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National Museum of Mathematics' (MoMath) "Mind-Benders for the Quarantined" Weekly Online Puzzles Becomes Global Phenomenon During COVID-19 Crisis

MoMath's New Program Reaches Thousands in All 50 U.S. States and 76 Countries

New York, NY (June 10, 2020)—The National Museum of Mathematics' (MoMath) "Mind-Benders for the Quarantined" weekly online puzzles has become a global phenomenon during the COVID-19 crisis. MoMath's new program has reached thousands in all 50 U.S. states and 76 countries, including Australia, Vietnam, Italy, Argentina, China, Spain, Sweden, France, and many others.

"Mind-Benders for the Quarantined" contains weekly puzzles from the collection of the Museum's puzzle master, Dr. Peter Winkler. MoMath is also hosting a variety of online math programs to keep children and adults of all ages engaged with its fun math programming, while schools across the nation, and the Museum, are closed.

"During these challenging times, we want to offer the public fun, interactive experiences that continue to highlight the joy of mathematics," said Cindy Lawrence, CEO and Executive Director of MoMath. "Our digital programs provide people of all ages a much needed outlet for recreation and learning while they are spending time at home. We will continue to develop online programs over the coming weeks as this situation evolves."

Mind-Benders for the Quarantined (offered every Sunday):

When you sign up for "Mind-Benders for the Quarantined," each Sunday, MoMath will send you a challenging mathematical puzzle from the collection of their own puzzle master, Dr. Peter Winkler.

On Tuesday, you'll receive a subtle hint; on Thursday, a serious push; on Saturday, the solution. And the next day, of course, a new puzzle.

These puzzles are for your edification, enjoyment, and personal satisfaction. If you wish, however, you may send your answers and/or complaints to mindbenders@momath.org at any time. Dr. Winkler won't be able to reply, but he will be happy to benefit from your comments, and will announce a winner (for the most right answers with the least help) when the epidemic is over. To sign up visit mindbenders.momath.org.

Online programs will continue to be listed on the Museum's website at events.momath.org.

MoMath's other current online programming includes:

Ask A Mathematician

First Thursday of every month at 4:00 p.m. EDT (New York)

Back by popular demand! Ever wanted to ask a mathematician something, maybe about a curious new idea you have, or a concept you'd like to understand better? Don't know whom to ask? Here's your chance! MoMath's Dean of Academic Content and Rutgers Math Professor Alex Kontorovich will host a free one-hour online session the first Thursday of each month starting at 4:00 pm EDT (New York).

Come with your own questions, or just join to listen in. All are welcome, and no question is too basic (although plenty may be too hard!). This event is free, but registration is required and the number of participants is limited.

Learn more and register at askmath.momath.org.

Folding Fridays

Friday, June 12 at 3:00 p.m. EDT (New York)

In this new online series, origami expert Kathleen Sheridan of OrigamiUSA will teach some unique origami models to learners ages seven and up. Every session will be different, and each session can stand alone. Try just one, or sign up for the full series. Explore the wonders of paper folding — there's math in every fold!

Learn more and register at foldingfridays.momath.org.

"Beat Division and Dance" with Will Calhoun

Friday, June 12 at 6:00 p.m. EDT (New York)

Award-winning Living Colour drummer Will Calhoun returns to MoMath for a fun-filled evening of mixing and matching rhythms and patterns, creating sonic equations that encourage participation through dance, hand-clapping, or simply listening and enjoying. Open the door to independence and ambidexterity during this shared musical experience.

Learn more and register at beat.momath.org.

***Tween Primes*, the MoMath book club for teens and tweens: *The Rithmatist* by Brandon Sanderson**
Sunday, June 14 at 5:30 p.m. EDT (New York)

Joel longs to be a Rithmatist with the magical power to bring two-dimensional objects, called Chalklings, to life. But he is 16, and Rithmatists are chosen at age 8. Surely he has missed his chance, or has he? When Rithmatists-in-training at the prestigious Armedius Academy begin to go missing, Joel — a scholarship student there — determines to find out what has happened to them. Could it possibly have something to do with the Wild Chalklings of the Nebraska territory? Could his success or failure determine the fate of the American Isles? And, for that matter, could he become a Rithmatist, after all?

Learn more and register at tweenprimes.momath.org.

***Unlimited*, MoMath's mix-n-mingle program for middle and high school students**
Sunday, June 14, at 6:30 p.m. EDT (New York)

Unlimited is back, in a new online format! Come spend an hour or more with your peers, enjoying interesting activities and interactive social games, all led by an experienced MoMath educator. This month, we'll play mathematical Pictionary — put your drawing skills to the test and get creative as you try to illustrate mathematical concepts without words or symbols! Sketches and diagrams are important tools for mathematical communication, as well as a fun way to challenge yourself and friends.

Learn more and register at unlimited.momath.org.

"Fashionable Folds" with Uyen Nguyen
Wednesday, June 17 at 6:30 p.m. EDT (New York)

Join engineer-turned-artist and fashion designer Uyen Nguyen as she discusses some of her favorite topics in mathematics, how she uses those mathematical concepts to design origami, and, in some cases, uses the origami artwork to create fashion. Learn about foldable equations, the Fibonacci sequence, fractals, space-filling curves, and convex uniform tilings, all against the backdrop of innovative (and mathematical!) fashion design.

