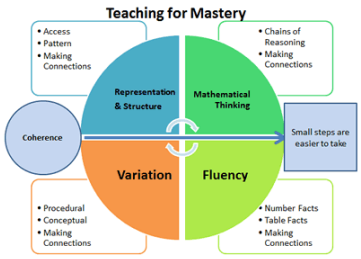
St John the Baptist Primary School

Maths lesson structure

2023-2024

(KS1 and KS2)

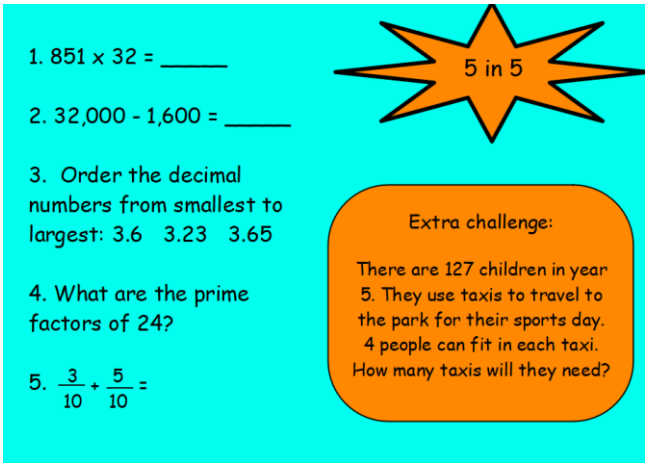


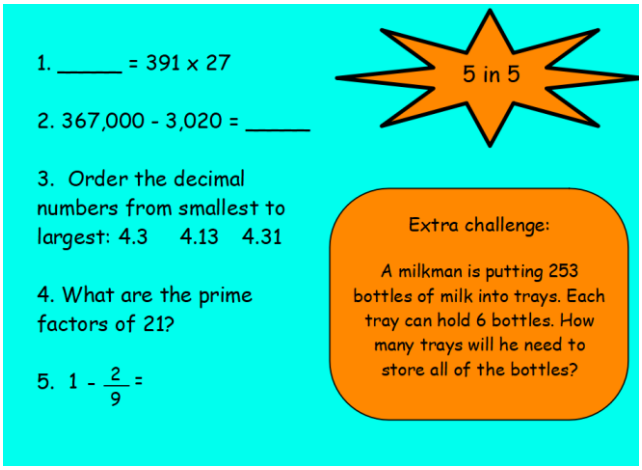
Children respond to feedback from the previous lesson using their purple polisher

Starter

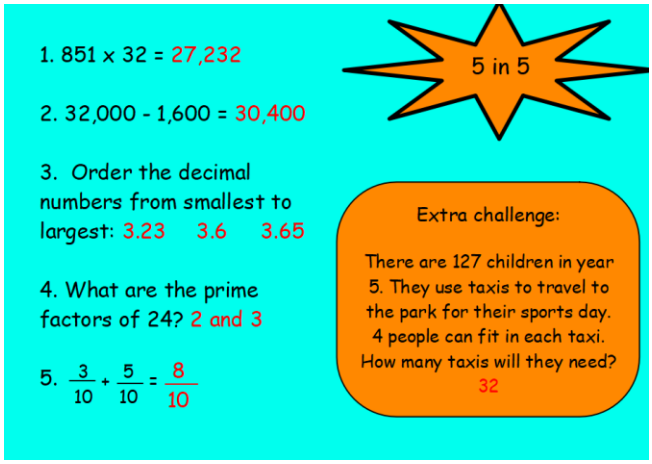
Mastering number (KS1):
EYFS and KS1 are participating in the NCETM's Mastering Number Project. This will provide KS1 a daily teaching session of 10-15 minutes which aims to develop children's number sense and fluency.

5 in 5 (KS2):
This part of the session should take no longer than 10 minutes to administer.
Each week children will develop their fluency of 5 key skills. These should be chosen carefully by the class teacher in order to retrieve, review and practice previously taught concepts. This could be content from the current or previous year group, with particular focus on the NCETM's RtP criteria. Assessment of children's performance within arithmetic tests can also inform the focus of each week's content. Within each weekly cycle, the skill or core knowledge which is required for each question will remain the same but the examples will change each day. See examples below.





A timer should be displayed and children are provided with 5 minutes in which to attempt the questions. A challenge task could be provided for any 'early finishers'. Children complete the questions on a whiteboard or in their jotters.



