

## Intent

At Christ Church, we recognise that mathematics is an important life skill as well as fundamental to the vast majority of career pathways. Therefore, it is our intent that we provide a high-quality mathematical education which will ensure children move to the next stage of their education being numerate, confident and well-equipped. Through quality first teaching, with our primary aim being mastery of the curriculum for all children, we aim to unlock children's potential in maths and make it a fun, engaging subject which is accessible to all. Our intention is to show children they can master the maths curriculum and that maths is an area where all children can experience success and is not something to be anxious about. With this in mind, we recognise the importance of being fluent in the basics and provide a variety of opportunities for children to practise their automatic recall to make it more rapid and accurate.



All children are encouraged and given the opportunity to reason mathematically and solve problems.

With maths being an interconnected subject, children not only need to make connections and links between mathematical concepts but they need to be provided with concrete experiences of using maths outside the maths lesson. Wherever possible, we aim to use maths in our other subject areas so that children have the opportunity to experience interwoven learning and also to understand the importance of everyday maths in other areas.

Children who are working at greater depth in each year group receive input which challenges their reasoning and problem solving skills using the content which has been taught. Only once a rich offer has been provided where children can demonstrate they can make connections and use and apply their skills broadly would we consider moving on to what might potentially be new content.

## A Spiral Curriculum

The manner in which the National Curriculum Programmes of Study are set out leads to spiralled learning between each year group. The children revisit the same mathematical concepts but each time they are introduced to new and more challenging learning which builds upon what has gone before. This not only happens between each year group but also within a year group where teachers design a year group curriculum which spirals back to the main, key areas.

## Teaching for Mastery

At Christ Church we do not use any mastery scheme, instead, our view of mastery is aligned with that of Derek Haylock (2019) and the National Centre for Excellence in the Teaching of Mathematics (NCETM):

*Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject.*

*The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material.* (NCETM, 2019)

Through quality first teaching we aim for all children to acquire mastery in maths. Teachers use the progression document for each strand in maths to ensure learning is built cumulatively. It is important that we check children's understanding of the methods they use and calculations they can do. This is because many of the children are capable, for numerous reasons, of using the most efficient methods quickly and with ease, but there may be underlying gaps.

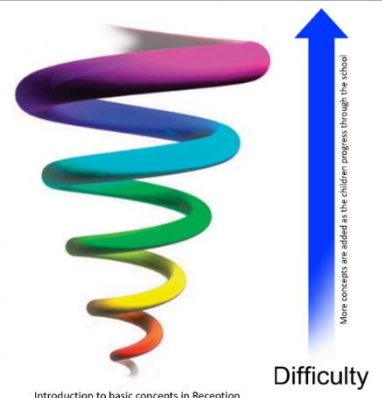
## Key points relating to our intent

Although as a general rule we endeavour to follow the National Curriculum in terms of how it has divided the programme of study for each key stage, we may also choose to teach content earlier or later depending on the cohort. This is done for many reasons and it is specific to our context to ensure the needs of each cohort are met. The National Curriculum helpfully highlights that the set programmes of study are to be met by the end of the relevant key stage.

Children who have learnt different written calculation methods outside school will have their understanding checked through practising our set methods in each year group to ensure their understanding of number is secure (with teaching for mastery in mind). If this is secure, then they will be able to continue to use either method.

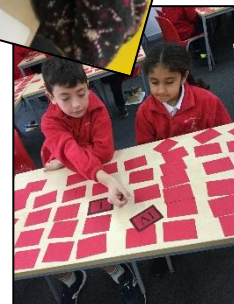
## Spiralling Curriculum from Year Group to Year Group

- Y6 revisit concepts adding new learning which builds on previous learning
- Y5 revisit concepts adding new learning which builds on previous learning
- Y4 revisit concepts adding new learning which builds on previous learning
- Y3 revisit concepts adding new learning which builds on previous learning
- Y2 revisit concepts adding new learning which builds on previous learning
- Y1 revisit concepts adding new learning which builds on previous learning



## Implementation

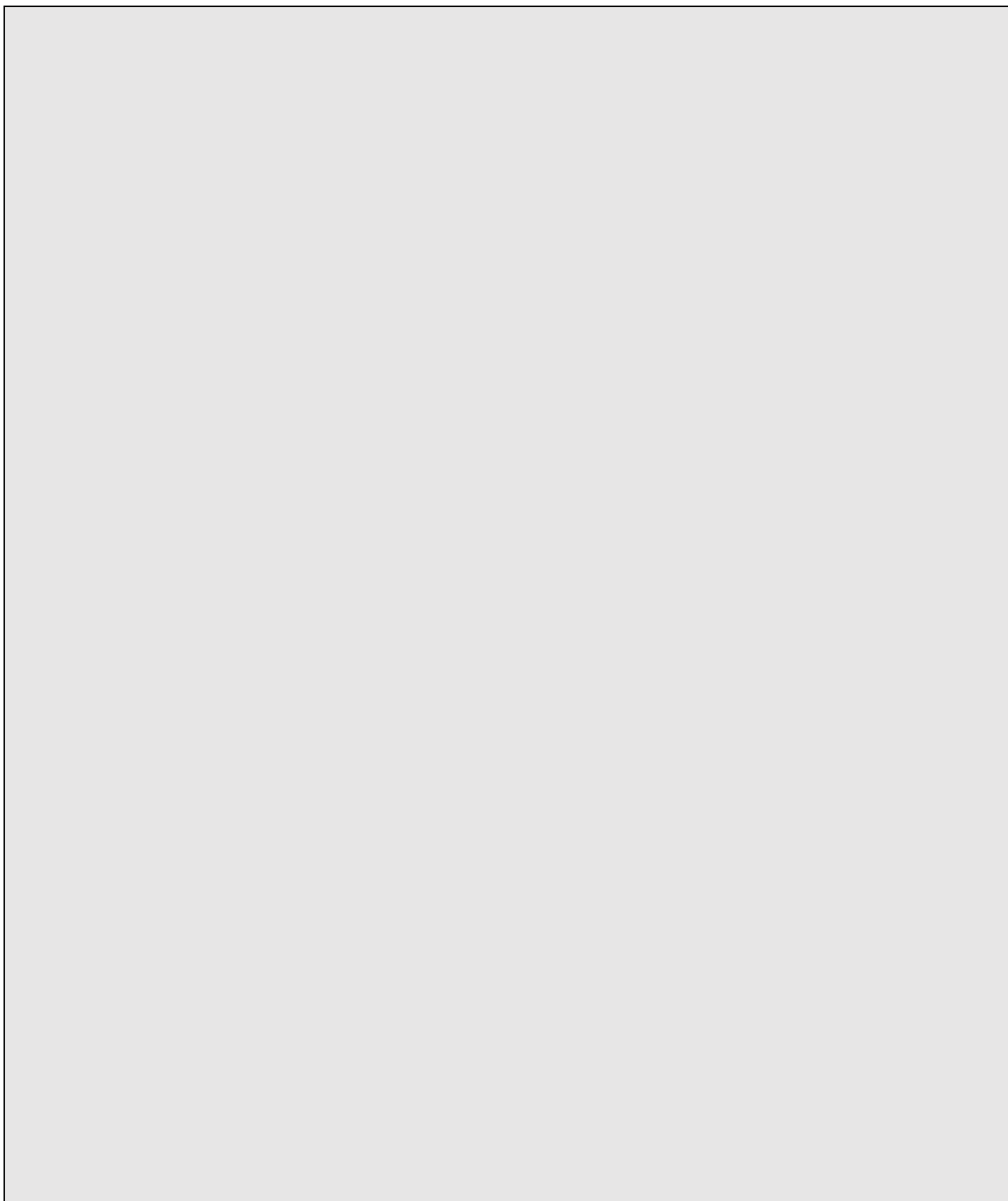
- Maths is taught by class teachers with the support of SLT and the subject leader.
- Maths is taught every day when possible to ensure not only curriculum coverage, but also mastering maths so that pupils have a deep and secure understanding of the subject.
- Yearly overviews, which incorporate the 'Ready to Progress' criteria, are used to ensure curriculum coverage across the school.
- CPD is attended by the subject leader and other staff members and fed back to colleagues in meetings and training. The subject leader liaises with other Camden Maths subject leaders and other mastery specialists to learn new practice to share with colleagues.
- Ongoing assessment of children occurs during maths lessons to monitor progress and lessons are planned and adapted to meet children's varying needs.
- Termly assessments are also used to monitor progress and end of year outcomes are reported to parents in children's reports based on teacher assessments informed by both tests and ongoing achievements in class.
- Some children are closely monitored using fine tracking if teachers and leadership believe they will not reach the end of year expectation in the subject. These children are often also supported with short-term or long-term interventions to ensure progress.
- Adaptations are made as and when necessary for disadvantaged children and children with SEN. Teachers set high expectations for all pupils and aim to set work that provides universal provision, reducing the number receiving targeted and specialist support. However, there are some circumstances where some children do require a targeted or specialised curriculum.
- Parents' understanding of how maths is taught and the key calculations is supported by parent workshops in Reception, Year 2 and Year 4 and our termly curriculum leaflets. Times table workshops are also offered to parents.
- Children in Reception, Year 1 and Year 2 take part in the NCETM 'Mastering Number' programme which aims to 'secure firm foundations in the development of good number sense for all children'.
- From Year 2 upwards, children take part in the 'Times Table Challenge'. This endeavours to aid teaching to ensure children are fluent in their times tables by the end of Year 4. To support this, children are tested on their times tables weekly from Year 2 to Year 4. (This sometimes continues in Year 5 depending on the needs of the class). In Y6, times tables are consolidated with weekly 'Bringing Down the Minutes' tests that aim to increase speed and fluency when recalling times table facts.
- Times tables are taught in a specific order to ensure children have a chance to consolidate their understanding of one before moving onto another.
- In Years 4, 5 and 6, children complete arithmetic tests weekly to rehearse key skills. Their results are closely monitored by teachers so that gaps can be addressed and feedback on tests is also shared with parents.
- Use of morning work and other spaced retrieval activities to rehearse prior learning reinforces our spiralling curriculum.
- Book scrutiny and learning walks are carried out by SLT and the subject leader.
- When possible, opportunities are used to make maths cross-curricular so that children are able to use skills they are already secure with in a different context (e.g. use of statistics in Science or Geography).
- Children who exceed expectations have the opportunity to take part in the UK Maths Challenge each year and some Year 5 and 6 children are invited to take part in weekend classes at the Royal Institute for Mathematics.



