**Primary Curriculum Map (Mathematics)**

**Evidence of SEND/ adaptive teaching components**

***Level 4 Undergraduate School Based***

|  |
| --- |
| **University Curriculum – Level 4** |
| **Session Sequence****Include details of creative**  | **Session Content** **Subject Specific Components – pertinent to all sessions*** **Three aims of the mathematics curriculum.**
* **CPA approach**
* **Maths mastery**
* **Declarative knowledge**
* **Procedural knowledge**
* **Mathematical vocabulary**
 | **Learn That****(ITTECF reference in numerics e.g. 1.1)** | **Learn How****(ITTECF reference bullets alphabetically e.g. 1c)** | **Links to Research and Reading** | **Formative Assessment mode** |
| **Seminar 1**Introduction to Mastery2 hours  | * Based on the NCETM Introduction to Mastery ITE materials.
* Introduction to the module, National Numeracy Challenge, Mathnificent 7, useful websites, CPA approach
* What is Mastery? And links to adaptive teaching.
 | 1.3, 1.4, 1.5, 1.6, 1.7, 2.2, 2.4, 3.1, 3.3, 3.5, 3.11, 3.124.2, 4.3, 4.5, 4.7, 4.8, 5.1, 5.2, 5.3, 5.7, 5.8, 5.9, 6.1, 6.3, 6.4 | 1a, 2b, 2e, 3h, 3j, 3k, 5a | DEPARTMENT of EDUCATION. 2013. *The national curriculum in England: key stages 1 and 2 framework document.* Available at: <https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculum>DEPARTMENT of EDUCATION. 2020. *Mathematics guidance: key stages 1 and 2 Non-statutory guidance for the national curriculum in England*. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS_1_and_2.pdf>HAYLOCK, D. and MANNING, R., 2019. *Mathematics Explained for Primary Teachers*. 6th ed. London. Sage.NCETM. *Mastery Materials*. Available at: <https://www.ncetm.org.uk/teaching-for-mastery/mastery-materials/>NCETM. *Progression maps for Key Stages 1 and 2*. Available at: <https://www.ncetm.org.uk/classroom-resources/progression-maps-for-key-stages-1-and-2/>NCETM. Various videos. Available from: <https://www.ncetm.org.uk/>NRICH. Available from <https://nrich.maths.org/>OFSTED. 2021. *Research Review Series: Mathematics.* Available at: <https://www.gov.uk/government/publications/research-review-series-mathematics>OFSTED, 2023. Coordinating Mathematical Success: The Mathematics Subject Report. [Online]. Available from: <https://www.gov.uk/government/publications/subject-report-series-maths/coordinating-mathematical-success-the-mathematics-subject-report>THOMPSON, I. (n.d) The Principle Counting Principles. Available at : <https://prek-math-te.stanford.edu/system/files/media/document/2017/The%20Principal%20Counting%20Principles.pdf> | How confident do you feel about teaching maths in a primary classroom?Confidence audit. (NNC)Key component progress trackerSK reviews related to NNC results |
| **Seminar 2**Counting2 hours | * National Curriculum guidance for counting
* 5 counting principles
* Resources to support the adaptive teaching of counting
* Count every day
* Subitising
* Common errors and misconceptions with counting
* NCETM progression grids for counting
* Links to EYFS learning about counting
 |  1.3, 1.6, 2.2, 2.4, 3.1, 3.3, 3.5, 3.11, 3.12 4.2, 4.3, 4.5, 4.7, 4.8, 5.1, 5.2, 5.3, 5.7, 5.8, 5.9 , 6.1, 6.3, 6.4 |  1a, 2b, 2c, 2e, 2j, 3e, 3f, 3h, 3j, 3k, 5a, 6a, 6b, 6d |
| **Seminar 3**Place Value2 hours | * NCETM progression grids for place value
* Cardinality
* Roman numerals
* Conventions of our place value system
* 5 areas of place value
* Common errors and misconceptions with place value
* Resources to support adaptive teaching of place value
 | 1.3, 1.6, 2.2, 2.4, 3.1, 3.3, 3.5, 3.11, 3.12, 4.2, 4.3, 4.5, 4.7, 4.8, 5.1, 5.2, 5.3, 5.7, 5.8, 5.9, 6.1, 6.3, 6.4 | 1a, 2b, 2c, 2e, 2f, 2g, 2h, 3h, 3j, 3k, 5a |
| **Seminar 4**Mental and Written methods: Addition and Subtraction2 hours  | * Mental calculation in the National Curriculum
* Mathematical Laws
* Models of addition
* Models of subtraction
* Mental calculation strategies
* Resources to support mental calculation skills
* NCETM progression maps for addition and subtraction
* Importance of CPA
* Variation
* Bar modelling
* Informal methods
* Expanded methods
* Formal written methods
* Common errors and misconceptions with addition and subtraction
 | 1.3, 1.6, 2.2, 2.4, 2.7, 2.10, 3.1, 3.3, 3.5, 3.7, 3.11, 3.12, 4.2, 4.3, 4.5, 4.7, 4.8, 5.1, 5.2, 5.3, 5.7, 5.8, 5.9, 6.1, 6.3, 6.4 | 1a, 2b, 2c, 2d. 2e, 2g, 2i, 2j, 2k, 3h, 3j, 3k, 5a |
| **Seminar 5**Mental methods: Multiplication and Division2 hours  | * Reminder of Mental calculation in the National Curriculum
* Reminder of Mathematical Laws
* Mental strategies for multiplication
* Mental strategies for division
* Times Tables expectations
* Experience of MTC
* Arrays
 | 1.3, 1.6, 2.2, 2.4, 2.7, 3.1, 3.3, 3.5, 3.7, 3.11, 3.12, 4.2, 4.3, 4.5, 4.7, 4.8, 5.1, 5.2, 5.3, 5.7, 5.8, 5.9, 6.1, 6.3, 6.4 | 1b,2b, 2c, 2d, 2e, 2g, 2i, 3h, 3j, 3k, 5a |
| **Seminar 6**Writtenmethods: Multiplication2 hours  | * NCETM progression maps for multiplication
* Bar modelling
* Commutative Law in relation to multiplication
* Multiplication as repeated addition
* Grid method
* Expanded methods
* Formal written methods
* Short multiplication
* Long multiplication
* Common errors and misconceptions with multiplication
 | 1.3, 1.6, 2.2, 2.4, 3.1, 3.3, 3.5, 3.11, 3.12, 4.2, 4.3, 4.5, 4.7, 4.8,5.1, 5.2, 5.3, 5.7, 5.8, 5.9, 6.1, 6.3, 6.4 | 1a, 2b, 2c, 2e, 2f, 2g, 2h, 2i, 2k, 3h, 3j, 3k, 5a |
| **Seminar 7**Writtenmethods: Division2 hours  | * NCETM progression maps for division
* Grouping and sharing
* Division as repeated subtraction
* Short division
* Division with remainders
* Division with exchange
* Chunking
* Long division
* Resources to support division calculation skills
* Common errors and misconceptions with division
 | 1.3, 1.6, 2.2, 2.4, 3.1, 3.3, 3.5, 3.11, 3.12, 4.2, 4.3, 4.5, 4.7, 4.8, 5.1, 5.2, 5.3, 5.7, 5.8, 5.9, 6.1, 6.3, 6.4 | 1a, 2b, 2c,2d, 2e, 2g, 2i, 2j, 2k, 3h, 3j, 3k, 5a |