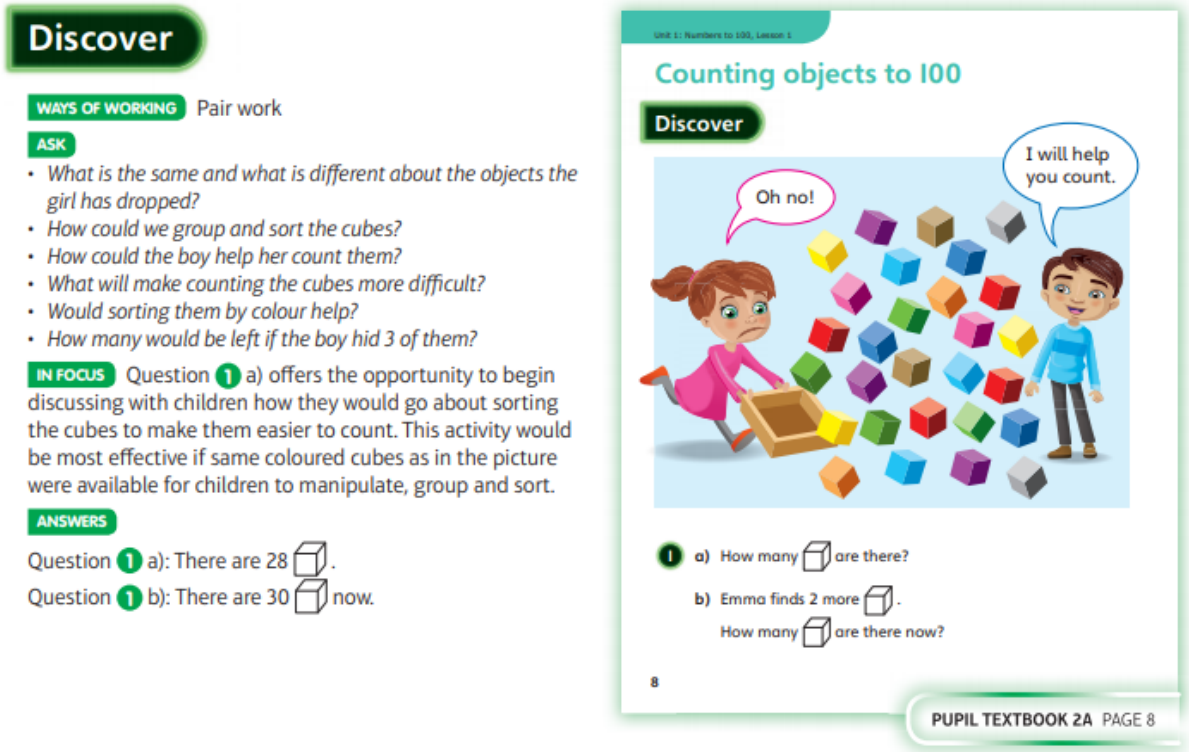
The answers are then displayed on the next slide and children self-mark. The teacher can use this assessment to identify which question types the children are finding most challenging.

Each day, the teacher will then spend a few minutes modelling 1-2 of the questions to address misconceptions and review strategies/knowledge for children who require additional support. This means that by the Wednesday ALL question types will have been modelled and further modelling of questions which require additional practice can be completed in Thursday's and Friday's starters.

The aim is for children to improve their score out of 5 as the week progresses.

Main input

Anchor task:
Children are presented with a context-based problem. This could be based on a 'Discover image' from the Power Maths scheme of work or an alternative problem designed by the teacher.



Following some brief initial questioning to engage pupils with the context, children should engage in paired/small group work to collaborate with their peers and try to apply their prior learning to this new problem. Where possible, concrete manipulatives should be provided in order to allow pupils to represent and explore the problem. Children should be encouraged

to discuss their ideas and represent their thinking through the use of concrete manipulatives, pictorial representations or more abstract jottings. During this exploration, the teacher and TA should move between pairs in order to observe and assess the children's initial understanding of the lesson's learning. This assessment can be used to inform pace, ensure misconceptions are addressed and deploy TAs appropriately to support target children within the main input.

Feedback and share:

This part of the lesson should be child led, where possible, and should provide an opportunity to gather feedback and explore the anchor task together. Children should be encouraged to share their thinking and explain how they applied prior learning to this new context. The teacher may wish to pre-select pupils in order to address misconceptions or share different strategies which the task has exposed. These strategies can then be evaluated and 'worked on' by the pupils in order to uncover the learning focus for today's lesson.

Power Maths does provide 'Share' activities which model the appropriate strategies to solve each 'Discover task'. The NCETM professional development materials also include a number of worked examples for each teaching point. Teachers may wish to have these prepared on their flipchart in case children struggle to develop these strategies for themselves.