## Impact

- Consistently high percentage of pupils in KS1 and KS2 reaching and exceeding national expectations.
- 86% of children in KS2 were working at the expected standard at the end of the year with 50% reaching greater depth. Both of these figures are higher than local and national results.
- 89% of children in KS1 were working at the expected standard at the end of the year with 32% reaching greater depth.
- Positive progress score of 3 for KS2 pupils in 2023 (significantly above average).
- Children talk about maths positively and are eager to be challenged.
- Children take part in a range of problem solving activities that draw out their ability to reason about maths.
- The majority of children in Year 4 are confident and fluent in times tables (2023 school average score 21.8, 2022 national average 19.8)

## Whole school standards (three-year trend)



### End of KS1 results

Percentage of pupils reaching the expected standard or above

	Mathematics		
	2021	2022	2023
<b>Christ Church</b>	<b>86%</b>	<b>96%</b>	<b>89%</b>
Camden	-	<b>71%</b>	<b>74%</b>
National	-	<b>68%</b>	<b>nya</b>

Percentage of pupils reaching the higher standard

	Mathematics		
	2021	2022	2023
<b>Christ Church</b>	<b>29%</b>	<b>25%</b>	<b>32%</b>
Camden	-	<b>21%</b>	<b>21%</b>
National	-	<b>15%</b>	<b>nya</b>

## End of KS2 results

Percentage of pupils reaching the expected standard or above

	Mathematics		
	2021	2022	2023
<b>Christ Church</b>	<b>92%</b>	<b>100%</b>	<b>86%</b>
Camden	-	84%	80%
National	-	71%	73%

Percentage of pupils reaching the higher standard

	Mathematics		
	2021	2022	2023
<b>Christ Church</b>	<b>54%</b>	<b>67%</b>	<b>50%</b>
Camden	-	29%	29%
National	-	22%	24%

## Average scaled score

	Mathematics		
	2021	2022	2023
<b>Christ Church</b>	-	<b>111.5</b>	<b>107.9</b>
Camden	-	106	105.5
National	-	104	104

## Progress score

	Mathematics		
	2021	2022	2023
<b>Christ Church</b>	-	<b>+4.4</b>	<b>+3.0</b>
Camden	-	+2.3	+2.1
National	-	0	0

## Approach to assessment in Maths

### Ongoing assessment:

Assessment takes place continuously as part of everyday teaching practice. Teachers check prior knowledge before introducing new content and then plan lessons according to this. Teachers check children's knowledge on the carpet through targeted questioning and work on individual whiteboards and then through marking in lessons once children are completing work independently. Misconceptions are identified within lessons and children who are identified as needing further input are supported with adaptations within the lesson or supported through interventions, booster and further teaching from the class teacher. Learning is revisited through the use of morning work and low stakes quizzes throughout the year to ensure understanding is embedded.

### Summative assessment:

Key learning for each year group is identified in our progression documents and is focused on the 'Ready to Progress' criteria. These areas are assessed by teachers before moving onto the next year group. Written assessments also take place termly to monitor progress and results from these assessments inform future teaching.

### Adaptive teaching case studies

Most pupils with SEND or additional individual needs can fully access our maths curriculum without specific adaptations to teaching. These are two case studies where small but specific adaptations have supported pupil progress.

- Pupil on SEN register with Communication and Interaction needs who has always achieved highly in maths, but has struggled with wider social skills, teamwork and peer tasks was supported to work on high level problem solving tasks that required them to work with a friend. Their enjoyment of maths and academic ability to access these sort of problems, meant they were willing to communicate with a peer to work through a range of tasks during maths lessons over the course of the year. This was highly successful and supported the development of their wider social skills, which was also a transitional target ahead of a move to a new school.
- Pupil on SEN register with Cognition and Learning needs made excellent progress in maths last year and reached the expected standard when they had not done so in previous year groups. Careful use of pre-teaching; 'ping pong' style lessons where a small amount of teaching took place followed by a task and then more teaching before a further task; on the spot task adaptations; structured groups responses before independent practice and same day intervention all supported the excellent progress that was made.



### Further Response to Ofsted Research Review (See 2022 report for initial response) and Response to 'Coordinating Mathematical Success: The Mathematics Subject Report'

The Ofsted Research Review (May 2021) reviews a wide range of relevant educational research into both primary and secondary maths teaching and highlights features which may be present in high quality maths education. The Ofsted Mathematics Subject Report (July 2023) reviews a wide range of best practice in both primary and secondary maths teaching and makes recommendations for implementation in schools.

<p><b>Summary points from the OFSTED Research Review and Subject Report:</b> Based on the reports, high quality maths education should take into account the following points:</p>	<p><b>Our response:</b> <i>How is this reflected in maths education at Christ Church?</i> (Actions taken in response to subject report are set out in 23/24 key targets and actions section below)</p>
<p><b>Curriculum</b></p>	
<p><b>Key points from the OFSTED Research Review:</b></p>	
<p><i>The curriculum should identify and sequence, in small steps, declarative, procedural and conditional knowledge, and plan for pupils to learn this in small steps.</i></p> <ul style="list-style-type: none"> <li>Occasionally, subject areas such as geometry are moved to later in the academic year. This can lead to pupils being insecure in geometry subject knowledge.</li> <li>The 'Ready to Progress' criteria help teachers to prioritise key content.</li> </ul> <p>The most effective Reception Year curriculum planning was as detailed as the planning that teachers of older pupils had access to.</p>	<p>The Christ Church Maths curriculum identifies and sequences small steps across the strands of the National Curriculum. In addition, within each year group, learning is sequenced into small steps, following the White Rose scheme of work. This ensures consistency from EYFS through to Year 6. All pupils are taught how to apply facts and methods to wider problem solving and these skills are also sequenced throughout the school.</p> <p>The teaching of geometry has been reviewed in light of the findings of the Ofsted subject report. Geometry facts are consistently assessed by teachers during low stakes morning work, summative testing as well as during specific units of work. <i>See 2023/24 key targets and actions for refinements to geometry sequencing in some year groups.</i></p>
<p><b>Recommendations from the OFSTED Subject Report:</b></p>	
<p><i>All schools should make sure that:</i></p> <ul style="list-style-type: none"> <li>curriculums emphasise secure learning of, rather than encountering, mathematical knowledge.</li> <li>curriculum sequencing prepares pupils for transitions between key stages and phases</li> </ul> <p><i>Primary schools should make sure that:</i></p> <ul style="list-style-type: none"> <li>they identify and sequence small steps in the Reception Year curriculum</li> <li>all pupils learn to apply facts and methods to wider problem-solving</li> <li>geometry knowledge is sequenced throughout, rather than at the end of, each year's curriculum</li> </ul>	<p>The Ready to Progress criteria provide teachers with the key knowledge children in each year group need to successfully move on. These are given to teachers and CPD has taken place to ensure teachers are aware of this key knowledge.</p> <p>All curriculum planning is as detailed in Reception as it is in older year groups. Strand progressions, calculation documentation and termly overviews are all broken down in the same way across all year groups.</p>
<p><b>Declarative Knowledge</b></p>	
<p><b>Key points from the OFSTED Research Review:</b></p>	
<p><i>The curriculum should identify and sequence key facts, formulae, concepts and vocabulary.</i></p> <ul style="list-style-type: none"> <li>Curriculums generally emphasised mathematics facts, such as times tables, alongside helping pupils to understand the connections within 'families' of numbers.</li> <li>In KS1 there appeared to be less focus on addition and subtraction tables (number bonds) by heart. The NCETM's 'Mastering Number' Programme is particularly helpful in supporting with this.</li> <li>Many schools' curriculums identified and sequenced mathematical vocabulary, sentence stems and speaking frames.</li> </ul>	<p>Teaching of key facts is sequenced and well planned for. For example, the explicit teaching of times tables is carefully sequenced across Years 2-4 and key number facts in KS1 are broken down so that they can be built upon.</p> <p>In Reception and KS1 emphasis is placed on addition and subtraction tables (number facts) with assessments used to test children's knowledge of these to ensure they have the declarative knowledge they need to move on. To further support this, this year, Christ Church are taking part in the NCETM's, 'Mastering Number' scheme.</p> <p>Mathematical vocabulary is carefully sequenced so teachers are aware of when new vocabulary is introduced and when children have already been exposed to key vocabulary. Vocabulary and key stem sentences are provided to support all learning.</p>
<p><b>Procedural Knowledge</b></p>	
<p><b>Key points from the OFSTED Research Review:</b></p>	
<p><i>Pupils should learn the most efficient, systematic and accurate mathematical methods, so that they can use them for more complex calculations and in their next stage of learning</i></p> <ul style="list-style-type: none"> <li>Many primary schools' policies for calculation set out how pupils will learn procedural knowledge in a logical way however where the focus is on developing mathematical ideas, this can be at the expense of automaticity.</li> <li>Careful presentation is likely to help pupils spot patterns and identify their own mistakes.</li> <li>Working with fractions involves knowing and using procedural knowledge. Pupils can encounter difficulties when teachers have not prioritised procedural automaticity enough.</li> </ul>	<p>Our Christ Church calculation policy sequences the teaching of mathematical methods from Reception – Year 6.</p> <p>Although some methods (grid method) focus on developing mathematical ideas, children are moved on to the most efficient methods that support automaticity. For example, after learning the grid method to expose the place value of digits, children in Year 4 move on to expanded vertical multiplication, preparing them to learn the most efficient method of short multiplication in Year 5.</p> <p>Presentation is a part of the maths curriculum. Children are encouraged to record their working and answers in their books from Year 2 upwards and worksheets are only used</p>



