Martlesham Primary Academy 'How we teach Maths'

Lesson Structure

1. ***Flashback 4/Retrieval Practise (This activity should take approximately 5 minutes)***
   The first part of every maths lesson should start with flashback 4 from White Rose or Retrieval Practise displayed in the interactive whiteboard. This allows children to be exposed to concepts daily which have been previously taught in the year or in previous years. For the most part, this part of the session will use Flashback 4, however, if a teacher has identified an area of learning which requires retrieval practise in a more targeted way, this part of the session can also be used. These sessions should be used in two ways:
   - ✓ To revisit learning children covered in the previous years to prepare them for those concepts to being built upon this. This also allows teachers to gauge the readiness of children for upcoming units and whether they will require additional pre-teaching.
   - ✓ To consolidate concepts taught this year to ensure children are retaining knowledge after units have been taught.

2. ***Get Ready/TLGF (This should take a maximum of 5 minutes)***
   - ✓ Provide children with two or three questions that cover the previous lesson's content to ensure that children are ready to move on (these should be taken from White Rose Premium resources)
   - ✓ Emphasise to children why we are doing 'get ready' and that it is revisiting prior learning ready for today's lesson
   - ✓ Bring up answers and let children self-assess
   - ✓ Use as an assessment point to see if children are ready to access today's content

TLGF (Teacher Led Gap Fill) – *This time is used to go over a question with any learners who showed gaps from the day before. This should be completed in green pen, in their books. Or complete today's 'get ready' task with the children who need extra support before today's new learning.*

If there is extra class support, the LSA can check on independent learners to ensure no one is 'slipping through the net' who isn't ready to move on.

3. ***Vocabulary (5 minutes)***
   The learning intention for the upcoming lesson is introduced as well as **any specific vocabulary is referenced and defined (this should be reflective of what is on the working wall).**
   a) Introduce specific vocabulary for the lesson.
   - ✓ Explain to the children the vocabulary that they will need to be successful today.
   - ✓ Allow time for the children to understand the definitions.
   - ✓ Provide the children with opportunities to explain the words.
   - ✓ Give the children a chance to share the vocabulary with peers and with the teacher.
   - ✓ Identify that the vocabulary is from the vocabulary list which is on the working walls.

4. ***Lets Learn – I do (10 minutes)***
   a) Modelling of specific skills and processes of that lesson
   - ✓ Guide children through the learning using teacher modelling.
   - ✓ Model alongside the use of resources (children can use resources at table or on the carpet as you model)
   - ✓ Articulate the cognitive process you go through when using the given strategy
   - ✓ Ask questions of the learners to involve them in the process and gauge understanding.
   - ✓ In addition to working through the slides, model onto a flipchart or somewhere within the classroom that is visible to all learners to access throughout the lesson.
   - ✓ Ensure each step is identified so children can refer to this process when working independently.

5. We do– (5 minutes)

b) Children complete a hinge question following the same process and using the resources modelled (our turn)

- ✓ This could be one of the questions on the slides, one you add yourself or the first question from the worksheet (also could use White Rose schemes of learning as well).
- ✓ Children complete problem independently or in pairs/groups.
- ✓ Encourage them to use the resources you've demonstrated to answer the question.
- ✓ As they work through the question, teacher and support staff to assess how they are doing and observe their use of strategy.
- ✓ Children complete on whiteboards or in book that they then share at the end so teachers can see whether or not they have been able to confidently answer the questions.
- ✓ This is used as a way of assessing whether they are ready to work independently or if they need to do the first question collectively with you.
- ✓ More able children who complete very quickly can be encouraged to write or explain their process or create a word problem using the calculation.
- ✓ In KS1 you may wish to use an additional hinge question where the concepts become more complex. This would take place after the second modelling.

6. Do it (you do) (This should take between 10 - 15 minutes)

a) Children work through a determined number of questions.

