## MATHEMATICS Course Description



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## Series Description

The objective of the EduSystem Mathematics K-6 series is to help students develop skills and mathematical concepts in accordance with the standards set forth by the Department of Education of Puerto Rico and the National Council of Teachers of Mathematics. The purpose of the series is to create awareness of why studying mathematical processes is important and how it is necessary for solving problems that relate to real-life situations.

Through its content, strategies, and techniques, the EduSystem Mathematics K-6 series instills a deep understanding of the concepts, skills, and techniques necessary for the subsequent study of higher mathematics and applications. The way in which the topics, examples, and recommended applications are presented allows students to visualize, understand, and value the usefulness of mathematics in everyday life.

The EduSystem Mathematics K-6 series covers the following areas and topics: number sense, counting, and cardinal numbers; operations and algebraic thought; numbers and operations in base ten; numbers and operations with fractions and ratios; proportional relationships; numeral systems;expressions and equations; measurement and data;statistics and probability, and geometry.

In each lesson, the objectives have been carefully aligned by taking into consideration the concepts and skills students need in order to establish connections between the different topics. The instructional focus is based upon conceptual understanding, skills development, and mathematical problems/solutions. It also focuses on the development of critical thinking skills which is the integral means of foundation for the students.

The EduSystem Mathematics K-6 series encourages the direct application of what students learn and how they visualize the importance of mathematics as a universal discipline relating to society, community, organizations and institutions. Furthermore, the incorporation of situations and real-life problems in each of the topics aims to awaken an interest in the study of mathematics for students.

## Concept Development

The EduSystem Mathematics K-6 series is directed toward developing a mastery of:

- Mathematical reasoning skills and their applications
- Application of problem solving processes and strategies
- Use of technology as tools to access, analyze, and apply information in the solution of problems in their immediate surroundings


## General Objectives

The objectives of this Series are to:

- Help students develop an interest and appreciation for mathematics.
- Develop mathematical capability within students through experiences that stimulate their curiosity and focus it toward investigation, problem solving, and communication.
- Promote that students visualize mathematics as an integral whole and not as a group of isolated topics.
- Develop the problem solving processes in students, as a cornerstone of encouragement, furthering the development of mathematical capacity.
- Stimulate within students the need of using language and academic vocabulary to communicate mathematical ideas.
- Develop mathematical reasoning and critical thinking skills that allow students to visualize mathematics as a relevant discipline in their lives.
- Emphasize the concepts of numbers, operations, and calculations so that they are correctly defined, conceived, and adequately applied.
- Promote the learning of concepts in geometry and measurement through hands-on experiences that incorporate experimentation and discovery of mathematical relationships using solid objects or manipulatives.


## Course Structure

The Mathematics $\mathbf{K}$ course is composed of twelve units. Each unit is composed of lessons. Each lesson contains a presentation divided into sections that develop their individual topics. Each lesson also contains a descriptive log, activities, worksheets, and handouts related to the content and, as in most cases, website links and resources. The practice and review documents generally include word problems, as well as a section devoted solely to solving problems.

We invite you to get to know the presentation sections and the documents that are generally found in the course lessons.

The units are made up of the following:

## - Lessons

Each unit is composed of several lessons which are divided by topics. Furthermore, each lesson is comprised of the following:

- Presentation Each presentation is composed of the following sections:


## Unit Opening

Each unit begins with an image which starts off the first lesson of the unit. This section presents the unit's theme as well as several questions in which the image or theme are explored.


To indicate the relative position of an object, we can use either left and right, or up and down.

## Introduction

Presentation of a situation and questions to be explored.

## Topics to Be Developed

Sections of concept development, where mathematical ideas and concepts are explained. On some occasions, skills are developed from the situation presented in the introduction and other examples are offered.



## Practice

Lesson closure in which students apply what they learned through some exercise.

## Think about lt

A reasoning question, is presented and identified with a lightbulb. The goal is to develop students' reasoning and analysis capacities.


## At Home

Activity for the application of skills learned in class.


## Let's Solve Together

Exercises or activities that promote teamwork.

## - Handouts and Worksheets

## Learning

## Learning

It presents the mathematical concepts to be developed within the lesson.

