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### Spring/Summer 2022

### **President's Message**

The 2021-22 school year is nearing its end and your MTA Executive are busy planning for our next conference scheduled for October 28th, 2022 at C.P. Allen High School located on Innovation Drive in Bedford. While our first "virtual" conference last year was a success, the upcoming October conference will be the MTA's first "inperson" professional development day in two years.

As a Nova Scotia Mathematics teacher, you have a wealth of knowledge and experience that we would like you to share with your colleagues at the conference. If you are interested in facilitating a workshop, please <u>complete this Google Form</u>.

On behalf of the MTA Executive, thank you for all that you do for your students as a mathematics educator, and I wish you all the best as another school year draws to a close.

Zeno MacDonald, President Mathematics Teachers Association

### Message du président

L'année scolaire 2021-22 touche à sa fin, le Comité Exécutif de la MTA est occupé à planifier la prochaine conférence prévue pour le 28 octobre 2022 à l'école secondaire CP Allen située sur Innovation Drive à Bedford. Bien que notre première conférence « virtuelle » l'année dernière ait été un succès, la prochaine conférence d'octobre de la MTA sera la première journée de perfectionnement professionnel « en personne » en deux ans.

En tant qu'enseignant(e)s de mathématiques de la Nouvelle-Écosse, vous possédez une mine de connaissances et d'expériences que nous aimerions que vous partagiez avec vos collègues lors de la conférence. Si vous souhaitez animer un atelier, <u>veuillez remplir ce formulaire Google</u>.

Au nom du Comité Exécutif de la MTA, merci pour tout ce que vous faites pour vos élèves en tant qu'enseignant (e)s de mathématiques. Je vous souhaite tout le meilleur alors qu'une autre année scolaire tire à sa fin.

Zeno MacDonald, Président Mathematics Teachers Association

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### Math in the News and Around the Web



**Nova Scotia Homework Hub** — The homework hub is a place where students can get free one-on-one live virtual tutoring from licensed Nova Scotia educators. Recently, the homework hub has been expanded to include all Nova Scotia math students in grades 4 through 12. Tutoring happens Sunday to Thursday from 5:30pm to 9:30pm.

In addition to the live tutoring, students can also access a variety of helpful resources. There are tutorial videos, practice questions and vocabulary flash cards. Students can also access the electronic version of their textbook (if one exists) for their course. Students and teachers can access the homework hub by looking for the Homework Hub icon on their gnspes.ca landing page. Check out this <u>short video</u> <u>from EECD about the features of Homework Hub</u>.

Virtual Professional Development Opportunities

- Calculus Instruction in Atlantic Canada Conference on Saturday, May 28, 2022. This is a virtual conference hosted on Zoom. The theme is "Adapting Calculus Instruction in a Changing Educational Climate". It will focus on teaching and assessments in a world of virtual and blended classrooms, the pros and cons of online resources and how this changes the way we teach in-person. The workshop will consist of a panel of teachers and university instructors followed by discussion groups/activities. Registration is free and can be done at the website: <a href="https://sites.google.com/view/calculusatlanticcanada/home">https://sites.google.com/view/calculusatlanticcanada/home</a>
- The **Canadian Mathematics Education Study Group (CMESG) Virtual Conference is** being held May 27 29, 2022. Participation is free with a \$35 membership to the CMESG. Additional information and registration can be found at the website: <u>https://www.cmesg.org/</u>



#### Peter Liljedahl - MTA Conference Keynote Speaker!

Peter Liljedahl, author of Building Thinking Classrooms in Mathematics, is a Professor of Mathematics Education in the Faculty of Education at Simon Fraser University in Vancouver, Canada. Peter is a former high school mathematics teacher who has kept his research interest and activities close to the classroom. He consults regularly with

teachers, schools, school districts, and ministries of education on issues of teaching and learning, assessment, and numeracy.

Peter will be offering two keynote sessions at the October MTA Conference. The first will be for grade P-6 teachers and the second for grade 7-12 teachers.



