

This paper summarises the discussions that were held at a roundtable on early years mathematics on 24 February 2016. It also sets out some key resources noted by participants.

1. Introduction to the roundtable

Anne White, ACME's Deputy Chair, explained that along with ACME's role in providing advice, it had a convening role to give the space to individuals and organisations to discuss difficult and contentious issues. She encouraged everyone to speak openly and suggested that this might be the first of a number of conversations.

Sue Gifford, ACME member, set out that ACME's remit was now 3-19 and noted that ACME was keen to understand the policy space in the early years (EY). She summarised the stakeholder engagement that ACME undertook during summer and autumn 2015. Based on this engagement and a workshop on mathematical thinking in the EY at the 2015 ACME conference, a number of issues were observed that it was thought would merit further discussion. Whilst there was consensus on some issues, there were many others where it was noted that a further in-depth discussion would be beneficial. Sue also made the observation that the stakeholder engagement had shown that the EY policy landscape is very diverse and that there are few opportunities for the EY and mathematics education communities to meet.

2. Key priorities in mathematics (session 1) and opportunities for further work (session 2)

Note: During this session both practical advice in terms of useful resources, as well as areas requiring further policy discussion were noted. A summary of the key discussion topics and points raised across sessions 1 and 2 is provided in the table below. Practical advice offered included websites, resources and tools and these are set out in section 4.

Curriculum	Reform of the Early Learning Goals	There were strong views expressed by some participants that the current Early Learning Goals (ELG) were not ideal and should be reviewed. Some set out their belief that expectations are too high and/or the focus of the curriculum is inappropriate (for example numbers to 20). It was clarified that there is no review of the ELG in the pipeline. While some people advocated change, this information was welcomed by others who stated the importance of stability and a period of 'bedding down' across the curriculum.
	'Big Ideas'	Some participants highlighted their belief that there was a need for a document setting out 'Big Ideas' in EY mathematics. They stated their belief that this could provide a foundation for both practitioners and for parents and carers on the development of key ideas of EY learning. They argued that this could facilitate learning progression. This view was not universally supported.
	Greater linkages across the phases	There was an argument made that the aims of the Key Stage 1-4 curriculum (fluency, reasoning and problem solving). could be useful for the EY. Another point was made by some participants that the curriculum changes at Key Stage 1 were having unintended consequences on EY mathematics, as raised expectations were putting pressure on EY practitioners.
The EY workforce, professional development and initial	Diversity of the ITE workforce	As everyone at the roundtable represented different parts of the EY workforce, there was agreement around the real diversity in terms of those with responsibility for EY mathematics. There was recognition that the early years workforce is made up of people with very different levels of confidence and qualifications in mathematics.

teacher education	Professional development needs	Participants expressed a need for upskilling of the EY workforce. Experience of experts in the room was that much of the workforce do not have basic mathematics knowledge and lack confidence and expertise to support children, nor do they fully understand the curriculum and assessment.
	Initial teacher education (ITE) for EY practitioners	It was noted that much of the research and policy work on ITE looks at primary teaching for 5-11 year olds, but does not look at EY ITE. The potential for doing more in this space was highlighted.
	Resources for teaching and learning	Many suggested that individuals within the EY workforce are often unaware of the range of professional development options, supports and resources available.
	Maths Hubs	Some participants proposed using Maths Hubs as a way of supporting the professional development of EY practitioners. Some of the 35 Maths Hubs were noted as having local projects on EY mathematics and were said to be looking for EY expertise.
Mathematical knowledge, attitudes and confidence	Practitioner confidence and pedagogical understanding	Participants discussed the need to think further about ways to improve practitioners' mathematical confidence and pedagogical understanding. Some participants suggested that EY practitioners could be encouraged, for example, to see mathematics in a range of situations and should be given the freedom to see mathematics in play, in cookery and in the outdoors. Some participants stated that predefined schemes can have the effect of 'binding' practitioners but it was suggested that in the absence of experience and expertise, they can be of use to support practitioners. Some proposed the need to reconsider how children appreciate numbers and how number is taught in other countries, such as China. However, others stated a shift such as this would be difficult for some practitioners if they already had little confidence.
	Parents and carers	A number of participants highlighted the need for greater focus on how parents interact with their children and use mathematics in their daily lives. One member suggested that there is scope for looking at how parents share their knowledge with EY practitioners.
	Post-16 mathematics	Participants debated the challenges and opportunities as a result of the recent reforms of GCSE Mathematics. A suggestion was that the new qualification (or alternative qualifications) could potentially improve the mathematical knowledge of parents and carers and of the EY workforce.
Responsibility and accountability	There was consensus that EY mathematics needs to be a priority more widely. Heads, leaders and local authorities need to be able to recognise the importance of early mathematics.	