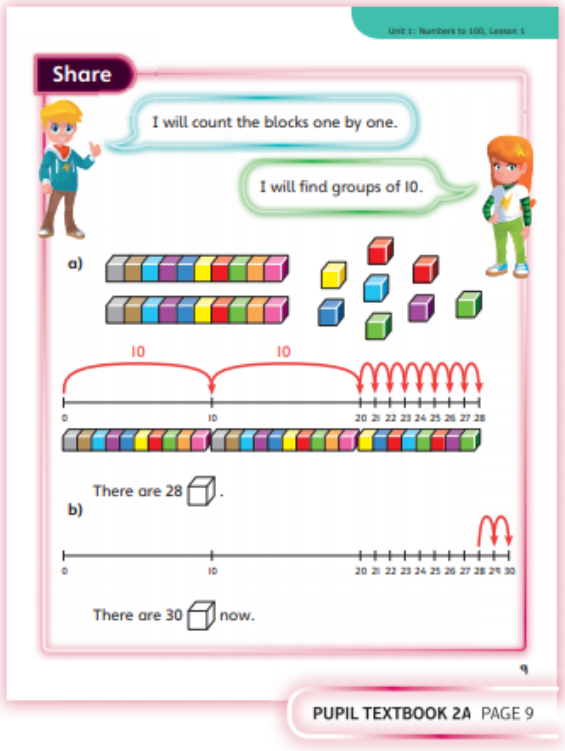
Share

WAYS OF WORKING Whole class

ASK

- *Who do you think will finish counting the blocks first, Dexter or Astrid?*
- *Did you group the blocks differently to Astrid?*
- *Why do you think she chose to group them in tens?*
- *How did you find out what 2 more was?*
- *How did you represent 2 more? Did anyone represent it differently?*
- *How does the number line make the counting clear?*

IN FOCUS Discuss question 1 a) and how it is similar or different to the children's chosen method of counting. Children should recognise that counting in tens and then counting on from a multiple of 10 is an efficient method. Ask children to group their blocks like this to give them the opportunity to practise the skill in a concrete manner.



Modelled practice:

The teacher works through carefully chosen examples in order to demonstrate the key skills and knowledge which children are required to master within the lesson. This may include the use of concrete resources or pictorial representations alongside more abstract calculations in order for children to develop a deep understanding of the mathematics. Example questions should be purposefully chosen to build the learning in small, coherent steps and make connections with what the children know. Questions may be chosen which expose common

misconceptions and draw children's attention to variation and the essential features of the concept being taught.

Some examples from the Power Maths 'Think Together' activities or the NCETM professional development materials may be helpful when designing the modelled practice.

Think together

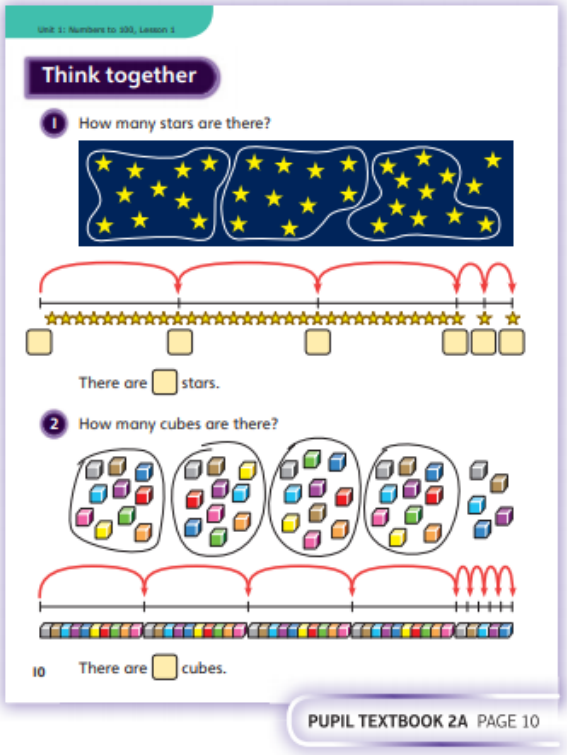
WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: *How have the stars been organised in the picture?*
- Question 1: *How have the stars been organised along the number line?*
- Question 1: *How will you count along the number line?*
- Question 2: *Are you sure the cubes are grouped correctly? How could you check?*

IN FOCUS Question 1 supports children in making the link between counting and grouping the objects into groups of 10, to presenting this along a number line. For this question, children are scaffolded in where the missing numbers are needed along the number line. Question 2 removes the scaffold of the missing number boxes, offering children the opportunity to demonstrate their understanding of how the number line can be used to represent the method of counting.

STRENGTHEN To strengthen understanding of question 1 and question 2, ask children how the objects have been grouped and how the groups relate to the jumps on the number line. Use cubes in two groups of 10 to check how many there are.



Although the main focus of this lesson segment is for the teacher to model the application of key skills and knowledge, strategies should be used which encourage children to actively participate. Questioning and whiteboard work can be used at each stage of the modelling to assess children's understanding and maintain engagement. If 2 or 3 examples are being modelled, reduced scaffolding strategies and 'ping-pong' style teaching approaches could be employed to develop the children's skills through small, manageable steps.

