

Active Arithmetic Movement And Mathematics Teaching In The Lower Grades Of A Waldorf School By Henning Andersen 2014 03 13

Waldorf education, an established and growing independent school movement, continues to be shaped and inspired by Rudolf Steiner's numerous lectures on education. In *Rhythms of Learning*, key lectures on children and education have been thoughtfully chosen from the vast amount of material by Steiner and presented in a context that makes them approachable and accessible. In his many discussions and lectures, Steiner shared his vision of an education that considers the spirit, soul, and physiology in children as they grow. Roberto Trostli, an experienced Waldorf teacher, has selected the works that best illustrate the fundamentals of this unique approach. In each chapter, Trostli explains Steiner's concepts and describes how they work in the contemporary Waldorf classroom. We learn how the teacher-child relationship and the Waldorf school curriculum changes as the students progress from kindergarten through high-school. This book will serve as an excellent resource for parents who want to understand how their child is learning. Parents will be better prepared to discuss their child's education with teachers, and teachers will find it a valuable reference source and communication tool.

This volume traces back the history of interaction between the "computational" or "algorithmic" aspects of elementary mathematics and mathematics education throughout ages. More specifically, the examples of mathematical practices analyzed by the historians of mathematics and mathematics education who authored the chapters in the present collection show that the development (and, in some cases, decline) of counting devices and related computational practices needs to be considered within a particular context to which they arguably belonged, namely, the context of mathematics instruction; in their contributions the authors also explore the role that the instruments played in formation of didactical approaches in various mathematical traditions, stretching from Ancient Mesopotamia to the 20th century Europe and North America.

This survey book reviews four interrelated areas: (i) the relevance of heuristics in problem-solving approaches – why they are important and what research tells us about their use; (ii) the need to characterize and foster creative problem-solving approaches – what type of heuristics helps learners devise and practice creative solutions; (iii) the importance that learners formulate and pursue their own problems; and iv) the role played by the use of both multiple-purpose and ad hoc mathematical action types of technologies in problem-solving contexts – what ways of reasoning learners construct when they rely on the use of digital technologies, and how technology and technology approaches can be reconciled.

This ambitious work puts forward a new account of mathematics-as-language that challenges the coherence of the accepted idea of infinity and suggests a startlingly new conception of counting. The author questions the familiar, classical, interpretation of whole numbers held by mathematicians and scientists, and replaces it with an original and radical alternative--what the author calls non-Euclidean arithmetic. The author's entry point is an attack on the notion of the mathematical infinite in both its potential and actual forms, an attack organized around his claim that any interpretation of "endless" or "unlimited" iteration is ineradicably theological. Going further than critique of the overt metaphysics enshrined in the prevailing Platonist description of mathematics, he uncovers a covert theism, an appeal to a disembodied ghost, deep inside the mathematical community's understanding of counting.

Jens Hoyrup, recognized as the leading authority in social studies of pre-modern mathematics, here provides a social study of the changing mode of mathematical thought through history. His "anthropology" of mathematics is a unique approach to its history, in which he examines its pursuit and development as conditioned by the wider social and cultural context. Hoyrup moves from comparing features of Sumero-Babylonian, Mesopotamian, Ancient Greek, and Latin Medieval mathematics, to examining the character of Islamic practitioners of mathematics. He also looks at the impact of ideologies and philosophy on mathematics from Latin High Middle ages through the late Renaissance. Finally, he examines modern and contemporary mathematics, drawing out recurring themes in mathematical knowledge.

Class 12 Maths Chapter 1 NCERT Solutions – Relations And Functions. In this chapter, the students can recollect all the terminologies that they would have studied in their previous classes like – relations and functions, range, domain and co – domain. This chapter comprises of various vital concepts and they are : An introduction to the topic Types of relations Empty relation Universal relation Reflexive relation Symmetric relation Transitive relation Equivalence relation Types of functions The composition of Functions and Invertible Function Binary Operations

Presents a wide sampling of efforts being made on campuses across the country to achieve our common goal of having a quantitatively literate citizenry.