- ✓ This is the element of the session where the questions are fluency based and are designed to check the understanding of the children.
- ✓ The questions should have varied fluency including concrete, pictorial and abstract examples.
- ✓ Ensure resources are available for all learners and that scaffolds are present for those that need them (worked examples, steps to success, prompts, knowledge organisers).
- ✓ Formative assessment (live marking) is used during this period to identify if additional modelling is required for a focus group or those who can move on to reasoning and problem solving.
- ✓ This period can be used to work with a focus group to reexplain the concept or to do a group example to help them access the additional independent work (working through the first question together). **This should, however, not be for the whole time they are working through questions. They should be given guidance with the first question and then left to work while the teacher works with other children.**
- ✓ Children may need to be given repeated examples like the hinge question before moving into the work others are doing.
- ✓ Support staff should also only initially work with a group before moving to other groups to live mark.
- ✓ Through use of formative assessment, children you can see are ready to move on do not need to sit through any additional modelling and can be moved straight to the independent reasoning and problem solving if necessary. This is especially relevant for more able children who will benefit from trying to tackle questions independently and without guidance. However, mini plenaries can be used here to briefly discuss the problems they will be completing or to identify the key concept.
- ✓ Children that have not been successful with 'do it' will need more fluency practise and they should be supported with the questions which they've not understood.
- ✓ Children that were successful can show more clarity by moving on to 'prove it'.

7. ***Prove it (This should take 5 minutes)***

- ✓ Provide children with a true or false (provided in White Rose premium resources) or odd one out question.
- ✓ This is an opportunity for the children to prove they are fluent with the learning objective before moving on to reasoning and problem solving.
- ✓ This is another opportunity for the teacher to identify any learners who need more fluency practise or which children are ready to move on.

8. **Teaching input (5 minutes)**

- ✓ Model how to answer a solve it styled question. Use one of the solve it questions, however change the numbers.
- ✓ Share how to approach reasoning and problem-solving questions e.g. circle the important information, choose your method, show your working out.

9. ***Solve it***

a) Once the children have completed the initial task further modelling of the next challenge or reasoning and problem solving takes place before they move onto completing the rest of the work sheet independently. This can be to the whole class or to individual groups as they demonstrate fluency: **(10 - 15 minutes)**

- ✓ Some year groups (mainly KS1) may go back and forward between modelling and independently working more depending on the types of activities the children are being asked to do.
- ✓ Support children through guided groups and again gauge whether a group example is needed.
- ✓ Use live marking to give instant feedback, identify common misconceptions, move learning forward and encourage reasoning.
- ✓ Ensure there are opportunities for varied fluency if not already secured during previous section.
- ✓ Encourage children to give written or verbal explanations of strategies and concepts.
- ✓ Challenge more able, as well as others that have demonstrated competency, to complete more open-ended tasks, create their own problems, offer explanations for why they've used a particular strategy, write instructions for another child or identify common misconceptions that may arise when they carry out particular strategies. Also, can provide a different style of question using diving into mastery, NCETM mastery schemes, White Rose schemes of learning etc
- ✓ Use mini plenaries to re-enforce expectations around presentation and output, to address misconceptions and challenge more able.

If children complete solve it, to embed their reasoning further, they will independently carry out activities that will deepen their understanding of the strategies and processes they are learning. The children will complete an open-ended task once they've completed the work set for them or if they are at that stage in their learning to access it. The children will focus on NRICH's Five Steps of Reasoning, which are:

Step one: Describing: simply tells what they did.
Step two: Explaining: offers some reasons for what they did. These may or may not be correct. The argument may yet not hang together coherently. This is the beginning of inductive reasoning.
Step three: Convincing: confident that their chain of reasoning is right and may use words such as, 'I reckon' or 'without doubt'. The underlying mathematical argument may or may not be accurate yet is likely to have more coherence and completeness than the explaining stage. This is called inductive reasoning.
Step four**:** Justifying: a correct logical argument that has a complete chain of reasoning to it and uses words such as 'because', 'therefore', 'and so', 'that leads to'...
Step five**:** Proving: a watertight argument that is mathematically sound, often based on generalisations and underlying structure. This is also called deductive reasoning.

10. Plenary **(5 minutes)**

This could include the following:

- ✓ Revisit question/problem from the lesson that children found challenging.
- ✓ Revisit vocabulary and how it was used during the lesson.
- ✓ Provide a question from the next lesson and see if they can apply their learning from today as well as show them what is coming next.

- ✓ Provide children with a true or false (provided in White Rose premium resources) or odd one out question.
- ✓ Link learning to end of key stage assessments (where applicable) by giving them a question to tackle from a past paper.