## Think and Practice

It presents exercises and problems after every concept development section. It has activities that help practice, enrich, and reinforce the concepts learned throughout the lesson.


## - Lesson 0

This lesson is composed of a series of unit documents and of formative and cumulative evaluation that can be used before, during, or after the study of each unit.

## Learning While Playing

It opens the lesson in a fun, enjoyable way. In this section tangrams are used as a strategy towards the development of mathematical concepts.


## Problem Solving

It explains strategies and procedures for the development of problem solving skills.

## Unit Review

Practice exercises that allow students to confirm what they have learned in the unit.

## Reviewing the Units

Practice exercises that allow the student to confirm what they have learned in previous units.

## Reviewing the Units

## What I Learned

## What I Learned

The skills and concepts learned in the unit are measured. It allows students to do a selfevaluation. The teacher may use it as a test.

## Knowing Technology

Itpresents technology in its differentmanifestations, including the computer as well as all the gadgets present in our daily lives. It can be found in some
 units.


## Work at Home

A unit document that allows students to work alongside parents and family on a project or activity related to the content learned in class.

## Unit Breakdown

What follows is an itemization of the division of each unit in lessons, including the name of each lesson with its corresponding objectives, skills, and keywords.

## Unit I. Having Fun with Shapes, Sizes, and Colors

At the end of this unit, the student will achieve the objectives found in the following lessons.

## Lesson 0. Having Fun with Shapes, Sizes, and Colors

## Code: C3I9G00U0ILOO

Unit Documents: I Learned, Problem Solving, Learning While Playing, and Unit Review

## Lesson I. Colors

Code: C3I9G00UOILOI

## Objectives

- Observe and describe an image.
- Compare objects by physical attribute.
- Color by following a color key.
- Identify colors to complete a drawing.


## Skills

- observe
- classify
- identify
- color
- compare
- describe

Keywords

- blue
- color
- green
- orange
indigo
- purple
- red
- yellow


## Lesson 2. Sizes

## Code: C3I9G00U0ILO2

## Objectives

- Observe and describe an image.
- Compare objects by physical attribute.
- Associate objects by size.


## Skills

- classify
- trace
- identify

Keywords

- big
- medium
- size
- small


## Lesson 3. Shapes

Code: C3I9G00U0IL03

## Objectives

- Observe and describe an image.
- Compare objects by physical attributes.
- Identify colors and shapes to complete a drawing.
- Identify objects by their shape.
- Associate objects by their shape.
- Cut and glue objects according to their shape.


## Skills

- identify
- trace

Keywords

- shape
- similar shapes


## Unit 2. Having Fun with Others

At the end of this unit, the student will achieve the objectives found in the following lessons.
Lesson 0. Having Fun with Others
Code: C3I9G00U02L00
Unit Documents: At Home, Knowing Technology, Problem Solving, Unit Review and What I Learned

## Lesson I. Grouping and Making Pairs

## Code: C3I9G00U02LOI

## Objectives

- Group elements by their characteristics.
- Identify elements that either belong or not to a set.


## Skills

- observe
- classify
- group
- make pairs
- trace
- associate


## Keywords

- grouping
- pairs


## Lesson 2. Correspondence

## Code: C3I9G00U02L02

## Objective

- Establish a biunique correspondence between given sets


## Skills

- observe
- establish correspondence
- draw

Keywords

- biunique correspondence
- set


## Lesson 3. The Elements of a Set

## Code: C3I9G00U02L03

## Objectives

- Identify elements that belong or not in a set.
- Recognize and create equal sets.
- Identify sets with the greatest amount of elements.
- Identify sets with the fewest amount of elements.
- Recognize an empty set.
- Compare different sets.


## Skills

- observe
- classify
- identify the elements of a set
- count
- identify the amount of elements in a set
- establish correspondence
- trace
- identify an empty set
- draw
- make equal sets

Keywords

- empty set
- equal set
- greatest amount
- least amount
- set


## Unit 3. Once Upon a Time

At the end of this unit, the student will achieve the objectives found in the following lessons.

