



Case study A

Basic data

Title of Research Teaching Unit	Types of Housing in different cultures and the making of a simple housing model
Unit created by	Da Vinci School, Prague (CZ)
Based on Concept	Geometry in various cultures
Concept created by	University of Vienna
Date of teaching	10/01/2024
Number of students in class	15
Number of migrant students	1

1. Unit Description of Research Teaching Unit

Title	Types of housing in different cultures and the making of a simple housing model
Teaching unit concept	Concepts for teaching units_IT-AREA-1
Age of students/grade	12-13 y.o., Year 7
Length of the unit	90 min
Mathematical topic	Types of triangles and quadrilaterals and 3D modelling
Prerequisite knowledge	<ul style="list-style-type: none">● typology of triangles (from the point of view of length of sides and size of angles)● typology of quadrilaterals● nets of simple solids
Materials needed	<ul style="list-style-type: none">● hard paper● scissors● glue● duct tape● drawing tools
Objectives	<p>To give students an insight into the large number of migrants living in European countries who come from various cultural backgrounds.</p> <p>To lead students to reflect on the differences and similarities of housing in different cultures.</p> <p>To practise identifying types of geometric shapes using photographs of specific housing types typical of different cultures.</p> <p>To practise modelling 3D objects using paper and knowledge of simple solid networks.</p>
Notes on work with migrant students	<ul style="list-style-type: none">● making use of the knowledge of migrants' home culture

Lesson plan

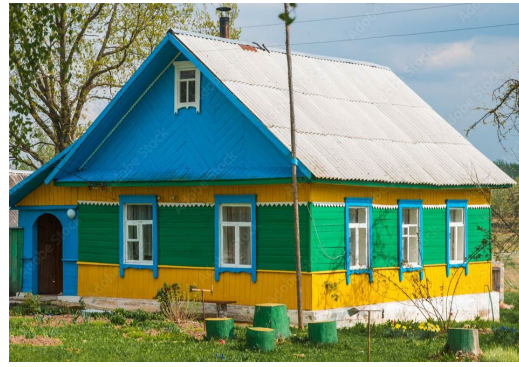
- The teacher introduces the topic of the lesson (Types of housing in different cultures) and divides the students into groups of two to four. If there are migrant students in the class, he/she will divide them into groups so that they work together with the non-migrant students.
- The teacher hands out the worksheet and has the students read the introductory paragraph and look at the photographs of the types of housing. This is followed by a group discussion about the similarities and differences between the dwellings. Possible questions for discussion:
 - Which of the houses would you prefer to live in and why?
 - How are the houses similar, and how do they differ?
 - Compare the number and size of windows in each house.
 - What do the different houses say about the cultures?
- Groups share important insights and ideas from group discussions with the whole class, with the teacher leading this sharing.
- Students work in groups on the task from the worksheet - mark different types of geometric shapes on the photographs according to the instructions.
- The two groups then come together to check each other's completion of the task. The teacher provides an opportunity to share interesting moments from the work.
- The next part of the lesson is devoted to creating a simplified model of individual houses. Each group receives from the teacher the names of two of the ten countries and hard paper, glue, and duct tape. The teacher sets the time-limited task (15-20 mins) - to create a 3D model of a house of one of the two countries so that it's easy to identify which country the house is from; the students should not use any colours.
- The housing models are put together into a simple exhibition. The models are numbered and everyone gets a chance to guess which countries they are from.
- The lesson ends with a reflection.

Worksheet - Housing and Geometry

In 2021, a total of 2.26 million people immigrated to EU countries for a variety of reasons. Most of these immigrants are from the following countries: Ukraine, India, Morocco, Belarus and Syria. Among the EU Member States with the highest numbers of migrants seeking asylum were Germany, France, Spain, Austria, and Italy. All EU countries are thus home to people with different cultural heritages. In the following pictures, you can see examples of typical dwellings from the countries mentioned above.



Ukraine



Belarus



France



Italy



Syria



Germany



Spain



Austria



Morocco



India

2. Interview Analysis

The teacher teaching of this unit is an experienced teacher of mathematics with a teaching practice of 12 years. Her other subject she teaches is chemistry. She focuses on teaching mathematics to lower secondary school pupils but teaches at upper secondary school level as well. 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, she attended the 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 where individual needs of each of the learners is respected.

The teacher has not rich experience of teaching migrant pupils.

The lesson was conducted with fifteen students aged 12-13. One of them had migrant background and was in the Czech Republic more than a year.

Lesson plans were used without any changes and additional materials. All the proposed activities could be covered in 90 minutes with the exception of modelling that took more time than the teacher had originally estimated (making a simple housing model took twice more time than expected).

The objectives of the lessons were recognition of 2D shapes, modelling of 3D objects as well as cooperation in small groups (3 – 4 pupils). The pupils were expected to get a deeper understanding of cultural differences in housing around the world. It was expected a discussion would be roused. The teacher could observe that pupils supported each other much more in this activity than in “ordinary” ones.

The methods used were: introduction of the topic (interaction teacher – pupils), whole class discussion, group work (on worksheets), modelling in groups, reflection.

Pupils were engaged in all activities. They motivated most while creating models of houses. The atmosphere in the lesson was friendly, cooperative and respectful.

The cross-curricular character of the activity is its plus, it is linked to geography and sociology.

The teacher noticed the migrant pupil has learned new vocabulary.

Overall, she was very positive about the activity, its progress and outcome.

3. Improvement Suggestions

We suggest the teachers in the future plan to spend more time on this teaching unit since making models of houses takes much longer than the plan suggests. At least 25 to 30 minutes is needed for this stage of the lesson.