

Hopton Primary School Maths Policy

September 2021

Our vision

At Hopton Primary School, we view mathematics as essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. With this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them for life.

Intent

Our intent is to provide children with a mathematics curriculum that will allow them to become confident individuals through developing their mathematical skills to their full potential with an understanding that maths is accessible to all. We promote positive 'can do' attitudes and we promote the fact that 'Maths is a whole life skill for every one of us.'

We aim to present maths as a challenging, exciting, creative and relevant subject through a mastery approach in order to promote a positive and confident attitude. At our school, the majority of children will be taught the content from their year group only in small accessible steps. They will spend time becoming true masters of content, applying and being creative with new knowledge in multiple ways.

In line with the National Curriculum (2014), our overall intent focuses on all pupils being able to:

- Use and understand a wide range of appropriate mathematical language and stem sentences to discuss, explain, justify and represent their mathematical thinking and reasoning.
- Explore and deepen their mathematical understanding of new mathematical concepts using a 'concrete, pictorial and abstract' (CPA) approach; enabling all children to experience hands-on learning when discovering new mathematical topics, and allowing them to have clear models and images to aid their understanding.
- See mistakes and misconceptions as an essential part of learning that help craft our understanding and provide challenge through rich and sophisticated problems.
- Develop a strong number sense and fluency 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 using both mental and written methods.
- Move fluently between a wide and diverse range of representations of mathematical ideas including learning opportunities in subjects such as science, computing and topic
- Access challenges of rich and sophisticated problems when they grasp fluency concepts rapidly rather than progressing to new content.
- Consolidate learning and concepts through repetition and intervention to acquire sound foundations for fluency of mathematics

EYFS Intent in Mathematics

This area focuses on learning through practical activities to develop a sense of number and numerical patterns. Whilst the development matters guidance makes reference to shape, space and measures, it is no longer an Early Learning Goal (ELG), at Hopton we feel that this area of mathematical development is important throughout the EYFS to develop an holistic understanding of mathematics.

'Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationship between them and the patterns within those numbers.'

Development Matters DFE 2021.

Our objectives for Mathematics in the Foundation Stage are to:

- Encourage children to participate and discuss mathematical activities using mathematical terms;
- Approach number activities with enthusiasm and confidence;
- Enable children to initiate activities within a carefully planned environment that promotes and extends mathematical thinking;
- Help children to see themselves as mathematicians;
- Encourage mathematical development through careful intervention during play, e.g. I wonder if we have enough plates? How many pairs of socks can you find?
- Maintain enthusiasm and confidence when the recording of mathematics begins, valuing children's own methods of graphic and practical explorations;
- Plan a range of meaningful mathematical opportunities and provide a variety of resources to discover new words, ideas and concepts;
- Make good use of opportunities to talk 'mathematically' during play and group times, supporting bilingual children by valuing knowledge of problem solving, reasoning and numeracy in the language/communication system used at home;
- Develop children's thinking by showing an interest in methods;
- Encourage children to problem solve exploring number, counting and calculating;
- Consolidate and extend learning through fun games, stories, number rhymes, songs and imaginative play;
- Allow time for children to revisit, repeat and practise mathematical skills and knowledge;
- Ensure that mathematical resources are readily available both indoors and outside;
- Exploit the mathematical potential of outdoors, enabling children to discover things about shape, distance and measures through physical activity.

Implementation

EYFS

Mathematics is one of the seven inter-connected areas of learning and development. The guidance states:

“Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, ‘have a go’, talk to adults and peers about what they notice and not be afraid to make mistakes. “

This is divided into:

ELG: Number

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG: Numerical Patterns

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Maths teaching in the early years covers a range of opportunities that are provided through adult led activities and child initiated tasks. Adults will model the use of maths to support problem solving in everyday contexts, as well as extending understanding of mathematical concepts through play. For example, how many cups do we need if everyone has 2 drinks? What number do I need to roll on the die to reach the next ladder?

Throughout the foundation stage children develop their mathematical vocabulary through singing number rhymes, counting and talking about number, pattern, shapes and measures in whole group maths time.

Encouraging children to investigate how a group of objects can be split in different ways enables children to later visualise the value of a number digit. Children are exposed to a variety of resources that enable them to represent their mathematical thinking, such as counters, pebbles and number tiles. At appropriate times, staff model using marks and then numerals to represent numbers, and to embed the understanding that a number represents an amount. Lots of practical experiences of counting, grouping, combining and taking away from a group eventually leads to the introduction of words and symbols to discuss and record calculations. These concrete experiences of manipulating objects whilst exploring children's mathematical thinking through discussion is key to children being able to visualise amounts, sequence numbers, count on and back mentally and explain their methods as they progress through school.

KS1 and KS2

Our whole curriculum is shaped by our school vision which aims to enable all children, regardless of background, ability, additional needs, to flourish to become the very best version of themselves they can possibly be. We teach the National Curriculum, supported by a clear skills and knowledge progression that is guided by NCETM spines and White Rose blocks in our long term plans. This ensures that skills and knowledge are systematically built on year by year and carefully sequenced appropriately to maximise learning for all children. In years 2 and 6, the learning is based on a hybrid spiral curriculum to draw connections across different ways of looking at mathematical ideas and so there are sufficient opportunities planned to revisit previously learned knowledge, concepts and procedures.

In all year groups daily fluency activities are practised to ensure that, once learned, mathematical knowledge becomes deeply embedded in pupils' memories. This then allows rapid and accurate recall and frees pupils' attention so they can work with increasing independence, apply their mathematical knowledge to more complex concepts and procedures, and gain enjoyment through a growing self-confidence in their ability

Daily lessons

In daily lessons, teachers use the most appropriate materials for their children using a range of materials divided into manageable steps lesson by lesson including White Rose, NCETM and their own activities and worksheets. Although the long term blocks of the White Rose Scheme is followed, there is flexibility in the curriculum planning so that the school can address any identified gaps in the children's mathematical knowledge that may hinder their capacity to learn and apply new content, and one particular scheme's daily materials may not always be the most appropriate or effective for the children. Allowing teachers to use their own judgement allows for a targeted approach for their unique cohort. For deeper understanding of the NC objectives, mastery materials used include NCETM materials, White Rose, Deep Diving Maths materials from Twinkl, and Classroom Secrets. Again, teachers also design and produce their own mastery materials and create booklets from sources such as Testbase.

In order to allow pupils to understand and remember the mathematical knowledge, concepts and procedures maths fluency is promoted in daily 15 minute number sense and arithmetic activities in years 1 – 6. These are mainly delivered at the start of the daily maths session. To embed learning, children do number of the day once a week, times tables practice twice a week and arithmetic (mental or written) calculations twice a week.

An example timetable is below:

	Monday	Tuesday	Wednesday	Thursday	Friday
Y1	Fluent in 5	Counting in 2, 10s	Fluent in 5	Counting in 2, 10s	Number of the week
Y2	Fluent in 5	X 5, x 10	Fluent in 5	X 2	Number of the week
Y3	Fluent in 5	X 3, x 4	Fluent in 5	X 8	Number of the week
Y4	Fluent in 5	X 9, x 11	Fluent in 5	X 12	Number of the week
Y5	Fluent in 5	All times tables & division facts	Fluent in 5	X 12	Number of the week
Y6	Fluent in 5	All times tables & division facts	Fluent in 5	X 12	Number of the week

Daily maths lessons are approximately 1 hour with children organised in mixed ability or small differentiated groups. In year 6 children are taught in fluid sets to allow for maximum opportunities for learning at both greater depth and to support all children in working towards or meeting the expected standard. Teachers use a concrete, pictorial and abstract approach in all year groups to represent mathematical concepts and guide children through their understanding of mathematical processes. Misconceptions and mistakes are seen as positive learning opportunities and discussed openly in a supportive environment. Children are encouraged to use stem sentences to help structure their reasoning. Support is determined during each lesson to ensure secure understanding based on the needs of the child. Challenge is visible throughout the whole session, where children are asked to reason and prove their understanding at a deeper secure level. Revise and review consolidation lessons are used to revisit previous learning and ensure maths skills are embedded. Where possible, links are made with other subjects across the curriculum.

In years 1 – 5 teachers deliver one curriculum for all, in small manageable steps, providing opportunities to stay together and to work through new content as a whole group. Teachers teach the whole class, allow pupils time to practise and bring the class back together to move on. Differentiated learning is provided through a selection of tasks to consolidate fluency, use skills to solve problems or use skills and reasoning skills to solve higher-level challenge problems. Teachers use their professional judgement to determine the activities, timing and organisation in each lesson in order to suit the teaching objectives and ensure children understand each small step.

In year 6 the children are set according to ability. This allows teachers to provide focused support in key areas for children who may take longer to grasp concepts and provides further challenge opportunities for those children working at greater depth. The groups are frequently monitored and children are able and do switch between groups according to need.

During lessons, we encourage children to self-mark, using purple pen. After activities, the whole class discuss answers, strategies and mistakes. This provides children with immediate feedback and time to reflect on their learning. Mistakes are discussed and correction time given as part of a lesson. Children respond well to this and learn well from their mistakes. We see assessment as an integral part of the teaching process and strive to make our assessment

purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring confidence and progress.

Intervention

Those pupils behind age-related expectations are provided with the opportunities to learn the mathematical knowledge and skills necessary to catch up with their peers through a number of different approaches. Gaps in learning at the start of each block are established using Ready-to-Progress pre- assessments and intervention for those requiring it is managed by teachers or TAs in small groups or whole class where necessary. Progress of children on interventions are assessed by comparing pre and post assessments. Ready to progress objectives are identified and prioritised in our long term plan.

Teachers are encouraged to perform live marking during every session to identify early intervention opportunities for children falling behind in daily lessons. Children are also encouraged to use peer and self-marking in lessons to identify misconceptions. Additional support is provided by pre-teaching, one to one or small group interventions by either the teacher or a TA.

Impact

Our successful approach to the teaching and learning of maths, results in a fun and engaging curriculum that embeds understanding and knowledge through hands on, practical activities. As a result children see the relevance and accessibility of maths as a subject and enjoy the challenges. Introductions to concepts using concrete materials and practical activities supports learning through memorable activities and 'games' which children can recall at a later date, relating the learning to new situations. Our approach of live teacher, peer and self-marking within lessons supports children in recognising their strengths and areas for development. Children are encouraged to share their misconceptions and misunderstandings and become adept in using appropriate vocabulary and stem sentences in doing so. The inclusion of open dialogue to discuss and explain mathematical thinking also strengthens the use and understanding of mathematical language along with ensuring children can explain, justify and evidence their thinking. Connecting maths across the curriculum highlights how maths relates to life. We use and highlight our use of maths in science investigations, collecting, recording and presenting data and use of empirical evidence in topic. Computing also highlights the real use of maths with statistics and data collection and analysis while measuring and position and direction are essential skills to programming.

Measuring our impact - assessment, recording and reporting.

Assessment takes place at three connected levels: short-term, medium-term and long-term. These assessments are used to inform teaching in a continuous cycle of planning, teaching and assessment.

Day-to-day assessments

As part of the ongoing teaching and learning process, teachers will assess children's understanding, achievement and progress in mathematics. Assessment may be based upon observation, questioning, informal testing and the live marking and evaluation of work. This will inform day to day teaching and learning and provide feedback to children. Learners will also be taught to assess and evaluate their own achievements by recognising successes, learning from their own mistakes and identifying areas for improvement.

Half-termly assessments.

Maths assessments are completed every half term to assess pupil's success at a teaching block using White Rose Assessments. The results are recorded in the maths Excel file. From this teachers identify the targets needed to progress further. Staff use these assessments alongside their individual ongoing teacher assessments. White Rose do not specify any thresholds for ARE and GD in these assessments as they help identify any gaps in learning but we work to a good indication of meeting Age Related Expectations and Greater Depth as 55% and 85% respectively.

Maths Test Assessment Schedule Y1-6 In addition to teacher assessments of NC learning objectives throughout the year.		
Autumn HT1 September Y1 will listen to the children count – get a baseline. (Series of mental arithmetic tests) Y2-6 Ready to progress assessments for intervention Planning - identify intervention children. End HT1 – White Rose Summative Assessments (to assess success and to inform future planning)	Spring HT3 Ready to progress assessments for intervention children to review progress. End HT3 – White Rose Summative Assessments (to assess success and to inform future planning)	Summer HT5 Ready to progress assessments for intervention children to review progress. End HT5 – White Rose Summative Assessments (to assess success and to inform future planning)
Autumn HT2 Dec – PUMA Autumn -progression	Spring HT4 April – PUMA Spring - progression	Summer HT6 June – PUMA – Summer for end of year progress

Termly age standardised score assessments

Pupils will be assessed each term using a standardised test (PUMA) produced by Hodder to give summative information. A child's raw score in the test and their chronological age are measured and used to produce a maths age standardised score. Scores are calibrated to allow teachers to see small increments of progress from term to term and to compare progress against national norms. The Department for Education wishes schools to be able to show the progress children make between Baseline and Key Stage 1 (and Key Stage 2). PUMA can be used to report these stages. The outcomes of medium term assessments will be recorded on the school assessment system.

Times-tables

Staff are to complete at least one times table assessment once a week (focusing on a particular times table)

Year 1 – Counting in 10 s, counting in 2's

Year 2 – x 10 x 5 x2 commutative and inverse

Year 3 – x4, x 8, x 3

Year 4 – x 6, x 9, x 7, x 11, x 12
 leading to all tables (6 seconds a question)

Year 5 – All tables (6 seconds a question) and know prime numbers up to 19 and how to identify a prime number up to 100 using division rules and factors of numbers up to 50

Year 6 – All tables (6 seconds a question) and know prime numbers up to 100 and factors of numbers up to 100

In Y2-Y6 staff use the booklets in the Maths folder – Times Tables on the Staff Drive.

Each times table is out of 40. When running the challenge aim for giving the children 6 seconds for each question (this is the timing in the MTC national assessment in Y4)

Organisation and progression of times tables booklets

The booklets should be worked through in the following order, to match the order suggested in the National Curriculum Guidance (July 2020)

Booklet A: 10 times table	Booklet F: 3 times table
Booklet B: 5 times table	Booklet G: 6 times table
Booklet C: 2 times table	Booklet H: 9 times table
Booklet D: 4 times table	Booklet I: 7 times table
Booklet E: 8 times table	Booklet J: 11 times table
	Booklet K: 12 times table

Within each booklet there are 22 tests, ordered as follows:

Tests 1 – 4: First half of the new times table

Tests 5 – 8: Second half of the new times table

Tests 9 – 12: All the new times table

Tests 13 – 22: The new times table combined with previously learnt times tables.

There are two exceptions to this, the 10 times and 11 times table booklets. As these are quicker for children to learn, all the facts are introduced at once rather than split into 'first half' and 'second half' of the times table.

It is important that children work through the booklets in the order provided in the table above, otherwise the children will meet facts in tests 13 – 22 that they have not yet learnt.

The National Curriculum Guidance explains that the facts it is essential to master in Year 4 to be ready to progress to Year 5 are the facts up to 9×9 , as these facts are the ones that occur as within column calculations in formal written methods. Therefore, Booklets B – I include facts with multipliers of 2 – 9 only.

Times tables facts with a factor of 11 and 12 are only introduced in the final 2 booklets, so that most of the time can be spent learning the most essential facts. However, you should aim to complete all the booklets so that secure in all times tables facts prior to the Year 4 check.

Facts with a multiplier of 0 and 1 are not included, as these do not need to be learnt in the same way as other facts.

The 10 times table is of course also essential for progression, and this is learnt in booklet A, and then included in tests 13 – 22 in each of the subsequent booklets.

About 20% of the facts are expressed as division facts, to give children practice deriving division facts from learnt multiplication facts.

Assessment

In Y2-6

To track times tables progress in Excel staff must input data regularly but at least at the end of each half term or as they near/finish the end of the booklet.

Staff need to fill out the assessment columns as follows

0 – some experience but very weak

1 – able to achieve 20 out of 40 in the times tables booklet for that table.

2 - able to achieve 32 out of 40 (80%) all multiplication facts correct

3 – able to achieve 38 out of 40 (95%) multiplication and division facts for that times tables.

In Y5 and Y6 an additional column is needed to record progress in knowing the prime numbers up to 50 (Y5) and 100 (Y6) the same recoding rules apply as these tests are out of 40 too.

Transitional and baseline assessments

These will be carried out at the start of the school year and in January to assess and review pupils' progress and attainment. This enables attainment to be tracked year on year and will inform groupings and intervention programmes.

Statutory Assessment (SATs)

These are made through compulsory National Curriculum mathematics tests for pupils in Year 2 and Year 6. In Year 2, teacher's form assessments drawn upon their class records of attainment in external materials and supplementary notes and knowledge about their class to produce a summative record. Accurate information is then reported to the local authority, parents and to the child's next teacher/school. In Year 6 the children sit statutory tests in arithmetic and reasoning which are marked externally and standardised scores published.

Multiplication Tables Check (MTC)

Children in Y4 sit the MTC – a national test – in a 3 week window in June. The purpose of the MTC is to determine whether pupils can recall their times tables fluently, which is essential for future success in mathematics. It will help to identify pupils who have not yet mastered their times tables, so that additional support can be provided.

Equal Opportunities and Inclusion

All children have access to our mathematics curriculum regardless of their age, gender, ethnicity, attainment or background. Hopton is an inclusive school and we are mindful of children's abilities and physical limitations. As highlighted in our inclusion policy, we work hard to eliminate gender bias and cater for the interest of all children without pre-conceived ideas about expectations of different sexes, ethnic groups, religions or background. The National

Curriculum is our starting point for planning a curriculum that meets the specific needs of individuals and groups of children. We do this through:

- setting suitable learning challenges;
- responding to children's diverse learning needs;
- overcoming potential barriers to learning and assessment for individuals and groups of pupils;
- providing other curricular opportunities outside the National Curriculum to meet the needs of individuals or groups of children, The school's equal opportunities policy applies to the teaching of mathematics as to all other subjects.

SEND

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, pupils' IPs incorporate suitable objectives from the National Curriculum for Mathematics and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Mathematics focused intervention in schools helps pupils with gaps in their learning and mathematical understanding. Children with SEN related to numeracy have access to Dynamo as part of their Individual Plans. (IPs) These are individualised learning programs that the children can work through both in school and at home. Each program is geared to meet the needs of the individual child and allows the child to work through areas with gaps at their own pace. In addition small group intervention work is often delivered by trained support staff and overseen by the SENCO and/or the class teacher.

Within the daily mathematics lesson, teachers have a responsibility to not only provide differentiated activities to support pupils with SEND but also activities that provide sufficient challenge for pupils who are high achievers. It is the teachers' responsibility to ensure that all pupils are challenged at a level appropriate to their ability.

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all pupils, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. This policy is in line with the school's 'Racial Equality' policy.

The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all pupils including those for whom English is an Additional Language (EAL).

Differentiated questions are used in lessons to help pupils and planned support from teaching assistants and other adults.

