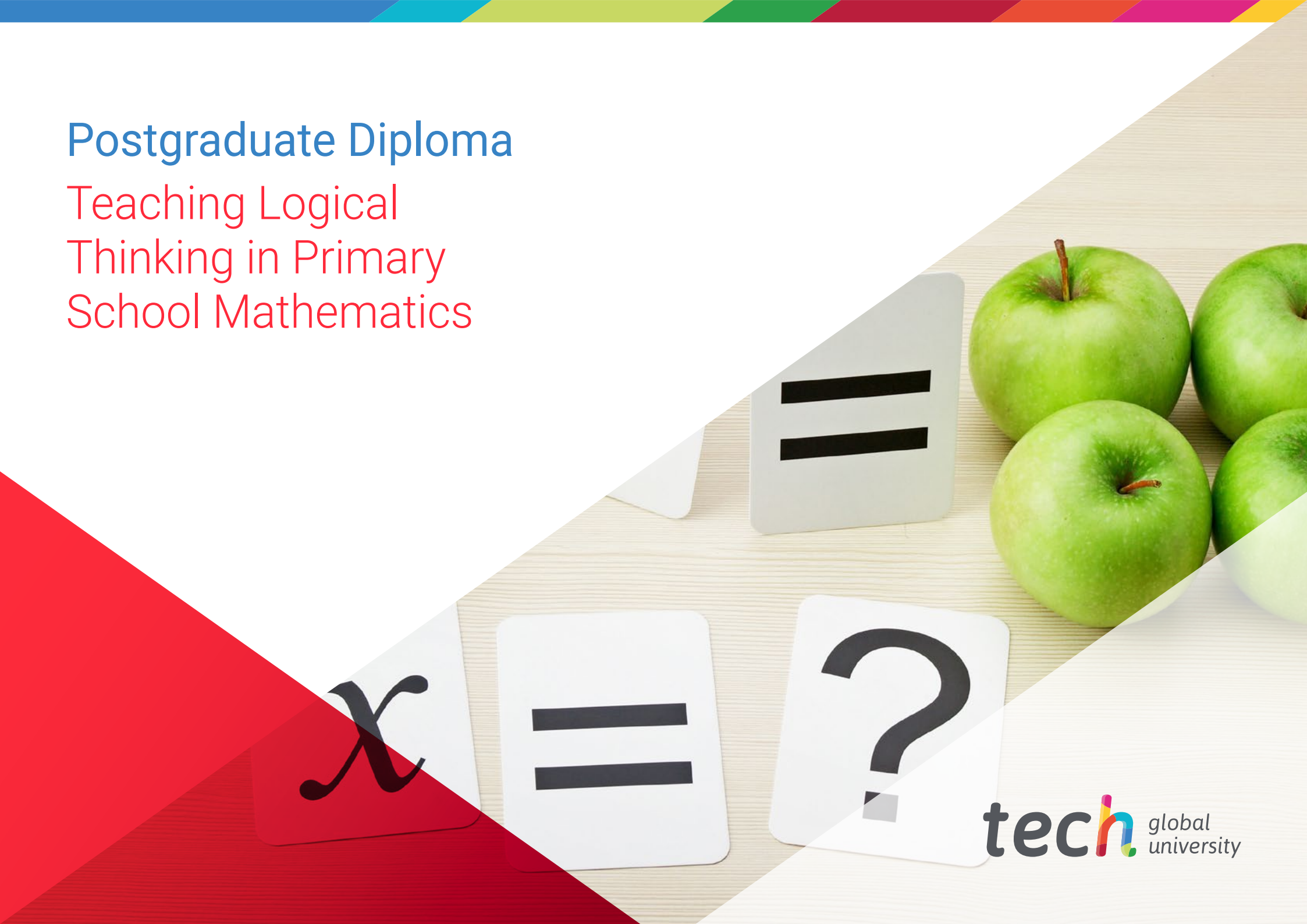
Postgraduate Diploma

Teaching Logical Thinking in Primary School Mathematics



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Postgraduate Diploma

Teaching Logical Thinking in Primary School Mathematics

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **18 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/education/postgraduate-diploma/postgraduate-diploma-teaching-logical-thinking-primary-school-mathematics

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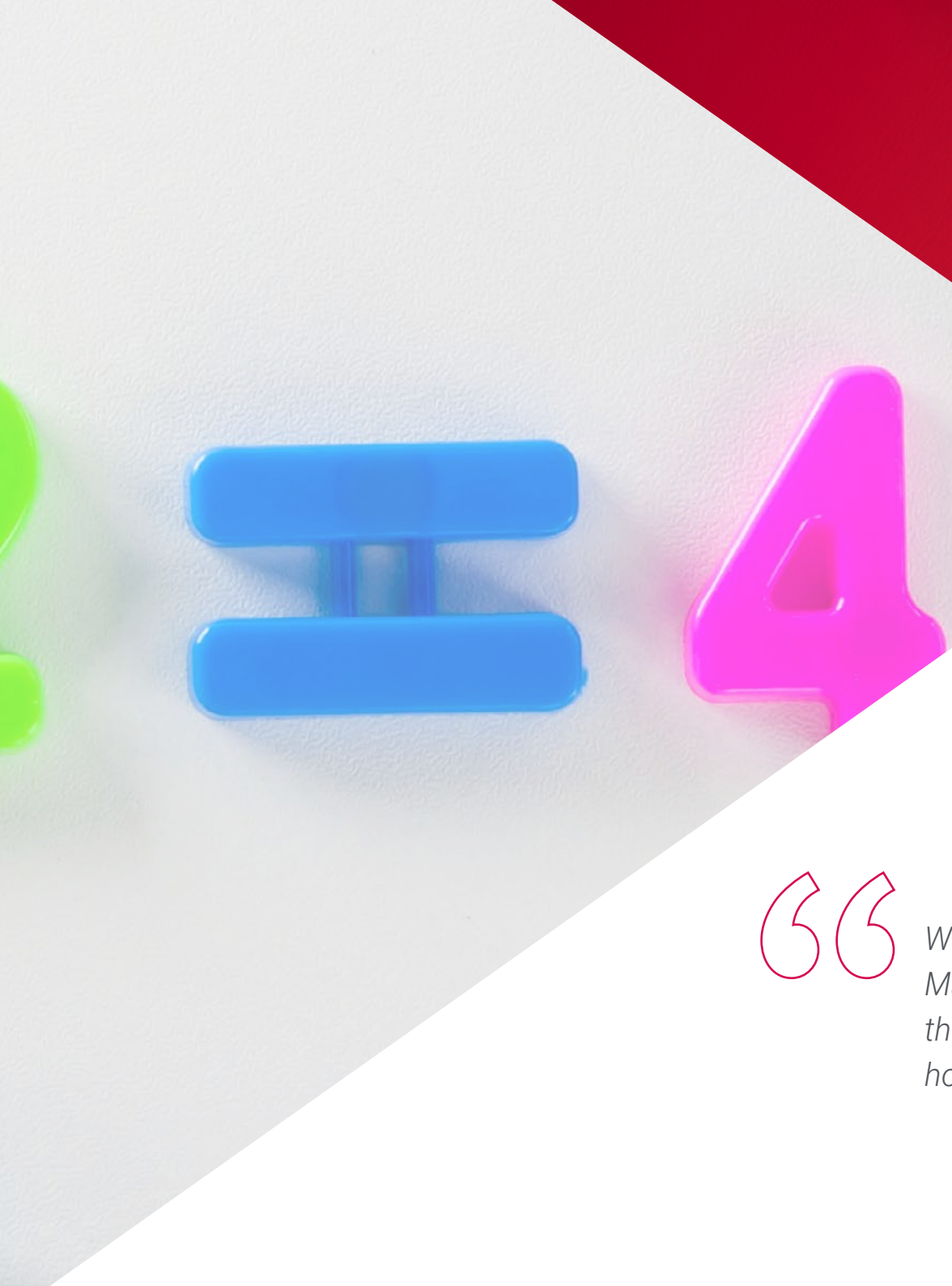
Introduction

Purely rote learning is a thing of the past. The different educational trends that have emerged in recent years have determined that learning through logical thinking, especially in children, is very beneficial for their cognitive development, since it not only allows them to master the concepts of a particular area, but also gives them the soft skills they will need to manage other aspects of life: teamwork, reasoning, perseverance, problem solving, etc. With this in mind, TECH has designed a comprehensive program that focuses on the teaching of Logical Thinking in Primary School Mathematics. Thus, in just 6 months of 100% online professional development, the teacher will be able to explore the latest methodologies for gamified, dynamic and interactive education in today's classroom.



