of 10 adults deal with math anxiety.
- Students who rely on memorization to compensate for lack of understanding 'hit a wall' gr 10/11.
- Approximately 1 out of 3 students are not able to take Grade 9 academic math.
- Ginsburg describes mathematics as a way of making sense of the world (2002). Yet for the majority of adults, mathematics is seen as a mystery or a subject for the gifted few.
- In the past 30 years there has been no growth in the % of university students in math intensive degrees.

PISA (Programme for International Student Assessment)

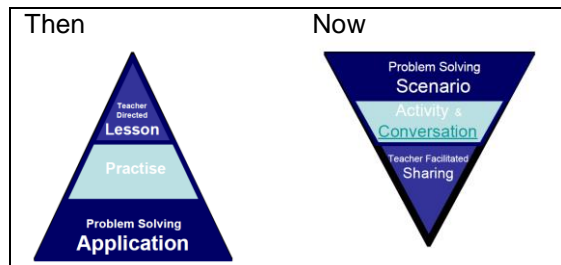
- A triennial international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students.
- 15 year old students randomly selected across Canada
- In 2013, Canada played 10th out of 65 countries (dropped 2 spots)
- 96.4% of Cdn students got basic skills questions but only 4.3% got highest problem solving questions

Bruce Rodrigues, CEO of EQAO speaking about 2013-14 results:

- Pr and Jr assessment best strand was NSN (number sense & numeration)
- Pr and Jr assessments best category was Knowledge
- Pr, Jr and Gr. 9 worst category was Thinking
- Students know basic facts and know how to compute
- Difficulty knowing which operation to use and in bringing the computation back to context to make sense of the answer

How is Math Education Changing?

- Engaging students in mathematical learning and building a “growth mindset”
- Problem-based learning focused on conceptual understanding and application of skills in context
- Purposeful practice for consolidation
- Integration of mathematical skill development (fluency & automaticity, mental math, estimation skills)



How Do We Change?

- WRDSB educators continue to be involved in mathematics professional development to deepen understanding of how to support student learning
- Teaching through problem solving, emphasizing conceptual understanding, procedural understanding
- Belief that all students can be successful in learning mathematics
- Use of Number Strings/Mini Lessons for basic facts and mental computation
- We need our parents to support us in aligning these beliefs with our students

How Can you Support your Child?

- Talk with your child’s teacher when you have questions
- Be Positive - every child can learn mathematics with persistence and effort
- Be Less Helpful - always try to have the math come from your child and not the other way around
- Ask questions that encourage understanding (“Why did you do that?”, “Why does that work?”, “How do you know you are right?”, “Is there another way you could do it?”)
- Connect Mathematics to Real Life - shopping, cooking, construction, time management.
- Encourage your students to question and wonder with them.
- Set High Expectations - students need to learn to persevere to adjust thinking and strategies if their first attempt is unsuccessful

8. Next WRAPSC meeting: **Tues, Apr 7th at 7pm**

- Note that we have WRAPSC members who experience health issues arising from exposure to scented products. Please be considerate in your use of such products while attending our meetings.

Resources:

Ontario Ministry of Education Resources

Ontario Math Curriculum: Elementary

<http://www.edu.gov.on.ca/eng/curriculum/elementary/math.html>

Ontario Math Curriculum: Secondary

<http://www.edu.gov.on.ca/eng/curriculum/secondary/math.html>

Doing Math with Your Child K-6

<http://www.edu.gov.on.ca/eng/literacynumeracy/parentguidenumen.pdf>

MOE website in 15 languages; tips for parents on how to support their child's learning in a variety of subjects.

<http://www.edu.gov.on.ca/abc123/>

Homework Help is free online math tutoring for students in grades 7-10.

<http://www.edu.gov.on.ca/elearning/homework.html>

Learn, Teach, Lead: develops and supports policies, programs and resources related to students K–12.

<http://learnteachlead.ca/projects/leaders-in-educational-thought-mathematics-k-12/>

Teachers and parent resources to explore literacy, numeracy and daily physical education.

<http://eworkshop.on.ca>

Other Resources

National Council of Teachers of Mathematics resources

<http://www.nctm.org/Classroom-Resources/Browse-All/>

An elementary math web-based support which promotes mathematical understanding of number sense concepts and encourages student perseverance. <http://www.dreambox.com/>

Website in support of public education in Ontario. Many tip sheets for parents in multiple languages.

<http://www.peopleforeducation.ca/how-does-education-work/multi-lingual-information-for-parents/>

Dr. Donna Kotsopoulos

www.wlu.ca/education/dkotsopoulos and www.wlu.ca/mathbrains

TED Talks on Math Education

Short, powerful talks (18 minutes or less) covering almost all topics, in more than 100 languages.

Conrad Wolfram – Teaching Kids Real Math with Computers

https://www.ted.com/talks/conrad_wolfram_teaching_kids_real_math_with_computers

Dan Meyer – Math Class Needs a Makeover

https://www.ted.com/talks/dan_meyer_math_curriculum_makeover

Carol Dweck – The Power of Believing you Can Improve

https://www.ted.com/talks/carol_dweck_the_power_of_believing_that_you_can_improve

Angela Duckworth – The Key to Success? Grit

https://www.ted.com/talks/angela_lee_duckworth_the_key_to_success_grit