

Peyton & Charlie Challenge Math

A book filled with tips and tricks for combatting
math anxiety



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Illustrated by Fraulein Retanal & Rodger Retanal

This book has been formatted to the best of our abilities to be accessible for people with low vision and specific learning difficulties. Using the World Wide Web Consortium's "Guidance on Applying Web Content Accessibility Guidelines to Non-Web Information and Communications Technologies" and British Dyslexia Association's "Dyslexia Friendly Style Guide" as references, we have opted to use the following formatting for the main text: high contrast colouring for text and background (white text on dark background), use of sans serif font, large (24 point) font, no images behind the text, increased line spacing, left or right justified text, and no use of underlines or italics.



Peyton & Charlie Challenge Math



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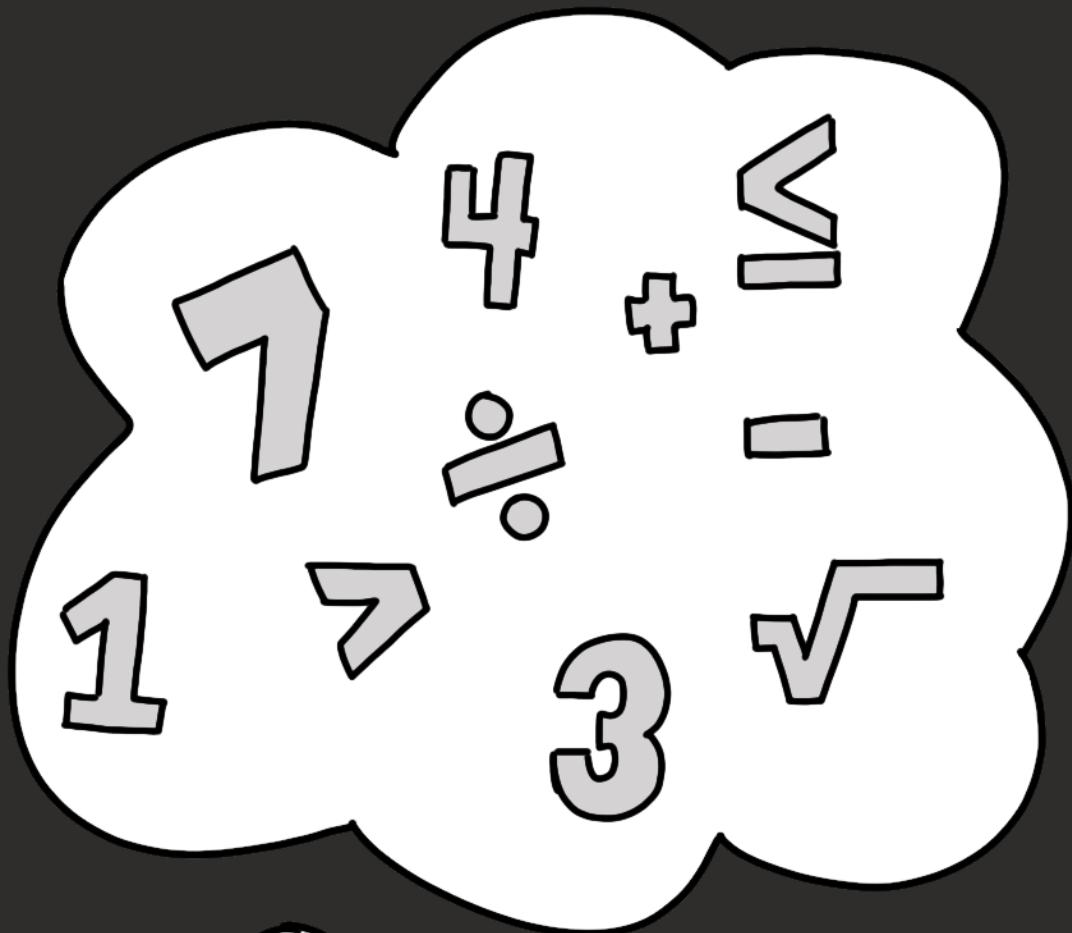
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This book is dedicated to
Catherine and Emily.

Does math make you nervous?
Feel yucky inside?
When you hear that it's "math time,"
Do you just want to hide?

You don't need to worry,
I promise it's true!
This book here was written
For friends just like you!