## Lesson 0. Once Upon a Time

## Code: C3I9G00U03L00

Unit Documents: Learning While Playing, Problem Solving, Unit Review and
WhatI Learned

## Lesson I. Counting

## Code: C3I9G00U03LOI

## Objective

- Count to five.


## Skills

- observe
- count
- identify colors
- interpret information.
- establish the relation the quantity and the numeral.


## Keywords

- count
- counting
- five
- four
- group
- numeral
- number
- one
- three
- two

Lesson 2. Numerals from $\mathbf{0}$ to $\mathbf{5}$

## Code: C3I9G00U03L02

## Objectives

- Match sets with numerals from 0 to 5 .
- Associate an illustration with the numerals up to five.
- Make strokes of the numerals from 0 to 5 .
- Recognize the numerals from 0 to 5 .
- Read and write the numerals from 0 to 5 .
- Represent sets with 0 to 5 elements.
- Select numerals from 0 to 5 .


## Skills

- count
- identify the numerals from 0 to 5
- trace or stroke
- interpret information
- Establish relationships between the amount and the numeral.h Keywords
- numerals (one, two, three, four, five)
- set


## Unit 4. Stories and Numbers

At the end of this unit, the student will achieve the objectives found in the following lessons.

## Lesson 0. Stories and Numbers

## Code: C3I9G00U04L00

Unit Documents: At Home, Knowing Technology, Problem Solving, Unit Review and What I Learned

## Lesson I. Numerals from 6 to 12

Code: C3I9G00U04LOI

## Objectives

- Recognize the numerals from six to twelve.
- Trace the numerals of the numerals from six to twelve.
- Read and write the numerals from six to twelve.


## Skills

- observe
- count
- identify numerals
- write


## Keywords

- numerals (six, seven, eight, nine, ten, eleven, twelve)
- set


## Lesson 2. Numerals from 13 to $\mathbf{2 0}$

Code: C3I9G00U04L02

## Objectives

- Recognize the numerals from thirteen to twenty.
- Trace the numerals from thirteen to twenty.
- Read and write the numerals from thirteen to twenty.


## Skills

- observe
- count
- identify numerals
- write

Keywords

- eighteen
- fifteen
- fourteen
- nineteen
- seventeen
- sixteen
- thirteen
- twenty


## Lesson 3. Comparing Numbers and Amounts

## Code: C3I9G00U04L03

## Objectives

- Compare numbers and amounts.
- Choose numerals from zero to twenty.


## Skills

- identify numerals
- compare numerals
- identify the least number

Keywords

- amount
- greatest
- least
- numbers


## Lesson 4. Ordinal Numbers

## Code: C3I9G00U04L04

## Objective

- Identify the position of objects or people using ordinal numbers.


## Skills

- identify ordinal numbers
- identify the first and last
- color

Keywords

- fifth
- first
- fourth
- second
- seventh
- sixth
- third


## Unit 5. Measuring and Comparing at the Circus

At the end of this unit, the student will achieve the objectives found in the following lessons.
Lesson 0. Measuring and Comparing at the Circus!
Code: C3I9G00U05L00
Unit Documents: Learning While Playing, Problem Solving, Unit Review and
What I Learned

## Lesson I. Large, Medium, and Small

Code: C3I9G00U05LOI

## Objectives

- Identify the sizes large, medium, and small.
- Establish an order by size.


## Skills

- observe
- identify an order by size
- compare
- establish a size order

Keywords

- large
- medium
- small


## Lesson 2. Tall and Short

## Code: C3I9G00U05L02

## Objectives

- Identify tall objects.
- Identify short objects.


## Skills

- observe
- identify height
- compare

Keywords

- short
- tall


## Lesson 3. Wide and Narrow

Code: C3I9G00U05L03

## Objectives

- Associate wide and narrow figures.
- Color objects for a given characteristic.


## Skills

- trace
- identify width
- compare

Keywords

- narrow
- wide


## Lesson 4. Long and Short

Code: C3I9G00U05L04

## Objectives

- Draw long and short objects.
- Compare objects by size.