Traditionally, small-group math instruction has been used as a format for reaching children who struggle to understand. Math coach Kassia Omohundro Wedekind uses small-group instruction as the centerpiece of her math workshop approach, engaging all students in rigorous "math exchanges." The key characteristics of these mathematical conversations are that they are: 1) short, focused sessions that bring all mathematical minds together, 2) responsive to the needs of the specific group of mathematicians, and 3) designed for meaningful, guided reflection. As in reading and writing workshop, students in Kassia's math workshop are becoming self-directed and independent while participating in a classroom community of learners. Through the math exchanges, students focus on number sense and the big ideas of mathematics. Teachers guide the conversations with small groups of students, mediating talk and thinking as students share problem-solving strategies, discuss how math works, and move toward more effective and efficient approaches and greater mathematical understanding. Although grounded in theory and research, Math Exchanges is written for practicing teachers and answers such questions as the following: How can I use a math workshop approach and follow a certain textbook or set of standards? How should I form small groups? and How often should I meet with small groups? What should I focus on in small groups? How can I tell if my groups are making progress? What do small-group math exchanges look like, sound like, and feel like?

This thoughtful book, written by an experienced Waldorf teacher in Denmark, explores ways of making arithmetic and maths lessons active, engaging and concrete for children. Anderson concentrates on methods which use aspects of movement and drawing to make maths 'real', drawing on children's natural need for physical activity and innate curiosity. The techniques discussed here will work well for younger classes in Steiner-Waldorf schools.

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The chapter 'Number Systems' is the first chapter in class 9th Mathematics which discusses topics like 'Introduction to Number Systems,' 'Irrational Numbers,' 'Real Numbers and their Decimals Expansions,' 'Representing Real Numbers on the Number Line,' 'Operations on Real Numbers,' 'Law of Exponents for Real Numbers,' and many more things about this chapter. NCERT solutions comprise solutions of textbook questions and exercises in detail. These NCERT solutions are in Ebook and they are absolutely free. Why must you download NCERT solutions for 'Number Systems'? • You get access to all the solutions of your textbook questions • You can download these solutions on any device such as a laptop and your smartphone • These solutions are prepared by our experienced teachers • Since you can store these solutions on any device, you can take them anywhere and can access them anytime • These solutions will help you to prepare for exams. • You can finish your homework faster with more accuracy if the homework is related to this chapter. • The solutions are available for free of cost. Download Free book of chapter 1- NOW! At Bright Tutee, we endeavor to make your academic life easy. For that, we create world-class video lessons for class 9th and 10th students. If you really wish to score better marks in Maths exams, then you must try our CBSE Class 9th Mathematics course which comprises video lectures, online tests (MCQs), assignments, sample papers, question banks, previous years' question papers, and model test papers. Explore the course here.

This Festschrift contains numerous colorful and eclectic essays from well-known mathematicians, philosophers, logicians, and linguists celebrating the 90th birthday of Reuben Hersh. The essays offer, in part, attempts to answer the following questions set forth by Reuben himself as a focus for this volume: Can practicing mathematicians, as such, contribute anything to the philosophy of math? Can or should philosophers of math, as such, say anything to practicing mathematicians? Twenty or fifty years from now, what will be similar, and what will, or could, or should be altogether different: About the philosophy of math? About math education? About math research institutions? About data processing and scientific computing? The essays also offer glimpses into Reuben's fertile mind and his lasting influence on the mathematical community, as well as revealing the diverse roots, obstacles and philosophical dispositions that characterize the working lives of mathematicians. With contributions from a veritable "who's who" list of 20th century luminaries from mathematics and philosophy, as well as from Reuben himself, this volume will appeal to a wide variety of readers from curious undergraduates to prominent mathematicians.

Computing, Math, & Engineering

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Focuses on the parts of arithmetic that can be taught to young children through movement, music and drawing as taught in the Waldorf schools.

This is a reader-friendly Waldorf 'taster' with three public lectures by Rudolf Steiner on Waldorf education and a thought-provoking, accessible introduction by a Waldorf teacher and longtime student of Steiner's pedagogy.

This textbook focuses on research in movement integration and the benefits of physical activity to the child's physical, cognitive, emotional, and social development. It includes research on and suggestions for integrating movement into English-language arts, mathematics, science and social studies for lower and upper elementary students. Though the textbook is specifically aimed at elementary-level teachers, secondary teachers and pre-service teachers can modify the activities to fit their lessons as well.