Would you like to revolutionize Primary School Mathematics teaching? If the answer is yes, this program is the perfect opportunity to learn how to achieve it. Are you going to let it go?"

The American writer Joseph Wood Krutch described logic as "the art of being wrong with confidence". It is an abstract concept and different philosophical movements have determined that it refers to the coherent development of things whose conclusion may vary according to the attention given to the procedure. As mathematicians know, knowledge of a formula does not determine that the operation is correct, since the slightest error can completely change the result. Thus, new educational trends place more value on knowledge, mastery of techniques and reasoning why an operation is performed in a certain way, since, according to experts, this will contribute to cognitive development that, after intensive practice, will allow students to achieve their objectives.

TECH has designed an innovative, comprehensive and multidisciplinary program through which teachers will be able to catch up on the latest academic trends around the world, so that they can apply a range of strategies in Primary Education. For this purpose, they will have 450 hours of the best theoretical, practical and supplementary content with which they can explore topics such as logical-mathematical thinking, the gamification of algebra, arithmetic, geometry and measurement for dynamic learning or the different methodologies for the practice of cognitive skills through the involvement and active participation of the student in problem solving.

All this over 6 months of 100% online study in which, in addition to having access to the most comprehensive syllabus, they will be able to make use of hours of varied supplementary material: detailed videos, research articles, complementary readings, news, self-knowledge exercises, dynamic summaries, etc. In addition, the entire content can be downloaded to any device with an Internet connection, guaranteeing access to the program even when there is no Internet coverage. This way students can plan the experience based on their availability, without having to worry about face-to-face classes or restricted schedules and contributing to the advancement of teaching through the most innovative didactic methodologies.

This **Postgraduate Diploma in Teaching Logical Thinking in Primary School Mathematics** contains the most complete and up-to-date program on the market. The most important features include:

- The examination of practical cases presented by experts in Mathematics teaching
- Graphic, schematic and practical contents which provide technical and practical information on those disciplines that are essential for professional practice
- Practical exercises where self-assessment can be carried out to improve learning
- A special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

Explore the most innovative teaching methodologies through 450 hours of diverse and 100% online content"

In addition to updating your teaching skills, you can also get up to speed on the most effective and straightforward assessment strategies in today's academic environment"

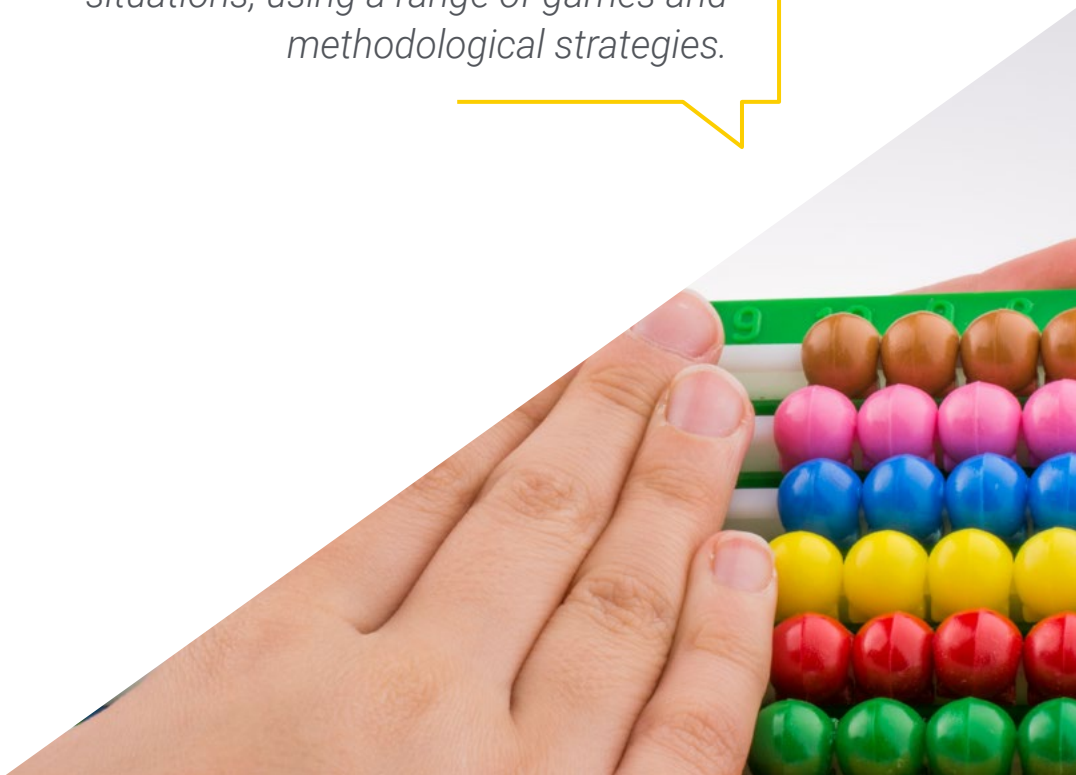
The best program on the academic market to learn the most effective teaching techniques to enhance the arithmetic skills of students from 6 to 13 years of age.

You will be able to put your skills into practice in different educational situations, using a range of games and methodological strategies.

The program's teaching staff includes professionals from the sector who pour their professional experience into this program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive learning designed for real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to resolve the different professional practice situations that arise during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.



02

Objectives

TECH and its team of experts in Primary Education have designed this multidisciplinary program with the aim of bringing students up to date on the methodological trends that are leading the way in Mathematics teaching. Thus, in just 6 months of 100% online instruction, you will be able to update your skills through the knowledge and mastery of the most effective strategies for the promotion of logical thinking in children between 6 and 13 years of age.

By expanding your knowledge on fundamental psycho-pedagogical concepts on the construction of mathematical criteria, you will be able to enhance your teaching"

General Objectives

- Learn mathematical concepts and vocabulary appropriate for a teaching unit
- Work with and teach cardinal number sequences, through the manipulation of the appropriate material, with students knowing how to compose them and break them down into lower numbers
- Develop materials and resources to work on problems in the classroom

The program includes a section focused on seriation games, which will help you to enable the resolution of logical operations through the construction of linear schemes"

Specific Objectives

Module 1. Mathematical Logical Thinking in Pre-school Education

- Understand the development of logical-mathematical thinking within the Pre-school and Primary School Education curriculum
- Ensure that the children learn to deduce logically, to argue and to draw conclusions from the situations they are presented with
- Learn to work with different learning techniques

Module 2. Arithmetic, Algebra, Geometry and Measurement Games with Numbers

- Be able to plan different games and activities
- Encourage enthusiastic participation in different types of games, regulate behavior and harness excitement to achieve learning objectives
- Help students learn to count, to become familiar with numbers, to distinguish cardinal and ordinal numbers

Module 3. Methodology and Classroom Based Learning in the Primary School Classroom Students with Adaptations

- Be able to use evaluation criteria
- Build knowledge of different types of methodologies such as Core Standards, EntusiasMat, Jump Math y ABN

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Course Management

TECH attaches great importance supporting teachers in each of its programs, especially those related to education. Hence, for this Postgraduate Diploma it has selected a high-level faculty composed of specialists with expertise in Primary School Mathematics teaching, as well as in other areas such as Psychology or Pedagogy for children. In this way, graduates will be able to keep abreast of the latest educational developments, led by leading figures in this field, making this program a dynamic and highly empowering experience.

