

**Trekenner Community Primary School**

**Number Fluency Progression and Policy.**

**Introduction**

The National Curriculum states that children must “Become fluent in the fundamentals of Mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.” At Trekenner, we acknowledge the importance of giving children time to develop their fundamental fluency and confidence within key mathematical processes. This Number Fluency Progression and Policy document outlines the key means through which we will give children opportunities to develop these fundamental skills as well as the progression that each year group should follow.

This policy should be read in conjunction with the Calculation and Mental Calculation Policies.

**Fluency lessons.**

* Each week in Key Stage Two, children will have Five 10 minutes number fluency sessions (in addition to their daily maths lesson), where teachers plan and deliver lessons and activities so children can learn, practice and consolidate the skills as set out in this policy.
* In Key Stage One, these sessions will take place as part of the general maths lesson but a clear focus on the objectives outlined in the policy will be maintained.
* The sessions should be taught in the morning where possible. Teachers should introduce the concepts but LSAs can oversee the class during these sessions to enable Teachers to use this time for rapid intervention following the previous days’ maths lesson or for pre-teaching.
* Children who are not ready for the stage set out in this policy should have additional intervention sessions to ensure they catch up.
* Any recording (especially from the ‘written methods’ sessions) should be done in children’s Maths Jotters. She short date should be recorded but no WALT is needed. Whilst children’s calculations need to be check for accuracy this can be done through self and peer marking, there is no need for teaching staff to formally mark the Maths Jotters, although they should maintain an overview of their content.
* Practice should be varied and make use of concrete, pictorial and abstract representations.
* These sessions should aim to teach not test with high quality opportunities for modelling and discussion of misconceptions.

**Weekly structures/ planning**

* To allow plenty of time for repetition of objectives structure your week so that there is a day on each area:

E.g.

Monday: counting/ number facts.

Tuesday: addition/ subtraction

Wednesday: multiplication/ division.

Thursday: Written methods

Friday: application

* There is no expectation for this to be planned in any particular way nor is there any expectation for fluency lesson planning to be submitted to leadership. Simple oral rehearsal and whiteboard activities/ games are completely appropriate.

**Times tables**

* Teaching of times tables should start as is indicated in this progression document.
* Children should have opportunities to learn times tables in a variety of ways but a large focused should be placed on understanding the key multiplication and division facts associated with each table and the patterns between them.
* In year Three and Four, there will be one dedicated session per week on accessing times table learning online (99 club) to enable children to develop familiarity with the format of the Lower Key Stage Two computerized times table assessment.

**Assessment**

* Times tables will be assessed using a combination of teacher assessment updated on insight half termly and half termly timed multiplication grids. The results of these will be recorded and monitored by the maths leader.
* General fluency will be assessed Half Termly through Head start maths assessments.

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| **MENTAL FLUENCY PROGRESSION** |
| **Reception** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| Count in multiples of 10 | Count in multiples of 5 and 2 and 10 (forward and backward) | count in multiples of 2, 3, 5 and 10 | count multiples of 3, 6, 9, 50 and 100 | count in multiples of 11, 12, 25 and 1000 | count forwards or backwardsin steps of powers of 10 for any given number up to1 000 000 | Consolidation and application.  |
| Recall x facts for 10 x table | recall and use multiplication anddivision facts for the 2, 5, 10 multiplication tables | recall and use multiplication anddivision facts for the 2,5 and 10 times tableBegin to associate known facts to the 4, and 8 multiplication tables.  | recall and use multiplication anddivision facts for the 4, 8, 3, 6 and 9 multiplication tables | recall multiplicationand division facts formultiplication tablesup to 12 × 12 | recall multiplicationand division facts formultiplication tablesup to 12 × 12 and apply these to more complicated numbers e.g. multiples of 25 or multiples of 60.  | Consolidation and application.  |