Role of the Mathematics Subject Leader

- To lead in the development of mathematics throughout the school
- To monitor the planning, teaching and learning of mathematics throughout the school

- To help raise standards in mathematics
- To provide teachers with support in the teaching of mathematics
- To provide staff with CPD opportunities in relation to mathematics within the confines of the budget and the School Improvement Plan
- To monitor and maintain high quality resources
- To keep up to date with new developments in the area of mathematics

Governors and Headteacher

The policy will be reviewed every 2 years by the governors in charge of maths and the headteacher

Governor approval date: _____

Next review date: _____

HT1	HT2	HT3	HT4	HT5	HT6

I Number and Place Value																									
	Objective	P Level (below year group level)	Working Towards	Expected	Greater Depth																				
I.I	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	<p>Count to 20 in 1s, forward and backwards, beginning with 0 or 1, or from any given number.</p> <p>Identify / find given numbers to 20 on a number line – independently</p> <p>Finish off the sequence (numbers up to 20 – forwards and backwards) E.g.: 3, 4, 5 __, __ 13, 12, 11, __, __</p> <p>Identify which number is the biggest / smallest from a set of numbers (numbers up to 20) E.g.: <table border="1" data-bbox="577 979 801 1018"> <tr> <td>17</td> <td>19</td> <td>14</td> </tr> </table> <table border="1" data-bbox="577 1050 801 1088"> <tr> <td>10</td> <td>5</td> <td>15</td> </tr> </table> </p>	17	19	14	10	5	15	<p>Count to 50 in 1s, forward and backwards, beginning with 0 or 1, or from any given number.</p> <p>Add / subtract ten from any number, forward or backward to/from 50 using a 100 square</p> <p>Finish off the sequence (numbers up to 50 – forwards and backwards) E.g.: 15, 16, 17 __, __ 37, 36, 35, __, __</p> <p>Rearrange with the smallest or largest first (numbers up to 50) E.g.: <table border="1" data-bbox="981 948 1205 986"> <tr> <td>17</td> <td>23</td> <td>14</td> </tr> </table> <table border="1" data-bbox="981 1018 1205 1056"> <tr> <td>49</td> <td>33</td> <td>26</td> </tr> </table> </p>	17	23	14	49	33	26	<p>Count to 100 in 1s, forward and backwards, beginning with 0 or 1, or from any given number.</p> <p>Count in tens from any number, forward or backward to/from 100 using the 'cheating' method on the 100 square / 10p and 1p coins / dimes</p> <p>Finish off the sequence (numbers up to 100 – forwards and backwards) E.g.: 66, 67, 68 __, __ 72, 71, 70, __, __</p> <p>14, 16, 18 __, __ 15, __, 25, __, 35 80, __, 60, 50, __</p> <p>5, 15, 25, __, __, __ 77, 67, 57, __, __, __</p> <p>17, 19, 21, __, __, __ 73, 71, 69, __, __, __</p> <p>34, 39, 44, __, __, __ 89, 84, 79, __, __, __</p> <p>What do you notice?</p>	<p>Count to 100 in 1s and across 100, forward and backwards, beginning with 0 or 1, or from any given number. (to 200+)</p> <p>Problems solving activities e.g.:</p> <p>Look at these cards:</p> <table border="1" data-bbox="1787 619 2168 657"> <tr> <td>6</td> <td>5</td> <td>3</td> <td>7</td> <td>2</td> </tr> </table> <p>Use the cards to make up a 2 digit number that is:</p> <ul style="list-style-type: none"> Greater than 50 Between 30 and 40 Less than 50 Between 50 to 60 <p>Look at the set of three numbers below. Make a case for each being the odd one out.</p> <table border="1" data-bbox="1787 1114 2168 1152"> <tr> <td>66</td> <td>50</td> <td>35</td> </tr> </table> <p>In a family there is a mum, a grandad, a baby and an older brother. One is 60 years old, one is 35 years old, one is 1 year old and one is 5 years old. Show how old each person is.</p>	6	5	3	7	2	66	50	35
17	19	14																							
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				<p>Rearrange with the smallest or largest first (numbers up to 100) E.g.:</p> <table border="1" data-bbox="1384 501 1756 539"> <tr> <td>48</td> <td>87</td> <td>8</td> <td>53</td> <td>29</td> </tr> </table> <table border="1" data-bbox="1384 571 1756 609"> <tr> <td>98</td> <td>63</td> <td>2</td> <td>71</td> <td>50</td> </tr> </table> <p>Solve calculation and sequences: E.g.:</p> <p>Write 25, 28 and 34 in the correct place on this number grid</p> <table border="1" data-bbox="1384 815 1756 959"> <tr> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> </tr> <tr> <td>17</td> <td>18</td> <td>19</td> <td>20</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	48	87	8	53	29	98	63	2	71	50	11	12	13	14	15	16	17	18	19	20															<table border="1" data-bbox="1787 225 2161 360"> <tr> <td>Person</td> <td>Age</td> <td>Person</td> <td>Age</td> </tr> <tr> <td>Mum</td> <td></td> <td>Older brother</td> <td></td> </tr> <tr> <td>Baby</td> <td></td> <td>Grandad</td> <td></td> </tr> </table>	Person	Age	Person	Age	Mum		Older brother		Baby		Grandad	
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Person	Age	Person	Age																																																
Mum		Older brother																																																	
Baby		Grandad																																																	
1.2	<p>Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s</p>	<p>Read and write numbers from 0 to 20 in numerals</p> <p>Order numbers from biggest to smallest or smallest to biggest (up to 20)</p> <p>Count forwards in multiples of twos (10) and tens (50)</p>	<p>Read and write numbers from 0 to 50 in numerals</p> <p>Order numbers from biggest to smallest or smallest to biggest (up to 50)</p> <p>Count forwards in multiples of twos (20) fives (30) and tens (50)</p>	<p>Read and write numbers from 0 to 100 in numerals</p> <p>Order numbers from biggest to smallest or smallest to biggest (up to 100)</p> <p>Count forwards in multiples of twos (24) fives (60) and tens (100)</p>	<p>Count in tens from any number, forward or backward to/from 100 – mentally</p> <p>Count forwards and backwards in 2s (24+)</p>																																														

Count forwards and backwards in 5s (60+)

Count forwards and backwards in 10s (100+)

Problem solving activities e.g.;

Complete these by using your own number

_____ is 5 less than _____

_____ is 2 less than _____

Henry thinks of a number. 5 more than his number is 16. What is his number?

Mark thinks of another number. 10 more than his number is 87. What is his number?

Ellie thinks of a number. 2 less than her number is 34. What is her number?

Yes or No

If I count on in 2s from 34 will I say 78?

If I count on in 5s from 19 will I say 56?

Solve calculation and sequences:

E.g.:

Write 65, 85 and 90 in the correct place on this number grid

15	20	25	30	35	40
45		55			70
	80				

Complete the chart below:


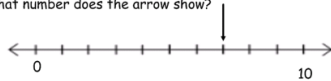
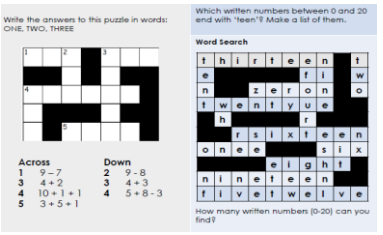
Count on in				
2s	7			
5s	16			
10s	31			

What is 2, 5 or 10 more than?
13, 17, 9 and 78

What is 2, 5 or 10 less than?
34, 67, 12 and 45

					<p>If I count on in 10s from 45 will I say 88?</p> <p>If 34 is the third number and 39 is the fourth number in a sequence what was the second number? What was the sixth?</p> <p>Look at these number sequences:</p> <p>17, 27, 37 What will the sixth number be?</p> <p>36, 31, 36, 41 What will the eighth number be?</p> <p>Look at these cards: 6 5 3 7 2 Using the cards make up a 2 digit number that is:</p> <ul style="list-style-type: none"> • More than 10 apart • Less than 10 apart • More than 5 apart • Less than 5 apart
1.3	Given a number, identify 1 more and 1 less	Identify 1 more or 1 less than a number using a number line / number track (numbers up to 20) e.g.: 1 more/ less than 17 =	Identify 1 more or 1 less than a number using a number line / 100 square (numbers up to 50) e.g.: 1 more/ less than 36 =	Identify 1 more or 1 less than a number using a number line / 100 square (numbers up to 100) e.g.: 1 more/ less than 84 =	Compare and order numbers from 0 up to 100; use <, > and = signs. Use and understand the following vocabulary: bigger / smaller

		<p>Write down a number that is one more / less than ... (up to 20) e.g.: one more / less than 11 =</p>	<p>Write down a number that is one more / less than ... (up to 50) e.g.: one more / less than 28 =</p>	<p>Write down a number that is one more / less than ... (up to 100) e.g.: one more / less than thirty four =</p> <p>Solve problems: If Tim's mum is 49 how old will she be when she has her next birthday?</p> <p>A milk lady has 46 bottle of milk on her milk float. She delivers one to the Harris house. How many has she left on the milk float?</p>	<p>greater less in between odd / even smallest / largest</p> <p>Problem solving activities such as:</p> <p>___ is one more than ___ ___ is one less than ___</p> <p>George thought of a 2 digit number. It was less than 70 but more than 40. One more than his number finished with a 6 in the unit and one less than his number finished with a 4 in the unit. What could the number be?</p>
1.4	<p>Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</p>	<p>Identify numbers in different ways E.g.:</p> <ul style="list-style-type: none"> - count the quantity of objects - put out 'x' teddies - find 18 <p>Understand the value of numbers up to 20??</p> <p>Use and understand the following vocabulary:</p>	<p>Identify numbers in different ways E.g.:</p> <ul style="list-style-type: none"> - count the quantity of objects - put out 'x' teddies - find 18 - write 21 <p>Understand the value of numbers up to 50??</p> <p>Use and understand the following vocabulary:</p>	<p>Identify numbers in different ways E.g.:</p> <ul style="list-style-type: none"> - count the quantity of objects - put out 'x' teddies - find 18 - write 21 - draw 'x' objects <p>Understand the value of numbers up to 99??</p>	<p>Understand the value of numbers 100 and beyond???</p> <p>Use and understand the following vocabulary: bigger / greater less / smaller in between odd / even smallest / largest</p>

		<p>more than / less than most / least biggest / smallest</p>	<p>more than / less than most / least biggest / smallest bigger / smaller</p>	<p>Interpret a picture of a given quantity to answer questions e.g.:</p>  <p>How many apples are there?</p> <p>What number does the arrow show?</p>  <p>Use and understand the following vocabulary: equal to more than / less than fewer most / least biggest / smallest bigger / smaller</p>	
<p>1.5</p>	<p>Read and write numbers from 1 to 20 in numerals and words</p>	<p>Read and spell numerals 0 to 5 in words correctly (no reversals – must be spelt correctly)</p>	<p>Read and spell numerals 0 to 10 in words correctly (no reversals – must be spelt correctly) E.g.:</p> <p>Can you read the number twelve and write it as a number?</p> <p>Write the next number in numerals in these sequences: Eighteen, twenty, twenty-two, _____</p> <p>Forty-four, forty-nine, fifty-four, _____</p>	<p>Read and spell numerals 0 to 20 in words correctly (no reversals – must be spelt correctly) E.g.:</p> <p>Can you read the number twelve and write it as a number?</p> <p>Write the next number in numerals in these sequences: Eighteen, twenty, twenty-two, _____</p> <p>Forty-four, forty-nine, fifty-four, _____</p>	<p>Solve puzzles with numbers in words e.g.:</p> 

				<p>Which number comes before and after forty-eight? Write it in numbers</p> <p>Which number comes ten before and ten after fifty-three? Write them in numbers.</p> <p>Activities to practise the above:</p> <ul style="list-style-type: none"> • look, cover, write and check • match the numbers to the words • write answers to calculations in words • read calculations written in words and solve them • make up addition and subtraction calculations that equal the given number which is written in words • play snap with cards which have numerals and names up to 20 	Spell numerals 0 to 100 in words correctly (no reversals)														
	Score	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6

2	Addition and Subtraction				
	Objective	P Level (below year group level)	Working Towards	Expected	Greater Depth

2.1


Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs

Add and subtract a one /two digit number and ones using concrete objects (cubes, counters within 20 – may not respond accurately to the symbol)

E.g.:
 $7 + 2 =$ $3 + 4 =$

Read the following symbols:
 $+ / - / =$

Children to interpret objects / pictures but may not respond appropriately to solve the calculation (poor counting or not interpreting the symbols correctly)

E.g.:


Use and understand the following vocabulary:
 add / altogether / takeaway / more / less / subtract

Add and subtract a two digit number and ones using concrete objects (cubes, counters, number line, 100 square – within 50)

E.g.:
 $32 + 9 =$ $41 + 6 =$
 $29 - 8 =$ $37 - 5 =$

Read and write the following symbols:
 $+ / - / =$

Children to interpret objects / pictures and respond accordingly to solve the calculation. E.g.:



Find small differences between numbers within 10.
 (towers/number lines/fingers)

Use and understand the following vocabulary:
 add / altogether / takeaway / plus / more / less / subtract /difference

Add and subtract a two digit number and ones using concrete objects (cubes, coins, number line, 100 square, dienes – within 100)

E.g.:
 $89 - 7 =$ $65 - 8 =$
 $54 + 6 =$ $72 - 4 =$

Fill in the missing signs e.g.

$2 \text{ ● } 4 = 6$ $8 \text{ ● } 6 = 2$

Read, write and respond appropriately to the following symbols:
 $+ / - / =$

Children to interpret objects / pictures and record as a number sentence e.g:

$\text{★★★★} + \text{★★} =$
 $3 + 2 =$

Find small differences between numbers within 20.
 (towers/number lines/fingers)

Begin to use the < and > symbols

Answer questions with the answer can be at either end.
 $7 = 3 + 4$ $3 + 4 = 7$

Find small differences between numbers within 20 – (mentally)

Use the knowledge and understanding at expected level to solve problems.

Example problem solving activities e.g.:

Taking the numbers 2, 4, 3, 5, 7 and 8 and the signs +, - and =. How many different number sentences can you make?

$8 - 4 = 4$
 Record all your answers accurately

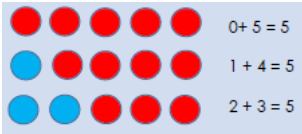

A number that has 5 taken away from it is 8. What was my original number? Record using appropriate signs.

Look at the following sequences. What rule has been used to complete the sequences:

3, 5, 4, 6, 5, 7, 6, 8, 7
 5, 10, 8, 13, 11, 16, 14, 19, 17

Now make up some of your own to give to a friend.

				<p>Use and understand the following vocabulary: <i>add / altogether / total / takeaway / plus / find the sum of / more / less / subtract / minus / difference</i></p>	<p>Know that addition of two numbers can be done in any order (Commutative) and subtraction from one number from another cannot.</p>																				
<p>2.2</p>	<p>Represent and use number bonds and related subtraction facts within 20</p>	<p>Solve number bonds up to 10 for both addition and subtraction – not prompt responses, use fingers, practical resources, draw pictures</p> <p>E.g: $2+8=10$ $8+2=10$ $10-6=4$ $10-4=6$</p>	<p>Solve number bonds up to 20 for addition – not prompt responses and may need fingers, draw pictures</p> <p>E.g: $17+3=20$ $3+17=20$ $6+14=20$ $14+6=20$</p>	<p>Solve number bonds up to 20 for both addition and subtraction – aim for instant response</p> <p>E.g: $17+3=20$ $3+17=20$ $20-3=17$ $20-17=3$</p> <p>Lots of addition and subtraction practise – Can you spot a pattern? Which number changes; tens or units? E.g.:</p> <table border="1" data-bbox="1391 938 1749 1118"> <tr> <td>$8+2=$</td><td><input type="text"/></td> <td>$9-7=$</td><td><input type="text"/></td> </tr> <tr> <td>$17+2=$</td><td><input type="text"/></td> <td>$12-5=$</td><td><input type="text"/></td> </tr> <tr> <td>$16+3=$</td><td><input type="text"/></td> <td>$17-3=$</td><td><input type="text"/></td> </tr> <tr> <td>$9+11=$</td><td><input type="text"/></td> <td>$19-16=$</td><td><input type="text"/></td> </tr> <tr> <td>$10+0=$</td><td><input type="text"/></td> <td>$20-15=$</td><td><input type="text"/></td> </tr> </table> <p>Continue the following number sentences: $2+3=5$ $3+4=$ $4+5=$ $5+6=$ What do you notice?</p> <p>Continue the following number sentences: $12-9=$ $13-8=$ $14-7=$ $15-8=$ What do you notice?</p>	$8+2=$	<input type="text"/>	$9-7=$	<input type="text"/>	$17+2=$	<input type="text"/>	$12-5=$	<input type="text"/>	$16+3=$	<input type="text"/>	$17-3=$	<input type="text"/>	$9+11=$	<input type="text"/>	$19-16=$	<input type="text"/>	$10+0=$	<input type="text"/>	$20-15=$	<input type="text"/>	<p>Recall many addition and subtraction facts to 20 and use them, and derive and use related facts up to 100.</p> <p>E.g: $2+2=4$ / $20+20=40$ $4+5=9$ / $40+50=90$</p> <p>Use apparatus such as number lines, number squares, drawing/using counters to explore the inverse relationship between addition and subtraction and solve missing number problems such as:</p> <p>$9-?=5$ $6+?=13$</p>
$8+2=$	<input type="text"/>	$9-7=$	<input type="text"/>																						
$17+2=$	<input type="text"/>	$12-5=$	<input type="text"/>																						
$16+3=$	<input type="text"/>	$17-3=$	<input type="text"/>																						
$9+11=$	<input type="text"/>	$19-16=$	<input type="text"/>																						
$10+0=$	<input type="text"/>	$20-15=$	<input type="text"/>																						

				<p>Use objects or drawn counters to record number bonds unaided e.g.:</p> 	<p>Use the knowledge and understanding at expected level to solve problems.</p> <p>Example problem solving activities e.g.:</p> <div data-bbox="1821 419 2125 571" style="border: 1px solid gray; padding: 5px;"> <p>A number that has 7 taken away from it is 8. What was my original number? Record appropriately.</p> <p>A number that has 9 added to it is 16. What was my original number? Record appropriately.</p> </div> <div data-bbox="1798 608 2148 799" style="border: 1px solid gray; padding: 5px;">  <p>A dartboard has numbers 1 to 10. You have two darts. Set out all possible combinations, including both darts scoring the same. Set out your answers in a logical order.</p> </div>
2.3	<p>Add and subtract one-digit and two-digit numbers to 20, including 0</p>	<p>Add and subtract one-digit and two-digit numbers to 10, including zero – (using resources)</p> <p>E.g.: $2 + 8 =$ $10 + 0 =$ $9 - 6 =$</p>	<p>Add and subtract a two digit number and ones (not crossing the tens to 10 – (mentally)</p> <p>E.g.: $9 - 5 =$ $2 + 7 =$</p> <p>Add a two digit number to another two digit number (using resources; cubes, 100 square)</p> <p>E.g.: $27 + 10 =$ $16 + 11 =$</p>	<p>Add and subtract a two digit number and ones (not crossing the tens to 20 – (mentally)</p> <p>E.g.: $18 - 5 =$ $17 - 4 =$</p> <p>Total three one digit numbers using resources</p> <p>E.g.: $2 + 3 + 5 = 10$</p> <p>Add a two digit number to another two digit number</p>	<p>Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> • A two digit number and ones (crossing ten) • A 2 digit number and tens • Two two digit numbers (multiples of ten) • Three one digit numbers

Subtract a two digit number from another two digit number (using resources; cubes, 100 square)

E.g.:
 $28 - 14 =$
 $25 - 10 =$

(mentally - using place value knowledge; may draw own number line)

E.g.:
 $24 + 10 =$
 $17 + 11 =$

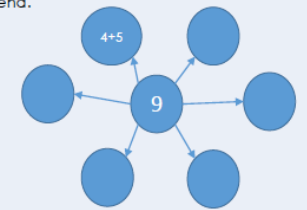
Subtract a two digit number from another two digit number (mentally - using place value knowledge; may draw own number line)

E.g.:
 $18 - 14 =$
 $15 - 10 =$

Use the knowledge and understanding at expected level to solve problems.

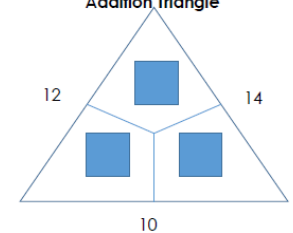
Example problem solving activities e.g.:

Put as many + or - number facts as you can. Then create a similar diagram for your friend.