	<p>when needed. Children understand the importance of rules like ‘one digit in each box’ to support their ability to accurately answer questions.</p> <p>As well as wanting to expose the mathematical structure of fractions, at Christ Church we understand the need for procedural knowledge when working with fractions. Dedicated time is given to ensure procedural automaticity before problem solving begins.</p>
<p><b>Conditional Knowledge</b></p>	
<p><b>Key points from the OFSTED Research Review:</b></p>	
<p><i>Pupils should be able to recall facts and methods to some level of automaticity before using them for wider problem solving.</i></p> <ul style="list-style-type: none"> <li>• Often, teachers dedicated a section of the lesson to wider problem solving.</li> <li>• When problem solving was optional this was problematic as this approach may result in some pupils skipping ahead of vital practice of facts and methods, or sticking with repeated practice of already-secure knowledge.</li> </ul>	<p>Problem solving and reasoning are a part of most lessons at Christ Church; however we recognise the need for vital practice of facts and methods. Teachers use formative assessment in lessons to guide practice, and careful question choosing allows for varied practice in lessons. For example, children may start independent practice with 6 questions of fact/method practice and then move on to solve problems and reason using this skill. They may then do some more fact/method practice before some more problem solving.</p> <p>Where teachers decide whole lessons should be dedicated to practice of facts and methods, either for the whole class or for certain individual/groups, this takes place.</p> <p>Low-stakes quizzing, morning work, homework and maths displays all aid repeated practice of already-secure knowledge to keep this at children’s fingertips.</p>
<p><b>Meeting the Needs of Pupils</b></p>	
<p><b>Key points from the OFSTED Research Review:</b></p>	
<p><i>A well-sequenced path to proficiency, with the small steps identified, is important for all pupils and crucial for pupils with SEND.</i></p> <ul style="list-style-type: none"> <li>• The ‘keep up, not catch up’ approach, often directly referred to by leaders, made sure that pupils really understood and remembered what was being taught before moving on.</li> <li>• Some of the more effective examples of additional help included pre-teaching and same-day interventions</li> </ul>	<p>Well thought out planning and identification of small steps has proven to help all pupils make good progress. (See adaptive teaching case study for an example.)</p> <p>Part of our pedagogical approach to teaching maths is a ‘keep up, not catch up approach’ and teachers ensure deep understanding before moving on.</p> <p>Most children with SEND are able to access the curriculum with minor adaptations; however, in some unique cases, where children are working significantly below the expected standard for their year group, we recognise the need to teach key facts and procedures. Therefore, in these unique cases, children may complete tasks with a different focus than the main learning intention.</p> <p>Daily precision teaching helps to ensure key number facts and times tables are focused on so children who may be struggling do not fall further behind.</p>
<p><b>Pedagogy and Assessment</b></p>	
<p><b>Key points from the OFSTED Research Review:</b></p>	
<p><b>Pedagogy: Teaching the Curriculum</b></p> <p><i>The novice, whether they are starting school or starting a new topic, needs more instruction rather than less. Teaching should help them on the journey to expertise.</i></p> <ul style="list-style-type: none"> <li>• A shift in responsibility for the curriculum from the individual teacher to leadership assured leaders that pupils’ progression through the curriculum was joined up and balanced and that teachers were using mathematical language and representations consistently.</li> <li>• By setting out what pupils had learned and what they would learn in the future, teachers could understand how each lesson fitted into the bigger picture of mathematics progression.</li> <li>• Leaders often viewed teaching and use of mathematical vocabulary as ‘non-negotiable’ in lessons. Teachers introduced new vocabulary at the start of lessons and used it throughout.</li> </ul>	<p><b>Pedagogy: Teaching the Curriculum</b></p> <p>A carefully designed maths curriculum pack produced by the subject leader provides teachers with a clear, well-sequenced curriculum to follow. Progressions in vocabulary and set models and representations also support teachers.</p> <p>Strand progressions and ‘Ready to Progress’ criteria enable teachers to see how the learning in their class fits into the bigger picture of mathematics progression. Teachers know what came before and what will come in the future and this supports lesson design.</p> <p>New vocabulary is introduced at the start of a lesson and displayed throughout lessons. Vocabulary is then added to the maths display for future reference. The vocabulary progression document supports teachers to understand if vocabulary is new for children or if they have encountered it in an earlier year groups.</p>

### **Pedagogy: Pupils' Practice**

Practice helps pupils to understand and remember mathematical knowledge. There are broadly 2 types of practice. Type 1 involves retrieving and rehearsing facts, methods and strategies to the point of familiarity, speed and accuracy. Type 2 is more exploratory. It requires pupils to explain relationships, prove that they understand them and describe their reasoning. Both types are important.

- Teachers consistently built in opportunities for pupils to rehearse knowledge.
- Opportunities for practice sometimes skipped plainer, 'type 1' practice and moved too quickly to wider problem solving.
- Frequent use of choral response (responding in unison) for low-stakes practice of concepts, vocabulary and mathematical sentences was a positive theme.

### **Assessment**

Frequent low-stakes testing (that is, without risk of failure), with an element of timing, is useful for checking pupils' knowledge of key facts and methods. This helps pupils to remember and gives leaders an insight into gaps in pupils' knowledge.

Many teachers used live marking in lessons, as well as whole-class feedback. They swiftly noticed pupils' successes, misconceptions and errors. They could direct pupils to revisit knowledge at the start of the lesson, adjust the next lesson for all or focus on pupils who needed additional support.

### **Recommendations from the OFSTED Subject Report:**

All schools should:

- make certain that teachers routinely check whether pupils have secure knowledge and understanding of prerequisite mathematics and address any gaps identified, before moving on to the next stage of learning
- make sure that teachers regularly connect new learning to what pupils have learned before, including showing pupils how it connects with learning in other subjects
- make sure that all pupils practise and consolidate new learning through well-designed exercises and activities, including sequences of problem-solving
- check that pupils are developing 'procedural fluency' (speed and accuracy of recall of methods) and address gaps in pupils' procedural knowledge at the earliest possible opportunity

Primary schools should:

- consider using routines, keeping noise levels low and making sure that pupils are facing the teacher is explaining new content and giving instructions, to help them focus on what is being taught
- help younger pupils to learn their addition facts by heart and regularly check their recall of this knowledge
- reflect on the extent to which additional afternoon practice is due to deficiencies in the early curriculum and its implementation
- aim for pupils to become proficient and ready for Year 7, rather than just meet age related expectations for end of key stage tests
- make sure that questioning helps all pupils to recall and make connections, rather than allowing pupils to guess
- provide pre-teaching, additional teaching and extra practice for most pupils with special educational needs and/or disabilities (SEND)

### **Systems at Subject and School Level**

#### **Key points from the OFSTED Research Review:**

School-level systems strengthen the consistency of a pupil's journey to proficiency.

### **Pedagogy: Pupils' Practice**

Spaced retrieval is a part of the maths curriculum at Christ Church. Teachers use 'flashbacks' as morning work to revise learning; low stakes quizzing of prior knowledge supports embedding key learning; and maths displays remind children of what they have already learnt.

Although problem solving is encouraged in most lessons, we recognise the need for some lessons to focus on 'type 1 practice', particularly when learning new facts and procedures. For example, when a new calculation is introduced, learning the method to the point of automaticity is the focus before wider problem solving and reasoning involving the skill is introduced.

Stem sentences are used where they can support progress and choral reciting of these further supports pupils' progress and teacher assessment. Chanting of times tables, rhymes, songs and rehearsal of key vocabulary are all features of good practice at Christ Church.

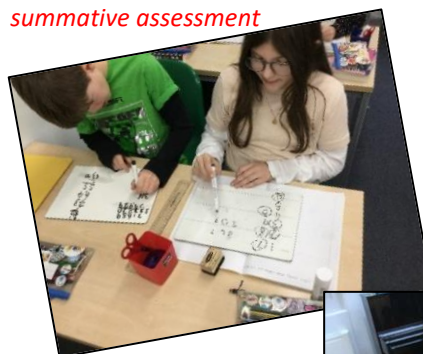
Maths learning in classrooms is focused, calm and routines exist to ensure children can focus on what is being taught. Noise levels are kept to a minimum in maths lessons unless the activity requires more discussion.

