

平成31年度 神奈川県立横浜国際高等学校 指導計画 (予定)

教科・科目	数学SL	学年	2, 3	教科書	Haese Mathematics SL Haese Mathematics HL etc.
		単位数	3, 3	副教材	

学習目標	Aims of Mathematics SL course are to: 1. enjoy mathematics, and develop an appreciation of the elegance and power of mathematics. 2. develop an understanding of the principles and nature of mathematics. 3. communicate clearly and confidently in a variety of contexts. 4. develop logical, critical and creative thinking, and patience and persistence in problem solving. 5. employ and refine their powers of abstraction and generalization. 6. apply and transfer skills to alternative situations, to other areas of knowledge and to future developments. 7. appreciate how developments in technology and mathematics have influenced each other. 8. appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics. 9. appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives. 10. appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course.
学習方法	The internally assessed exploration offers students the opportunity for developing independence in their mathematical learning. Students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas. The exploration also allows students to work without the time constraints of a written examination and to develop the skills they need for communicating mathematical ideas.

内容のまとめ	時数	単元(題材)	評価方法
Unit 1: Functions and Equations	24	1.1 Functions– Composite, identity, inverse, and other basic functions 1.2 Investigation of graphs 1.3 Transformations of graphs 1.4 The quadratic function and its graph 1.5 Reciprocal and rational functions 1.6 Solving equations using different methods 1.7 Application of graphing skills related to real life	Problem solving and graphing of real world problems in the activities. Graphing vectors and identifying special properties through computation.
Unit 2: Algebra	12	2.1 Arithmetic sequence and series; sum of finite arithmetic series; geometric sequences and series; sum of finite and infinite geometric series Introduce to students how to apply a formula on a calculator to solve math problems 2.2 The binomial theorem: expansion and calculation of binomial coefficients using Pascal’s Triangle	
Unit 3: Logarithmic and Exponential Functions	12	3.1 Laws of exponents and logarithms 3.2 Exponential and logarithmic functions and their graphs 3.3 Solving exponential equations	
Unit 4: Circular Functions and Trigonometry	18	4.1 Unit circle 4.2 Trigonometry and the unit circle 4.3 Special trigonometric identities 4.4 Trigonometric functions and their graphs 4.5 Solving trigonometric equations graphically and analytically 4.6 Trigonometry and triangles	
Unit 5: Limits, Differentiation and Integration	18	5.1 Limits and convergence 5.2 Derivatives 5.3 Max and min points, and graphing behaviors 5.4 Indefinite integration as anti-differentiation 5.5 Anti-differentiation with a boundary condition to determine the constant term 5.6 Kinematic problems involving displacement	
Unit 6: Statistics	12	6.1 Concepts and presentation of data 6.2 Statistical measures and their interpretations 6.3 Cumulative frequency 6.4 Linear correlation of bivariate data	
Unit 7: Probability	12	7.1 Concepts of trial, outcome, sample space, and event 7.2 Events, conditional probability, and probabilities without replacement.	
Unit 8: Statistical Distributions	12	8.1 Discrete random variables and their distributions, expected value, and application 8.2 Binomial distribution with its mean and variance 8.3 Normal distributions, properties, curves, and the z-scores.	
Unit 9: Vectors	15	9.1 Vector properties 9.2 Scalar product of vectors. Parallel and perpendicular vectors 9.3 Vector equations of lines in two and three dimensions 9.4 Determining if two lines intersect and their point of intersection	
Trial Examination	12		