Gorse Hall Primary & Nursery School

Maths Policy

Updated November 2018

Teaching is underpinned by a belief in the importance of mathematics and that the vast majority of children can succeed in learning mathematics in line with national expectations for the end of each key stage.

- The whole class is taught mathematics together, with no differentiation by acceleration to new content. The learning needs of individual pupils are addressed through careful scaffolding, skilful questioning and appropriate rapid intervention, in order to provide the necessary support and challenge. Guidance on how to differentiate through depth for highest attaining pupils can be seen in Appendix 1.

- Children with an identified SEND may need carefully differentiated work to meet the objectives from lower year groups in order to make adequate progress.

- A full range of interventions will include:

    - Groups identified from objectives they haven't achieved in previous year groups for rapid acceleration.
    - Same day interventions identified from whole class teaching.

  These groups are fluid and meet the needs of the children on a day to day basis.

- SEND children will have targets identified on their pupil support plans which will inform their interventions.

- Factual knowledge (e.g. number bonds and times tables), procedural knowledge (e.g. formal written methods) and conceptual knowledge (e.g. of place value) are taught in a fully integrated way and are all seen as important elements in the learning of mathematics.

- The reasoning behind mathematical processes is emphasised. Teacher/pupil interaction explores in detail **how** answers were obtained, **why** the method/strategy worked and what might be the most efficient method/strategy.

- Calculations are taught in line with our Calculations Policy.

- Precise mathematical language is used by teachers so that mathematical ideas are conveyed with clarity and precision. Pupils are required to do the same (e.g. when talking about fractions, both the part and its relationship to the whole are incorporated into responses: "*The shaded part of the circle is one quarter of the whole circle"*). Full sentences are encouraged by pupils with opportunities to reason e.g. *I think 21+25 does not equal 48 because…*

- Sufficient time is spent on key concepts (e.g. multiplication and division) to ensure learning is well developed and deeply embedded before moving on.

- Frequent additional practice, outside the lesson, is encouraged, in order to develop pupils' fluency and consolidate their learning.

Lesson design

- Programmes of study and lesson content are carefully sequenced, in order to develop a coherent and comprehensive conceptual pathway through the mathematics. Medium term plans such as those demonstrated by the 'White Rose Maths Hub' show the lengths of time which are spent on each topic.

- Learning is broken down into small, connected steps, building from what pupils already know.

- Difficult points and potential misconceptions are identified in advance and strategies to address them planned.

- Key questions are planned, to challenge thinking and develop learning for all pupils.

- Contexts and representations are carefully chosen to develop reasoning skills and to help pupils link concrete ideas to abstract mathematical concepts.

- The use of high quality materials and tasks to support learning and provide access to the mathematics, is integrated into lessons. These may include textbooks, visual images and concrete resources.

- Problem solving should be integrated into the lesson design to aid children's application of skills to real life contexts.

- There are plenty of opportunities for children to reason about mathematics both orally and in written form (as appropriate to age).

Features of teaching

- Ten Minute Tasks in the morning will provide the children with an opportunity to practice and develop fluency for the objectives they are meeting in their daily maths lesson.

- Key new learning points are identified explicitly.

- There is regular interchange between concrete/contextual ideas and their abstract/symbolic representation.

- Fluency, variation and reasoning are integral parts of the learning process and all children should be given exposure to all, regardless of stage of learning.

- The use of Bar modelling is taught explicitly and being used by children to solve problems.

- Children are given time in the lesson to practice new skills and opportunities in order to develop mastery.

- The teacher and Learning Support Assistant use prior knowledge during lessons to support and challenge pupils and this may change from the lesson plan according to needs of pupils.

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- Making comparisons is an important feature of developing deep knowledge. The questions "*What's the same, what's different?"* are often used to draw attention to essential features of concepts.

- Repetition of key ideas, often in the form of whole class recitation, is used frequently. This helps to verbalise and embed mathematical ideas and provides pupils with a shared language to think about and communicate mathematics.

- Teacher-led discussion is interspersed with short tasks involving pupil to pupil discussion and completion of short activities.