### Math in the News and Around the Web

NS Math Circles — NS Math Circles is dedicated to providing meaningful and fun math experiences for students across Nova Scotia. We have two more evening events planned this year. Our May event explores cryptography and related topics, leaving you to decide whether a legendary treasure is real or a hoax. Our June event focuses on the math-



ematics of DNA, and how it is used in criminology and elsewhere. NS Math Circles is also very active visiting schools in and around HRM, with activities that cover a wide range of mathematics. Our Pascal's Triangle presentation, for example, explores some interesting interpretations and properties of the triangle, and ends with an open problem, illustrating that math still holds amazing mysteries and opportunities for discovery.

Mathematics 10 Summer 2022 Scoring Session -- EECD organizes a summer scoring session for provincial assessments and exams. Nova Scotia teachers have the opportunity to participate in these sessions and are paid \$195/day (\$220/day for table leaders). Online Expression of Interest forms are open until June 1, 2022.

Mathematics 10 Scoring Session -- In-person session in Antigonish, NS during August 8-10 (Table Leaders August 5-7) Note: up to 130 people in the room.

More information can be found at the PLANS website: <u>https://plans.ednet.ns.ca/professional-opportunities</u>

### In Memoriam

The Nova Scotia Mathematics community lost one of its great leaders on October 16, 2021 with the passing of Robin Harris. Robin was an educator for more than 37 years, having taught with the former Halifax and Bedford District and Halifax Regional School Boards. She was the facilitator of Mathematics for the HRSB and spent the later years of her career with the Department of Education providing mathematics support. She also taught mathematics courses at Acadia and Mount St. Vincent Universities and provided consulting support to Nelson Education and St. F X University's Mind Bloom project. She was a valuable member of the MTA Executive for many years. Robin's legacy lives on in the many lives that she touched throughout her career. Her ability to empower children to be their best was her superpower. Visit her



online memorial at https://www.arbormemorial.ca/atlantic-dartmouth/obituaries/robin-lynn-harris/73011

### News from Conseil scolaire acadien provincial

Les membres des équipes du Conseil scolaire acadien provincial (CSAP) continuent à promouvoir l'intégration de pratiques gagnantes, spécifiques et uniformes en numératie afin de développer le plein potentiel de tous les élèves. Le développement professionnel et l'accompagnement des enseignants est primordial au développement des habiletés en numératie.

Pendant cette année scolaire, les enseignants cherchent des ressources d'appui à différents niveaux suite à l'impact des dernières années sur l'apprentissage des élèves. L'équipe mathématique a examiné différentes ressources telle *Portrait mathématique* qui a été fournie aux enseignants au niveau élémentaire. Le CSAP fait la mise à l'essai de la plateforme numérique *Knowledgehook* ainsi que d'autres plateformes. *Knowledgehook* permet aux enseignants de découvrir où se situent les élèves avant, pendant et après l'enseignement. Ces informations sont essentielles aux enseignants leur permettant d'apporter des ajustements à leur enseignement pour mieux répondre aux besoins des élèves.

En lien avec le plan stratégique du CSAP, le <u>site de</u> <u>numératie</u> offre des ressources qui appuient l'utilisation de la <u>communication orale</u> comme un outil d'apprentissage en mathématiques. Une gamme d'activités de bonnes pratiques pédagogiques pour développer les compétences en communication orale dans les classes de mathématiques s'y trouvent au <u>site de</u> <u>la communication orale du CSAP</u>. Une formation sur le développement des compétences de la communication orale est accessible sur la <u>plateforme D2L</u>. La communication orale permet aux élèves de partager les processus qu'ils entreprennent en mathé-



# Conseil scolaire acadien provincial

matiques, ce qui permet aux enseignants de vérifier la compréhension de leurs élèves tout en leur offrant des rétroactions efficaces.

Plusieurs enseignants ont participé à la mise à l'essai d'un outil pour la validation des compétences des élèves allophones. Cet outil va permettre aux enseignants de mathématiques de mieux mesurer les compétences des élèves qui nous arrivent et qui n'ont pas nécessairement le vocabulaire pour exprimer leurs connaissances. Cet outil permet à ces élèves de démontrer ces compétences en utilisant des images et autres matériels présentés dans l'outil.