|  |
| --- |
| **School Based Curriculum – Level 4** |
| **Observing:** Observe how expert colleagues use distributed and spaced learning in at least 4 lessons throughout school.Observe how expert practitioners use motivation and build self-esteem of all learners.**Planning:** Plan for opportunities to increase cultural capital.Plan for the effective use of additional adults Discuss with expert practitioners how they embed adaptive approaches into planning.With the support of expert practitioners, capture and incorporate the voice of the child for example through a one-page profile.**Teaching:** Rehearse and refine chunking, scaffolding, and fading in lesson planning over a sequence of lessons. Plan, teach and evaluate a series of lessons incorporating adaptive approaches to enable all children to access a rich curriculum.**Assessment:** Use peer and self-assessment to aid and support independent learning.**Subject Knowledge:** Discuss and analyse with expert practitioners how to implement and review flexible groupings and use groupings to support learning and promote inclusion. |
| **Subject Specific Components/s** **(Use language “to know”, “to understand”, “to be able to”)** | **Learn That****(ITTECF reference in numerics e.g. 1.1)** | **Learn How****(ITTECF reference bullets alphabetically e.g. 1c)** | **Links to Research and Reading** | **Formative Assessment** |
|  *By the end of this phase trainees will* ***know:**** a range of strategies to support pupil understanding of how to calculate successfully, using mental, informal and formal written methods, including the relevant declarative and procedural knowledge associated with number and calculation.

*By the end of this phase trainees will* ***understand:**** a secure knowledge of place value underpins the ability to calculate both mentally and use formal written methods.

