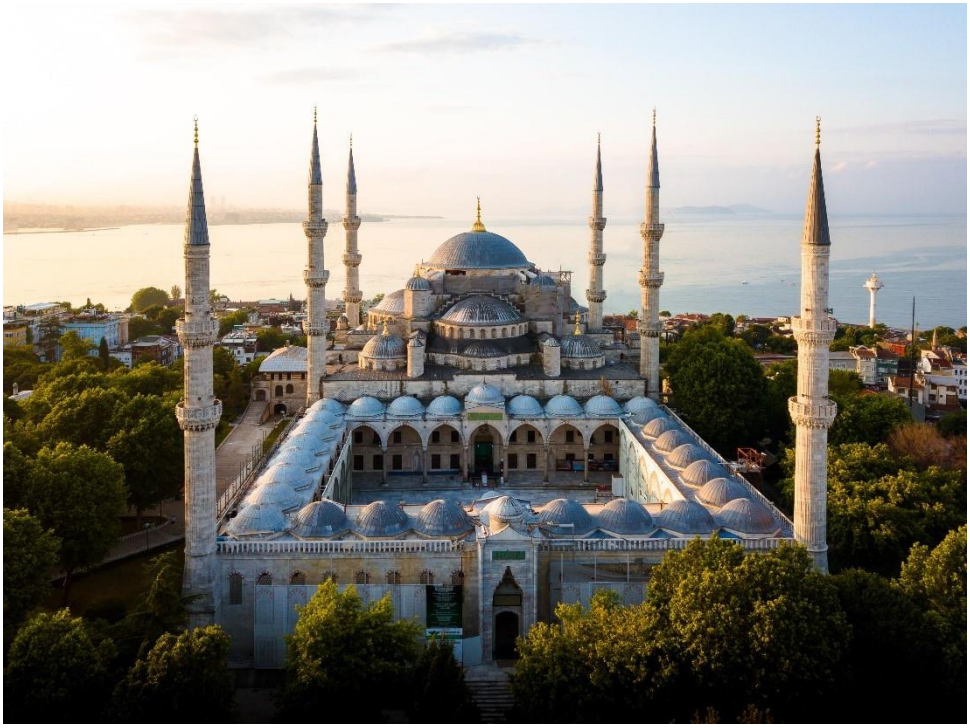
Blue Mosque Project



Description

In this activity we are going to model and design the Blue Mosque in Istanbul. This is one of the most famous monuments in Turkey. It is located in the city of Istanbul, the most populated city in Turkey and it is one of the major attractions of this place.

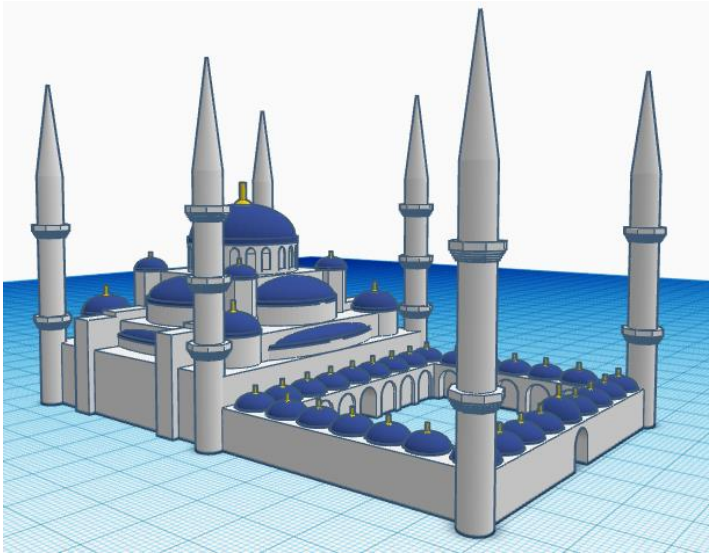
Its construction began in 1609, by order of Sultan Ahmed I, and it was completed in 1617 with Mustafa I. It is named Blue Mosque because of the 20,000 blue ceramic plates that cover its interior. Such is its fame and beauty that it was declared a UNESCO World Heritage Site in 1985.

