

# Standards Math Key Stage 3

## Math Importance Statement

Mathematical thinking is important for all members of a modern society as a habit of mind for its use in the workplace, business and finance; and for personal decision-making. Mathematics is fundamental to national prosperity in providing tools for understanding science, engineering, technology and economics. It is essential in public decision-making and for participation in the knowledge economy.

Mathematics equips pupils with uniquely powerful ways to describe, analyse and change the world. It can stimulate moments of pleasure and wonder for all pupils when they solve a problem for the first time, discover a more elegant solution, or notice hidden connections. Pupils who are functional in mathematics and financially capable are able to think independently in applied and abstract ways, and can reason, solve problems and assess risk.

Mathematics is a creative discipline. The language of mathematics is international. The subject transcends cultural boundaries and its importance is universally recognised. Mathematics has developed over time as a means of solving problems and also for its own sake.

● Indicates standard is focused on    ○ Indicates standard is covered in a general way

Key Stage 3 <i>Mathematics Programme of Study Statement</i> Key Concepts		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
<b>1.1 Competence</b>								
1.	Applying suitable mathematics accurately within the classroom and beyond.	●	●	●	●	●	●	●
2.	Communicating mathematics effectively.							●
3.	Selecting appropriate mathematical tools and methods, including ICT.	●	●	●	●	●	●	●
<b>1.2 Creativity</b>								
1.	Combining understanding, experiences, imagination and reasoning to construct new knowledge.			●	●	●	●	●
2.	Using existing mathematical knowledge to create solutions to unfamiliar problems.	●	●	●	●	●	●	●
3.	Posing questions and developing convincing arguments.	●	●	●	●	●	●	●
<b>1.3 Applications and implications of mathematics</b>								
1.	Knowing that mathematics is a rigorous, coherent discipline.	●	●	●	●	●	●	●
2.	Understanding that mathematics is used as a tool in a wide range of contexts.	●	●	●	●	●	●	●
<b>1.4 Critical understanding</b>								
1.	Knowing that mathematics is essentially abstract and can be used to model, interpret or represent situations.	●	●	●	●	●	●	●
2.	Recognising the limitations and scope of a model or representation.		●	●	●	●	●	●

Key Stage 3 <i>Mathematics Programme of Study Statement</i> Key Processes (1)		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
<b>2.1 Representing</b>								
1.	Identify the mathematical aspects of a situation or problem							●
3.	Simplify the situation or problem in order to represent it mathematically, using appropriate variables, symbols, diagrams and models	●	●	●	●	●	●	●

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2.2 Analysing								
Use Mathematical reasoning								
1.	Make connections within mathematics	●	●	●	●	●	●	●
3.	Visualise and work with dynamic images	●	●	●	●	●	●	●
4.	Identify and classify patterns	●	●	●	●	●	●	●
6.	Explore the effects of varying values and look for invariance and covariance			●	●	●	●	●
8.	Work logically towards results and solutions, recognising the impact of constraints and assumptions			●	●	●	●	●
10.	Reason inductively and deduce.	●	●	●	●	●	●	●
Use appropriate mathematical procedures								
11.	Make accurate mathematical diagrams, graphs and constructions on paper and on screen	●	●	●	●	●	●	●
13.	Manipulate numbers, algebraic expressions and equations and apply routine algorithms			●	●	●	●	●
14.	Use accurate notation, including correct syntax when using ICT			●	●	●	●	●
15.	Record methods, solutions and conclusions	●	●	●	●	●	●	●

Key Stage 3 Mathematics Programme of Study Statement <b>Key Processes (2)</b>		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
2.1 Interpreting and evaluating								
4.	Look at data to find patterns and exceptions			●	●	●	●	●
5.	Relate findings to the original context, identifying whether they support or refute conjectures			●	●	●	●	●
6.	Engage with someone else's mathematical reasoning in the context of a problem or particular situation							●
7.	Consider the effectiveness of alternative strategies.							●
2.4 Communicating and reflecting								
1.	Communicate findings effectively							●
2.	Engage in mathematical discussion of results			●	●	●	●	●
3.	Consider the elegance and efficiency of alternative solutions							●
5.	Make connections between the current situation and outcomes, and situations and outcomes they have already encountered.			●	●	●	●	●

Key Stage 3 Mathematics Programme of Study Statement <b>Range and Content</b>		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
3.1 Number and algebra								
2.	Rules of arithmetic applied to calculations and manipulations with rational numbers	●	●	●	●	●	●	●
5.	Algebra as generalised arithmetic			●	●	●	●	●

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6.	Linear equations, formulae, expressions and identities				●		●	
7.	Analytical, graphical and numerical methods for solving equations			●	●	●	●	●

Key Stage 3 Mathematics Programme of Study Statement <b>Curriculum Opportunities</b>		Inquiry Video	Tutorial	Heat	Motion	Sound	Light	Project
1.	Develop confidence in an increasing range of methods and techniques	●	●	●	●	●	●	●
2.	Work on sequences of tasks that involve using the same mathematics in increasingly difficult or unfamiliar contexts, or increasingly demanding mathematics in similar contexts	●	●	●	●	●	●	●
3.	Work on open and closed tasks in a variety of real and abstract contexts that allow them to select the mathematics to use	●	●	●	●	●	●	●
4.	Work on problems that arise in other subjects and in contexts beyond the school	●	●	●	●	●	●	●
5.	Work on tasks that bring together different aspects of concepts, processes and mathematical content	●	●	●	●	●	●	●
7.	Become familiar with a range of resources, including ICT, so that they can select appropriately.	●	●	●	●	●	●	●