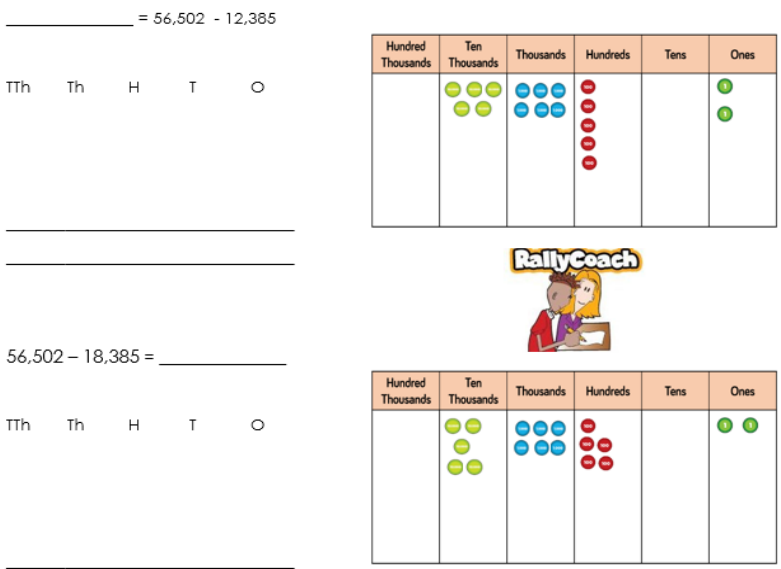
Within this part of the lesson, TAs can be deployed to work with target children, using concrete resources for the children to manipulate and providing additional questioning to promote the use of correct mathematical vocabulary.

Guided practice:

Children are then asked to use what they have learnt in order to complete some further examples, applying the skills and knowledge which has been taught through the modelled practice. This section of the lesson will often include some cooperative leaning (Kagan structures) in order to gradually reduce scaffolding and allow the children to explain their understanding to their peers, promoting opportunities to practise the use of correct mathematical vocabulary. Again, question examples should be carefully chosen to promote the key teaching for mastery principles (representation and structure, variation and coherence). Guided practice questions can be recorded on whiteboards, in jotters or on pre-prepared activity sheets. There is no need for this to be evidenced in maths books.

This section of the lesson provides an opportunity for the teacher to move between pupils and assess their depth of understanding. This assessment for learning can be used to identify common misconceptions which must be explored further and to begin to identify any pupils who may benefit from working as part of a guided group, receiving additional support and scaffold within their independent tasks.

TAs can be deployed to continue to work with target children (as a guided group or within mixed ability pairs) in order to provide additional scaffold through the use of concrete resources, careful questioning or additional modelling. The TAs' assessment of pupils' understanding can also be used to identify children who require further support.

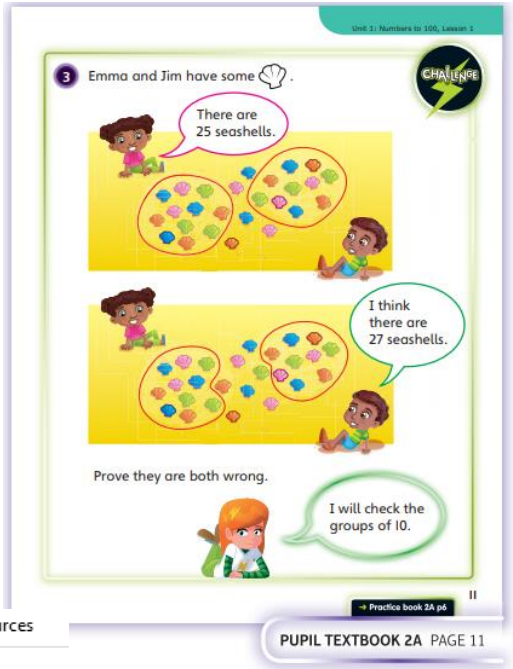


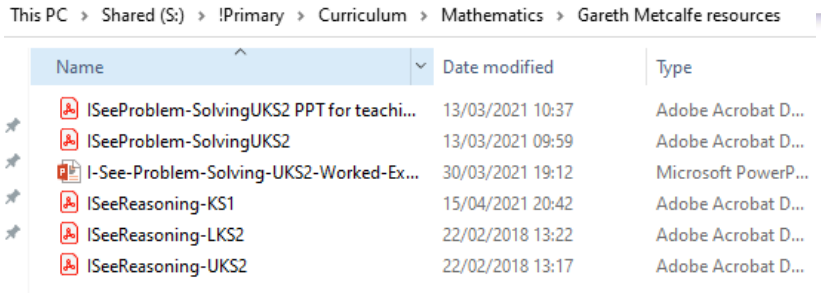
Using feedback and explanation from the children, the guided practice questions can then be discussed as a class in order to address misconceptions and deepen children's understanding through careful verbal questioning which encourages pupils to explain, prove and justify their thinking.

