

## **Leaders in Mathematical Thinking**

Jill Gough - Advice for Educators, Parents and Senior Leaders

>> I think that you will never know how it will impact your students if you do not try, just like our students will never know if they can be successful if they do not try. So we have to model that learning and be brave, and try things that we understand at a service level, to see and deepen our own understanding of how technology influences and increases learning for our children, by letting them play with the technology to play with math, to see what they can learn and how it increases their sophistication of question. It's so interesting to watch when we can relax and say, you know, I'm learning this, too. It will help us just like we help them. I talk with parents quite a bit. It's not the same as it was. Math education -- we just want more for our students. We just want more. When parents come in and their students have the right answer, and they're struggling to understand why we want them to show things more than one way, and we want them to write about math, it's not the way it was. I was a successful student, I got the right answer for everything -- I could not show my understanding any other way. We know that math and science are crucial to our children's future and their income, and how their job choices turn out later. And the more flexible and the deeper understanding our students have now, the more opportunities they have later. So while it looks different and it might seem like it's ridiculous, the strategies that we're using don't make sense, there's a reason that we're doing things the way we are, to build comprehension and fluency, as well as accuracy. Then we'll get to efficiency. I ask parents not to steal their children's opportunity to understand by teaching them the shortcut. The shortcut is only for those who already understand. Then we're efficient. But before, we want to know at a deep, confident, competent way that our students are good mathematicians. The head of my school has actively engaged with our teachers with me, "learn more math" is our message and our goal. We spend part of our professional development time learning math together. He comes and sits on the floor with us and struggles. He's algorithmic, he cannot draw pictures yet. But he is actively working on it to engage a model, being the lead learner that our teachers need to see. So when our administrators take the time to engage in and ask questions and struggle to learn with our teachers and our students, it makes our whole community stronger. So I think the challenge is to learn more math and lead by example. I think the thing I -- the goals that I set for myself every year is to learn something new. Pick something and do a deep dive in it, and be public about it. Share it on Twitter, share it in your blog. Make your own learning visible to others so that they see it's okay not to have everything all together. Pick something new to learn. If you're a mathematician, become a writer. If you're a writer, learn to draw. If you are an artist, learn some math. Robert Lang showed the strong connection this morning between, let's start with the art and see where the math can help us take it into new applications for our future, too.