



Unit Description

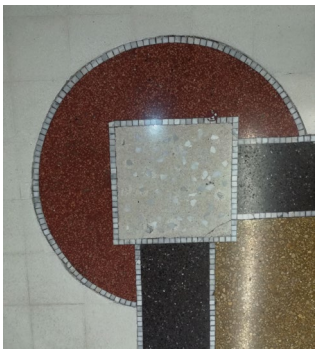
Title	Geometry around us
Age of students/grade	12-13 years (2 nd or 3 rd year in Lower Secondary School)
Length of the unit	<i>1-2 lessons (45-50 minutes each)</i>
Mathematical topic	Applying basic knowledge about Geometry in real situations
Prerequisite knowledge	<ul style="list-style-type: none"> Knowing the names of the main geometrical figures, both plane and solid ones Knowing the meaning of “vertex, edge, dimension, base, height, depth” referred to Geometry. Knowing the concepts „perimeter and area of a geometrical figure“, as well as the concept of „volume of a solid“ Knowing the formulas about perimeter, area and volume in both plane and solid figures
Materials needed	<ul style="list-style-type: none"> Stationery Ruler and tape measure
Objectives	<ul style="list-style-type: none"> Identifying geometrical objects. Learning through the use of formulas to measure perimeter, area and volume Applying Mathematics in everyday life contexts. Learning about different (and similar) use of geometrical figures in different countries and cultures.
Notes on work with migrant students	<ul style="list-style-type: none"> In the step with the students identifying geometrical figures through some pictures, we can realize a table of these figures, starting from their names in the different motherlanguages of the students involved, and from the formulas to measure perimeter, area, total surface and volume. At the beginning, this table will be kept in view, in order to have a better memorization. In this way the work will be simpler and more comprehensible for everyone. In the same way this can be done with units of measurement and possible conversion tables. Working on reality tasks will be developed in small groups in order to foster students’ involvement and social relationships. The aim of showing the results and/or the pictures chosen by each group is to let the students tell something about their cultures and that is measured starting from the lexicon each one of the students has learnt.

Lesson plan:

The lesson will be developed in 3 steps:

Step 1: Observation of photos and images

The students surf the net and show pictures with geometrical decorative elements to the other groups. Then the most meaningful ones will be chosen to recognize the geometrical figures inside and afterwards these ones will be organized in a table. Here there are some pictures which can be a starting point for your choices (the school flooring, the decorative elements in a garden, a typical building or monument in your country)

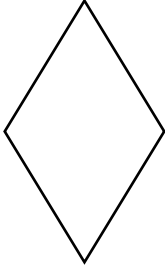
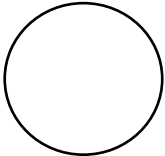


Step 2: Recovery of solution formulas

In this step the teacher, together with the students, will fill in the table for each figure with the formulas (perimeter, area, total surface and volume) in order to check their previous knowledge, too.

(here it is attached an example of a ready to use table)

Figure	Name	Formulary

Step 3: Reality tasks

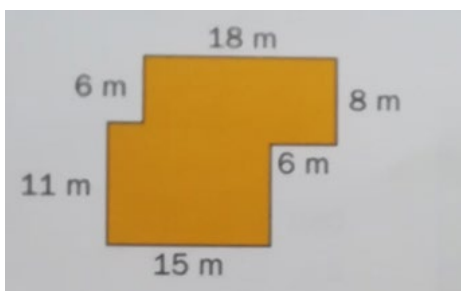
The teacher will propose reality tasks that can be solved thanks to reasoning and applying the formulas already revised. The students will have to work in small groups (max 4 students each) in order to foster their interactions.

Problem 1

If a rectangular cloth remnant is 2m x 3m, how many square handkerchiefs (side 30 cm) can you make out? How many rhomboidal remnants ($D=25$ cm, $d=15$ cm)?

Problem 2

Calculate the area and the perimeter of the coloured parts in the figures:



Problem 3

Calculate how much white marble you need to make out the mosaic in the picture, if the light blue square's side is 4 cm

**Problem 4**

A rectangular card has been cut into 2 parts, as shown in the following picture. What can you say about their perimeter and their area?