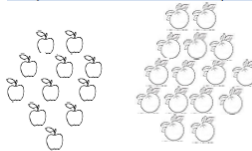


Helen went to play with Cybel. Helen had 10 stickers and she gave Cybel 4 of them. Cybel already had 4 stickers. Which of the two girls had most stickers to play with?

Addition Triangle



What numbers are missing from the squares inside the triangle?

2.4	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$	Use practical resources such as cubes / counters / objects to explore making numbers (values) by adding them together or taking them away.	Begin to use cubes to separate a number of objects into two/three groups. Then combine them to make a particular number of objects to explore the inverse relationship between addition and subtraction number facts. Begin to explore the fact that addition of two numbers can be done in any order but subtraction from one number from another cannot.	Use cubes to separate a number of objects into two/three groups. Then combine them to make a particular number of objects to explore the inverse relationship between addition and subtraction number facts. Begin to understand the fact that addition of two numbers can be done in any order but subtraction from one number from another cannot. Solve real life problems involving addition and subtraction (use apparatus as required) E.g.: Solve within 10 seconds <div data-bbox="1397 930 1740 1270" style="background-color: #e6f2ff; padding: 5px;"> <p>If I have 3 sweets and someone gives me another 5, how many have I altogether? <input type="text"/></p> <p>If I score 2 goals in one match and I score 3 in another, how many goals have I scored in the 2 matches? <input type="text"/></p> <p>If I have 9 cards and I give 4 away, how many cards have I left? <input type="text"/></p> <p>How many coins have I left if I have 7 and I give 3 away? <input type="text"/></p> </div>	Use the knowledge and understanding at expected level to solve problems. Example problem solving activities e.g.: <div data-bbox="1834 549 2107 715" style="text-align: center;"> <p>Harry and Fatima have their birthday in the</p>  </div> <p>Look at the apples and oranges above. How many apples and oranges are there altogether? How many more oranges are there than apples? If we ate 5 oranges and 3 apples, how many pieces of fruit would there be left?</p>

3	Multiplication and Division				
	Objective	P Level (below year group level)	Working Towards	Expected	Greater Depth
3.1	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	<p>Begin to recognise the multiplication (x), division (÷) and equals (=) signs.</p> <p>Recall and use the multiples of 2 to help solve multiplication and division calculations and problems</p> <p>Able to recall some double and halving facts – may not be in any particular order</p> <p>Begin to explore multiplication calculations with adult support – solve as a repeated addition calculation E.g.: 2 lots of 2 = 4 2 + 2 = 4</p> <p>Solve 2 lots of a number/ object using cubes (extend to 5 and 10)</p>	<p>Begin to explore mathematical statements for multiplication and division and write them using the multiplication (x), division (÷) and equals (=) signs.</p> <p>Recall and use the multiples of 2 and 5 to help solve multiplication and division calculations and problems</p> <p>Double numbers to 5 mentally</p> <p>Halve numbers up to 5 mentally</p> <p>Begin to understand and solve multiplication calculation as a repeated addition calculation E.g.: 2 lots of 5 = 10 5 + 5 = 10</p>	<p>Begin to calculate mathematical statements for multiplication and division and write them using the multiplication (x), division (÷) and equals (=) signs.</p> <p>Recall and use the multiples of 2, 5 and 10 to help solve multiplication and division calculations and problems</p> <p>Double numbers to 10 mentally</p> <p>Halve numbers up to 10 mentally</p> <p>Understand and solve multiplication calculation as a repeated addition calculation E.g.: 3 lots of 10 = 30 10 + 10 + 10 = 30</p>	<p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables</p> <p>Double numbers to 20 mentally</p> <p>Halve numbers up to 20 mentally</p> <p>Recognise odd and even numbers. (2 digit)</p> <p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs independently</p> <p>Use repeated additions / subtraction, counting fingers or mental recall to</p>

		<p>Begin to explore division calculations with adult support – solve as a repeated subtraction calculation</p> <p>E.g.:</p> $10 \div 2 = 5$ $10 - 2 - 2 - 2 - 2 - 2$ <p>Solve division calculations by sharing into groups of 2 using cubes (extend to 5 and 10)</p> <p>Use and understand the following vocabulary:- lots of, share</p> <p>Use apparatus/arrays to work them out.</p>	<p>Solve 2 and 5 lots of a number/ object using cubes (extend to 10 and 3)</p> <p>Solve 2 and 5 lots of a number/ objects by drawing pictorial representations (extend to 10 and 3)</p> <p>Begin to understand and solve division calculation as a repeated subtraction calculation</p> <p>E.g.:</p> $10 \div 5 = 2$ $10 - 5 - 5$ <p>Solve division calculations by sharing into groups of 2 and 5 using cubes (extend to 10 and 3)</p> <p>Solve division calculations by sharing into groups of 2 and 5 by drawing pictorial representations (extend to 10 and 3)</p> <p>Use and understand the following vocabulary:- lots of, times, divide, share</p> <p>Use apparatus/arrays/coins / to work them out.</p>	<p>Solve 2, 5 and 10 lots of a number/ object using cubes (extend to 3 and 4)</p> <p>Solve 2, 5 and lots of a number/ objects by drawing pictorial representations (extend to 3 and 4)</p> <p>Understand and solve division calculation as a repeated subtraction calculation</p> <p>E.g.:</p> $10 \div 5 = 2$ $10 - 5 - 5 = 2$ <p>Solve division calculations by sharing into groups of 2, 5, 10 using cubes (extend to 3 and 4)</p> <p>Solve division calculations by sharing into groups of 2, 5, 10 by drawing pictorial representations (extend to 3 and 4)</p> <p>Link sharing with division</p> <p>Use and understand the following vocabulary:- lots of, times, double, divide, share</p> <p>Use apparatus/arrays/ number lines/ coins / to work them out.</p> <p>Problems</p> <p>E.g.:</p>	<p>work them out multiplication and division calculations</p> <p>Vocabulary:- lots of, times, divide, share, multiplied by, product of, twice, double, half, quarter, group of</p> <p>Know that multiplication of two numbers can be done in any order (Commutative) and division of one number by another cannot. Use the knowledge and understanding at expected level to solve problems.</p> <p>Example problem solving activities e.g.:</p> <p>Lollies cost 5p each. A pack of lollies cost 13p. How much money do you save when you buy a pack of 3 lollies instead of 3 single lollies?</p> <p>Adam has 20 sweets altogether. He has four friends coming for tea. Is he able to share the sweets between himself and his friends so that they all have the same amount?</p> <p>Show how you have done your calculation.</p> <p>I buy cupcakes which cost 5p each. I have 20p. Am I able to buy 5 cupcakes?</p>
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		already given – with support and adult led discussion, not accurate		Can find and circle half of a given quantity of objects e.g. circle a half of these oranges	12 13 15 20 8 7 5 9 18 Explain your reasons Shade in a half of each of these shapes in as many different ways as you can
4.2	Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity	<p>Explore what a quarter means</p> <p>Explore shapes and attempt to find a quarter – not accurate</p> <p>Begin to identify which shapes have been quartered – with support and adult led discussion</p> <p>Explore and begin to find a quarter of whole numbers/ quantities using cubes – with support and adult led discussion</p> <p>Explore shapes and begin to shade a quarter of a given shape with lines</p>	<p>Begin to find a quarter of given 2D shapes</p> <p>Begin to identify which shapes have been quartered with prompts</p> <p>Begin to find a quarter of whole numbers/ quantities using cubes</p> <p>Begin to shade a quarter of a given shape with lines already given – not accurate</p>	<p>Quarter 2D shapes that are given</p> <p>Identify which shapes have been quartered</p> <p>Quarter whole numbers/ quantities using cubes</p> <p>Quarter whole numbers / quantities by drawing their own pictorial representations</p> <p>Can shade quarter of a given shape with lines already given</p>	<p>Use the knowledge and understanding at expected level to solve problems.</p> <p>Example problem solving activities e.g.:</p> <p>Sam and Ellen were given a bowl of smarties. There were 4 colours altogether. Half of all the smarties were red, 5 were yellow, 2 were blue and 3 were green. How many smarties were there altogether?</p> <p>Exactly a quarter of the gymnastics club were boys. How many children could there have been at gymnastics club?</p>

		already given — with support and adult led discussion, not accurate		Can find and circle quarter of a given quantity of objects e.g. circle a quarter of these apples	Put a circle around the number that could have been at the gymnastics club. 13 15 20 8 7 5 9 18 12 Explain your reasons If 4 is a quarter of a number, how much was the number in the first place? If I take a quarter of the number away I am left with 12. How much was the number in the first place? If half of a number is 8, what will a quarter be? Shade in a half of each of these shapes in as many different ways as you can
	Score	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6

5	Measurement				
	Objective	P Level (below year group level)	Working Towards	Expected	Greater Depth

5.1	<p>Length and height:</p> <p>Compare, describe and solve practical problems</p> <p>Measure and begin to record</p>	<p>Use and understand the following vocabulary: <i>long/short</i> <i>longer/shorter</i></p> <p>Begin to measure the length and width of different objects.</p> <p>Compare up to 2 objects by length / height</p>	<p>Use and understand the following vocabulary: <i>long/short</i> <i>longer/shorter</i> <i>tall/short</i></p> <p>Begin to measure the length and width of different objects.</p> <p>Compare up to 2 objects by length / height</p> <p>Describe the length and height of different objects</p>	<p>Use and understand the following vocabulary: <i>long/short</i> <i>longer/shorter</i> <i>tall/short</i> <i>double/half</i></p> <p>Measure and begin to record the length and width of different objects.</p> <p>Compare up to 2 objects by length / height</p> <p>Describe the length and height of different objects</p> <p>Order up to 5 objects by length / height</p>	<p>Solve length and height problem solving activities such as:</p>  <p>A long brick is twice the length of a short brick. Which is longer: 2 long bricks or 3 short bricks? 3 long bricks or 5 short bricks?</p> 
5.2	<p>Mass / weight:</p> <p>Compare, describe and solve practical problems</p> <p>Measure and begin to record</p>	<p>Use and understand the following vocabulary: <i>heavier than / lighter than</i></p> <p>Begin to measure the mass and weight of different objects.</p> <p>Compare up to 2 objects by mass / weight</p>	<p>Use and understand the following vocabulary: <i>heavier than / lighter than</i></p> <p>Begin to measure the mass and weight of different objects.</p> <p>Compare up to 2 objects by mass / weight</p> <p>Describe the mass and weight of different objects</p>	<p>Use and understand the following vocabulary: <i>heavy / light</i> <i>heavier than / lighter than</i></p> <p>Measure and begin to record the mass and weight of different objects.</p> <p>Compare up to 2 objects by mass / weight</p>	<p>Solve capacity and weight problem solving activities such as:</p>  <p>Practical Activity: Provide pupils with two bags of sand with different amounts in each.</p> <p>Pupils to use balances and move sand from one bag to the other so as to ensure that there is the same amount of sand in both bags.</p> <p>This is mainly aimed at helping pupils to use the balances and aim for accuracy.</p>

				Describe the mass and weight of different objects Order up to 5 objects by mass / weight	
5.3	<p>Capacity and volume:</p> <p>Compare, describe and solve practical problems</p> <p>Measure and begin to record</p>	<p>Use and understand the following vocabulary: full /empty</p> <p>Begin to measure the capacity and volume of different containers</p> <p>Compare up to 2 containers</p>	<p>Use and understand the following vocabulary: full /empty more than / less than</p> <p>Begin to measure the capacity and volume of different containers</p> <p>Compare up to 2 containers</p> <p>Describe the capacity of different containers using the above vocabulary</p>	<p>Use and understand the following vocabulary: full /empty more than / less than half / half full/ quarter</p> <p>Measure and begin to record the capacity and volume of different containers</p> <p>Compare up to 2 containers</p> <p>Describe the capacity of different containers using the above vocabulary</p> <p>Order up to 5 containers</p>	<p>Solve capacity and volume problem solving activities such as:</p> <div data-bbox="1825 526 1982 678" data-label="Image"> </div> <div data-bbox="1825 686 1960 821" data-label="Image"> </div> <p>Take a number of bottles of different sizes and shapes. If you have a measuring jug, how would you go about working out which of the bottles has a greatest capacity and which has the smallest capacity?</p> <p>Set your answer out on a chart, don't forget to estimate first. Explain your thinking.</p> <p>Using the terms capacity and volume accurately Using measuring jugs pupils should rehearse saying that the jug has a capacity of (however much it can hold). Put water into each jug but do not fill the jug. Measure how much water there is inside. Rehearse saying that the volume of water in the jug is (whatever the measure says). Pupils should know that the capacity is the amount it could hold and the volume is the amount inside the jug.</p>

5.4

Time:

Compare, describe and solve practical problems

Sequence events in chronological order using language

Recognise and use language relating to dates

Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times

Can use and understands the following vocabulary:

quicker, slower

Able to sequence events using the following vocabulary:

before, after, next, first, today

Able to identify and order:

- days of the week
(know there's 7 days in a week)

Read the time to the hour
(o'clock - know the minutes hand is pointing upwards at 12)

Begin to recognise a clock has two hands; big and small. (The hour hand is the smaller hand and the minutes hand is the longer hand)

Read the time to the half hour
(half past - know the minutes hand is pointing downwards at 6 - the minutes hand has travelled half way round the clock)

Understand that time can be measured in:
- minutes, hours, days

Can use and understands the following vocabulary:

quicker, slower
earlier, later

Able to sequence events using the following vocabulary:

before, after, next, first, today, yesterday, tomorrow

Able to identify and order:

- days of the week
(know there's 7 days in a week)
- months of the year

Read and make the time to the hour
(o'clock - know the minutes hand is pointing upwards at 12)

Begin to understand the hour hand is the smaller hand and the minutes hand is the longer hand

Read and make the time to the half hour
(half past - know the minutes hand is pointing downwards at 6 - the minutes hand has travelled half way round the clock)

Can use and understands the following vocabulary:

quicker, slower
earlier, later
hours, minutes, seconds

Able to sequence events using the following vocabulary:

before, after, next, first, today, yesterday, tomorrow, morning, afternoon and evening

Able to identify and order:

- days of the week
(know there's 7 days in a week)
- months of the year
- years

Read, make and draw the time to the hour

(o'clock - know the minutes hand is pointing upwards at 12)

Understand the hour hand is the smaller hand and the minutes hand is the longer hand


Read, make and draw the time to the half hour

(half past - know the minutes hand is pointing downwards at 6 - the minutes

Solve time problem solving activities such as:

- an hour earlier / later than a time given (word problems)

- half an hour earlier / later than a time given (word problems)



Think of the story of the Three Bears.

Think of the time that the Three Bears decided to go for a walk in the wood.

Write down three things that happened later in the story.

On the way to a football match Harry's parents and Harry spent 30 minutes in the car. They then walked for another 20 minutes to reach the ground.

Did the journey take more or less than 1 hour?

How many minutes did the journey take?

We go and visit our grandmother each day. On Monday the journey took 2 hours; On Tuesday there was a lot of traffic and it took 3 hours but on Wednesday it only took us 1 hour.

On which day did it take the longest time to get to grandmother?

On which day did it take the shortest time to get to grandmother?

How much difference is there between Tuesday's journey and Wednesday's journey?

I walk to school every day. On Monday my journey takes 10 minutes. On Tuesday I walk more slowly. Does my journey take more or less time than on Monday?

Explain your answer.



On Wednesday it takes me 8 minutes to walk to school.




On which of the 3 days do I walk quickest?

On which of the 3 days do I walk slowest?

Explain your reasoning.


			<p>Understand that time can be measured in:</p> <p>- seconds, minutes, hours, days, weeks</p>	<p>hand has travelled half way round the clock)</p> <p>Understand that time can be measured in:</p> <p>- seconds, minutes, hours, days, weeks, months, years, decades, centuries</p>	
5.5	<p>Money:</p> <p>Measure and begin to record</p> <p>Recognise and know the value of different denominations of coins and notes</p>	<p>Identify and recognise the coins 1p, 2p, 5p, 10p</p> <p>Order the above coins from the least valuable to the most valuable or vice versa</p> <p>Use place value knowledge to identify how many 1p's make up all the above coins</p> <p>Begin to understand there are pound notes and sometimes people pay for things using cards and cheques</p>	<p>Identify and recognise the coins 1p, 2p, 5p, 10p, 20p, 50p</p> <p>Order the above coins from the least valuable to the most valuable or vice versa</p> <p>Use place value knowledge to identify how many 1p's make up all the above coins</p> <p>Begin to recognise and order the notes £5, £10, £20, £50</p>	<p>Identify and recognise the coins 1p, 2p, 5p, 10p, 20p, 50p, £1, £2</p> <p>Order the above coins from the least valuable to the most valuable or vice versa</p> <p>Use place value knowledge to identify how many 1p's make up all the above coins E.g.: ten 1p coins is equivalent to one 10p coin</p> <p>Identify and recognise the notes £5, £10, £20, £50</p> <p>Order the above notes from the least valuable to the most valuable or vice versa</p> <p>Use place value knowledge to see that one note can represent many pounds</p> <p>Be aware that one note may be worth double or even four times the value of another note</p>	<p>Use the knowledge and understanding at expected level to solve problems.</p> <p>Example problem solving activities e.g.:</p> <p>- Explore making an amount of money in different ways: 55p in two ways 29p in three ways</p> <p>- Ella has 2 different silver coins. What is the smallest amount she could have? What is the most that she could have?</p> <p>- Amjal has only 2p, 5p and 10p coin. Can he pay 21p without needing change? Show how he can do this.</p> <p>- Make 'x' amount of money using the least number of coins</p>

				<p>Activities:</p> <ul style="list-style-type: none"> - sorting shapes and labelling them - use 2D shapes to create a house picture and label the shapes used - feely bag – describe the shape - use blu tac and match sticks to make 2D shapes to identify the sides and corners 	<p>Play the 'odd one out' game.</p>  <p>By using descriptive language, give a reason why each of these shapes could be the odd one out.</p> <p>Take one shape and draw 3 of these shapes in different orientation. Example – triangles</p>  <p>Other examples are rectangles; squares and circles.</p> <p>Get pupils working in pairs. One has to describe a 2D shape to another by using descriptive language such as 4 corners, etc. The partner has to try and draw the shape being described on a piece of paper or their workbook. At the end get them to check together and discuss what went well and what did not go well. Then change roles.</p>
6.2	<p>Recognise and name common 3-D shapes, including: cuboids (including cubes), pyramids and spheres</p>	<p>Identify and name 3D shapes such as:</p> <p>Cube Cuboid Sphere Cylinder</p> <p>Understand that 3D shapes can be described using their properties – may be able to describe them but not using correct vocabulary</p> <p>Use and understand the following vocabulary: edges</p>	<p>Identify and name 3D shapes such as:</p> <p>Cube Cuboid Sphere Pyramid Cylinder</p> <p>Begin to identify the properties of 3D shapes including the number of edges, vertices and faces.</p> <p>Use and understand the following vocabulary: flat / curved</p>	<p>Identify and name 3D shapes such as:</p> <p>Cube Cuboid Sphere Pyramid Cylinder Triangular prism</p> <p>Begin to identify and describe the properties of 3D shapes including the number of edges, vertices and faces.</p> <p>Use and understand the following vocabulary:</p>	<p>Compare and sort 3-D shapes and everyday objects</p> <p>Use and understand the vocabulary: regular / irregular</p> <p>Identify and describe the properties of 3D shapes including the number of edges, vertices and faces</p>

		faces	edges faces	flat / curved vertices edges faces	<p>Example activities:</p> <ul style="list-style-type: none"> - sorting shapes and labelling them - creating a castle and labelling the shapes used - feely bag - use blu tac to identify edges, vertex and faces 	<p>What shapes do the following tend to be:</p> <table border="1"> <thead> <tr> <th>Item of Object</th> <th>Shape</th> </tr> </thead> <tbody> <tr> <td>Soft drink</td> <td></td> </tr> <tr> <td>Tennis Ball</td> <td></td> </tr> <tr> <td>Dice</td> <td></td> </tr> <tr> <td>Bar of Chocolate</td> <td></td> </tr> </tbody> </table> <p>Draw a very interesting house using only:</p> <p>Triangles Circles Rectangles Squares</p> <p>Your house should be made up of bricks; include 4 windows, roof, chimney and a door.</p> <p>Now give your partner a challenge to create another drawing.</p> <p>Example problem solving activities:</p> <p>Think of a car: Name any 2D or 3D shapes in a typical car.</p>  <p>Think of a bicycle: Name as many 2D or 3D shapes you can see on a bicycle.</p>  <p>Think of your kitchen at home: Name as many 2D or 3D shapes you can see in a kitchen.</p> 	Item of Object	Shape	Soft drink		Tennis Ball		Dice		Bar of Chocolate	
Item of Object	Shape															
Soft drink																
Tennis Ball																
Dice																
Bar of Chocolate																

	Score	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
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7 **Geometry – Position and Direction**

	Objective	P Level (below year group level)	Working Towards	Expected	Greater Depth
7.1	describe position, direction and movement, including whole, half, quarter and three-quarter turns	Use and understand the following vocabulary: above / below in front of / behind in between side of / next to	Use and understand the following vocabulary: left / right above / below in front of / behind in between	Use and understand the following vocabulary: left / right above / below in front of / behind in between	Example problem solving activities:  <p>Arthur Ben Colin Duncan</p>

whole turn / full turn

side of / next to
clockwise / anti-clockwise
whole turn / full turn
half a turn

side of / next to
clockwise / anti-clockwise
whole turn / full turn
half a turn
quarter turn
three quarter turn
direction / movement

Example activities:

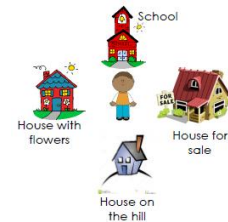
- describe the position of objects and this in the classroom

- use of BeeBots linked to ICT

- follow instructions to move around or by drawing

- do the Cha Cha slide dance

- play follow me / Simon says game





Make up as many sentences as you can about the boys' positions, using the terms left, right, between and next to. E.g. Colin is to the right of Ben.