*By the end of this phase trainees will* ***be able to:**** plan, teach and assess a high-quality number (counting, place value, calculation) lesson.
 | 1.1, 1.2, 1.3, 1.7, 2.1, 2.2, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 3.3, 3.5, 3.7, 3.11, 3.12, 4.1, 4.2, 4.3 4.7, 6.1, 6.2, 6.3, 6.4. 7.42.2, 2.6, 2.7, 2.8, 2.9, 2.10, 3.2, 3.7, 4.2, 4.3, 6.11.4, 1.5, 1.7, 2.1, 2.5, 2.6, 2.7, 2.8, 2.9, 3.5, 3.11, 3.12, 4.1, 4.2, 4.6, 4.11, 5.5, 5.6, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, | 2b, 2e, 2j, 3f, 3h, 3j, 3k, 4b, 4g, 5k, 6a, 6b, 6d2b, 2f, 3e, 3h, jl, 4b, 4g, 5k 2b, 2f, 2j, 3a, 3b, 3e, 3f, 3g, 3h, 3k, 4f, 4o, 4n, 4p, 5g, 5q, 5p, 6a, 6b, 6d, 6m, 6p | DEPARTMENT of EDUCATION. 2013. *The national curriculum in England: key stages 1 and 2 framework document.* Available at: <https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculum>DEPARTMENT of EDUCATION. 2020. *Mathematics guidance: key stages 1 and 2 Non-statutory guidance for the national curriculum in England*. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS_1_and_2.pdf>HAYLOCK, D. and MANNING, R., 2019. *Mathematics Explained for Primary Teachers*. 6th ed. London. Sage.NCETM. *Mastery Materials*. Available at: <https://www.ncetm.org.uk/teaching-for-mastery/mastery-materials/>NCETM. *Progression maps for Key Stages 1 and 2*. Available at: <https://www.ncetm.org.uk/classroom-resources/progression-maps-for-key-stages-1-and-2/>NCETM. Various videos. Available from: <https://www.ncetm.org.uk/>NRICH. Available from <https://nrich.maths.org/>OFSTED. 2021. *Research Review Series: Mathematics.* Available at: <https://www.gov.uk/government/publications/research-review-series-mathematics>OFSTED, 2023. Coordinating Mathematical Success: The Mathematics Subject Report. [Online]. Available from: <https://www.gov.uk/government/publications/subject-report-series-maths/coordinating-mathematical-success-the-mathematics-subject-report> | Weekly Development Summary Lesson ObservationsLink Tutor  |

***Level 5 Undergraduate School Based***

|  |
| --- |
| **University Curriculum – Level 5** |
| **Overview of Content** |
| **Session Sequence**  | **Session Content** **Subject Specific Components/s**  | **Learn That** **(ITTECF reference in numerics e.g. 1.1)** | **Learn How** **(ITTECF reference bullets alphabetically e.g. 1c)** | **Links to Research and Reading** | **Formative Assessment mode**  |
| **Seminar 1****Variation** |  |  |  | DEPARTMENT of EDUCATION. 2013. The national curriculum in England: key stages 1 and 2 framework document. Available at: https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculumDEPARTMENT of EDUCATION. 2020. Mathematics guidance: key stages 1 and 2 Non-statutory guidance for the national curriculum in England. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/1017683/Maths\_guidance\_KS\_1\_and\_2.pdfOFSTED. 2021. Research Review Series: Mathematics. Available at: <https://www.gov.uk/government/publications/research-review-series-mathematics>OFSTED, 2023. Coordinating Mathematical Success: The Mathematics Subject Report. [Online]. Available from: |  |
| **Seminar 2****Errors & Misconceptions** |  |  |  |
| **Seminar 3****Fractions, Decimals, Percentages** |  |  |  |
| **Seminar 4****Geometry** |  |  |  |
| **Seminar 5****Measure** |  |  |  |
| **Seminar 6****Problem solving** |  |  |  |
| **Seminar 7****Mathematical thinking** |  |  |  |

