

MATHS at Streeton Primary School



The Mathematics curriculum aims to ensure that students:

- ▶ develop useful mathematical and numeracy skills for everyday life, work and as active and critical citizens in a technological world
- ▶ see connections and apply mathematical concepts, skills and processes to pose and solve problems in mathematics and in other disciplines and contexts
- ▶ acquire specialist knowledge and skills in mathematics that provide for further study in the discipline
- ▶ appreciate mathematics as a discipline - its history, ideas, problems and applications, aesthetics and philosophy.

What areas do we cover in MATHS?

The Maths curriculum is organised into three strands -

- Number and Algebra
- Measurement and Geometry
- Statistics and Probability

Each strand is organised by sub-strands.

Sub-strands provide both a focus and a clear sequence for the development of related concepts and skills within strands and across levels.

Structure of Maths

Strand - Number and Algebra

Sub-strands:

- Number and Place Value
- Fractions and Decimals
- Real Numbers
- Money and Financial Matters
- Patterns and algebra
- Linear and Non-Linear Relationships



Structure of Maths

Strand - Measurement and Geometry

Sub-strands:

- Using Units of Measurement
- Shape
- Geometric Reasoning
- Location and Transformation
- Pythagoras and Trigonometry



Structure of Maths

Strand - Statistics and Probability

Sub-strands:

- Chance
- Data Representation and Interpretation



The Four Proficiencies

- The proficiencies of Understanding, Fluency, Problem Solving and Reasoning are fundamental to learning mathematics and working mathematically and are applied across all three strands.
- Each proficiency holds the same weight in importance of developing the skills to being able to work mathematically.



Understanding

Understanding refers to students building a robust knowledge of adaptable and transferable mathematical concepts and structures.

Students make connections between related concepts and progressively apply the familiar to develop new ideas. They develop an understanding of the relationship between the 'why' and the 'how' of mathematics.



Students build understanding when they:

- connect related ideas
- represent concepts in different ways
- identify commonalities and differences between aspects of content
- describe their thinking mathematically
- interpret mathematical information.

Fluency

Fluency describes students developing skills in choosing appropriate procedures, carrying out procedures flexibly, accurately, efficiently and appropriately, and recalling factual knowledge and concepts readily.

Students are fluent when they:

- make reasonable estimates
- calculate answers efficiently
- recognise robust ways of answering questions
- choose appropriate methods and approximations
- recall definitions and regularly use facts
- can manipulate expressions and equations to find solutions



Problem-Solving

Problem-solving is the ability of students to make choices, interpret, formulate, model and investigate problem situations, select and use technological functions and communicate solutions effectively.

Students pose and solve problems when they:

- use mathematics to represent unfamiliar or meaningful situations
- design investigations and plan their approaches
- apply their existing strategies to seek solutions
- verify that their answers are reasonable



Reasoning

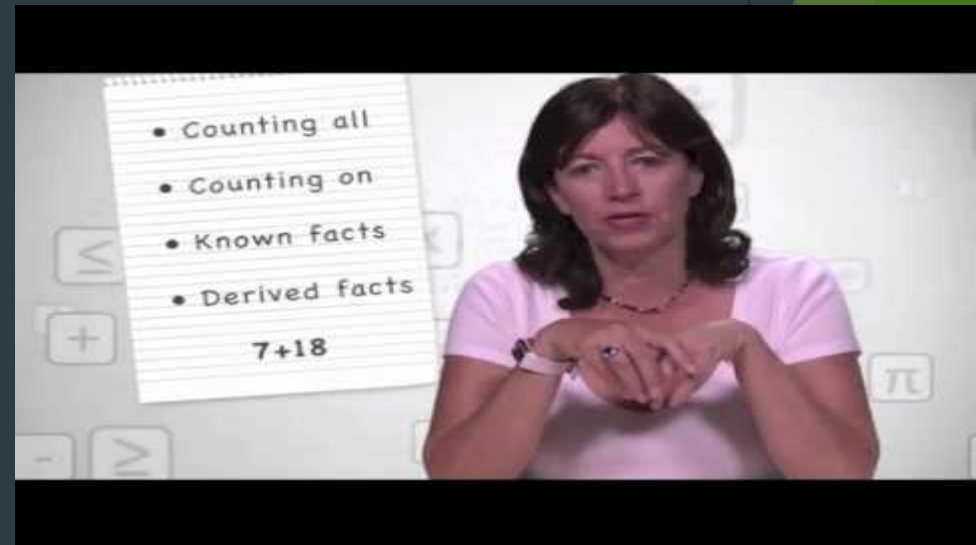
Reasoning refers to students developing an increasingly sophisticated capacity for logical, statistical and probabilistic thinking and actions, such as conjecturing, hypothesising, analysing, proving, evaluating, explaining, inferring, justifying, refuting, abstracting and generalising.