Skills

- compare lengths
- color

Keywords

- long
- short

Lesson 5. Arbitrary Units

## Code: C3I9G00U05L05

## Objectives

- Measure objects by using arbitrary units.
- Indicate the length of an object using different units of measure.


## Skills

- observe
- compare and identify lengths
- count and write numbers

Keywords

- arbitrary units
- height
- length
- size
- width


## Unit 6. Discovering Patterns and Figures at the Fair

At the end of this unit, the student will achieve the objectives found in the following lessons.
Lesson 0. Discovering Patterns and Figures at the Fair

## Code: C3I9G00U06L00

Unit Documents: At Home, Knowing Technology, Problem Solving, Unit Review and What I Learned

## Lesson I. The Position of Objects

Code: C3I9G00U06LOI

## Objectives

- Identify the left and right directional signs.
- Identify the position of objects.
- Color objects according to their position.


## Skills

- observe
- determine left and right
- color

Keywords

- above
- below
- left
- right


## Lesson 2. Patterns

## Code: C3I9G00U06L02

## Objective

- Identify and complete observed patterns.


## Skills

- observe
- discover an continue a pattern
- color

Keywords

- pattern


## Lesson 3. Three-Dimensional Figures

Code: C3I9G00U06L03

## Objective

- Recognize and identify three-dimensional figures.


## Skills

- observe
- identify three-dimensional shapes: the cube and the sphere
- identify colors
- identify the shapes of a pyramid, cylinder, and a prism


## Keywords

- cube
- cylinder
- prism
- pyramid
- sphere


## Lesson 4. Plane Figures

## Code: C3I9G00U06L04

## Objectives

- Identify two-dimensional shapes.


## Skills

- observe
- identify squares and circles
- color
- trace
- identify the triangle and the rectangle


## Keywords

- circle
- rectangle
- square
triangle

At the end of this unit, the student will achieve the objectives found in the following lessons.
Lesson 0. Let's Add and Subtract!
Code: C3I9G00U07L00
Unit Documents: Learning While Playing, Problem Solving, Unit Review and
What I Learned

## Lesson I. Joining Sets

## Code: C3I9G00U07LOI

## Objective

- Classify, count, and join sets.


## Skills

- classify
- count
- join sets

Keywords

- sets


## Lesson 2. Addition

## Code: C3I9G00U07L02

## Objectives

- Recognize the plus and equals signs.
- Use the plus and equals signs correctly.
- Solve addition operations.
- Observe and join sets of up to five elements.
- Write numerals.
- Complete numeric expressions with the plus and equals signs.


## Skills

- identify the plus sign
- join sets
- write numerals
- use numeric expressions with the plus sign (+) and equals sign (=) Keywords
- addition
- equal
- equal sign
- join sets
- operation
- total


## Lesson 3. Subtraction

## Code: C3I9G00U07L03

## Objectives

- Solve subtraction operations.
- Recognize the minus sign.


## Skills

- separate sets of five elements

Keywords

- eliminate
- subtract
- symbol


## Lesson 4. Addition and Subtraction up to Ten

Code: C3I9G00U07L04
Objective

- Solve operations of addition and subtraction.


## Skills

- add
- subtract
- observe

Keywords

- add
- subtract


## Unit 8. The Numbers from 21 to 50

At the end of this unit, the student will achieve the objectives found in the following lessons.
Lesson 0. The Numbers from 21 to 50
Code: C3I9G00U08L00
Unit Documents: Problem Solving, Reviewing Units, Unit Review, and What I Learned
Lesson I. Numerals from 21 to 30

## Code: C3I9G00U08LOI

## Objectives

- Recognize the numerals from 21 to 30 .
- Write the numbers from 21 to 30 in order.
- Count to 30 .
- Identify missing numbers in a given order.
- Complete the numeric sequences.


## Skills

- count
- associate a set with its number
- write the numeral

Keywords

- numbers
- order
- sequence

Lesson 2. Numerals from 3I to 40
Code: C3I9G00U08L02

## Objectives

- Recognize the numerals from 31 to 40.
- Write the numerals from 31 to 40 in order.
- Count to 40.
- Identify missing numerals in a given order.
- Complete the numeric sequences.