Identify the position of each object. Top, middle or bottom, first, second, third, fourth or fifth. To the left or right.

Your partner thinks of an object from the grid.
You can ask your partner up to 4 questions, using the language above.
Your partner has to answer with a yes or no.

Pupils to set up their own objects in a circle and invite pupils to go into the middle and then ask them to turn using the terms: quarter, half, full, three-quarters, left and right.
On the school playground or the school field, pupils mark out North, East, South and West. Pupils to instruct others to make turns. This time the pupils describe what they will see when they make a turn. The partner needs then to respond by saying that they turned a quarter to the left, etc.

1	Number and place value			
		Working Towards	Expected	Greater depth
2.1	Counting	<p>Count to 100 in 1's, forward and backwards, beginning with 0 or 1, or from any given number.</p> <p>Count in ten from any number, forward or backward to /from 100 using the 'cheating' method on the 100 square/10p coins/Dienes</p> <p>Count forwards in multiples of twos (24) fives (60) and tens (100)</p>	<p>Count to 100 in 1's and across 100, forward and backwards, beginning with 0 or 1, or from any given number.</p> <p>Count in tens from any number, forward or backward to/from 100</p> <p>Count forwards and backwards in 2's (24) Count forwards and backwards in 5's (60) Count forwards and backwards in 10's(100)</p> <p>Which number is the odd one out? Why?</p> <p>Use digit cards to make 2 digit numbers that match different criteria.</p>	<p>Begin to count beyond 100, forwards and backwards, in 10's or ones</p> <p>Count forwards and backwards in 3's</p> <p>Count forwards and backwards in 4's</p> <p>Asking their own mathematical questions and following their own lines of enquiry. What is the largest number on the whole square?</p> <p>Children investigate statements such as multiples of 5 always have a 5 in the units column and explain their thinking.</p>
2.2	Place value	<p>Recognise the place value of each digit in numbers within 20 (tens and ones/units) and then within 100</p> <p>Begin to recognise that any two digit number can be partitioned into tens and ones.</p> <p>Begin to understand 0 as a place holder.</p> <p>Use cards, coins, Dienes, abacus.</p>	<p>Recognise the place value of each digit in a two-digit number. (tens and ones)</p> <p>Mentally</p> <p>Find me a number with 2 tens/3 units. Find me a number in between 20 and 30 that is odd. What's the biggest number you can make from....?</p> <p>Partition any two digit number into different combinations of tens and ones</p> <p>4.8 40+8 30+18 20+28</p>	<p>Begin to recognise the place value of each digit in a three-digit number. (hundreds tens and ones)</p> <p>Find all the possible numbers that satisfy criteria (abacus/place value cards)</p>
2.3	Identify, represent and estimate numbers	<p>Given a number, identify one more and one less.</p> <p>Work within 20, and then 100 mentally.</p>	<p>Identify, represent and estimate numbers using different representations, including the number line.</p> <p>Read scales in divisions of ones, twos, fives and tens.</p>	<p>Identify, represent and estimate numbers using different representations, including the number line.</p> <p>Read scales where not all numbers on the scale are given and estimate points in between.</p>
2.4	Compare and order numbers	<p>1.Order numbers from 0 to 20</p> <p>2.Begin to compare and order numbers within a 100 and put them into sequences.</p> <p>Biggest smallest bigger smaller more than/less than/fewer/ most/least</p>	<p>Compare and order numbers from 0 up to 100; use <, > and = signs.</p> <p>Biggest smallest bigger smaller more than/less than/fewer/ most/least/in between</p>	<p>Begin to compare and order numbers over 100; use <, > and = signs.</p> <p>Biggest smallest bigger smaller more than/less than/fewer/ most/least/in between</p> <p>3 tens and 2 ones  2 tens and 12 ones 4 tens and 3 ones  3 tens 14 ones</p>

2.5	Read and write numbers in numerals and words	1. Read and write numbers from 0 to 20 in numerals and words. 2. Begin to read and write numbers to 100 in numerals						Read and write numbers to at least 100 in numerals and words.						Begin to read and write numbers up to 1000 in numerals and words Explaining, justifying convincing proving:- Number line with missing number. Sally says it is 74. Ben says it is 47. Who is right					
2.6	Use place value and number facts to solve problems	Use place value and number facts to solve problems within 20						Use place value and number facts to solve problems within 100						Begin to use place value and number facts to solve problems over 100.					
score		Aut 1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2	Aut 1	Aut 2	Sp1	Sp 2	Sum 1	Sum 2	Aut1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2

2	Addition and subtraction			
		Working Towards	Expected	Greater depth
2.7	Add and subtract to solve problems	<ul style="list-style-type: none"> Begin to solve one-step real life problems that involve addition and subtraction, using concrete objects and pictorial representations, including those involving numbers, quantities and measures. Begin to use mental and written methods to help solve real life problems. Work within 20+ 	Solve real life problems with addition and subtraction: <ul style="list-style-type: none"> Using concrete objects and pictorial representations, including those involving numbers, quantities and measures Applying their increasing knowledge of mental and written methods. One step operation Work within 100	Solve addition and subtraction real life problems that involve more than one step Use reasoning about numbers, relationships and patterns to solve more complex problems and explain their thinking. Eg. Together jack and Sam have £14. Jack has £2 more than Sam. How much money does Sam have?
2.8	Add and subtract mentally	Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and 2 digit numbers to 20, including zero. $13+5=18$ $10+10=20$ place value: $-10=2=$ $14-4=$ Add and subtract a two digit number and ones (not crossing the tens)	Recall many addition and subtraction facts to 20 and use them, and derive and use related facts up to 100. Eg. $2+2=4$ $20+20=40$ $4+5=9$ $40+50=90$ Add and subtract numbers mentally, including: <ul style="list-style-type: none"> A two digit number and ones (crossing ten) A 2 digit number and tens Two two digit numbers (multiples of ten) Three one digit numbers (running total Answer can be either end. $7=3+4$ $3+4=7$ Find small differences between numbers within 20. Can use fingers	Recall most addition and subtraction facts to 20 and use them, and derive and use related facts up to 100. Add and subtract numbers mentally, including: <ul style="list-style-type: none"> Two two digit numbers A three digit number and ones A three digit number and tens A three digit number and hundreds. Find small differences between numbers to 100 and multiples of 10.
2.9	Add and subtract using written methods and apparatus	Read, write and interpret mathematical statements involving addition (+), subtraction(-) and equals(=) Add and subtract a two digit number and ten using a number square/Dienes/10p and 1p . Total three one digit numbers using resources. Find small differences between numbers within 20. (towers/numberlines/fingers) Use add/altogether/total/takeaway/plus/find the sum of/more/less/subtract/minus/difference	Add and subtract numbers using their own number line and using concrete objects. Two two digit numbers Work within 100 Use add/altogether/total/takeaway/plus/find the sum of/more/less/subtract/minus/difference	: Add and subtract numbers using concrete objects and their own number line <ul style="list-style-type: none"> Begin to add and subtract 3 digit numbers and ones Begin to add and subtract 3 digit numbers and tens Begin to add and subtract 3 digit numbers and hundreds Solve 2 operation 2 digit problems on a number line
2.10	Order of operations	Begin to explore the fact that addition of two numbers can be done in any order but subtraction from one number from another cannot.	Know that addition of two numbers can be done in any order (commutative) and subtraction from one number from another cannot.	Explain why addition of two numbers can be done in any order (commutative) and subtraction from one number from another cannot. Use all + calculations for three numbers within 100. $45+7=52$ $7+45=52$ $52-7=45$ $52-45=7$

2.11	Uses inverse to check	Use apparatus such as number lines, number squares, drawing/using counters... to explore the inverse relationship between addition and subtraction. Use apparatus to find missing numbers.						Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. 1 operation						Solve more complex missing number problems involving more than one operation. $3+4= _+2$ $5- _ = 2+1$ $30= 20+ _+ _$ $14+ _ -3=17$ $14+ _ = 15+27$					
score		Aut 1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2	Aut 1	Aut 2	Sp1	Sp 2	Sum 1	Sum 2	Aut1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2

3	Multiplication and division			
		Working Towards	Expected	Greater depth
2.12	Multiply/divide mentally	<p>Recall and use the multiples of 2, 5 and 10 to help solve multiplication calculations and problems</p> <p>Double numbers to 10 Halve numbers from 10</p>	<p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables.</p> <p>Recall and use multiples of 3.</p> <p>Double numbers to 20 Halve numbers from 20.</p> <p>Recognise odd and even numbers. (2 digit)</p>	<p>Recall and use multiplication and division facts for the 2, 3, 5, 10 multiplication tables and make deductions outside known multiplication facts. Eg. 18×5 cannot be 92 because 92 is not a multiple of 5</p> <p>Use reasoning to make statements about known facts. A multiple of 5 always has a 0 in the units column A multiple of 2 sometimes has a 7 in the units column Multiples of ten and multiples of 5 never have the same number in the units column</p> <p>Double numbers to 30 Halve numbers from 30. Recognise odd and even numbers (3 digit) Explaining, justifying convincing proving Eg. The sum of three odd numbers will always be odd</p>
2.13	Multiply and divide using written methods	<p>Begin to calculate mathematical statements for multiplication and division and write them using the multiplication (\times), division (\div) and equals (=) signs. Use multiples of 2/5 or 10. Use apparatus/arrays/number line/coins to work them out. Vocabulary:- lots of, times, double /divide/share/</p>	<p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs. Use repeated additions, repeated subtraction counting fingers or mental recall to work them out. Vocabulary:- lots of, times, multiplied by, product of, twice, double Divide/ shade /halve/quarter/third</p>	<p>Begin to divide using remainders</p> <p>Divide and times using 3 or 4- times table facts.</p> <p>$10+10+10+5+5= (3 \times 10) + 2 \times 5$</p>
2.14	Order of operations	<p>Begin to recognise and use the inverse relationship between times and divide and use this to check calculations and missing number problems.</p> <p>$3 \times 2 = 6$ $6 \div 2 = 3$</p> <p>$__ \div 2 = 3$ $3 \times 2 = 6$ 1 operation</p> <p>Use apparatus:- number lines/arrays</p>	<p>Know that multiplication of two numbers can be done in any order (Commutative) and division of one number by another cannot.)</p> <p>Recognise and use the inverse relationship between times and divide and use this to check calculations and missing number problems. Be able to make a times and its related divide calculation from 3 numbers.</p> <p>$3 \times 2 = 6$ $6 \div 2 = 3$</p> <p>$__ \div 2 = 3$ $3 \times 2 = 6$ 1 operation</p>	<p>Solve more complex missing number problems involving more than one operation. $3 \times _ = _ \times 2$</p> <p>Be able to make 4 calculations from 3 numbers. $2 \times 3 = 6$ $6 \div 3 = 2$ $3 \times 2 = 6$ $6 \div 2 = 3$</p>
2.15	Solve problems based on all 4 operations and knowledge of the commutative facts	<p>Begin to solve one-step real life problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with support of the teacher. Use multiples of 2/5/10</p>	<p>Solve real life problems involving multiplication and division, using pictorial representations, arrays, repeated addition, repeated subtraction and multiplication and division facts. Use multiples of 2/5/10</p>	<p>Solve real life problems involving multiplication and division, using pictorial representations, arrays, repeated addition, repeated subtraction and multiplication and division facts.</p> <p>Use multiples of 2/3/4/5/10 Begin to use remainders Begin to round up and round down</p> <p>Explain what is the same or different about two numbers or calculations. Eg. Which has the most biscuits; 4 packets of biscuits with 5 in each packet</p>

														3 packets of biscuits with 10 in each packet? Explain your reasoning.					
score		Aut 1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2	Aut 1	Aut 2	Sp1	Sp 2	Sum 1	Sum 2	Aut1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2

4	Fractions																		
		Working Towards						Expected						Greater depth					
2.16	Recognise, find, name, write and count fractions	Recognise, find name and write a half as one of two equal parts of an object, shape or quantity. Recognise, find name and write a quarter as one of four equal parts of an object, shape or quantity.						Begin to recognise, find, name and write fractions $1/3$, $2/3$ $3/3$ $1/4$ $2/4$, and $3/4$ $4/4$ of a length, shape, set of objects or quantity. Begin to count in halves and quarters						Read, write and find fractions $1/3$ $2/3$ $3/3$ $1/4$ $2/4$ $3/4$ $4/4$ of a length, shape, set of objects or quantity. Count in halves and quarters					
2.17	Comparing and ordering fractions Real life problem solving	Begin to solve real life problems using unitary fractions $1/2$ $1/4$ $1/3$						Solve real life problems using unitary fractions. $1/2$ $1/4$ $1/3$ Begin to solve real life problems using non unitary fractions $2/3$ $2/4$ $3/4$ Recognise the equivalence of $2/4$ and $1/2$						Begin to compare fractions, and order fractions of the same denomination. $1/2 > 1/4$ Find and compare fractions of amounts. $1/2$ of 12 $>$ $1/3$ of 12 Recognise the equivalence of $4/4$ $3/3$ $2/2$ and 1					
score		Aut 1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2	Aut 1	Aut 2	Sp1	Sp 2	Sum 1	Sum 2	Aut1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2

5	Measurement			
		Working Towards	Expected	Greater depth
M2.18	Estimating and measuring	<ul style="list-style-type: none"> Measure and begin to record the following: Lengths and heights Mass/weight Capacity/volume Time (hours, minutes, seconds) 	Choose and use appropriate standard units to estimate and measure:- length/height in any direction (M/cm) Mass (Kg/g) Temperature (degrees C) Capacity (litres/ml) Work to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels.	Measure accurately.
M2.19	Compare, describe and order measures	Compare, describe and solve practical problems for: <ul style="list-style-type: none"> Lengths and heights(eg. Long/short longer/shorter tall/short double half) Mass/weight (eg. Heavy/light heavier than lighter than) Capacity and volume (eg. Full/empty, more than, less than, half, half full, quarter) Time (eg. Quicker, slower, earlier , later 	Compare and order lengths, mass, volume/capacity and record the results using < > and = Begin to read different scales	Solve problems using length, mass, volume/capacity Read different scales Explain What's the same or different about two things. Eg. two bottles filled with different amounts of water.
2.20	money	Recognise and know the value of different denominations of coins and notes 1p 2p 5p 10p 20p 50p £1 £2 £5 £10 £20 £50 £100 Combine amounts to £1 Use knowledge of money with counting in 2's, 5's and 10's to count money efficiently.	Recognise and use the symbols for pounds (£) and pence (p) Combine amounts to make a particular value. Find different combinations of coins that equal the same amounts of money. Use the fewest coins to make amounts to £1 Work within a £1	Work with pence and pound over a hundred. Show me 2 ways to make £120
2.21	Solve mathematical problems involving money	Begin to solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. Work within 20.	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. Up to £1	Solve two operation problems involving money Work up to £2 Sam says I can make 97p using just 4 coins. Is he correct? Explain your reasoning. Sid says I have bought 2 items for my holiday. One item cost £9 more than the other. I spent over £15. What two items did Sid buy?
2.22	Compare and sequence intervals of time	Sequence events in chronological order using language (before/after/next/first/today/yesterday/tomorrow/morning/afternoon/evening Recognise and use language relating to dates, including days of the week, months and years.	Compare and sequence intervals of time. Eg. Children should compare how many things can be done in a given time. Children should time activities in minutes using a stop watch and order them	Solve real life problems involving comparing, sequencing and ordering time. Children should work out how long different activities take by reading the times on analogue clocks and comparing them. Counting in hours, half hours, quarter of an hour or 5 minutes.
2.23	Telling time , ordering time and units of time	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. Make clocks an hour later or earlier. Make clocks half an hour later or earlier.	Tell and write the time to 5 minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. Know the number of minutes in an hour and the number of hours in a day.	Make times an hour/half an hour/quarter of an hour /5 minutes later/earlier.

