 EMA subject review – Computing at KS1 & KS2

Building an inclusive curriculum

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| Purpose of study | Implications for BAME and EAL learners |
| A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world. Aims The national curriculum for computing aims to ensure that all pupils:   * can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation * can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems * can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems * are responsible, competent, confident and creative users of information and communication technology. | **Pupils have the requisite language skills**  The aims of the Computing POS present significant language expectations for learners for whom English is not their first language (EAL): “bugs”, “tables and “spreadsheets”.  **Learning is accessible and engaging for BAME and EAL learners:**   * Diversity is reflected in the teaching of Computing and the exemplification of ideas and events. Pupils from culturally diverse backgrounds feel included throughout the learning * The contexts, people and events they study reflect the heritage and diversity of pupils * First language learning and consolidation is encouraged * BAME learners have requisite technology at home and/or access to technology outside school hours. |
| Key stage 1 Subject content | Implications for BAME |
| Pupils should be taught to:   * understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions * create and debug simple programs * use logical reasoning to predict the behaviour of simple programs * use technology purposefully to create, organise, store, manipulate and retrieve digital content * recognise common uses of information technology beyond school * use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. | * Diversity is reflected in the teaching and resourcing of Computing and the exemplification of ideas and concepts. Pupils from culturally diverse backgrounds feel included throughout the learning. * Evidence is available to show how the curriculum reflects the diversity and language needs of BAME learners. * The contexts, people and events they study reflect the heritage and diversity of pupils * First language learning and consolidation is encouraged * BAME learners have requisite technology at home and/or access to technology outside school hours. |
| Key stage 2 Subject content | Implications for BAME |
| Pupils should be taught to:   * design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts * use sequence, selection, and repetition in programs; work with variables and various forms of input and output * use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs * understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration * use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content * select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information * use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | * Pupils learn a great deal of new vocabulary in KS2 Computing which may present sifting challenges for EAL learners trying to discriminate between technical and common language: important vocabulary is identified and consolidated. * Questioning and “reasoning” language may be unfamiliar to EAL learners or learners more familiar with fact-based systems: questioning and reasoning language should be developed and consolidated through consistent modelling. * Diversity is reflected in the selection of topics, teaching, resourcing and the exemplification of ideas and events. Pupils from culturally diverse backgrounds feel included throughout the learning. * First language learning and consolidation is encouraged * First language keyboards are available, and their use taught to EAL learners * Translation apps are available, and their use taught to EAL learners * BAME learners have requisite technology at home and/or access to technology outside school hours. |

Questions to support self-evaluation of inclusion in the Computing curriculum:

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| **How inclusive is the Computing curriculum?** |
| Is the curriculum giving pupils the essential knowledge and skills they need?  (next stage/destinations)   * Do EAL learners have the language tools and vocabulary to access the curriculum? * Do BAME pupils understand that there are no limits to their aspirations? |
| Do pupils know and remember more?   * How does knowledge and recollection compare to non-EAL peers? * Does the knowledge demonstrated by pupils indicate a view that embraces diversity? |
| Is the curriculum cumulative?  (step by step in learning more knowledge)   * Are there any gaps in learning for EAL/BAME pupils? * Do pupils appreciate that computing is multi-ethnic and multi-cultural? Is computing projected as mono-cultural? |
| How well does the subject curriculum fit in with other subjects?   * Are links made to BAME mathematicians, scientists, sports people, artists and musicians? * Are there opportunities for pupils to study in their first/other language? |

**Local resources** and resources that reflect the diversity of the local community and figures in computing:

Bletchley Park: <https://bletchleypark.org.uk/learning/>

Milton Keynes museum: <https://miltonkeynesmuseum.org.uk/sessions/>

African diaspora foundation (Inspirational speakers): <https://www.africandiasporafoundation.org.uk/>

**Computing**

Teaching and learning ICT and computing for EAL learners: <https://www.naldic.org.uk/Resources/NALDIC/Initial%20Teacher%20Education/Documents/EALandICT.pdf>

**General Resources:**

BLACK HISTORY – <https://blackhistorystudies.com/> <https://m.facebook.com/blackhistorystudiesltd/?locale2=en_GB> <https://www.bbc.co.uk/news/newsbeat-52939694> <https://clpe.org.uk/library-and-resources/booklists/black-history-booklist> <https://www.blackhistorymonth.org.uk/>

[**The Institute of Race Relations**](http://www.irr.org.uk/resources/materials-on-racism-for-teachers/) has produced a series of booklets about the history of race in Britain.

[**Our Migration Story**](https://www.ourmigrationstory.org.uk/about.html) tells the untold history of migration to the UK since AD43, celebrating the lives and the contribution of migrants to the development of our society. The resources are in a range of formats and include lesson plans.

[**Black and British – A Forgotten History**](https://www.bbc.co.uk/programmes/p0499smp) (BBC, 2016): Historian David Olusoga explores overlooked Black figures from British history. The website supporting the series offers additional resources. Also, his book: Black and British. A Short Essential History.

BAME education <https://libguides.ioe.ac.uk/BAMEresources>

National Archive – BAME histories <https://www.nationalarchives.gov.uk/education/resources/black-asian-and-minority-ethnic-histories/>

History Association – Migration posters (Subscription required) <https://www.history.org.uk/publications/resource/9829/primary-history-pull-out-posters-85>

History Association – Migration to Britain scheme (Subscription required) <https://www.history.org.uk/publications/resource/9818/migration-to-britain-through-time>

DIVERSITY TEXTS: <https://www.letterboxlibrary.com/> - diversity texts with clpe <https://clpe.org.uk/> CLPE reflecting realities research: <https://clpe.org.uk/RR>

<https://www.theguardian.com/childrens-books-site/2014/oct/13/50-best-culturally-diverse-childrens-books>

Refugees and refugee week: [www.Southbankcentre.co.uk](http://www.Southbankcentre.co.uk) - “Imagine the future you want to see”.

Windrush: <https://www.bl.uk/windrush/further-reading>

Black Lives Matter (BBC): <https://www.bbc.co.uk/sounds/play/p08gyw71>

Anti-racism: <https://youtu.be/OLGrD9cGrWO>

Links to EMA Network Diversity and Inclusion seminar – July 2021:

\* Hannah Wilson – [Vision and values: embedding diversity, equity and inclusion in your school](https://www.youtube.com/watch?v=6iMXQ_zVSTI)

\* Bennie Kara –[Diversifying your curriculum](https://www.youtube.com/watch?v=mg5MquP6-PA)

\* Pauline Lyseight-jones and Liz Agbettoh - [Honest conversations on race and the importance of language](https://www.youtube.com/watch?v=vWv3xwpB-MU)

\* Shammi Rahman - [Addressing difficult conversations](https://www.youtube.com/watch?v=J5OZRgN8SQk)

\* Serdar Ferit – [Lyfta and immersive human stories](https://www.youtube.com/watch?v=J5OZRgN8SQk) (Need to scroll through to reach Lyfta presentation)

Above with Urls:

Hannah Wilson <https://www.youtube.com/watch?v=6iMXQ_zVSTI>

Bennie Kara <https://www.youtube.com/watch?v=mg5MquP6-PA>

Pauline Lyseight-jones <https://www.youtube.com/watch?v=vWv3xwpB-MU>

Shammi Rahman – Difficult converations – first part, Lyfta – Moving Stories – second part: <https://www.youtube.com/watch?v=vWv3xwpB-MU> (Also includes EMA Network resources and MAKE presentation)