Nous reconnaissons et remercions le travail des membres de nos équipes (enseignants, équipes de soutien et équipe de numératie) pendant cette année scolaire atypique. Avec la collaboration de ces derniers, la continuité des apprentissages de nos élèves s'envisage.



https://www.facebook.com/novascotiaMTA



### An Introduction to Mi'kmaw Kina'matnewey

Before speaking about mathematics in First Nations communities, who have a partnership through Mi'kmaw Kina'matnewey (MK), it is important to know what MK is. "We are a unified team of chiefs, staff, parents and educators who advocate for and represent the educational interest of our Mi'kmaq communities. We also protect the Educational & Mi'kmaw Language Rights of the Mi'kmag people." MK serves twelve of the thirteen communities in Mi'kma'ki: from east to west. Member-



Paqtnkek, Pictou Landing, Sipekne'katik, Glooscap, Annap- pate in the transition to the WNCP math curriculum. MK olis Valley, Bear River and Acadia. It is important to note recognizes the importance of ongoing professional learnthat each community is autonomous and its partnership in ing for staff and incorporates such into its strategic plan-MK is by choice.

83% of First Nations students are educated in MK schools. An indication of the progress we have made can be reflect-Five of our communities offer courses from P-12, two have ed in that we now offer calculus at Allison Bernard Memocourses P-8 and three have some classes varying from P- rial High School (ABMHS) in Eskasoni FN. However, like middle school. MK schools follow the NS curricula and many of the provincial rural schools – size matters – and upon graduations (94% high school success rate in band because of this we are somewhat restricted on the courses operated schools) our students receive a NS graduation we can offer. diploma.

In five of our communities where most of our students having representation on EECD's Provincial Math Team has attend provincial schools, we have partnered with the been invaluable for MK teachers and students in their RCEs to provide math intervention teachers to work with math programs. For example, our community schools some of the students from Acadia FN, Annapolis Valley FN, have benefited from provincial initiatives such as the im-Bear River FN, Glooscap FN and Pagtnkek FN. This has gar- plementation of Homework Hub and Knowledgehook. nered positive results in student math achievement.

In 2009 MK hired a numeracy consultant to work with its communities. One of the first tasks was to put in place



The cooperation and support that has been realized by



For more information about MK, you can visit us virtually at:

https://www.facebook.com/Mi'kmawKinamatnewey

https://twitter.com/mk education

https://www.kinu.ca

or contact me at bobcrane@kinu.ca

### **My Favorite Thinking Strategies**

By Roni Kraut, MathImagine <u>https://mathimagine.ca/</u>. Roni's interest in math education was ignited when using resources developed by her mother, Celia Baron, with her three children. She is now leading the development of these resources and her mother's company, MathImagine.

Thinking strategies for basic facts are like a peanut butter with jelly sandwich. Can you teach basic facts without thinking strategies? Yes, it is possible, but difficult and not as satisfying!

John Van De Walle provides the theory behind using strategies to teach basic facts in his popular book *Elementary and Middle School Mathematics: Teaching Developmentally* (2004). He explains that a thinking strategy is:

> "...one that can be done mentally and quickly. The emphasis is on efficient. Counting is not efficient. If drill is undertaken when counting is the only strategy available, all you get is faster counting."

In essence, a thinking strategy gives students a tool for how to solve a fact. It is even important for a seemingly straightforward fact such as 2 + 1. This can be very challenging for a student, and even this fact should be taught with a strategy.

John Van De Walle (2001) also defines the continuum of learning basic facts:

**Stage 1:** Incorrect response/an inappropriate thinking strategy

**Stage 2:** Correct response in more than 3 seconds using an appropriate thinking strategy

**Stage 3:** Correct response within 3 seconds using an appropriate thinking strategy

**Stage 4:** Correct response that is automatic and occurs without thinking

Understanding this continuum is **KEY** to guiding the activities you select. Drill (repetitive non-problem-based activity) is not effective in stage 1 or 2. John Van De Walle (2004) eloquently states why:

> "It is critical that you do not introduce drill too soon. Suppose that a child does not know that 9+5 fact and has no way to deal with it other than to count fingers or to use counters. These are inefficient methods. Premature drill introduces no new information and encourages no new connection. It is both a waste of time and a frustration to the child."

