The Federation of Middleham VA and Spennithorne VC CE Primary Schools

Maths Policy

Introduction

At both Middleham and Spennithorne Primary Schools, we believe that mathematics equips pupils with a uniquely powerful set of tools, through developing an ability to calculate, reason and solve problems. It enables children to understand and appreciate relationships and patterns in both number and space in their everyday lives. Through their growing knowledge and understanding, they also learn to appreciate the contribution made by many people to the development and application of mathematics.

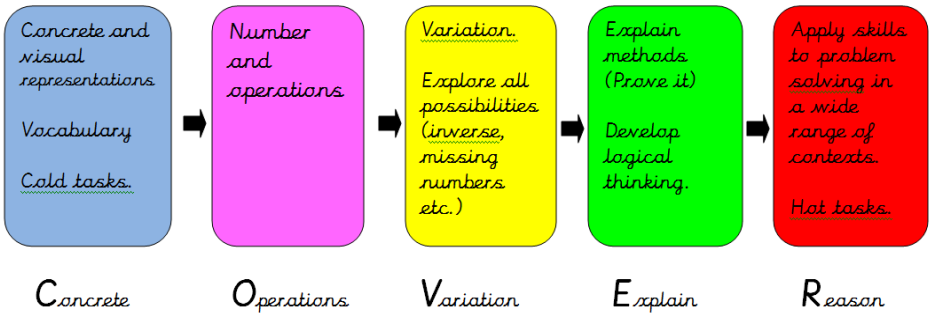
It is our aim to develop:

- A growth mindset about ability to learn mathematics
- A positive attitude towards mathematics and an awareness of how fascinating elements of mathematics can be
- Competence and confidence with numbers and the number system and other mathematical knowledge, concepts and skills
- Problem solvers, who can reason, think logically, work systematically and apply their knowledge of mathematics
- An ability to communicate using mathematical language
- An ability to work both independently and with others

Our Aim for 2020/2021

At the Federation of Middleham VA and Spennithorne VC CE Primary Schools, we follow the Mathematics Mastery Approach to teaching Mathematics using the White Rose Maths Hub schemes of work and planning materials.

We aim to deliver high quality maths lessons using the following teaching sequence:



Who are the White Rose Maths Hub?

The White Rose Maths Hub are one of 35 national Government funded hubs who work with hundreds of early years, primary and secondary schools across their assigned areas of Bradford, Calderdale, Kirklees and Leeds to raise standards and inspire children and their teachers about the power of maths. As a hub they have produced a series of learning schemes, assessments and teaching resources to support teaching for mastery. The schemes have proved extremely useful so far for hundreds of schools around the country in helping teachers understand what teaching for mastery might look like. The fluency, reasoning and problem solving ideas exemplify what depth could look like for each area of mathematics. There is a particularly strong emphasis on developing fluency, reasoning and problem solving skills.

Teaching and Learning

Teachers' planning and organisation

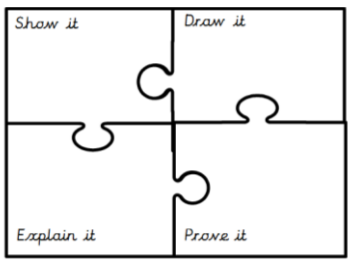
We will be following the White Rose Mathematics Mastery programmes of study, which ensures continuity and progression in the teaching of mathematics. Within a unit of work, the time spent on teaching a specific learning objective or set of learning objectives depends on the needs of the children.

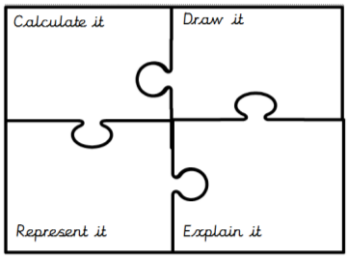
All teachers plan daily mathematics lessons using an agreed planning format. Planning is done on a weekly basis. Planning includes learning objectives, success criteria, brief text on what the teacher will be modelling, key vocabulary and at least one key open question.

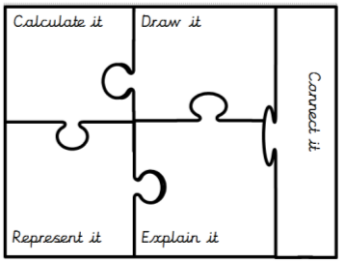
Where possible teachers pre-empt 'big' misconceptions that many children will have – eg a rectangle/oblong has four lines of symmetry (diagonals). Teachers also plan which vocabulary they will use and which models, images and concrete resources they will use to aid learning. Effective plenaries are only part-planned as misconceptions only arise during the teaching of the lesson. However, all plenaries refer to the learning outcome and the success criteria in a meaningful way, allowing the children some time for self-assessment.

We ensure that across each term children are given a range of experiences in mathematics lessons e.g. practical activities and mathematical games, group problem solving activities, individual, group and whole class discussion activities, open and closed tasks. We ensure that children can use a range of methods to calculate and have the ability to check whether their chosen methods are appropriate, reliable and efficient.