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|  | **RECEPTION** |
|  | Autumn 1(8 weeks) | Autumn 2(7 weeks) | Spring 1(6 weeks) | Spring 2(6 weeks) | Summer 1(5 weeks) | Summer 2(7 weeks) |
| Counting  | **Counting forwards and backwards to 20** | **Counting beyond 20 (up to 100)** |
| Number bonds | **Understanding numbers 1-20:**See calculation policy EYFS section* Cardinality
* 1:1 correspondance
* Ordinality
* Subitising
 | **1 more, 1 less****Bonds for numbers 1-10**See calculation policy EYFS section* Equality
* Conservation of number
* Concept of 0
* Counting on
 | **Addition and subtraction of 2 single digit numbers** |
| Multiplication and division  |  | **Doubling and halving****Practical sharing** | **Counting in groups of 10 - One group of 10 is…, two groups of ten are… etc’** |
| Recorded methods | **Writing numbers 1-10** **Counting with number lines forward and backwards to 20** | **Writing numbers 1-20****Part/whole models** | **Writing numbers 1-20 (and beyond)****Part/whole models****Ten frames** |

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|  | **Year 1** |
|  | Autumn 1(8 weeks) | Autumn 2(7 weeks) | Spring 1(6 weeks) | Spring 2(6 weeks) | Summer 1(5 weeks) | Summer 2(7 weeks) |
| Counting  | **Counting forwards and backwards up to and beyond 20 (up to 100)** |
| Number bonds | **Number bonds to 10** | **Number bonds to 10****Understanding PV of teens numbers 10+1, 10+2 etc** | **Number bonds to 20** | **Derive and use related facts up to 100** |
| Multiplication and division  | **Counting in groups of 10 - One group of 10 is…, two groups of ten are… etc’** | **Ten times table x and ÷facts** | **Count forwards and backwards in multiples of 5**-recognise relationship to counting in 10sconcrete apparatus-ten frames- bead strings- numicon- jump along a number line | **Five times table x and ÷facts** | **Count forwards and backwards in multiples of 2**-concrete apparatus-ten frames- bead strings- numicon- jump along a number line | **Two times table x and ÷facts** |
| Written methods(refer to calculation policy) | **Addition and subtraction** | **Addition and subtraction problems –** part/whole model | **X and division** |

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|  | **Year 2** |
|  | Autumn 1(8 weeks) | Autumn 2(7 weeks) | Spring 1(6 weeks) | Spring 2(6 weeks) | Summer 1(5 weeks) | Summer 2(7 weeks) |
| Counting  | **Counting forwards and backwards to 100 in different sized steps – 1, 10, 5 and 2** | **Counting forwards and backwards in different sized steps –10, 5, 2 and 3.**  | **Counting forwards and backwards in different sized steps – 4 and 8** |
| Mental + and - | **Revise bonds to 10 and 20** | **Revise bonds to 100** | **Adding three one-digit numbers**- concrete objects, pictorial representations,and mentally* Reordering and looking for complements
 | **Adding/subtracting a two-digit number and ones**- concrete objects, pictorial representations,and mentally* bridging through 10
* numberlines
 | **Adding/subtracting a two-digit number and tens**- concrete objects, pictorial representations,and mentally* 100 square
* numberlines
 | **Adding/subtracting two two-digit numbers** - concrete objects, pictorial representations,and mentally* **Partition and recombine**
	+ For **subtraction, only partition the second number** e.g. 76 – 24 … subtract 4 from 76 = 72, then subtract the 20 = 52
 |
| Multiplication and division  | **Consolidate and revise 2, 5, 10s** Know that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot  | **Count forwards and backwards in multiples of 4**-recognise link to counting in 2s concrete apparatus-ten frames- bead strings- numicon- jump along a number line | **4 times table x and ÷facts** | **Count forwards and backwards in multiples of 8**-recognise link to counting in 4sconcrete apparatus-ten frames- bead strings- numicon- jump along a number line | **8 times table x and ÷facts** |
| Written methods(refer to calculation policy) | **Addition and subtraction** | **Addition and subtraction – bar modelling** | **X and division** | **X and division –bar modelling** | **All four ops** | **All four ops –bar modelling** |

