| Test | What it measures: | Strengths | Limitations |
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| **Basic Number Screening Test (forms A and B) New edition**<br><br>**Age Range: 6:0 – 12:11.** Could be used qualitatively with older students/adults<br><br>**Type of Test**: Pencil and Paper<br><br>**Admin Time**: Average 20 to 30 minutes<br><br>**Country where developed:** UK<br><br>**Publisher, Date:** Hodder Education 2017<br><br>**Cost:** Around £50 | Untimed test of basic understanding of the number system and number operations.<br><br>Includes object counting, counting on, single and double digit addition and subtraction, visual and written fractions, addition of decimals, recognising number sequences, understanding of place value, single and double digit multiplication and division. 4 page answer form. Instructions for each question are spoken by the assessor.<br><br>Designed to assess National Curriculum from Years 1 to 5.<br><br>Designed to be an 'informal "special needs indicator" . . . helps pinpoint children who are likely to require some degree of learning support. | • Quick and easy to administer<br>• 2 Parallel forms - directly comparable – each contains the same calculation/ question but with different number/pictures used.<br>• Scoring is easy and includes reference to the National Curriculum levels. Identifies level that the individual is operating at within the curriculum (gives a Number age) as well as individual's age standard score.<br>• Untimed test so it gives a measure of accuracy and understanding rather than efficiency.<br>• Test is delivered orally to ensure that numeracy skills are being measured (rather than reading skills). | • Limited number of items which relate directly to sense of number. Greater part of test relates to number fact knowledge and application of the 4 operations. Would need to analyse errors and strategies to identify whether problems relate to understanding or knowledge.<br>• Limited age range standardised – although can use qualitatively with older students/adults |

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| **Dynamo Maths Developmental Dyscalculia Assessment**<br><br>**Age Range: 6:0 – 15:11. The publishers are currently developing a version for adults.**<br><br>**Type of Test**: Computerised Online<br><br>**Admin Time**: Average 15 – 30 minutes<br><br>**Country where developed:** UK<br><br>**Publisher, Date:** Jelly James Publishing Ltd 2016<br><br>**Cost:** Schools- annual subscription and cost per assessment/intervention. Individual Assessors – cost per assessment/ intervention. | Explores accuracy in 14 areas, divided into 3 groups:<br>**Number Meaning**: visually discriminating non-symbolic numbers using approximation; subitising; knowledge and understanding of number symbols; one-to-one correspondence; counting<br>**Number Magnitude**: comparing numbers; approximating; estimating; ordering numbers; sequencing forwards and backwards; following a sequence of pattern<br>**Number Relationship**: knowledge of number concepts; place value; recalling number facts; using the four rules (+, -, ×, ÷), applying these rules to solve problems using mental and written strategies. | • Very easy to administer and interpret<br>• Scoring is done automatically. Provides overall standard score. Each of the 14 areas is rated 1-5 (5 being the expected level for that age). Performance in the 1 to 4 ranges is considered to be indicative of a need for remediation in that skill area.<br>• Generates a visually accessible report with accessible language which links results directly to a targeted programme of intervention.<br>• Focus is on identifying areas of number sense that are underdeveloped – useful tool for differentiating between underlying problems with sense of number, and other maths difficulties<br>• Automatically generates a plan for an online intervention programme | • Scoring is done electronically – no access to norm tables.<br>• Requires access to a computer with microphone, speakers and fast reliable internet.<br>• Not timed – so results will not pick up on inefficient strategies or slow speeds. However, clearly states that it should be used alongside other standardised tests of maths attainment. |

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| **Dyscalculia Screener**<br><br>**Age Range: 6:0 -14:11**<br><br>**Type of Test:**<br>Computerised<br><br>**Admin Time:** 30-35 minutes (shorter for younger age group who do not do multiplication subtest)<br><br>**Country where developed:** UK<br><br>**Publisher, Date: GL** Assessment 2003<br><br>**Cost:** £6.50 for single use; discounts for license/schools/higher quantities | 5 computer-based, item-timed tests; (but not multiplication for younger ages)<br>1: **Simple Reaction Time**: Speed of left-right key pressing in response to instruction; speed of key pressing is then controlled for when calculating response time on other subtests<br><br>'Capacity' Subtests<br>2: **Dot Enumeration**: Do numerals on one side of screen match dot array quantities on other half of screen<br>3: **Numerical Stroop**: Selects greater value of two numerals shown on screen<br><br>'Achievement' Subtests<br>4: **Addition**: Compares sum to an answer and determines whether the answer is correct<br>5: **Multiplication**: same design as the addition test | • Clearly states it is a 'screener' to identify children who are experiencing difficulties that may require further investigation<br>• Provides stanines for each subtest and an overall standard score. Gives print out of scores, graphs, and information for school and parents<br>• Easy to administer. Can be completed by students with limited knowledge of computers – the student only needs to be able to press two keys on the keyboard (one on the left side and one on the right side).<br>• Linked to GL Assessment's Dyscalculia Guidance which offers advice on planning and implementing an intervention strategy. | • Must complete whole test to obtain score; can be tiring which may lead to guessing or randomly pressing keys to move on<br>• Designed to assess 'number sense' ('capacity') but **also** automaticity of number bonds/tables ('achievement').<br>• Score reports are cut-and-dry; when results are sometimes more nuanced.<br>• Score reports not always completely reflective of the scores especially when subtests in one of the areas (capacity or achievement) are discrepant<br>• Wording sometimes overgeneralizes (eg, sample report online ' the scores on the addition test suggest that X is coping with any problems through hard work and good teaching'<br>• Standardisation data not entirely robust. |