7	statistics																		
		Working Towards						Expected						Greater depth					
2.30	Interpret and represent data							Interpret and construct simple pictograms, block diagrams, tally charts, simple tables and Carroll diagrams Make or interpret block diagrams where not all the numbers on the scale are given. Numbers might go up in 2/5/10 Make pictograms in a scale of 2/5						Record data on more complex Carroll diagrams Present information in a clearer way. Explore what's the same or different between tables.					
2.31	Solve problems involving data							Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data. Most/least/ greater/less/						Answer questions about how many more/fewer /less Find the difference between categories Who has the same? How many objects/people/animals altogether? Order categories from biggest to smallest or smallest to biggest					
score		Aut 1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2	Aut 1	Aut 2	Spl	Sp 2	Sum 1	Sum 2	Aut1	Aut 2	Sp 1	Sp 2	Sum 1	Sum 2

Year 3 Maths Assessment²⁰²⁴

Arithmetic Test Level

Name: _____

	NC Objectives	Year 3 Working Towards	Year 3 Expected	Year 3 Greater Depth
Number and Place Value	To count from 0 in multiples of 4, 8, 50 and 100. NI	1	2	3
		Can count from 0 in multiples of 4, 50 and 100; find 10 more or less than a given number. Date: _____ Date: _____	Can count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. Date: _____ Date: _____	Can count from 0 and other numbers in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number, explaining what happens to the different place value. Date: _____ Date: _____

	To compare and order numbers up to 1000 Read and write numbers up to 1000 in numerals and words N2a	Can compare and order numbers up to 200. Can read and write numbers up to 200 in numerals and in words. Date: _____ Date: _____	Can compare and order numbers up to 1000. Can read and write numbers up to 1000 in numerals and in words. Date: _____ Date: _____	Can compare and order numbers up to 1000 using $<>$, applying knowledge in a number of contexts including money problems Date: _____ Date: _____
	To find 10 or 100 more or less than a given number N2b	Can find 10 more than any given number up to 1000. With support can find 10 less including bridging 100. Date: _____ Date: _____	Can find 10 or 100 more or less than any given number up to 10,000 Date: _____ Date: _____	Can find 10 or 100 more or less and explain their calculations using manipulatives and correct vocabulary. Date: _____ Date: _____
	To recognise the place value of each digit in a three digit number (hundreds, tens, ones) N3	Can recognise the place value of each digit in a three-digit number less than 200 (hundreds, tens, ones). Date: _____ Date: _____	Can recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Date: _____ Date: _____	Can compare and order numbers, justifying answers clearly based on partitioning. Date: _____ Date: _____
	To identify, represent and estimate numbers using different representations N4	Can, with support, use dienes to represent up to three digit numbers, starting to move onto place value counters and place value charts to represent simple 3 digit numbers. Date: _____ Date: _____	Can use place value counters, dienes and other manipulatives to identify, represent and estimate numbers. Date: _____ Date: _____	Use knowledge to challenge statements. Sarah says 601 is smaller than 579 because it has a zero in it. Use place value counters, arrow cards or dienes to explain if she is correct or incorrect. Date: _____ Date: _____
	To solve number problems and practical problems involving these ideas N6	Can solve simple one step number problems involving ordering numbers up to 1000 or similar. Date: _____ Date: _____	Can solve number problems in a number of contexts that involve comparing and ordering numbers up to 1000. Date: _____ Date: _____	Can solve number problems in a number of contexts that involve comparing and ordering numbers up to 1000. Can agree or disagree with a number statement by demonstrating their reasoning. Date: _____ Date: _____
Calculations	To add and subtract numbers mentally, including a 3 digit number and ones, a 3 digit number and tens and a 3 digit number and hundreds C1	Can add and subtract numbers with support of models or images, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds. Date: _____ Date: _____	Can add and subtract numbers mentally including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds. Date: _____ Date: _____	Can add and subtract numbers mentally using a variety of partitioning methods and the communicative rule for addition. Can justify their choice of methods, evaluating the most efficient. Date: _____ Date: _____
	To add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction. C2	Can add and subtract numbers with up to three digits, using simple formal written methods of columnar addition and subtraction. Date: _____ Date: _____	Can add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Date: _____ Date: _____	Can add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction to prove or disprove a statement or to check an answer. Can apply the method in problems involving money or measurements. Date: _____ Date: _____
	To estimate the answer to a calculation and use inverse operations to check answers C3	Can use subitising to estimate smaller numbers. Can use simple rounding skills to round to the nearest 10 or 100. Date: _____ Date: _____	Can estimate answers to a sensible degree rounding to the nearest 10 or 100 as appropriate. Can use inverse operations without prompting to check answers. Date: _____ Date: _____	Can estimate answers to a sensible degree rounding to the nearest 10 or 100 as appropriate, justifying their choices. Uses inverse operations without prompting consistently to check answers and can explain the relationship. Date: _____ Date: _____
	To solve problems, including missing number facts, place value, and more complex addition and subtraction C4	Can solve problems, including missing number problems, using number facts and place value. Date: _____ Date: _____	Can solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. Date: _____ Date: _____	Can prove statements, explaining their reasoning clearly. Sometimes, always or never? When you add a one digit number to a three digit number the only column that changes is the ones. E.g. $346 + 3 = 349$ Date: _____ Date: _____

	To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables C6	Can recall and use multiplication and division facts for the 3 and 4 multiplication tables. Date: _____ Date: _____-	Can recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Date: _____ Date: _____	Can explain what is the same and what is different about 2 multiplication/division statements. Can demonstrate using manipulatives or pictorial representations. Date: _____ Date: _____
	To write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. C7	Can write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using the support of models and images. Date: _____ Date: _____	Can write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods Date: _____ Date: _____	Can approach a problem independently and with confidence. Make up a problem for 13×4 and solve it. Write a story for $18 \div 3 =$ Date: _____ Date: _____
	To solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. C8	Can solve problems, including missing number problems, involving multiplication and division. Date: _____ Date: _____	Can solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. Date: _____ Date: _____	Can find all possible numbers that satisfy a criteria. e.g. Roger has 96 patio slabs. Using all of the slabs find 3 different ways that he can arrange the slabs to form a rectangular patio. Date: _____ Date: _____
Fractions	To count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Fla	Can count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts. Date: _____ Date: _____	Can count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one- digit numbers or quantities by 10. Date: _____ Date: _____	Can find as many ways as possible to show a number or calculation to prove that tenths arise from dividing the whole by 10. Date: _____ Date: _____
	To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Flb	Can recognise, find and write fractions of a discrete set of objects: unit fractions. Date: _____ Date: _____	Can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Date: _____ Date: _____	Can solve more complex challenges using pictorial representations e.g. bar models to answer non unit fraction questions. e.g. 5 marbles are 0.4 or $\frac{2}{5}$ of a bag of marbles. How many marbles are in a full bag? Date: _____ Date: _____
	To recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Flc	Can recognise and use fractions as numbers $\frac{1}{2}$ and $\frac{1}{4}$ Date: _____ Date: _____	Can recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators e.g. $\frac{1}{4}$ of $12 = 3$ Date: _____ Date: _____	Can recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators e.g. $\frac{1}{4}$ of $12 = 3$. $\frac{3}{4}$ of $12 = 9$. Can apply their understanding in problem solving contexts. Date: _____ Date: _____
	To recognise and show, using diagrams, equivalent fractions with small denominators F2	Can start to recognise simple fraction equivalencies with support from a fraction wall. E.g $\frac{1}{2} = \frac{2}{4}$. $\frac{1}{4} = \frac{2}{8}$. Date: _____ Date: _____	Can recognise and show, using diagrams, equivalent fractions including halves/quarters/eighths and fifth/tenths. Starting to find equivalents between thirds/sixths. Date: _____ Date: _____	Can prove or disprove equivalencies in more complex problems. Can demonstrate fractions in pictorial or abstract form with confidence explaining their reasoning. Date: _____ Date: _____
	To compare and order unit fractions and fractions with the same denominators. F3	Can compare and order fractions with the same denominators. Date: _____ Date: _____	Can compare and order unit fractions, and fractions with the same denominators. Date: _____ Date: _____	Can find all possible fractions that satisfy a criteria e.g. all fractions less than a half. Date: _____ Date: _____

	To add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$] F4	Can unitise in tens, understanding that 10 can be thought of as a single unit of 1 ten and that these units can be added or subtracted. Date: _____ Date: _____	Can add and subtract fractions with the same denominator within 1 Date: _____ Date: _____	Can add and subtract fractions with the same denominator within and beyond 1 understanding the value as a mixed number or improper fraction. Date: _____ Date: _____
	To solve problems that involve all of the above. F10	Can, with support, start to deconstruct simple one step problems relating to multiplication and division and simple one unit fractions. (mainly $1/2$ and $1/4$) Date: _____ Date: _____	Can solve a range of word problems relating to fractions both unit and non-unit and in different contexts. Date: _____ Date: _____	In addition to expected, can find as many ways as possible to show a number or calculation. e.g. Jo ate $1/4$ of a pizza and Sam ate $1/2$ of what was left. Mike ate the rest of the pizza. Draw a diagram to represent how much pizza they each ate. Date: _____ Date: _____
Measurement	To compare lengths M1a	Can compare lengths in am and metres using equipment and with support. Date: _____ Date: _____	Can compare lengths in mm, am and metres using \leftrightarrow Date: _____ Date: _____	Can compare lengths in mm, cm and metres using \leftrightarrow and demonstrating through use of equipment diagrams. Date: _____ Date: _____
	To compare mass M1b	Can compare mass in grams and kilograms using equipment and with support. Date: _____ Date: _____	Can compare mass in grams and kilograms using \leftrightarrow Date: _____ Date: _____	Can compare mass in g and kg using \leftrightarrow and demonstrating through use of equipment diagrams. Date: _____ Date: _____
	To compare volume/capacity M1c	Can compare volume/capacity in ml and using equipment and with support. Date: _____ Date: _____	Can compare volume/capacity in ml and litres using \leftrightarrow Date: _____ Date: _____	Can compare volume/capacity in ml and litres using \leftrightarrow and demonstrating through use of equipment diagrams. Date: _____ Date: _____
	To measure lengths M2a	Can use a ruler and metre ruler to measure lengths up to 30cm and 100cm respectively, with support. Date: _____ Date: _____	Can use a ruler and metre ruler to measure any lengths in cm and metres. Date: _____ Date: _____	Can measure lengths in mm, cm and metres demonstrating confident use of equipment and independence. . Date: _____ Date: _____
	To measure mass M2b	Can use weighing scales to measure mass up to 100g and 1kg (1000g) respectively and with support. Date: _____ Date: _____	Can use weighing scales to measure any mass in grams and kilograms. Date: _____ Date: _____	Can measure mass in g and kg demonstrating confident use of equipment and independence. Date: _____ Date: _____
	To measure capacity M2c	Can use measuring jugs/cylinders to measure capacity up to 100ml and 1 litre (1000ml) respectively and with support. Date: _____ Date: _____	Can use measuring jugs/cylinders to measure any capacity in ml and litres. Date: _____ Date: _____	Can measure capacity in ml and litres demonstrating confident use of equipment and independence. Date: _____ Date: _____
	To tell and write the time from a 12 hour analogue clock M4a	Can understand the concept of 'to' and 'past' the hour. Can read the quarter hours and is starting to be able to read 5 minute intervals Date: _____ Date: _____	Can understand the concept of 'to' and 'past' the hour. Can read any minute intervals in the 12 hour clock Date: _____ Date: _____	Can explore all possible answers e.g. an analogue clock is missing one of its hands – explore all possible times it could show. Date: _____ Date: _____
	To tell and write the time from a 24 hour analogue clock M4b	Can understand the concept of 'to' and 'past' the hour. Knows the difference between am and pm. Is starting to understand how to read am/pm times with support. Date: _____ Date: _____	Can understand the concept of 'to' and 'past' the hour. Can read any minute intervals in the 24 hour clock and fully understands am/pm Date: _____ Date: _____	Can explore all possible answers e.g. an analogue clock is missing one of its hands – explore all possible times it could show. Date: _____ Date: _____

To tell and write the time from an analogue clock including Roman Numerals from I to XII. M4c	Can tell and write the time from an analogue clock, including using Roman numerals from I to XII with support. Date: _____ Date: _____	Can tell and write the time from an analogue clock, including using Roman numerals from I to XII independently Date: _____ Date: _____	Can explore all possible answers e.g. an analogue clock is missing one of its hands – explore all possible times it could show. Date: _____ Date: _____
To estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight M4d	Can estimate and read time with increasing accuracy to the nearest 5 minutes; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. Date: _____ Date: _____	Can estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. Date: _____ Date: _____	Can agree or disagree with statements, explaining their reasoning using mathematical vocabulary to justify their own answers. Date: _____ Date: _____
To know the number of seconds in a minute and the number of days in each month, year and leap year M4e	Knows the number of seconds in a minute. Date: _____	Knows the number of seconds in a minute and the number of days in each month, year and leap year. Date: _____	Can agree or disagree with statements, explaining their reasoning using mathematical vocabulary to justify their own answers. Date: _____ Date: _____
To compare durations of events [for example to calculate the time taken by particular events or tasks]. M4f	Can compare the duration of events in either seconds/minutes or hours without converting between units. Date: _____ Date: _____	Can compare durations of events [for example to calculate the time taken by particular events or tasks] by converting units with confidence and when required, order them. Date: _____ Date: _____	Can combine a number of different skills to approach a problem including fractions of amounts. Sam takes 40 seconds to tie his laces. Tom takes twice as long. Bob takes $\frac{3}{4}$ of this time. How many minutes for all of them to tie their laces? Date: _____ Date: _____
To measure the perimeter of 2-D shapes M7	Can measure the perimeter of rectangles. Date: _____ Date: _____	Can measure the perimeter of triangles, a range of quadrilaterals and other multi sided polygons such as pentagons Date: _____ Date: _____	Can find all the possible numbers that satisfy criteria. e.g. Draw as many rectangles as you can with a perimeter of 24cm. Explain how you know you have drawn them all. Date: _____ Date: _____
To add and subtract amounts of money to give change, using both pounds and pence in practical contexts M9a	Can add and subtract multiples of 10 and 5 from £1 moving to single pence, possibly with support and using manipulatives. Date: _____	Can add and subtract amounts of money to give change, using both £ and p in practical contexts. Date: _____ Date: _____	Can solve more complex problems that may include finding all possible solutions, justifying a statement, proving/disproving others in relation to money and change Date: _____
To add and subtract lengths (m/cm/mm) M9b	Can add and subtract lengths in cm and m starting with multiples of 10 with support. Date: _____	Can add and subtract lengths in mm/cm and metres independently and with confidence. Date: _____	Can solve more complex problems that may include finding all possible solutions, justifying a statement, proving/disproving others in relation to length e.g. A crocodile is 3 times the length of a pig. An elephant is 1.2m longer than a crocodile. The elephant is 4.2m long. How long is the pig? Date: _____
To add and subtract mass(kg/g) M9c	Can add and subtract mass in g up to 100g and 1 kg respectively, starting with multiples of 10 and with support. Date: _____	Can add and subtract mass in g and kg independently and with confidence. Date: _____	Can solve more complex problems that may include finding all possible solutions, justifying a statement, proving/disproving others in relation to mass in g or kg Date: _____
To add and subtract volume and capacity (l/ml) M9d	Can add and subtract volume up to 100ml and 1 litre respectively starting with multiples of 10 and with support. Date: _____	Can add and subtract volume in ml and litres independently and with confidence. Date: _____	Can find as many ways as possible to show a number or calculation. Can prove/disprove/justify statements using calculations of volume Date: _____

Geometry	To identify horizontal and vertical lines and pairs of perpendicular and parallel lines. G2	Can identify horizontal and vertical lines. Date: _____ Date: _____	Can identify horizontal and vertical lines and pairs of perpendicular and parallel lines. Date: _____ Date: _____	Can identify all possible horizontal and vertical lines and pairs of perpendicular and parallel lines in all orientations and in a range of shapes. Date: _____ Date: _____
	To draw 2-D shapes G3a	Can draw 2D shapes with support using modelling materials. Date: _____ Date: _____	Can draw 2D shapes with accuracy using a ruler and joining marked points. Date: _____ Date: _____	Can draw 2D shapes by following instructions including reference to parallel and perpendicular lines and following other descriptions. Date: _____ Date: _____
	To make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them G3b	Can make simple 3D shapes when requested using 3D modelling tools, possibly with support initially. Date: _____ Date: _____	Can make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them. Date: _____ Date: _____	Can use knowledge to explain reasoning/ prove/disprove statements. E.g. True or false? The shape of a cross section of a sphere will always be a circle? The shape of a cross section of a cylinder is always a circle. The cross section of a cone is always a circle. Explain your reasoning. Date: _____ Date: _____
	To recognise angles as a property of shape or a description of a turn G4a	Can recognise right angles as a property of shape or a description of a turn Date: _____ Date: _____	Can recognise angles as a property of shape or a description of a turn, including all half and quarter turns. Date: _____ Date: _____	Can find as many ways as possible to show a number or calculation Date: _____ Date: _____
	To identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.G4b	Can identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn. Date: _____ Date: _____	Can identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. Date: _____ Date: _____	Can identify all possible right angles in a wide range of orientations, recognising that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle in all possible orientations in a variety of shapes. Date: _____ Date: _____
Statistics	To interpret and present data using bar charts, pictograms and tables S1	Can interpret and present data using simple bar charts, pictograms and tables. Date: _____ Date: _____	Can interpret and present data using bar charts, pictograms and tables in a variety of contexts. Date: _____ Date: _____	Can interpret and present data using bar charts, pictograms and tables in a variety of contexts explaining answers with reference to the structure of each of the diagrams/charts/tables. Date: _____ Date: _____
	To solve one step and two step questions, (e.g. 'How many more?' & 'How many fewer?') using information presented in scaled bar charts and pictograms and tables. S2	Can solve one-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in simple bar charts and pictograms and tables. Date: _____ Date: _____	Can solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. Date: _____ Date: _____	Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. Can prove/disprove statements of others using data in different contexts. Date: _____ Date: _____

HT1	HT2	HT3	HT4	HT5	HT6

Arithmetic Test Level

Year 4 Maths Assessment

Name: _____

	NC Objectives	Year 4 Working Towards	Year 4 Expected	Year 4 Greater Depth
		1	2	3
Number and Place Value	To count in multiples of 6, 7, 9, 25 and 1000 N1	Can count in multiples of 6, 9 and 1000 Date: _____ Date: _____	Can count in multiples of 6, 7, 9, 25 and 1000 Date: _____ Date: _____	Count in multiples of 6, 7, 9, 25 and 1000 from any number. Date: _____ Date: _____
	To order and compare numbers beyond 1000 N2a	Can order and compare numbers to 1000. Date: _____ Date: _____	Can order and compare number beyond 1000 and up to 10,000 with confidence Date: _____ Date: _____	Can order and compare numbers beyond 1000 and up to 10,000 explaining why a number is larger or smaller using partitioning. Date: _____ Date: _____
	To find 1000 more or less than a given number. N2b	Can find 1000 more or less than any multiple of 100 then 10, possibly with support of a gattegno chart Date: _____ Date: _____	Can find 1000 more or less than any given number up to 10,000 Date: _____ Date: _____	Can find 1000 more or less than any given number with confidence Date: _____ Date: _____
	To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) N3a	Can recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) with support. Date: _____ Date: _____	Can recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). Date: _____ Date: _____	Can recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). Date: _____ Date: _____
	To read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value N3b	Can read Roman numerals to 10 (I to X). Date: _____ Date: _____	Can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. Date: _____ Date: _____	Can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. Also, can reason why the Roman numeral system worked Date: _____ Date: _____
	To identify, represent and estimate numbers using different representations N4a	Can identify, represent and estimate numbers using different representations including place value charts, arrow cards, counters, gattegno, tens frames with support. Date: _____ Date: _____	Can identify, represent and estimate numbers using different representations including place value charts, arrow cards, counters, gattegno, tens frames. Date: _____ Date: _____	Can use different representations to demonstrate understanding and explain reasoning in different problems. Date: _____ Date: _____
	To round any number to the nearest 10, 100 or 1000 N4b	Can round any number to the nearest 10 or 100. Date: _____ Date: _____	Can round any number to the nearest 10, 100 or 1000. Date: _____ Date: _____	Round any number to the nearest 10, 100 or 1000 and identify all possible numbers that would round to a given multiple of 10, 100, 1000 Date: _____ Date: _____

