
As seen on Inc.com Discover your “Aha” moment—right now! What’s the best way to become more creative? Just change how you think! This book challenges you to go against your default ways of thinking in order to write, design, and build something extraordinary. Featuring more than 100 challenges, exercises, and prompts, each page guides you as you push past the way you normally see the world and uncover all-new possibilities and ideas. The Creativity Challenge teaches you that you already have immense creative potential in you—you just need to tap into it. Whether you're feeling stumped or uninspired, these creativity prompts will help you ditch typical thinking patterns and finally unleash the possibilities hidden within your mind.

Is there a way to get students to love math? Dr. Judy Willis presents an emphatic yes in this informative guide to getting better results in math class. Tapping into abundant research on how the brain works, Willis presents a practical approach for how we can improve academic results by demonstrating certain behaviors and teaching students in a way that minimizes negativity. With a straightforward and accessible style, Willis shares the knowledge and experience she has gained through her dual careers as a math teacher and a neurologist. In addition to learning basic brain anatomy and function, readers will learn how to: * Improve deep-seated negative attitudes toward math. * Plan lessons with the goal of “achievable challenge” in mind. * Reduce mistake anxiety with techniques such as errorless math and estimation. * Teach to different individual learning strengths and skill levels. * Spark motivation. * Relate math to students' personal interests and goals. * Support students in setting short-term and long-term goals. * Convince students that they can change their intelligence. With dozens of strategies teachers can use right now, Learning to Love Math puts the power of research directly into the hands of educators. A Brain Owner's Manual, which dives deeper into the structure and function of the brain, is also included—providing a clear explanation of how memories are formed and how skills are learned. With informed teachers guiding them, students will discover that they can build a better brain . . . and learn to love math!

A thinking student is an engaged student Teachers often find it difficult to implement lessons that help students go beyond rote memorization and repetitive calculations. In fact, institutional norms and habits that permeate all classrooms can actually be enabling “non-thinking” student behavior. Sparked by observing teachers struggle to implement rich mathematics to engage students in deep thinking, Peter Liljedahl has translated his 15 years of research into this practical guide on how to move toward a thinking classroom. Building Thinking Classrooms in Mathematics, Grades K-12 helps teachers implement 14 optimal practices for thinking that create an ideal setting for deep mathematics learning to occur. This guide provides the what, why, and how of each practice and answers teachers most frequently asked questions Includes firsthand accounts of how these practices foster thinking through teacher and student interviews and student work samples Offers a plethora of macro moves, micro moves, and rich tasks to get started Organizes the 14 practices into fourteen toolkits that can be implemented in order and built on throughout the year When combined, these unique research-based practices create the optimal conditions for learner-centered, student-owned deep mathematical thinking and learning, and have the power to transform mathematics classrooms like never before.

First edition published in 1997 by Open University Press as: Experiencing school mathematics: teaching styles, sex and setting. Stanford mathematician and NPR Math Guy Keith Devlin explains why, fun aside, video games are the ideal medium to teach middle-school math. Aimed primarily at teachers and education researchers, but also of interest to game developers who want to produce videogames for mathematics education, Mathematics Education for a New Era: Video Games as a Medium for Learning describes exactly what is involved in designing and producing successful math educational videogames that foster the innovative mathematical thinking skills necessary for success in a global economy. Read the author's monthly MAA column Devlin's Angle

The follow up book to Deliverology 101, this book provides much needed support for educational leaders to reach student achievement targets that cultivate in improving the college and career readiness of their high school graduates and ensuring their success in post-secondary education. Deliverology 101 laid out the case for change and theory of change promised by the deliverology methodology. Deliverology in Practice builds on this foundation by examining how this theory of change has played out in multiple education systems over the course of the last few years.