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| **Feifer Assessment of Mathematics (FAM)**<br><br>**Age Range: 4:0 – end of 21st year**<br><br>**Type of Test:** Pencil and Paper<br><br>**Admin Time:** Average one hour to administer the full assessment (18 sub-tests).<br><br>**Country where developed:** US<br><br>**Publisher, Date:** PAR Inc 2016<br><br>**Cost:** Around £440 | The following subtests would be relevant to evaluating sense of number<br>• Forward Number Count, and Backward Number Count – orally identify number following/preceding and count forward/backward by various increments.<br>• Sequences – identify missing pictures and numbers from patterns of sequences that get progressively more challenging. Measures ability to count, order and sequence numbers.<br>• Object Counting –count various objects using picture cues and match numerals to their corresponding amounts.<br>• Perceptual Estimation – identify which of two containers has more and estimate the number of items in each picture without counting.<br>• Number Comparison - to work at speed in identifying the larger number from a pair of numbers. Measures estimation skills. | • Robust standardization<br>• The battery includes further subtests which explore arithmetic skills (timed and untimed) in depth.<br>• Appropriate grade-based start points are available to save on administration time.<br>• Administration and Scoring are straight forward. Raw scores are transferred to the front page of the record form. They are converted directly to standard scores (quotients).<br>• Provides standard scores for each subtests. | • No normative data above 21 years old.<br>• Some U.S terminology, (e.g. dollar symbols, 'calculus' and 'freshman') but limited and unlikely to impair UK examinee understanding – may be advisable to request permission from the publisher to adjust some of the terminology when administering to UK examinees.<br>• Length of administration if the whole battery is used. |

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| **KeyMaths3™ UK**<br><br>**Age Range: 6:0-16:11. Could also be used qualitatively with adults to explore sense of number.**<br><br>**Type of Test**: Paper-and-Pencil,<br><br>**Admin Time**: Up to 30 minutes for primary age, up to 90 minutes for secondary.<br><br>**Country where developed:** Developed in US, adapted for UK<br><br>**Publisher, Date:** Pearson, 2013<br><br>**Cost:** Around £460 for complete kit | Begins with a Numeracy subtest which explores sense of number, including: counting, subitising, magnitude comparisons, basic addition, ordering (whole numbers and decimals), knowledge of fractions and %.<br><br>Have to do this test before proceeding to the rest of the battery which explores wide range of maths skills and knowledge including: Algebra; Geometry; Measurement; Data Analysis & Probability; Mental Computation & Estimation; Addition & Subtraction; Multiplication & Division; Foundations of Problem Solving | • Robust standardisation<br>• Clear instructions. Easy to administer and score<br>• Scaled score provided for each subtest<br>• Extensive diagnostic information is also provided for each subtest and the items within it so that an individual intervention programme can be planned<br>• Untimed – focus is on understanding and accuracy, rather than speed.<br>• Instructions are given orally | • Length of time if administering the whole battery, but can administer Numeracy test on its own and select other subtests which are relevant to the individual.<br>• Potential test-retest issues if materials are also used for planning and monitoring interventions |