|  |
| --- |
| **School Based Curriculum – Level 5** |
| **Observing:** Observe how expert colleagues use distributed and spaced learning in at least 4 lessons throughout school.Observe how expert practitioners use motivation and build self-esteem of all learners.**Planning:** Plan for opportunities to increase cultural capital.Plan for the effective use of additional adults Discuss with expert practitioners how they embed adaptive approaches into planning.With the support of expert practitioners, capture and incorporate the voice of the child for example through a one-page profile.**Teaching:** Rehearse and refine chunking, scaffolding, and fading in lesson planning over a sequence of lessons. Plan, teach and evaluate a series of lessons incorporating adaptive approaches to enable all children to access a rich curriculum.**Assessment:** Use peer and self-assessment to aid and support independent learning.**Subject Knowledge:** Discuss and analyse with expert practitioners how to implement and review flexible groupings and use groupings to support learning and promote inclusion. |
| **Subject Specific Components/s** **(Use language “to know”, “to understand”, “to be able to”)** | **Learn That****(ITTECF reference in numerics e.g. 1.1)** | **Learn How****(ITTECF reference bullets alphabetically e.g. 1c)** | **Links to Research and Reading** | **Formative Assessment** |
| *By the end of this phase trainees will* ***know:**** common misconceptions across all areas of the mathematics curriculum.
* the relevant declarative and procedural knowledge associated with extended number, geometry and measure.

*By the end of this phase trainees will* ***understand:**** how to address common misconceptions across all areas of the mathematics curriculum.

*By the end of this phase trainees will* ***be able to:**** plan and teach lessons a series of lessons to avoid misconceptions occurring.
 | 1.7, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.4, 3.5, 3.11, 3.12, 4.2, 7.42,7, 3.41.3, 1.4, 1.5, 1.7, 2.78, 3.4, 3.5, 3.11, 3.12, 4.1, 4.6, 4.9, 4.11, 5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 5.9, 6.1, 6.3, 6.4, 6.5, 6.6, 6.7 | 1c, 4b, 6f1c, 2g, 6e, 6g1c, 2b, 2i, 2j, 3a, 3b, 3d, 3e, 3f, 3g, 4e, 4f, 4l, 4m, 4n, 4o, 4p, 5a,5g, 5h, 5n, 5o, 5p, 5q, 6a, 6b, 6d, 6g, 6m, 6p | DEPARTMENT of EDUCATION. 2013. *The national curriculum in England: key stages 1 and 2 framework document.* Available at: <https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculum>DEPARTMENT of EDUCATION. 2020. *Mathematics guidance: key stages 1 and 2 Non-statutory guidance for the national curriculum in England*. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS_1_and_2.pdf>OFSTED. 2021. *Research Review Series: Mathematics.* Available at: <https://www.gov.uk/government/publications/research-review-series-mathematics>OFSTED, 2023. Coordinating Mathematical Success: The Mathematics Subject Report. [Online]. Available from: <https://www.gov.uk/government/publications/subject-report-series-maths/coordinating-mathematical-success-the-mathematics-subject-report> | Weekly Development Summary Lesson ObservationsLink Tutor  |

***Level 6 Undergraduate School Based***

|  |
| --- |
| **University Curriculum – Level 6** |
| **Overview of Content** |
| **Session Sequence**  | **Session Content** **Subject Specific Components/s**  | **Learn That** **(ITTECF reference in numerics e.g. 1.1)** | **Learn How** **(ITTECF reference bullets alphabetically e.g. 1c)** | **Links to Research and Reading** | **Formative Assessment mode**  |
| **Seminar 1****Representations & Structures** |  |  |  | BOLDEN, D.S., HARRIES, T., NEWTON, D.P., 2010. *Pre-service primary teachers’ conceptions of creativity in mathematics.* Educational studies in mathematics., 73 (2). pp. 143-157.DEPARTMENT of EDUCATION. 2013. *The national curriculum in England: key stages 1 and 2 framework document.* Available at: <https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculum>DEPARTMENT of EDUCATION. 2020. *Mathematics guidance: key stages 1 and 2 Non-statutory guidance for the national curriculum in England*. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1017683/Maths_guidance_KS_1_and_2.pdf>GRIFFITHS, R., BACK, J. and GIFFORD, S., 2017. *Using manipulatives in the foundations of arithmetic* [online]. Available from: <https://www.nuffieldfoundation.org/wp-content/uploads/2019/11/Nuffield20Main20Report20Mar202017web1.pdf>HAYLOCK, D. and MANNING, R., 2019. *Mathematics Explained for Primary Teachers*. 6th ed. London. Sage.HORNIGOLD, J. 2023. *Dyscalculia In Schools: A Guide To Identifying And Supporting Pupils With ‘Maths Dyslexia.* Available at :’ <https://thirdspacelearning.com/blog/dyscalculia/#:~:text=Adopt%20a%20little%20and%20often,having%20to%20remember%20these%20facts>.NCETM. *Mastery Materials*. Available at: <https://www.ncetm.org.uk/teaching-for-mastery/mastery-materials/>NCETM. *Progression maps for Key Stages 1 and 2*. Available at: <https://www.ncetm.org.uk/classroom-resources/progression-maps-for-key-stages-1-and-2/>NCETM. Various videos. Available from: <https://www.ncetm.org.uk/>NRICH. Available from <https://nrich.maths.org/>OFSTED. 2021. *Research Review Series: Mathematics.* Available at: <https://www.gov.uk/government/publications/research-review-series-mathematics>OFSTED, 2023. Coordinating Mathematical Success: The Mathematics Subject Report. [Online]. Available from: <https://www.gov.uk/government/publications/subject-report-series-maths/coordinating-mathematical-success-the-mathematics-subject-report>PRODROMOU, T. and FREDERIKSEN, N., 2018. The Effects of Mathematics Anxiety on Primary Students. 2018. *In Hunter, J., Perger, P., & Darragh, L. (Eds.). Making waves, opening spaces (Proceedings of the 41st annual conference of the Mathematics Education Research Group of Australasia)* pp. 639- 646. Auckland: Merga. Available from: <https://files.eric.ed.gov/fulltext/ED592472.pdf>STEM. Available from https://www.stem.org.uk/resources/community/collection/11448/mathematics-outside-classroom  |  |
| **Seminar 2****Statistics** |  |  |  |
| **Seminar 3****Problem Solving** |  |  |  |
| **Seminar 4****Ratio & Proportion** |  |  |  |
| **Session 5****Coherence** |  |  |  |
| **Session 6****Teaching maths creatively** |  |  |  |
| **Lecture****Current issues in maths education** |  |  |  |