- Formative assessment is carried out throughout the lesson; the teacher regularly checks pupils' knowledge and understanding and adjusts the lesson accordingly.

- Short homework/out of class tasks are set once a week, to consolidate learning and provide formative feedback. Children will also be expected to spend homework time practicing and consolidating tables and key maths facts.

- Teachers discuss their mathematics teaching regularly with colleagues, sharing teaching ideas and classroom experiences in detail and working together to improve their practice.

- Teachers will try to ensure that worksheets are not over-used.

Planning

- The MTP shows the length of time spent on topics and the order they are taught which follows a coherent journey. The MTP is adapted from White Rose Maths Hub as appropriate to needs of pupils.

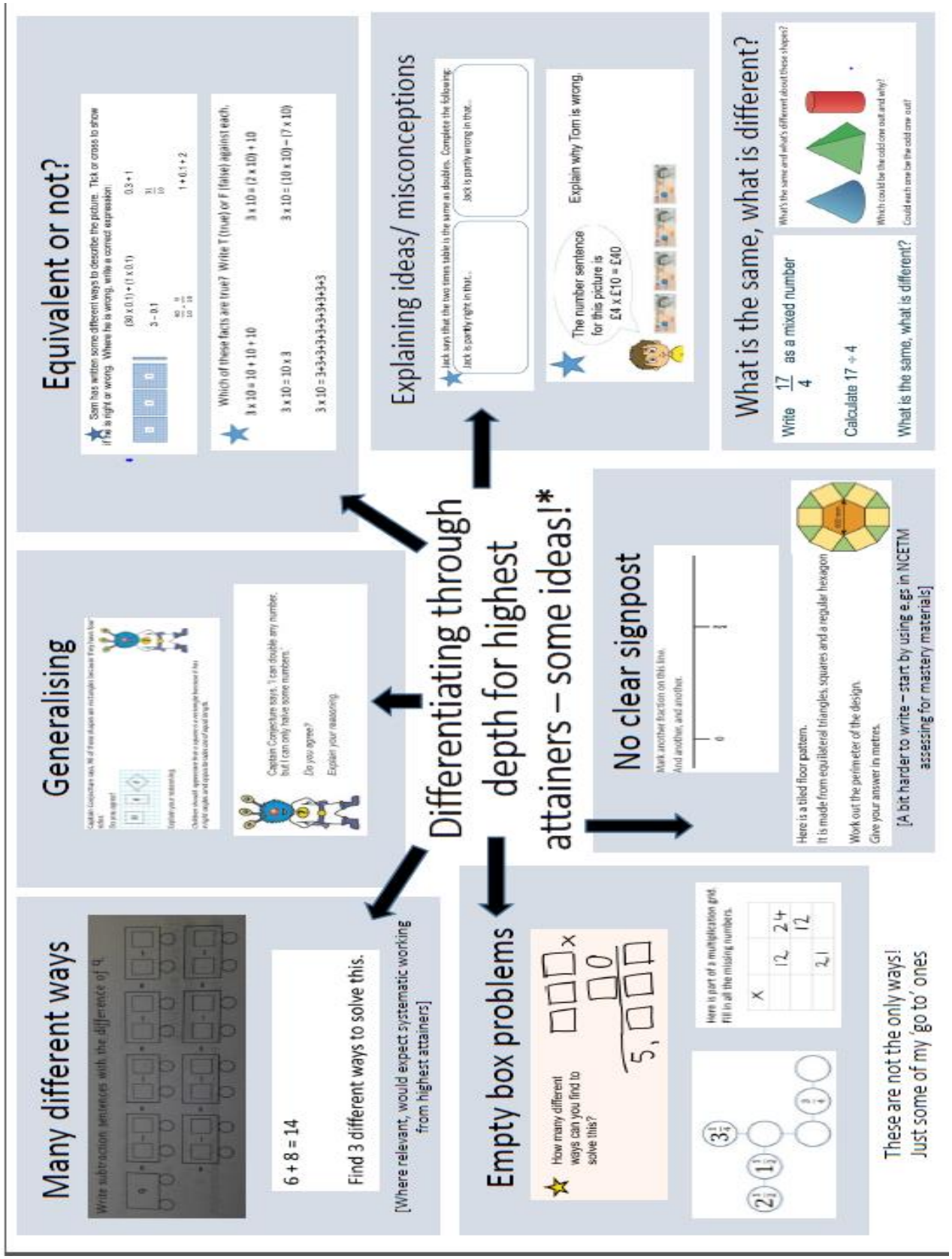
- Teachers will follow 'White Rose Maths Hub' planning and adapt as necessary. Teachers may enhance and use other available resources including Abacus to support the teaching and learning of maths.