Students are reasoning mathematically when they:

- explain their thinking
- deduce and justify strategies used and conclusions reached
- adapt the known to the unknown
- transfer learning from one context to another
- prove that something is true or false
- make inferences about data or the likelihood of events
- compare and contrast related ideas and explain their choices

Structure of the Maths lesson

- ▶ Number Fluency
- ▶ Whole
- ▶ Part
- ▶ Whole



Number Fluency

Aim is to tune students into mathematical thinking.

- ▶ Games
- ▶ Songs
- ▶ Number Talk
- ▶ Automatic recall

(Approximately 10 minutes)

WHOLE Class Focus

- Stimulate interest and curiosity
- Connect to prior learning
- Learning Intention is stated clearly to students
- Success criteria is discussed and/or negotiated
- Explicit teaching of Mathematical skill or concept using mathematical vocabulary

(Approximately 10 minutes)

PART - Independent Learning

- Students engage in independent mathematical activities designed to explore, practise, synthesise and consolidate their learning
- Activities should be designed to be
 - ❑ Engaging
 - ❑ Contain elements of open ended design
 - ❑ An appropriate level of challenge

(Approximately 30 minutes)

Part - Teacher Group

- Groups could contain students at similar levels or at similar points of need.
- Teach explicit strategies and concepts.
- Use a range of effective questioning strategies during this lesson.
- Allow wait time for students to respond.
- Accept student responses and encourage them to talk about their process.
- Discuss different ways of working out problems.
- Closely monitor student performance.
- Include elements of the 4 Proficiencies.
- Provide effective feedback.

(Approximately 30 minutes)

Whole

Reflection and sharing by students

- ▶ Time for reflection on tasks
- ▶ May involve an exit ticket or a show of hands, thumbs up etc
- ▶ Sharing of how tasks were solved in different ways
- ▶ Make sure all students have a turn to share over time

(Approximately 10 minutes)

MATHS: Non-Negotiables

- Work collaboratively in teams to develop planners that outline what, when and how.
- Provide time for a mix of Number Fluency and/or Number Talk each day.
- Ensure lessons are engaging and relevant to real-life experiences.
- Provide varied material that is level (differentiated), age and interest appropriate.
- Ensure the classroom allows for flexible groupings.
- Use flexible and collaborative groupings.
- Make sure Maths lessons provide a balance between skill acquisition and application.
- Explicitly teach mathematical vocabulary.
- Display Learning Intention and Success Criteria for each lesson.
- Provide hands-on materials.

Groupings in Maths

Daily maths sessions may see students grouped in a variety of ways depending on task requirements, point of need, ability levels or interest based.

- ▶ Whole class
- ▶ Small ability groups
- ▶ Larger ability groups
- ▶ Mixed ability groups
- ▶ Friendship groups



ASSESSMENT IN MATHS

- ▶ Teachers will follow the Streeton Assessment Schedule as a guide to when and what to assess.
- ▶ Teachers will conduct other assessments where necessary.
- ▶ Student assessment data will be used to inform planning and teaching.
- ▶ Pre and post testing will direct teacher practices and aid in ability groupings.
- ▶ Teachers will collaborate with colleagues to support the achievement of all students.
- ▶ IEP's will be implemented for students working 12 months above or below expected levels.
- ▶ Students will engage in self and peer reflection and goal setting.