1. Kiera Welch, Niceville, Fl

This isn't a math question, but it is one. I'm going into sixth grade and I'm scared about math. How did you survive math with everything else on your mind. Thank you.

Hi Kiera!
I was lucky to get a few teachers who went out of their way to make math friendly and accessible. I used to be terrified of math! Believe me, I know just how you feel. I was so lucky to have a few teachers who put a "friendly face" on math, so it didn't seem as scary anymore. Sure, math will always take some time and patience, but it's so worth it when you stick to it, and suddenly "get it"- it's a great feeling.

Helping kids just like you to understand that *math doesn't have to be scary* is one of my main goals in life. That's why I wrote "Math Doesn't Suck." I mean, how scary can a book be that has the word "suck" in it? ☺

Remember, when school starts, don't expect to understand stuff in your math class right away. Sometimes if we expect to get something right away, if we don't, it blocks our mind and we mentally shut down. We think "I don't get it. I'll never be able to get it." But those are two entirely different statements! Just because you don't get it now, doesn't mean it won't click after just a little more reading and thinking about it. In fact, if you already knew this stuff, you wouldn't even have to go to school in the first place, would you?

Math is like a foreign language. Nobody "gets math" right away. Would you sit down in French class and expect to already understand what the teacher was saying? Of course not. Patience and belief in yourself are so important - Those things are really what separate those who succeed from those who don't. Your *belief in yourself* is the most powerful tool you have.

And remember to reach out to others for help when you need it: Look to teachers, parents, friends, online resources (internet search: "math help"), and I think you'll find lots of friendly, happy math stuff in my book to help, too. Don't hesitate to email me through www.mathdoesntsuck.com and let me know how it's going!

2. Kathy Evans, Navarre, FL

What age would this book be appropriate for? Should I wait until my daughter reaches middle school age? Thanks for your time!

Hi Kathy!
The target age range for "Math Doesn't Suck" is 9-13, but some bright 8 year olds can certainly benefit from some of the math lessons. (And it's also designed to help older students who have struggled for awhile – so that they can finally "get" things like fractions and Algebra.)

I don't know how young your daughter is, but if she likes to read, there are also some very positive messages about smart girls (and not dumbing yourself down) in the book... messages that are probably useful at any age! ☺

3. Chloe Stevenson, Durham, NC

I feel like I know what I am doing until it comes to a test. What is the solution to that?

Hi Chloe!
This is such a common issue - It's like stagefright; many actors are fine in rehearsal, and then when it comes time for the actual show, some will freeze up and forget their lines that they've known cold for weeks!

I know this sounds simple, but it's true: Doing well on tests is largely a matter of remaining calm. The body produces a physical reaction to the panic you feel about the pressure of the exam – shortness of breath, sweaty palms, sometimes a dizzy or nauseous feeling. Remember that the mind and body work together, so if you can take some slow, deep breaths and mentally imagine your muscles relaxing, you will be able to think more clearly. Relaxing the body actually can relax the mind.

In the "Troubleshooting Guide" in the book, I talk about this in detail, and also about how to "take control" of your test. Who says you have to answer the questions in order? With a clear mind, take a minute or two to skim the whole test before you begin, to get acquainted with it. You can take that test on your own terms, and tell it who's boss!

4. Noelle M. Molinar, El Paso, TX

Hello Danica! I'm already a senior in high school but I just wanted to say thank you! All throughout my school career I've tried my hardest to maintain an A average in my math classes. So far I've been able to do so, but this year I'm going to be taking an AP Calculus class. |Yikes!| Hopefully, with lots and lots of tutoring, I'll go out this year with a bang not only in math but in all my classes. Sometimes it feels like I'm one of the only girls who's willing to be more intelligent than what's expected than me. Thank you again for bringing up such an important issue. Wish me luck with Calculus! Sincerely, Noelle

Hi Noelle!
You bring up a really important point about expectations – it's so easy to fall into the trap of living up to others' low expectations. Remember that when people have low expectations of you, it usually says a lot more about them and their own insecurities and prejudices than it does about you. How do *they* know what *you're* capable of? The truth is, *you* probably don't even know what you're capable of, let alone someone on the outside.