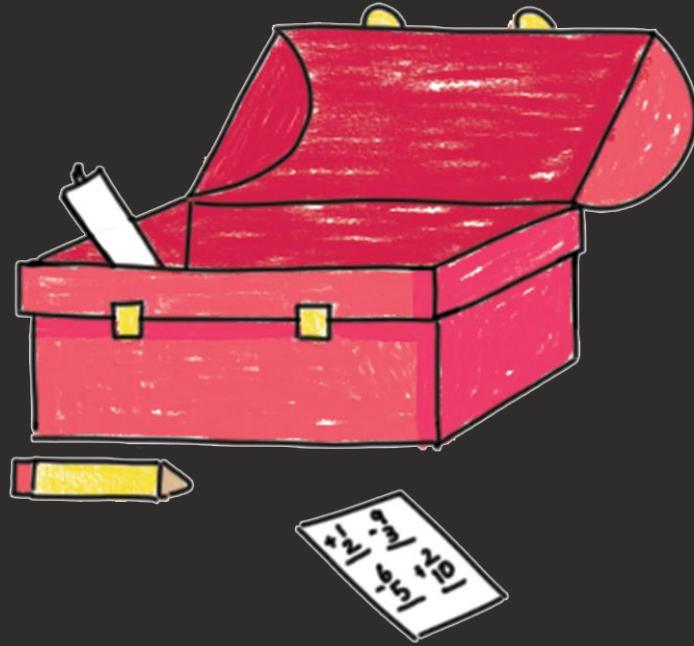


Peyton hates math.
He gets scared and he cries!
Every time he sees numbers
In front of his eyes.

He knows math's important
And he's heard that it's fun,
But he gets oh so nervous,
When getting math done!

But friends, don't you worry.
Friends, don't you fret.
There are great tips and great tricks
He just doesn't know yet!

Come learn with Peyton.
Come see what to do.
These tricks can be helpful -
For him and for you!



Peyton's friend, Charlie,
She adores math games.
She loves numbers, and adding,
And remembering shapes' names.

Even when she gets nervous,
She's fine in the end.
And now Charlie's excited
To share tips with her friend!



"One thing that works," says Charlie,

(And it works just fine)

"Is to take big deep breaths -

One steady breath at a time."