A sharp mind, like a healthy body, is subject to the same rule of nature: Use it or lose it Need a calculator just to work out a 15 percent service charge? Not exactly sure how to get the calculator to give you the figure you need? Turn to this revised and updated edition of All the Math You'll Ever Need, the friendliest, funniest, and easiest workoutprogram around. In no time, you'll have total command of all the powerful mathematical tools needed to make numbers work for you. In add-ons and -cents, British pounds and euros, and all the numbers in between, Deliverology in Practice leads you through the key mathematics concepts you need to know to succeed in school and in everyday situations. Offers straightforward techniques for working with decimals and fractions. Demonstrates simple ways to figure discounts, calculate mortgage interest rates, and work out time, rate, and distance problems. Contains no complex formulas and no unnecessary technical terms.

David Acheson transports us into the world of geometry, one of the oldest branches of mathematics. He describes its history, from ancient Greece to the present day, and its emphasis on proofs. With its elegant deduction and practical applications, he demonstrates how geometry offers the quickest route to the spirit of mathematics at its best.

Banish math anxiety and give students of all ages a clear roadmap to success Mathematical Mindsets provides practical strategies and ideas for helping teachers and parents show all children, even those who are convinced that they are bad at math, that they can enjoy and succeed in math. Jo Boaler—Stanford researcher, professor of math education, and expert on math learning—has studied why students don't like math and often fail in math classes. She's followed thousands of students through middle and high school to study how they learn and to find the most effective ways to unleash the math potential in all students. There is a clear gap between what research has shown to work in teaching math and what happens in schools and at home. This book bridges that gap by turning research findings into practical activities and advice. Boaler translates Carol Dweck's concept of 'mindset' into math teaching and parenting strategies, showing how students can go from self-doubt to strong self-confidence, which is so important to math learning. Boaler reveals the steps that must be taken by schools and parents to improve math education for all. With Mathematical Mindsets, Boaler explains how the brain processes mathematics learning Reveals how to turn mistakes and struggles into valuable learning experiences Provides examples of rich mathematical activities to replace rote learning Explains ways to give students a positive math mindset Gives examples of how assessment and grading policies need to change to support real understanding Scores of students hate and fear math, so they end up leaving school without an understanding of basic mathematical concepts. Their evasion and departure hinders math-related pathways and STEM career opportunities. Research has shown very clear methods to change this phenomena, but the information has been confined to research journals—until now. Mathematical Mindsets provides a proven, practical roadmap to math success for any student at any age.

Explains the latest neurological research in the science of learning, stressing the brain's need for sleep, exercise, and focused attention in its processing of new information and creation of memories.
Innovative Teaching

Get Free Mathematical Mindsets: Unleashing Students Potential Through Creative Math Inspiring Messages And Activities

Science education is crucial to young children’s discovery and understanding of the world around them. This third edition of Science in Early Childhood has been substantially updated to include the most current research, bringing together an author team with a strong professional and research location background in early childhood science education, introducing coverage of STEM, inclusivity, Indigenous understandings of science, and the Australian curriculum.

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Get Three Mathematical Mindsets Unleashing Students Potential Through Creative Math inspirational Messages And Innovative Teaching

students through middle and high schools to study how they learn and to find the most effective ways to unleash the math potential in all students. There is a clear gap between what research has shown to work in teaching math and what happens in schools. This book bridges that gap and offers innovative research findings that show how students can go from self-doubt to strong self-confidence, which is so important to math learning. Boaler reveals the steps that must be taken by schools and parents to improve math education for all. Mathematical Mindsets: Explains how the brain processes mathematics learning Reveals how to turn mistakes and struggles into valuable learning experiences Provides examples of rich mathematical activities to replace rote learning Explains ways to give students a positive math mindset Gives examples of how assessment and grading policies need to change to support understanding Scores of students hate and fear math, so they end up leaving school without an understanding of basic mathematical concepts. Their evasion and departure hinders math-related pathways and STEM career opportunities. Research has shown very clear methods to change this phenomenon, but the information has been confined to research journals—until now. Mathematical Mindsets provides a proven, practical roadmap to mathematics success for any student at any age.