You will have the support of a top-level teaching team made up of experts in Education, Psychology and Pedagogy, so that you can benefit from different perspectives on the learning of Primary School Mathematics"

International Guest Director

Doctor Noah Heller is a leading professional in the field of **Education**, specializing in the teaching of **Mathematics** and **Science**. With a focus on **teaching innovation,** he has dedicated his career to improving **educational practices in the K-12 system**. In addition, his main interests include the **professional development of teachers** and the creation of **teaching strategies** to improve the understanding of **Mathematics**, in **Primary** and **High School** students, through **innovative didactic approaches**.

Throughout his career, he has held positions of great relevance, for example, as **Faculty Chair** of the **Leadership Institute** at the Harvard **Graduate School of Education**. He has also directed the **"Master Math for America" Teacher Fellowship Program**, where he has overseen the instruction and expansion of a program that has impacted over 700 math and **science** teachers in **New York** City, working closely with senior **mathematics and science professionals.**

At the same time, he has collaborated as a researcher in several publications on the **teaching of mathematics** and **new didactics** applied to **primary education**. He has also given conferences and seminars in which he has promoted **pedagogical approaches** that encourage critical thinking in students, making mathematics teaching a dynamic and accessible process.

Internationally, Dr. Noah Heller has been recognized for his ability to implement innovative strategies in **STEM education.** In fact, his leadership in **"Master Math for America"** has positioned him as a key figure in teacher training, receiving accolades for his ability to connect academia with classroom practice. His work has also been instrumental in the creation of one of the most prestigious **professional development programs in education.**

Dr. Heller, Noah

- Faculty Chair at the Harvard Graduate School of Education, Cambridge, United Kingdom
- Director of the "Master Math for America" Teacher Fellowship Program
- Doctor of Philosophy from New York University
- B.S. in Science, Physics and Mathematics from The Evergreen State College

Thanks to TECH, you will be able to learn with the best professionals in the world"

Management

Ms. Delgado Pérez, María José

- Secondary and high school mathematics, technology, programming, robotics, biology, plastic arts, physics and chemistry teacher
- Master's Degree in Educational Center Management and Administration
- Leadership and management in Primary School, Middle School and High School
- Graduate in teaching with a specialization in English
- Industrial Engineer

Professors

Ms. Hitos, María

- Early Childhood and Primary School Teacher, with experience in Mathematics
- Pre-school English Coordinator
- Language qualification in English by the Community of Madrid

Ms. Iglesias Serranilla, Elena

- Teacher of Pre-school and Primary School Education, specialization in Music
- Primary School Education First Cycle Coordinator
- Training in New Learning Methodologies

D. López Pajarón, Juan

- Secondary and High School Science Teacher
- Second Cycle Secondary School Coordinator and responsible for the center's projects
- Master's Degree in Educational Center Management and Administration
- Biologist with experience in the field of environmental conservation

Ms. Soriano de Antonio, Nuria

- Philologist Specialist in Spanish Language and Literature
- Master's Degree in High School Education and Vocational Training from the Alfonso X el Sabio University
- Master's Degree in Spanish for Foreigners
- Expert in Educational Center Management and Administration
- Expert in Didactics of Spanish
- Degree in Hispanic Philology from the Complutense University of Madrid

Ms. Vega, Isabel

- Primary School Education teacher specialized in Special Education Mathematics teaching
- Primary School Education Cycle Coordinator

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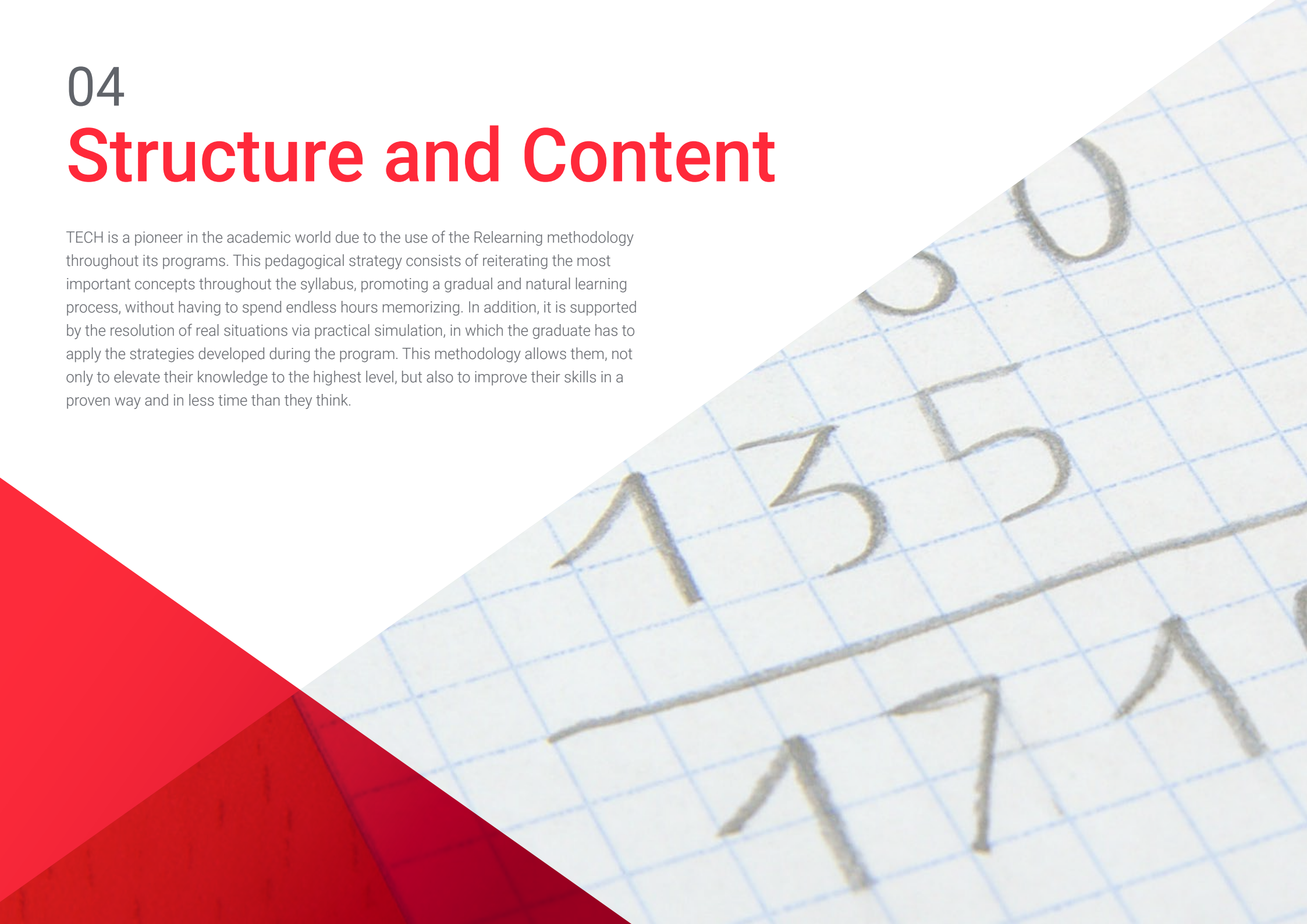
Structure and Content

TECH is a pioneer in the academic world due to the use of the Relearning methodology throughout its programs. This pedagogical strategy consists of reiterating the most important concepts throughout the syllabus, promoting a gradual and natural learning process, without having to spend endless hours memorizing. In addition, it is supported by the resolution of real situations via practical simulation, in which the graduate has to apply the strategies developed during the program. This methodology allows them, not only to elevate their knowledge to the highest level, but also to improve their skills in a proven way and in less time than they think.