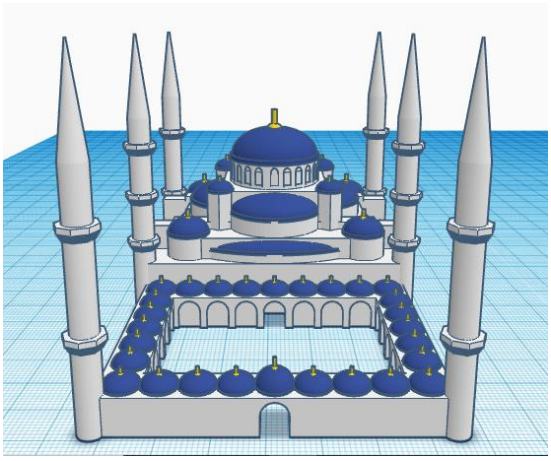
Its creation was the subject of much controversy among the locals. The mosque had the same number of minarets as Mecca, which was unacceptable to the people, causing uproar and controversy. This controversy ended with the sultan's donation of a seventh minaret to Mecca, differentiating it from the Meccan Mosque.

Objectives

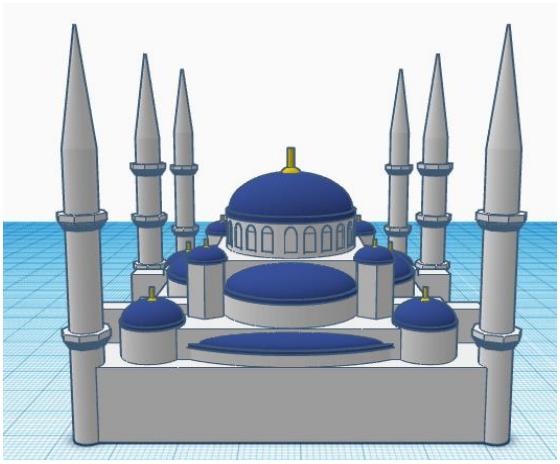
- Replicate a model as realistic as possible.
- Use basic shapes to shape a complex design
- Use empty shapes to create holes
- Resize already created shapes to detail new objects

