

PGCE primary mathematics (3-7 and 5-11) (Terms 1, 2 and 3)

View Online



NB: Content will be added as the seminars progress across the year.

This PGCE module is designed to develop your conceptual understanding of maths, which will support their growing subject knowledge. Imperative to this is making connections across different strands of maths, understanding the ways in which children learn and typically develop, and the pedagogical approaches that can facilitate children's deeper understanding, irrespective of age. Focusing on some of the big ideas in maths, linked to the module on Professional Studies, trainees will see the way in which approaches can be seamlessly integrated across the maths curriculum. This reading list covers the reading specific to each session, but has additional sections linked to topics that will be applicable when teaching.

Askew M, 'Talk', Transforming primary mathematics: understanding classroom tasks, tools, and talk (Updated and revised edition, Routledge, Taylor & Francis Group 2016)
<<https://www-taylorfrancis-com.oxfordbrookes.idm.oclc.org/chapters/mono/10.4324/9781315667256-14/talk-mike-askew?context=ubx>>

—, 'Variation Theory', Transforming primary mathematics: understanding classroom tasks, tools, and talk (Updated and revised edition, Routledge, Taylor & Francis Group 2016)
<<https://www-taylorfrancis-com.oxfordbrookes.idm.oclc.org/chapters/mono/10.4324/9781315667256-8/variation-theory-mike-askew?context=ubx&refId=74d431d9-eed2-452d-a4cd-650dee1f825b>>

—, 'Private Talk, Public Conversation'
<<http://mikeaskew.net/page3/page5/files/Privatetalkpublicconverse.pdf>>

Barclay N, 'Valid and Valuable: Lower Attaining Pupils' Contributions to Mixed Attainment Mathematics in Primary Schools' (2021) 23 Research in Mathematics Education 208

Bishop W, 'Why Do Americans Stink at Math? Some of the Answer' (2014) 10 Nonpartisan Education Review <<https://nonpartisaneducation.org/Review/Reviews/v10n1.htm>>

Boaler J, 'Fluency Without Fear: Research Evidence on the Best Ways to Learn Math Facts'
<<https://www.youcubed.org/wp-content/uploads/2017/09/Fluency-Without-Fear-1.28.15.pdf>>

Boaler J and Dweck CS, *Mathematical Mindsets: Unleashing Students' Potential Through Creative Math, Inspiring Messages and Innovative Teaching* (John Wiley & Sons, Incorporated 2015)

—, 'Rich Mathematical Tasks', *Mathematical Mindsets: Unleashing Students' Potential Through Creative Math, Inspiring Messages and Innovative Teaching* (John Wiley & Sons, Incorporated 2015)

<<https://ebookcentral.proquest.com/lib/brookes/reader.action?docID=4444210&pg=75>>

—, 'The Power of Mistakes and Struggle', *Mathematical Mindsets: Unleashing Students' Potential Through Creative Math, Inspiring Messages and Innovative Teaching* (John Wiley & Sons, Incorporated 2015)

<<https://ebookcentral.proquest.com/lib/brookes/reader.action?docID=4444210&pg=29>>

Briggs M and Davis S, *Creative Teaching: Mathematics in the Primary Classroom* (Second edition, Routledge/Taylor & Francis Group 2015)

Carr M and others, 'Combined Fluency and Cognitive Strategies Instruction Improves Mathematics Achievement in Early Elementary School' (2011) 36 *Contemporary Educational Psychology* 323

Clements D and Sarama J, 'Myths of Early Math' (2018) 8 *Education Sciences*

Clements DH, 'Subitizing: What Is It? Why Teach It?' (1999) 5 *Teaching children mathematics* 400

<<https://contentstore.cla.co.uk/secure/link?id=c8e55348-16b9-ee11-ad36-0050f2f06092>>

Clements DH, 'Evaluating the Efficacy of a Learning Trajectory for Early Shape Composition' (2019) 56 *American Educational Research Journal*

Clements DH and Sarama J, 'Rethinking Early Mathematics: What Is Research-Based Curriculum for Young Children?' in LD English and JT Mulligan (eds), *Reconceptualizing early mathematics learning* (Springer 2013)

