



Ecole Internationale Provence-Alpes-Côte d'Azur



Forward Planning Long-Term Semester Planning

Academic Year: 2022-2023

Class: S6

Subject: Mathematics 5 periods

Teacher: Ms Rebeca Morones

No. Students: 17

Curriculum – Long-Term Planning 2020-2021

Date	Learning Objectives	Activities	Resources	Key Competences	Learning Outcomes / Assessment
September	Functions	<ul style="list-style-type: none"> - Introduction to functions. - Analysing functions: Intercepts/domain/range/ finding zeros/parity/ sign/periodicity/ limits/transformations/ asymptotes. - Functions to study: $\sqrt{ax + b}$, $\frac{ax+b}{cx+d}$ $\lambda \cos(ax + b) + c$ $\lambda \sin(ax + b) + c$ $\lambda \tan x$ 	<ul style="list-style-type: none"> - Geogebra - Worksheets 		
October - November	Calculus Differentiation	<ul style="list-style-type: none"> - Finding derivatives using the limit definition. - Rules of differentiation (sum, product, quotient and composition). - Finding extreme values and inflexion points. - Finding tangents to functions. - Optimization models - Economics model 	<ul style="list-style-type: none"> - Geogebra - Worksheets 	1, 2, 3, 4, 5, 6, 7, 8	<ul style="list-style-type: none"> - Homework - Classwork - Test

December - January	Combinatorics, Probabilities and discrete distributions.	<ul style="list-style-type: none"> - Permutations - Combinations - Finding probabilities revision (unions, intersections and conditional). - Use the rules of independent events - Bayes' theorem. - Definition of discrete distributions. - Probability density function. - Cumulative distribution function. - Expected value - Variance and standard deviation. - Bernouilli process and Binomial distribution. - Finding expected value and variance. - Modelling. 	<ul style="list-style-type: none"> - Worksheets. - Geogebra 	1, 2, 3, 4, 5, 6	
February- March	Vectors model	<ul style="list-style-type: none"> - Represent the vector equation of a straight line, the parametric equation of a straight line, the cartesian equation. - Intersection of lines. Calculate the intersection between two lines. - Angle between two intersecting lines. - Calculate the distance between parallel lines. - Calculate the coordinates of the perpendicular projection of a point to a line. - Find the velocity vector of a moving object and the speed of the object. 	<ul style="list-style-type: none"> - Worksheets - Geogebra 	1, 2, 3, 4, 5, 6, 7	<ul style="list-style-type: none"> - Homework - Classwork - Test

April	Functions: Logarithmic and exponential functions	<ul style="list-style-type: none"> - Revision of exponential functions. - Introduction to logarithmic functions. - Properties of these functions. - Solve equations and inequalities - Differential equation of first and second order. $\lambda \alpha^x, \alpha \in \mathbb{R}_{>0}, \alpha \neq 1$ and λe^{ax+b} , $\lambda \log_{\alpha}(ax + b) + c \forall \alpha \in \mathbb{R}_{>0}, \alpha \neq 1,$	<ul style="list-style-type: none"> - Geogebra - Worksheets 	1, 2, 3, 4, 5, 6, 7, 8	<ul style="list-style-type: none"> - Homework - Classwork
May	Complex number	<ul style="list-style-type: none"> - Introduction to complex numbers. 	<ul style="list-style-type: none"> - Worksheets. - Geogebra. - Bingo game. 	1, 2, 3, 4, 5, 6	Homework/Classwork Test
May	Sequences	<ul style="list-style-type: none"> - Introduction of sequences. - Explores well known sequences. - Defining sequences recursively. - Increase and decreasing sequences. - Limits 			

* Link to 8 key competences:

1. Literacy (reading and writing)
2. Multilingualism
3. Mathematics, Science, Technology and Engineering
4. Digital
5. Personal, Social and Learning to Learn
6. Citizenship
7. Entrepreneurship
8. Cultural Awareness and Expression