Thinking strategies can be patterns, verbal cues, number relations, helping facts, and more. It is important to provide a variety of thinking strategies; students will gravitate to strategies that work the best for them. You can create your own thinking strategies and your students can make their own as well. And of course, don't forget to use models to help teach the strategies.

Here are a few of my favorite thinking strategies.

#### Patterns

#### Addition facts: Pattern of 10

Consider, for example, the fact 10 + 4.

A set of 10 and a set of 4

SO, 10 + 4 = 14

#### Subtraction facts: Next-door neighbour pattern

Consider, for example, the fact 16 - 7.

The numeral in the ones position of 16 is a nextdoor neighbour to the numeral in the one position of the 7.

SO, 16 – 7 = 9

#### Multiplication facts: Pattern of 5

Consider, for example, the fact 5 x 6.

6 is even. So the product ends in 0.

Half of 6 is 3. SO, 5 x 6 = 30

#### **Division facts: Pattern of 9**

Consider, for example, the fact  $54 \div 9$ .

The divisor is 9 and the numeral in the dividend adds to 9. Therefore, the quotient is one more than the numeral in the 10s position of the dividend.

5 + 1 = 6 SO, 54 ÷ 9 = 6

### My Favourite Thinking Strategies

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#### **Verbal Cues**

#### Addition: double fact rhyme

Consider, for example, the fact 5 + 5.

5 + 5, my fingers are ALIVE (to prompt the student to visualize 10 fingers).

#### Subtraction: subtraction clap

Consider, for example, 8 - 2.

Have students say 8, pause, then count back 7, 6 and clap for each number.

#### **Multiplication facts: factor 8 rhymes**

Consider, for example, the fact 7 x 8.

Yo, bro. What's 7 x 8?

5-6-7-8

#### Visualization

#### Addition facts: symmetric figures for double facts

Consider, for example, the fact 4 + 4.



#### Subtraction facts: sum of 10 rainbow

Consider, for example, the fact 10 - 6.



#### **Multiplication facts**

Consider, for example, the fact 7 x 3.

The top of a rocket ship looks like 7 when it blasts off. **3**,2,1- BLAST OFF! SO, 7 x **3** = 21

#### Division facts: clocks for divisors of 5

Consider the fact  $15 \div 5$ .

The minute hand of the clock indicates 15 minutes past the hour.

The minute hand is pointing to 3.





#### Nova Scotia Mathematics Teachers Association Website

Have you visited the NS MTA website recently? This is your source for information on the NS MTA conference, NCTM conferences and resources including math websites, enrichment, math contests and past issues of this newsletter. Check it out at <a href="http://mta.nstu.ca/">http://mta.nstu.ca/</a>

### **My Favourite Thinking Strategies**

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#### **Number relations**

#### Addition: Two-more-than relationship. Consider, for example, the fact 7+2.

2 more than 7 is 9.

SO, 7 + 2 = 9

#### Subtraction: Subtract 0-fact

Consider, for example, the fact 9 - 0.

The difference between a number and 0 is the number.

SO, 9 - 0 = 9

#### Multiplication: Double the double.

Consider, for example, the fact 4 x 6. 4 x 6 is double 2 x 6. 2 x 6 = 12 12 + 12 = 24 SO, 4 x 6 = 24

#### Division: double/double

Consider, for example, the fact  $30 \div 5$ .  $30 \div 5$  has the same quotient as  $60 \div 10$ .  $60 \div 10 = 6$ SO,  $30 \div 5 = 6$ 

#### **Helping facts**

#### Addition: Near double fact

Consider, for example, the fact 4 + 5. 4 + 4 = 8

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5 = 4 + 1
8 + 1 = 9
SO, 4 + 5 = 9
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#### Subtraction: Subtracting 8-facts using 10-facts

Consider, for example, the fact 13 – 8. Compare 13 – 8 to 13 – 10. 13 – 8 is two more than 13 – 10. 13 – 10 = 3 SO, 13 – 8 = 5

#### **Multiplication: Factors of 8**

Consider, for example, the fact 6 x 8. 5 x 8 = 40 40 + 8 = 48 SO, 6 x 8 = 48

#### **Division: Think multiplication**

Consider, for example, the fact 10 x 5. What times 5 makes 10? 2 x 5 = 10 SO, 10 divided by 5 = 2

Writing this article inspired us to make a "These are a few of my favorite thinking strategies" to the melody of "These are a few of my favorite things" in the *Sound of Music*. I hope this article will provide inspiration to you as well.