### **Assessment**

Live marking supports on the spot feedback and assessment. This can be beneficial for deciding if more 'type 1 practice' is needed and for moving learning on when it is clear understanding is deep enough.

Misconceptions are addressed quickly. Sometimes this is relevant for the whole class so feedback may be given in this way or for specific children, booster sessions, 1-1 conferencing and/or precision teaching may be used.

*See assessment information section above – formative and summative assessment*



Collaboration is a key aspect of maths teaching at Christ Church. The subject leader (and other members of staff

<ul style="list-style-type: none"> <li>• A well-established culture of collaboration has strengthened and extended networks of support.</li> <li>• Professional development provided by the Maths Hubs and information produced by the NCETM have informed leaders about high-quality mathematics teaching.</li> <li>• In many schools, leaders often shared information with parents. This included facilitating workshops, games sessions and interactive lesson observations.</li> </ul>	<p>when appropriate) disseminates information gathered from local authority subject leader sessions and work with the NCETM maths hub in staff meetings and informally to members of staff.</p> <p>The subject leader's training to become an NCETM mastery specialist teacher and the school's wider involvement with the maths hub through developing and embedding workgroups has helped to inform high-quality mathematics teaching.</p>
<b>Recommendations from the OFSTED Subject Report:</b>	
<p><i>All schools should:</i></p> <ul style="list-style-type: none"> <li>• provide continuing professional development for teaching assistants, and other adults working with pupils, to help them to understand the intended school mathematics curriculum and the way it is put into practice</li> </ul> <p><i>Primary schools should:</i></p> <ul style="list-style-type: none"> <li>• make sure that discussions with leaders about progress specifically address the needs of the lowest attaining younger pupils</li> <li>• aim to prioritise resourcing for younger year groups, to better engineer success from the start of a pupil's mathematics journey</li> <li>• when leaders observe lessons, focus on pupils' thinking and the quality and quantity of practice they undertake</li> </ul>	<p>Information about the maths curriculum is shared with parents through the school website, in termly curriculum leaflets, through parent workshops, at class assemblies and through 1-1 specific discussions with parents. Parent workshops in Years 2 and 4 focus on procedural knowledge so that there is consistency in calculation methods and a times table workshop supports parents' understanding of how and when times tables are taught and how they can support children at home to learn the key facts.</p>

Last year's key developments and successes in 2022/23:

**1. Subject leader to successfully complete the mastery specialist programme with NCETM and the embedding mastery workgroup alongside the Year 1 teacher, with relevant learning shared with staff.**

*Intended Outcome: Subject leader to continue to refine and develop own subject knowledge and use this as a tool to continue to provide CPD for staff.*

**2022/23 target achieved:** Subject leader has successfully completed the first year of the NCETM mastery specialist training and completed the embedding mastery workgroup alongside the Year 1 teacher. Numerous staff meetings have taken place to share helpful knowledge and approaches were shared with other teachers and formed the focus of lesson visits. For example, CPD took place on stem sentences and these are now successfully used across the school to support learning. The subject leader also planned and led a workgroup for other teachers to attend to prepare for the second year of the course. Ten visitors, including teachers and members of SLT from a variety of schools, came and observed the subject leader teach and CPD was then delivered on adaptive teaching in the context of teaching for mastery.

**2. Children to take part in a maths day in the summer term to increase even further children's enjoyment of maths and their understanding of the wide range of applications for maths skills.**

*Intended Outcome: All children to experience enrichment of maths at school (as well as ongoing maths enrichment for some pupils through outside and additional opportunities).*

**2022/23 target partially achieved and to be continued in 23/24:** Children in Years 5 and 6 took part in 'Careers Day' where they were able to see how maths and application of maths skills can be used in a variety of professions. A whole school maths day will take place this academic year and the subject leader has plans to further develop an existing relationship with the Royal Institute of Maths so that whole class workshops can be delivered on a maths day. Refinements of the problem solving and reasoning progression documents mean that a specific strand from each can be focused on during a maths day so that progression across the school can be celebrated. Enrichment of the maths curriculum continued to take place through cross-curricular activities. For example, Year 5's Thames Explorer trip, Year 4's weather station data analysis and Year 6's end of year businesses. Extra-curricular clubs such as cooking and coding provided further enrichment opportunities.



**3. Parent workshops to take place in school again for Y2 and Y4, focused on the calculation policy, as well as a times tables workshop for all parents from Y2 up.**

*Intended Outcome: Parents to have a deeper understanding of how to help support their children and feel confident in doing so.*



**2022/23 target achieved:** Calculation workshops took place in Years 2 and 4 led by the class teacher and supported by the subject leader. These were very well attended by parents and feedback was extremely positive. A times table workshop was also delivered by the subject leader and open to parents from a range of year groups; again, attendance was high and many parents commented on the usefulness of the workshop. Resources were provided for parents to take away so that school games and ways of learning tables could be followed up at home.

**Additional successful development activities which have taken place in 22/23:**

Curriculum Refinements in response to OFSTED Research Review and visit from School Improvement Partner

See 2022 report for our early response to the OFSTED Research Review for Maths.

After a very positive visit from our local authority school improvement partner, some key refinements were actioned:

- A more detailed progression document was produced by the subject leader for reasoning and problem solving skills so that teachers have the same level of detail as they do for fluency strand progressions. CPD for all teachers then took place to share refinements. (See end of report for this progression document.)
- Refinements were also made to the information given to teachers about the models and representations to be used in lessons to ensure these were clear and consistent across the school.

**Further refinement of 'Flashback' morning work activities**

CPD was delivered by the subject leader to further refine maths morning work to ensure optimum impact. Flashbacks can link to recent learning or to learning that took place longer ago, but is key to keep 'bubbling'. For example, rehearsal of key addition facts or rehearsal of a mathematical procedure to ensure automaticity is not lost.

**Key targets and actions moving forward (development priorities for 2023/24):**

Target and <i>intended outcome</i>	Planned actions (including dates where applicable)
1. Subject leader to successfully complete the second year of the mastery specialist programme with NCETM and the Year 1 teacher to participate in a sustaining mastery workgroup. <i>Intended outcome: Subject leader to continue to refine and develop own subject knowledge and use this as a tool to continue to provide CPD for staff at Christ Church, but also teachers from other schools.</i>	Subject leader to attend relevant training, and lead six, half-day workgroups for teachers from other schools to support their teaching for mastery journey. Subject leader will also work with other professionals from across the country to share good practice. Year 1 teacher to attend six NCETM 'sustaining mastery' sessions and to continue to provide CPD based on this approach for all teachers.
2. To continue to plan for children to take part in a maths day to increase even further children's enjoyment of maths and their understanding of the wide range of applications for maths skills. <i>Intended outcome: All children to experience enrichment of maths at school (as well as ongoing maths enrichment for some pupils through outside and additional opportunities).</i>	Subject leader to discuss with SLT and deliver staff meeting to introduce idea to teachers. Subject leader to continue to investigate potential external providers to support with workshops on the day, particularly utilising the existing relationship with the Royal Institute.
3. Successful completion of the NCETM 'Mastering Number' programme for Reception, Year 1 and Year 2. <i>Intended outcome: Support even more children to leave KS1 with fluency in calculation and a confidence and flexibility with number.</i>	Subject leader, head teacher and teaching staff to attend launch. Teachers to attend termly Zoom sessions. Teaching of the sessions to begin in Autumn 1. Subject leader to observe learning and take feedback from staff to ensure the programme has the desired impact.
4. Embed refinements to curriculum design in response to the Ofsted subject report. In particular: - Ensure geometry units (particularly shape) are not just taught at the end of the summer term. <i>Intended outcome: Curriculum is consistently and progressively taught ensuring all pupils learn and remember more of the planned curriculum</i>	Subject leader to work with Year 3 and 4 teachers to move a geometry unit of work (shape) to the autumn term after carefully considering its place in the context of the rest of the curriculum. Teachers to ensure geometry learning is a key part of flashbacks, ensuring they know what children learnt last year. The Ready to Progress Criteria will be used to support with this. Subject leader to use pupil voice sessions to discuss geometry teaching with children.

## Pupil voice

Pupil voice discussions in October 2022, June 2023 demonstrated that:

### **Children could talk confidently about what they were currently learning about:**

'We are learning about numbers to one million: the place value of the digits, rounding and comparing.' (Year 5 pupil)

'We have been learning about how to add and subtract fractions and practising the methods.' (Year 5 pupil)

'We have been learning how to add and subtract 50 and we answered some true and false questions.' (Year 3 pupil)

'I'm learning my 6 times tables in class and we have been learning how to round numbers to 10 and 100.' (Year 4 pupil)

'We've been working on the KFC (keep flip change) method to divide fractions.' (Year 6 pupil)

### **Children could answer questions based on what they had been learning about:**

- Can you partition 1465?
  - o  $1000 + 400 + 60 + 5$ ?
- How could you use flexible partitioning to partition this number?
  - o  $1200 + 265$  (Year 4 pupil)
- Can you count in 50s from 0 to 300?
  - o 0, 50, 100, 150, 200, 250, 300 (Year 3 pupil)

### **Children could explain how their current learning built on learning they had done previously:**

'Last year we did fractions and we did multiplying so now we know that we can do dividing.' (Year 6 pupil)

'In Year 5 we did learn about fractions and it was tricky but now we're doing it again it helps me.' (Year 6 pupil)

'We did two digit numbers in Year 2 and three digit numbers in Year 3' (Year 3 pupil)

'In Reception we learnt to count so now that I've learnt to count I can count to 100!' (Year 1 pupil)