- Children with an identified SEND are identified on planning and set work to match their needs.

- All planning identifies models, images and conceptual/ procedural variation as previously stated.

Assessment

- Formative and summative assessment will be an integral part of the maths curriculum.
- EYES carry out a baseline assessment and formative assessment will continue throughout the year.
- NFER will be undertaken in spring and summer term in Years 3-6 and will be supplemented by Rising Stars assessment, Twinkl and other resources.
- Years 1 will use ongoing formative assessment and summative assessment in the spring term using Rising Stars, Twinkl, and White Rose Maths assessment as appropriate. Year 2 will begin summative assessment in autumn term using above assessment material.
- Times Tables tests are completed frequently in KS2.
- In addition, statutory SATS tests will be undertaken formally in the summer term in Year Two and Six. Practice SATS material are also undertaken at different points of the year in Year 2 and 6.
- Years 2 to 6 will complete a Rising Stars Assessment and a Key Skill assessment every fortnight. Year 1 will begin these in spring for some pupils and summer term for all (excluding those pupils with SEND).
- All types of formative and summative assessment will be fully linked to the SPTO tracking system to enable teachers to constantly update and keep track of children's achievements of the yearly objectives. These assessments will be uploaded three times a year.
- Marking is undertaken both by pupils and teachers and is an integral part of the assessment process to aid pupil progress. Marking will be relevant and focussed and will allow the children time to review their own work and make relevant corrections. Written feedback WWW (what went well) and pupil response EBI (even better if) occurs at least once a week in KS2. Two stars and a wish feedback in KS1 occurs at least once a week The EBI should impact upon pupil's learning and be purposeful.


Differentiating through depth for highest attainers – some ideas!*
Equivalent or not?
Sam has written some different ways to describe the picture. Tick or cross to show if he is right or wrong. Where he is wrong, write a correct expression.
(80 x 0.1) + (1 x 0.1)
3 – 0.1
1 + 0.1 + 2
Which of these facts are true? Write T (true) or F (false) against each.
3 x 10 = 10 + 10 + 10
3 x 10 = 10 x 3
3 x 10 = 3+3+3+3+3+3+3+3+3+3
3 x 10 = (2 x 10) + 10
3 x 10 = (10 x 10) – (7 x 10)
Explaining ideas/ misconceptions
Jack says that the two times table is the same as doubles. Complete the following:
Jack is partly right in that...
Jack is partly wrong in that...
The number sentence for this picture is £4 x £10 = £40
Explain why Tom is wrong.
What is the same, what is different?
Write 17/4 as a mixed number
Calculate 17 ÷ 4
What is the same, what is different?
What's the same and what's different about these shapes?
Which could be the odd one out and why?
Could each one be the odd one out?
Generalising
Captain Conjecture says, 'I can double any number, but I can only halve some numbers.'
Do you agree?
Explain your reasoning.
No clear signpost
Mark another fraction on this line.
And another, and another.
0
1
Here is a tiled floor pattern.
It is made from equilateral triangles, squares and a regular hexagon
Work out the perimeter of the design.
Give your answer in metres.
[A bit harder to write – start by using e.gs in NCETM assessing for mastery materials]
Many different ways
Write subtraction sentences with the difference of 4.
6 + 8 = 14
Find 3 different ways to solve this.
[Where relevant, would expect systematic working from highest attainers]
Empty box problems
How many different ways can you find to solve this?
Here is part of a multiplication grid. Fill in all the missing numbers.
12
24
12
21
These are not the only ways!
Just some of my 'go to' ones