



<u>Skol Nansledan</u>

Teaching and Learning Principles

Subject: Mathematics

<u>Mission statement</u>. To provide an outstanding education that ensures all pupils can reach their greatest potential and live by life's highest values.

Vision: 'Today's learners, tomorrow's leaders'

Nansledan School will champion the STEAM curriculum, an integrated skills-based approach to learning, and will be guided by the philosophy "Aut viam inveniam aut faciam" (I will either find a way or make one). Pupils will be encouraged to engage in experiential learning, persist in problem-solving, embrace collaboration and work through the creative process. The children of Nansledan are the innovators, educators, leaders and learners of the 21st century and the school motto "Today's Learners, Tomorrow's Leaders" reflects this vision.

Mathematics aims:

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop
- conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

At Nansledan, we want our future leaders to develop a love of learning within mathematics. We embed key fluency, reasoning, and problem-solving skills in our daily lessons. It is our aim to create a positive attitude to maths and a fascination with the subject. We strive to plan lessons that build on the children's ability to recall number facts rapidly and accurately. We endeavour to promote curiosity, enthusiasm, and enjoyment in all aspects of our maths curriculum at Nansledan. We intend to provide a curriculum which caters for the needs of all individuals and sets them up with the fundamental skills to become successful in their future lives. We teach pupils that Mathematics is a tool for everyday life. It is critical to science, technology, engineering, financial literacy and most forms of employment. Our pupils will spend time becoming true masters of Mathematical concepts and are exposed to a range of methods and manipulatives. At Nansledan, we encourage our pupils to think,

reason and problem-solve like mathematicians. Our goal is to provide a high-quality, engaging mathematics education that provides our pupils with a foundation for understanding the world, the skills to reason mathematically and an appreciation of the beauty and power of number in mathematics.

<u>EYFS</u>

ELG: Number

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number;

- Subitise (recognise quantities without counting) up to 5;

- Automatically recall (without reference to rhymes, counting or other aids)

number bonds up to 5 (including subtraction facts) and some number bonds to

10, including double facts.

ELG: Numerical Patterns

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one

quantity is greater than, less than or the same as the other quantity;

- Explore and represent patterns within numbers up to 10, including evens and

odds, double facts and how quantities can be distributed equally.

Implementation

Mathematics is the M in our STEAM curriculum but is taught as a discrete subject in addition to being woven into our STEAM projects. Pupils at Nansledan begin their time in our Explorers stage. They explore number with curiosity, awe and wonder. Continuous provision continues in Year 1 where purposeful resources laid out in a classroom to stimulate learning through play. We are focused on a whole school mastery approach to our teaching of mathematics. This involves spending longer on key topics by taking smaller steps to ensure that children acquire a deeper understanding. We also ensure that we are addressing the three key aims of the National Curriculum – fluency, reasoning and problem solving. We champion our STEAM curriculum. Challenge is always visible in our teaching of mathematics, where children are asked reason and problem-solve to demonstrate their deep level of understanding. In addition, we place great emphasis on the use of concrete and pictorial representations. Every morning, Nansledan pupils complete a 'Morning Maths' task to support arithmetic skills, pre-teach or recap prior learning. Thus, further supporting the children's ability to recall number facts quickly, reason and problem-solve effectively. We use the schemes of learning from White Rose Maths which are based on the National Curriculum. Our mathematics curriculum is purposeful, and we additionally use a range of high-quality resources from NRich, NCETM and Number Sense. Teachers use our 'Nansledan Maths Bingo' to further enrich our children's maths diets. In EYFS, maths is embedded daily in their environment and through taught objectives. This ensures the Early Learning Goals relating to maths in the EYFS statutory framework are covered.

Knowledge and Skills Progression:

Nansledan's Maths Progression Road Map and Skills Progression Document is available on our curriculum website page.

<u>Planning:</u>

Teachers plan to meet the needs of all pupils. We use Powerpoint planning to structure our lesson sequences. In addition, to hourly daily lessons, our children complete 'Morning Maths' activities and 15 minute number fact sessions. In Upper Key Stage 2, the children will be taught number facts or arithmetic skills during this 15 minute allocated time.

Nansledan Maths BINGO! - A daily maths lesson should include each of the following:

| Fluency, Starter | Recap, prior learning, | WALT Introduced, As mathematicians, we are learning to | Vocabulary introduced and used Consider use of my turn, your turn |
|--|---|---|---|
| Conjecture used to reinforce understanding of vocabulary | Lesson is introduced through a context Not compulsory - but a good hook for linking. | Variety of images used throughout the lesson to support understanding (Conceptual variation) | Reasoning questions used to support understanding. (Include Questions) |
| Lesson moves in small steps | Ping pong approach is used within the input I do; /we do/ you do | Children are encouraged to repeat phrases and modelled by the teacher (STEM Sentences) | Children are taught on the same topic. |

Teaching and Learning Expectations:

- Daily Maths lessons
- 15-minute number fact or arithmetic sessions each day.
- Independent Morning Maths Activity.
- Updated working walls with question stems and key vocabulary.
- Use of representations and concrete resources.

Working Walls:

Class teachers are responsible for keeping their in-class maths working wall up-to-date with purposeful resources and representations to support the pupils' learning. All classrooms should have concrete resources readily available for children to access during lessons. Teachers must ensure that maths has profile in their classrooms, considering the



benefit of number lines, hundred squares and multiplication support. Permanent displays may include Roman Numerals, Shape, Measure and Place Value grids. Working walls must highlight key vocabulary and question stems.

<u>Impact</u>

Our maths curriculum makes a profound and positive impact on the outcomes of every pupil at Nansledan. Our children are happy and engaged learners, who are keen to learn more. They remember more through effective Quality First Teaching and the use of highquality resources and manipulatives, daily. The children at Nansledan experience a wide range of learning challenges and are given opportunities to explore and ask questions. Children are encouraged to adopt an 'I can' attitude, they know mistakes enable them to learn and misconceptions are only temporary. At Nansledan, children are eager and fascinated by the infinity of number and concepts they encounter as they move through each programme of study.

Monitoring/Assessment:

The impact of mathematics within our STEAM curriculum is monitored through:

- Ongoing teacher assessment, marking and verbal feedback through lessons.
- Deeper thinking tasks and purple pen responses allow teachers to extend the student's understanding further.
- Book looks to monitor the impact of teaching
- Pupil conferencing children talk positively about maths and demonstrate a positive attitude towards the subject.
- Low stakes texting which supports pupils to retain knowledge that has been taught (e.g. quizzes, reasoning-based questions, using visuals)
- Prior learning is recapped and areas likely to cause misconceptions are pre-taught.
- White Rose Pre and Post Block assessments
- Learning walks
- Images of the children's explorative learning
- Self and peer assessment opportunities