You will be able to download the entire content on any device with an Internet connection, so that you can access it even after you have completed the program"

Module 1. Logical Mathematical Thinking in Pre-school Education

1.1. Logical-Mathematical Thinking
- 1.1.1. What is Mathematical Logic?
- 1.1.2. How is Mathematical Knowledge Acquired?
- 1.1.3. The Formation of Logical-Mathematical Concepts at an Early Age
- 1.1.4. Mathematical Concepts
- 1.1.5. Characteristics of Logical-Mathematical Thinking

1.2. Training Logical-Mathematical Development Skills
- 1.2.1. Cognitive Development (Piaget)
- 1.2.2. Evolutionary Stages
- 1.2.3. Division of Thought in Knowledge (Piaget)
- 1.2.4. Evolution of Logical-Mathematical Knowledge
- 1.2.5. Physical Knowledge vs. Logical-Mathematical Knowledge
- 1.2.6. Knowledge of Space and Time

1.3. Development of Logical-Mathematical Thinking
- 1.3.1. Introduction
- 1.3.2. Knowledge and Reality
- 1.3.3. Development of Mathematical Knowledge
- 1.3.4. Development of Logical Thinking by Age
- 1.3.5. Components of Logical Development
- 1.3.6. Mathematical Language
- 1.3.7. Logical-Mathematical Development and Core Curriculum

1.4. Psychopedagogical Foundations in the Construction of Mathematical Knowledge
- 1.4.1. Sensorimotor Intelligence
- 1.4.2. Formation of Objective Symbolic Thinking
- 1.4.3. Formation of Concrete-Logical Thinking
- 1.4.4. Reasoning and its Types
- 1.4.5. Bloom's Taxonomy in the Development of Logical-Mathematical Thinking

1.5. Logical-Mathematical Learning I
- 1.5.1. Introduction
- 1.5.2. Structuring of the Body Scheme
  - 1.5.2.1. Body Concept
  - 1.5.2.2. Body image
  - 1.5.2.3. Postural Adjustment
  - 1.5.2.4. Coordination

1.6. Notions of Order
- 1.6.1. Comparison
- 1.6.2. Correspondence
- 1.6.3. Quantifiers
- 1.6.4. Quantity Conservation
- 1.6.5. Sets or Groupings
- 1.6.6. Formation of Sets
- 1.6.7. Numerical Cardinality
- 1.6.8. The Number Concept
- 1.6.9. Comparison of Sets
- 1.6.10. Set Equivalence
- 1.6.11. Recognition of Natural Numbers
- 1.6.12. Ordinal Numbers
- 1.6.13. Mathematical Operations: Addition and Subtraction

1.7. Pre-Numerical Knowledge: Classification
- 1.7.1. What is Classification?
- 1.7.2. Processes
- 1.7.3. Types of Classification
- 1.7.4. Cross Classifications
- 1.7.5. Classification Games

1.8. Seriation Games
- 1.8. 1 Importance of Making Series
- 1.8.2. Logical Operations in the Construction of Series
- 1.8.3. Types of Series
- 1.8.4. Seriation in Pre-school Education
- 1.8.5. Seriation Games

1.9. Pre-Numerical Knowledge: Enumeration
- 1.9.1. Conceptualization and Function of Enumeration
- 1.9.2. Logical Operations Involved in Enumeration
- 1.9.3. Enumeration in Pre-school Education Design of Activities
- 1.9.4. Design of Activities
- 1.9.5. Task-Based Achievements

1.10. Representation and Manipulative Mathematics
- 1.10.1. Development of Logical-Mathematical Thinking Through the Senses
- 1.10.2. Representation, Visualization and Reasoning
- 1.10.3. Design of Activities Supported by Representation
- 1.10.4. Manipulative Mathematics: Functions and Resources
- 1.10.5. Design of Activities that Rely on Manipulation

Module 2. Arithmetic, Algebra, Geometry and Measurement Games with Numbers

2.1. Initiation to Number
- 2.1.1. Number Concept
- 2.1.2. Construction of the Number Structure
- 2.1.3. Numerical Development: Counting
  - 2.1.3.1. Phases in Learning the Numerical Sequence
    - 2.1.3.1.1. Rope or String Level
    - 2.1.3.1.2. Unbreakable Chain Level
    - 2.1.3.1.3. Breakable Chain Level
    - 2.1.3.1.4. Numerable Chain Level
    - 2.1.3.1.5. Bidirectional Chain Level
- 2.1.4. Counting Principles
  - 2.1.4.1. One-to-one Correspondence Principle
  - 2.1.4.2. Stable Order Principle
  - 2.1.4.3. Cardinality Principle
  - 2.1.4.4. Abstraction Principle
  - 2.1.4.5. Irrelevance of Order Principle
- 2.1.5. Procedures used by the Child in Counting
  - 2.1.5.1. Term to Term Correspondence
  - 2.1.5.2. Subset to Subset Correspondence
  - 2.1.5.3. Purely Visual Estimation
  - 2.1.5.4. Subitizing
  - 2.1.5.5. Count the Elements of a Collection
  - 2.1.5.6. Recount
  - 2.1.5.7. Discount
  - 2.1.5.8. Overcount
  - 2.1.5.9. Calculation Procedures
- 2.1.6. Fundamental Cardinal and Ordinal Situations
- 2.1.7. The Importance of Zero
- 2.1.8. Strategies to Enhance the Concept and Use of Number

2.2. Number Acquisition Process I
- 2.2.1. Introduction
- 2.2.2. Number Concept
  - 2.2.2.1. Perception of General Quantities
  - 2.2.2.2. Distinguishing and Comparing Quantities of Objects
  - 2.2.2.3. Uniqueness Principle
  - 2.2.2.4. Generalization
  - 2.2.2.5. Summative Action
  - 2.2.2.6. Capture of Named Quantities
    - 2.2.2.6.1. Oral Numeric Series
    - 2.2.2.6.2. Counting Objects
    - 2.2.2.6.3. Cardinal Representation
    - 2.2.2.6.4. Compare Magnitudes
  - 2.2.2.7. Name Identification with its Representation
  - 2.2.2.8. Invariability of Named Quantities
- 2.2.3. From Experimental Psychology
  - 2.2.3.1. Distance Effect
  - 2.2.3.2. Size Effect Numerical Spatial Arrangement