<https://www.academia.edu/6921404/Clements_D_H_and_Sarama_J_2013_Rethinking_early_mathematics_What_is_research_based_curriculum_for_young_children>

Cockburn A and Littler GH, *Mathematical Misconceptions: A Guide for Primary Teachers* (SAGE 2008)

Cotton T, 'Chapter 9 Geometry: Properties of Shapes, Position and Direction', *Understanding and teaching: primary mathematics* (Fourth edition, Routledge 2021)

Cox S, 'Three Practical Approaches to Help Pupils Learn from Mathematical Mistakes' (EEF Blog, 25 September 2020)

<<https://educationendowmentfoundation.org.uk/news/three-practical-approaches-to-help-pupils-learn-from-mathematical-mistakes>>

Cuoco A, Goldenberg P and Mark J, 'Habits of Mind: An Organizing Principle for Mathematics Curricula.' (1996) 15 *Journal of Mathematical Behavior* 375

Department for Education, 'National Curriculum in England: Primary Curriculum' (2015)
<<https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculum>>

—, 'Development Matters: Non-Statutory Curriculum Guidance for the Early Years Foundation Stage'
<<https://www.gov.uk/government/publications/development-matters--2>>

—, 'Statutory Framework for the Early Years Foundation Stage: Setting the Standards for Learning, Development and Care for Children from Birth to Five'
<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1170108/EYFS_framework_from_September_2023.pdf>

Dignath-van Ewijk C and van der Werf G, 'What Teachers Think about Self-Regulated Learning: Investigating Teacher Beliefs and Teacher Behavior of Enhancing Students' Self-Regulation' (2012) 2012 Education Research International

Dowker A, 'Computational Estimation Strategies of Professional Mathematicians' (1992) 23 Journal for Research in Mathematics Education 45

Drews D and Hansen A, Using Resources to Support Mathematical Thinking: Primary and Early Years (Learning Matters 2007)
<<https://oxfordbrookes.idm.oclc.org/login?url=http://www.vlebooks.com/vleweb/product/openreader?id=OxfBrookes&isbn=9781844457960&uid=^u>>

Early Childhood Maths Group, 'Spatial Reasoning'
<<https://earlymaths.org/spatial-reasoning/>>

Early Years Coalition, 'Birth to 5 Matters: Non-Statutory Guidance for the Early Years Foundation Stage' (2021) <<https://birthto5matters.org.uk/>>

Eather J, 'A Maths Dictionary for Kids: Plus Maths Charts'
<<http://www.amathsdictionaryforkids.com/>>

Education Endowment Foundation, 'Improving Mathematics in Key Stages 2 and 3: Eight Recommendations to Improve Outcomes in Maths for 7–14 Year Olds' (2017)
<<https://educationendowmentfoundation.org.uk/education-evidence/guidance-reports/maths-ks-2-3>>

—, 'Improving Mathematics in the Early Years and Key Stage 1: Five Recommendations to Support Practitioners in Developing the Maths Skills of 3–7 Year-Olds' (2020)
<<https://educationendowmentfoundation.org.uk/education-evidence/guidance-reports/early-maths>>

—, 'Improving Mathematics in the Early Years and Key Stage 1: Summary of Recommendations'
<https://d2tic4wvo1iusb.cloudfront.net/production/eef-guidance-reports/early-maths/EEF_Maths_EY_KS1_Summary_of_Recommendations.pdf?v=1701663272>

Evans J, 'Talking about Maths' 30 Education 3-13 66

—, 'Talking about Maths' 30 Education 3-13 66

Faulkner V and Ainslie J, 'Subitising through the Years' (2017) 22 Australian Primary Mathematics Classroom 28

Foster C, 'Teaching Specific Tactics for Problem Solving' (Foster77 Mathematics Education: Colin Foster's mathematics education blog, 30 March 2023)
<<https://blog.foster77.co.uk/2023/03/teaching-specific-strategies-for.html>>

Francis B and others, 'Attainment Grouping as Self-Fulfilling Prophecy? A Mixed Methods Exploration of Self Confidence and Set Level among Year 7 Students' (2017) 86 International Journal of Educational Research 96