'Number bonds to 10 help you to do number bonds within 10 and that helps you bridge.' (Year 2 pupil)

'Last year we learnt about numbers to 10,000 and knowing numbers to 100 and 1000 helped us. Now we are learning about numbers to 100,000 and then we'll learn about numbers to 1,000,000.' (Year 5 pupil)

### **Children were able to talk about our spiralled curriculum:**

'We do spaced retrieval in morning work and homework.' (Year 6 pupil)

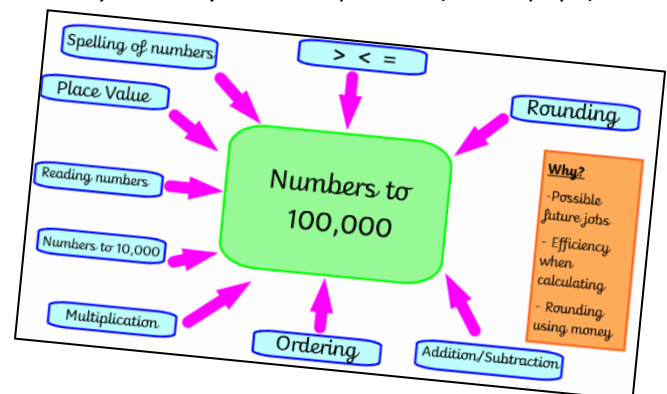
'Fractions for example – you do it one year and then you do it again the next year and you build up on it.' (Year 6 pupil)

'The maths display can help us because it reminds us of what we're learning.' (Year 5 pupil)

'In the Year 1 classroom there is a board that says maths on it and it has different ways of counting in 10s 5s 2s and 1s and looking at that helps me to count.' (Year 1 pupil)

'I like doing the arithmetic tests where we do questions we have done before because it is good practice.' (Year 5 pupil)

'Methods I can just do help me to solve problems because I don't have to think about the method.' (Year 6 pupil)



## What makes our curriculum provision for Maths exceptional and beyond the expected?

- ❖ Exceptional outcomes for children across the school.
- ❖ Enrichment opportunities for children for whom maths is a particular strength, for example participation in the UK Maths Challenge, borough-wide competitions for times tables for Year 4 and Saturday sessions for Year 5 children with the Royal Institute for Mathematics.
- ❖ Subject leader's involvement with the NCETM, particularly choice to train to become a mastery specialist.

## Key points for discussion with governors about this report

- Participation in NCETM mastery workgroups and wider impact of this for other staff members and maths teaching across the school.
- Importance of our 'keep up not catch up' pedagogical approach.
- Outcomes of the Y4 multiplication check.



	Counting	Representing	Use of place value and comparing	Problems and Rounding
Rec	<ul style="list-style-type: none"> <li>* Count reliably with numbers from 1 to 10</li> <li>* <b>Verbally count beyond 20, recognising the pattern of the counting system</b></li> <li>* Can place numbers between 1 and 10 in order</li> <li>* <b>Subitise (recognise quantities without counting) up to 5</b></li> </ul>	<ul style="list-style-type: none"> <li>* Identify numbers between 1 and 10</li> <li>* <b>Have a deep understanding of number to 10, including the composition of each number</b></li> </ul>	<ul style="list-style-type: none"> <li>* <b>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity</b></li> </ul>	
Y1	<ul style="list-style-type: none"> <li>* Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>* Count numbers to 100 in numerals; count in multiples of twos, fives and tens</li> </ul>	<ul style="list-style-type: none"> <li>* Identify and represent numbers using objects and pictorial representations</li> <li>* Read and write numbers to 100 in numerals and words</li> <li>* Read and write numbers from 1 to 20 in numerals and words</li> </ul>	<ul style="list-style-type: none"> <li>* Given a number (between 1 and 100), identify one more and one less</li> </ul>	
Y2	<ul style="list-style-type: none"> <li>* Count in steps of 2, 3, and 5 from 0, and in tens from any number forward and backward</li> </ul>	<ul style="list-style-type: none"> <li>* Read and write numbers to at least 100 in numerals and words</li> <li>* Identify, represent and estimate numbers using different representations, including the number line</li> </ul>	<ul style="list-style-type: none"> <li>* Recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>* Compare and order numbers from 0 up to 100; use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</li> </ul>	<ul style="list-style-type: none"> <li>* Use place value and number facts to solve problems</li> </ul>
Y3	<ul style="list-style-type: none"> <li>* Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</li> </ul>	<ul style="list-style-type: none"> <li>* Identify, represent and estimate numbers using different representations</li> <li>* Read and write numbers up to 1000 in numerals and in words</li> </ul>	<ul style="list-style-type: none"> <li>* Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> <li>* Compare and order numbers up to 1000</li> </ul>	<ul style="list-style-type: none"> <li>* Solve number problems and practical problems involving these ideas</li> </ul>
Y4	<ul style="list-style-type: none"> <li>* Count in multiples of 6, 7, 8, 25 and 1000</li> <li>* Count backwards through zero to include negative numbers</li> </ul>	<ul style="list-style-type: none"> <li>* Identify, represent and estimate numbers using different representations</li> <li>* 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</li> </ul>	<ul style="list-style-type: none"> <li>* Find 1000 more or less than a given number</li> <li>* Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)</li> <li>* Order and compare numbers beyond 1000</li> </ul>	<ul style="list-style-type: none"> <li>* Round any number to the nearest 10, 100 or 1000</li> <li>* Solve number and practical problems that involve all of the above and with increasingly large positive numbers</li> </ul>
Y5	<ul style="list-style-type: none"> <li>* Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</li> <li>* Count forwards and backwards with positive and negative whole numbers, including through zero</li> </ul>	<ul style="list-style-type: none"> <li>* Read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit</li> <li>* Read Roman numerals to 1000 (M) and recognise years written in Roman numerals</li> </ul>	<ul style="list-style-type: none"> <li>* (Read, write), order and compare numbers to at least 1 000 000 and determine the value of each digit</li> </ul>	<ul style="list-style-type: none"> <li>* Interpret negative numbers in context</li> <li>* Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</li> <li>* Solve number problems and practical problems that involve all of the above</li> </ul>
Y6		<ul style="list-style-type: none"> <li>* Read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit</li> </ul>	<ul style="list-style-type: none"> <li>* (Read, write), order and compare numbers up to 10 000 000 and determine the value of each digit</li> </ul>	<ul style="list-style-type: none"> <li>* Round any whole number to a required degree of accuracy</li> <li>* Use negative numbers in context, and calculate intervals across zero</li> <li>* Solve number and practical problems that involve all of the above</li> </ul>

