BUILD A RENNAISANCE DOME

General information			
Respective blueprint	Build a Rennaisance dome.		
Description	Students will make their paper dome based on the one from Šibenik Cathedral of Saint Jacobs designed by Juraj Dalmatinac and Nikola Firentinac in the 15th and 16th centuries.		
Learning objectives	• students will get to know the ingenious age of Rennaisance in Dalmatia through the relationship between carrier and cargo in architecture • students will make a dome from paper and cardboard • students will learn to cooperate in pairs • students will understand the connection between idea and construction by using simple materials and tools in building a difficult task		
Related curricular subjects	Art, Mathematics, Physics, Polytechnic, Science, History		
Duration	180 min		
Level of difficulty	Basic	Medium	Advanced
	☐	☐	☑
Inclusivity guidelines			
How to integrate students with SLD	Work in pairs with the help of the teacher or other students. Use colours to separate meaningful information and be consistent in your colour codes. Use clear visual elements to illustrate concepts and support the text without overloading them. Ensure that the images used match the text and are large and clear. Explain the procedure with pictures step by step.		
How to integrate students who work faster	Helping students who are slower in their work, drawing construction on the blackboard, and being responsible for using difficult tools (hot glue gun, stapler, cutting skewer sticks, corrections in measuring).		

Step-by-step description of the lesson

Step 1: Introduction of the age of Renaissance in architecture	Estimated time: 25 min

- Explain the term dome through the basics of construction (relationship between carriers and cargo)
- Students will learn about the age of Renaissance through the works of Juraj Dalmatinac and Nikola Firentinac on the cathedral at Šibenik
- The cathedral was built in the 15th century, while the frontal facade, roof and dome were finished in the 16th century
- The significance of construction is that every piece of stone fits on the next one without using any kind of binding material in the ingenious "tongue and groove technique", where each piece of stone is visible and processed on the inner and outer sides as well
- This inventive technique is best seen in the construction of the dome built by Nikola Firentinac
- Students will make a dome in pairs to help each other make the pieces and connect them in construction

Step 2: Construct your dome	Estimated time: 135 min

Making the domes in pairs:

- Students draw the octagonal construction of the dome on paper and 5 long strips on corrugated cardboard as presented in pictures in the template
- Students cut and connect with a staple the paper template constructing a dome and glue the cardboard strips as ribs over it to make it stable
- Students connect the pieces with tools: paper dome, skewer sticks as columns and Styrofoam as a base
- Students test the statics of the construction by turning it around in space

Step 3: Presentation of finished works in pairs	Estimated time: 20 min

Students present their work in front of the class and **self-evaluate** it according to **completion, accuracy, statistics, aesthetics and cooperation**.
The teacher asks the students about the task's difficulty, whether they had problems making their dome, and in which part: drawing, measuring, cutting, glueing, and connecting the pieces.

Assessment activities

Activity 1: Students fill out the evaluation table

Students present their work in front of the class according to the terms listed in the evaluation table on the blackboard. They self-evaluate their work and fill the table with **+**, **-** or **1/2**.

Attachments

- Construction in architecture
- Pictures of the development of dome shapes
- Template for a dome with the procedure
- Evaluation table sheet

References:

https://upload.wikimedia.org/wikipedia/commons/transcoded/b/bf/Catedral_Sibenik.ogv/Catedral_Sibenik.ogv.480p.vp9.webm

https://youtu.be/VyTd-coWngw

ATTACHMENTS:

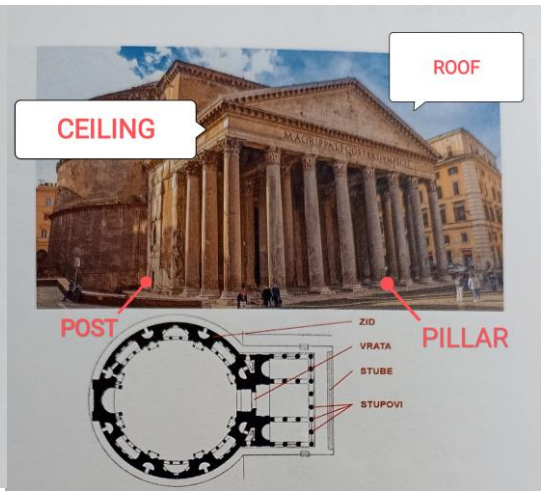
Construction in architecture

What is construction in architecture?