Popular Australian author and inspirational teacher, Bill Handley, has developed, and, over the years, refined methods of teaching mathematics and learning strategies that have achieved amazing results. His best-selling book, Speed Mathematics convinced readers that people who excel at maths use better strategies and are not necessarily more intelligent. This book contains additional methods and applications based on the strategies taught in Speed Mathematics that make the principles clearer and more straightforward. The book was written for young people but people of all age will enjoy it. The book has notes throughout for parents and teachers. By following his innovative approach you will have kids playing games, performing lightning quick calculations and, most of all, having fun! Bill claims: “If you are good at maths, people think you are intelligent. People will treat you like you are a genius. Your teachers and your friends will treat you differently. You will even think differently about yourself. The emphasis in this book is on playing with mathematics. Enjoy it. Show off what you learn and make mathematics your favourite subject. In her inspirational, well-researched book, Describes the kinds of learning opportunities that all parents want for their children. Her accessible writing style makes it easy to envision the environment, teaching, and community she describes with such clarity you’ll want to get started on her ideas tomorrow.” — Jessica Serravalle “How refreshing it is in a test-driven climate to read a book stressing the nurturing of imagination and empathy that comes from inquiry, play and children’s own initiatives. The book is written on a grade level that children can read, play by the engine that drives them.” — Renee Dinnerstein “During choice time, children choose to play in a variety of centers that have been carefully designed and equipped to scaffold children’s natural instinct for play.” — Boaler In this book Boaler reveals what you everywhere you need to set up choice-time centers that promote inquiry-based, guided play in your classroom. Renee summarizes the research, describing the different kinds of play and why they are important. She then dives into the nitty-gritty—blueprints for six proven choice-time centers, with detailed descriptions, scheduling suggestions for different age groups, ideas to connect centers to the curriculum, giving children greater agency in designing and planning centers. Renee reveals what can happen when you embrace a culture of inquiry, providing opportunities for children to be explorative and creative in their thinking. She believes that, “A child’s engagement is the most powerful asset we have for teaching and learning.” Give your students choice time, and watch them engage in joyful, important, playful, age-appropriate work that will empower them to become lifelong learners. In the second edition of this renowned book, You will find pearls of wisdom, heartfelt advice, and inspiration from one of the nation’s leading authorities on staff motivation, teacher leadership, and principal effectiveness. With wit and understanding, Boaler describes the beliefs, behaviors, attitudes, and interactions of great teachers and explains what they do differently. New features include: Meaning what you say Focusing on students First Putting yourself in their position in this video DVD Bundle This bundle includes a DVD featuring Bill Boaler speaking about what great teachers do differently. It runs for approximately two hours and is the perfect addition to teacher training events and professional development meetings. Filled with pearls of wisdom, humor, and practical strategies, the video will motivate your staff and inspire them to be the best they can, each and every day. The DVD comes with a free copy of What Great Teachers Do Differently as a Facilitator’s Guide. “Boaler is one of those rare and remarkable educators who not only know the secret of great teaching but also know how to give that to others.” — CAROL DWEEK, author of Mindset “Jo Boaler is one of the most creative and innovative educators today. Limitless Mind marries cutting-edge brain science with her experience in the classroom, not only proving that each of us has limitless potential but offering strategies for how we can achieve it.” — LAURENE POWELL JOBS “A courageous freethinker with fresh ideas on learning.” — BOOKLIST In this revolutionary book, a professor of education at Stanford University and acclaimed mathematic teacher who has spent decades studying the impact of beliefs and bias in the classroom, reveals that when we enter school, we already hold certain ideas about the latest scientific research has shown that all children are capable of learning advanced mathematical ideas, and others, influenced exclusively by genetics. This notion follows us into adulthood, where we tend to simply accept these established beliefs about our skillsets (i.e. that we don’t have “a math brain” or that we aren’t “the creative type”). These damaging—and as new science has revealed, false—assumptions have influenced all of us at some time, affecting our confidence and willingness to try new things and limiting our choices, and, ultimately, our futures. Stanford University professor, best-selling author, and Stanford mathematics expert Jo Boaler reveals the latest scientific research about how children learn math, and what it means for you as a parent or educator. Her research proves that those who achieve at the highest levels do not do so because of a genetic inclination toward any one skill but because of the keys that she reveals in this book. Our brains are not “fixed,” but entirely capable of change, growth, adaptability, and relearning. Want to be fluent in mathematics? Learn a foreign language? Play a instrument? Write a book? The truth is not only that anyone can learn anything, but the act of learning itself fundamentally changes who we are, and as Boaler argues so elegantly in this new book, what we on go to achieve.