Keep your eye on the prize: you becoming the smart and fabulous woman that you are destined to be – no matter what others' expectations are!

Now go kick some butt in your Calculus class for me. ☺

5. Miriam U. Deniz, Chowchilla, CA

I noticed you are dedicated to middle school girls; what about the younger girls - I am a true believer in "starting young." By the time they get to middle school, if they haven't been involved enough in math to really understand and like it, they are already left out, and can't understand it enough to WANT to get into it. Hope you will go younger.

Hi Miriam!
You're absolutely right that many younger girls could use more help in math. I knew "Math Doesn't Suck" could only cover a certain amount of math (without being overly long and imposing!), and here's why I chose to focus on middle school for this book: When I was invited to speak in front of Congress back in 2000 on the topic of women in mathematics, I read their report on girls and math education, and did plenty of research on my own as well. Everything I read at that time, as well as now, indicates that before

the 4th grade, our country fares alright in math. Up until that point, most of the math that kids are expected to learn is rote memorization of techniques like times tables and long division. They can be challenging, but conceptually they are not complex.

The research also showed that somewhere between the 4th and 8th grade is when kids begin to dramatically slip in math – especially girls. And at this point, math becomes more focused on conceptually challenging topics like fractions, percents, Algebra and more. Since middle school is also a historically pivotal time for girls, being that they are for the first time grappling with issues of self esteem and identity, it makes sense that this would also be a fragile time for their relationship with a notorious subject like math.

Middle school is the time when girls are beginning to ask themselves the question "Who am I?" With math having a reputation of being "too hard," "just for nerds," and "more for boys than girls," it's no wonder that our tween girls are turned off by the very idea of math, let alone by the actual practice of this subject which has suddenly taken a much more conceptually challenging turn at that age. In middle school is also when these girls are beginning to feel pressure to act dumb in order to fit in or attract boys or be like the "fabulous and fashionable" vacant-eyed models they see in magazines.

All of this added up to tell me that *middle school girls* are the ones who most need encouragement in math, and a guiding hand with their self-image, as well.

I want to help as many girls as I can – yes, get through their math homework - but also to realize that by tackling math headfirst and persevering, they have a wonderful opportunity to sharpen their brain and truly to become the fabulous woman they want to be someday: Smart, savvy, and confident.

6. Danica Clare, Redondo Beach, CA

I am really good at math. I get A's. The only thing is, I am not interested in math. How can I make it more interesting? I am going into the seventh grade. PS We share the same first name!

Hi Danica!
Wow! There are not many of us Danicas, that's for sure. ☺ First of all, congrats on your amazing grades. I hope I can help you find math more interesting and important, too! You may find that as the topics become more challenging, you'll find the very challenge of it intriguing, like a complex puzzle. I've included links to some math websites that I think are pretty cool, on the "Extras" page of www.mathdoesntsuck.com. I myself also got more interested in math as I realized two things:

1. Math is one of the best brain-builders there is. It's like going to the gym, for your brain! Getting better at math will simply make you smarter, as it develops logical

problem solving skills that come in handy in so many areas of life. Just *doing* it is good for you.

2. Math is everywhere- You'll see a ton of examples in my book on how math can be applied to real life, every day – like when I used fractions to determine the right size ring for a Christmas gift last year (p.225). In that case, I wanted to figure out what 0.344 inches would look like on a ruler… after all, rulers use increments of 1/12ths, not tenths. And in fact, here's an example from my life *today*: Just for fun, I am learning a partner dance, which is set to a very fast song (128 BPM). Well, when I'm on my own, I would rather practice slower, but to the same song. (It's hard to dance at full speed when you don't have your partner with you.) I know what tempo I want the song to have in the practice version, because I'm comparing it to another song I've been practicing to (95 BPM). I have a computer program that I know can stretch out a song, but this particular program doesn't seem to be able to determine the tempo, since it's just a audio file (and not MIDI). So when I'm done answering these questions, I plan to use *proportions* and *percents* to figure how much to stretch the song, so that it will result in the right tempo that I want. I'll use the ratio of 128 BPM/95 BPM to give the program the right percentage to stretch the song by. And then I'll be able to practice to it on my own, without my partner!

