



**Viking International School**  
**Mathematics Curriculum**

# CURRICULUM INTENT

Viking International School's curriculum aligns with the Danish *Fællesmål* and meets the standards of the British National Curriculum, leading to GCSE-level outcomes.

We focus on developing critical thinking, creativity, and problem-solving, encouraging students to apply knowledge across subjects through inquiry-based and real-world learning. Collaboration, communication, and cultural understanding are central to our approach. Students learn to work effectively with others, respect diverse perspectives, and develop as responsible global citizens.

Digital literacy and responsible technology use are integrated throughout all subjects to prepare students for the modern world. We promote a growth mindset and lifelong learning, ensuring that our curriculum provides the knowledge, skills, and values students need to succeed in further education—whether in Denmark or internationally—and to contribute positively to society. Each child is supported to reach their full potential through personalized teaching.

The purpose of Mathematics teaching at VIS is to develop students' ability to understand, analyze, and apply mathematical knowledge and problem-solving strategies confidently and appropriately for their age and context. The subject fosters critical thinking, creativity, and effective communication, preparing students to engage meaningfully with the global community.

Students' progress in Mathematics is assessed continuously through classroom participation, practical application, and formative feedback. Summative assessments and self-reflection are used to evaluate understanding and development in relation to the *Fællesmål* sub-goals.

Learning connects naturally to other areas of the curriculum, supporting a holistic educational experience that encourages students to make connections across disciplines and apply their knowledge in diverse contexts.

Teaching is adapted to meet individual learning needs, ensuring accessibility and inclusion for all learners. Students who require additional support, such as those with dyslexia or other learning differences, benefit from personalized instruction, assistive technology, and tailored strategies that help them thrive within the classroom environment.

# YEARGROUP ALIGNMENT

<b>Danish</b>	<b>VIS</b>	<b>Key Stage (KS)</b>
0 Klase	IC 1	KS 1
1 Klase	IC 2	KS 1
2 Klase	IC 3	KS 1
3 Klase	IC 4	KS 2
4 Klase	IC 5	KS 2
5 Klase	IC 6	KS 2
6 Klase	IC 7	KS 3
7 Klase	IC 8	KS 3
8 Klase	IC 9	KS 4
9 Klase	IC 10	KS 4
10 Klase	IC 11	KS 4

# OVERVIEW

## **Requirement (Friskoleloven §1a)**

## **How VIS meets this**

Final Goals

Defined through Fælles Mål competence objectives for each subject area.

Sub-goals

Described in the “Skill” and “Knowledge” columns per Key Stage.

Teaching Plan

This document outlines how goals are taught, sequenced, and assessed through each phase.

## Common Goals Outcomes Expected to be reached by end of each Key Stage (KS)

Competence Area	After KS 1	After KS 2	After KS3	After KS 4
<b>Mathematical Skills</b> 'Students can...'	Solve simple problems, model ideas with objects and drawings, explain reasoning in everyday language, communicate solutions clearly, and use basic tools to support understanding.	Reason mathematically, communicate ideas clearly, select and apply strategies, use models and digital tools effectively, and justify solutions in familiar and unfamiliar contexts.	Solve problems, model situations, reason logically, communicate ideas clearly, and use appropriate tools effectively in mathematical contexts.	Final I can statements
<b>Number</b> 'Students can...'	Read, write, count, compare, and order numbers from 1 to beyond 1000, understand and apply place value (ones, tens, hundreds), and use this knowledge to solve problems involving counting patterns, ordering, and partitioning.	Confidently work with whole numbers, decimals, fractions, and percentages by understanding place value up to 10,000,000, applying all four operations accurately, using estimation and rounding, and solving multi-step problems in real-life contexts.	Apply number operations, ratio and proportional reasoning, and algebraic methods to solve problems, model relationships, and reason logically across a range of contexts.	Final I can statements
<b>Geometry and Measurement</b> 'Students can...'	Measure, compare, and solve problems involving length, mass, capacity, temperature, and time using appropriate standard units and tools, tell and write time on analogue and digital clocks (including 12-hour and 24-hour formats), and apply measurement concepts to practical contexts such as perimeter and scaling.	Identify, classify, and construct 2-D and 3-D shapes, measure and calculate angles, use symmetry and transformations, and apply geometric reasoning to solve problems. Students can measure, convert, and calculate length, area, volume, time, and money accurately, applying units and estimation to solve practical and multi-step problems.	Reason about shapes and space by calculating perimeter, area, volume, and angles, applying properties of 2-D and 3-D figures, and performing accurate transformations and positioning using coordinates and scale.	Final I can statements
<b>Statistics and Probability</b> 'Students can...'	Collect, record, interpret, and present data using charts, tables, pictograms, and digital tools, answer one-step and two-step questions, and compare and organize information accurately.	Collect, interpret, and present data using charts, graphs, and tables, calculate averages, and solve comparison and difference problems in real-life contexts.	Collect, organise, and interpret data using charts, graphs, and measures, compare distributions, calculate probabilities for single and combined events, and use diagrams and digital tools to analyse and present findings.	