|  |
| --- |
| **School Based Curriculum – Level 6** |
| **Observing:** Observe how expert colleagues identify and implement reasonable adjustments for children with identified Special Educational Needs **Planning:** Work closely with other teachers, SENco and members of the staff team to implement reasonable adjustments within and beyond the classroom.Plan for children who may need adaptations beyond the classroom to support their social inclusion.**Teaching:** Observe and implement reasonable adjustments for children with identified special Educational Needs and Disability **Assessment:** Discuss with expert colleagues’ summative assessment, reporting and how data is used.**Subject Knowledge:** Acknowledge and identify when their own social, emotional and mental health needs to be supported.Identify and access sources of support for their own wellbeing where appropriate. |
| **Subject Specific Components/s** **(Use language “to know”, “to understand”, “to be able to”)** | **Learn That****(ITTECF reference in numerics e.g. 1.1)** | **Learn How****(ITTECF reference bullets alphabetically e.g. 1c)** | **Links to Research and Reading** | **Formative Assessment** |
| *By the end of this phase trainees will* ***know:**** approaches to teaching mathematics creatively.
* strategies to teaching mathematics through a mastery approach

*By the end of this phase trainees will* ***understand:**** how the five different elements to mathematics mastery (NCETM) support learning and progress
* a creative approach to mathematics teaching supports understanding of the relevance of mathematics in the real world, promotes engagement and develops enthusiasm

*By the end of this phase trainees will* ***be able to:***• confidently and effectively plan, teach and assess children’s mathematics skills and understanding through a series of lessons and across the curriculum.  | 1.1, 1.2, 1.7, 3.2, 3.11, 3.12, 3.5, 3.11, 3.12, 6.1, 6.3, 6.41.3, 1.4, 1.5, 1.7, 2.1, 2.5, 2.6, 2.7, 2.8, 2.9, 3.4, 3.5, 3.11, 3.12, 4.1, 4.2, 4.6, 4.9, 4.11, 5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 5.9, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7 | 3f, 4e 1c, 2b, 2e, 2i, 2j, 3a, 3b, 3d, 3e, 3f, 3g, 3k, 4e, 4f, 4l, 4m, 4n, 4o, 4p, 5a, 5f, 5g, 5h, 5n, 5o, 5p, 5q,6a, 6b, 6d, 6g, 6m, 6p | DEPARTMENT of EDUCATION. 2013. The national curriculum in England: key stages 1 and 2 framework document. Available at: https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculumDEPARTMENT of EDUCATION. 2020. Mathematics guidance: key stages 1 and 2 Non-statutory guidance for the national curriculum in England. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/1017683/Maths\_guidance\_KS\_1\_and\_2.pdfOFSTED. 2021. Research Review Series: Mathematics. Available at: <https://www.gov.uk/government/publications/research-review-series-mathematics>OFSTED, 2023. Coordinating Mathematical Success: The Mathematics Subject Report. [Online]. Available from: https://www.gov.uk/government/publications/subject-report-series-maths/coordinating-mathematical-success-the-mathematics-subject-report | Weekly Development Summary Lesson ObservationsLink Tutor  |