This is the first comprehensive International Handbook on the History of Mathematics Education, covering a wide spectrum of epochs and civilizations, countries and cultures. Until now, much of the research into the rich and varied history of mathematics education has remained inaccessible to the vast majority of scholars, not least because it has been written in the language, and for readers, of an individual country. And yet a historical overview, however brief, has become an indispensable element of nearly

every dissertation and scholarly article. This handbook provides, for the first time, a comprehensive and systematic aid for researchers around the world in finding the information they need about historical developments in mathematics education, not only in their own countries, but globally as well. Although written primarily for mathematics educators, this handbook will also be of interest to researchers of the history of education in general, as well as specialists in cultural and even social history.

This book offers insights into the history of mathematics education, covering both the current state of the art of research and the methodology of the field. History of mathematics education is treated in the book as a part of social history. This book grew out of the presentations delivered at the International Congress on Mathematics Education in Hamburg. Modern development and growing internationalization of mathematics education made it clear that many urgent questions benefit from a historical approach. The chapters present viewpoints from the following countries: Belgium, Brazil, Cambodia, China, Cyprus, Germany, Iceland, Italy, the Netherlands, Russia, Spain and Sweden. Each chapter represents significant directions of historical studies. The book is a valuable source for every historian of mathematics education and those interested in mathematics education and its development. Building off the success of Zill and Dewar's popular Essentials version, the new Sixth Edition of Precalculus with Calculus Previews continues to include all of the outstanding features and learning tools found in the original text while incorporating additional topics of coverage that some courses may require. With a continued effort to keep the text complete, yet concise, the authors have included four additional chapters making the text a clear choice for many mainstream courses. Additional chapters include a new chapter on Polar Coordinates, as well as Triangle Trigonometry, Systems of Equations and Inequalities, and Sequences and Series.

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This volume emerges from a partnership between the American Federation of Teachers and the Learning Research and Development Center at the University of Pittsburgh. The partnership brought together researchers and expert teachers for intensive dialogue sessions focusing on what each community knows about effective mathematical learning and instruction. The chapters deal with the research on, and conceptual analysis of, specific arithmetic topics (addition, subtraction, multiplication, division, decimals, and fractions) or with overarching themes that pervade the early curriculum and constitute the links with the more advanced topics of mathematics (intuition, number sense, and estimation). Serving as a link between the communities of cognitive researchers and mathematics educators, the book capitalizes on the recent research successes of cognitive science and reviews the literature of the math education community as well.

?This book is the result of a joint venture between Professor Akio Kawauchi, Osaka City University, well-known for his research in knot theory, and the Osaka study group of mathematics education, founded by Professor Hirokazu Okamori and now chaired by his successor Professor Tomoko Yanagimoto, Osaka Kyoiku University. The seven chapters address the teaching and learning of knot theory from several perspectives. Readers will find an extremely clear and concise introduction to the fundamentals of knot theory, an overview of curricular developments in Japan, and in particular a series of teaching experiments at all levels which not only demonstrate the creativity and the professional expertise of the members of the study group, but also give a lively impression of students' learning processes. In addition the reports show that elementary knot theory is not just a preparation for advanced knot theory but also an excellent means to develop spatial thinking. The book can be highly recommended for several reasons: First of all, and that is the main intention of the book, it serves as a comprehensive text for teaching and learning knot theory. Moreover it provides a model for cooperation between mathematicians and mathematics educators based on substantial mathematics. And finally it is a thorough introduction to the Japanese art of lesson studies—again in the context of substantial mathematics. You've reached the right place if you are looking for the most updated and recent NCERT Solutions for Class 9 Maths Chapter 6 which deals with 'Lines and Angles'. There is no denying the fact that NCERT solutions for class 9 maths prove an incredible resource or guide for students who want to excel in Mathematics. NCERT solutions, in every way, prove very useful for students from the CBSE board. Since a student gets easy access to all the textbook problems and solutions, Maths become interesting. NCERT Solutions, in many ways, helps a student get over the fear of Maths. In NCERT solutions, a student finds all Maths topics explained in a simple manner. This enhances a student's curiosity and interest in Maths. Chapter 6 - Lines and Angles 'Lines and Angles' is an important chapter and provides the basics of Geometry to students of class 9. Developing a strong understanding of 'Lines and Angles' can help a student in many ways, whether in higher classes or when he/she opts for a career in Engineering or Architecture. Our NCERT solutions for 'Lines and Angles' are available for free for all class 9th students. You can download the solutions on your mobile phone or laptop, and access them anywhere, any time. The solutions are available in Ebook. You can download the complete solution book of NCERT Chapter 6 Line and Angles of Class 9. Download book of NCERT Solutions for Class 9