Reference model designed with Tinkercad

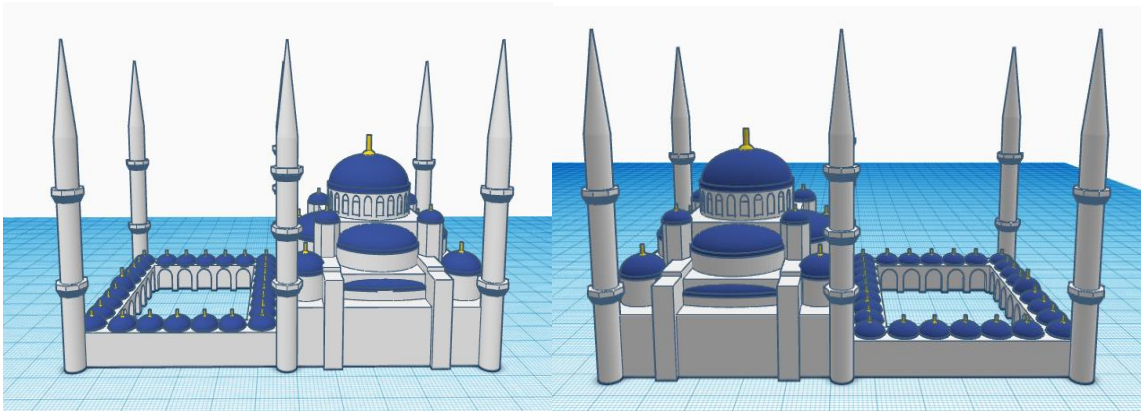




Front View



Rear View



Lateral view

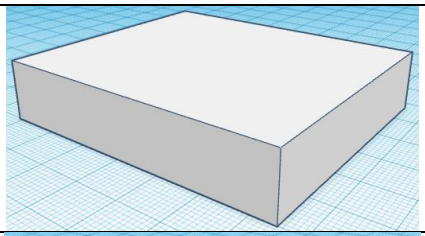
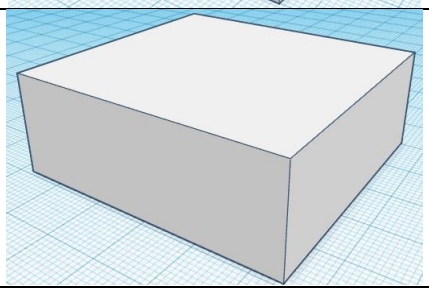
Model features

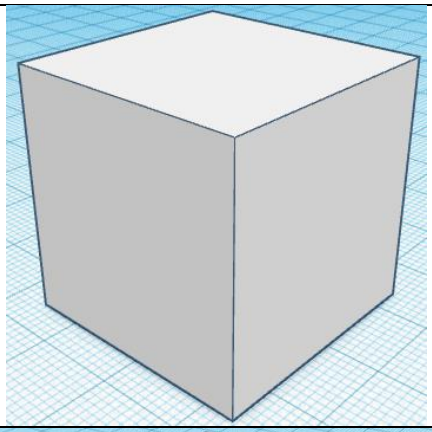
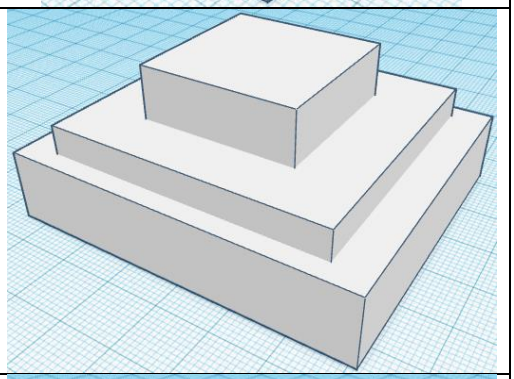
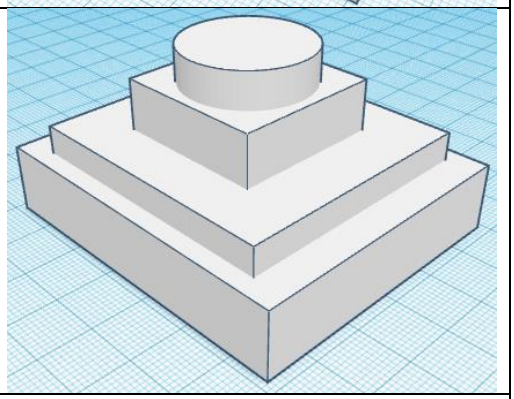
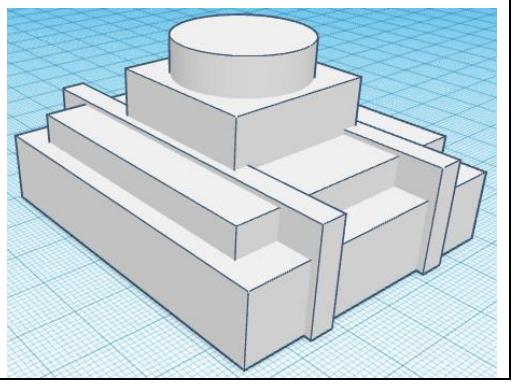
This model has been designed using basic shapes on Tinkercad, we can use in the end different type of 3D objects.