Rich tasks, collaborative work, number talks, problem-based learning, direct instruction...with so many possible approaches, how do we know which one works the best? In Visible Learning for Mathematics, six acclaimed educators assert it’s not about which approach you choose, but about how you manage, monitor, and show you how to design high-impact instruction so all students demonstrate more than a year’s worth of mathematics learning for a year spent in school. That’s a high bar, and with the amazing K-12 framework here, you choose the right approach at the right time, depending upon where learners are in their three phases of learning: surface, deep, and transfer. This results in “visible learning” because the effect is tangible. The framework is formed out of current research in mathematics with John Hattie’s synthesis of more than 15 years of education research involving 300 million students. Chapter by chapter, and equipped with video clips, planning tools, rubrics, and templates, you get a road map on which instructional strategies to use at each phase of the learning cycle: Surface learning phase: When—through carefully constructed experiences—students explore new concepts and make connections to procedural skills and give shape to developing conceptual understandings. Deep learning phase: When—through rich high-cognitive tasks and rigorous discussion students make connections among conceptual ideas, form new schemas, and proceduralize new strategies and algorithms, using the power of their metacognition to make sense of something they know to new mathematical situations. To equip students for higher-level mathematics learning, we have to be clear about where students are, where they need to go, and what it looks like when they get there. Visible Learning for Math brought about powerful, precision teaching for K-12 through intentionally designed guided, collaborative, and independent learning.

Project-Based Learning in the Math Classroom (grades 6 - 10) explains how to keep inquiry at the heart of mathematics teaching and helps teachers build students’ abilities to be true mathematicians. This book outlines basic teaching strategies, about which one—it's about when—and show you how to design high-impact instruction so all students demonstrate more than a year’s worth of mathematics learning for a year spent in school. That’s a high bar, and with the amazing K-12 framework here, you choose the right approach at the right time, depending upon where learners are in their three phases of learning: surface, deep, and transfer. This results in “visible learning” because the effect is tangible. The framework is formed out of current research in mathematics with John Hattie’s synthesis of more than 15 years of education research involving 300 million students. Chapter by chapter, and equipped with video clips, planning tools, rubrics, and templates, you get a road map on which instructional strategies to use at each phase of the learning cycle: Surface learning phase: When—through carefully constructed experiences—students explore new concepts and make connections to procedural skills and give shape to developing conceptual understandings. Deep learning phase: When—through rich high-cognitive tasks and rigorous discussion—students make connections among conceptual ideas, form new schemas, and proceduralize new strategies and algorithms, using the power of their metacognition to make sense of something they know to new mathematical situations. To equip students for higher-level mathematics learning, we have to be clear about where students are, where they need to go, and what it looks like when they get there. Visible Learning for Math brought about powerful, precision teaching for K-12 through intentionally designed guided, collaborative, and independent learning.