Deepening challenge:

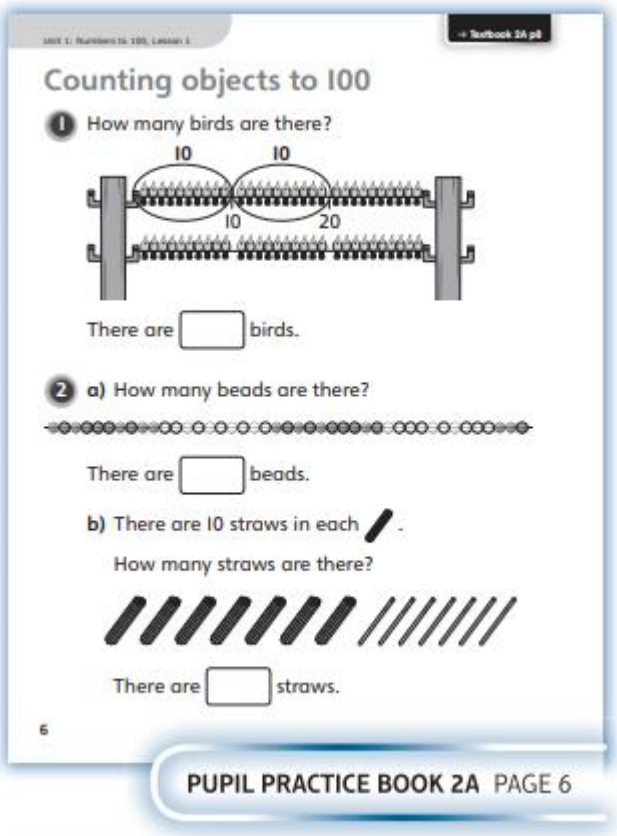
At this point of the lesson, where possible, explore one final example or question with the class which provides them with an opportunity to deepen their thinking in relation to the lesson's learning. This question should provide an opportunity for children to apply mathematical thinking with greater depth in order to reason or problem solve. Again, cooperative learning structures can be helpful to scaffold the thinking of all learners.

The 'challenge' question from the 'Think Together' activities within Power Maths can be helpful to support with the design of this question. Alternatively, Gareth Metcalfe's 'I See Reasoning' resources or the Dong Nao Jin questions within the NCETM professional development materials can also provide some useful examples.





Independent Learning



The children will then complete their independent learning activities. Independent activities should be carefully designed based upon the key principles of a teaching for mastery approach. This could include completing a purposefully designed worksheet, working on an open-ended problem or completing a practical activity. Although this section of the lesson is called 'independent learning', there may be lessons where children apply their learning through paired tasks or small group work.

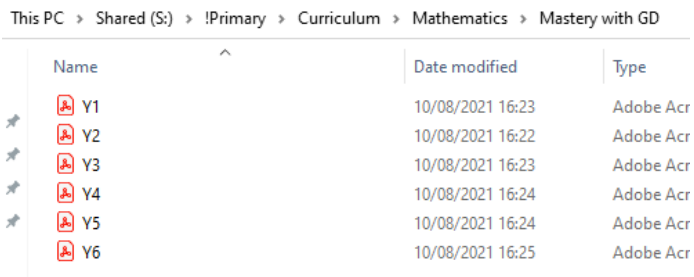
Evidence of pupils' activities should be provided in books for every maths lesson.

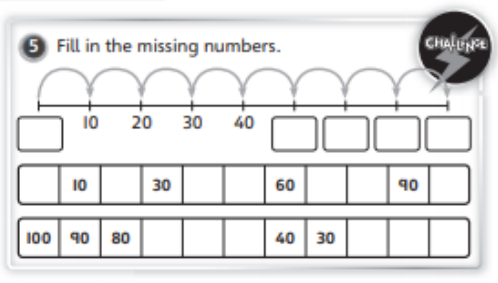
In the vast majority of cases, children who require additional support will complete the same or very similar tasks to those children working with independence. This support may be provided through the provision of additional concrete resources, guided group work alongside an adult (not always the TA) or additional practice questions to consolidate key skills before reducing scaffolding or progressing to more challenging question types. **NOTE: ALL children must still be provided with opportunities to develop their reasoning and problem solving skills through careful task design.**

In some rare circumstances, pupils with special educational needs may require personalised independent learning activities to appropriately meet their needs. Please seek advice from the Maths Leadership Team and/or SENCO for support in designing this provision.

Throughout the lesson, where possible, pupils will be asked to self-mark their work in purple pen using the marking sheets provided. This allows pupils to begin to self-assess their understanding and seek additional adult support and intervention within the lesson where required. If children mark an answer as incorrect, they are expected to try the question again, demonstrating the correct working out or explaining their mistake to prove a development in their understanding.

As children progress through their independent tasks, gaining confidence and proficiency, questions should be designed which promote a greater depth level of thinking. These should provide evidence of deep reasoning and/or problem solving skills. The Dong Nao Jin questions within the NCETM professional development materials, 'Challenge' activities within Power Maths practice books, Mastery with Greater Depth questions or NRich activities can be useful to support with the design of these tasks.





At the end of their independent learning activities, pupils will be asked to reflect upon their learning, promoting the evaluation phase of the metacognition cycle, and place their books on colour coded piles to demonstrate their level of confidence:

Red – "I am finding today's learning difficult and require more help to improve my confidence and understanding."

Amber – "I am developing my understanding of today's learning but I would like more practice so that I feel confident."