2.2.4. From Developmental Psychology
2.2.4.1. Behavioral, Cognitive and Constructivist Theory
2.2.4.1.1. Exercise Law
2.2.4.1.2. Law of Effect
2.2.5. Theories on the Process of Number Acquisition
2.2.6. Piaget
2.2.6.1. Stages
2.2.6.2. Requirements for the Understanding of the Notion of Number
2.2.7. Dienes
2.2.7.1. Principles
2.2.7.1.1. Dynamic Principle
2.2.7.1.2. Constructive Principle
2.2.7.1.3. Economic Variability Principle
2.2.7.1.4. Constructive Variability Principle
2.2.7.2. Stages
2.2.7.2.1. Free Play
2.2.7.2.2. Game with Rules
2.2.7.2.3. Isomorphic Games
2.2.7.2.4. Representation
2.2.7.2.5. Description
2.2.7.2.6. Deduction
2.2.8. Mialaret
2.2.8.1. Stages
2.2.8.1.1. Action Itself
2.2.8.1.2. Action Accompanied by Language
2.2.8.1.3. Conduct of the Narrative
2.2.8.1.4. Application of the Story to real Situations
2.2.8.1.5. Graphical Expression of the Actions already Reported and Represented
2.2.8.1.6. Symbolic Translation of the Studied Problem
2.2.9. Information Processing
2.2.9.1. Numerical Apprehension Model
2.2.9.2. Pre-linguistic Numerical Skills
2.2.10. Counting Principles (Gelman and Gallistel)
2.2.10.1. Biunivocal Correspondence Principle
2.2.10.2. Stable Order Principle
2.2.10.3. Cardinality Principle
2.2.10.4. Abstraction Principle
2.2.10.5. Inconsequence of Order Principle
2.2.11. Comparison of Counting Principles between Piaget's, Gelman's and Gallistel's Theory
2.3. Informal Arithmetic I
2.3.1. Introduction
2.3.2. Towards an Informal and Intuitive Arithmetic in Pre-school Education
2.3.2.1. Recognize Quantities
2.3.2.2. Relate Quantities
2.3.2.3. Operate Quantities
2.3.3. Objectives
2.3.4. Early Arithmetic Skills
2.3.4.1. Preservation of Inequality
2.3.5. Arithmetic Skills and Chants
2.3.5.1. Preliminary Considerations
2.3.5.1.1. Socio-Cognitive Conflict
2.3.5.1.2. Role of the Language
2.3.5.1.3. Creation of Contexts
2.3.5.2. Procedures and Mastery of the Chants
2.4. Informal Arithmetic II
2.4.1. Memorization of Numerical Facts
2.4.1.1. Activities to Work on Memorization
2.4.1.2. Domino
2.4.1.3. Hopscotch
2.4.2. Didactic Situations for the Introduction of Addition
2.4.2.1. Dialed Number Game
2.4.2.2. Race to 10
2.4.2.3. Christmas Greeting

2.5. Basic Arithmetic Operations
- 2.5.1. Introduction
- 2.5.2. Additive Structure
  - 2.5.2.1. Phases of Mialaret
    - 2.5.2.1.1. Approach Through Manipulation
    - 2.5.2.1.2. Action Accompanied by Language
    - 2.5.2.1.3. Mental Work Supported by Verbalization
    - 2.5.2.1.4. Purely Mental Work
- 2.5.2.2. Strategies to Add
- 2.5.2.3. Initiation to Subtraction
- 2.5.2.4. Addition and Subtraction
  - 2.5.2.4.1. Direct and Object Modeling
  - 2.5.2.4.2. Counting Sequences
  - 2.5.2.4.3. Recalled Numeric Data
  - 2.5.2.4.4. Strategies to Add
  - 2.5.2.4.5. Subtraction Strategies
- 2.5.3. Multiplication and Division
- 2.5.4. Arithmetic Problem-Solving
  - 2.5.4.1. Addition and Subtraction
  - 2.5.4.2. Multiplications and Divisions

2.6. Space and Geometry in Pre-school Education
- 2.6.1. Introduction
- 2.6.2. Objectives Proposed by the NCTM
- 2.6.3. Psychopedagogical Considerations
- 2.6.4. Recommendations for Teaching Geometry
- 2.6.5. Piaget and his Contribution to Geometry
- 2.6.6. Van Hiele Model
  - 2.6.6.1. Levels
    - 2.6.6.1.1. Visualization or Recognition
    - 2.6.6.1.2. Analysis
    - 2.6.6.1.3. Sorting and Classification
    - 2.6.6.1.4. Rigor
  - 2.6.6.2. Learning Phases
    - 2.6.6.2.1. Phase 1: Consultancy
    - 2.6.6.2.2. Phase 2: Directed Guidance
    - 2.6.6.2.3. Phase 3: Explication
    - 2.6.6.2.4. Phase 4: Guidance
    - 2.6.6.2.5. Phase 5: Integration
- 2.6.7. Geometry Types
  - 2.6.7.1. Topological
  - 2.6.7.2. Projective
  - 2.6.7.3. Metrics
- 2.6.8. Visualization and Reasoning
  - 2.6.8.1. Spatial Orientation
  - 2.6.8.2. Spatial Structuring
  - 2.6.8.3. Gálvez and Brousseau
    - 2.6.8.3.1. Microspace
    - 2.6.8.3.2. Mesospace
    - 2.6.8.3.3. Macrospace

2.7. Magnitudes and their Measurement
- 2.7.1. Introduction
- 2.7.2. Construction of the Notion of Magnitude in the Child
  - 2.7.2.1. Piagetian Phases in the Construction of Magnitudes
    - 2.7.2.1.1. Consideration and Perception of a Magnitude
    - 2.7.2.1.2. Conservation of Magnitude
    - 2.7.2.1.3. Ordering with Respect to Magnitude
    - 2.7.2.1.4. Correspondence of Numbers to Quantities of Magnitude
  - 2.7.2.2. Stages in the Construction of the Measure
    - 2.7.2.2.1. Direct Perceptual Comparison
    - 2.7.2.2.2. Displacement of Objects
    - 2.7.2.2.3. Operability of the Transitive Property

2.7.2.3. Stages in the Teaching-Learning of Magnitudes
2.7.2.3.1. Sensory Stimulation
2.7.2.3.2. Direct Comparison
2.7.2.3.3. Indirect Comparison
2.7.2.3.4. Choice of Unit
2.7.2.3.5. Irregular Measurement System
2.7.2.3.6. Regular Measurement System
2.7.3. Measuring Magnitudes
2.7.4. Length Measurement
2.7.5. Length Measurement
2.7.6. Measurement of Capacity and Volume
2.7.7. Measurement of Time
2.7.8. Phases of the Different Magnitudes
2.7.8.1. Preparation Phase
2.7.8.2. Measurement Practice Phase
2.7.8.3. Consolidation Phase of Techniques and Concepts
2.8. Play in Pre-school Education
2.8.1. Introduction
2.8.2. Objectives
2.8.3. Game Features
2.8.4. Evolution of the Game
2.8.4.1. Types of Games
2.8.4.1.1. Functional Game
2.8.4.1.2. Imitation or Symbolic Play
2.8.4.1.3. Game with Rules
2.8.4.1.4. Construction Game
2.8.5. Chance and Strategy
2.8.6. Competition in the Games
2.8.7. Didactic Considerations on the Game
2.9. Didactic Resources of the Game
2.9.1. Games and Logical Thinking
2.9.1.1. Three in a Row
2.9.1.2. Quarto
2.9.1.3. Portrait Games
2.9.2. Quantitative Games
2.9.2.1. Number to Compare
2.9.2.1.1. Let's Go Home!!
2.9.2.2. Number to Calculate
2.9.2.2.1. Couples
2.9.2.2.2. It's Over!!
2.9.2.2.3. Cat and Mouse
2.9.3. Games and the Structure of Space
2.9.3.1. Puzzles
2.9.3.1.1. Two-Color Paintings
2.9.3.1.2. The Hex
2.10. Games in Different Spaces
2.10.1. Introduction
2.10.2. Games in the Classroom
2.10.2.1. The Butterfly Game
2.10.2.2. The Partitioning Game
2.10.2.3. Image Trains
2.10.2.4. The Newspaper
2.10.2.5. Flat Figures
2.10.2.6. The Containers
2.10.3. Psychomotor Games
2.10.3.1. Working with Sizes
2.10.3.2. Classify
2.10.3.3. We Play with the Hoops
2.10.4. Outdoor Games
2.10.5. Mathematical Games with ICT
2.10.5.1. Playing with the Turtle's Mind
2.10.5.2. Geometric Figures
2.10.5.3. For 3-Year-Old Students
2.10.5.4. Variety of Activities
2.10.5.5. Didactic Unit

Module 3. Methodology and Classroom Based Learning in the Primary School Classroom Students with Adaptations

3.1. Mathematics Curriculum in Primary School Education
- 3.1.1. General Considerations of the Primary School Education Curriculum in Spain
- 3.1.2. Mathematics Curriculum Objectives
- 3.1.3. Learning Standards
- 3.1.4. Basic Skills
- 3.1.5. Contribution of Mathematics to Skills Development
- 3.1.6. Assessment Criteria
- 3.1.7. Headings
- 3.1.8. Application of the Assessment