Just like blowing out a candle

On a yummy birthday treat,

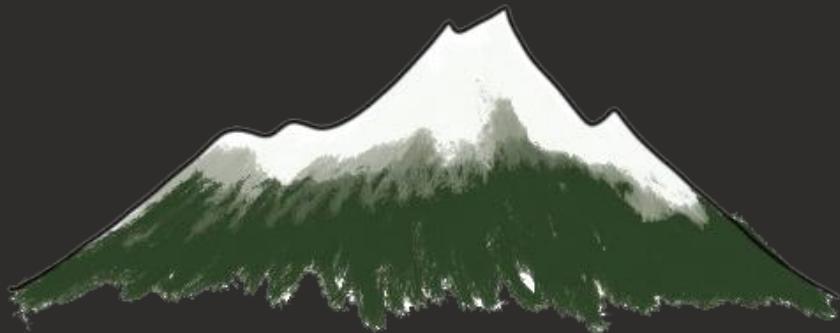
With deep steady breaths,

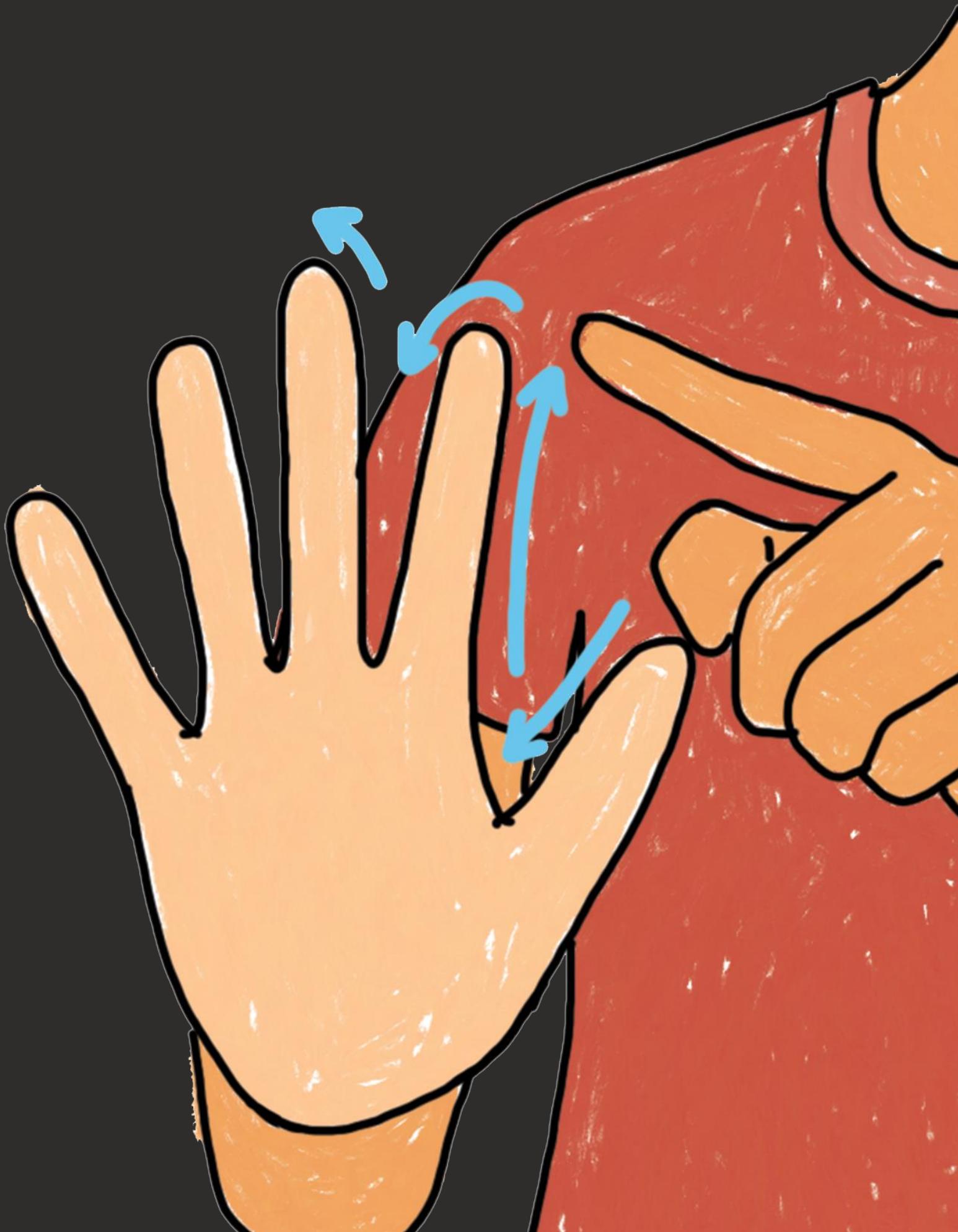
Our fears we can beat!





Or pretend your hand is a mountain.
Using your finger to trace,
Breathe in and breathe out
At a nice steady pace.





When Peyton gets nervous,
His thoughts start to run.
And reigning them in
Just isn't much fun!





But “don’t worry Peyton,”
Says Charlie with glee.
“The question is hard,
But you’ll get it, you’ll see.”

$$\begin{array}{r} 10 \\ \times 3 \\ \hline 30 \end{array}$$

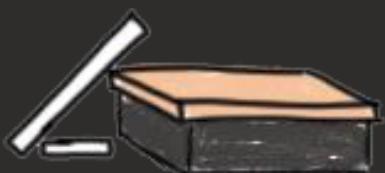
$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$



This strategy, here,
has been used for years.
With small bouts of exposure
We can control all our fears.

Now when you feel anxious,
Start with the math questions you know.
And with each correct answer,
Your confidence will grow.



"Speaking of confidence," says Charlie,
"Do you know the word 'yet'?"
This word is quite powerful!
It's as strong as words get!"

With hard work and with effort,
The answers you will get.
All unknowns are simply puzzles
You just haven't solved yet.





Charlie explains that these tips
Work for friends big and small.
And tells Peyton, "When you're nervous,
Go ahead, try them all!"



