

Unit Title	Be an architect!
Topic	Geometry
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Aim of unit	Repeating, extending and interconnecting knowledge in solid geometry. Cultivation key competences as cooperation, communication, flexibility, etc.
Indicative Content	6 lessons Age of students: 16+  The groups of students create their own architectonic complex.
Resources needed	Drawing tools (ruler, compass, protractor), drawing paper A4 and A3, scissors, glue, pictures of different architectures, photographs or pictures of architectural complexes (postcards or pictures from books).
Teachers notes	

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## Programme:

### 1. Lesson

#### Motivation

Students should find and bring some photographs or other pictures of architectonic complexes. They discuss about the following: What they like, what they would like to change and why. What they find important in this architectonic solutions.

#### Team work:

Each group divides tasks as a team of architects and chooses together particular subject of their work. They also have to resolve the size of final model.

### 2. lesson

#### Realization of plan and side view.

The groups make their plan and side views. They consult problems with each other and also with the teacher if they need it

### 3. lesson

#### Nets

To complete parts of project, students make nets on drawing paper. They try to use the smallest number of pieces.

### 4. lesson

Finishing and completing the model

### 5. lesson

Finalization of project from the esthetic point of view.

### 6. lesson

Presentations of projects, discussion about it.

1. lesson:	Motivation and evocation part
Topic:	<u>Choosing particular architectonic complex or particular building</u>
Input:	Students should find and bring some photographs and pictures of architectonic complexes for example parts of city, streets, squares, suburban towns, villages, factories etc.. They can use for example web pages or some encyclopedia of architecture
Time:	45 minutes
Things you need:	Pictures and photographs or aerial photos of architectonic complexes

Together we look through all of these pictures. We divide them into a groups based on various viewpoints such as function or period of time etc. Students should think over the following problems:

Which components of these architectures are important and why?

Which components are necessary and why?

What do you find nice on presented form?

What would you like to change and why?

Which parts of these architectures should we conserve and why?

Each group chooses one architectonic complex or building and tries to sketch it in esthetic and efficient way according to their opinion

Methodic remarks:

1. This project is designed for a team work.
2. Number of students in each group should be 3 (max. 5)
3. Formation of groups depend on the teacher. Sometimes random selection is not the best thing and the teacher might be able to form efficient groups, resulting in benefit for each member of the group. The teacher can also divide the students according to their interests in particular architecture field.
4. There is a possibility for every group to have its own project or only a single big project can exist for the whole class. In the latter case individual groups participate on certain parts of the project and a coordinator must be selected in each group in order to assure good communication and cooperation among the groups.
5. Tasks in the groups are divided according to the students will. Each group is recommended to select a project manager, who can be the speaker, manages the time schedule of the group and takes care not to digress the theme.

Finally groups should present their project to the class.

## 2. lesson:

Topic:	<u>Realization of plan view and side view or making the image of building in oblique projection</u>
Input:	Knowledge of side and plan view, oblique projection
Time:	45 minutes
Things you need:	Drawing tools, drawing paper, pictures and photos from last lesson

In order to become familiar with the project, students draw the plan of the architectonic complex. They can use side and plan view, and, in case of a building that must be drawn, they may use the oblique projection.

While planning their project, the groups should imagine the proportions of various components (such as doors, windows, fences etc) and pay attention that everything is well balanced. Students use the pictures from the last lesson, notice proportions and compare them to their ideas. The designed architecture should be esthetic as well as efficient and functional.

Plan view and side view should be made in suitable ratio to reality. Then the final size of the model must be resolved.

Methodic remarks:

1. It is possible to use special type of software for making plan and side views and images in oblique projection.
2. Realization of plan view and side view or making the image of building in oblique projection can take more time therefore students can finish it at home or certain tasks, such as the plan view, can be assigned as homework.

## 3. lesson

Topic:	<u>Nets</u>
Input:	Knowledge of solid properties, nets of solids.
Time:	45 min
Things you need:	Drawing tools, drawing paper, glue for paper

Students split the project, so that it can be possible to make a net of each part of it. They should try to split it into as few parts as possible, to avoid very simple solids, such as cubes or cuboids. It is needful to consider attentively formation of the individual nets, not forgetting about details, such as placing connecting tucks, used for gluing the solid together.

#### 4. lesson

Topic:	<u>Finishing and completing parts of project together</u>
Input:	Solids and their properties
Time:	45 min
Things you need:	Parts of model made in last lesson, thick paper- board (paste-board), glue for paper, paint colors

Using plans (front and side views), that were made in the beginning of the project, the students complete their model. They make graphic design of each part before compiling the parts together. It is still allowed to make small modifications and changes at this stage of the projects.

#### 5. lesson

Topic:	<u>Graphic image of the project, final arrangement</u>
Input:	Basic graphic techniques
Time:	45 min
Things you need:	Paint colors, crayons and for example crape paper, skewers, mild sand, sawdust and so on

Groups finish the graphical part of their project. It is possible to add for example persons, animals, woods, green or cars and buses. Students can also use mild sand and skewers to arrange the area around buildings. All of these graphical supplements should stay in harmony with its function.

Methodic remarks:

1. It is possible to prepare all the graphical supplements during art lessons (under agreement with the teacher of art)
2. The spectrum of art techniques may be arbitrary depending on abilities of the students.

#### 6. lesson

Topic:	<u>Presentation of projects</u>
Input:	
Time:	45 min
Things you need:	Finished projects

The speakers of each group present the completed work to other groups. They should answer the following questions:

Why did we choose this particular project?

What we found interesting and important in our solution?

Did we make some changes? Why?

What can be done better?

The members of other groups than can ask another questions.

Methodic remarks:

1. It is very useful to conclude possible time for each speech, because time intended for presentation is quite short.
2. Students can also prepare their presentations as a homework. Their speech than may be more clear, brief and well-consider.
3. It is interesting and useful to utilize projects during various presentations of school, for example open day etc.