<b>Geometry and Measurement</b>	<p><i>Student can measure, compare, and solve problems involving length, mass, capacity, temperature, and time using appropriate standard units and tools, tell and write time on analogue and digital clocks (including 12-hour and 24-hour formats), and apply measurement concepts to practical contexts such as perimeter and scaling.</i></p>	<b>Shapes</b>		<b>Position and Direction</b>		<b>Measurement</b>			
		<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>		
		<b>IC1</b>	Recognize and name common 2D and 3D shapes in different orientations and sizes.	Knows shape names and basic properties.	Describe position, direction, and movement using simple terms and turns.	Knows vocabulary for position and movement (left, right, clockwise, anticlockwise).	Measure length, weight, capacity, and time using non-standard and standard units.	Knows units of measurement and time vocabulary (hour, half past).	
		<b>IC2</b>	Identify, compare, and sort common 2D and 3D shapes and describe their properties.	Knows sides, edges, vertices, faces, and symmetry.	Can use mathematical vocabulary to describe position, direction, and movement, including turns.	Knows terms for straight lines, rotations, and right angles.	Choose appropriate units and tell time to 15 minutes.	Knows standard units (cm, kg, °C), abbreviations, and time intervals.	
<b>IC3</b>	Name and describe features of 2D and 3D shapes accurately, including symmetry and angles.	Knows properties of shapes, symmetry axes, and angle types.	Describe position and movement using precise mathematical language, including turns and angles.	Knows directional terms and how they relate to rotations and turns.	Measure using mixed units, tell time on 12- and 24-hour clocks, and calculate perimeter.	Knows metric units, Roman numerals, and time vocabulary.			
<b>Statistics</b>	<p><i>Student can collect, record, interpret, and present data using charts, tables, pictograms, and digital tools, answer one-step and two-step questions, and compare and organize information accurately.</i></p>	<b>Statistics</b>							
		<b>Skill (Students can...)</b>	<b>Knowledge</b>						
		<b>IC1</b>	NA						
		<b>IC2</b>	Interpret and construct simple charts and tables.	Knows pictograms, tally charts, and how to compare data.					
<b>IC3</b>	Interpret and present data using bar charts and tables.	Knows scales, categories, and how to answer one- and two-step questions.							
<b>Area of competence</b>	<b>Competency goals</b>	<b>After KS2</b>							
		<b>Problem Solving</b>	<b>Modelling</b>	<b>Reasoning</b>	<b>Communication</b>	<b>Using Tools</b>			