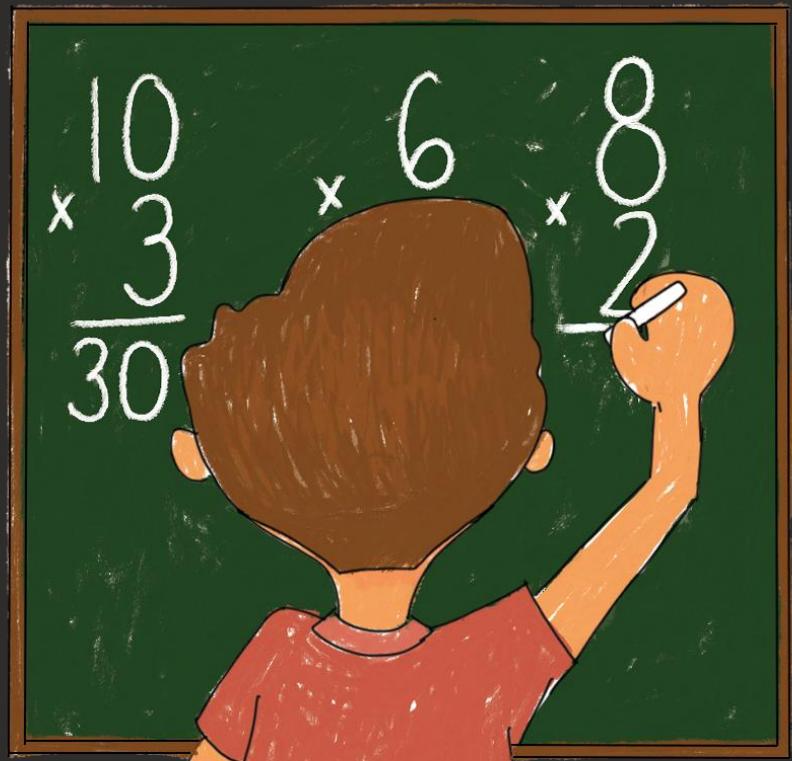
Now Peyton has tried
these tips one by one.

He and Charlie use them when nervous,
And sometimes just for fun!



In math class, if they get anxious
And feel yucky inside,
They no longer want to run,
No longer want to hide.

Instead, they hold out a finger
And blow out their candle.
Then they start with the questions
they know they can handle!



When they don't know the answer,
They know it's just "yet."
They'll work hard and they'll try,
And the answer they'll get!



My goodness they've done it.
By golly it's true.
Now these friends both love math,
And soon you can, too!

Come join our friends in the fun
And play a math game.
With numbers as your friend,
The world is never the same!

1

2

3

4

5

There are so many wonders,
Amazing patterns to explore.
Math makes the world interesting,
And oh, so much more!



THE
END

Math Anxiety Coping Strategies Key

(In Order of Appearance in Text)



Mindful Breathing

When we feel stressed, we often begin to take rapid, shallow breaths from the chest. This can lead to increased anxiety and difficulty focusing. Engaging in mindful breathing, where you focus on each inhale and each exhale, while ideally breathing deep into your belly, can help to decrease feelings of panic and regain focus.



Progressive Desensitization

In this strategy, you slowly keep exposing yourself to the things you fear in small bouts over time. We recommend starting with math questions and concepts that you are comfortable with, and then building up to more difficult questions and concepts. The more you practice, the easier and less anxiety-provoking it will become.



Boosting your Confidence

As your self-confidence in math increases, your math anxiety will decrease. For this reason, having a positive attitude toward math is important. We recommend that parents, teachers, and mentors regularly remind children that, although they may not know the answer yet, with effort, they will come to understand. Mistakes provide excellent opportunities to understand where we went awry in our thinking.

To learn more about math anxiety and to explore the related antecedents, symptoms, and coping mechanisms, visit
www.erinmaloney.ca.

Thank you for reading and for
following along with Peyton as he
challenged his math anxiety alongside
his friend, Charlie!

Dear Guardian/Parent,

You have likely purchased this book because either you or a child in your care are anxious about math. It's okay to be anxious about math! I used to be anxious about math, too. That is part of why I have spent much of my career researching this phenomenon. I have spent over 20 years learning about what math anxiety is, why some people become anxious about math, and what we can do to help!