Fyfe ER, Rittle-Johnson B and DeCaro MS, 'The Effects of Feedback during Exploratory Mathematics Problem Solving: Prior Knowledge Matters' (2012) 104 Journal of Educational Psychology 1094
<<https://oxfordbrookes.idm.oclc.org/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=pdh&AN=2012-11775-001&site=ehost-live>>

Gelman R and Gallistel CR, 'The Counting Model', The child's understanding of number (Harvard University Press)
<<https://ebookcentral.proquest.com/lib/brookes/reader.action?docID=3300437&ppg=90>>

Gilligan KA, 'The Contribution of Spatial Ability to Mathematics Achievement in Middle Childhood' (2017) 163 Journal of Experimental Child Psychology 107

Gray E, 'Compressing the Counting Process: Strength from the Flexible Interpretation of Symbols', Teaching and Learning Early Number (McGraw-Hill International (UK) Ltd 2008)
<<https://ebookcentral.proquest.com/lib/brookes/reader.action?docID=409780&ppg=101>>

Hansen A, 'Counting and Understanding Number', Primary mathematics: extending knowledge in practice (Learning Matters 2008)
<<https://ebookcentral.proquest.com/lib/brookes/reader.action?docID=686449&ppg=27>>

Haylock D and Manning R, Mathematics Explained for Primary Teachers (5-11) (6th edition, SAGE 2019)

Johnston-Wilder S and Mason J, Developing Thinking in Geometry (Open University in association with Paul Chapman Pub)

Lai MY and Murray S, 'Teaching with Procedural Variation: A Chinese Way of Promoting Deep Understanding of Mathematics' [2012] International Journal for Mathematics Teaching and Learning <<http://www.cimt.org.uk/journal/lai.pdf>>

'Learning and Teaching with Learning Trajectories' <<https://www.learningtrajectories.org/>>

Lee NH and Tan BLJ, 'The Role of Virtual Manipulatives on the CPA Approach' 8 The Electronic Journal of Mathematics and Technology 102
<<https://repository.nie.edu.sg/bitstream/10497/18917/1/TEJMT-8-2-102.pdf>>

Lemov D, *Teach like a Champion 3.0: 63 Techniques That Put Students on the Path to College* (Third edition, Jossey-Bass, a Wiley imprint 2021)

Loewenberg Ball D, 'Magical Hopes: Manipulatives and the Reform of Math Education' (1992) 16 *American Educator: The Professional Journal of the American Federation of Teachers* 14 <<https://www.aft.org/ae/summer1992/ball>>

Mansergh J, 'Using a Counting Stick to Teach the 17x Table' <<https://www.youtube.com/watch?v=yXdHGBfoqfw>>

Mason J, 'Effective Questioning and Responding in the Mathematics Classroom' <<http://mcs.open.ac.uk/jhm3/Selected%20Publications/Effective%20Questioning%20& ;%20Responding.pdf>>

MathsBot.com, 'Tools for Maths Teachers' <<https://mathsbot.com/>>

Montague-Smith A and others, *Mathematics in Early Years Education* (Fourth edition, Routledge 2018)

—, 'Sorting, Matching and Handling Data', *Mathematics in early years education* (Fourth edition, Routledge 2018) <https://oxfordbrookes.idm.oclc.org/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=1602227&site=ehost-live&ebv=EB&ppid=pp_223>

Moyer PS, 'Are We Having Fun Yet? How Teachers Use Manipulatives to Teach Mathematics' (2001) 47 *Educational Studies in Mathematics : An International Journal* 175

Mulligan JT and Mitchelmore MC, 'Young Children's Intuitive Models of Multiplication and Division.' (1997) 28 *Journal for Research in Mathematics Education*

National Centre for Excellence in the Teaching of Mathematics, 'Mathematics Glossary for Teachers in Key Stages 1 to 3' <<https://www.ncetm.org.uk/media/hpihrj3s/national-curriculum-glossary.pdf>>

—, 'What Is Unitising, and Why Is It Important?' (6 November 2019) <<https://www.ncetm.org.uk/features/what-is-unitising-and-why-is-it-important/>>

—, 'Geometry: Properties of Shapes with Reasoning' <https://www.ncetm.org.uk/media/ettef0hw/8_progression_map_geometry_properties_of_shapes_reasoningv2.pdf>