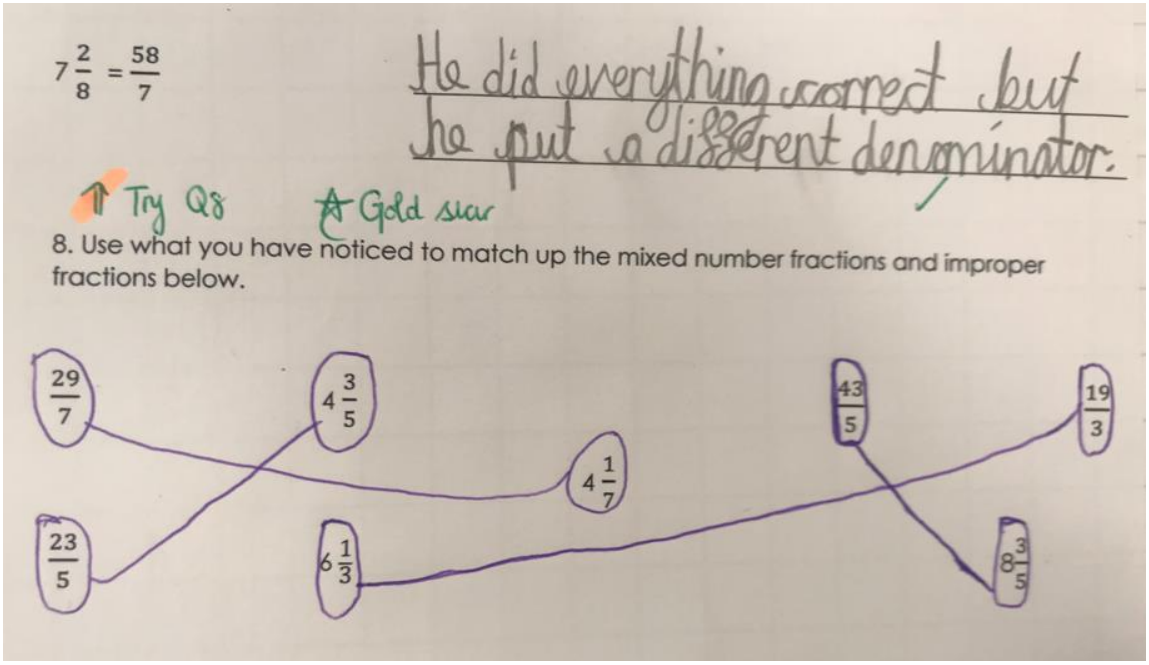
Green – "I have a secure understanding of today's learning and I feel confident. I am ready for the next challenge."

This will allow the teacher to utilise the children's perspective in order to assess their level of confidence and understanding.

Marking:

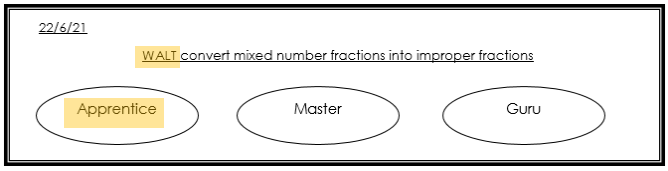
The teacher looks over the children's self-marking and provides additional feedback for any questions which were not answered on the marking sheet (e.g. extended written responses or uniquely generated calculations).

All teacher feedback should be provided in green pen. Further corrections or next steps which the teacher would like the child to complete should be indicated using an arrow and highlighted in orange. See the example image below.



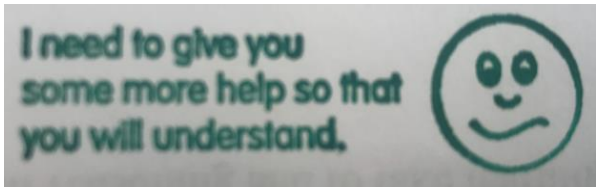
The teacher will then assess the children's level of understanding in order to stamp their work and highlight the WALT appropriately (at an apprentice, master or guru level). Teacher assessment will be based upon the child's oral responses, written recordings and the level of support received within the lesson.

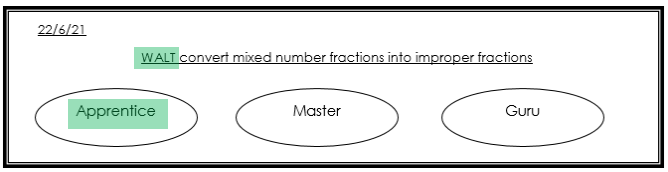
Example marking includes:



The child received additional support and scaffold within the lesson but did not show sufficient understanding to achieve the WALT.