Do you love teaching numeracy in your classroom? Would you like to share your knowledge and expertise with other teachers? We are looking for experienced elementary and junior high teachers to conduct numeracy sessions in the Maritime Provinces on a part-time, casual basis.

Please contact Roni Kraut at <u>rk@mathimagine.ca</u> if you are interested in learning more about this exciting opportunity .

### MathImagine



### **Highlights from Twitter**

Inspiring mathematics is just a click away. Check out some of the ideas and resources shared on Twitter by Nova Scotian mathematics educators. Find other great tweets using hashtags like , #CCRCEmath #HRCEmath, #ITeachMath, #ThinkingClassroom and #Mathtalk .



### The MTA is on Twitter! Follow @MTA\_NS to join the conversation.

## Add 'Em Up Activities

By Erick Lee (@TheErickLee), 7-12 Mathematics Consultant, Halifax Regional Centre for Education (HRCE)

An "Add 'Em Up" activity is one where several problems are given and students add up the solutions to come up with a sum. They can then check this sum to see if they have the correct total. If not, they can work to find their mistake. This "self-checking" activity lets students know there is an error but not exactly where to find the mistake.

There are lots of different versions of this activity (check out <u>Sara VanDerWerf's description here</u>). You can vary the number of questions that students have to add together. The more questions there are, the more difficult it will be to find any mistakes that might have been made. The harder the questions are, the fewer should be in a set (3 or 4 questions in a set seems to be the sweet spot). You could have students work in small groups or individually. You can give students several sets of questions all at once or sequence them one at a time. You could also place sets of questions in stations around the room and have students move from station to station.

Below is an example of a set of questions from an Add 'Em Up activity I created for Mathematics 10.



Each set of problems can be printed on different colored paper. Each group of students started with sheet 1. When they had a solution for the sum of the problems on their sheet, I checked their answer. If they were correct, I gave them the next set of problems. If they were wrong, I told them to find their mistake. If they were struggling I gave them a hint on where to look for their mistake or guide them with some probing questions about their work.



The colored sheets made it really easy to scan the room to see how far each group had progressed and focus my attention on groups that may need some additional support. In the past, I've just printed the sum in the middle of the page but I really like having the check in with students when they have finished each set of problems. Students checked their final sum on a box with a 3 digit combination lock on it. If correct, they could retrieve a piece of candy for each member of their group from inside and then relock the box for the next group.

You can quickly create a simple Add 'Em Up activity by taking any worksheet and slicing it up into pieces with a few questions on each piece. Have students complete and check their solutions for each piece before moving to the next.



## **MathemAttic: An Invitation to Participate**

Kseniya Garaschuk (UFV) Editor in Chief, Crux Mathematicorum; Shawn Godin (Ottawa-Carleton D.S.B., retired) Editor, MathemAttic; Editor-in-Chief, ATOM; and John McLoughlin (UNB) Editor, MathemAttic.

Crux Mathematicorum is an internationally well-known problem-solving journal. Each issue contains original problems for readers to solve, as well as solutions from readers to past problems. It also features other notes of interest to problem solvers including articles, regular columns, and collections of problems from Mathematical Olympiads. What many people might not know is that Crux started as a newsletter aimed at high school teachers in Ottawa. The level of problems in earlier volumes made the content broadly accessible as compared to those of recent years including current volumes. Over time the journal evolved to what it is today.

Mathematical Mayhem was a problem-solving journal for students, by students. It was started by Ravi Vakil and Patrick Surry, who had participated in the International Mathematical Olympiad, with an intention of being a journal specifically aimed at that group of people who may be prospective Olympiad participants. The journal ran for 8 years before losing its funding. It was "saved" by Crux Mathematicorum and continued as a section of Crux for several years.