3. Conclusions and next steps

Given that one of the aims of the meeting was to encourage discussion across the EY and mathematics communities, Anne White explained that it might be useful to look in more depth at some of the priorities identified during the roundtable. Anne suggested that ACME might convene a similar meeting for interested parties to further and deepen the discussion that was held during this roundtable. Anne also set out ACME's hope that some of the other organisations present could then lead future meetings.

4. Resources and potential avenues for communication

The resources highlighted by participants are summarised in the table below. This is only a selected list of resources available in the United Kingdom and should not be seen as comprehensive.

Bristol Early Years Research and Development (BEYRD) website	www.bristolearlyyearsresearch.org.uk/index.asp Provides opportunities and resources for professional learning and innovation with a focus on mastery based on research and specialist hubs.
Children's Mathematics Network website	www.childrens-mathematics.net/ Provides publications and resources on mathematical graphics and mathematical visual representation, with an emphasis on research and pedagogy.
E2BN – Early Years Maths website	http://earlyyearsmaths.e2bn.org/ A resource for promoting problem solving, reasoning and numeracy by understanding how children 3-4 years old explore their mathematical thinking, creatively.
Foundation Years	http://www.foundationyears.org.uk/ The Early Years website and newsletter funded by the Department for Education to inform and communicate with the sector.
'Letterbox Club'	www.letterboxclub.org.uk A postal club for children in foster care and other vulnerable children (currently ages 5-13, piloting ages 3-5), where they receive number games and reading materials.
Maths Champions (NDNA) webpage	http://www.ndna.org.uk/NDNA/Community/Maths_Champions.aspx A resource for embedding maths into play/activities with a view to improve mathematics confidence in children and practitioners. The project involves online audit tools, online support and training for staff and several resources for children.
National Numeracy, Family Maths Toolkit	http://www.familymathstoolkit.org.uk/talking-about-maths A family maths toolkit that provides resources to improve confidence in mathematics and numeracy skills for parents, carers and practitioners.
NCETM Early Years Magazine	https://www.ncetm.org.uk/resources/12691 Online magazines featuring articles with case studies, activity ideas, articles on research and planning and resource investigation.
NCETM Early Years CPD modules	https://www.ncetm.org.uk/resources/31853 Modules assisting in strengthening practitioner knowledge, tools to help with pupil assessment and an online forum for discussion with other practitioners.
NRICH website	www.nrich.maths.org/early-years EYFS resources on mathematics thinking, reasoning and problem solving for practitioners, which includes activities, articles and curriculum mapping.
PACEY book, 'Mathematics in the Early Years'	https://www.pacey.org.uk/shop/books/professional-books/mathematics-in-the-early-years/ Provides resources to incorporate maths in everyday life and enhance parent, carer and practitioner confidence using mathematical language.
Singapore Ministry of Education	www.moe.gov.sg/ Outlines Singapore's education approach and includes videos on parents interacting with children mathematically.
The Sheffield REAL Project website	http://www.real-online.group.shef.ac.uk/index.html Provides novel methods for practitioners and informs policy makers on such new practices and their effectiveness. Based on an Opportunities, Recognition, Interaction, Models (ORIM) framework, the project involves parental collaboration to improve children's ability and assists educational needs of parents to encourage participation and collaboration,

5. Participant list

Name	Organisation
Velda Bartholomew	Pre-School Learning Alliance
Elaine Bennett	Early Education
Alison Borthwick	Joint Association of Teachers of Mathematics (ATM)/ Mathematics Association (MA) primary group
Alison Britton	Department for Education
Janine Davenall	Netley Primary School Camden
Alexandra Fitzsimmons	Maths on Toast
Sue Gifford	ACME member
Rose Griffiths	University of Leicester
Theresa Johnson	Professional Association for Childcare and Early Years (PACEY)
Gill Jones	Ofsted
Jane Jones	Ofsted
Niamh Mc Mahon	ACME Secretariat
Debbie Morgan	National Centre for Excellence in the Teaching of Mathematics (NCETM)
Leah Morris	Richmond Avenue Primary School
John Pearson	NAMA
Sue Robb	4Children
Madeleine Robinson	National Day Nurseries Association
Sue Skyrme	National Numeracy
Helen Wheeler	National Children's Bureau
Anne White	ACME Deputy Chair
Liz Woodham	NRICH
Maulfry Worthington	TACTYC Association for Professional Development in Early Years
Jane Wotherspoon	Ofsted