It's great to have math skills at your disposal in everyday life. Believe me - if you have 'em, you'll use 'em!

7. Carol Botelho, Winslow, ME

Hi Danica, Thank you for shedding light on to this subject. My daughter Laurel is going to be 12 years old in September. She has a problem with remembering her times tables. What can I do to help her to remember them? We have tried flash cards and some math games. We have tried some of the popular math web sites. We are both frustrated. Keep up the great work. Thank you for your time.

Hi Carol!
First of all, it always makes me happy to hear about parents helping their kids with homework. I'm afraid that's becoming a lost art, and I believe education in this country is suffering quite gravely for it.

I would suggest, as much as you can, incorporating times tables into her everyday life. There are probably certain ones that are harder for her to remember than others. For me, I always had a hard time with 7×8. I could never remember if it was 54 or 56 or 57 (It's 56). You could try taping those ones up around the house, so she sees them while she's doing normal things like brushing her teeth.

I would also take the time to point out the patterns that exist within the multiplication tables: For example, for all multiples of 5, they *only* end in 0 or 5; no exceptions! Also,

all multiples of 9 in the times tables have the property that if you add up the digits themselves, they will add up to 9. $(2 + 7 = 9,\ 3 + 6 = 9,\ $ etc.) These kinds of patterns can be really helpful for remembering the times tables.

Also, let's say she can't remember 7×8, but she does know $7 \times 7 = 49$ – well, if she understands that 7×8 is literally "7 + 7 + …" (8 times), then she can know that 7×8 is the same as 7×7, plus one more additional 7, to make up a total of eight 7's!
So 49 + 7 = 56. She can count on her fingers from 49 to 56 if she has to – but until she gets them all, it's better for her to try to work it out on her own, rather than simply have the answer read to her.

In the appendix of "Math Doesn't Suck" I teach a rule for remembering your 9's, which makes it really easy (p.283) – all you do is this: Hold up both hands in front of you. Now, what do you want to multiply times 9? How about 3? Then, looking at your hands, count the 3rd finger from the left, and bend it down. What are you left with? You have **2** fingers remaining on the left, and **7** fingers on the right, and $9 \times 3 =$ **27**! This works for 9×1 through 9×9.

Good luck, and believe me, with enough repetition and incorporation into every day life, she'll know them like she knows her ABC's.

8. Alexa, Los Angeles, CA

I loved seeing you on TV and I want to buy your book! I am wondering how I can stay interested in math when I think it is too hard or too boring?

Hi Alexa!
Thank you, I hope you enjoy it!

So many people have asked me questions like this throughout the years, that I included a Troubleshooting Guide at the back of "Math Doesn't Suck" that addresses these issues in various ways. For example, I describe some entertaining mind tricks you can play on yourself to psyche yourself into staying interested when homework gets tedious. ☺

In terms of math being "too hard" – remember that there is something to be gained from attacking a challenging subject and sticking with it, even through rough patches. What you're really doing is sticking with *yourself* through these rough patches. Every time you believe in yourself enough to give it that extra push, and then succeed, you have taught yourself that you are smarter and more capable than you thought.

So in a way, when math gets really tough, it's giving you a unique opportunity to actually build your fortitude and stamina – and that kind of building of strength will absolutely serve you in every area of your life, for the rest of your life.

9. Joe, Chicago, IL

Dear Danica, I know I'm a boy, but I'm having trouble with my math. I am in middle school and sometimes I get so frustrated with my math homework that I just want to give up. Do you have any tips for me so I can do better?

Hi Joe!
Most *people* have trouble with math – girls and guys – no need for the disclaimer! ☺

First answer this question: Are you frustrated with your homework because you keep getting the wrong answer even though you think you understand the concepts? If that's the case, then SLOW DOWN. Read the directions, write more neatly, and whatever you do: DON'T SKIP STEPS! These are huge reasons why kids make careless errors.
If you're frustrated because you don't understand the material, that's a different story. When you don't have a clear understanding, it's nearly impossible to do the homework! So the answer would be to try to figure out the source of the problem. Sometimes the teacher hasn't done a good job of explaining it, sometimes you might not have been paying enough attention in class, etc. Remember that it's perfectly ok to raise your hand in class when you don't understand something. And there are other ways to reach out for help, too. There are outside books, tutors, other math teachers at your school, online help – just don't be shy and you'll see tons of opportunities for help all around you that you may not have noticed before.