<b>Mathematical Skills</b>	Students can reason mathematically, communicate ideas clearly, select and apply strategies, use models and digital tools effectively, and justify solutions in familiar and unfamiliar contexts..		<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>
		<b>IC 4</b>	Can apply mathematical knowledge to unfamiliar contexts, choose efficient strategies, and persevere in finding accurate solutions to complex problems.	Understand different strategies for approaching mathematical problems, including identifying relevant information and selecting appropriate operations or methods.	Can create, use, and refine mathematical models to represent real-life contexts, test ideas, and make informed predictions or decisions.	Understand how real-world situations can be represented using mathematical models such as diagrams, equations, tables, or graphs.	Explain and justify their reasoning, identify errors or misconceptions, and use evidence to support mathematical arguments and conclusions.	Understand how logical thinking and evidence support conclusions in mathematics, including recognising patterns, relationships, and generalisations.	Communicate their mathematical thinking effectively, using appropriate language, notation, and representations to explain methods and reasoning.	Understand how mathematical ideas can be expressed clearly using symbols, diagrams, vocabulary, and written or verbal explanations.	Select and use appropriate tools and resources efficiently and accurately to explore, represent, and solve mathematical problems.	Understand the purpose and correct use of mathematical tools, including digital technologies, measuring instruments, and visual representations.
		<b>IC 5</b>	Can choose appropriate operations and strategies, apply estimation and inverse operations to check answers, and solve complex problems in varied contexts.	Understand strategies for selecting operations, estimating, and checking results when solving multi-step and real-life problems.	Can create and use models effectively to explore, represent, and justify solutions to problems.	Know how to use concrete, visual, and digital models to represent mathematical ideas and relationships.	Explain their thinking clearly, make connections between concepts, and justify solutions using evidence and reasoning.	Understand how to use mathematical language and logical steps to explain and justify reasoning.	Present and justify solutions using diagrams, written explanations, and digital tools, adapting communication to the context.	Know how to present mathematical ideas orally, visually, and in writing for different audiences and purposes.	Select and use appropriate digital, concrete, and visual tools to investigate, model, and communicate mathematical ideas.	Understand the role of digital tools and representations in exploring and solving mathematical problems.
		<b>IC 6</b>	Can choose and apply suitable strategies, estimate and check answers using inverse operations, and solve problems in unfamiliar and cross-curricular contexts.	Understand how to select appropriate operations, strategies, and representations to solve multi-step and real-life problems, including estimation and checking results.	Create and use models to explore concepts, represent solutions, and justify reasoning in problem-solving.	Know how to use concrete, visual, and digital models to represent mathematical ideas and relationships effectively.	Explain reasoning clearly, make connections between concepts, and justify solutions using evidence and mathematical language.	Understand how to use mathematical language and logical steps to explain and justify methods and conclusions.	Present solutions using diagrams, written explanations, and digital tools, and justify ideas clearly in multiple formats.	Know how to present and justify mathematical ideas orally, visually, and in writing for different purposes.	Select and use appropriate tools effectively to investigate, model, and present mathematical solutions.	Understand the role of digital, concrete, and visual tools in exploring, modelling, and communicating mathematical ideas.
<b>Number</b>	Students can confidently work with whole numbers, decimals, fractions, and percentages by understanding place value up to 10,000,000, applying all four operations accurately, using estimation and rounding, and solving multi-step problems in real-life contexts.	<b>Place Value</b>		<b>Addition and Subtraction</b>		<b>Reasoning Multiplication and Division</b>		<b>Fractions</b>				
		<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>	<b>Skill (Students can...)</b>	<b>Knowledge</b>			
		<b>IC 4</b>	Apply understanding of place value to count, compare, estimate, round, and solve practical problems involving whole numbers and negative numbers.	Understand the value of digits in numbers up to four digits, including negative numbers and Roman numerals, and how numbers can be represented, ordered, and rounded.	Accurately add and subtract numbers up to four digits using efficient written and mental methods and solve multi-step problems in context using appropriate operations.	Understand how addition and subtraction are related, including the use of estimation and inverse operations to check calculations.	Use multiplication facts and formal written methods to multiply and divide numbers, apply these to solve problems, and check results using inverse operations and estimation.	Understand multiplication and division as inverse operations, recognise and use multiplication facts up to $12 \times 12$ , and understand the relationship between factors, multiples, and scaling.	Identify, compare, and order fractions and decimals, find equivalent fractions, and use addition, subtraction, and rounding to solve problems involving fractional and decimal values.	Understand that fractions and decimals represent parts of a whole and can be expressed equivalently, recognising relationships between tenths, hundredths, and their decimal forms.		

**Geometry and Measurement**

Students can identify, classify, and construct 2-D and 3-D shapes, measure and calculate angles, use symmetry and transformations, and apply geometric reasoning to solve problems. Students can measure, convert, and calculate length, area, volume, time, and money accurately, applying units and estimation to solve practical and multi-step problems.

<b>IC 5</b>	Read, write, compare, and order numbers accurately, count in powers of 10, interpret negative numbers in context, and apply rounding to solve practical problems.	Understand the place value system up to 1,000,000, including negative numbers and Roman numerals, and how to round numbers for estimation and problem-solving.	Add and subtract whole numbers with more than four digits, use rounding to check answers, and solve multi-step problems in context.	Know efficient written and mental methods for adding and subtracting large numbers and how to use estimation to check accuracy.	Identify factors and multiples, multiply and divide numbers (including decimals) using mental and written methods, and solve multi-step problems involving scaling and rates.	Understand factors, multiples, primes, squares, cubes, and formal methods for multiplication and division, including scaling and rate problems.	Compare and order fractions, convert between mixed and improper fractions, add, subtract, and multiply fractions, work confidently with decimals and percentages, and solve related problems.	Understand how fractions, decimals, and percentages relate, including equivalence, ordering, and operations with fractions and decimals.
<b>IC 6</b>	Read, write, compare, and order numbers accurately, count in powers of 10, interpret negative numbers in context, and apply rounding and estimation to solve problems.	Understand the place value system up to 10,000,000, including decimals and negative numbers, and how to round numbers to a required degree of accuracy.	Add, subtract, multiply, and divide whole numbers and decimals using appropriate strategies, and solve multi-step problems involving combinations of operations.	Know efficient written and mental methods for all four operations, including interpreting remainders and applying operations in multi-step problems.	Add, subtract, multiply, and divide whole numbers and decimals using appropriate strategies, and solve multi-step problems involving combinations of operations.	Know efficient written and mental methods for all four operations, including interpreting remainders and applying operations in multi-step problems.	Compare and order fractions, add and subtract fractions with different denominators, multiply and divide fractions, convert between fractions and decimals, and calculate percentages of amounts.	Understand relationships between fractions, decimals, and percentages, including equivalence, operations, and percentage calculations.