	To count backwards through zero to include negative numbers N5	Can count backwards to zero. Date: _____ Date: _____	Can count backwards to zero and to include negative numbers. Date: _____ Date: _____	Can count backwards though zero to include negative numbers <i>and forwards from -10 through 0</i> . Date: _____ Date: _____
	To solve number and practical problems that involve all of the above and with increasingly large positive numbers N6	Can solve simple one step number and practical problems that involve all of the above and with increasingly large positive numbers up to 1000. Date: _____ Date: _____	Can solve a range of number and practical problems that involve all of the above and with increasingly large positive numbers. Date: _____ Date: _____	Can solve number and practical problems that involve all of the above across a range of contexts including measurement and monetary problems with increasingly large positive numbers. Date: _____ Date: _____
Calculations	To add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. C2	Can add numbers up to 4 digits with exchange, using the formal method of addition. Is beginning to subtract using the formal written method with support. Date: _____ Date: _____	Can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Date: _____ Date: _____	Can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Date: _____ Date: _____
	To estimate and use inverse operations to check answers to a calculation. C3	Can estimate and use inverse operations to check answers to a <i>simple</i> calculation. Date: _____ Date: _____	Can estimate and use inverse operations to check answers to <i>calculations</i> . Date: _____ Date: _____	Can estimate and use inverse operations to prove or disprove statements, explaining their reasoning. Date: _____ Date: _____
	To solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. C4	Can begin to solve simple addition and subtraction two-step problems in contexts, deciding which operations and methods to use with support. Date: _____ Date: _____	Can solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. Date: _____ Date: _____	Can solve a wide range of addition and subtraction problems confidently across a range of contexts e.g., measurement and money problems Date: _____ Date: _____
	To recall multiplication and division facts for multiplication tables up to 12×12 . C6a	Can recall multiplication and division facts for <i>the 2, 3, 4, 5 and 10</i> multiplication tables. Date: _____ Date: _____	Can recall multiplication and division facts for the first 12 multiplication tables. Date: _____ Date: _____	Can recall multiplication and division facts for the first 12 multiplication tables and apply consistently with ease in a range of problems. Date: _____ Date: _____
	To use place value, known and derived facts to multiply and divide mentally. C6b	Can use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1 and dividing by 1 Date: _____ Date: _____	Can use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Date: _____ Date: _____	Can use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Can use partitioning of tens and units to multiply numbers larger than 12. Date: _____ Date: _____
	To recognise and use factor pairs and commutativity in mental calculations. C6c	Can recognise and use factor pairs to 20 and commutativity in mental calculations <i>by reversing the multipliers</i> . Date: _____ Date: _____	Can recognise and use factor pairs and commutativity in mental calculations. Date: _____ Date: _____	Can recognise and use factor pairs and commutativity in mental calculations, applying method to include multiples of 10. Date: _____ Date: _____
	To multiply two-digit and three-digit numbers by a one-digit number using formal written layout. C7	Can multiply two-digit numbers by a one-digit number using formal written layout. Date: _____ Date: _____	Can multiply two-digit and three-digit numbers by a one-digit number using formal written method. Date: _____ Date: _____	Can multiply two-digit and three-digit numbers by a one-digit number using formal written method and use estimation and inverse operations to check answers without prompting. Date: _____ Date: _____

	To solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. C8	Can solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit and integer scaling problems. Date: _____ Date: _____	Can solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. Date: _____ Date: _____	Can solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. Date: _____ Date: _____
Fractions	To count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. F1	Can count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred. Date: _____ Date: _____	Can count up and down in hundredths, recognising that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Date: _____ Date: _____	Can count up and down in hundredths, recognising that hundredths arise when dividing an object by one hundred and dividing tenths by ten and explain their understanding demonstrating with manipulatives Date: _____ Date: _____
	To recognise and show, using diagrams, families of common equivalent fractions. F2	Can recognise and show, using diagrams such as bar models and fraction walls, families of common equivalent fractions – halves, quarters, fifths and tenths. Date: _____ Date: _____	Can recognise and show, using diagrams such as bar models and fraction walls, families of common equivalent fractions – halves, quarters, eighths, fifths and tenths, thirds and sixths, ninths Date: _____ Date: _____	Can accurately identify missing equivalent fractions and explain their thinking clearly $2/10 = ?/5$ or $9/12 = ?/?$ Date: _____ Date: _____
	To add and subtract fractions with the same denominator. F4	Can add and subtract fractions using a number line and not crossing the whole. Date: _____ Date: _____	Can add and subtract fractions with the same denominator including more than one. Date: _____ Date: _____	Can add and subtract fractions with the same denominator, using knowledge of common equivalents to write the answers in a simpler form. Date: _____ Date: _____
	To recognise and write decimal equivalents to $1/4$ $.1/2$ □ F6a	Can recognise and write the decimal equivalent to $1/2$ understanding why it is 0.5 in tenths and 0.50 in hundredths Date: _____	Can recognise and write decimal equivalents to $1/4$ $.1/2$ $3/4$ Date: _____	Can recognise and write decimal equivalents to $1/4$ $.1/2$ $3/4$ and starting to use eighths Date: _____
	To recognise and write decimal equivalents of any number of tenths or hundredths. F6b	Can recognise and write decimal equivalents of any number of tenths. Date: _____ Date: _____	Can recognise and write decimal equivalents of any number of tenths or hundredths. Date: _____ Date: _____	Can recognise and write decimal equivalents of any tenths or hundredths and explain their reasoning by demonstrating in different ways such as on number lines. Date: _____ Date: _____
	To round decimals with one decimal place to the nearest whole number F7	Can round decimals with one decimal place to the nearest whole number with support and using a number line. Date: _____ Date: _____	Can round decimals with one decimal place to the nearest whole number Date: _____ Date: _____	Can provide all possible decimals (tenths) that could round to a given whole number, justifying their answer. Date: _____ Date: _____
	To compare numbers with the same number of decimal places up to two decimal places. F8	Can compare simple numbers up to one decimal place. Date: _____	Can compare numbers with the same number of decimal places up to two decimal places. Date: _____	Can compare numbers with the same number of decimal places, explaining your answer. Date: _____ Date: _____
	To find the effect of dividing a one- or two- digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. F9	Can find the effect of dividing a one- or two- digit number by 10 and identifying the value of the digits in the answer as ones, tenths and hundredths. Date: _____ Date: _____	Can find the effect of dividing a one- or two- digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Date: _____ Date: _____	Can find the effect of dividing a one- or two- digit number by 10 and 100 and explain how the value changes using gattegno and place value. Can use inverse to help explain understanding. Date: _____ Date: _____

	To solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non- unit fractions where the answer is a whole number. FIOa	Can solve problems involving halves and quarters of quantities, possibly other common single unit fractions where the answer is a whole number Date: _____ Date: _____	Can solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non- unit fractions where the answer is a whole number. Date: _____ Date: _____	Can solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non- unit fractions where the answer is a whole number demonstrating their understanding through reasoning problems. Date: _____ Date: _____
	To solve simple measure and money problems involving fractions and decimals to two decimal places. FIOb	Can solve simple measure and money problems involving fractions and decimals to one decimal places with support. Date: _____	Can solve simple measure and money problems involving fractions and decimals to two decimal places. Date: _____	Can solve more complex measure and money problems involving fractions and decimals to two decimal places. Date: _____
Measurement	To compare different measures, including money in pounds and pence MI	Can compare different measures using a range of manipulatives and concrete measures with support. Date: _____ Date: _____	Can compare different measures, including money in pounds and pence Date: _____ Date: _____	Can use their knowledge to explain their reasoning when comparing different measures. Date: _____ Date: _____
	To estimate different measures, including money in pounds and pence M2	Can start to make sensible estimations with support Date: _____ Date: _____	Can estimate different measures including money in pounds and pence Date: _____ Date: _____	Can use their knowledge to explain their reasoning when estimating different measures. Date: _____ Date: _____
	To read, write and convert time between analogue and digital 12 hour clocks. M4a	Can read an analogue clock knowing 'to' and 'past' the hour. Can relate this to digital with support. Date: _____ Date: _____	Can read an analogue clock with confidence and convert to 12 hour digital independently. Date: _____ Date: _____	Can read, write and convert time between analogue and digital using their knowledge to prove or disprove statements. Date: _____ Date: _____
	To read, write and convert time between analogue and digital 24 hour clocks. M4b	Can read an analogue clock with confidence knowing 'to' and 'past' the hour. Can relate this to 24 digital with support. Date: _____ Date: _____	Can read an analogue clock with confidence and convert to 24 hour digital independently. Date: _____ Date: _____	Can read, write and convert time between analogue and digital using their knowledge to prove or disprove statements. E.g. Andrew watched a film at the local cinema that started at 14.20. He was back home by 5.00pm after a 30 minute bus ride home. The film lasted 2 hours 45 mins. Could he have watched the end of the film? Explain your answer. Date: _____ Date: _____
	To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. M4c	Knows that there are 60 seconds in a minute and 60 minutes in an hour. Knows that there are 24 hours in a day, 7 days in a week and 365 days in a year (leap 366) 52 weeks in a year. Can use a rhyme to remember days in each month of the year. Date: _____ Date: _____	Can solve a range of problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and knows the days in each month of the year Date: _____ Date: _____	Can do all of expected and can apply their knowledge to justify/challenge statements e.g. Simon says there are more hours in 2 days than weeks in a year. Is he correct? Date: _____ Date: _____
	To convert between different units of measure M5	Can convert between cm and metres Can convert between metres and kilometres Understand what kilo, centi and milli mean and use vocabulary appropriately. Date: _____ Date: _____	Convert between different units of measure.Can understand what kilo, centi and milli mean and use vocabulary appropriately. Can convert between mm, cm, m and km. Can convert between mg, g and kg. Can convert between ml and litres. Date: _____ Date: _____	Convert between different units of measure as expected and starting to use fractions of units with confidence e.g. 1/4 of a metre, 1/10 of a kilogram. Date: _____ Date: _____

	To measure and calculate the perimeter of a rectilinear figure in centimetres and metres. M7a	Can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres Date: _____ Date: _____	Can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. Date: _____ Date: _____	Can measure, calculate and compare the perimeters of different rectilinear figure (including squares) in centimetres and metres Date: _____ Date: _____
	To find the area of rectilinear shapes by counting squares. M7b	Can Find the area of simple <i>rectangles</i> by counting squares. Date: _____ Date: _____	Can find the area of a wide range of rectilinear shapes by counting squares. Date: _____ Date: _____	Can explore possibilities given a criteria and reason. E.g. A fourteen sided shape has to be a rectangle? Explain your answer. Date: _____ Date: _____
	To estimate, compare and calculate different measures, including money in pounds and pence. M9	With support, can estimate, compare and calculate simple measures, including money in pounds and pence Date: _____ Date: _____	Can estimate, compare and calculate different measures, including money in pounds and pence. Date: _____ Date: _____	Can estimate, compare and calculate different measures, including money in pounds and pence and use this to justify their reasoning in problems. Date: _____ Date: _____
Geometry	To compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. G2a	Can compare and classify quadrilaterals and triangles based on their properties and sizes. Date: _____ Date: _____ -	Can compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Date: _____ Date: _____	Can explain and justify their reasoning of an answer based on their knowledge of shape properties. E.g. Captain Con.jecture says that a rectangle is a regular shape because it has four right angles. Do you agree? Explain your reasoning. Captain Con.jecture says that a quadrilateral can sometimes only have three right angles. Do you agree? Explain your reasoning. Date: _____ Date: _____
	To identify lines of symmetry in 2D shapes presented in different orientations. G2b	Can identify lines of symmetry in 2D shapes <i>about a vertical line of symmetry</i> . Date: _____ Date: _____	Can identify lines of symmetry in 2D shapes presented in different orientations. Date: _____ Date: _____	Can identify a rule for the number of lines of symmetry in a regular 2D shape based on investigations. Date: _____ Date: _____
	To complete a simple symmetric figure with respect to a specific line of symmetry. G2c	Can complete a simple symmetric figure across a vertical line of symmetry. Date: _____ Date: _____	Can complete shapes or patterns with missing sections based on a given line of symmetry in all horizontal and vertical orientations. Date: _____ Date: _____	Can complete shapes or patterns with missing sections based on a given line of symmetry in all orientations including diagonal. Date: _____ Date: _____
	To identify acute and obtuse angles and compare and order angles up to two right angles by size. G4	Can identify acute angles and compare and order angles up to one right angle by size. Date: _____ Date: _____	Can identify acute and obtuse angles and compare and order angles up to two right angles by size. Date: _____ Date: _____	Can use their knowledge of different angles to reason/explain an answer. E.g. Fiona says this triangle has two obtuse angles. Can she be right? Date: _____ Date: _____

	<p>To describe movements between positions as translations of a given unit to the left/right and up/down.</p> <p>P2</p>	<p>Can describe <i>simple</i> movements between positions as translations of a given unit to the left/right and up/down.</p> <p>Date: _____ Date: _____</p>	<p>Can describe movements between positions as translations of a given unit to the left/right and up/down.</p> <p>Date: _____ Date: _____</p>	<p>Can use knowledge of co-ordinates and translation data to agree/disagree with the translations of others. Can explain their reasoning using correct mathematical vocabulary.</p> <p>Date: _____ Date: _____</p>
	<p>To describe positions on a 2D grid as coordinates in the first quadrant.</p> <p>P3a</p>	<p>Can plot positions on a 2D grid as coordinates in the first quadrant.</p> <p>Date: _____ Date: _____</p>	<p>Can describe positions on a 2D grid as coordinates in the first quadrant.</p> <p>Date: _____ Date: _____</p>	<p>Can identify and justify missing co-ordinates on any line in the first quadrant. Consider co-ordinates with decimals –tenths.</p> <p>Date: _____ Date: _____</p>
	<p>To plot specified points and draw sides to complete a given polygon.</p> <p>P3b</p>	<p>Can plot specific points and draw sides to complete a simple rectangle.</p> <p>Date: _____ Date: _____</p>	<p>Describe positions on a 2D grid as coordinates in the first quadrant. Can plot and give co-ordinates of missing vertices of triangles and quadrilaterals in the first quadrant.</p> <p>Date: _____ Date: _____</p>	<p>Can explore possible co-ordinates of missing vertices of triangles and quadrilaterals in the first quadrant from alternative orientations. Can explore possible co-ordinates for regular and irregular polygons such as pentagons and hexagons.</p> <p>Date: _____ Date: _____</p>
Statistics	<p>To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>S1</p>	<p>Can interpret discrete data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Date: _____ Date: _____</p>	<p>Can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Date: _____ Date: _____</p>	<p>Can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs explaining their reasoning for an answer by relating to the data. Children hypothesise beyond the data that are presented, asking and answering questions such as ‘What would happen if..?’</p> <p>Date: _____ Date: _____</p>
	<p>To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p> <p>S2</p>	<p>Can solve simple comparison, sum and difference problems using information presented in bar charts, pictograms and tables. Beginning to be able to read line graphs.</p> <p>Date: _____ Date: _____</p>	<p>Can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p> <p>Date: _____ Date: _____</p>	<p>Can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs explaining whether the interpretation of others is correct explaining why.</p> <p>Date: _____ Date: _____</p>

HT1	HT2	HT3	HT4	HT5	HT6

Year 5 Maths Assessment

Arithmetic Test Level

Name: _____

	NC Objectives	Year 5 Working Towards	Year 5 Expected	Year 5 Greater Depth
		1	2	3
Number and Place Value	Can count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 N1	Can count forwards or backwards in steps of 10, 100 and 1000 for any given number up to 10 000. Date: _____ Date: _____	Can count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. Date: _____ Date: _____	Can count forwards or backwards in multiples of steps of powers of 10 for any given number up to 1 000 000. ask their own mathematical questions and follow their own lines of enquiry when exploring an open-ended maths problem. Date: _____ Date: _____
	Can read, write, order and compare numbers to at least 1 000 000 N2	Can read, write, order and compare numbers to at least 100 000 and determine the value of each digit. Date: _____ Date: _____	Can read, write, order and compare numbers to at least 1 000 000 Date: _____ Date: _____	Can access maths problems presented in a wide range of different, complex ways and find all the possible numbers that satisfy criteria Date: _____ Date: _____
	Can determine the value of each digit in numbers up to 1,000,000 N3a	Can determine the value of each digit in first 10,000 then 100,000 with confidence Date: _____ Date: _____	Can determine the value of each digit in numbers up to 1,000,000 Date: _____ Date: _____	Can justify and prove their conjectures when reasoning; Explain why a statement is correct or wrong. Eg what is the largest number you can make with these digits – justify your choice. Date: _____ Date: _____
	Can read Roman numerals to 1000 (M) and recognise years written in Roman numerals N3b	Can read Roman numerals to 1000 (M). Date: _____ Date: _____	Can read Roman numerals to 1000 (M) and recognise years written in Roman numerals Date: _____ Date: _____	. Can access problems involving Roman numerals in a variety of complex ways. Can both read and write in Roman numerals. Date: _____ Date: _____
	Can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 N4	Can round any number up to 100 000 to the nearest 10, 100, 1000 and 10 000. Date: _____ Date: _____	Can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. Date: _____ Date: _____	Can explore all possible answers e.g. all numbers that could round to 1 million to the nearest 10. Date: _____ Date: _____
	Can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero N5	Can count forwards and backwards with positive and negative whole numbers, including through zero. Date: _____ Date: _____	Can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. Date: _____ Date: _____	Can justify and prove their conjectures when reasoning in answers to problems relating to negative numbers in different contexts e.g. ocean depths or temperatures. Date: _____ Date: _____
	Can solve number problems and practical problems that involve all of the above N6	Can solve simple number problems and practical problems that involve all of the above with support. Date: _____ Date: _____	Can solve number problems and practical problems that involve all of the above Date: _____ Date: _____	Can use explain, justifying, convincing, proving to answer more complex problems. Date: _____ Date: _____

Calculations	Can add and subtract numbers mentally with increasingly large numbers C1	Can add and subtract numbers <i>up to 3 digits</i> mentally. Date: _____ Date: _____	Can add and subtract numbers mentally with increasingly large numbers Date: _____ Date: _____	Can explore more complex number combinations when calculating mentally knowing when to use both counting on and subtracting methods. Can justify the most efficient methods chosen. Date: _____ Date: _____
	Can add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) C2	Can add and subtract whole numbers with more than 3 digits, including using formal written methods (columnar addition and subtraction). Date: _____ Date: _____	Can add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) Date: _____ Date: _____	Can prove/disprove statements by using formal written methods (columnar addition and subtraction in a range of different contexts including measurements and money Date: _____ Date: _____
	Can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy C3	Can use rounding to the nearest 10, 100 or 1000 to check answers to calculations. Date: _____ Date: _____	Can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Date: _____ Date: _____	Can find all numbers that apply to a specific rounding criteria within the context of a problem. E.g. all decimal numbers that round to 5.12 to the nearest hundredth (exploring thousandths) Date: _____ Date: _____
	Can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. C4	Can, with support, solve simple addition and subtraction one step problems in different contexts. Date: _____ Date: _____	Can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Date: _____ Date: _____	Can solve more complex problems explaining their reasoning. Sam and Tom have £67.80 between them. If Sam has £6.20 more than Tom, how much does Tom have? Explain your reasoning. Date: _____ Date: _____
	Can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers C5a	Can identify multiples and factors, including finding all factor pairs of numbers <i>less than 20</i> , and common factors of two numbers <i>less than 20</i> Date: _____ Date: _____	Can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Date: _____ Date: _____	Can justify and prove their reasoning e.g. factors come in pairs so all numbers have an even number of factors. Do you agree? Explain your reasoning. Date: _____ Date: _____
	Can know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers C5b	Knows and uses the vocabulary of prime numbers. Date: _____ Date: _____	Knows and uses the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Date: _____ Date: _____	Can explain why numbers are prime and composite and how they know. Explaining why 1 is not a prime number. Date: _____ Date: _____
	Can establish whether a number up to 100 is prime and recall prime numbers up to 19 C5c	Can recall prime numbers up to 19. Date: _____ Date: _____	Can establish whether a number up to 100 is prime and recall prime numbers up to 19. Date: _____ Date: _____	Can explain why numbers are prime or composite when justifying answers. Date: _____ Date: _____
	Can recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) C5d	Can recognise and use square numbers up to 100, and the notation for squared (2). Date: _____ Date: _____	Can recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). Date: _____ Date: _____	Can explore all possible solutions e.g. are there more square numbers between 1 and 50 or 50 and 100? Prove or disprove statements, justify answers. Date: _____ Date: _____
	Can multiply and divide numbers mentally drawing upon known facts C6a	Can multiply and divide simple numbers using multiples from known times tables. Date: _____ Date: _____	Can multiply and divide numbers mentally drawing upon known facts. Date: _____ Date: _____	Can justify and prove their conjectures when reasoning. E.g. Use a combination of numbers to explore and find the highest product possible. Date: _____ Date: _____