The project-based problem-solving approach that this book promotes and explains in detail a variety of visual tools and techniques that can be used in the classroom to deepen pupils' understanding of mathematical operations. Covering vectors, number lines, algebra tiles, ordered-pair graphs and many other representations, Visible Math equips teachers with the confidence and practical know-how to take their pupils' learning to the next level. The book looks at the strengths, and
flaws, of each representation so that both primary and secondary school teachers of maths can make informed judgements about which representations will benefit their pupils. The exploration begins at the very basics of number and operation, and extends all the way through to how the representations apply to algebraic expressions and manipulations. As well as sharing his expert knowledge on the subject, Peter draws on relevant research and his own experience of using the representations in order to support teachers in understanding how these representations can be implemented effectively. Visible Maths also includes a glossary covering the key mathematical terms, as well as a chapter dedicated to answering some of the questions that may arise from the reading of the book. Furthermore, the accompanying diagrams and models are displayed in full colour to illustrate the conceptual takeaways and teaching techniques discussed. Suitable for teachers of maths in primary and secondary school settings.

Think of a zebra’s stripes, the complexities of a spider’s web, the uniformity of desert dunes, or the spirals in a sunflower head think of a snowflake. The Beauty of Numbers in Nature shows how life on Earth forms the principles of mathematics. Starting with the simplest patterns, each chapter looks at a different kind of patterning system and the mathematics that underlies it. In doing so the book also uncovers some universal patterns, both in nature and man-made, from the basic geometry of ancient Greece to the visually startling fractals that we are familiar with today. Elegantly illustrated, The Beauty of Numbers in Nature is an illuminating and engaging vision of how the apparently cold laws of mathematics find expression in the beauty of nature.

In math, like any subject, real learning takes place when students can connect what they already know to new ideas. In “Connecting Mathematical Ideas”, Jo Boaler and Cathy Humphreys offer a comprehensive way to improve your ability to help adolescents build connections between different mathematical ideas and representations and between domains like algebra and geometry. “Connecting Mathematical Ideas” contains two-CDs worth of video case studies from Humphreys’ own middle-school classroom that show her encouraging students to bridge complex mathematical concepts with their prior knowledge. Replete with math talk and coverage of topics like representation, reasonableness, and proof, the CDs also include complete transcripts and study questions that stimulate professional learning. Meanwhile, the accompanying book guides you through the CDs with in-depth commentary from Boaler and Humphreys that breaks down and analyzes the lesson footage from both a theoretical and a practical standpoint. In addition to addressing the key content areas of middle school mathematics, Boaler and Humphreys pose and help you address a broad range of frequently asked pedagogical questions, such as: How can I organize productive class discussions? How do I ask questions that stimulate discussion and thought among my students? What’s the most effective way to encourage reticent class members to speak up? What role should student errors play in my teaching? Go inside real classrooms to solve your toughest teaching questions. Use the case studies and the wealth of professional support within "Connecting Mathematical Ideas" and find new ways to help your students connect with math.

This practical guide to children’s common errors and misconceptions in mathematics is a popular planning tool for primary trainees. It supports a deeper understanding of the difficulties encountered in mathematical development. This third edition has been updated to link to the new National Curriculum. New for this edition is a chapter on addressing errors misconceptions which explores how errors can best be identified and countered. The text examines misconceptions individually and in each case provides a description of the error alongside an explanation of why the error happens. The text also considers the role of the teacher in understanding and addressing children’s common mathematical misconceptions.

Bring growth mindset strategies into the classroom with this easy-to-follow guide for teachers to empower learning through grit and resilience Created by teachers for teachers, this is the ultimate guide for unleashing students’ potential through creative lessons, empowering messages and innovative teaching. The Growth Mindset Coach provides all you need to foster a growth mindset classroom, including: A Month-by-Month Program Research-Based Activities Hands-On Lesson Plans Real-Life Educator Stories Constructive Feedback Sample Parent Letters Studies show that growth mindsets result in higher test scores, improved grades and more in-class involvement. When your students understand that their intelligence is not limited, they succeed like never before. With the tools in this book, you can motivate your students to believe in themselves and achieve anything.

Personal Development for Grade 9 student book meets all the requirements of the new Grade 9 Personal Development Syllabus. Units of work are organised according to the Personal Development syllabus, namely: 9.1 Who Am I? 9.2 Fitness and Me 9.3 Health 9.4 The PNG Way 9.1-9.4 Sport and Fitness

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