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|  | **Year 3** |
|  | Autumn 1(8 weeks) | Autumn 2(7 weeks) | Spring 1(6 weeks) | Spring 2(6 weeks) | Summer 1(5 weeks) | Summer 2(7 weeks) |
| Counting | **Counting forwards and backwards** in different sized steps **- 10, 5, 2 -** from different starting points **within numbers 0-1000**  | **Count in multiples of 10, 50 and 100** from different starting points **within numbers 0-1000** | **Counting forwards and backwards** in different sized steps **- 4, 8, 3 -** from different starting points **within numbers 0-1000** | **Counting forwards and backwards** in different sized steps **- 6 and 9 -** from different starting points **within numbers 0-1000** |
| Mental + and - | **Revise bonds to 10, 20 and 100** **Round and compensate:**How to add/ subtract 9 or a two digit number ending in a 9. | **Add and subtract****numbers mentally,****including:****\* a three-digit number****and ones****\* a three-digit number****and tens****\* a three-digit number****and hundreds**  | **Revise and consolidate mental + and subtraction with 1, 2 and 3-digit numbers using the strategies**:* Reordering (finding complements)
* Round and compensate
* Partition and recombine (on partition the second number in a subtraction e.g. 76 – 24…Subtraction 4 from 76 = 72, then subtract the 20 = 52)
 | **Application of mental strategies to different concepts (e.g. money and measures) within numbers 0-1000:*** Reordering (finding complements)
* Round and compensate
* Partition and recombine (on partition the second number in a subtraction e.g. 76 – 24…Subtraction 4 from 76 = 72, then subtract the 20 = 52)
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| Multiplication and division  | **Consolidate and revise 10s, 5s, 2s, 4s and 8s**  | **Count forwards and backwards in multiples of 3**-concrete apparatus-ten frames- bead strings- numicon- jump along a number line | **3 times table x and ÷facts****Count forwards and backwards in multiples of 6**-recognise link to counting in 3sconcrete apparatus-ten frames- bead strings- numicon- jump along a number line | **Count forwards and backwards in multiples of 6**-recognise link to counting in 3sconcrete apparatus-ten frames- bead strings- numicon- jump along a number line**6 times table x and ÷facts** | **6 times table x and ÷facts****Count forwards and backwards in multiples of 9**-recognise link to counting in 3sconcrete apparatus-ten frames- bead strings- numicon- jump along a number line | **9 times table x and ÷facts** |
| Written methods(refer to calculation policy) | **Addition and subtraction** | **Addition and subtraction problems – bar modelling** | **X and division** | **X and division problems –bar modelling** | **All four ops** | **All four ops problems –bar modelling** |