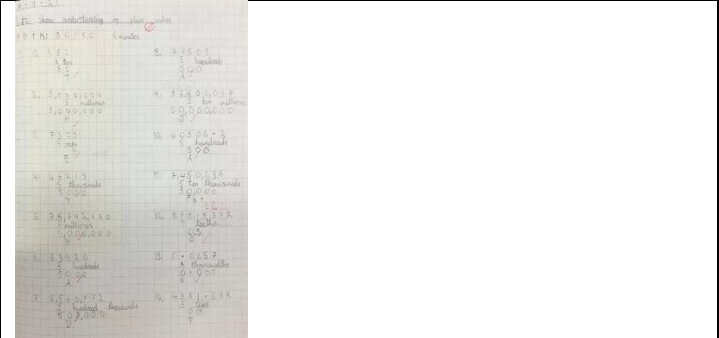
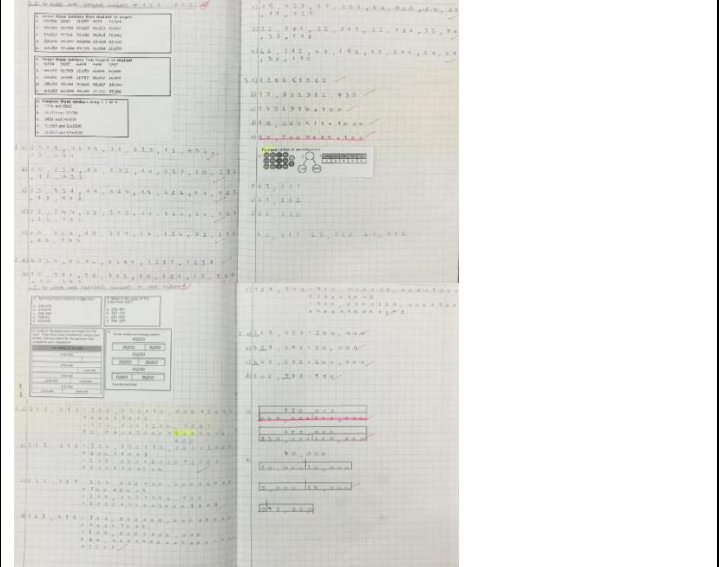
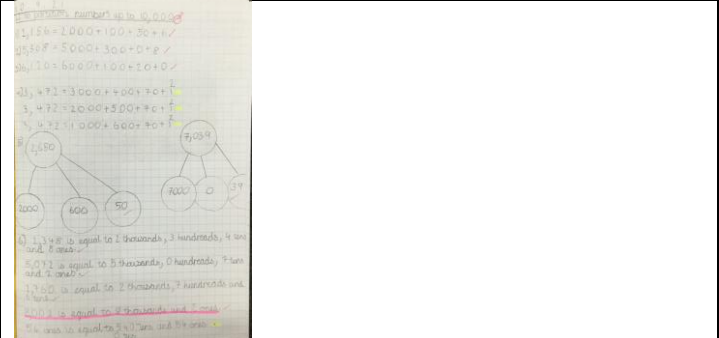
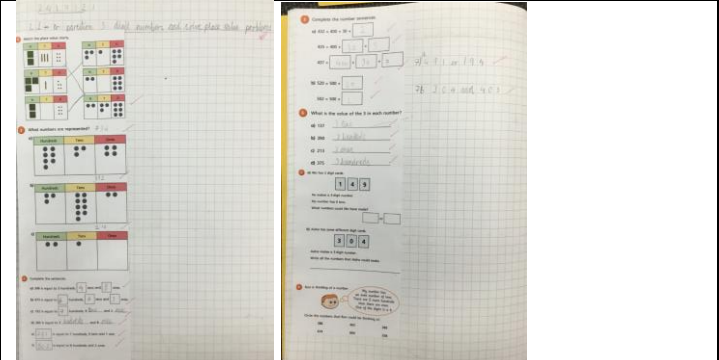
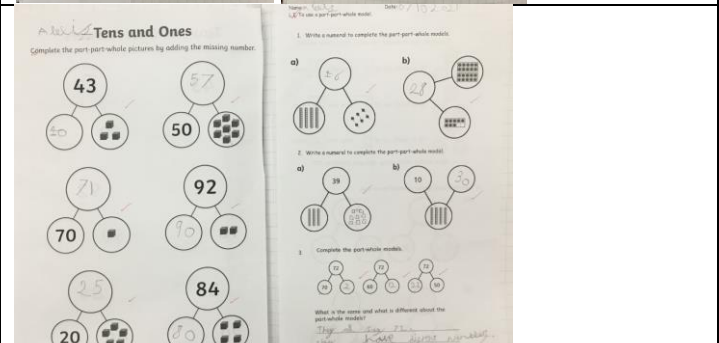
	How do we expect children to ...	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Problem Solving Skills	engage with mathematical problems?	Engage with mathematical activities and problems.	Engage with mathematical activities and problems, making links and moving between different representations (concrete, pictorial, abstract).	Engage with mathematical activities and problems, making links and moving between different representations (concrete, pictorial, abstract).	Engage with mathematical activities and problems, making links and moving between different representations (concrete, pictorial, abstract).	Engage with mathematical activities and problems, making links and moving between different representations (concrete, pictorial, abstract).	Engage with mathematical activities and problems, making links and moving between different representations (concrete, pictorial, abstract).	Engage with mathematical activities and problems, making links and moving between different representations (concrete, pictorial, abstract).
	scaffold their thinking?	Independently choose to scaffold thinking using concrete and pictorial representations, if required.	Independently choose to scaffold thinking using concrete and pictorial representations, if required.	Independently choose to scaffold thinking using concrete, pictorial or abstract representations, if required.	Independently choose to scaffold thinking using concrete, pictorial or abstract representations, if required.	Independently choose to scaffold thinking using concrete, pictorial or abstract representations, if required.	Independently choose to scaffold thinking using concrete, pictorial or abstract representations, if required.	Independently choose to scaffold thinking using concrete, pictorial or abstract representations, if required.
	represent their thinking?	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.	Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate.
	suggest problem solving strategies?	With support (classroom discussion, paired or guided work) find a starting point to break into a problem.	Begin to independently find a starting point to break into a problem.	Independently find a starting point to break into a problem.	Independently find one efficient way to solve a range of problems.	Make suggestions of ways to solve a range of problems.	Make suggestions of ways to solve a range of problems.	Make suggestions of various efficient ways to solve a range of problems.
	use systematic approaches?	Use trial and trial strategy.	Use trial and improvement strategy.	With support work systematically.	Independently work systematically.	Develop and apply a systematic approach.	Organise work from the outset, looking for ways to record and work systematically.	Organise work from the outset, looking for ways to record and work systematically.
		Use ideas gained from a trial to decide what to do next.						
	work with a range of possibilities?	With support find possibilities.	Independently find possibilities.	Independently find possibilities.	Independently find possibilities using patterns spotted to support.	Find and predict possibilities that match the context using patterns spotted to support.	Find and predict possibilities that match the context using patterns spotted to support.	Find and predict possibilities that match the context using patterns spotted to support.
	check and improve their work?	With support (adult, peer) check work (e.g. look for other possibilities and errors).	With support (adult, peer) check work (e.g. look for other possibilities, repeats, missing answers and errors).	Independently check work (e.g. look for other possibilities, repeats, missing answers and errors).	Independently check and improve work (e.g. look for other possibilities, repeats, missing answers, errors and ways to improve).	Independently check and improve work (e.g. look for other possibilities, repeats, missing answers, errors and ways to improve).	Independently check and improve work (e.g. look for other possibilities, repeats, missing answers, errors and ways to improve).	Independently check and improve their work (e.g. look for other possibilities, repeats, missing answers, errors and ways to improve).
	use patterns in problem solving?	With support pattern spot and copy and continue a pattern (actions, objects, shapes and numbers).	Independently pattern spot and copy and continue a pattern (objects, shapes, numbers, spatial) predicting what will come next.	Pattern spot and predict what will come next in a pattern/sequence (numbers, shapes, spatial).	Pattern spot and predict what will come next in a pattern/sequence (numbers, shape or spatial).	Pattern spot and with support, express generalisations/rules in words.	Pattern spot and independently express generalisations/rules in words.	Pattern spot and begin to express generalisations/proof using words and symbolic notation.
	investigate and use conjectures?		With support, investigate statements.	With support, investigate statements and conjectures.	Independently investigate conjectures and provide examples and counter-examples.	Make and investigate conjectures and provide examples and counter-examples.	Make and investigate conjectures and provide examples and counter-examples.	Make and investigate conjectures and provide examples and counter-examples.
pose their own mathematical problems?				When they have solved a problem, pose a similar problem for a peer.	When they have solved a problem, pose a similar problem for a peer.	When they have solved a problem, pose a similar problem for a peer.	When they have solved a problem, pose a similar problem for a peer.	



	How do we expect children to ...	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
<b>Reasoning</b>	explain and justify?	Describe.	Describe and explain with reasons.	Explain with reasons and beginning to use given sentence stems and connectives to expand.	Provide a convinced argument.	Provide a clear, correct, logical justification and with support, express generalisation/rules formed in words.	Provide a clear, correct, logical justification, expressing generalisation/rules in words.	Provide proof of reasoning, expressing generalisations in words and symbolic notation.	
	reflect on others' ideas and use responses?	Listen to others' descriptions.	Listen to others' explanations and try to make sense of them.	Listen to others' explanations, make sense of them and compare and evaluate.	Reflect on others' convinced explanations and use this to improve their work.	Reflect on others' justifications and use this to improve their work.	Reflect on others' justifications and use this to improve their work.	Reflect on others' proof and use this to improve their own work.	
	edit and improve their ideas?			Begin to edit and improve their own and a peer's explanation.	Edit and improve their own and a peer's convinced explanation.	Edit and improve their own and a peer's justification.	Edit and improve their own and a peer's justification.	Edit and improve their own and a peer's proof.	
	investigate and create 'what if' questions?			Investigate 'what if?' questions.	Investigate 'what if?' questions.	Investigate 'what if?' questions.	Investigate 'what if?' questions.	Investigate 'what if?' questions.	Investigate 'what if?' questions.
					Create 'what if?' questions.	Create 'what if?' questions.	Create 'what if?' questions.	Create 'what if?' questions.	Create 'what if?' questions.

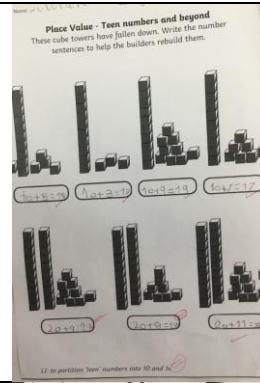
Work sampling 2022/23

\*the pieces of work shown here show a progression of place value knowledge and skills from Reception to Year 6.  
At the end of this report, there is an additional set of work showing our progression in addition.

<p>Year 6</p> <ul style="list-style-type: none"> <li>Place Value to ten million</li> </ul>	
<p>Year 5</p> <ul style="list-style-type: none"> <li>Place value to one million</li> <li>Place value to one hundred thousand</li> </ul>	
<p>Year 4</p> <ul style="list-style-type: none"> <li>Place value to ten thousand</li> </ul>	
<p>Year 3</p> <ul style="list-style-type: none"> <li>Place value to one thousand</li> </ul>	
<p>Year 2</p> <ul style="list-style-type: none"> <li>Place value to one hundred</li> </ul>	

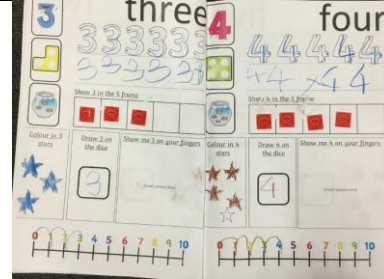
Year 1

- Place value of teen numbers and beyond using pictorial representations.



