

EM609 The Nature and Learning of Mathematics

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This is the third mathematics specialist module on the BA Primary Education with QTS. It is also delivered to the BA Primary Mathematics Specialist route.

64 items

The Nature of Mathematics (18 items)

Understanding the Urgency (in 'The elephant in the classroom: helping children learn and love maths'), by Jo Boaler, 2015

[Chapter](#) | [Key](#) | Please read The Introduction, pp.1-15

Prologue: What is Mathematics? (in The language of mathematics: making the invisible visible), by Devlin, Keith J., 1998

[Chapter](#) | [Key](#)

Nature's numbers: discovering order and pattern in the universe, by Ian Stewart, 1996

[Book](#) | [Key](#) | Chapter 2: What mathematics is for

Chapter 5: Mathematics Under Different Names (in Children Doing Mathematics), by Nunes, Terezinha; Bryant, Peter, 1996

[Chapter](#) | [Key](#)

Masterclass in mathematics education: international perspectives on teaching and learning, edited by Paul Robert Andrews; Tim Rowland, 2014

[Book](#) | [Key](#) | Please read Ch 1: What is mathematics, and why learn it? pp.3-14

Is Mathematics Discovered or Invented?, by Paul Ernest, 1999

[Document](#) | [Further](#) | Reference: Ernest, P. (1999) Is Mathematics Discovered or Invented? Philosophy of Mathematics Education Journal [online] Vol 12, available at

Issues in mathematics teaching, by Gates, Peter; MyiLibrary, 2001

[Book](#) | [Key](#) | Read Chapter 7: Bishop, A. 'What values do you teach when you teach mathematics?'

The elephant in the classroom: helping children learn and love maths, by Jo Boaler, 2015

[Book](#) | [Further](#)

Pi in the sky: counting, thinking and being, by John D. Barrow, 1992

[Book](#) | [Further](#)

The tiger that isn't: seeing through a world of numbers, by Blastland, Michael; Dilnot, A. W., 2007

[Book](#) | [Further](#)

The number sense: how the mind creates mathematics, by Stanislas Dehaene, 1997

[Book](#) | [Further](#)

The maths gene: why everyone has it, but most people don't use it, by Keith J. Devlin, 2000

[Book](#) | [Further](#)

The language of mathematics: making the invisible visible, by Keith J. Devlin, 2002

[Book](#) | [Further](#)

What is mathematics, really?, by Hersh, Reuben, 1997

[Book](#) | [Further](#)

Where mathematics comes from: how the embodied mind brings mathematics into being, by George Lakoff; Rafael E. Nu

n
ez, 2000

[Book](#) | [Further](#)

Number, by John McLeish, 1991

[Book](#) | [Further](#)

Mathematics All in the Mind? (in The Curriculum for 7-11 year olds), by Riley, Jeni; Prentice, Roy, 1999

[Chapter](#) | [Further](#)

Philosophies of mathematics and perspectives of mathematics teaching - in International Journal of Mathematical Education in Science and Technology, by Eric Blaire, 1981-03

[Article](#) | [Further](#)

Exploring the maths of earlier civilisations and historical themes (14 items)

The crest of the peacock: non-European roots of mathematics, by George Joseph, c2011

[Book](#) | [Key](#) | Please read pp.45-65 from Chapter 2 "Native Americans and Their Mathematics"

Chapter 2: Mathematics from bones, strings and standing stones (from The Crest of the Peacock) - in The crest of the peacock: non-European roots of mathematics, 2000

[Chapter](#) | [Further](#)

Sherlock Holmes in Babylon and other tales of mathematical history, by Marlow Anderson; Victor J. Katz; Robin J. Wilson, c2004

[Book](#) | [Recommended](#)

The universal history of numbers, by Georges Ifrah, 2000

[Book](#) | [Recommended](#)

A history of mathematics: from Mesopotamia to modernity, by Luke Howard Hodgkin, 2013

[Book](#) | [Recommended](#)

A curious history of mathematics: the (big) ideas from early number concepts to chaos theory, by Joel Levy, 2013

[Book](#) | [Recommended](#)

The story of mathematics, by Richard Mankiewicz, 2001

[Book](#) | [Recommended](#)

A concise history of mathematics, by Dirk J. Struik, 1987

[Book](#) | [Recommended](#)

Numbers at work: a cultural perspective, by Rudolf J. Taschner, c2007

[Book](#) | [Recommended](#)

The triumph of numbers: how counting shaped modern life, by Cohen, I. Bernard, 2006

[Book](#) | [Further](#)

Numbers: their history and meaning, by Graham Flegg, 1984, c1983

[Book](#) | [Further](#)

The universal history of numbers, by Georges Ifrah, 2000

[Book](#) | [Further](#)

A measure of all things: the story of man and measurement, by Ian Whitelaw, 2007

[Book](#) | [Further](#)

The story of maths, by Du Sautoy, Marcus, c2008

[Audio-visual document](#) | [Further](#) | This DVD is available in the media collection.