So, before we get started, there are a few things you should know. First, math anxiety is quite common. It is seen all over the world and is seen in young children all the way up to older adults. We also know that being anxious about math can make us worse at math. When we are anxious, we experience negative thoughts, and these thoughts tie up important memory resources that we need to succeed in math. The great news is that there are tips and tricks that are well-known to help reduce anxiety and improve math scores.

Now, it's important to remember that there is no such thing as a "magic fix." If we want to become less anxious and better at math, then it will require work. That said, with these tips and tricks that we have learned along with Peyton and Charlie, that work can be fun and helpful!

I also want to note that the strategies listed here can be useful for managing anxiety in areas other than math, as well. So, if you or a child in your care are experiencing anxiety about math, tests, public speaking, or even a music recital, go ahead and try these emotion regulation strategies. And remember, it's important to practice controlling our anxiety and to practice doing the thing that we are anxious about – even when it is difficult to do.

If you want to learn more about the science behind math anxiety then you can visit www.erinmaloney.ca where you can find copies of my scientific papers along with free resources (e.g., colouring pages) that accompany this book.

Sincerely,
Dr. Erin Maloney

Author – Dr. Erin A. Maloney



Dr. Erin Maloney is an Associate Professor of Psychology and a Canada Research Chair in Academic Achievement and Well-Being at the University of Ottawa. She is a world-leader in the study of math anxiety. Having published several research articles on the topic in some of the top scientific journals in the world, she is a sought-after speaker, often speaking to parents, educators, and students on the topics of academic achievement and emotional well-being. Her scientific work has been funded by grants from the Social Sciences and Humanities Research Council of Canada (SSHRC), the Natural Sciences and Engineering Research Council of Canada (NSERC), the Government of Canada, the Province of Ontario, and the University of Ottawa. Dr. Maloney passionately advocates for the importance of supporting girls and women in math and science-based careers, and being blind herself, advocates for the importance of accessibility, equity, and diversity in education.

Author – Dr. Sheri-Lynn Skwarchuk



Dr. Sheri-Lynn Skwarchuk has a Ph.D. in Psychology, where she worked on how children learn to count for her dissertation. She is currently an Education Professor at the University of Winnipeg. She has also worked as a School Psychologist and an Early Childhood Educator, and helps provide numeracy, literacy and wellness ideas to caregivers: see www.TOYBOXManitoba.ca. She has published research articles on children's mathematics development. As a school psychologist, she has worked with many children experiencing math anxiety. Through interactions with her now teenage and adult children, she has learned about home and school struggles with math, and how to support children to be successful learners. The secret lies in exposing and practicing basic mathematics concepts at developmentally appropriate levels. Dr. Skwarchuk hopes the ideas in this book will inspire children and caregivers to work on their mathematics skills in positive and productive ways.



Illustrators – Fraulein & Rodger Retanal

Fraulein Retanal earned an Honours degree in biomedical sciences from the University of Ottawa, where she is currently pursuing her PhD in Psychology. She has published multiple scientific articles on math anxiety and mathematical cognition. Her work has been presented at conferences around the world. Fraulein is a passionate advocate for issues surrounding equity, diversity, and inclusion. She is a member of her department's equity committee, the founder and Chair of the Women in Cognitive Science Canada Trainee Board, and the former VP of Communications for the University of Ottawa Filipino Student Association.

Rodger Retanal is pursuing an Honours degree in Computer Science from the University of Ottawa. He is a sought-after computer programmer and illustrator, often lending his talents to organizations that advocate for equity, diversity, and inclusion, particularly within the higher education sector. He is currently serving as the VP of Communications for the University of Ottawa Filipino Student Association. After graduation, Rodger intends to work in technology, and to continue volunteering for organizations focusing on equity in education and in science more broadly.

"Does math make you nervous? Feel yucky inside? When you hear that it's "Math time," Do you just want to hide? You don't need to worry, I promise it's true! This book here was written, For friends just like you!"

Peyton is anxious about performing math and working with numbers. Charlie is confident and fearless when tackling math problems. Together, this duo makes the perfect pair. Charlie provides Peyton with the skills and strategies needed to overcome his anxiety about math and encourages him not to shy away from the wonderful field of mathematics. Peyton helps demonstrate that with the right tools, anyone can succeed!

1 This book will help teachers, parents, and students learn about important concepts including socio-emotional learning, anxiety-reduction strategies, and the value of persevering through challenging situations.