Reception

- Numbers to 10 (formation, ordering)



LI- Recognise number bonds to 5

10.01.22

5



$$5 + 0 = 5$$



$$4 + 1 = 5$$



$$2 + 3 = 5$$



$$1 + 4 = 5$$



$$3 + 2 = 5$$



Number bonds to 10



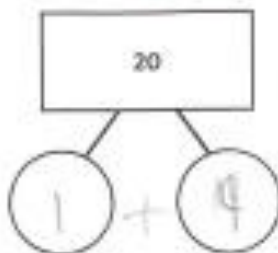
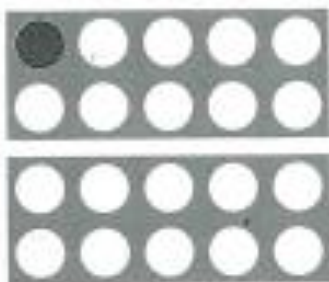
$3 + 7 = 10$  ★ ★  
 $7 + 3 = 10$  ★  
 $4 + 6 = 10$  ★ ★ ★  
 $6 + 4 = 10$  ★ ★ ★  
 $5 + 5 = 10$  ★  
 $\_ + \_ = 10$  ★ ★

$0 + 10 = 10$   
 $10 + 0 = 10$   
 $1 + 9 = 10$   
 $9 + 1 = 10$   
 $2 + 8 = 10$   
 $8 + 2 = 10$

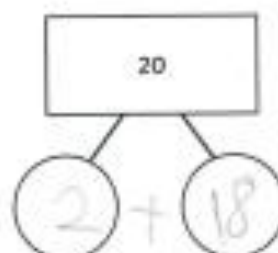
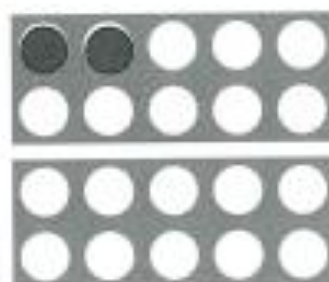
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Date: 1.3.2023

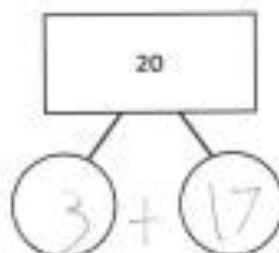
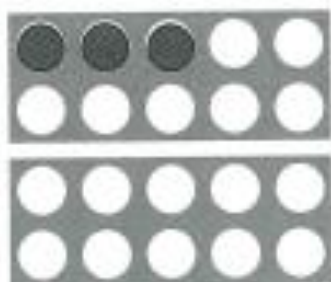
LI: To find and make number bonds to 20



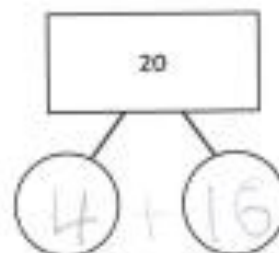
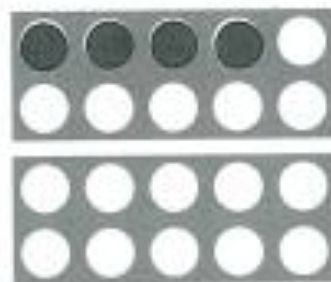
$$\boxed{1} + \boxed{19} = 20$$



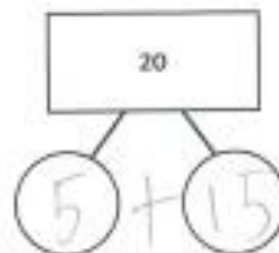
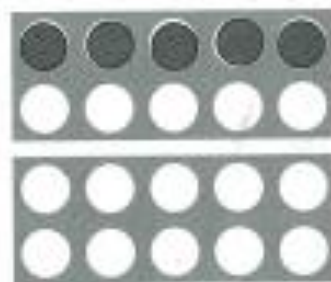
$$\boxed{2} + \boxed{18} = 20$$



$$\boxed{3} + \boxed{17} = 20$$



$$\boxed{4} + \boxed{16} = 20$$

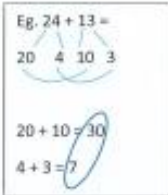
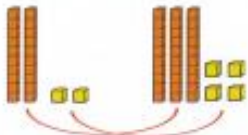


$$\boxed{5} + \boxed{15} = 20$$

Year 2 – partitioning to add

Use our partitioning method to add these two 2-digit numbers. Use base 10 to help.

a)  $22 + 34 =$



- b)  $12 + 27 =$
- c)  $21 + 26 =$
- d)  $12 + 11 =$
- e)  $16 + 13 =$
- f)  $17 + 32 =$
- g)  $13 + 15 =$
- h)  $12 + 21 =$
- i)  $16 + 21 =$
- j)  $23 + 26 =$

11: to add two 2-digit numbers (not across 10)

a)  $22 + 34 = 56$

$20 + 30 = 50$   
 $2 + 4 = 6$

d)  $12 + 11 = 23$

$10 + 10 = 20$   
 $2 + 1 = 3$

b)  $12 + 27 = 39$

$10 + 20 = 30$   
 $2 + 7 = 9$

e)  $16 + 13 = 29$

$10 + 10 = 20$   
 $6 + 3 = 9$

e)  $21 + 26 = 47$

$20 + 20 = 40$   
 $1 + 6 = 7$

f)  $17 + 32 = 49$

$10 + 30 = 40$   
 $7 + 2 = 9$

g)  $10 + 10 = 20$   
 $3 + 5 = 8$

h)  $12 + 20 = 30$   
 $1 + 2 = 3$

i)  $15 + 21 = 36$

$10 + 20 = 30$   
 $5 + 1 = 6$

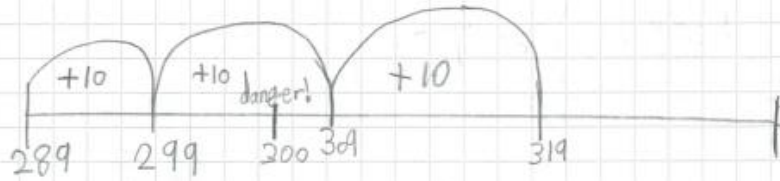


Year 3 – crossing hundreds by adding tens

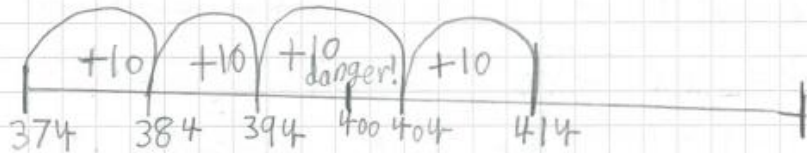
14.10.2022

L.I. To cross 100s by adding tens ✓

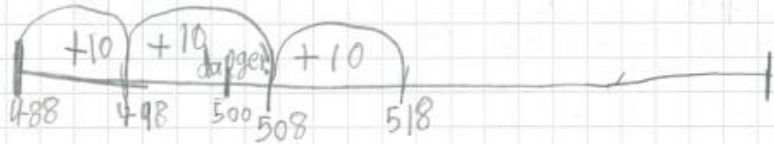
$289 + 30 = 319$  ✓



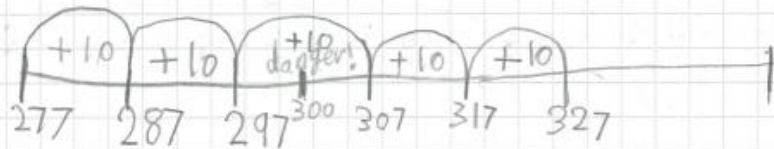
$374 + 40 = 414$  ✓



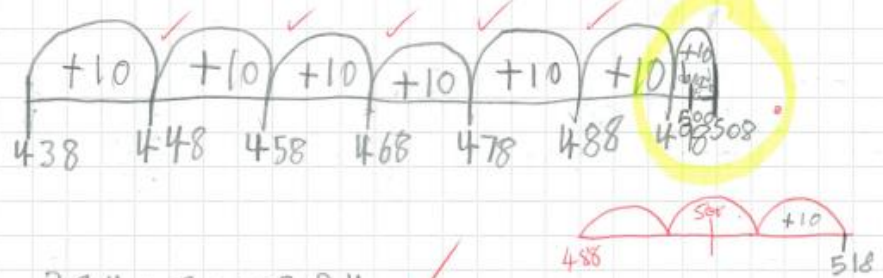
$488 + 30 = 518$  ✓



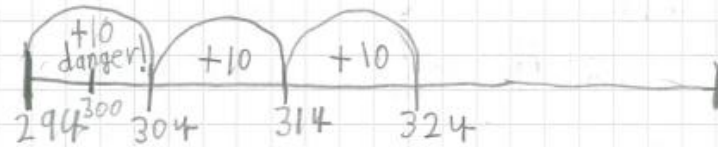
$277 + 50 = 327$  ✓



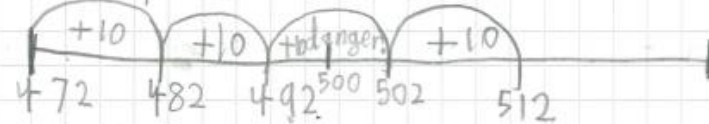
$438 + 80 = 518$



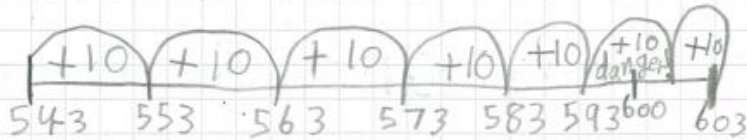
$294 + 30 = 324$  ✓



$472 + 40 = 512$  ✓



$543 + 70 = 603$  ✓



I thought the easiest thing for me was the danger zone because it made me stop and restart the clock when crossing 100s.