## Skills

- count
- associate a set with its numeral
- write the numeral

Keywords

- numeral
- order
- sequence


## Lesson 3. Numerals from 4I to $\mathbf{5 0}$

Code: C3I9G00U08L03
Objectives

- Recognize the numerals from 41 to 50 .
- Write the numerals from 4 I to 50 in order.
- Count to 50 .
- Identify missing numerals in a given order.
- Complete the numeric sequences.


## Skills

- count
- associate a set with its numeral
- write the numeral

Keywords

- numeral
- order
- sequence


## Unit 9. How Much Money Do You See?

At the end of this unit, the student will achieve the objectives found in the following lessons.

## Lesson 0. How Much Money Do You See?

## Code: C3I9G00U09L00

Unit Documents: Learning While Playing, Problem Solving and What I Learned

## Lesson I. Pennies

Code: C3I9G00U09LOI

## Objectives

- Recognize the names of the coins.
- Recognize the amount of I $\varnothing$.
- Identify the pennie as the I $\varnothing$ coin.


## Skills

- observe
- identify

Keywords

- money
- penny

Lesson 2. Nickels
Code: C3I9G00U09L02

## Objectives

- Recognize the names of the coins.
- Recognize the amount of 5 .
- Identify the nickel as the $5 申$ coin.


## Skills

- observe
- identify
- color

Keywords

- money
- nickel
- penny


## Lesson 3. Dimes

## Code: C3I9G00U09L03

## Objectives

- Recognize the names of the coins.
- Recognize the amount of IO\&.
- Identify the dime as the $10 \phi$ coin.


## Skills

- observe
- identify
- write

Keywords

- dime
- money
- penny


## Lesson 4. Quarters

## Code: C3I9G00U09L04

## Objectives

- Recognize the names of the coins.
- Recognize the amount of $25 \phi$.
- Identify the quarter as the $25 \phi$ coin.


## Skills

- observe
- identify
b write
Keywords
- dime
- money
penny
- quarter


## Lesson 5. The Dollar

## Code: C3I9G00U09L05

## Objective

- Identify the dollar.


## Skills

- observe
- identify

Keywords

- coin
- dollar


## Lesson 6. Equivalence between I $¢$ and $5 ¢$

## Code: C3I9G00U09L06

Objectives

- Establish equivalence among coins.
- Distinguish between coins and dollars.


## Skills

- cont
- identify
- read

Keywords

- coin
- equivalence
- money


## Lesson 7. Counting Money

Code: C3I9G00U09L07
Objective

- Count coins.

Skills

- identify
- count
- write

Keywords

- coins
- count
- money

Lesson 8. Adding the Value of Coins
Code: C3I9G00U09L08
Objective

- Add coins.

Skills

- identify
- count
- write

Keywords

- add
- coins
- count


## Unit I O. Let's Measure Time!

At the end of this unit, the student will achieve the objectives found in the following lessons.
Lesson 0. Let's Measure Time!
Code: C3I9G00UIOLOO
Unit Documents: At Home, Knowing Technology, Problem Solving, Unit Review and
What I Learned
Lesson I. Sequence of Events
Code: C3I9G00UIOLOI

## Objective

- Place events in order.


## Skills

- observe
- write


## Keywords

- events
- order
- organization
- sequence


## Lesson 2. Estimating Time

Code: C3I9G00UIOL02

## Objectives

- Distinguish between activities that take more and less time.
- Select activities that take more or less time.
- Classify activities by their duration.


## Skills

- observe
- estimate
- write

Keywords

- estimate
- less
- more
- time


## Lesson 3. Days of the Week

Code: C3I9G00UIOLO3
Objective

- Recognize the names and order of the days of the week.

Skills

- observe
- read
- color

Keywords

- day
- Friday
- Monday
- Saturday
- Sunday
- Thursday
- Tuesday
- Wednesday
- week

Lesson 4. The Months of the Year
Code: C3I9G00UIOL04
Objective

- Recognize the numbers and order of the months of the year.


## Skills

- observe
- count
- write

Keywords

- April
- August
- December
- February
- January
- July
- June
- March
- May
- November
- October
- September
- year


## Lesson 5. The Calendar

## Code: C3I9G00UIOL05

Objective

- Identify the parts of a calendar.