10. Kelsey, Lowell, MA

What is the best way to learn the times tables? I have had trouble mastering them. How can you make sense of fractions and decimals?

Hi Kelsey!
Learning your times tables is mostly memorization – you just need to practice them all the time, and you're absolutely right to make it a priority – they provide such a great foundation for the rest of math. If you don't get them memorized, the next stuff will be harder than it has to be! (and who needs that, right?) In fact, every kind of math you'll do throughout middle school and high school will depend on you knowing your times tables down cold. There are some fun ways to learn them, though! I have seen lots of computer games and even board games that help. I haven't tried them myself, but it might be worth it to look around and check out things like these:

www.multiplication.com/interactive_games.htm
www.playkidsgames.com/games/Tunnel/MULTIPLY.HTM#
www.kidsmemorywizard.com/

Also, check out the answer I gave above to Carol from Maine (a few questions above this one) – for some tips and tricks for learning the times tables that you might like.

Moving on, fractions and decimals make up the majority of the confusion that happens for kids in middle school - especially fractions. So you're not alone! In fact, it was talking to so many middle school teachers about this that convinced me to spend the bulk of "Math Doesn't Suck" on these topics. I'm not sure how to summarize those subjects in a few lines, but I will say that I like to "think of" decimals in terms of their place value – so I'd think of 3.824 in terms of its expansion: $3.824 = 3 + 0.8 + 0.02 + 0.004$. And I like to "think of" fractions as pizzas. It'll make more sense when you read Chapter 4, but when it comes to fractions, I think pizzas make everything better. ☺

There are tons and tons of tips and tricks in the book, and I hope you'll find them helpful! (An don't hesitate to email me through www.mathdoesntsuck.com if you're still confused after reading MDS.)

11. Brendon Grant, Reno, NV

My name is Brendon and I'm 16 years old. I will be a junior at McQueen High School in Reno, NV. Math is my favorite subject in school, I was able to maintain a 98% in my algebra 3-4 class. I will be taking Trig/pre-calculus this upcoming school year, but I feel as though I'm not ready. It seems as though I've forgotten a lot of math over the summer break. Do you think that as soon as I see algebra questions it will come back to me? My dream is to become a pilot and fly all over the world. If that doesn't happen I want to become a math teacher. Thanks.

Hi Brendon!
You probably have forgotten a fair amount, but that doesn't meant you're not ready. I'm going to bet that you're more ready that you realize. You're a great student – and ask yourself this: If you're not ready for this class, who is? Someone in the top 99% of the class? ☺

I found myself in a similar predicament when I entered college math; I didn't feel like I belonged there, even though "on paper" I was fully qualified. I think it has something to do with the strange reputation that math can have: It's for "other people", not for normal people like us. But that kind of thinking is crazy! It's like, do we think there are some aliens from Planet Math that are better suited for math? ☺ You'll be just fine.

Many classes do a quick review of the material from the year before, to account for memory lapses, but hey, if you have the time, it never hurts to do a little review, just to get over those first-day-of-class nerves. If nothing else, it'll make you feel better to see how quickly the stuff does come back. And if you don't have your books or class notes anymore, believe it or not, your local library actually has books on Algebra.

12. Robin Beardsley, Granbury, TX

I have a 13 yr old daughter who has been struggling with Math for the past four years. She just doesn't seem to enjoy it that much. Her tutor believes that this year will be easier for her since she will be able to use a calculator. Do you have any suggestions on how to make her enjoy Math more and will your book be something that might encourage her with doing better in Math? By the way, when she does do well in her Math grades, she seems to enjoy it more. Thanks.

Hi Robin!

I'm glad to hear that when she does well in math that she enjoys it, that means she may grow to really love math someday – after all, it's hard to enjoy something when you're constantly feeling frustrated by it, right?