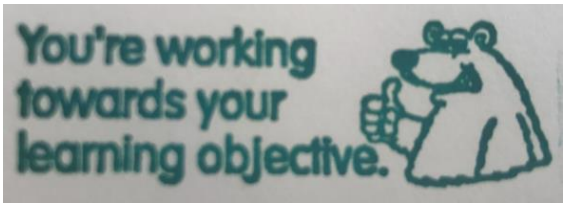
This child **will** require same day intervention in order to address misconceptions and further develop their learning. **The 'same day intervention' stamper should be used at the end of their work to indicate this.**

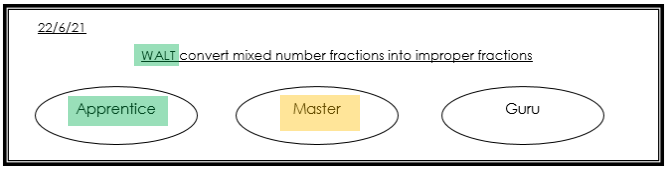




The child received additional support and scaffold within the lesson and, with this, demonstrated sufficient understanding to achieve the WALT. The 'working towards' stamper should be used at the end of their work to indicate that they are working towards mastering this objective.

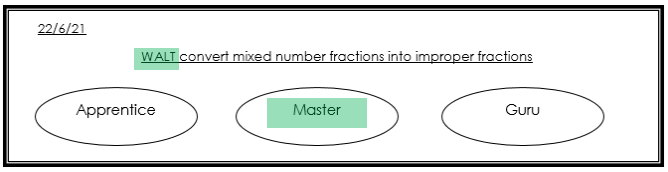
If this child is targeted for ARE, same day intervention **may** be required to further develop their learning. **Instead, the 'same day intervention' stamper should be used at the end of their work to indicate this.**



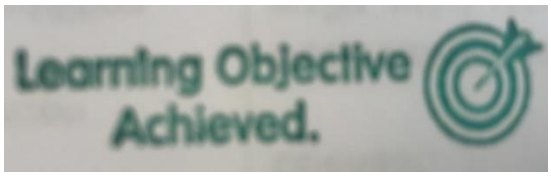


The child worked with independence within the lesson but did not demonstrate a sufficient level of understanding to show that they were secure. Again, the 'working towards' stamper should be used at the end of their work to indicate that they are working towards mastering this objective.

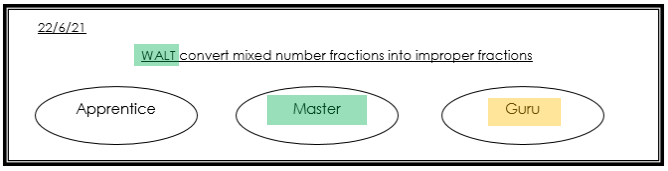
If this child is targeted for ARE, same day intervention **may** be required to further develop their learning. **The 'same day intervention' stamper should be used at the end of their work to indicate this.**



The child worked independently within the lesson and demonstrated a secure understanding of the WALT. The 'objective achieved' stamper should be used at the end of their work to indicate that they have mastered this objective.

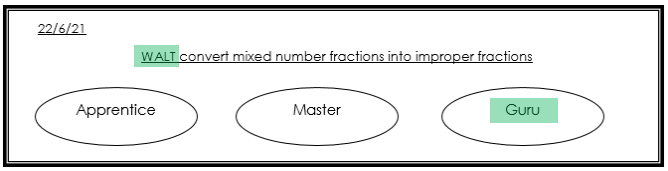


If this child is targeted for GDS, you may wish to provide a next step/correction within the following lesson to deepen their thinking further.



The child worked with independence within the lesson and demonstrated a secure understanding of the WALT. They attempted more challenging question types showing some greater depth understanding but this wasn't consistent. Again, the 'objective achieved' stamper should be used at the end of their work to indicate that they have mastered this objective.

If this child is targeted for GDS consider if further prompt or support could be given to deepen their understanding.



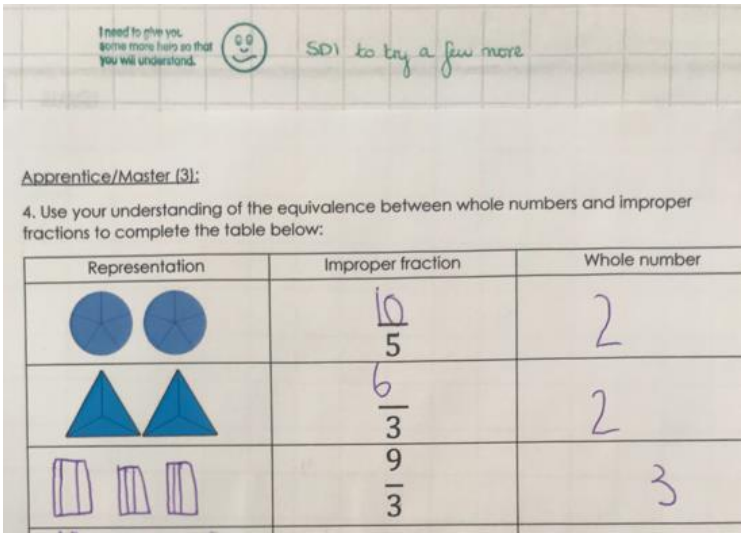
The child worked with independence within the lesson and demonstrated a secure understanding of the WALT. Through both oral and written responses they demonstrated a greater depth level of understanding. This means that they were able to explain and justify their thinking with precise mathematical vocabulary, reach and prove generalisations, work systematically and demonstrate creative thinking when approaching more complex problems. Again, the 'objective achieved' stamper should be used at the end of their work to indicate that they have mastered this objective.