Can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 C6b	Can multiply and divide whole numbers and those involving decimals by 10 and 100. Date: _____ Date: _____	Can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Date: _____ Date: _____	Can find the most efficient way of finding a solution. e.g. At the school concert there were 200 seats. The tickets were all sold and the school collected £2,400. Find a quick way of finding out how much each ticket cost. Date: _____ Date: _____
Can multiply numbers up to 4 digits by a one or two digit number using formal written methods, including long multiplication for two digit numbers C7a	Can multiply numbers up to 3 digits by a one- digit number using a formal written method Date: _____ Date: _____	Can multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. Date: _____ Date: _____	Can find all possible numbers that satisfy a criteria. e.g. find missing digits in written multiplications Date: _____ Date: _____
Can divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context C7b	Can divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. Date: _____ Date: _____	Can divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context Date: _____ Date: _____	Can find all possible numbers that satisfy a criteria. e.g. When 3472 was divided by a single number between 3 and 9 there was no remainder. How many possible single digit numbers could there have been? Date: _____ Date: _____
Can solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes C8a	Can solve simple problems involving multiplication and division using their knowledge of factors and multiples of lower times tables Date: _____ Date: _____	Can solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Date: _____ Date: _____	Can solve more complex, multi-step problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Date: _____ Date: _____
Can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign C8b	Can solve simple problems involving the 4 operations with an understanding of the equals sign and balancing sums. Date: _____ Date: _____	Can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Date: _____ Date: _____	Can access more complex problems in a variety of different contexts. E.g. Fill in the missing digits $? \div 120 = 117 \div 13 = 10$ $800 \div ? = 234 \div ?$ Date: _____ Date: _____
Can solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. C8c	Can solve simple problems involving multiplication and division. Date: _____ Date: _____	Can solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. Date: _____ Date: _____	Can solve more complex problems, using multiplication and division, scaling by simple fractions, justifying their answers through reasoning. Date: _____ Date: _____

Fractions	Can recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $2/5 + 4/5 = 6/5 = 1\frac{1}{5}$] F2a	Can recognise mixed numbers and improper fractions < 2 and convert from one form to the other. Date: _____ Date: _____	Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $2/5 + 4/5 = 6/5 = 1\frac{1}{5}$] Date: _____ Date: _____	Can answer more complex problems relating to mixed numbers and improper fractions. e.g. order a combination of improper numbers and mixed numbers using $<$ symbols. E.g. compare $6\frac{3}{4}$ and $29/4$. Can design their own combinations. Date: _____ Date: _____
	Can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths F2b	Can identify simple equivalent fractions using a fraction wall. Date: _____ Date: _____	Can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Date: _____ Date: _____	Can identify equivalent fractions and use manipulatives and/or pictorial methods to demonstrate their understanding – explaining their reasoning. Date: _____ Date: _____
	Can compare and order fractions whose denominators are all multiples of the same number F3	Can compare and order simple fractions with denominators of halves/quarters and eighths and fifth, tenths and thirds and sixths Date: _____ Date: _____	Can compare and order fractions whose denominators are all multiples of the same number. Date: _____ Date: _____	Can order fractions and decimal equivalents, justifying their answers using correct mathematical vocabulary. Date: _____ Date: _____
	Can add and subtract fractions with the same denominator and denominators that are multiples of the same number F4	Add and subtract fractions with the same denominator up to and greater than 1. Date: _____ Date: _____	Can add and subtract fractions with the same denominator and denominators that are multiples of the same number. Date: _____ Date: _____	Can follow their own lines of enquiry exploring all options. Using the digits 3,4,5,6 only once make this sum have the smallest possible answer. Date: _____ Date: _____
	Can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams F5	Can multiply proper fractions with support and by the use of diagrams (such as pizza fractions) Date: _____ Date: _____	Can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Date: _____ Date: _____	Can multiply fraction and use manipulatives and/or pictorial methods to demonstrate their understanding – explaining their reasoning. Date: _____ Date: _____
	Can read and write decimal numbers as fractions [for example, $0.71 = 71/100$] F6a	Can read and write decimal numbers as fractions [for example, $0.7 = 7/10$]. Date: _____ Date: _____	Can read and write decimal numbers as fractions [for example, $0.71 = 71/100$]. Date: _____ Date: _____	Can read and write decimal numbers as fractions [for example, $0.71 = 71/100$ and explain their value using manipulatives such as place value counters, arrow cards and by adapting Dienes. Date: _____ Date: _____
	Can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents F6b	Can recognise and use <i>hundredths</i> and relate them to tenths and decimal equivalents. Date: _____ Date: _____	Can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Date: _____ Date: _____	Can solve more complex problems relating to decimals to 3 decimal places in a variety of contexts. Date: _____ Date: _____
	Can round decimals with two decimal places to the nearest whole number and to one decimal place F7	Can round decimals with two decimal places to the nearest whole number Date: _____ Date: _____	Can round decimals with two decimal places to the nearest whole number and to one decimal place Date: _____ Date: _____	Can find all possible answers to a specific criteria e.g. identify all hundredths that round to 0.1. Explain your reasoning. Date: _____ Date: _____
	Can read, write, order and compare numbers with up to three decimal places F8	Can read, write, order and compare numbers with up to two decimal places. Date: _____ Date: _____	Can read, write, order and compare numbers with up to three decimal places Date: _____ Date: _____	Can follow their own lines of enquiry and explore all possible solutions!

				Using as many or as few as you need how many numbers with 3 decimal places can you make up that are between 7.001 and 7.105 Date: _____ Date: _____
	Can solve problems involving numbers up to three decimal places F10	Can solve problems involving number up to <i>two</i> decimal places. Date: _____ Date: _____	Can solve problems involving number up to three decimal places Date: _____ Date: _____	Can solve a wider range of problems including measurement problems and other contexts involving numbers up to 3 decimal places. Date: _____ Date: _____
	Can recognise the per cent symbol (%) and understand per cent relates to number of parts per 100, and write percentages as a fraction with denominator 100 and as a decimal F11	Can recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred' Date: _____ Date: _____	Can recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal. Date: _____ Date: _____	Can explore per cent as a way of comparing values in a variety of contexts e.g. way of comparing performance. Can explain why per cent is a useful comparison method. Date: _____ Date: _____
	Can solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 F12	Can solve simple problems which require knowing simple percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{10}$ Date: _____ Date: _____	Can solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 Date: _____ Date: _____	Can explore per cent as a way of comparing values in a variety of contexts e.g. way of comparing performance using the wider range of decimal/fraction equivalences for $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{2}{5}$ $\frac{4}{5}$ tenths and 25ths. Date: _____ Date: _____
Measurement	Can solve problems involving converting between units of time M4	Can solve problems involving converting between units of time using simple units. (hours to minutes) Date: _____ Date: _____	Can solve problems involving converting between units of time. Date: _____ Date: _____	Can access maths problems presented in a wide range of different, complex ways. E.g. reading bus and train timetables. – what is the time difference between 2 stops on the direct train compared to the slower train? Date: _____ Date: _____
	Can convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) M5	Can convert between different units of metric measure <i>for simple units</i> Date: _____ Date: _____	Can convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). Date: _____ Date: _____	Can explain their reasoning in problems involving measurement. True or false? $1.5\text{kg} + 600\text{g} = 2.1\text{kg} + 300\text{g}$ Date: _____ Date: _____
	Can understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints M6	Can, with support, convert simple measurements (pounds into grams) Can understand that imperial is an older set of measurements that have been replaced by the metric system. Date: _____ Date: _____	Can understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Date: _____ Date: _____	Can access maths problems presented in a wide range of different, complex ways. E.g. A baby puts on 1 pound per month She was 7lbs in April. In grams how much did she weigh in December. Date: _____ Date: _____
	Can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres M7a	Can measure and calculate the perimeter of composite <i>rectangles</i> in centimetres and metres. Date: _____ Date: _____	Can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. Date: _____ Date: _____	Can justify and prove their conjectures when reasoning. e.g. put 2 rectangles together to create a composite shape. Will the perimeter always be the same? Date: _____ Date: _____

	Can calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes M7b	Can calculate the area of rectangles with simple lengths and widths by counting squares and using simple formula. Date: _____ Date: _____	Can calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes Date: _____ Date: _____	Can start to explore a range of rectangles with different perimeters but the same area and vice versa and explain why this is the case. Date: _____ Date: _____
	Can estimate volume [for example, using 1 cm ³ blocks to build cuboids (including cubes)] and capacity [for example, using water] M8	Can estimate capacity [for example, using water]. Date: _____ Date: _____	Can estimate volume [for example, using 1cm ³ blocks to build cuboids (including cubes)] and capacity [for example, using water]. Date: _____ Date: _____	Can answer more complex problems justifying their answers through reasoning and use of correct mathematical vocabulary. Date: _____ Date: _____
	Can use all four operations to solve problems involving measure (money) using decimal notation, including scaling. M9a	Can use all four operations to solve problems involving measure [for example, length, mass, volume, money]. Date: _____ Date: _____	Can use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling Date: _____ Date: _____	Can answer complex problems relating to converting measurements. e.g. A 1.2m ribbon and a 90cm ribbon are joined by overlapping the ends and gluing them together. The total length of the ribbon needs to be 195cm long. How much should the 2 pieces overlap? Date: _____ Date: _____
	Can use all four operations to solve problems involving measure (length) using decimal notation, including scaling M9b	Can use all four operations to solve problems involving measure in simple lengths Date: _____ Date: _____	Can use all four operations with confidence to solve problems involving measure in length Date: _____ Date: _____	Can use all four operations to explain their reasoning when solving more complex problems involving measurements in length. Date: _____ Date: _____
	Can use all four operations to solve problems involving measure (mass), using decimal notation, including scaling M9c	Can use all four operations to solve problems involving measure in simple mass Date: _____ Date: _____	Can use all four operations with confidence to solve problems involving measure in mass. Date: _____ Date: _____	Can use all four operations to explain their reasoning when solving more complex problems involving measurements in mass. Date: _____ Date: _____
	Can use all four operations to solve problems involving measure (volume), using decimal notation, including scaling M9d	Can use all four operations to solve problems involving measure in simple volume Date: _____ Date: _____	Can use all four operations with confidence to solve problems involving measure in volume. Date: _____ Date: _____	Can use all four operations to explain their reasoning when solving more complex problems involving measurements in volume. Date: _____ Date: _____
Geometry	Can use the properties of rectangles to deduce related facts and find missing lengths and angles G2a	Can use the properties of rectangles to deduce related facts and find missing lengths. Date: _____ Date: _____	Can use the properties of rectangles to deduce related facts and find missing lengths and angles Date: _____ Date: _____	Can explore and deduce all possible solutions for missing lengths and angles. May look at rectilinear and composite shapes. Date: _____ Date: _____
	Can distinguish between regular and irregular polygons based on reasoning about equal sides and angles G2b	Can distinguish between regular and irregular <i>pentagons and hexagons</i> based on reasoning about equal sides and angles. Date: _____ Date: _____	Can distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Date: _____ Date: _____	Can distinguish between regular and irregular polygons based on reasoning about equal sides and angles, <i>knowing some of the properties of regular polygons</i> . Date: _____ Date: _____

	Can identify 3-D shapes, including cubes and other cuboids, from 2-D representations G3b	Can identify, with support, the 3D shapes cubes and other cuboids from 2D representations. Date: _____ Date: _____	Can identify the 3D shapes cubes and other cuboids from 2D representations. Date: _____ Date: _____	Can draw a net (2D representation) from a given 3D shape with dimensions and exploring different orientations. Date: _____ Date: _____
	Knows angles are measured in degrees: can estimate and compare acute, obtuse and reflex angles G4a	Knows that angles are measured in degrees: estimate and compare acute and obtuse angles. Date: _____ Date: _____	Knows angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Date: _____ Date: _____	Can explore and identify all possible angles in different shapes in different orientations. Can estimate missing angles given all other angles in a shape. Date: _____ Date: _____
	Can identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 21 a turn (total 180°) other multiples of 90° G4b	Can identify angles at a point on a straight line and 1/2 a turn (total 180°) and other multiples of 90°. Date: _____ Date: _____	Can identify angles at a point and one whole turn (total 360°) angles at a point on a straight line and a turn (total 180°) other multiples of 90°. Date: _____ Date: _____	Can identify missing angles based on known properties and can explain how they know the value of the missing angle using correct mathematical vocabulary'. Date: _____ Date: _____
	Can draw given angles, and measure them in degrees G4c	Can draw given angles up to 90°, and measure them in degrees (°). Date: _____ Date: _____	Can draw given angles, and measure them in degrees (°). Date: _____ Date: _____	Can draw angles from given instructions such as draw a letter A with a top angle of 30 degrees or draw a letter K making sure the central angle is 45 degrees. Date: _____ Date: _____
	Can identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. P2	Can identify, describe and represent the position of a shape following a simple reflection or translation, using the appropriate language. Date: _____ Date: _____	Can identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. Date: _____ Date: _____	Can explore all possible solutions to a given problem including mirrored reflections or translations. Date: _____ Date: _____
Statistics	Can complete, read and interpret information in tables, including timetables S1	Can read and interpret information in simple tables, including timetables Date: _____ Date: _____	Can complete, read and interpret information in tables, including timetables. Date: _____ Date: _____	Using the statistical data presented, can ask their own mathematical questions and follow their own lines of enquiry Date: _____ Date: _____
	Can solve comparison, sum and difference problems using information presented in a line graph S2	Can solve simple comparison, sum and difference problems using information presented in a simple line graph. Date: _____ Date: _____	Can solve comparison, sum and difference problems using information presented in a line graph. Date: _____ Date: _____	Using the statistical data presented, can ask their own mathematical questions and follow their own lines of enquiry Date: _____ Date: _____

HT1	HT2	HT3	HT4	HT5	HT6

Year 6 Maths Assessment

Name: _____

Arithmetic Test Level

	NC Objectives	Year 6 Working Towards	Year 6 Expected	Year 6 Greater Depth
		1	2	3
Number and Place Value	To read, write, order and compare numbers up to 10, 000, 000 N2	Can read and write numbers up to 1,000, 000 by counting in ones, tens hundreds and thousands. Many not be able to count from any number yet. Understands that <> mean greater than and less than. Use vocabulary to show 1 is ten times the size of 1 tenth Date: _____ Date: _____	Can write all numbers up to 10, 000, 000 in words and digits. Can use <> symbols to show the position of a number compared to another Can understand the relationship between powers of 10 from 1 thousandth to 10 million and use to make a number Date: _____ Date: _____	Understand and use place value for decimals and integers of any size in ascending or descending order according to their own chosen criteria and justify their answers using manipulatives. Date: _____ Date: _____
	To determine the value of each digit in numbers from 1 thousandth to 10 million N3	Can identify each place value column up to ten million. Can place a counter in the correct place value column according to its value. Can use arrow cards to partition a number into millions, thousands, hundreds, units. Date: _____ Date: _____	Can identify each place value column up to tens of millions. Can partition any number up to 10 million and including decimals up to thousandths without manipulatives. Date: _____ Date: _____	Can identify each digit and prove or disprove a statement e.g. given a number they can describe it by talking about its properties Date: _____ Date: _____
	To round any whole number to a required degree of accuracy N4	Can understand the concept of rounding down when the deciding column is 0-4 and up when 5-9. Can understand that the deciding column is to the left of the column that you are rounding. To be able to round to the nearest 10, 100, 1000, 10,000 Date: _____ Date: _____	Can round to any number up to 10 million by any power of 10 including decimal up to thousandths. Date: _____ Date: _____	Can find all possible numbers that satisfy a specific criteria. e.g. all prime numbers that when rounded to the nearest 10 would round to 100 Date: _____ Date: _____
	To use negative numbers in context and calculate intervals across 0 N5	Can count forwards and backwards between the values of 10 and -10 across 0 using the support of a number line. Date: _____ Date: _____	Can find the difference between 2 numbers ranging from positive to negative crossing 0 in a wide of contexts e.g. depth or temperature Date: _____ Date: _____	Can confidently find the difference between positive and negative numbers including decimal numbers applied in both word problems and graph questions e.g. reading a graph that fluctuates between positive and negative numbers and tracking the differences. Date: _____ Date: _____
	To solve number and practical problems that involve all of the above N6	To know the value of every digit in a number in a word problem by partitioning the number (possibly with manipulatives) Date: _____ Date: _____	To be able to answer a range of word and graph type questions independently in at least 5 completely different contexts e.g. population, money, temperatures, measurements. Date: _____ Date: _____	To be able to answer a wide range of word and graph type questions relating to place value explaining the reasoning and justifying an answer using manipulatives or inverse operations to prove an answer. Date: _____ Date: _____
Calculations	To use estimation to check answers C3	Can look at answers and say why they think the answer is correct using estimations in multiples of 10 or 100 up to 1000 Date: _____ Date: _____	Can estimate numbers when required in the context of a problem, deciding what the degree of accuracy should be e.g. more appropriate to round to the nearest 10 or 1000? Date: _____ Date: _____	Can apply estimation to check their work independently and without prompting and use estimation to justify their answers. Date: _____ Date: _____

To solve addition and subtraction problems C+	Can identify the addend and subtrahend and the commutative relationship within addition through simple calculations and use of number families: $18 + 12 = 30$ $12 + 18 = 30$ $1.8 + 1.2 = 3.0 = 1.2 + 1.8 = 3.0$ $30 - 12 = 18$ $3.0 - 1.8 = 1.2$ Date: _____ Date: _____	Can read and understand multiple step problems knowing when to use addition/ and or subtraction and in what order. Know the compensation property of addition. - If one addend is increased and the other decreased by the same amount, the sum will stay the same. Date: _____ Date: _____	Can explain why addition or subtraction is necessary in the context of the problem understanding the inverse relationship between addition and subtraction and the commutative property of addition. e.g. 2 numbers have a difference of 2.38. What could the numbers be if the 2 numbers add up to 6? Date: _____ Date: _____
To identify common factors, common multiples and prime numbers C5	Use common factors to simplify fractions; use common multiples to express simple fractions in the same denomination. e.g. halves, quarters, eighths. Date: _____ Date: _____	Use common factors to simplify fractions; use common multiples to express any fractions in the same denomination. Date: _____ Date: _____	In addition to previous, can explain the most efficient methods for finding the simplest fractions by using HCF Date: _____ Date: _____
To perform mental calculations C6	Can perform consistently in below age expectations mental calculations (year 5) at 50% Date: _____ Date: _____	Can perform consistently well in mental maths assessments – 75% or above Date: _____ Date: _____	Can perform consistently well in age related mental maths assessments at 90% or above and performing well at above age expectation tests 75% or above Date: _____ Date: _____
To multiply using the formal written method of multiplication C7a	Can recall their times tables up to 12×12 Understands the principles that multiplication is repeated addition and can apply multiplication without prompting. Can use a written method to multiply 2 and 3 digit numbers by a single digit Date: _____ Date: _____	Can use written multiplication to solve problems that require the multiplication of four digit by 2 digit numbers. Date: _____ Date: _____	Can use written multiplication to solve problems that require the multiplication of four digit by 2 digit numbers and can apply across a variety of contexts understanding the commutative property. Can understand how changes to one factor impacts on the product. e.g. _____ \times _____ = 864 _____ \times _____ \times _____ 864 _____ Date: _____ Date: _____
To divide numbers using the formal written method of long division C7b	Can divide a two or three digit dividend by a simple or known 2 digit divisor (11 or 12) using long division method with remainders written as whole numbers. Date: _____ Date: _____	Can divide numbers up to 4+ digits by with a 2 digit divisor being able to write the answer as a remainder, a fraction and a decimal Date: _____ Date: _____	Can solve more complex problems, justifying answers using long division. Writing all answers in suitable format in the context of the question, rounding up or down or giving precise answers as fractions or decimals Date: _____ Date: _____
To divide numbers using the formal written method of short division C7c	Can divide multiples using timetables facts Can divide a two or three digit dividend by a single divisor using short division method with exchange and remainders written as whole numbers. Date: _____ Date: _____	Can divide numbers up to 4+ digits by 2 digit numbers and can write the remainder as a whole number, fraction and decimals. Date: _____ Date: _____	Can solve more complex problems, justify or evaluate different answers by dividing numbers up to 4+ digits by 2 digit numbers writing the remainder as a whole number, fraction and decimals – rounding to a specified number or decimal place when required. To be able to find and justify the most efficient solution for solving a problem. Date: _____ Date: _____
To solve problems using all 4 operations C8	Can read a question and talk through what operations may be required to solve it – applying RUCSAC method. May have limited success in solving the first part of a 2 step problems Date: _____ Date: _____	Can use all 4 operations confidently to answer a range of word problems in one or multiple step problems. Date: _____ Date: _____	Can interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning. To question another person's approach to solving a problem and evaluate its relative success. Date: _____ Date: _____
To understand the order of operations principles BODMAS C9	Can say what BODMAS stands for and knows the order of operations With reminders can complete a simple calculation than involves more than 1 operation $3 + 4 \times 6 = 27$ and NOT 4×2 Date: _____ Date: _____	Knows what the order of operations is and uses it automatically when they see a question with more than 1 operation e.g. $12 + 5 \times (3+1)$ Date: _____ Date: _____	Knows and applies the principles of BODMAS consistently and in a range of more challenging contexts including use of indices and brackets. Can explain why an answer is correct or incorrect using the principles of the order of operations. Can include calculations involves fractions Date: _____ Date: _____