I don't know your tutor… but the calculator comment makes me a bit uneasy. If your daughter makes lots of careless mistakes in her arithmetic, then I suppose a calculator would serve as a bandage for that. (I included a section on how to avoid making careless mistakes in the "Troubleshooting Guide" of the book – it's a huge issue for kids, and let's face it, using a calculator isn't exactly the ideal fix.) But you said the tutor thought the calculator would make math "easier" for her…and that makes me really uneasy. Calculators can be a great tool in the right context, but many calculators today can solve multi-step math problems, like solving for "x" in Algebra. And when kids simply plug a complex problem into their calculator, the math techniques are completely obscured; kids aren't given the chance to understand the math they're doing, or to hone the problem-solving skills that they would normally be exercising by practicing math.

In the book, I mention using a calculator a few times, but, for example, once it's just to demonstrate how calculators tend to truncate numbers; calculators don't "understand" the concept of infinity. Like if you start with 2, and divide it by 3, a calculator will return an answer like (depending on how many digits it can display): 0.666666666667, when in fact, the 6's would go on forever if it weren't for its limitations. If you then multiplied it by 3, you wouldn't get 2 (the number you started out with). Instead, you'd get 2.000000000001. Again, calculators are a great tool, but they don't hold a candle to the

human mind, and they certainly don't substitute real understanding.

So – to answer your question – in "Math Doesn't Suck" – I aim to engage all girls, but especially those girls who normally aren't attracted to the subject either because of its difficulty or its reputation for being "boring." I bring math into everyday life scenarios of interest to middle school girls, and I show them pictures and testimonials of strong women who use math in their jobs (and who used to be afraid of math in middle school!) I've already seen some wonderful emails come across my desk of girls who used to be terrified of math, and now are finding they like it and feel more confident than ever before. I LOVE those emails, and I hope your daughter is one of them someday.

To answer your other question as to what you can do to get her to enjoy math more:

I encourage you to show her how math comes into *your* everyday life. And here's a kicker – it'll be a lot easier for your daughter to learn to enjoy math if YOU learn to enjoy math. You are the best, strongest role model she has. Try to find ways to incorporate math into your life – talk about how to approximate the price of something while you're shopping by adding tax, when you see a 20% off sign, ask her what that equals in terms of a fraction, etc.

Also do what you can to point out smart women all around her. People you know personally, in the media, you name it. Anything to get her to see the importance and the future *benefits* of developing her intelligence. Since math is one of the best brain-building tools there is, maybe she'll learn to appreciate what math can do for her mind, even if she doesn't fall in love with the subject itself.

13. Travis Usrey, Oxnard, CA

Here is a common algebra problem that's often used to stump cultured math folks, let's see how you do:

If F(1) = 2 and F(n) = F(n-1) + 1/2 for all integers n > 1, then F(101) = ?

Hi Travis,
Ah, a recursive sequence; what we'll want is to generate a non-recursive definition of F(n) because after all, nobody wants to calculate F(101) by performing 100 operations. ☺

Well, the way I like to tackle these is to first get a "sense" of the sequence by writing out the first few terms, which according to your definition, would be:

$F(1) = 2$

$F(2) = 2 + \dfrac{1}{2}$

$F(3) = 2 + \dfrac{1}{2} + \dfrac{1}{2}$

$F(4) = 2 + \dfrac{1}{2} + \dfrac{1}{2} + \dfrac{1}{2}$

So we can see a definite pattern emerging:

$F(n) = 2 + (\frac{1}{2} + \dots + \frac{1}{2})$ {where the number of $\frac{1}{2}$'s is (n-1)} *

So…

$F(101) = 2 + (\frac{1}{2} + \dots + \frac{1}{2})$ {where the number of $\frac{1}{2}$'s is 100}

Well, what is $\frac{1}{2}$ added to itself 100 times? Yep: $\frac{1}{2} \times 100 = 50$

Which means: $F(101) = 2 + 50 = \mathbf{52}$.

…got anything else for me?

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*note: If we'd been asked to give the general formula for the nth number in the sequence, also could have written $F(n) = 2 + \frac{1}{2}(n\text{-}1)$, which is what this expression simplifies to.