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|  | **Year 4** |
|  | Autumn 1(8 weeks) | Autumn 2(7 weeks) | Spring 1(6 weeks) | Spring 2(6 weeks) | Summer 1(5 weeks) | Summer 2(7 weeks) |
| Counting | **Counting forwards and backwards** in multiples of **1000** from different starting points **within numbers 0-10,000** | **Counting forwards and backwards** in multiples of **25** from different starting points **within numbers 0-10,000** | **Counting forwards and backwards** in different sized steps – **7 and 11** - from different starting points **within numbers 0-10,000** | **Counting forwards and backwards in tenths and hundredths** from different starting points | **Revise all counting**  |
| Mental + and - | **Revise bonds to 10, 20 and 100** | **Revise strategies** **(with numbers up to 5 digits):*** **Partition and recombine**
* **Reordering (finding complements)**
* **Place value addition and subtraction**
* **Round and compensate**
 | **Model and teach (with numbers up to 5 digits):*** **Rebalancing - Equal sum and equal difference**
 | **Revise all strategies in different contexts (with numbers up to 5 digits):*** **Partition and recombine**
* **Reordering (finding complements)**
* **Place value addition and subtraction**
* **Round and compensate**
* **Rebalancing - Equal sum/difference**
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| Multiplication and division  | **Consolidate and revise 10s, 5s, 2s, 4s, 8s, 3s, 6s, 9s** Recognise and understand the effect of **multiplying and dividing by 0 and 1** | **Count forwards and backwards in multiples of 7**-concrete apparatus-ten frames- bead strings- numicon- jump along a number line**7 times table x and ÷facts** | **Count forwards and backwards in multiples of 11**-concrete apparatus-ten frames- bead strings- numicon- jump along a number line**11 times table x and ÷facts** | **Count forwards and backwards in multiples of 12**-concrete apparatus-ten frames- bead strings- numicon- jump along a number line**12 times table x and ÷facts** | **Consolidate and revise all tables****X and divide one and 2 digit numbers by 10 and 100** | **Consolidate and revise all tables****X three numbers together** |
| Written methods(refer to calculation policy) | **Addition and subtraction** | **Addition and subtraction problems – bar modelling** | **X and division** | **X and division problems –bar modelling** | **All four ops** | **All four ops problems –bar modelling** |

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|  | **Year 5** |
|  | Autumn 1(8 weeks) | Autumn 2(7 weeks) | Spring 1(6 weeks) | Spring 2(6 weeks) | Summer 1(5 weeks) | Summer 2(7 weeks) |
| Counting | **Count forwards and backwards in steps of 10, 100, 1000, 10000** from different starting points (up to 1,000,000) | **Count forwards and backwards** in different sized steps **crossing 0** | **Count forwards and backwards in fractions** from different starting points | **Counting forwards and backwards in decimals** from different starting points |
| Mental + and - | **Model and teach all strategies (with numbers up to 6 digits):*** **Partition and recombine**
* **Reordering**
* **Place value addition and subtraction (finding complements)**
* **Round and compensate**

**Rebalancing - Equal sum/difference** | **Practice and explore all strategies in different contexts, identifying the most efficient strategy for the calculation (with numbers up to 6 digits):*** **Partition and recombine**
* **Reordering**
* **Place value addition and subtraction (finding complements)**
* **Round and compensate**
* **Rebalancing - Equal sum/difference**
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| Multiplication and division  | **Revise x tables****Factors and multiples** | **Revise x tables****Multiply and divide by powers of 10 inc. decimals** | **Revise x tables****Prime, composite, squared and cubed numbers** | **Revise x tables****Derive unknown facts from those they know** e.g. 6 x 0.8 if they know 6 x 8 | **Mixed revision** – * X tables
* factors and multiples
* x and div by powers of 10
* x fractions by whole numbers
* deriving related facts
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| Written methods | **Addition and subtraction** | **Addition and subtraction problems – bar modelling** | **X and division** | **X and division problems –bar modelling** | **All four ops** | **All four ops problems –bar modelling** |

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|  | **Year 6** |
|  | Autumn 1(8 weeks) | Autumn 2(7 weeks) | Spring 1(6 weeks) | Spring 2(6 weeks) | Summer 1(5 weeks) | Summer 2(7 weeks) |
| Mental + and - | **Revise all strategies in different contexts with emphasis on children identifying which strategy is the most efficient:*** **Partition and recombine**
* **Reordering**
* **Place value addition and subtraction (finding complements)**
* **Round and compensate**
* **Rebalancing - Equal sum/difference**
 | **BODMAS** | **+ and - fractions** | **Revision** | **Revision** |
| Multiplication and division  | **Revise x tables****Factors and multiples – common factors, common multiples** | **Revise x tables****X by powers of 10** | **Revise x tables****BODMAS** | **Revise x tables****X and div fractions** |
| Written methods(refer to calculation policy) | **Addition and subtraction inc. bar modelling** | **X and division inc. bar modelling** | **All four ops inc. bar modelling** | **All four ops inc. bar modelling** |