Maths Chapter 6 – Lines And Angles

This volume contains the official record of the Congress of Mathematicians held in Edinburgh from 14 to 21 August 1958. Designed for the one-term course in trigonometry, the Third Edition incorporates all of the many teaching and learning tools that have made Zill's texts a resounding success. A rich pedagogy and an extensive supplements package make this text a must-have resource for students and instructors alike. Zill takes care to include a full set of engaging and motivating features for students, including a wide range of word problems and specific applications, historical accounts of mathematicians, and a strong variety of relevant exercises. These extensive exercises give students the opportunity to test their comprehension, challenge their understanding, and apply their knowledge to real-world situations.

Capitalism is historically pervasive. Despite attempts through the centuries to suppress or control the private ownership of commercial assets, production and trade for profit has survived and, ultimately, flourished. Against this backdrop, accounting provides a fundamental insight: the 'value' of physical and intangible capital assets that are used in production is identically equal to the sum of the debt liabilities and equity capital that are used to finance those assets. In modern times, this appears as the balance sheet relationship. In determining the 'value' of items on the balance sheet, equity capital appears as a residual calculated as the difference between the 'value' of assets and liabilities. Through the centuries, the organization of capitalist activities has changed considerably, dramatically impacting the methods used to value, trade and organize equity capital. To reflect these changes, this book is divided into four parts that roughly correspond to major historical changes in equity capital organization. The first part of this book examines the rudimentary commercial ventures that characterized trading for profit from ancient times until the contributions of the medieval scholastics that affirmed the moral value of equity capital. The second part deals with the evolution of equity capital organization used in seaborne trade of the medieval and Renaissance Italian city states and in the early colonization ventures of western European powers and ends with the emergence in the market for tradeable equity capital shares during the 17th century. The third part begins with the 1719-1720 Mississippi scheme and South Sea bubbles in northern Europe and continues to cover the transition from joint stock companies to limited liability corporations with autonomous shares in England, America and France during the 19th century. This part ends with a fundamental transition in the social conception of equity capital from a concern with equity capital organization to the problem of determining value. The final part is concerned with the evolving valuation and management of equity capital from the 1920s to the present. This period includes the improvement corporate accounting for publicly traded shares engendered by the Great Depression that has facilitated the use of 'value investing' techniques and the conflicting emergence of portfolio management methods of modern Finance. Equity Capital is aimed at providing material relevant for academic presentations of equity valuation history and methods, and is targeted at researchers, academics, students and professionals alike.

This state-of-the-art Handbook brings together important mathematics education research that makes a difference in both theory and practice--research that: anticipates problems and needed knowledge before they become impediments to progress; interprets future-oriented problems into researchable issues; presents the implications of research and theory development in forms that are useful to practitioners and policymakers; and facilitates the development of research communities to focus on neglected priorities or strategic opportunities. The volume represents a genuine attempt by contributors from around the world to advance the discipline, rather than simply review what has been done and what exists. The Handbook was developed in response to a number of major global catalysts for change, including the impact of national and international mathematics comparative assessment studies; the social, cultural, economic, and political influences on mathematics education and research; the influence of progressively sophisticated and available technology; and the increasing globalization of mathematics education and research. From these catalysts have emerged specific priority themes and issues for mathematics education research in the 21st century. Three key themes were identified for attention in this volume: life-long democratic access to powerful mathematical ideas; advances in research methodologies; and influences of advanced technologies. Each of these themes is examined in terms of learners, teachers, and learning contexts, with theory development as an important component of all these aspects. Dynamic and forward looking, the Handbook of International Research in Mathematics Education is distinguished by its focus on new and emerging theoretical models, perspectives, and research methodologies; its uniformly high standard of scholarship; and its emphasis on the international nature of mathematics education research. It is an essential volume for all researchers, professionals, and students interested in mathematics education research in particular and, more generally, in international developments and future directions in the broad field of educational research.