However by this time, the level of problems appearing in Mathematical Mayhem had become increasingly difficult. Earlier scaffolding of problems or a variety of levels had seemingly been replaced by more of an Olympiad flavour. A conscious effort was made to broaden the scope of problem offerings in an effort to reach more secondary level students and teachers. Features such as Polya's Paragon and Problem of the Month were introduced so as to appeal to a wider audience. At one point in time, there was an attempt to separate Mayhem from Crux and have it continue online as a free publication. Unfortunately, this did not work out and Mayhem was discontinued. Eventually, Crux stopped being a subscription-based print journal and took its current form as a free online publication with the link below. The current issue is readily accessible as is a complete digital archive of the entire collection of the journal.

#### https://cms.math.ca/publications/crux/

The online access offers this journal to a much wider audience than the subscribers who were regular readers. It marked a new beginning of another sort as some of us undertook an initiative to again reach a wider audience. This marked the birth of MathemAttic. The remainder of this article is intended to make the CMS community more aware of this part of the journal. People are encouraged to share this piece with teachers, students and others who may be interested in such a freely available publication. We welcome more problem proposers, solvers, and readers, along with contributors of articles and more. The invitational spirit carries through the subsequent paragraphs. Please get in touch with us with feedback and indications of interest.

MathemAttic, like the latter versions of Mathematical Mayhem, is meant to appeal to a range of pre-university students and their teachers. Unlike Mathematical Mayhem, it doesn't have a history so it can more easily be created from the ground up. As co-editors, we have been there from the outset.

Currently, MathemAttic has a problem section where problems, for the most part, are picked from a wide variety of sources with the occasional problem proposed by a reader. Two regular features have been there from the first year. Problem Solving Vignettes explore interesting problems, and their solutions as well as looking at techniques and ideas that would benefit high school problem solvers. Teaching Problems focuses attention on problems that have been used in teaching with an eye to how they can develop students' appreciation and learning around mathematical problem solving. This past year, a new feature called Explorations in Indigenous Mathematics was introduced with consideration of mathematics pertinent to Indigenous culture.

The journal continues to evolve with the newest feature appearing first in the January 2022 issue. From the Book-

### MathemAttic: An Invitation to Participate

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shelf will highlight books that contributors recommend for community of people who will act as an advisory board. inclusion in one's own personal library. The recommendations will offer insight into the selections. In some cases the selections will be more like mini-collections such as the people to edit the problem submissions, others to assist work of a particular author. Longtime Crux readers will know that book reviews were staples in the journal for years. This feature will allow for reviews of titles that may interest pre-university students and teachers. This will open the avenue for publishers to send materials along for review. We are also developing a feature that will highlight resources on the internet such as articles, videos, podcasts, or apps of relevance to our target audience.

MathemAttic will evolve further in the coming years with the input and contributions of people interested in the spirit of mathematical problem solving, outreach, and the enhancement of public appreciation of mathematics. The next step in the growth process is the development of a

We are looking to have people from across Canada engage with us in a variety of roles. The need is there for some with editorial roles concerning articles, and generally a collection of people to act as a sounding board for the directions of MathemAttic. If you see a way that you would like to contribute, please send us a note (mathemattic@cms.math.ca) as we would welcome hearing from you. The support of the CMS community is appreciated as are efforts to circulate this notice.

Before closing, we share a couple of problems from the March issue. Solutions are welcomed from secondary level students. These can be submitted prior to June 15 through the following link: https://publications.cms.math.ca/ cruxbox/

MA166. Consider the set of all right triangles in the plane whose right angle vertex lies at the origin and whose other two vertices lie somewhere else on the graph of  $y = \frac{x^2}{4}$ . Prove that all such triangles must pass through (0, 4).

MA167. A fair coin is a coin that will produce a result of either heads (H) or tails (T) when flipped with equal probability. Three separate trials are conducted. In each case, determine the expected number of flips required:

- a) to get the first tail (T)?
- b) to achieve the first occurrence of heads followed by tails (HT)?
- c) to achieve the first occurrence of heads followed by heads (HH)?