3.2. Didactic Methodology in Primary School Education
- 3.2.1. Introduction to Didactic Methodology in Primary School Education
- 3.2.2. Teaching Methodology for Primary School Mathematics
- 3.2.3. Didactic Methodologies of the XXI Century, Education 3.0
- 3.2.4. Methods: Which One to Choose
- 3.2.5. State - Memorize - Understand vs. Understand - State - Memorize - Apply
- 3.2.6. Metalanguage and Object Language
- 3.2.7. Competencies of the Mathematics Teacher
- 3.2.8. Educational Practice

3.3. Assessment in the Mathematics Classroom
- 3.3.1. What is Assessment?
- 3.3.2. Assessment Acroding to the Mathematics Curriculum
- 3.3.3. Learning Assessment
- 3.3.4. Assessment of the Acquisition of Key Concepts
- 3.3.5. Assessment of the Teaching Methodology
- 3.3.6. Mathematics Exam Design
- 3.3.7. Correction of Mathematics Exams
- 3.3.8. Headings
- 3.3.9. Student Self-Assessment

3.4. Errors, Difficulties and Blockages in the Teaching and Learning of Mathematics
- 3.4.1. Visual Memory
- 3.4.2. Understanding of Concepts about Magnitudes
- 3.4.3. Understanding Abstract Concepts
- 3.4.4. Reading and Interpreting Statements
- 3.4.5. Basic Operations
- 3.4.6. Multiplication Tables
- 3.4.7. Fractions
- 3.4.8. Problem-Solving
- 3.4.9. Rushing

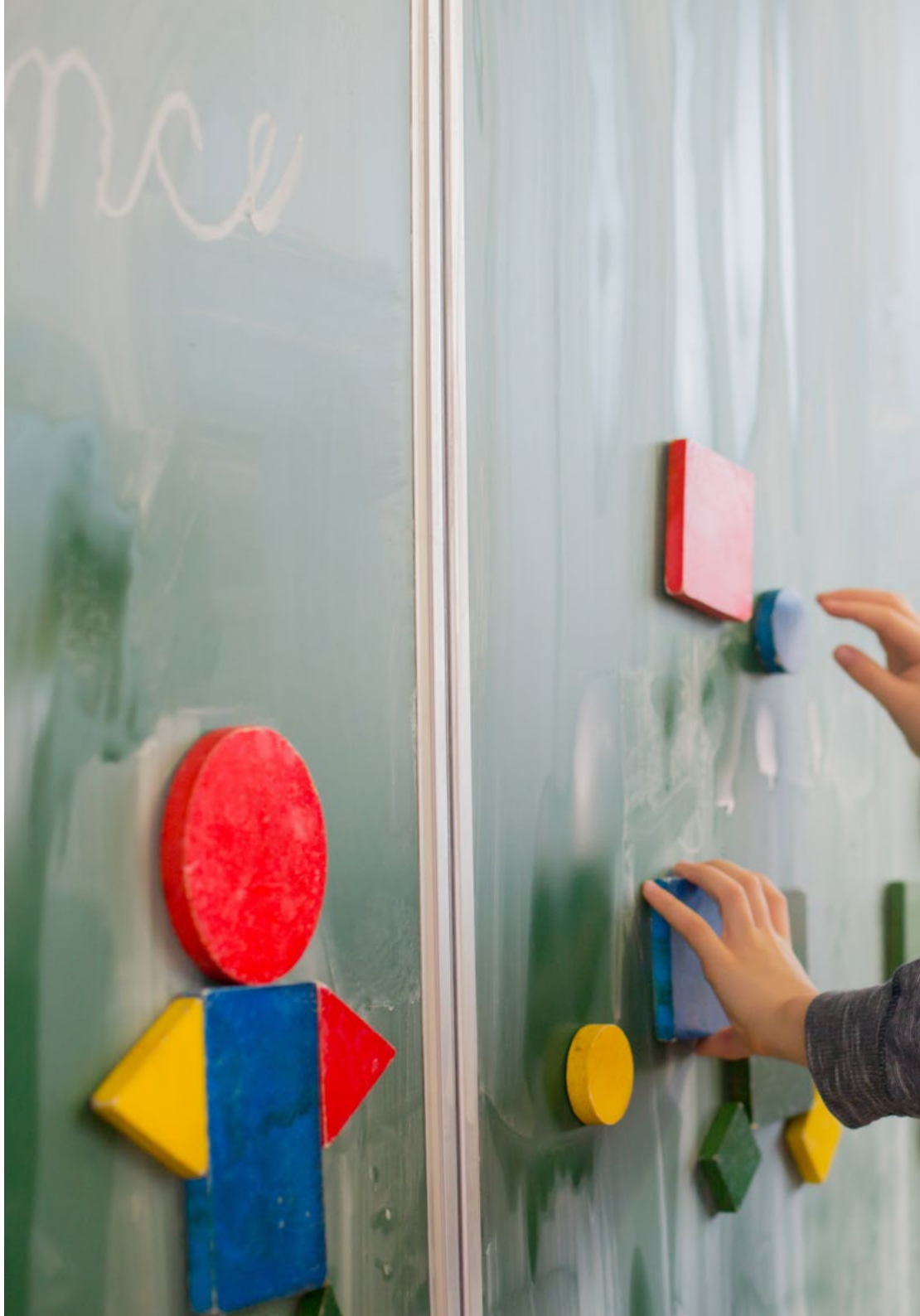
3.5. Materials and Resources for the Teaching and Learning of Mathematics
- 3.5.1. Introduction to Materials and Resources
- 3.5.2. Sense and Purpose of its Use for Learning Enhancement
- 3.5.3. Classification of Materials
- 3.5.4. Mathematics Book
- 3.5.5. Mathematics Books for All
- 3.5.6. Manipulative Materials vs. Digital Materials
- 3.5.7. Materials
- 3.5.8. Discussion on the Use of a Calculator
- 3.5.9. Audiovisual Materials

3.6. Globalized Teaching: Learning Through Projects
- 3.6.1. Brief Conceptualization
- 3.6.2. Introduction to Project-Based Learning
- 3.6.3. Requirements for Working with Mathematics using a Project Based Learning Approach
- 3.6.4. A Model Applicable to the Classroom
- 3.6.5. Project Sheets
- 3.6.6. Description of Project Objectives
- 3.6.7. Timing
- 3.6.8. Implementation
- 3.6.9. Assessment

3.7. Cooperative Work in the Mathematics Classroom
- 3.7.1. Brief Conceptualization
- 3.7.2. Requirements for Working with Mathematics through Cooperative Work
- 3.7.3. Advantages and Disadvantages in the Mathematics Classroom
- 3.7.4. Teacher facing Cooperative Work
- 3.7.5. A Model Applicable to the Classroom
- 3.7.6. Mathematics Teaching to Develop Cooperative Work
- 3.7.7. Cooperative Learning Models
- 3.7.8. Implementation of Cooperative Work
- 3.7.9. Assessment of Cooperative Work

3.8. Other Methodologies
- 3.8.1. Singapore Method
- 3.8.2. Common Core Standards Method
- 3.8.3. EntusiasMat
- 3.8.4. Jump Math
- 3.8.5. ABN
- 3.8.6. Dialogic Learning
- 3.8.7. Learning Communities: Reggio Emilia
- 3.8.8. Learning Communities: Montessori
- 3.8.9. Analysis of Methodologies

3.9. Attention to Diversity
- 3.9.1. General Principles of Attention to Diversity
- 3.9.2. Concept of Curricular Adaptation
- 3.9.3. Characteristics of Curricular Adaptations
- 3.9.4. Phases and Components of the Adaptation Process
- 3.9.5. Responding to Diversity: A Collaborative Effort
- 3.9.6. Strategies
- 3.9.7. Resources
- 3.9.8. Specific Didactic Materials
- 3.9.9. Technical Resources