Fractions	To use common factors to simplify fractions and common multiples to express fractions in the same denominations F2	Can identify ALL common factors of 2 numbers Date: _____	Can use common factors to simplify fractions and common multiples to express fractions in the same denominations Date: _____ Date: _____	Can explain reasoning when solving problems by discussing common factors or multiples, explaining the relationship with confidence. Date: _____ Date: _____
	To compare and order fractions F3	Can compare simple fractions with different denominators which are multiples (doubling/halving) $1/4$, $5/8$ using fraction walls or tiles Date: _____ Date: _____	Can compare and order fractions by converting them into a common denominator. e.g. $3/8$, $1/4$ and $1/2 =$ All converted into eighths $2/8$, $3/8$, $4/8$ Date: _____ Date: _____	Can compare and order fractions by converting them into a common denominator and justifying their ideas in problem scenarios including use of improper fractions and mixed numbers. e.g. which is the odd one out and why? 0.4 , $2/5$, $4/10$, $8/20$, $6/15$, $3/6$ Date: _____ Date: _____
	To add and subtract fractions with different denominators and mixed numbers F4	Add and subtract fractions with different denominators <i>which are multiples</i> , using the concept of equivalent fractions. Date: _____ Date: _____	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Date: _____ Date: _____	Can convert both denominators using the lowest common multiple for the most efficient method. Can explain why finding the LCM is more effective. (No need to simplify) e.g. On Wednesday I ran some km and my sister ran $1\frac{1}{6}$ km further than I did. Altogether we ran $4\frac{1}{2}$ km. How far did I run on Wednesday? Date: _____ Date: _____
	To multiply simple pairs of proper fractions F5a	Multiply simple pairs of proper fractions, writing the answer in its simplest form Date: _____	To be able to multiply any pair of fractions confidently using the basic method. Date: _____ Date: _____	Can multiply pairs of fractions and a fraction by a whole number by knowing they can place the number above a denominator of 1. Being able to do this as part of problem solving. E.g. to find $1/8$ of 20 you can write $1/8 \times 20/1 = 20/8 = 2\frac{4}{8} = 2.5$ Date: _____ Date: _____
	To divide proper fractions by whole numbers F5b	Can divide <i>simple</i> proper fractions by whole numbers [e.g. $1/2 \div 2 = 1/4$]. Date: _____ Date: _____	Can divide proper fractions by whole numbers [e.g. $1/3 \div 3 = 1/9$] Date: _____ Date: _____	Can apply this method to divide fractions of amounts in more complex problems. $1/6 \div 24 = 1/6 \times 1/24$ e.g. Puja shares 6 apples between some friends. Each friend gets 0.75 of an apple. How many friends does she share the apples with? Date: _____ Date: _____
	To associate a fraction with division and calculate decimal fraction equivalents F6	Can use manipulatives such as fraction tiles to visualise how the fraction bar is related to division. Date: _____ Date: _____	Can find the decimal equivalent of common fractions e.g. $1/4$, $3/4$, $1/5$, $4/5$ To be able to use short division to find the decimal equivalent e.g. 1 divided by 4. Date: _____ Date: _____	Can convert fractions into decimals and vice versa as a more efficient way of finding equivalent values to be able to justify an answer. Date: _____ Date: _____
	To identify the value of each digit in decimal numbers up to 3 decimal places and multiply and divide by 10, 100, 1000 F9a	Can identify the value of each digit in numbers given to <i>two</i> decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. Date: _____ Date: _____	Can identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. Date: _____ Date: _____	Can identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places in a number of different contexts including measurement and money and use to justify conversions in answers. Date: _____ Date: _____
	To multiply one digit numbers with up to 2 decimal places by whole numbers F9b	Can multiply one-digit numbers with up to one decimal places by whole numbers. Date: _____ Date: _____	Can multiply one-digit numbers with up to two decimal places by whole numbers. Date: _____ Date: _____	Multiply any digit numbers with up to two decimal places by whole numbers to answer more complex problems in multiple contexts, explaining their reasoning Date: _____ Date: _____

	To divide whole and decimal numbers where the answer has up to 2 decimal places F9c	Can divide simple proper fractions by whole numbers $1/2 \div 2 = \square$ Date: _____ Date: _____	Can divide proper fractions by whole numbers e.g. $1/3 \div 2 = 1/6$ Date: _____ Date: _____	Can apply this method to divide fractions of amounts in more complex problems. $1/6 \div 24 = 1/6 \times 1/24$ Date: _____ Date: _____
	To solve problems which require answers to be rounded to specified degrees of accuracy F10	Can round an answer to the nearest, 10, 100, 1000 when asked Date: _____ Date: _____	Can solve problems which require answers to be rounded to specified degrees of accuracy Date: _____ Date: _____	Can use rounding without prompting as an effective method for solving problems in a range of contexts Date: _____ Date: _____
	To recall and use equivalencies between fractions, decimals and percentages F11	Can complete a fraction wall and or number line detailing the equivalent decimal and percentage to simple fractions. Date: _____ Date: _____	Can recognise the relationship between fractions, decimals and percentages and express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as $1/5$ or 0.2 or 20% of the whole cake). Date: _____ Date: _____	Can reason/justify why an amount is greater or lesser than another using these equivalencies and applying to multiple contexts when problem solving Date: _____ Date: _____
Ratio	To solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts R1	Can solve <i>simple</i> problems involving the relative sizes of two quantities where missing values can be found by using <i>simple</i> integer multiplication and division mainly doubling or halving Date: _____ Date: _____	Can find unknown amounts by scaling up or down using multiplication or division facts such as recipe style questions. E.g. if 4 servings = 50g flour, how much flour do I need for 10 servings. Date: _____ Date: _____	Can find possible numbers that satisfy the criteria and justify how you can find unknown amounts by scaling up or down using multiplication or division facts and apply to more complex problem scenarios. e.g. Jake has made a giant pizza. He says, 'I made three times as much sauce to cover the giant pizza as I do to cover a normal pizza, so the giant pizza is three times as big as the normal pizza.' Do you agree? Date: _____ Date: _____
	To solve problems using the calculation of percentages and the use of percentage for comparison R2	Solve problems involving the calculation of <i>simple</i> percentages [for example, of measures, and such as 10% of 360]. Date: _____ Date: _____	Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. Date: _____ Date: _____	Solve problems involving the calculation of percentages [for example, of measures, and such as 12% of 360] and the use of percentages for comparison. Date: _____ Date: _____
	To solve problems involving similar shapes where the scale factor is known or can be found R3	Can solve problems involving similar shapes where the scale factor is known. Date: _____	Can solve problems involving similar shapes where the scale factor is known and where it can be found using the information presented and knowledge of factors and multiples. Date: _____ Date: _____	Can solve problems involving similar shapes where the scale factor is known or can be found in complex multi-step problems. Can explain their reasoning Date: _____ Date: _____
	To solve problems involving unequal sharing and grouping using knowledge of fractions and multiples R4	Can solve problems involving unequal sharing and grouping using knowledge of <i>simple</i> fractions and multiples – mainly halves and quarters Date: _____ Date: _____	Can divide an amount in a given ratio such as 3:2 knowing that there would be 5 equal parts. e.g. 150 divided 3:2 = 90:60 Date: _____ Date: _____	Can interpret more complex problems requiring the number of equal parts to be identified and then the relative quantities. E.g. Dave had to feed giraffes, zebras and antelopes. There are twice as many zebras as giraffes and four times as many zebras as antelopes. There are four antelopes. Each animal gets the same amount of food. Dave has 60kg of food in total – how much food is needed for each enclosure? Date: _____ Date: _____

Algebra	To express missing number problems algebraically A1	Can rewrite a simple one step problem as a simple algebraic statement. Date: _____ Date: _____	Can substitute a shape or letter to represent an unknown value e.g. $p = 2l + 2w$ Date: _____	Can substitute a shape or letter to represent an unknown value e.g. $p = 2l + 2w$. Can also find the possible numbers that satisfy the algebraic criteria. E.g. Which of the following statements do you agree with? Explain your decisions. There is a whole number that satisfies the symbol sentence $5 \times - 3 = 42$ There is a whole number that satisfies the symbol sentence $5 + \times 3 = 42$ Date: _____ Date: _____
	To use simple formulae A2	Can use simple formula (e.g. $l \times w$ for length x width) Date: _____ Date: _____	Can use formula in most contexts with confidence Date: _____ Date: _____	Can use a wide range of formula including all order of operations in a wide range of contexts, explaining their reasoning. Date: _____ Date: _____
	To generate and describe number sentences A3	Generate and describe <i>simple</i> linear number sequences. Date: _____	Generate and describe a range of linear number sequences confidently Date: _____	Generate and describe linear number sequences by writing equation for the n th term.
	To find pairs of numbers that satisfy an equation with 2 unknowns A4	Find pairs of numbers that satisfy a <i>simple</i> equation with two unknowns. Date: _____	Find pairs of numbers that satisfy an equation with two unknowns Date: _____	<i>Explain how to find</i> pairs of numbers systematically that satisfy an equation with two unknowns Date: _____
Measurement	To use, read, write and convert between standard units of length, mass, volume and time using decimal notation M5	Can read a length in m, cm and mm Can measure mass in kg and g Can measure volume in ml and litres using cylinders. Knows there are 1000g in a kilogram. Knows there are 1000ml in a litre Can read a clock in analogue and digital Date: _____ Date: _____	Can read a scale successfully, identifying the unit and working out how much each mark or division on the scale represents. Answering time problems in both analogue and digital. Date: _____ Date: _____	Can read a scale successfully, identifying the unit and working out how much each mark or division on the scale represents, justifying confident conversions when answering problems Date: _____ Date: _____
	To solve problems involving the calculation and conversion of units of measure, using decimal notation. M6	Knows how to write cm in metres, grams in kilograms and millilitres in litres and vice versa. Can start to convert between the units with confidence in simple word problems. Can convert analogue time into digital. Date: _____ Date: _____	Can understand what units are being used in a problem which may involve reading a scale, clock or table successfully. Can read a scale successfully, identifying the unit and working out how much each mark or division on the scale represents. e.g. working out a problem in grams by reading a scale and converting the answer to kg Answering time problems in both analogue and digital. Date: _____ Date: _____	Can understand what units are being used in a problem which may involve reading a scale, clock or table successfully. Can read a scale successfully, identifying the unit and working out how much each mark or division on the scale represents- justifying confident conversions when answering problems e.g. imagine we talked about time using decimals. What would 2.3 hours represent? Explain your answer.
	To recognise that shapes with the same areas can have different perimeters and vice versa M7	Can draw different areas of a shown rectilinear shape with perimeter given using squared paper and vice versa Date: _____	Can experiment with different shapes to demonstrate how it is possible to have the same area but different perimeter and vice versa. Date: _____	Can explain why a shape with a greater perimeter than another may have a smaller area and vice versa. Date: _____

	To calculate the area of parallelograms and triangles. M7b	Can find the area of a right angle triangle by halving a rectangle. Can find the area of a parallelogram Date: _____ Date: _____	Can use the formulae for areas of different types of triangles and parallelograms to solve problems. Date: _____ Date: _____	Can use the formulae for areas of triangles and parallelograms to solve problems involving composite shapes made up from parallelograms and triangles as well as squares and oblongs. Date: _____ Date: _____
	To recognise when it is possible to use formulas for areas of shapes M7c	Can use formula to find the area of simple rectilinear shapes Date: _____ Date: _____	Can recognise when it is possible to use formulas for areas of shapes Date: _____ Date: _____	Can use different formulae for area in composite shapes. Can switch between formulas with ease and confidence. Date: _____ Date: _____
	To calculate, estimate and compare volumes of cubes and cuboids using standard units M8a	Can calculate the volume of cuboids given dimensions Date _____ Date _____-	Can calculate, estimate and compare volumes of cubes and cuboids using standard units Date: _____ Date: _____	Can calculate and compare volumes by converting between cubic units of measurement in different contexts Date: _____ Date: _____
	To recognise when it is possible to use formulae for volume of shapes M8b	Can, with support, use the given volume formula to calculate the volume of shapes Date: _____ Date: _____	Can recognise when it is possible to use formulae for volume of shapes Date: _____ Date: _____	Can recognise and apply use of formulas for volume of different shapes including triangular prisms. Date: _____ Date: _____
	To solve problems involving the calculation and conversion of units of measure, using decimal notation where necessary M9	Can answer a simple one step measurement problem involving the conversion of a unit of measurement Date: _____ Date: _____	Can solve problems involving the calculation and conversion of units of measure, using decimal notation where necessary Date: _____ Date: _____	Can explain reasoning when solving problems involving the calculation and conversion of units of measure, using decimal notation where necessary Date: _____ Date: _____
Geometry	To compare and classify 2D shapes based on their properties G2a	Can identify common regular and irregular polygons Can identify parallel and perpendicular lines Can identify acute and obtuse angles in common shapes Date: _____ Date: _____	Knows what is meant by parallel, perpendicular sides, regular irregular shape, acute, obtuse and reflex angles, reflective symmetry and can apply their knowledge to sort various shapes into Carroll/Venn diagrams Date: _____ Date: _____	Knows what is meant by parallel, perpendicular sides, regular irregular shape, acute, obtuse and reflex angles, reflective symmetry and apply their knowledge to sort various shapes into Carroll/Venn diagrams and can justify their reasoning Date: _____ Date: _____
	To draw simple 3D shapes using given dimensions and angles G2b	Draw a cube or cuboid using hexadecimal paper with support. Date: _____ Date: - _____	Draw any cube or cuboid independently and be able to draw a pyramid and triangular prism Date: _____ Date: - _____	Can use initiative to draw a wide range of 3D shapes from a variety of angles Date: _____ Date: _____
	To draw 2D shapes using given dimensions and angles G3a	Draw <i>rectangles and right-angled triangles with a ruler</i> using given dimensions Date: _____ Date: _____	Draw 2D shapes with a ruler and protractor including rectangles, triangles, parallelograms, trapezium and regular pentagon using given dimensions and angles. Date: _____ Date: _____	Accurately draw (to within 2 degrees or millimetres) any multi-sided 2D shapes, including composite shapes using given dimensions and angles. Date: _____ Date: _____
	To recognise, describe and build simple 3D shapes including making nets G3b	Recognise, describe and build cuboids, including making nets. To solve problems involving the nets of cubes and know all the possible nets of a cube Date: _____ Date: _____	Recognise, describe and build simple 3D shapes including cubes, cuboids, tetra-hedrons, pyramids and triangular and pentagonal prisms. Recognise and make nets of these shapes. Date: _____ Date: _____	Recognise, describe and build more advanced 3D shapes including cubes, cuboids, tetra-hedrons, pyramids and a range of multiple sided prisms e.g. hexagonal and octagonal sided prisms. Recognise and make nets of these shapes. Date: _____ Date: _____

	To find unknown angles in any triangles, quadrilaterals and regular polygons G4a	Can find the value of missing angles in rectilinear shapes. Using the knowledge that the angles in triangles add up to 180 degrees find one missing angle, and angles in quadrilaterals add up to 360 degrees find one missing angle. Date: _____ Date: _____	Can find missing angles using the property of shapes (e.g. the missing angle in an isosceles triangle when one of the angles is given). Date: _____ Date: _____	Can use and apply shape properties to find unknown values. Can use algebra, bar models or trial and experiment to find unknown values. Date: _____ Date: _____
	To recognise angles where they meet at a point, are on a straight line, vertically opposite and find missing angles G4b	Can identify right angles and know the angle size for straight lines and a whole circle. Can calculate the size of one missing angle on a straight line or in a whole circle. Date: _____ Date: _____	Can use mathematical reasoning to find missing angles on a point knowing that 180° angle for a straight line and a full turn is 360° Date: _____ Date: _____	Can use mathematical reasoning to find missing angles on a point knowing that 180 degree angle for a straight line and a full turn is 360 degrees. Also reasoning the value of intersecting, vertically opposite, parallel and perpendicular lines. Date: _____ Date: _____
	To illustrate and name parts of circles G5	Name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Date: _____	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Use this information to find missing dimensions in problem solving situations Date: _____	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Use this information to find missing dimensions in multi-step problem solving situations Date: _____
	To describe positions on the full coordinate grid (all four quadrants) P2	Can describe positions in the first quadrant of a coordinate grid. Date: _____	Can describe positions on the full coordinate grid (all four quadrants). Date: _____ Date: _____	Can use their knowledge of positions on the full coordinate grid (all four quadrants) to solve more complex shape problems. E.g. An isosceles triangle has two vertices at (-3,2) and (3,2). Explore where the third vertex could be. Date: _____ Date: _____
	To draw and translate simple shapes on the coordinate plane, and reflect them in the axes P3	Can draw and translate simple shapes on the coordinate plane. Date: _____ Date: _____	Can draw and translate simple shapes on the coordinate plane, and reflect them in the axes. Date: _____ Date: _____	Can draw and translate simple shapes on the coordinate plane, and reflect them in the axes and about other vertical and horizontal lines. Can reason about reflection E.g. Joan says that if you reflect a shape (in an axis) and then reflect it again, the shape always ends up back where it first was as though you'd done nothing to it. Do you agree with Joan? Explain your decision. Date: _____ Date: _____
Statistics	To interpret and construct pie charts and line graphs and use these to solve problems S1	Can read simple pie charts interpreting simple fractions – halves and quarters. Can read and interpret a simple line graph. Date: _____ Date: _____	Can read and interpret pie charts in terms of proportions of segments and relate to fractions to solve problems. Can read and interpret line graphs in different contexts. Date: _____ Date: _____	Can read and interpret pie charts in terms of proportions of segments and relate to fractions and percentages to solve problems and justify answers knowing that 100% = 360° of the whole circle (pie) Can read and interpret a wide range of line graphs across multiple contexts Date: _____ Date: _____
	To calculate and interpret the mean S3	Can find the mean of a simple set of low numbers Date: _____ Date: _____	Can find the mean of any set of numbers by adding them together and dividing by the number of values. e.g. $54 + 87 + 67 + 45 = ?$ Date: _____ Date: _____	Can reverse operations to find missing numeric values when given the mean. e.g. The average run time for 4 people was 10 seconds Mike took 12 seconds, Faris took 8 seconds Leon took 11 seconds. How long did the 4 th person take? Date: _____ Date: _____