MA168. What is the value of the positive integer n for which the least common multiple of 36 and n is 500 greater than the greatest common divisor of 36 and n?

### **National Council of Supervisors of Mathematics**



# Black Hole

Black Hole is a game created by Walter Joris and shared by Ben Orlin on his website Math With Bad Drawing, <u>https://</u> <u>mathwithbaddrawings.com/2020/04/22/six-strategic-</u> <u>games-from-a-strange-and-bottomless-mind/</u>.

Begin by drawing a pyramid composed of 21 circles. Draw six circles on the bottom row and then five on the row above. Keep drawing circles in this way to create the pyramid shown below. To play, take turns writing a 1 in a circle of your choice. Then, take turns writing 2, 3, and so on, in order. Number are placed in order until you place your final number of 10.



An empty game board, ready to play.

Once all numbers have been placed, there will be one circle left blank. This is the "black hole". Color it in. The black hole "destroys" all its neighboring circles. Each player sums their remaining numbers. Whoever has the largest sum is the winner! Can you develop a strategy for this game? What are some tips for winning?

Michael Minas created and shared a YouTube video describing the rules of this game. <u>https://www.youtube.com/</u> <u>watch?v=KofkJ5QDbw8</u>. You can also play virtually using a <u>Desmos activity</u> or a virtual whiteboard.



A completed game, who won? Red or blue?

## **Dividing a Square Cake**

A square cake is to be divided amongst 5 people so that each person has equal portions of cake and icing. How should you cut the cake? All cuts must be straight vertical cuts perpendicular to the surface.

Extensions: What about a triangle cake? Hexagon? What about 3 people?

This question, along with many others, is from the weekly math tasks collection from the British Columbia Association of Math Teachers (BCAMT) website at <u>https://www.bcamt.ca/weeklymathtasks/</u>

Want to explore this problem further? Check out https://www.themathdoctors.org/cutting-a-square-cake-equally/



## Nova Scotia Math Teachers Association Executive

Below are the current members of the NS MTA Executive. The membership and the positions of the executive change each year at the Annual General Meeting held at the MTA Provincial Conference (The MTA provincial conference is on the fourth Friday in October of each year).



Name	Position	Contact
Zeno MacDonald	President	zgmacdonald@nstu.ca
Erick Lee	Vice-President/Communications	eplee@nstu.ca
Joe MacDonald	Past President	jamacdonald@nstu.ca
David MacFarlane	Treasurer	sdmacfarlane@nstu.ca
Anne Pentecost	Secretary	adgrenier@nstu.ca
Jennifer Courish	Member-at-Large Chignecto	courishjl@nstu.ca
Kimberley McCarron	Member-at-Large Cape Breton	kamccarron@nstu.ca
Jocelyn Procopio	Member-at-Large Halifax	jmprocopio@nstu.ca
Cailen Langille	Member-at-Large Tri-County	cailen@nstu.ca

### **Special Projects**

The MTA strives to give back to its membership by making funding available for special projects developed by classroom teachers. If you have an innovative math education project taking place in your classroom(s), MTA may be able to offer some financial assistance to help develop the project. Information on funding can be obtained by contacting any member of the Executive.

## **Call for Contributions**

We are better together. Mathematics Matters, the MTA newsletter, is looking for a variety of contributions from classroom teachers, math mentors and coaches, math support/intervention teachers and others who are interested in the teaching and learning of mathematics. Please consider sharing a favorite lesson or activity, a reflection or blog post, a book or technology review, or another work of interest to mathematics teachers in Nova Scotia and beyond. Sharing your ideas and reflections with other teachers is a great way to contribute to a vibrant and dynamic community of mathematics educators in our province.

If you are interested in contributing, please contact me at <u>eplee@nstu.ca</u>. We look forward to hearing from you!

The MTA Newsletter is published by the NSTU for the Mathematics Teachers Association, Erick Lee, Editor. The opinions expressed are not necessarily those of the Editor, the NSTU, or the MTA.