—, 'Progression Maps for Key Stages 1 and 2' <<https://www.ncetm.org.uk/classroom-resources/progression-maps-for-key-stages-1-and-2/>>

National Centre for Excellence in the Teaching of Mathematics (NCETM), 'Statistics' <<https://www.ncetm.org.uk/classroom-resources/cp-year-6-unit-8-statistics/>>

National Council of Teachers of Mathematics, 'Procedural Fluency in Mathematics' (2014) <<https://www.nctm.org/Standards-and-Positions/Position-Statements/Procedural-Fluency-in>>

-Mathematics/>

—, 'Principles to Actions: Ensuring Mathematical Success for All'
<<https://www.nctm.org/PtA/>>

—, 'Strategies for Formative Assessment'
<<https://www.nctm.org/Research-and-Advocacy/Research-Brief-and-Clips/Strategies-for-Formative-Assessment/>>

NCETM, 'Primary Assessment Materials' (2015)
<<https://www.ncetm.org.uk/classroom-resources/assessment-materials-primary/>>

—, 'Measurement'
<<https://www.ncetm.org.uk/media/14iciudq/7-progression-map-measurement.pdf>>

—, 'Measures: Comparing Different Aspects Such as Length, Weight and Volume, as a Preliminary to Using Units to Compare Later'
<<https://www.ncetm.org.uk/classroom-resources/ey-measures/>>

NRICH, 'Statistics' <<https://nrich.maths.org/12638>>

NRICH Primary Team, 'Reasoning: The Journey from Novice to Expert'
<<https://nrich.maths.org/11336>>

Nunes T, 'Development of Maths Capabilities and Confidence in Primary School'
<<https://dera.ioe.ac.uk/id/eprint/11154/>>

Ofsted, 'Subject Report Series: Maths' (2023)
<<https://www.gov.uk/government/publications/subject-report-series-maths>>

Oughton R, 'Developing "Deep Mathematical Thinking" in Geometry with 3- and 4-Year-Olds: A Collaborative Study between Early Years Teachers and University-Based Mathematicians' [2022] *Mathematical Thinking and Learning*

Resourceaholic, 'Topics in Depth Project'
<<https://www.resourceaholic.com/p/topics-in-depth.html>>

Sharifah Osman and others, 'Enhancing Students' Mathematical Problem-Solving Skills through Bar Model Visualisation Technique' *13 International Electronic Journal of Mathematics Education* 273
<<https://www.iejme.com/download/enhancing-students-mathematical-problem-solving-skills-through-bar-model-visualisation-technique-3919.pdf>>

—, 'Enhancing Students' Mathematical Problem-Solving Skills through Bar Model Visualisation Technique' *13 International Electronic Journal of Mathematics Education* 273
<<https://www.iejme.com/download/enhancing-students-mathematical-problem-solving-skills-through-bar-model-visualisation-technique-3919.pdf>>

Siraj-Blatchford I, 'Quality Teaching in the Early Years', *Early childhood education: society and culture* (2nd ed, SAGE 2009) <<https://oxfordbrookes.on.worldcat.org/oclc/794488030>>

Skemp RR, 'Relational Understanding and Instrumental Understanding' (1976) 77
Mathematics Teaching 20
<<http://www.davidtall.com/skemp/pdfs/instrumental-relational.pdf>>

Swan M, 'Dealing with Misconceptions in Mathematics', Issues in mathematics teaching
(RoutledgeFalmer)
<<https://contentstore.cla.co.uk/secure/link?id=fbac7b29-ba57-ee11-830d-0050f2f06092>>

Tabor PD and others, Numeracy for All Learners: Teaching Mathematics to Students with
Special Needs (Corwin 2021)

Thomson J and Moore V, 'Maths Vocabulary (NCETM Maths Podcast, Episode 71)'
<<https://www.ncetm.org.uk/podcasts/maths-vocabulary/>>

Wilkerson T, 'Using Formative Assessment Effectively' (2022)
<<https://www.nctm.org/News-and-Calendar/Messages-from-the-President/Archive/Trena-Wilkerson/Using-Formative-Assessment-Effectively/>>