3.10. Methodological Proposals for Students with Special Educational Needs
- 3.10.1. SEN in Mathematics Education
- 3.10.2. Dyscalculia
- 3.10.3. ADHD
- 3.10.4. High Abilities
- 3.10.5. Recommendations when Difficulties are due to the Nature of Mathematics Itself
- 3.10.6. Recommendations when Difficulties are due to the Methodological Organization of Mathematics
- 3.10.7. Recommendations when Difficulties are Due to Internal Student Factors
- 3.10.8. ICT for the Teaching of SEN Students
- 3.10.9. Recommended Guidelines for Algorithm Implementation

Do not think twice and opt for a Postgraduate Diploma which will not only elevate your teaching skills to the maximum, but which will enable you to offer innovative education to your students"

05

Methodology

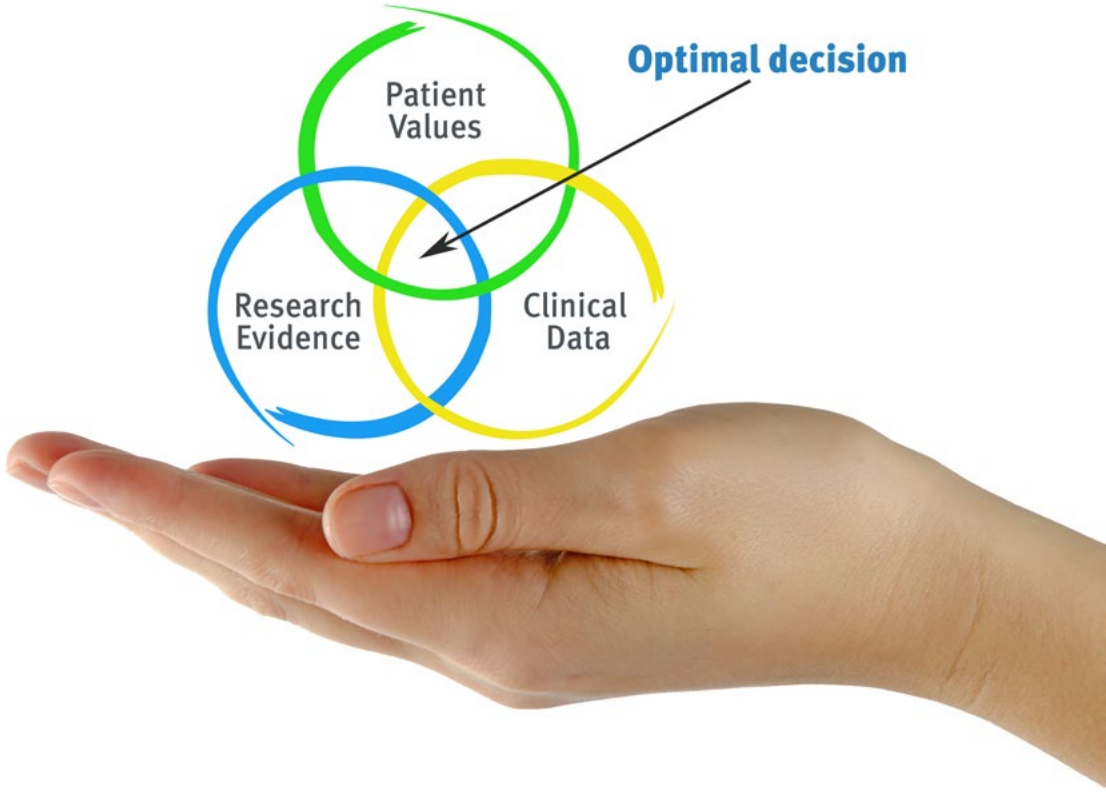
This training program offers a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH Education School we use the Case Method

In a given situation, what should a professional do? Throughout the program students will be presented with multiple simulated cases based on real situations, where they will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method.

With TECH, educators can experience a learning methodology that is shaking the foundations of traditional universities around the world.



It is a technique that develops critical skills and prepares educators to make decisions, defend their arguments, and contrast opinions.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

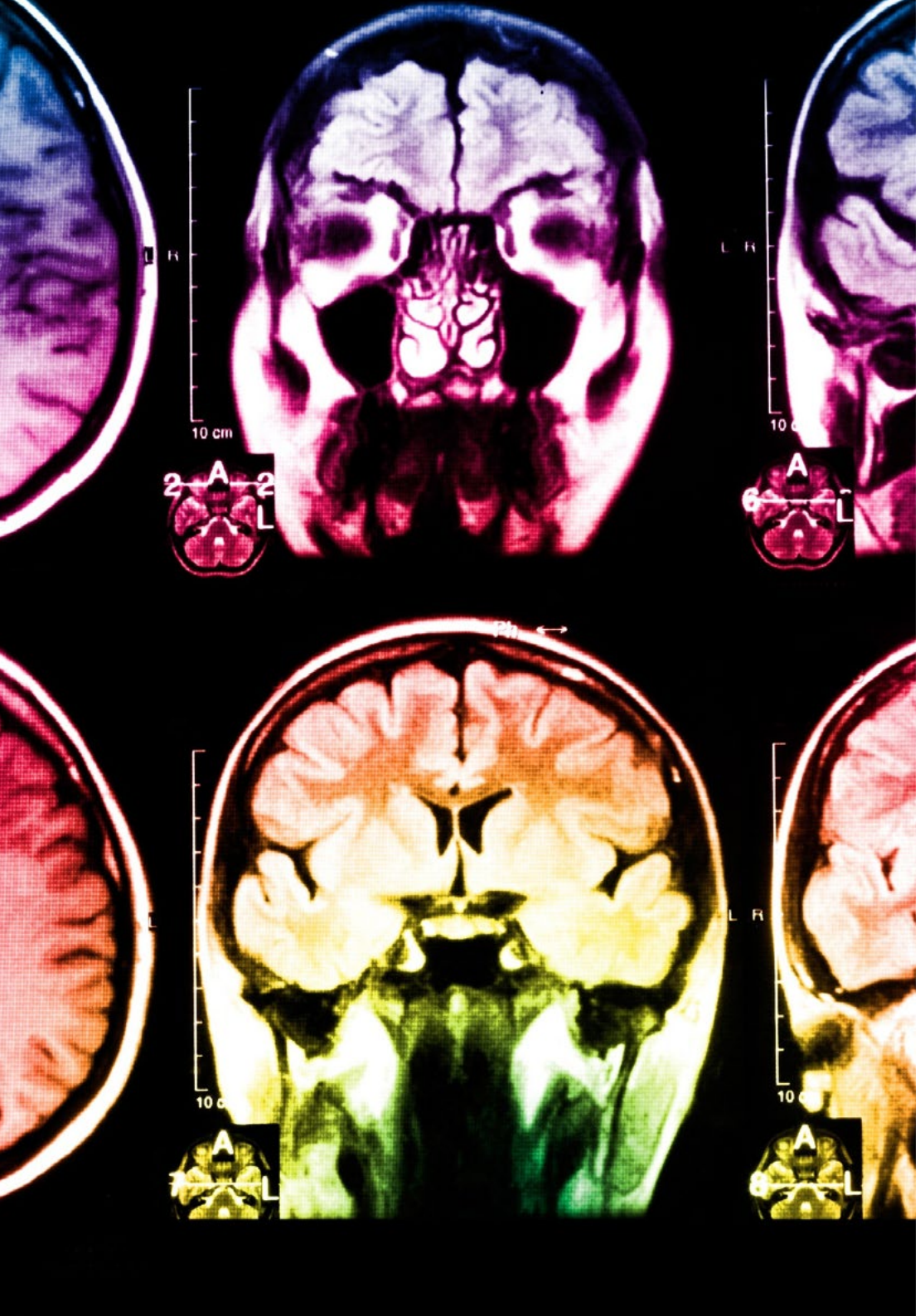
1. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life teaching.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

Our University is the first in the world to combine case studies with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.