Shapes		Position and Direction		Measurement	
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Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge
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<b>IC 4</b>	Students can identify, compare, and classify shapes based on their properties, recognise and draw lines of symmetry, and complete symmetric figures accurately.	Understand the properties of 2D shapes, including types of angles and lines, and recognise symmetry and the relationships between sides and angles.	Students can use coordinates to describe positions, plot and join points to create shapes, and accurately describe or perform movements and translations on a grid.	Understand how to describe positions and movements using coordinates on a grid and how shapes can be translated across quadrants.	Students can convert between units of measure, calculate perimeter and area, read and interpret time in different formats, and solve practical problems involving measurement and money.	Understand the relationships between different units of measure for length, mass, volume, and time, and know how to calculate perimeter and area of rectilinear shapes.
<b>IC 5</b>	Students can identify and classify shapes, measure and draw angles accurately, and apply properties of shapes to solve problems.	Understand properties of 2-D and 3-D shapes, including angles, sides, and symmetry, and how to classify shapes.	Students can plot points, describe positions using coordinates, and perform and describe translations accurately.	Understand coordinates, translations, and how to represent positions and movements on a grid.	Students can convert between units, measure and calculate perimeter and area, estimate volume and capacity, and solve multi-step problems involving time and money.	Know how to convert between metric and imperial units, calculate perimeter, area, volume, and capacity, and apply these in real-life contexts.
<b>IC 6</b>	Students can draw shapes using given dimensions, classify shapes by properties, find missing angles, and apply knowledge of circles and 3-D shapes in problem-solving.	Understand properties of 2-D and 3-D shapes, including angles, symmetry, and parts of circles, and how to classify and draw shapes accurately.	Students can plot points, translate and reflect shapes, and solve problems involving position and direction in practical contexts.	Understand coordinates, reflections, and how to describe positions and movements on a grid.	Students can convert units accurately, measure and calculate dimensions of shapes, estimate volume and capacity, and solve multi-step problems involving time and money.	Know how to convert between standard units, calculate perimeter, area, volume, and surface area, and apply these in real-life contexts.

		Statistics		
		Skill (Students can...)	Knowledge	
Statistics	Students can collect, interpret, and present data using charts, graphs, and tables, calculate averages, and solve comparison and difference problems in real-life contexts.	IC 4	Students can interpret and present data using bar charts, pictograms, and line graphs, and solve problems by comparing and analysing information displayed in different formats.	Understand how data can be collected, organised, and represented using charts, tables, and graphs to show patterns and comparisons
		IC 5	Students can read and interpret line graphs and tables, including timetables, and solve problems involving comparison, sum, and difference.	Understand how to interpret and represent data using tables, graphs, and charts, and solve comparison problems.
		IC 6	Students can construct and interpret line graphs, bar charts, and pie charts, calculate and interpret the mean, and solve comparison and difference problems using data.	Understand how to interpret and represent data using graphs, charts, and tables, and calculate averages.

Area of competence		After KS3									
Competency goals		Problem Solving		Modelling		Reasoning		Communication		Using Tools	
		Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge
Mathematical Thinking	Students can solve problems, model situations, reason logically, communicate ideas clearly, and use appropriate tools effectively in mathematical contexts.										
		IC7	Choose appropriate operations and methods, apply estimation, and solve familiar multi-step problems.	Understand strategies for solving routine and multi-step problems, including estimation and checking results.	Create models to represent relationships and interpret results in practical contexts.	Know how to represent problems using diagrams, tables, and simple algebraic expressions.	Justify solutions in familiar contexts and identify errors in simple reasoning.	Understand how to explain reasoning using mathematical language and logical steps.	Share solutions clearly using speech, sketches, and simple written explanations.	Know how to present mathematical ideas orally and visually using diagrams and basic notation.	Use basic digital tools (e.g., spreadsheets, graphing software) and physical models to support problem-solving.