Learn more and register at fashionable.momath.org.

Free Math Gym, a workout for your brain
Thursday, June 18 at 3:30 p.m. EDT (New York)

Students, spend an hour at MoMath independently working on engaging and beautiful math problems hand-selected by MoMath's advisory council of math PhDs. Choose whichever challenges you like and explore them with the guidance and mentorship of an expert mathematician. If you love math and want to experience the incredible joy of mathematical discovery, you won't want to miss this enjoyable monthly program. These very limited spots fill quickly, so sign up soon!

Learn more and register at workout.momath.org.

Folding Fridays
Friday, June 19 at 3:00 p.m. EDT (New York)

In this new online series, origami expert Kathleen Sheridan of OrigamiUSA will teach some unique origami models to learners ages seven and up. Every session will be different, and each session can stand alone. Try just one, or sign up for the full series. Explore the wonders of paper folding — there's math in every fold!

Learn more and register at foldingfridays.momath.org.

Free Family Fridays at MoMath presented by Two Sigma: "Engineering with Paper"
with Godwyn Morris
Friday, June 19 at 6:30 p.m. EDT (New York)

Join us on for a *Family Fridays* math-and-paper engineering adventure! Godwyn Morris, Director, Dazzling Discoveries STEM education center, will lead us through some

Engineering with Paper challenges. Together we will explore proportion, ratio, and scale as we create structures, furniture, and characters from simple supplies in your home. You will only need sturdy paper (manila folders or magazine-cover-weight paper will do), tape, scissors, and, optionally, markers.

Learn more and register at familyfridays.momath.org.

Quadrivium: “Creativity in Quarantine” with Marcus Miller
Monday, June 22 at 6:30 p.m. EDT (New York)

JoinMoMath is excited to announce the return of *Quadrivium*, featuring jazz saxophonist and mathematician Marcus G. Miller, now online! For Marcus and many mathematicians and musicians, the recent quarantine has provided an opportunity for a higher level of learning and creative work. But adjusting isn't always easy. Marcus will share the resources and techniques he's applied during quarantine to learn quantum mechanics and complex analysis, write and produce new compositions, explore new instruments, and celebrate the joys of moving slowly. Plus, the evening will feature some newly created music and a surprise guest or two from the worlds of science and art.

Learn more and register at quadrivium.momath.org.

Big and Very Big Number Series, Part One: Introduction to BIG Numbers
Tuesday, June 23 at 6:30 p.m. EDT (New York)

How can we describe large quantities, including scientific notation and logarithms? Play with big numbers and test your skills with the “Six Boxes of Kazakhstan” challenge.

Learn more and register at bignumbers.momath.org.

Solve for XX: a program for teen and tween girls who like math
Thursday, June 25, July 23, and August 27 at 6:30 p.m. EDT (New York)

Join a diverse group of women in mathematics as they share their personal career journeys and experiences and answer your questions. This is your chance to hear from real women, with real stories, about what it's really like to study math after high school and have a math-focused career — it's a girls' world after all! Featured women will include Jennifer Beineke, Maria Chudnovsky, Minerva Cordero, Ingrid Daubechies, Lisa Fauci, Leona A. Harris, Julia Kempe, Bryna Kra, Sandy Kurtzig, Melanie Matchett Wood,

Neha Murad, Madalina Persu, Jill Pipher, Maddie Weinstein, and Talithia Williams. Free registration is available for young women from families with financial need. MoMath is grateful to Lyda Hill Philanthropies and the Association of Science and Technology Centers for their support of this exciting program.

Learn more and register at solveforxx.momath.org.

***Equilibrium*, featuring *Bullseye* maker Jorge Moore**
Friday, June 26 at 7:00 p.m. EDT (New York)

Join us to learn and play *Bullseye*, a new game from Jem Games in which players roll for a target number, then race to find as many combinations of six standard dice as possible in a short time. Game creator Jorge Moore will teach the game, discuss strategies, and talk about the development of the game and its applications to math education. Also, stick around for a sneak preview of Jorge's new game, *Fraction Traction Bullseye*. There will be challenge puzzles, games at every skill level, and a great social atmosphere. Connect with old friends and new for a fun-filled, adult-only evening featuring a broad array of mathematically rich games!

Learn more and register at equilibrium.momath.org.

Big and Very Big Number Series, Part Two: Unimaginably BIG Numbers
Tuesday, June 30 at 6:30 p.m. EDT (New York)

How can we use mathematics to find order within chaos? How big does a random object need to be in order to contain something orderly? By asking some innocent questions and investigating a few examples, we'll land on some truly ENORMOUS answers.

Learn more and register at reallybignumbers.momath.org.

Free Math Encounters with Andrea Bertozzi
Wednesday, July 1 at 4:00 p.m. and 7:00 p.m. EDT (New York)

Sit back, relax, pour yourself a glass of wine (alcoholic or not), and learn something new as Andrea Bertozzi illustrates the mathematics behind the little shock waves going through your vessel of vino, creating a weepy pattern of "wine tears" on the inside of your glass!