Year 3 – expanded column addition

\*Children move on to compact column addition (the most efficient method) by the end of Year 3

19.10.2022

L.I. To practice expanded column addition ✓✓

$$\begin{array}{r} \text{HT 0} \\ 1.345 + 631 = 976 \\ + \quad 631 \\ \hline 6 \\ 70 \\ 900 \\ \hline 976 \end{array} \checkmark$$

$$\begin{array}{r} \text{HT 0} \\ 2.615 + 332 = 947 \\ + \quad 332 \\ \hline 7 \\ 40 \\ 900 \\ \hline 947 \end{array} \checkmark$$

$$\begin{array}{r} \text{HT 0} \\ 3.772 + 226 = 998 \\ + \quad 226 \\ \hline 8 \\ 90 \\ 900 \\ \hline 998 \end{array} \checkmark$$

$$\begin{array}{r} \text{HT 0} \\ 4.234 + 455 = 689 \\ + \quad 455 \\ \hline 9 \\ 80 \\ 600 \\ \hline 689 \end{array} \checkmark$$

$$\begin{array}{r} \text{HT 0} \\ 5.632 + 316 = 948 \\ + \quad 316 \\ \hline 8 \\ 40 \\ 900 \\ \hline 948 \end{array} \checkmark$$

Year 4 - column addition with 4 digits

Tuesday 8th November 2022  
 L.I. To add up to two four digit numbers with no exchange (W)

- 1a.  $4231 + 1342$   
 1b.  $5378 + 421$   
 1c.  $1702 + 1243$   
 1d.  $2365 + 321$

2. The mass of a box of fruit is 1,241 g. Another three pieces of fruit are placed in the box. Each piece of fruit has a mass of 102 g. What is the mass of the box of fruit now?

3. Work out the missing numbers.

Th	H	T	O
4	6		
+	2	5	1
	7	9	9

4. Each of the missing digits is an odd number.

2	4	7	□
+	5	□	2
	7	□	3

5. Ting is working out  $5,702 + 125$



- a) Do you agree with Ting? Explain your answer.  
 b) Work out the correct answer.

Th	H	T	O
5	7	0	2
+	1	2	5
	6	9	2

6. The distance from Scotland to France is 1,550 km. The distance from France to Spain is 1,002 km. Teddy is travelling from Scotland to France and then France to Spain. How far will he travel in total?

1 a. 
$$\begin{array}{r} 4231 \\ + 1342 \\ \hline 5573 \end{array}$$

3. 
$$\begin{array}{r} 4268 \\ + 2521 \\ \hline 6789 \end{array}$$

1) Alice is thinking of two numbers. They add up to 7654. Each of the numbers in the question has two odd digits and two even digits. What could the numbers be? How many possibilities can you find?



1 b. 
$$\begin{array}{r} 5378 \\ + 421 \\ \hline 5799 \end{array}$$

4. 
$$\begin{array}{r} 2471 \\ + 5322 \\ \hline 7793 \end{array}$$

1 c. 
$$\begin{array}{r} 1702 \\ + 1243 \\ \hline 2945 \end{array}$$

5 a. No, because the hundreds aren't lined up and the tens aren't lined up and the ones aren't lined up.

The number could be 3827 and 3827 or 4576 and 3078.

1 d. 
$$\begin{array}{r} 2365 \\ + 321 \\ \hline 2686 \end{array}$$

At least three of the missing numbers in this calculation are odd. Can you find three different possibilities for the missing numbers in this calculation?

1	□	2	□
+	3	□	5
	4	9	7

2. 
$$\begin{array}{r} 102 \\ - 102 \\ + 102 \\ \hline 306 \end{array}$$

5 b. 
$$\begin{array}{r} 5702 \\ + 125 \\ \hline 5827 \end{array}$$

$$\begin{array}{r} 1241 \\ + 306 \\ \hline 1547 \end{array}$$
  
 The mass of the fruit box is 1547g.

6. 
$$\begin{array}{r} 1550 \\ + 1002 \\ \hline 2552 \end{array}$$
  
 Teddy travels 2552 km.

$$\begin{array}{r} 1723 \\ + 3253 \\ \hline 4976 \end{array}$$
 or 
$$\begin{array}{r} 1425 \\ + 3551 \\ \hline 4976 \end{array}$$

Wednesday 9th November 2022  
 L.I. To add up to two four digit numbers with one exchange (W)

1. 
$$\begin{array}{r} 4263 \\ + 1129 \\ \hline 5392 \end{array}$$

9. 
$$\begin{array}{r} 1907 \\ + 5068 \\ \hline 6975 \end{array}$$

2. 
$$\begin{array}{r} 5341 \\ + 2472 \\ \hline 7813 \end{array}$$

10. 
$$\begin{array}{r} 6792 \\ + 163 \\ \hline 6955 \end{array}$$

3. 
$$\begin{array}{r} 3117 \\ + 2544 \\ \hline 5661 \end{array}$$

Four children are working out  $4,635 + 183$

Rosie's method

Th	H	T	O	
4	6	3	5	
+	1	8	3	
	4	7	11	8

$4,635 + 183 = 47,118$

Jack's method

Th	H	T	O	
4	6	3	5	
+	1	8	3	
	4	7	1	8

$4,635 + 183 = 4,718$

Alex's method

Th	H	T	O	
4	6	3	5	
+	1	8	3	
	4	8	1	8

$4,635 + 183 = 4,818$

Teddy's method

Th	H	T	O	
4	6	3	5	
+	1	8	3	
	6	4	6	5

$4,635 + 183 = 6,465$

Whose method is correct? Talk about the mistakes the other children have made.

Alex's method is correct. Rosie's method is not correct because in the tens column Rosie wrote 11 in one box without an exchange. Jack's method is not correct because Jack wrote 1 for the answer 3 + 8 and forgot about the ten. Teddy hasn't used his place value knowledge to line the numbers up properly.

4. 
$$\begin{array}{r} 5163 \\ + 2451 \\ \hline 7614 \end{array}$$

5. 
$$\begin{array}{r} 7261 \\ + 1029 \\ \hline 8290 \end{array}$$

6. 
$$\begin{array}{r} 2580 \\ + 703 \\ \hline 3283 \end{array}$$

7. 
$$\begin{array}{r} 3508 \\ + 2731 \\ \hline 6239 \end{array}$$

8. 
$$\begin{array}{r} 4365 \\ + 2617 \\ \hline 6982 \end{array}$$

Year 5 – column addition with more than 4 digits

5-10-2022

1. To add whole numbers with more than 4 digits



a. 
$$\begin{array}{r} 367,657 \\ 145,897 \\ \hline 513,554 \\ 11111 \end{array}$$

b. 
$$\begin{array}{r} 559,967 \\ 024,976 \\ \hline 584,943 \\ 11111 \end{array}$$

b. 
$$\begin{array}{r} 297,738 \\ 245,984 \\ \hline 543,722 \\ 11111 \end{array}$$

i. 
$$\begin{array}{r} 798,298 \\ 176,838 \\ \hline 975,136 \\ 11111 \end{array}$$

Work out the missing numbers.

c. 
$$\begin{array}{r} 549,546 \\ 372,355 \\ \hline 921,901 \\ 11111 \end{array}$$

	7	4	0	3	17
+	2	5	5	0	2
	7	8	5	2	9

d. 
$$\begin{array}{r} 298,399 \\ 145,786 \\ \hline 444,185 \\ 11111 \end{array}$$

e. 
$$\begin{array}{r} 467,835 \\ 349,372 \\ \hline 817,207 \\ 11111 \end{array}$$

f. 
$$\begin{array}{r} 679,473 \\ 265,989 \\ \hline 945,462 \\ 11111 \end{array}$$

g. 
$$\begin{array}{r} 363,756 \\ 346,476 \\ \hline 710,232 \\ 11111 \end{array}$$

3)

$$a) 6.5 + 1.73 = 8.23 \checkmark$$

$$b) 0.56 + 1.6 = \underline{2.16} \checkmark$$

$$c) 2.45 + 7.8 = 10.25 \checkmark$$

$$d) 8.67 + 3.9 = 12.57 \checkmark$$

$$e) 9.2 + 4.87 = 14.07 \checkmark$$

Apply

$$1.678 + 4.19 = \underline{5.868} \checkmark$$

$$2.1515 + 8.82 + 13.37 = 37.34 \checkmark$$

$$3.48 + 6.7 = 10.18 \checkmark$$

$$4.235 + 1.8 + 3.06 = \underline{9.095} \checkmark$$

$$a) \begin{array}{r} 6.5 \\ + 1.73 \\ \hline 8.23 \end{array}$$

$$b) \begin{array}{r} 0.56 \\ + 1.6 \\ \hline 2.16 \end{array}$$

$$c) \begin{array}{r} 2.45 \\ + 7.8 \\ \hline 10.25 \end{array}$$

$$d) \begin{array}{r} 8.67 \\ + 3.9 \\ \hline 12.57 \end{array}$$

$$e) \begin{array}{r} 9.2 \\ + 4.87 \\ \hline 14.07 \end{array}$$

$$1) \begin{array}{r} 6.78 \\ + 4.19 \\ \hline 10.97 \end{array}$$

$$2) \begin{array}{r} 2.1515 \\ + 8.82 \\ + 13.37 \\ \hline 37.34 \end{array}$$

$$3) \begin{array}{r} 4.8 \\ + 6.7 \\ \hline 11.5 \end{array}$$

$$4) \begin{array}{r} 2.35 \\ + 7.8 \\ + 3.06 \\ \hline 13.21 \end{array}$$