Mathematical Learning (21 items)

Fundamental constructs in mathematics education, by John Mason; Sue Johnston-Wilder; MyiLibrary, 2004

[Book](#) | [Key](#) | Please read Chapter 5, 'Learners' Powers'

Some Notes on the Nature of Mathematics Learning, by Thomas Post

[Document](#) | [Key](#)

Mathematics education: exploring the culture of learning, by Allen, Barbara; Johnston-Wilder, Sue; MyiLibrary, 2003

[Book](#) | [Further](#) | Please read Chapter 12 'Setting, social class and survival of the quickest' pp.195-217

Principles and practices in arithmetic teaching: innovative approaches for the primary classroom, by Julia Anghileri, 2001

[Book](#) | [Further](#)

Multiple perspectives on mathematics teaching and learning, by Jo Boaler, 2000

[Book](#) | [Further](#)

The process of education, by Jerome S. Bruner, 1977

[Book](#) | [Further](#)

Building up mathematics, by Z. P. Dienes, 1964

[Book](#) | [Further](#)

The six stages in the process of learning mathematics, by Z. P. Dienes; Peter Leonard Seaborne; National Foundation for Educational Research in England and Wales, 1973

[Book](#) | [Further](#)

Children and number: difficulties in learning mathematics, by Martin Hughes, 1986

[Book](#) | [Further](#)

Children doing mathematics, by Terezinha Nunes; Peter Bryant, 1996

[Book](#) | [Further](#)

Chapter 5: Can Pupils Discover Mathematics for Themselves (in Learning mathematics: issues, theory and classroom practice), by Orton, A., 2004

[Chapter](#) | [Further](#) | Please read pp71-85

Insights into teaching mathematics, by A. Orton; L. J. Frobisher, 1996

[Book](#) | [Further](#)

Mathematics in the primary school, by Richard R. Skemp, 1989

[Book](#) | [Further](#) | Please read Abstraction and the process of concept formation pp52-60. Chapter 4 'The construction of mathematical knowledge' pp72-85.

Mathematics in the primary school, by Skemp, Richard R., 1989

[Book](#) | [Further](#)

Theories of mathematical learning, by Leslie P. Steffe; International Congress on Mathematical Education, 1996

[Book](#) | [Further](#)

Teaching for learning mathematics, by Rosamund Sutherland; MyiLibrary, 2007

[Book](#) | [Further](#)

Issues in teaching numeracy in primary schools, by Ian Thompson, 2010

[Book](#) | [Further](#)

Enhancing primary mathematics teaching, by Ian Thompson, 2003

[Book](#) | [Further](#)

Children's mathematics: making marks, making meaning, by Carruthers, Elizabeth; Worthington, Maulfry, 2006

[Book](#) | [Further](#)

Affect in Mathematics Education - Exploring Theoretical Frameworks, by Markku Hannula; Jeff Evans; Geroige Philippou; Rosetta Zan, 2004

[Proceedings](#)

Creating the conditions for children to persevere in mathematical reasoning, by Alison Barnes, Nov 2015

[Proceedings](#)

Social issues in learning mathematics (11 items)

Setting, Social Class and Survival of the Quickest - in British Educational Research Journal, by Jo Boaler, 1997-12

[Article](#) | [Key](#)

"The blue table means you don't have a clue": the persistence of fixed-ability thinking and practices in primary mathematics in English schools - in Forum, by Rachel Marks, 2013

[Article](#) | [Key](#)

'I'll be a nothing': structure, agency and the construction of identity through assessment - in British Educational Research Journal, by Diane Reay; Dylan Wiliam, 1999-06

[Article](#) | [Recommended](#)

Anyone for Tennis? Social Class Differences in Children's Responses to National Curriculum Mathematics Testing - in Sociological Review, by Barry Cooper; Máiréad Dunne, 1998-02

[Article](#) | [Recommended](#)

Masculinities in mathematics, by Heather Mendick, 2006

[Book](#) | [Recommended](#) | Please read Chapter 1: "Engendering mathematics" (you may also be interested in reading other chapters).

Ability-grouping in primary schools: case studies and critical debates, by Rachel Marks, 2016

[Book](#) | [Further](#)

Assessing children's mathematical knowledge: social class, sex and problem-solving, by Barry Cooper; Ma

ire

ad Dunne, 2000

[Book](#) | [Further](#)

The social world of children's learning: case studies of pupils from four to seven, by Andrew Pollard; Ann Filer, 1996

[Book](#) | [Further](#)

Issues in mathematics teaching, by Gates, Peter; MyiLibrary, 2001

[Book](#) | [Recommended](#) | Please read Chapter 7 'What Values do you teach when you teach mathematics?' p93-104
Chapter 17 'Inclusion, learning and teaching mathematics: beliefs and values' pp.261-276

Assessment: social practice and social product, by Ann Filer, 2000

[Book](#) | [Further](#)

Investigating formative assessment: teaching, learning and assessment in the classroom, by Harry Torrance; John Pryor, 1998

[Book](#) | [Further](#)