Discover the architecture and how we can construct it using the relations between carrier and cargo.
Think what of the prepared material could be used for which part of **Construction**?

Carriers:
PILLAR – wooden skew sticks
POST – cardboard strips
WALL – paper

Cargo:
CEILING - Styrofoam
VAULT - paper
ROOF - cardboard
DOME – all+stapler+glue+scissors



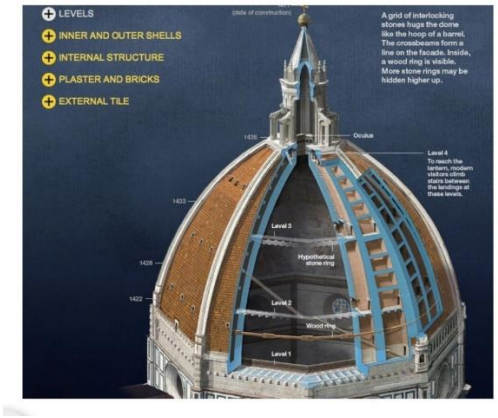
Saint Jacob's Cathedral at Šibenik, 1499.
Pantheon at Rome, 14th century BC

References:

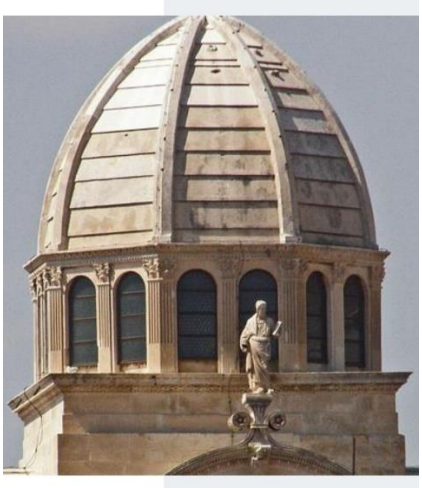
Images from the textbook for art culture in the 5th grade of Primary school, „Moje boje 5", written by Miroslav Huzjak, published by Školska knjiga in Zagreb, 2019.

Pictures of the development of dome shapes

BUNJA/KAŽUN in Istra, Croatia, is a model after traditional stone houses for tools made by Zdravko Kašner 2010.



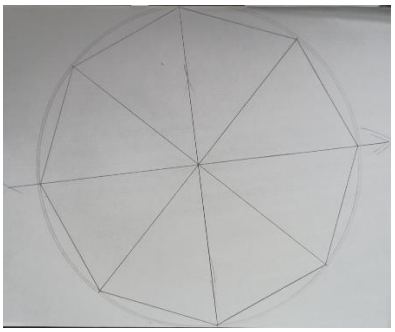
FLORENTINE CATHEDRAL in Italy, 15th century



CATHEDRAL OF SAINT JACOB in Šibenik, 15-16th century

References: Home - Florence with Flair, published in News by Elena, 28.12.2014.
Kupola katedrale svetog Jakova Šibenik (rezerviraj.hr) , published by Ivan, 2.10.2017.

Template for a dome with the procedure

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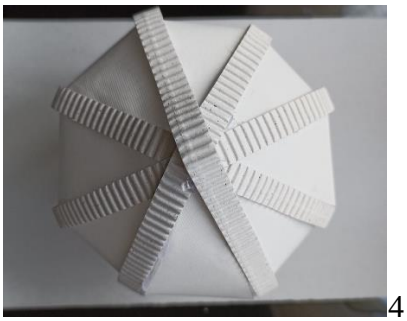
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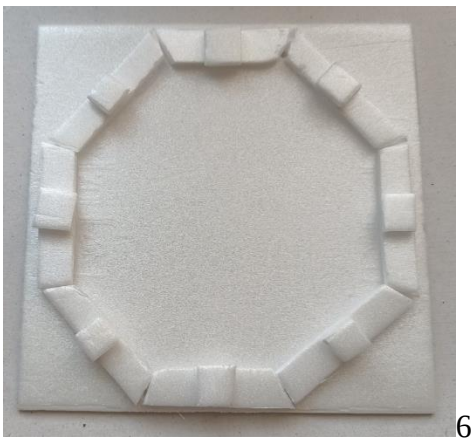
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Evaluation sheet

Self-evaluation of Renaissance domes in pairs in front of the class according to the given table:

GROUP	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
completion												
accuracy												
statics												
aesthetics												
cooperation												

STEAM IN TIMES

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