Math Is More Than Just Numbers; Celebrate Pi Day a Different Way

Credit: Say-Cheese/ Getty Images

This Pi Day, as you're enjoying your slice of pie, explore a bigger slice of mathematics.

Most March 14 celebrations are obsessed with the number pi. If you think "obsessed" is too strong, take a look around: you'll see things on sale for $3.14, Pi-K runs and, perhaps as in the past, a segment on daytime TV.

As a mathematician, I'm tickled that honoring something mathematical has become a widespread phenomenon. But, at the same time, I'm disappointed that this numerical celebrity seems to be somewhat of an accident. There is *so much more* to math than one solitary number, regardless of however many digits you can recite from memory.

There's no reason why pi, of all the infinitely many irrational numbers, should receive special treatment. You may remember from high school that numbers are either rational or irrational and what distinguishes them from one another. Rational numbers can be expressed in one or more of the following ways:

- fractions, such as 7/8 or 3/1
- decimals that repeat, even if forever, such as 1.99999... or 2.488488488...
- decimals that terminate, such as .123456789

Irrationals, on the other hand, can't be written in any of these ways. Pi, for example, never terminates, so we throw up our hands and use the common approximation of 3.14. What most of us don't learn is that there are manymore irrational numbers than rational numbers, so many more that if you asked a genie to choose a number truly at random, the likelihood it would pick an irrational number is 100 percent!

This means that any other day of the year would do just as well as March 14 if our only goal was to honor a lone number. For example, we might have chosen to latch onto the first number known to be irrational and celebrate the square root of 2, roughly 1.4, on January 4. Or, we could have decided to commemorate 2.7-ish, the number *e,* which some of you might know from your calculus courses, on February 7. Conceivably, pi won out simply because of its familiarity, because March 14 enables us to use three of its digits, and because phonetically it shares the name of a tasty dessert. Like a lot of people, I'm happy to have an excuse to indulge in a slice of my favorite pie, apple crumb.

But why just focus on numbers when there's so much more beauty, wonder and excitement to be found in math? The International Mathematical Union shares this sentiment. Thanks to them, March 14 has become the annual International Day of Mathematics (idm314.org), enabling us to celebrate all of mathematics as opposed to just a single number. To whet your appetite, here's a small sample of things you might be surprised that math has something to say about: cutting cake, juggling, performing magic tricks, tiling your bathroom floor or creating knitting patterns.

Here's what I mean: the next time you're celebrating a birthday, you might want to make sure everyone gets the same amount of cake and frosting. Math can tell you what shapes your cake must be to make this possible.

Intrigued? Fortunately, there are numerous ways to start exploring the diversity of math. Videos from Standupmaths, Numberphile and 3Blue1Brown offer entertaining snapshots of fun math topics you might not have seen before. Or, if you'd like to involve your kids, there's an award called the Mathical for books "that inspire children of all ages to see math in the world around them." You might choose one of the prize winners to read together.

Or maybe you're the type that likes to doand not just watch or read. The National Museum of Mathematics offers an incredible array of events and activities for all ages. There are also many places to find intriguing problems and questions, with no special background required, such as the Riddler on FiveThirtyEight and Alex Bellos's Monday Puzzle in the *Guardian.*

Or, look up Martin Gardner, the undisputed master of presenting entertaining and thought-provoking puzzles. Try your hand at one of his many "Mathematical Games" from past issues of *Scientific American.*

But, be careful, or you might just get hooked. You'll know, if you find yourself looking for an excuse to celebrate the square root of 11, approximately 3.31, two weeks from now. I'll see you at the party!

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