



Case study E

Basic data

Title of Research Teaching Unit	Symbols and Religions
Unit created by	Da Vinci School, Prague
Based on Concept	Geometry in various cultures
Concept created by	University of Vienna
Date of teaching	21/11/2023
Number of students in class	3
Number of migrant students	1

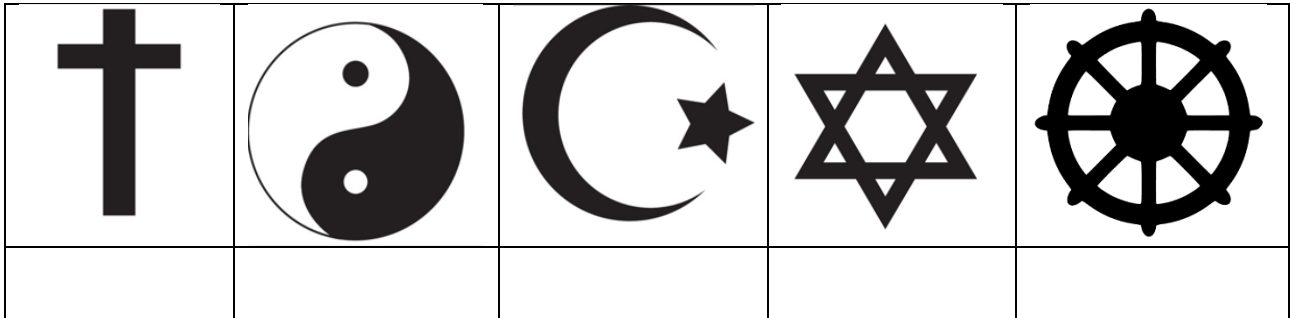
1. Unit Description of Research Teaching Unit

Title	Symbols of religions
Teaching unit concept	Geometry in different cultures
Age of students/grade	13 and more
Length of the unit	45 minutes
Mathematical topic	Geometric shapes, symmetry, constructions
Prerequisite knowledge	<ul style="list-style-type: none">• Basic geometric shapes
Materials needed	<ul style="list-style-type: none">• Access to the Internet• Tools for geometry• Worksheet
Objectives	<ul style="list-style-type: none">• to learn some basic facts about religions in the world• to exchange basic facts and points of view among different religions (if present in the classroom)• to use geometry in a non-standard situation
Notes on work with migrant students	<ul style="list-style-type: none">• The teacher has to be aware of potential misunderstandings between/among members of different religions.

Lesson plan

Symbols of religions

Activity 1. The pictures show symbols of several world religions. Match the symbols with the religions.



Source of images: <https://www.vecteezy.com/free-vector/religion>

Taoism

Islam

Judaism

Buddhism

Christianity

Activity 2. In your group, choose one of the given religions.

- Research basic information about your chosen religion on the Internet so that you can present it to the other groups in 2 minutes.
- Describe the symbol of your chosen religion in terms of geometry.
 - What geometric shapes are included in the symbol?
 - Is the symbol symmetrical? If so, describe this symmetry.
 - Construct this symbol as accurately as possible.
- Compile the information into a short presentation.

Activity 3. Share the results of your work with other groups.

2. Interview Analysis

The teacher teaching this unit is the head of the Da Vinci School on the outskirts of Prague. He has very rich experience of 20 years of teaching mathematics and is also involved in research in didactic of mathematics. The teacher received no pre-service training in work with migrant pupils and no in-service teacher training in the issue before the last 12 months. However, he attended in-service teacher training conference in Prague at Charles University organized within the frame of the M4M project.

Da Vinci school, where the lesson was conducted, is a private school. The story of the da Vinci school began to be written sometime in 2007 in the head of Jitka Rudolfová (Lukešová). Although she studied economics, she was interested in different educational directions, especially alternative approaches to education. Her own children were the motive and inspiration for her. In 2009, the search finally resulted in the establishment of their own, somewhat different, kindergarten. After a year of operation, the kindergarten in Prague's Hostivař managed to obtain accreditation for a new primary school. The founders agreed together that they wanted to create a school that would provide children with enough space to develop their talents respecting their natural needs. The school in Dolní Břežany was in 2010, when a kindergarten, primary and lower secondary school were opened. The school was named after the outstanding Renaissance artist Leonardo da Vinci, who inspired the founders with how he was able to apply and fully develop his talents in a wide range of scientific fields and arts. Later upper secondary school was added with first graduates in 2019. The good name of the school and the excellent conditions for education are confirmed by the fact that the capacity of the kindergarten and primary school is almost full, there is a significant increase in interest in studying at the upper secondary school, where many graduates of the da Vinci primary school also enrol.

The teacher has experience of teaching migrant pupils and he believes the greatest obstacles in these classrooms are language, vocabulary and motivation of the pupils. Yet, he sees that migrant pupils bring new impulses to the classroom and make the whole group more sensitive to cultural issue as well as respect other cultures more. Having migrant pupils in the classroom made the teacher increase initial support for migrant pupils, making sure they are able to follow and join in.

The lesson was conducted with a small group of three pupils of whom one was migrant (who had lived in the country for more than a year). The teacher developed his own lesson plan based on the concept of the teaching unit. In his preparations he bore in mind that he would be working only with three students.

The objectives of the lessons were identifications of shapes and proportions and construction of polygons.

The activity was well-received by the students who were active and fulfilled all the tasks. The assigned problems were opened, which allowed each of the students to work at their own pace.

The cross-curricular character of the activity is its plus, it is linked to social sciences (through religion).

3. Improvement Suggestions

It may help teachers if the concept of the teaching unit is more specific, gives specific examples, tasks, questions.