Number	Students can apply number operations, ratio and proportional reasoning, and algebraic methods to solve problems, model relationships, and reason logically across a range of contexts.	IC 8	Tackle unfamiliar, multi-step problems confidently, justify strategies, and evaluate solutions critically.	Extend to non-routine and complex problems, including financial and proportional reasoning.	Construct and manipulate models, interpret outputs, and apply them to real-world and abstract scenarios.	Extend to modelling with algebra, graphs, and standard formulae for prediction and analysis.	Critique solutions, construct proofs, and communicate reasoning clearly in unfamiliar contexts.	Extend to making and testing conjectures, reasoning deductively, and formalising arguments.	Integrate oral, written, and digital communication to justify solutions and present investigations professionally.	Extend to presenting structured arguments and findings for different audiences.	Select and apply advanced digital tools creatively to test conjectures, model scenarios, and present findings.	Extend to dynamic geometry, CAD-style tools, and digital simulations for modelling and analysis.		
		Place Value			Algebra		Ratio, Proportion and Rates of Change							
		Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge							
		IC 7	Perform calculations with integers, decimals, and fractions; apply BIDMAS in simple expressions; convert between fractions, decimals, and percentages; and solve routine multi-step problems.	Understand integers, decimals, fractions, percentages, and negative numbers; apply four operations and estimation in real-life contexts.	Collect like terms, expand single brackets, and solve one- and two-step equations	Understand algebraic notation, simplify expressions, and solve simple linear equations.	Simplify ratios, divide quantities, calculate percentages, and apply scale factors to enlarge or reduce shapes.	Understand ratios, percentages, and scale factors in practical contexts.						
IC 8	Apply all four operations confidently across integers, decimals, fractions, and negatives; use inverse reasoning; work with HCF, LCM, and prime factorisation; calculate powers and roots; and solve non-routine, multi-step problems.	Extend understanding to powers, roots, standard form, prime factorisation, and recurring decimals; apply number properties in complex contexts.	Expand double brackets, factorise quadratics, rearrange multi-step formulas, interpret linear and quadratic graphs, and use nth-term rules for sequences.	Extend to factorisation, rearranging formulas, quadratic graphs, and sequences.	Represent proportion using tables, graphs, and equations; solve problems involving speed, density, and pressure; and apply proportional reasoning to multi-step problems.	Extend to direct and inverse proportion, compound measures, and proportional reasoning in unfamiliar contexts.								
Geometry and Measurement	Students can reason about shapes and space by calculating perimeter, area, volume, and angles, applying properties of 2-D and 3-D figures, and performing accurate transformations and positioning using coordinates and scale.	Shapes			Position and Transformations									
		Skill (Students can...)	Knowledge	Skill (Students can...)	Knowledge									
		IC7	Calculate perimeter and area of rectangles and triangles, measure and compare angles, and find volume of simple solids.	Understand properties of 2-D shapes, perimeter, area, volume, and basic angle facts.	Plot points, describe positions, and perform simple translations and reflections on a grid.	Understand coordinates in the first quadrant and basic translations and reflections.								
		IC 8	Calculate surface area and volume of prisms and cylinders, apply circle theorems, perform enlargements with fractional scale factors, and solve multi-step problems involving congruence and similarity.	Extend to surface area, circle properties, congruence, similarity, enlargements, and advanced angle reasoning.	Plot and interpret coordinates in all quadrants, describe and perform rotations and translations using vectors, and combine transformations accurately.	Extend to all four quadrants, rotations, vector notation, and combining transformations.								

**Statistics and Probability**

Students can reason about shapes and space by calculating perimeter, area, volume, and angles, applying properties of 2-D and 3-D figures, and performing accurate transformations and positioning using coordinates and scale.

Statistics		Probability	
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Skill (Students can...)	Knowledge		
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**IC 7**

Students can construct bar charts and pictograms, calculate mean, median, and mode, and interpret simple data sets.	Understand data collection, basic charts, and measures of central tendency.	Students can conduct simple experiments, record outcomes, and calculate probabilities for single events.	Understand experimental probability and basic theoretical probability.
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**IC 8**

Students can construct and interpret frequency tables, pie charts, and scatter graphs; draw lines of best fit; and evaluate reliability and bias in data.	Extend to grouped data, scatter graphs, correlation, and critical evaluation of data.	Students can use tree diagrams, Venn diagrams, and sample spaces to calculate probabilities; design simulations; and compare experimental and theoretical results.	Extend to combined events, sample spaces, and systematic listing methods.
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