## Skills

- observe
- identify
- count
- color
- write

Keywords

- calendar
- days
- months
- week


## Lesson 6. The Hour

## Code: C3I9G00UIOL06

## Objectives

- Identify the parts of a clock.
- Identify and write the hour.


## Skills

- write
- identify

Keywords

- clock
- hour
- hand
- minute hand
- sphere


## Lesson 7. Half an Hour

Code: C3I9G00UIOL07
Objectives

- Identify the parts of a clock.
- Identify the half an hour.
- Write the half an hour.


## Skills

- Identify the hour and the half an hour.

Keywords

- clock
- hour
- hour hand
- minutes
- minutes hand
- time


## Unit II. Classifying, Organizing, Coloring, and Counting

At the end of this unit, the student will achieve the objectives found in the following lessons.

## Lesson 0. Classifying, Organizing, Coloring, and Counting

## Code: C3I9G00UIILOO

Unit Documents: Learning While Playing, Problem Solving and What I Learned

## Lesson I. Gathering Data

Code: C3I9G00UIILOI

## Objectives

- Classify and group by color.
- Classify and group by shape.
- Classify and organize by other properties.


## Skills

- observe
- count
- write


## Keywords

- color
- data
- shape
- size


## Lesson 2. Pictographs

## Code: C3I9G00UIILO2

## Objectives

- Build graphs to organize data.
- Recognize the utility of a graph.
- Gather and organize data in a graph.
- Read and interpret pictographs.


## Skills

- observe
- count
- color

Keywords

- graph
- pictograph


## Lesson 3. Bar Graphs

## Code: C3I9G00UIIL03

## Objectives

- Build graphs to write and order data.
- Read, interpret and analyze bar graphs.
- Recognize the utility of graphs to communicate information.


## Skills

- read
- count
- color

Keywords

- bar
- data
- graph


## Lesson 4. Building Graphs

## Code: C3I9G00UIILO4

## Objectives

- Build graphs to write and organize data.
- Read and interpret graphs.
- Recognize the utility of graphs to communicate information.
- Gather and organize data in a graph.


## Skills

- read
- count
- color

Keywords

- bar
- data
- graph
- pictograph


## Unit I2: Fractions and Greater Numbers

At the end of this unit, the student will achieve the objectives found in the following lessons.

## Lesson 0. Fractions and Greater Numbers

## Code: C3I9G00UI2L00

Unit Documents: At Home, Knowing Technology, Problem Solving, Unit Review,
Review of Units and What I Learned

## Lesson I. Fractions

## Code: C3I9G00UI2LOI

## Objective

- Recognize the parts of a group.


## Skills

- observe
- identify

Keywords

- fraction
- numerator
- denominator

Lesson 2. A Whole and a Half
Code: C3I9G00UI2L02

## Objective

- Recognize the concepts whole and a half.


## Skills

- observe
- trace
- identify
- color

Keywords

- whole
- half
- fraction


## Lesson 3. Parts of a Whole

## Code: C3I9G00UI2L03

Objective

- Identify parts of a whole.


## Skills

- observe
- count
- write

Keywords

- half
- fraction
- integer
- part
- whole

Lesson 4. Equal Parts in a Whole
Code: C3I9G00UI2L04
Objective

- Recognize the parts of a group.

Skills

- observe
- count

Keywords

- amount
- equal parts
- portion
- whole

Lesson 5. Numerals from 5I to 70

## Code: C3I9G00UI2L05

## Objective

- Recognize the numerals from fifty-one to seventy.


## Skills

- observe
- identify
- count
- write

Keywords

- numbers

Lesson 6. Numerals from 71 to 90
Code: C3I9G00UI2L06

## Objective

- Recognize the numerals from seventy-one to ninety.


## Skills

- observe
- identify
- count
- write

Keywords

- numerals

Lesson 7. Numerals from 91 to 100
Code: C3I9G00UI2L07
Objective

- Recognize the numerals from ninety-nine to one hundred.


## Skills

- observe
- identify
- count
- write

Keywords

- numerals



