

## Didactic Scenario

### 1. Title

Introduction to the world of fractions

### 2. Keywords

fractions, fractional units, simple fractions, introduction to fractions

### 3. Basic information

**STEAM theme:** Mathematics

**Typical interaction time with the instructional scenario in class hours for in-school work**  
2 teaching hours (90')

General description of the scenario

Phases	Stage	Time
Expressions with fractions in everyday life	Warm up	25'
I create fractional units	Implementation stage	30'
Figurative representation of fractions	Evaluation stage	35'

**Age group:** 3rd grade, 8 years old

### Estimated difficulty level:

Very easy	Easy	Moderate	Challenging	Very Challenging
	X			

### Teaching resources

#### Materials :

Mathematics student's book

Mathematics Workbook

Clock

Blocks or cubes of different colors

Cooking Recipes

colored pencils or markers

**School infrastructure:** Computer connected to the internet, video projector

### Additional material from external sources/online tools:

- ✓ Wordwall digital environment (Phase 3)

<https://wordwall.net/el/resource/24508524/%CE%BA%CE%BB%CE%B1%CF%83%CE%BC%CE%B1%CF%84%CE%B1%CF%85%CE%BB%CE%BF%CF%85>

<https://wordwall.net/el/resource/7090238/%CE%BA%CE%BB%CE%B1%CF%83%CE%BC%CE%B1%CF%84%CE%B1%CF%85%CE%BB%CE%BF%CF%85>

<https://wordwall.net/el/resource/62629536/%CE%BA%CE%BB%CE%B1%CF%83%CE%BC%CE%B1%CF%84%CE%B1%CF%85%CE%BB%CE%BF%CF%85>

<https://wordwall.net/el/resource/58393393/%CE%BA%CE%BB%CE%B1%CF%83%CE%BC%CE%B1%CF%84%CE%B1%CF%85%CE%BB%CE%BF%CF%85>

[by-%CE%B3%CE%B9%CF%89%CF%81%CE%B3%CE%BF-%CE%BD%CF%84%CE%B9%CE%BD%CE%BF-%CF%83%CF%80%CF%85%CF%81%CE%B5%CF%84%CE%B1-%CF%83%CF%80%CF%85%CF%81%CE%BF%CF%80%CE%BF%CF%85%CE%BB%CE%BF%CF%85](https://wordwall.net/el/resource/58393393/%CE%BA%CE%BB%CE%B1%CF%83%CE%BC%CE%B1%CF%84%CE%B1%CF%85%CE%BB%CE%BF%CF%85)

- ✓ Micro-experiment for the geometrical investigation of the relationship that fractional units have with whole, with the help of a rod, using tools of dynamic geometry and manipulation of algebraic systems (Geogebra ) (Phase 3)

<https://photodentro.edu.gr/v/item/ds/8521/4174>

- ✓ To Create Fractional Units (Phase 3)

[https://phet.Colorado.edu/sims/html/fractions-intro/latest/fractions-intro\\_en.html](https://phet.Colorado.edu/sims/html/fractions-intro/latest/fractions-intro_en.html)

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#### 4. Educational Problem

Students before the formal teaching of fractions possess a range of knowledge and skills related to fractions, such as the expressions used in everyday language "I will come in a quarter of an hour", "a third of the class is missing", etc. a. Knowledge related to fractions is also the one related to division "divide", "divide into equal parts" etc.

Therefore, the students already have a perception of fractions which comes from processes of searching for the part of a whole. This knowledge, however, is not connected to the symbolic representation of fractions (e.g.  $\frac{1}{4}$ ) nor to the formal formulation (e.g. a quarter).

#### 5. Learning objectives

1. To further familiarise themselves with fractions in reference to everyday life.
2. To understand the mathematical concept of the fraction and to perceive its figurative and symbolic representation.
3. To use with manipulative materials and representations and to approach fractions intuitively.
4. To connect the symbolic writing of fractions with the quantities they express - the part of the whole of a quantity.

#### 6. Phases of the Scenario

##### Phase 1

**Title:** Expressions with fractions in everyday life

Indoor	Outdoor	Mixed
X		

**Phase duration in minutes: 25'**

**Detailed description of the scenario phase**

Students are divided into groups (up to 4 students per group). We ask the students if they know the meaning of the expressions we use for time. After guided discussion, students observe a clock and show a quarter of an hour, half of an hour, three quarters of an hour and a full hour. Students answer questions such as: "How many quarters is half an hour?". Each group carry out the activity sheets, one quarter of an hour, half of an hour, three quarters of an hour and the whole hour. Each group present the final work in plenary.

**Activity sheets:** Questions Clock Worksheet – by group  
Selected exercises from the Mathematics Student's Book.

**Phase 2**

**Title:** I create fractional units

Indoor	Outdoor	Mixed
X		

**Phase duration in minutes: 30'**

**Detailed description of the scenario phase**

We distribute blocks or cubes of different colors and the worksheets to the students. By using different material, students become familiar with the concept of fractions, creating the whole, one second, one third, etc. Then, we distribute various cooking recipes. We notice that fractional units are often referred to. We complete the worksheets in groups and focus the discussion on the quantities expressed by the fractional numbers.

**Activity sheets:** cooking recipes calculations

**Phase 3**

**Title:** Figurative and symbolic representation of fractions

Indoor	Outdoor	Mixed
X		

**Phase duration in minutes: 35'**

### Detailed description of the scenario phase

Students use educational activities in digital environments (wordwall, phet colorado) and experiment (using Geogebra digital systems ). Specifically, through the software, they learn to create fractional units, match the symbolic writing of fractions with images that present the part of the whole of a quantity. Finally, they understand the figurative representation of fractional units.

**Activity sheets:** Links to activities and instructions for their implementation .  
Selected exercises from the Mathematics Workbook.

## 7. Evaluation Methodology

### Initial evaluation

It takes place through guided discovery and question-and-answer discussion .

### Formative evaluation

It takes place continuously in all phases, where questions are asked and students' learning progress is checked.

### Final evaluation

It is carried out through the activities , worksheets and assignments in the Mathematics Book and Workbook.

## 8. Additional resources for the teacher

Folder: Introduction to the world of fractions\_ Additional resources for the teacher