Educators will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology we have trained more than 85,000 educators with unprecedented success in all specialties. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by our learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialist educators who teach the course, specifically for the course, so that the teaching content is really specific and precise.

These contents are then adapted in audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Educational Techniques and Procedures on Video

TECH introduces students to the latest techniques, with the latest educational advances, and to the forefront of Education. All this, first-hand, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, students can watch them as many times as they want.

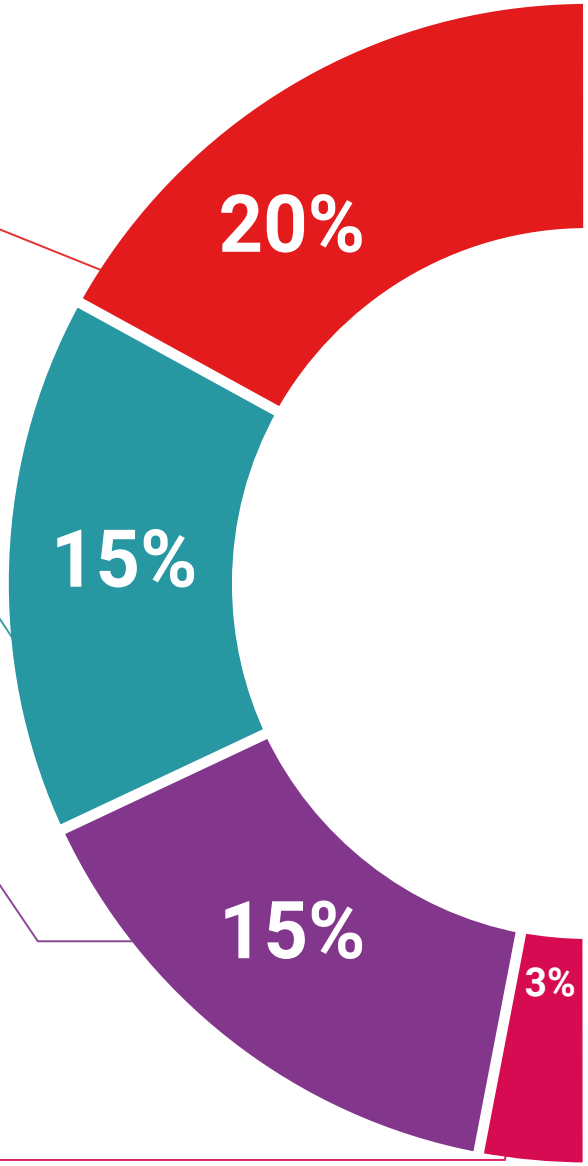
Interactive Summaries

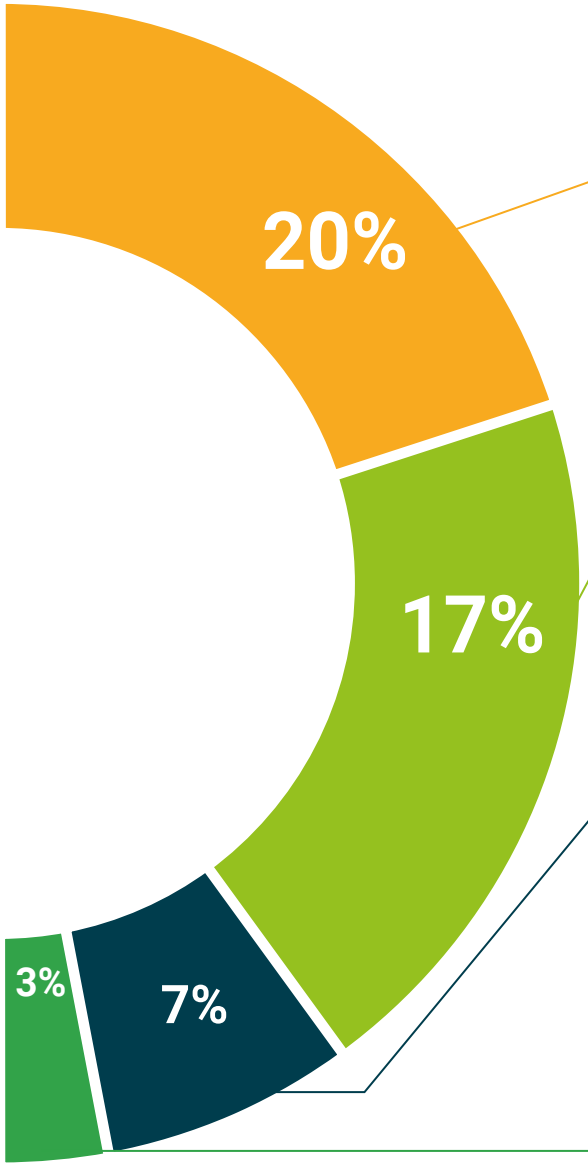
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

06

Certificate

The Postgraduate Diploma in Teaching Logical Thinking in Primary School Mathematics guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.

Successfully complete this program and receive your Postgraduate Diploma without having to travel or fill out laborious paperwork"

This program will allow you to obtain your **Postgraduate Diploma in Teaching Logical Thinking in Primary School Mathematics** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

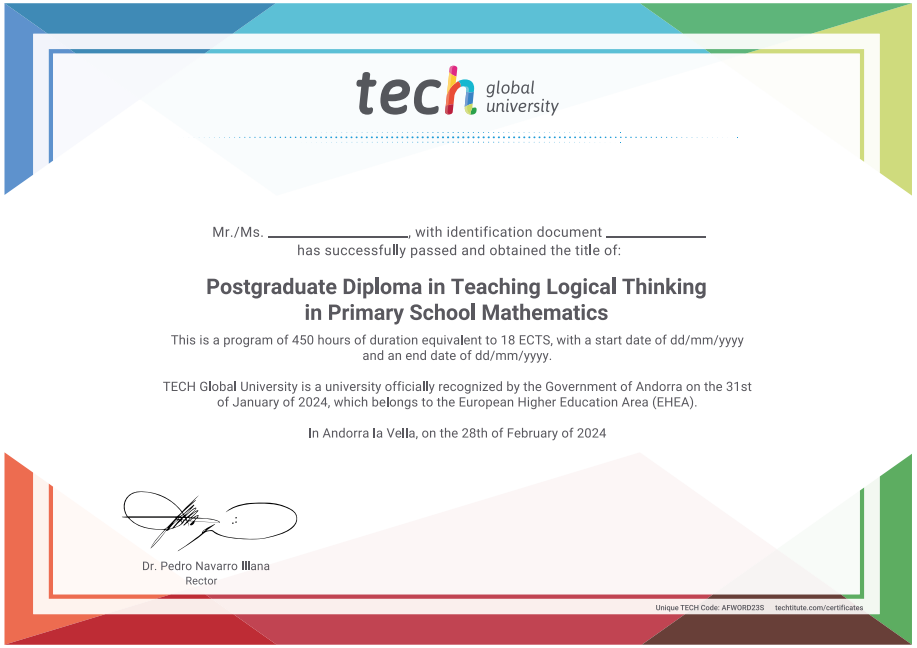
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Teaching Logical Thinking in Primary School Mathematics**

Modality: **online**

Duration: **6 months**

Credits: **18 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Diploma in Teaching Logical Thinking in Primary School Mathematics

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

Unique TECH Code: AFWORD23S techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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Postgraduate Diploma

Teaching Logical Thinking in Primary School Mathematics

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **18 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Postgraduate Diploma

Teaching Logical Thinking in Primary School Mathematics

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