Learn more and register at mathencounters.org.

Big and Very Big Number Series, Part Three: To Infinity...
Tuesday, July 7 at 6:30 p.m. EDT (New York)

Let's leave finite numbers behind and explore two scales of the infinite: the countable and the uncountable. Once we admit the infinite into our mathematical world, things start to get really strange; in fact, even paradoxical!

Learn more and register at infinity.momath.org.

Cooperative Puzzles
Tuesday, July 12 at 6:30 p.m. EDT (New York)

The MoMath is pleased to present a special, two-part seminar for gifted high school students, featuring guest presenter Dr. Peter Winkler, as part of its ongoing *Expansions* program. For many mathematical puzzles, a solution requires collaboration; there may be multiple solutions, ideas requiring development, or just a kind of thinking that benefits from several points of view. We'll explore some of these, and maybe come up with some new solutions — or even some new puzzles! *Cooperative Puzzles* is open to all mathematically gifted high school students (enrolled in a gifted program or performing in the top 5% of their math class) and does not require prior admission into the *Expansions* program.

Learn more and register at cooperate.momath.org.

Meet a Mathematician
Tuesday, July 14 at 4:00 p.m. EDT (New York)

Did you ever wonder what a mathematician does all day? Or what made someone decide to become a mathematician? Or even, what a mathematician does for fun? You may be surprised by some of the answers! Join host Alex Kontorovich as we bring diverse and talented guests to the MoMath stage to share their experiences, their stories, and their love of mathematics.

Learn more and register at meetmath.momath.org.

Big and Very Big Number Series, Part Four: Beyond Infinity
Tuesday, July 14 at 6:30 p.m. EDT (New York)

A careful study of countable and uncountable sets, along with an innocent principle of logic, allows us to perform one of the strangest mathematical constructions: the Banach-Tarski paradox, where we will take a solid sphere, decompose it into a few pieces, then reassemble those pieces to form two perfect copies of the original sphere!

Learn more and register at beyond.momath.org.

Free Family Fridays — “Word Patterns: Pinwheels, Tessellations, and Ambigrams” with Scott Kim
Friday, July 17 at 6:30 p.m. EDT (New York)

What do calligraphy and logo design have to do with geometry and mathematical patterns? In this highly participatory online event, mathematical artist and puzzle designer Scott Kim invites us to make patterns out of the written word. Duplicate letters to make pinwheels, repeat words to tile the plane, and draw ambigrams that read the same upside down and right side up. Scott will start with a tour of the many ways artists have spun patterns out of words, beginning with the MoMATH logo. Then he'll lead us through creative exercises where we will create patterns out of our own name and other words. Along the way we'll learn about geometric transformations, font design, logo design, and mathematical patterns. Come prepared with blank paper, pen or pencil, and colored pencils or pastels.

Learn more and register at familyfridays.momath.org.

Hats and Liars, a two-part series with Peter Winkler
Part One: “Hat Puzzles”: Tuesday, July 28 at 6:30 p.m. EDT (New York)
Part Two: “Logic Puzzles”: Tuesday, August 4 at 6:30 p.m. EDT (New York)

In this two-part series, Peter Winkler will explore hat puzzles and logic puzzles. Each of these categories has spawned dozens of great conundrums. Be prepared the next time someone hits you with one of these! In July, imagine you are wearing a hat of unknown color. Given a specific set of rules, can you deduce the color of your own hat based on the hat colors you see on other people's heads? In August, you'll solve riddles by making

a series of deductions — sometimes even deductions about other people’s deductions! Some of those other people may be truth-tellers, others liars, or even random answerers — or they may even be friends wearing colored hats!

Learn more and register at hatsliars.momath.org.

Free Math Encounters — Online “Number Theory Problems: From Easy to Undecidable” with Bjorn Poonen

Wednesday, August 5 at 4:00 p.m. and 7:00 p.m. EDT (New York)

Rational numbers are fractions such as $-2/7$. It turns out that the circle $x^2+y^2=3$ has no points whose coordinates are rational numbers, while the circle $x^2+y^2=5$ has infinitely many. Why do these equations behave so differently? What about more complicated equations: is there a method to decide whether there are any solutions in rational numbers? Join Bjorn Poonen, Distinguished Professor in Science at MIT, as a search for answers leads to questions about prime numbers, geometry, and problems that a computer will never be able to solve.

Learn more and register at mathencounters.org.

The Best of “Mind-Benders for the Quarantined”

Tuesday, August 25 at 6:30 p.m. EDT (New York)

Mind-benders guru Peter Winkler will reveal which puzzles were the hardest, which were easiest, and which were most controversial. Subscribers will get to vote on their favorites — and least favorites!

Learn more and register at mindbenderstalk.momath.org.

About the National Museum of Mathematics

MoMath, the only math museum in North America, is located at 11 East 26th Street on the northside of popular Madison Square Park in Manhattan. For more information, visit momath.org.

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