

## Lesson Plan 9

### Theme: Triangles



Class	D, E' class
Age	9-11 year olds
Time	6 hours
Subjects	Maths , English, ICT, Arts
Equipmen t	Interactive Whiteboard, Computer lab, 10 personal Pcs, canson paper, scissors, glue, markers, geometry instruments

### Prerequisites

- Basic knowledge on triangles, sides and angles.
- Using computer and relevant software.

### Objectives

*Cognitive:*

The students should:

- Be able to recognize the basic characteristic of a triangle
- Be able to recognize the sides and the angles of a triangle
- Practice measuring the angles using protractor
- Be able to realize that the sum of the angles of a triangle is  $180^\circ$ , regardless of the sides' length
- Find out if the sum of the angles depends on the kind of the triangle

*ICT :*

The students should:

- Familiarize with the use of the computer and the interactive whiteboard and the relevant software(GEoGebra, HotPotatoes, Inspiration, Revelation Natural Art)

*Communicative:*

The students should:

- Develop communicative and cooperative abilities
- Be able to present and support their work

### **Theoretical and Pedagogical Approach**

- This lesson plan is based on the constructivism and socio-cultural theories of Vygotsky.

- The methodology proposed is student-centered model of exploratory learning.

## **Software**

- PowerPoint
- Inspiration
- GeoGebra
- HotPotatoes
- Revelation Natural Art

## **Procedure**

### Hours: 1-2

The students two presentation on PowerPoint, that will help them recall prior knowledge on triangles, sides and angles. Then the class is divided in groups of two and students are asked to build three different triangles. They fill in a separate work sheet. They observe and write down on the work sheet the types and the category of triangles.

Using Inspiration software they make a conceptual map with the types of triangles.

### Hours: 3-4

Each team will draw and cut a triangle. Also each team will measure the angles and will find the sum of it. All the results are gathered on a

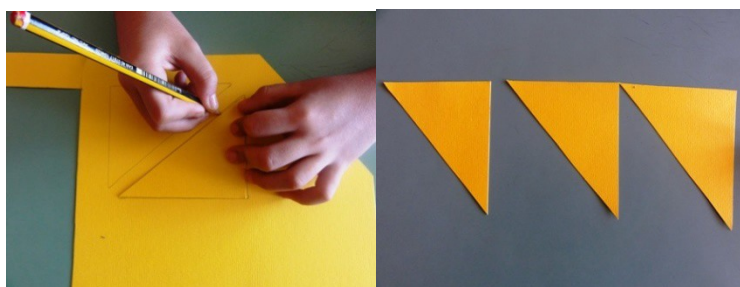
chart. Most of the times the sum is  $180^\circ$ . However there are some occasional differences, but very close to the expected result.

The students are assigned to discuss why some teams came up with a different result. They make assumptions, they propose solutions and they are asked to make those measurements again.

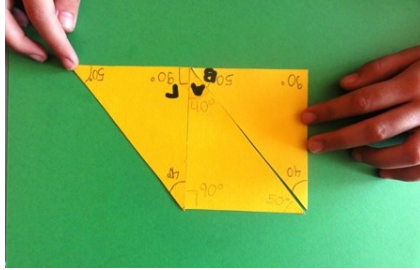
Then the students are given a canson paper and they are asked to draw a triangle and make the necessary measurements.



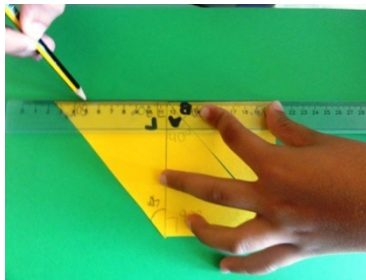
Based on their first pattern the students draw two more triangles, so that each team has three identical triangles.



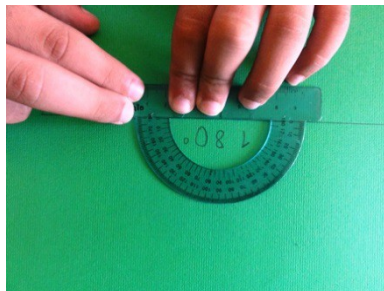
The students name the angles  $A$ ,  $B$ ,  $C$  and place the triangles one next to the other as seen on the picture.



Using a ruler they draw a line which is created by the angles.



The protractor helps them realize that the sum of the three angles is  $180^\circ$ .

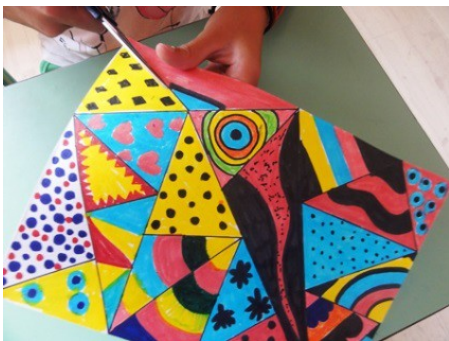
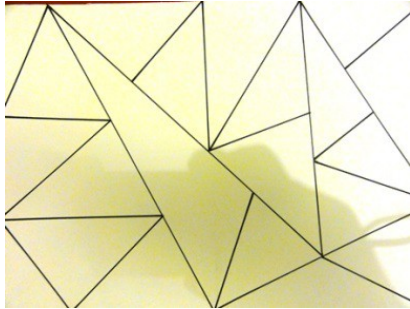


Now it is time for the students to create images using triangles.

Hours: 5-6

The students are given a work sheet on *GeoGebra* to practice, on the interactive whiteboard. Then they can practice some more on

HotPotatoes. Finally they can draw and create triangles on a white canson paper, which they cut and make a puzzle.



### **Bibliography**

1. ΟΕΔΒ, Μαθηματικά Ε' Δημοτικού, Βιβλίο Δασκάλου, Αθήνα, 2012
2. Παιδαγωγικό Ινστιτούτο, Διαθεματικό Ενιαίο Πλαίσιο Προγραμμάτων Σπουδών, 2003
3. Vygotsky, L.S. Mind and society The development of higher mental processes. Cambridge, MA Harvard University Press 1978
4. Ματσαγγούρας Η., Ομαδοσυνεργατική διδασκαλία και μάθηση, εκδόσεις Γρηγόρη, 2008
5. <http://www.slideboom.com/presentations/521470>
6. <http://www.slideboom.com/presentations/537751>