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| **The Learning Framework in Number (LFIN). Pedagogical Tools for Assessment and Instruction Maths Recovery Interview Schedules**<br><br>**Age Range:** 2:0-10:11. Could also be used qualitatively with adults to explore sense of number<br><br>**Type of Test**: Paper-and-Pencil, Not Standardised<br><br>**Admin Time**: varies - teacher selects tests which are '*broadly appropriate for the [learner's] number knowledge'.* The book suggests that the assessor should stop the assessment after 20 minutes<br><br>**Country where developed:** Australia<br><br>**Publisher, Date:** Sage 2018<br><br>**Cost:** Around £28 | The complete framework explores early sense of number and number knowledge through to the relatively sophisticated arithmetical knowledge expected of a typically developing child at the end of primary school.<br><br>Includes: subitising; counting; ordering; magnitude comparison; number facts knowledge; basic addition, subtraction and multiplication. Single to multiple digits. Whole numbers, fractions, decimals. | • Clear instructions,<br>• Printable materials<br>• Can select appropriate subtests – do not have to administer entire test.<br>• Useful, flexible tool for qualitative exploration of number sense and gaps in number skills and knowledge.<br>• Based on 25 years research and practice<br>• Provides range descriptors for performance in each area of maths development.<br>• Detailed guidance on observation and analysis of performance<br>• Linked to other books in the series which give comprehensive guidance on designing, implementing and monitoring interventions. | • Not standardised – tool for qualitative investigation of skills<br>• Based on Australian curriculum – UK assessor would need to be able to identify any areas in which UK maths curriculum differs.<br>• Possible safeguarding issues– assessor is required to video the assessment then annotate it.<br>• Potential test-retest issues if materials are also used for planning and monitoring interventions. |

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| **More Trouble With Maths: a complete manual to identify and diagnose mathematical difficulties (2nd Edition) (2017)**<br><br>**Age Range:** 15 Minute Maths Test 7-59 years: 4 Basic Facts tests 7-15 years, Maths Anxiety Questionnaire 11 – 16 years. Basic facts tests could also be used qualitatively with adults. Anxiety questionnaire for adults available on Steve Chinn's website.<br><br>**Type of Test:** Paper and pencil Some tests standardised<br><br>**Admin Time:** Varies as assessor can select tests as appropriate<br>**Country where developed:** **UK**<br>**Publisher, Date:** **David Fulton, 2017**<br><br>**Cost:** Around £47 | • A 15 minute test - 44 questions, mostly number and symbol based, with minimal use of words as instructions. Aims to assess procedures rather than fact retrieval.<br><br>• 4 tests of basic single or double digit fact retrieval: 1 minute each of addition and subtraction; 2 minutes each of multiplication and division<br><br>• A set of informal diagnostic activities that facilitate qualitative exploration of Estimation, Subitising, Counting forwards and backwards, Tens and units in coins, Sharing and division, Basic number facts, Number bonds for 10, Place value. Times tables facts, Ordering<br>• A Maths Anxiety Questionnaire | • Extensive range of checklists and tests that can be used flexibly to : explore the nature and causes of an individual's difficulties with mathematics; evaluate an individual's sense of number; and Inform interventions<br>• Provides a wealth of information to help with observation of strategies and behaviours, error analysis and understanding the underlying reasons why errors have been made.<br>• The 15 minute test and the 4 one/two minute tests of basic facts have been standardised on large UK samples<br>• Some, but not all, of the raw scores have been translated into percentiles. The author's intention is clearly not to provide data for comparisons within a profile, but to answer the question, "How big is the problem" (p102), to find out why there are difficulties, and what can be done to address those difficulties | • No validity or reliability statistics have been reported and the tests do not provide standard scores. Percentiles provided for some tests and for raw scores within tests. |

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| **Numeracy Screener**<br><br>**Age Range: 6:0-9:11**<br><br>**Type of Test**: Paper and Pencil with Online Scoring<br>Standardised<br><br>**Admin Time**: 4 minutes total for most age groups (2-minutes for each subtest)<br>8 minutes total for youngest age group<br><br>**Country where developed:**<br>Canada<br><br>**Publisher, Date:**<br>2013<br><br>**Cost:** Free | 2 subtests of 2-minutes each for Grades 1-3 and 4-minutes each for younger age groups)<br><br>Cross out larger of two numbers presented in 56 pairs of<br>• 1-digit numerals (symbolic)<br>• dot-arrays (non-symbolic)<br><br>Alternate Forms – yes, same questions in different order<br><br>Measures efficiency of judging and comparing magnitudes for both symbolic (numerals) and non-symbolic (dot arrays); Pupils specifically instructed NOT to count the dots | • Can obtain percentile rank by inputting raw score<br>• Simple, quick paper-and-pencil screening for two aspects of number sense (symbolic and non-symbolic magnitude comparison) using numerals and dot arrays<br>• Downloadable. Scoring done online | • Small age range: 6-9 yrs only<br>• Cannot view any actual norms tables due to computerised scoring – but this is often the case with screeners<br>• Canadian norms may differ from UK norms as UK curriculum may have more emphasis on speed than Canada. |