

CLIL Lesson Plan 1**Aim:**

To develop in students, the Mathematical Analysis to understand sequences.

Objectives:

Upon completion of this lesson, students will:

- have been introduced to sequences
- have learned the terminology used with sequences
- have experimented with creating and representing sequences

Teaching Objectives	
Content	
• Sequences • Finite/infinite sequences • Alternating, increasing, decreasing and periodic sequences • Nth term • Linear sequences	
Cognition	
• Describe sequences in everyday life. • Identify different types of sequences. • Calculate terms in a sequence • Create a spreadsheet for calculating and representing sequences. • Explain and understand the different uses of computers. • Compare sequences with linear functions.	

Communication
• Using specialized vocabulary and symbols, to express mathematical ideas precisely. • Spreadsheet vocabulary. • Representing, discussing, reading, writing, and listening to mathematics • Express a general term in words and symbols
Culture/Citizenship
• Identify sequences in real life • Maths in literature • Understand the application of mathematics to real life • Common legends • The importance of being regular at work

Learning outcomes

- To understand that, when they are enumerated, for example, the months of the year, a link is established between them and the set of the natural numbers.
- To observe as the numerical models sometimes they allow us to describe phenomena such as numbers of houses, days of the week...
- To follow the reasoning to go so far as to deduce the general term of a sequence as the mathematical expression that relates the position that occupies a term in the sequence with its value.
- To observe how the terms of a sequence are represented graphically.

Assessment

- Questioning in classroom to ensure an objective assessment.
- Revision of the activities, tidiness, orders...
- Participation of student in the class.
- Use and share feedback with students.

CLIL Lesson Plan 2**Aims:**

To develop in students the Mathematical Analysis to understand sequences and recurrence.

Objectives:

Upon completion of this lesson, students will:

- have been introduced to recurrence
- have learned the terminology used with sequences
- have experimented with creating and representing sequences (Fibonacci)
- solve practical problem, including writing the first n terms, finding the n th term, and evaluating summation formulas

Teaching Objectives
Content
• Recurrent sequences • Fibonacci sequence • Nth term • Arithmetic and geometric progressions • Number phi
Cognition
• Calculate terms in a sequence • Creating a spreadsheet for calculating and representing sequences. • Explaining and understand the different uses of computers. • Comparing sequences with functions. • To use the recursive process to generate sequences and series. Representing, analysing, and generalizing patterns, including arithmetic sequences and geometric sequences

Communication
• Using specialized vocabulary and symbols, to express mathematical ideas precisely. • Discussing strategies • Describing a process • Reading comprehension • Analysing results and writing • Describing a picture
Culture/Citizenship
• Understand the application of mathematics to real life principles both natural and man-made. • Maths in literature • Understand some of the history of mathematics and who made it what it is today. • The importance of being regular at work

Learning outcomes

- Generate terms of a sequence (paper or ICT)
- Generate sequences from practical contexts
- Find the next term and nth term of sequences
- Plot graphs of linear functions
- Discuss/interpret graphs arising from real life situations
- Write the nth term of arithmetic and geometric sequences

Assessment

- Questioning in classroom to ensure an objective assessment.
- Revision of the activities, tidiness, orders...
- Participation of student in the class.
- Use and share feedback with students.

CLIL Lesson Plan 3**Aims:**

To develop in students, the Mathematical Analysis to understand sequences and series.

Objectives:

Upon completion of this lesson, students will:

- apply the properties of arithmetic and geometric sequences and series
- have learned the terminology used with series
- have experimented with creating and representing progressions
- solve practical problem, including writing the first n terms, finding the n th term, and evaluating summation formulas.

Teaching Objectives	
Content	• Arithmetic Progressions • Common difference • Linear functions, domain • Arithmetic series • Geometric Progressions • Exponential function • Geometric series • Finite and infinite sum • Present value and compound interest
Cognition	• Representing, analysing, and generalizing patterns, including arithmetic sequences and geometric sequences • Create a spreadsheet for calculating and representing sequences. • Using tables, graphs and rules in order to investigate and describe sequences and series.

Communication
• Expressing a general term in words. • Discussing strategies • Describing a process • Reading comprehension • Analysing results and writing
Culture/Citizenship
• Understand the application of mathematics to real life principles both natural and man-made. • Maths in literature • Understand some of the history of mathematics and who made it what it is today. • Zeno's paradox • Currency • The importance of being regular at work

Learning outcomes

- To follow the reasoning to go so far as to deduce the general term of a progression as the mathematical expression that relates the position that occupies a term in the sequence with its value.
- To observe how the terms of a progression are represented graphically. Identification and defining of arithmetic and geometric sequences.
- Determining and describing the n th term of arithmetic and geometric sequences.
- Generating sequences from practical contexts.

Assessment

- Questioning in classroom to ensure an objective assessment.
- Revision of the activities, tidiness, orders...
- Participation of student in the class.
- Use and share feedback with students.