



Concepts for teaching units

Title	<i>Geometry in various cultures</i>
Age of students/grade	<i>This depends on the lesson plan developed based on this teaching unit.</i>
Length of the unit	<i>1 lesson (45-50 minutes)</i>
Materials needed	<i>Depending on the teaching unit, materials used could be either actual hands-on materials (e.g. geometrical objects, clothing, sweets ...) that the teacher or (better) the students bring with them, or pictures/videos of geometric figures.</i>
Objectives	<p><i>Identifying geometric objects.</i></p> <p><i>Learning about different (and similar) use of geometric figures in various countries and cultures.</i></p> <p><i>Applying mathematics in everyday life contexts.</i></p>
Content related anchor points	<p><i>Analyse the question(s) from a content point-of-view: Which mathematical tools will be needed to answer the question(s)? Is additional (mathematical content) input by the teacher needed before the students can start working on the questions(s).</i></p> <p><i>Teacher is to support students in the group work phase and see whether all mathematical content that is needed for the question(s) is also available in each group. This may also be taken into consideration when composing the groups.</i></p>
Methodology related anchor points	<p><i>Either students bring suitable geometrical objects or objects with geometrical patterns (ideally from their own family or cultural background) into the classroom, or they bring pictures or videos (or online links to them) of such objects. As a fall-back, the teacher should also bring suitable objects/pictures/videos. Students should be given the opportunity to briefly present “their” object and its relevance.</i></p> <p><i>Formulate concrete question(s) that can be answered using mathematics. It is important that the mathematics is within the ability of the students. E.g.: How many cubical sweets fit into a box of a certain size? How many tiles does one need to fill a certain area, e.g. the walls of a room? How much paint does one need to paint a wall with certain patterns? How many different patterns occur on certain objects? Can these patterns be described by simple geometrical figures, or is higher mathematics (e.g. curves, fractals) required?</i></p> <p><i>Let students work on the question(s), best in groups. If there is more than one question, different groups can work on different issues.</i></p> <p><i>Groups should prepare concrete outputs, e.g. posters. Students should also make a list of possible other questions they could think of, and – if they have them – ideas how to answer them.</i></p>

	<i>Lesson(s) should end with all groups presenting their results to the whole class. Concrete output should be displayed either in the classroom or in other public space in the school.</i>
Language related anchor points	<i>Students should give the name of the objects/patterns/... they bring with them in their own first language (or in the language of the culture these objects come from). It can be a good exercise for all students to try to pronounce these names themselves, giving them an idea about the difficulty that none-first-language students might have with the language of instruction.</i>

Appendixes

Sample activity: See ready-to-use teaching unit “Unit Description_Final_AT01.docx” (LOKUMS from Türkiye), “Unit Description_Final_AT02.docx” (Portugal and its tile art), “Unit Description_Final_AT04.docx” (Marble blocks from Carrara), “Unit Description_Final_AT11.docx” (The height of popular sights)