The following grids are used to challenge mastery and allow children to deepen their understanding of topics in mathematics. They are used at any point during the teaching sequence. (See above) This is differentiated for KS1 and KS2.







We follow the North Yorkshire Calculation Policy and have summarised this in a booklet for parents.

Differentiation

Our staff have high expectations of all children, irrespective of ability, and encourage them to be successful and achieve their full potential. Our aim is to ensure challenge for all. Children are encouraged to have a growth mindset about their ability to do mathematics. Encouraging children to 'have a go' is seen as paramount.

We aim to develop the mantra that: **'It's okay to be stuck because we all get a little stuck sometimes and it is fantastic when you get unstuck!'**

In some lessons children 'self-differentiate' and choose the level of challenge right for them. In other lessons, teachers direct children to the correct level of challenge based on their assessment in the initial phases of the lesson.

Differentiation of tasks is done in various ways:

- Open ended questioning and activities which allow more able children to offer more sophisticated mathematical responses
- Stepped Activities which can be accessed at different steps, supporting and challenge all
- Recording e.g. allowing some children to give verbal responses and photographing their learning
- Resourcing eg. Use of cubes, 100 squares, number lines, mirrors to support some children
- Grouping according to ability so that the groups can be given different tasks when appropriate. Activities are based on the same theme. Part of independent work often involves some focused, targeted group work from the teacher. However groupings are 'fluid and flexible' based on the needs of individual pupils.

Assessment

We recognise that AfL lies at the heart of promoting learning and in raising standards of attainment. We further recognise that effective AfL depends crucially on actually using the information gained.

The assessment procedures within our school encompass:

- Making ongoing assessments and responding appropriately to pupils during 'day-to-day' teaching.
- Provide the children with 'next step' marking which will record progression and pupil/teacher feedback.
- Using knowledge of pupils drawn from ongoing pupil tracking records and key objectives records to guide our planning and teaching;
- Adjusting planning and teaching within units in response to pupils' performance.

We also use termly summative assessments to look for cohort and individual areas of development (Target Tracker)

Homework

We have adopted a new 'Homework Grid' which sets out homework activities linked to all areas of the curriculum to include mathematics. These are given to children half termly when a new topic is planned for.

Special educational needs

Children with SEN are normally taught within the daily mathematics lesson. When additional staff are available to support groups or individual children they may withdraw small groups to use intervention materials. Within the daily mathematics lesson teachers not only provide activities to support children who find mathematics difficult, but also activities that provide appropriate challenges for children who are high achievers in mathematics.

Equal opportunities

All children should have equal access to the curriculum, irrespective of particular circumstances such as race, background, gender and capability. In the daily mathematics lesson we ensure this by supporting children in a variety of ways: E.g. repeating instructions, emphasising key words, using picture cues.

Vocabulary and precision of language

Developing children's language and vocabulary is absolutely essential.

- In all lessons attention is given to whether key vocabulary has been learnt.
- Key vocabulary is listed on vocabulary cards during lessons and instantly added to as new words arise.
- Paired talk activities are used to encourage children to talk about their mathematics.
- Teachers insist that children mirror the language they hear the adults using.
- Where appropriate, children are encouraged to answer in full sentences.
- Adults mirror back alternative words for the same meaning to enrich children's range of vocabulary. E.g. Child says '3 times 5 is 15', teacher says, 'yes, the product of 3 and 5 is 15' or '3 multiplied by 5 equals 15'.
- Children are required to provide justification and reasoning for their answers. For example, 'I know the shape is a square because….'
- Teachers are required to have sound subject knowledge and understanding of the correct terminology and vocabulary and they refer to the school's glossary of maths terms if unsure. E.g. There is no such thing as a 'take away' sum (because 'sum' means 'add'). We use the terms 'calculation' or 'equation'.

Monitoring, Support and Evaluation

The mathematics subject leader will support all teachers to ensure the smooth transition towards the delivery of Mastery Maths. The aim is for the coordinator to spend 1 hour a week dedicated to overseeing the development of maths and supporting staff members. This will take the form of curriculum planning sessions, mastery lesson example lessons and teacher observations.

Role of the Subject Leader

- To take the lead in policy development
- To support colleagues e.g. leading staff CPD, planning support, team teaching
- To monitor and be accountable for progress in Mathematics – this may be done through scrutiny of work, observations and analysis of formal assessment data
- To take responsibility for the choice, purchase and organisation of central resources for Mathematics, in consultation with colleagues
- To be familiar with current thinking concerning the teaching of Mathematics, and to disseminate information to colleagues

The subject leader will report on mathematics to the Headteacher and will liaise with the named link governors.

Date policy was agreed by the governing body - Aut 18
Updated July 2020
The policy will be reviewed in line with the policy review schedule.