



## STEAM project 'Urban Space'

Authors of the material:

**Kerli Randmäe** (kerli.randmae@ilmatsalu.edu.ee)

**Reelika Rohtla** (reelika.rohtla@ilmatsalu.edu.ee)

**Ülle Hanni** (ulle.hanni@audentes.ee)

**Katrin Raud** (katrin.raud@audentes.ee)

**Merle Pabbo** (merle.pabbo@audentes.ee)

**Piret Anier** (piret.anier@gmail.com)

### Project description and structure

The project is suitable for the 8<sup>th</sup> grade of Estonian middle school (for students with 14-15 years of age). In the first part of the project, the students will expand their knowledge and perceptions of urban space and will work independently to some extent. The result of the project is a pupil-made model of a city or town of their choosing.

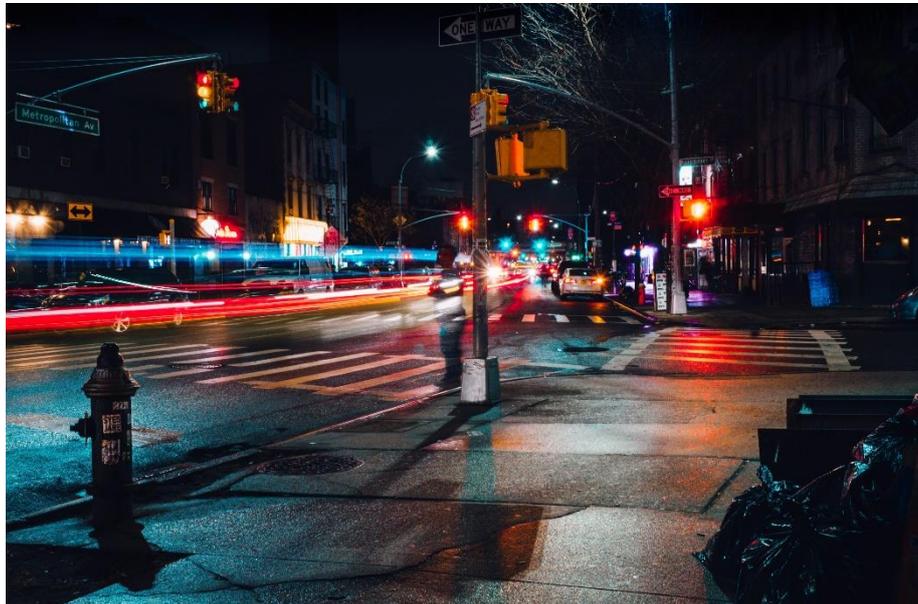


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### Links between STEAM-subjects and acquired competences

After completion of the project, the students will have developed their cultural and value competence, social and civic competence, self-determination and learning competence, communication competence, math, science and technology competence and digital competence.

### Learning outcomes by subject

**Physics** – the student describes the essential features of the phenomenon of movement and its relation to other phenomena. Uses movement schedules to describe movement.

**Technology** – the student can draw a sketch, and choose a suitable computer program for the task.

**Estonian** – the student is able to make a short presentation of the project activities and present it to classmates.

**Art** – the student sketches, designs and plans layouts in order to solve creative tasks. The student looks for and develops different solutions and personalized implementation options for the model of the urban space. Applies IT-tools for research and visual creation.

**Mathematics and Informatics** - draws a graph of functions according to the formula both manually and with a computer program and reads the values of function and argument from the graph.

**Geography** – the student learns to determine the direction of compass, read a map and understand landscape markers. The student provides examples of interaction between nature and human activity in different nature zones.

**Social studies** – the student can evaluate one's abilities and possible roles in a team work situation. The student realizes that people are different and understands the importance and significance of universal moral standards in human society.

**Physical Education** – can choose the right pace and mode of travel and the road option on the terrain. Is able to describe the orientation path that has been passed by memory.

**Literature** – knows the concept of realism and its features.



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## Project schedule

Introduction to the project can be done either in an Estonian, Geography or Social Studies lesson. The teacher and students should discuss the meanings of terms 'space', 'urban space' and talk about urban planning near their school, for example.

The introduction lesson should also inform the students about the length and learning outcomes of the project.

Subject	Number of lessons	Lesson content	Learning outcome and result	Curriculum integration
Physics	3	Reading graphs (distance, time, speed).	Describes the movement of objects, based on the graphs.	Mathematics and Physics work together as one.
Mathematics	3	Drawing graphs (distance, time, speed).	Produces function charts.	Students learn to read and understand information from graphs and draw graphs independently.
Geography	3	Urban spaces in different parts of the world, the relationship between location and architecture.	Describes urban spaces in different parts of the world.	Integration with Art: The student learns about urban architecture. Discussion about the city's natural location influencing architecture and urban planning.
Estonian	2	Preparation of presentation on previously discussed topics (geography, physics and mathematics).	Presents a brief presentation of different urban spaces (contributes to the completion of the model).	Repetition and reflection for topics learned during the course of the project.
Literature	1	Reading assignment based on an example of realistic genre: 'Oliver Twist' by Charles Dickens.	Find descriptions of urban space in 'Oliver Twist'.	Geography, Art, and Literature. The descriptions of the urban space found in the work are previously associated with what was learned in geography.
Social Studies	1	Getting to know the laws regarding traffic management and law enforcement.	Pupil understands moral standards and traffic laws.	Estonian and Social Studies: functional reading skill, different practices and societal norms.
Physical Education	2	Orientation in urban space.	Determine the direction with a compass and describe the landscape you are in.	Estonian, Art and Physical Education. Art focuses on urban space while sketching landmarks, views, or drawing, depending on the student's skills.



Technology	4	Drawing a draft for creating a model of the chosen urban space.	Getting ready and planning for creating the model, based on the draft and desired outcome.	Technology and art: preparations are made for making the model.
Art	2	Designing and completing the model of the urban space.	The students have finished the model of an urban space of their choosing.	

### Resources needed for the project

The school has the necessary Resources and materials. If something is missing in order to create the desired outcome, the students will have to find the missing materials at home..

### Evaluation

Each subject teacher evaluates their subject differently and individually, based on the student's skills, development and outcome reached.

### Example of the lesson plan

*The following lesson plans are an exemplary help material that can be modified and supplemented by each teacher using the project description as needed.*

*This lesson plan should be modified by the teacher according to their individual approach. This example of a lesson plan is just a recommendation.*

TITLE: Urban space in different natural zones

SUBJECT: Geography

OBJECTIVE: The interaction between nature and human activity in different natural zones.

PRIORITY ACTIVITIES FOR TEACHER: Collaboration and logistics between teachers.

PRIORITY ACTIVITIES FOR PUPILS: Formulates the concept of urban space for themselves.

IDENTIFICATION MATERIALS, SOFTWARE AND WEBSITES: Google Drive, Google Maps, Google.com search engine, Pinterest, Instagram.

Time	Lesson section	Method/activity for the teacher	Independent activity for the students	Notes
	*prerequisite skills	Homework given in the previous lesson		
	Introduction			



	Learning activities			
	Reflection of the lesson			

*\* Knowledge or skills that a student uses to achieve the learning outcomes of the project and which have been previously acquired.*