To find "criteria of simplicity" was the goal of David Hilbert's recently discovered twenty-fourth problem on his renowned list of open problems given at the 1900 International Congress of Mathematicians in Paris. At the same time, simplicity and economy of means are powerful impulses in the creation of artworks. This was an inspiration for a conference, titled the same as this volume, that took place at the Graduate Center of the City University of New York in April of 2013. This volume includes selected lectures presented at the conference, and additional contributions offering diverse perspectives from art and architecture, the philosophy and history of mathematics, and current mathematical practice.

From the blackboard to the graphing calculator, the tools developed to teach mathematics in America have a rich history shaped by educational reform, technological innovation, and spirited entrepreneurship. In Tools of American Mathematics Teaching, 1800–2000, Peggy Aldrich Kidwell, Amy Ackerberg-Hastings, and David Lindsay Roberts present the first systematic historical study of the objects used in the American mathematics classroom. They discuss broad tools of presentation and pedagogy (not only blackboards and textbooks, but early twentieth-century standardized tests, teaching machines, and the overhead projector), tools for calculation, and tools for representation and measurement. Engaging and accessible, this volume tells the stories of how specific objects such as protractors, geometric models, slide rules, electronic calculators, and computers came to be used in classrooms, and how some disappeared.

The lesson plans in *Interdisciplinary Learning Through Dance: 101 MOVEntures* are broad (covering six disciplines) and deep (101 plans in all). Each lesson is based on national standards and has been field tested with students in grades K-5 with positive results. In fact, both teachers and students enjoy the plans and the learning gained through *Interdisciplinary Learning Through Dance: 101 MOVEntures*. Teachers value the materials: a book, a music CD to be used with selected lessons, and a 60-minute DVD that demonstrates teaching methodologies and shows selected lesson plans in action. All are designed to be used in lessons that focus on science, social studies, language arts, math, physical education, and creative arts. Students respond with enthusiasm to the active learning of subjects through playful movement. The book's content inspires engaging and active learning with these features: - Basic language of dance - How-tos of lesson planning - Classroom-management techniques - Thinking tools for promoting conceptual understanding - Assessment choices and forms Each lesson plan addresses the national standards for dance and the core curriculum subject areas, as well as the grade level, length, student objectives, and materials needed. In addition, each plan contains these special features: - Introduction - Moving adventure - Assessment - Extensions The book explores the benefits of crossing curricular boundaries with dance and delves into the vocabulary of dance and the pedagogy for creating moving adventures, or MOVEntures. It lays out the 101 lesson plans in six disciplines, providing assessment tools, lesson schematics, and additional resources- including the national standards and thinking tools. Complete. Cross-disciplinary. Broad and deep. Instructive. And fun. Teachers can't go wrong with *Interdisciplinary Learning Through Dance: 101 MOVEntures*, because the students learn the subjects and come back wanting to learn more.

The implementation of the National Council of Teachers of Mathematics' "Curriculum and Evaluation Standards for School Mathematics" implies fundamental shifts in the teaching and learning of mathematics. Intended for those individuals who will be instrumental in the implementation of those changes--teachers, administrators, and parents--this document presents 10 ideas for transforming mathematics teaching and learning based on research and successful practical experience: (1) All students can and must learn mathematics, which should serve as a "pump," not a "filter"; (2) Teachers need to listen to students and incorporate into their instruction what they learn from listening; (3) Students learn mathematics best when they construct their own mathematical understanding; (4) Students need to learn more and different types of mathematics; (5) Mathematical discussion should be a daily part of classroom activity; (6) Teachers need to become "informed guides" to the learner; (7) Calculators, computers, and related technology can be effective tools in the teaching and learning of mathematics; (8) Students need shared learning experiences; (9) Curricular and pedagogical change in mathematics cannot occur without accompanying change in student assessment; and (10) Lasting change takes broad support. (Contains 14 references.) (MDH)

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