Same Day Intervention:

Any children who require same day intervention should receive additional support from the teacher (or where this is not possible the TA) before the next lesson.

The provision of same day intervention ensures that misconceptions are addressed early in order to prevent gaps in core knowledge before the children are moved onto the next small step in learning along with the rest of the class. Same day intervention aims to ensure that no child is left behind.

As part of same day intervention, children may complete a range of different activities. They may review some of the questions or errors which they made during their independent practice in order to make corrections and address misconceptions. They may work alongside the teacher to complete additional practice questions in order to consolidate skills and knowledge. They may review key teaching points from the main input and observe further modelled practice. The use of concrete manipulatives and pictorial representations may be particularly helpful to scaffold children's thinking and address misconceptions. **Any written recording completed by the child as part of same day intervention should be evidenced using purple pen underneath the 'same day intervention' stamper.**



Where same day intervention is not sufficient practice to address gaps in learning, the class teacher should consider if further structured intervention may be required on a weekly basis for particular areas of difficulty.

<u>Further mathematical opportunities:</u>

Throughout the year, children engage in additional daily, weekly and termly opportunities to access maths learning outside of the lesson time. This varies between year groups to ensure that children's learning is appropriately prioritised to prepare them for the next stage of their learning.

Additive fluency:

Following their participation in the Mastering Number at KS1 programme, year 3 pupils will engage in 2 x 15-minute 'addidive fluency' sessions each week to ensure that key facts within 20 are practised, consolidated and retained with automaticity. This gives all children the best possible opportunity in ensuring that they are secure in the Ready to Progress criteria, '3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice', by the end of year 3.

Mastering Number at Key Stage 2:

Years 4 and 5 participate in the NCETM's Mastering Number programme for 4 x 15-minute sessions each week. This programme aims to develop children's recall of multiplication and division facts whilst deepening their understanding of multiplicative reasoning so that facts can be applied with confidence and flexibility.

Arithmetic:

From year 2 to year 6, pupils will complete at least 1 arithmetic test per half term in order to practice key arithmetic skills, identify gaps in learning and monitor progress. The administration frequency of these tests varies from year group to year group. They are introduced towards the end of year 1 and by year 6, arithmetic tests are completed on a weekly basis to prepare children for the end of key stage 2 statutory assessments. Data from

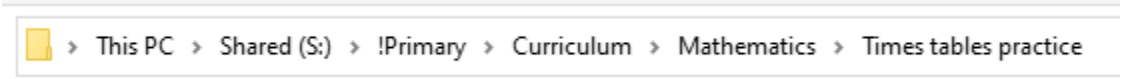
these tests is used to inform 5 in 5 sessions at key stage 2 to ensure that gaps are addressed and key skills are practised on a daily basis.

Times table practice:

Times tables activities are engaged with on a weekly basis from year 2 to year 6 to ensure children's rapid recall of multiplication and division facts. Again, the administration frequency of these activities varies from year group to year group. Within years 3 and 4, times tables are practiced within 3 discrete 15-minute sessions to prepare children for the multiplication check at the end of year 4. Years 5 and 6 continue with weekly practice of all facts to ensure that these are consolidated and retained with automaticity. Activities within these sessions should be practical and engaging, with particular focus and emphasis upon the facts contained within the long-term multiplication plan. See detailed long-term planning document for weekly facts for each year group.

	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1		Review 10, 5 and 2	Review 4, 8 and 3 6 x table	Review all times tables and associated division facts to develop speed of recall. MTC assessments and precision teaching used to address gaps in knowledge through additional support and intervention.	
Autumn 2		Review 10, 5 and 2	9 x table		
Spring 1	10 x table	4 x table	7 x table		
Spring 2	5 x table	8 x table	11 x table 12 x table		
Summer 1	2 x table	3 x table	Review all times tables		
Summer 2	Review 10, 5 and 2	Review 4, 8 and 3	Review all times tables		

Use the folder below to support with suggested activities and share useful resources.



Pupils from year 2 (Spring term) to year 6 will also complete 1 TTRockstars paper test each week from the booklet which has been created for their year group. The booklet for each year group has been designed to correspond with the school's long term multiplication plan. Each test takes 3 minutes to administer and the timers and playlists from the TTRockstars website should be used to promote engagement. Following this, pupils peer mark the tests and scores are collected in and added to the assessment spreadsheet within the class assessment folder. Ensure the times tables completed are detailed and the time is included for pupils who score 60/60 within the allocated 3 minutes. Children should then use their score to identify their 'rock status' and celebrate their achievements on the class display board.