



St Thomas of Canterbury Curriculum Inclusion Strategies



Mathematics

Quality First Teaching – Promoting independence, providing suitable challenge, meeting a variety of learners needs and overcoming barriers.

Key Stage	Strategies for inclusion
Whole School	Concrete, Pictorial, Abstract <u>Use of Manipulatives</u> ○ Model the mathematics using a variety of concrete resources, e.g. money, Base 10, Abacus, counters etc ○ Multi-sensory: allow children to feel different representations, e.g. the spaces in the Numicon; the size difference in each Cuisenaire rod; in Base 10, one cube, the grooves that separate the ones in a ten, a hundred etc. ○ Pupils to experiment and make their own connections, e.g. pouring liquid to compare/ measure liquid; comparing objects by weight using balancing scales. ○ Role play contextualised problems, e.g. going to the shops, packing eggs in boxes <u>Images and Representations</u> ○ Model the mathematics' learning using pictorial representations, e.g. images of the concrete resources, place value counters, tens frame ○ Utilise number lines, 100 squares and Gattegno charts to support learning. ○ Make jottings and draw, e.g. bar model. Language Support ○ Regularly model language and stem sentences and provide ample opportunity for pupils to practise until fluent. ○ Teach whole class, in mixed ability groups, where possible. ○ Strategically pair pupils so that reasoning skills and problem solving can be modelled by a peer. ○ Practise taught skills throughout the day: during active learning, brain-breaks and transitions, e.g. pupils count or chant times tables whilst walking to lunch.
Early Years Foundation Stage	<u>Within a Maths lesson</u> ○ Break down mathematical skills into further key steps to secure key learning. <i>In Nursery, this may involve exploring the number 1 in various contexts before moving onto the next numeral to ensure an understanding of value is secured for all numbers 1-5 .For example, representing 1 with Numicon, marks, numbers in environment, 1:1 counting of objects, counting and performing movements, listening to discrete sounds.</i> ○ Overlearn skills through the mental & oral session, in familiar contexts to reduce cognitive load. <i>In Reception, this may involve mental oral practises such as counting train, flipper flappers, counting along a number line.</i> ○ Regularly use physical and familiar mathematical models e.g. tens frames, abacuses

	○ Scaffold stem sentences when encouraging children to see small numbers within a larger collection <i>When teaching 'composition', model the language, e.g. 'There are 5 spots altogether on the ladybird. I can see 4 and 1, I can see 3 and 2, and I can see 1 and 1 and 1 and 1 and 1.'</i> ○ Offer questioning opportunities which can facilitate a variety of response types. ○ Ensure sessions are engaging and offer a multisensory approach to learning to meet the sensory needs of learners. <i>In Nursery, this may involve exploring the number through music, movement and exploration of concrete objects.</i> <u>Within the continuous provision</u> ○ Apply mathematics within real life contexts <i>When teaching 'cardinality and counting', ask children to count real objects e.g. stones in the playground, steps on the stairs, numbers on the front doors, cars on the road, animals in the zoo.</i> ○ Explicitly draw children's attention to mathematical links and offer opportunity to consolidate skills in different areas of their learning. <i>When teaching 'comparison', pose questions such as 'Are there more orange leaves or green leaves?', 'Are there more cats or dogs in this picture?'</i> ○ Practise and consolidate mathematical skills which mirror practises in focussed groups to develop fluency. ○ Use visuals to support children's understanding change of time throughout the day. ○ Display numerals in the environment and regularly draw their attention to them.
Key Stage 1 & 2	<u>Maths' Lessons</u> <u>The CPA approach</u> ○ Allow children to utilise the concrete resources later on in the teaching sequence if required. <i>Even if the concrete stage in the scheme of work has passed, learning can be supported with manipulatives in a later small step.</i> ○ When moving to the pictorial stage, model the previously learnt concrete next to it to support pupils making links. ○ Model the abstract alongside the pictorial and/or concrete to link each stage of learning. <u>Procedural</u> ○ Break learning down into manageable chunks, <i>for example:</i> <i>Create a toolkit together → record numbered steps for them to follow more independently → reduce the words on the steps → take the toolkit away, but allow them to check it if needed until they no longer need to rely on it.</i> <u>Reasoning and language</u> ○ Pre-teach stem sentences and language and send them home to learn. ○ Encourage the children to notice patterns. <i>Ask: what is the same? What is different?</i> ○ Pose open questions. ○ Scaffold verbal and written responses. <u>Problem Solving</u> ○ Pupils can break down the steps to answer a problem through using the acronym STAR: Search, Translate, Answer, Revue

Search the word problem

Translate the words into an equation in picture form. *Model how to draw contextual problems, e.g. stick people, dots to represent items, bar model*

Answer the problem

Review the solution

- Role play the context of the problem. *In Year 3, when exploring money, they can role play being the shop keeper and customer.*
- Use concrete resources to support learning, to allow pupils to focus on solving the problem.
- For children entering SToC who have recently come from a non-English speaking country, translate worded problems for them, to allow them to focus on the maths, whilst building language simultaneously.
- Build up the complexity of a problem slowly, removing scaffolds when appropriate.

Learning environment

- Symbols: display related symbols together e.g. + with – and x with ÷.
- Check that the working wall is accessible to all pupils and that it is purposeful, up-to-date and not overwhelming. *Current stem sentences, vocabulary and steps that mirror the scheme should be displayed for children to use as a support or a reminder.*
- Display a year-specific, enlarged place value chart and number lines for pupils to refer to. *For example, in Year 5, number lines may vary: decimal increments; numbers to 1,000,000 and negative numbers, through zero.*
- The maths' books, working wall and dyspraxia box to all be coloured blue.
- Provide a distraction-free space (such as a workstation) for pupils if they need it.

Planning

- Use the 'Ready to Progress' document to prioritise the most important objectives.
- Track each objective from a pupil's current level to their actual age-related objective.

Counting

Build up counting in various numbers slowly, e.g.

- Begin with direct modelling to develop conceptual understanding using representations and models.
- Count unitarily (one-by-one) and then group together using manipulatives.
- Use pictorial representations such as a number square.
- Explore patterns and count rhythmically.

Mental & Oral and 4 Rules

- Systematically rehearse declarative and procedural knowledge by using a layered approach to maximise time and build flexibility and fluency.

Multiplication and Division Facts

- Spend ample times securing the 'counting' and 'relationships' elements of the lesson, using the CPA approach, instead of moving onto practising through games prematurely.

Adaptive, Responsive Teaching

- Quality first teaching, including deploying staff strategically, with specific focuses that are tailored to the pupils.
- Set up interventions to ensure that pupils catch up and then keep up. Time-limited, highly targeted, quality intervention only when necessary.
- Give pupils a number of instructions/ questions to complete or a set time before allowing them to have a brain break.
- Explicitly draw children's attention to maths in the real world, *e.g. In measure: What time is it/ how long until lunch? Money, Measuring length, mass, capacity.*