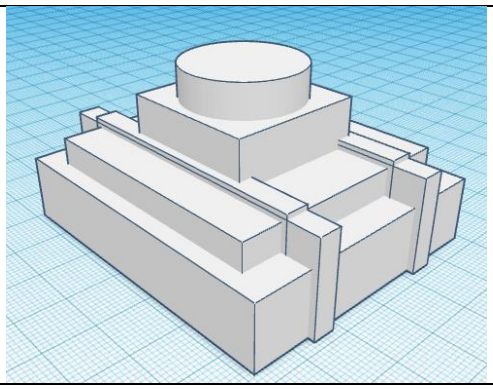
The project is divided into 4 parts:

- Central structure
- Domes/facade details
- Courtyard
- Minarets

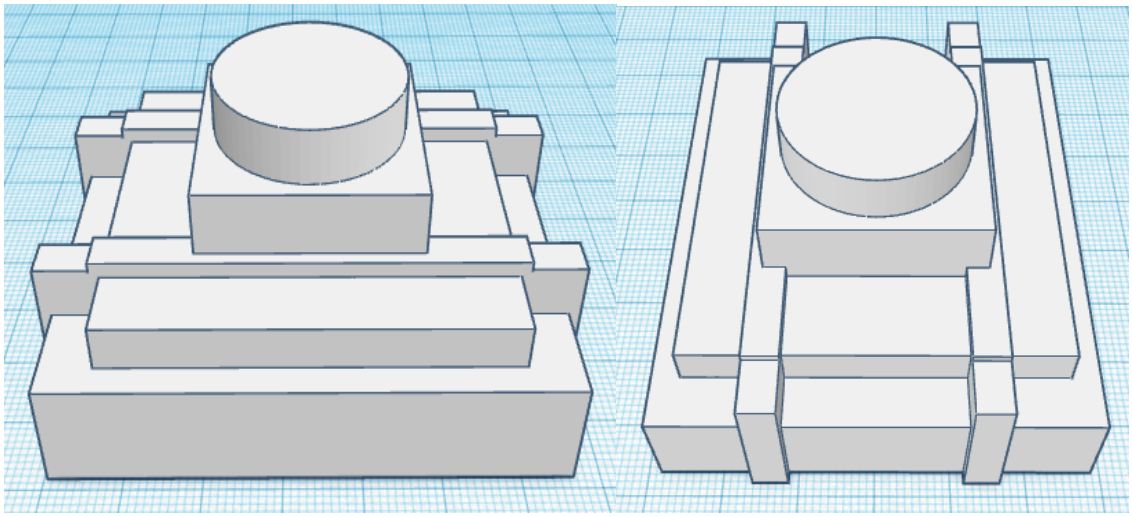
Central structure

3D Object	Size	Picture
Box	66mm wide x 57mm long x 13.40mm high	
Box	52.50mm wide x 49.50mm long x 19mm high	

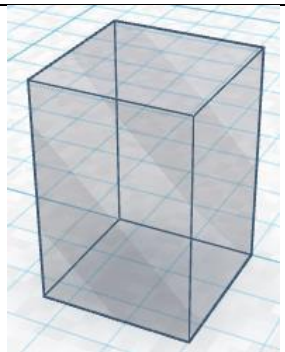
Box	29mm wide x 29mm long x 29mm high	
Box x3	Align the 3 boxes to get this result	
Cylinder	Sides: 64 25mm wide x 25mm long x 36mm high	
Box x2	69mm wide x 4.50mm long x 20mm high	

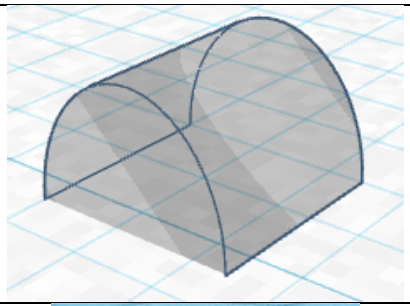
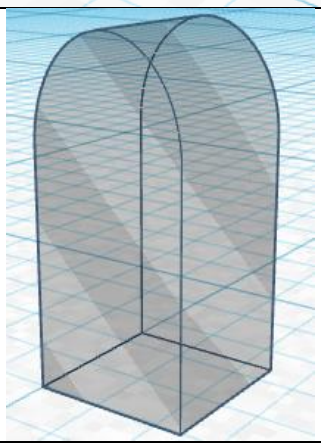
Duplicate the 2 previous boxes	55mm wide x 4.50mm long x 20mm high x 1mm high	

If we group all the shapes, the result looks this way:

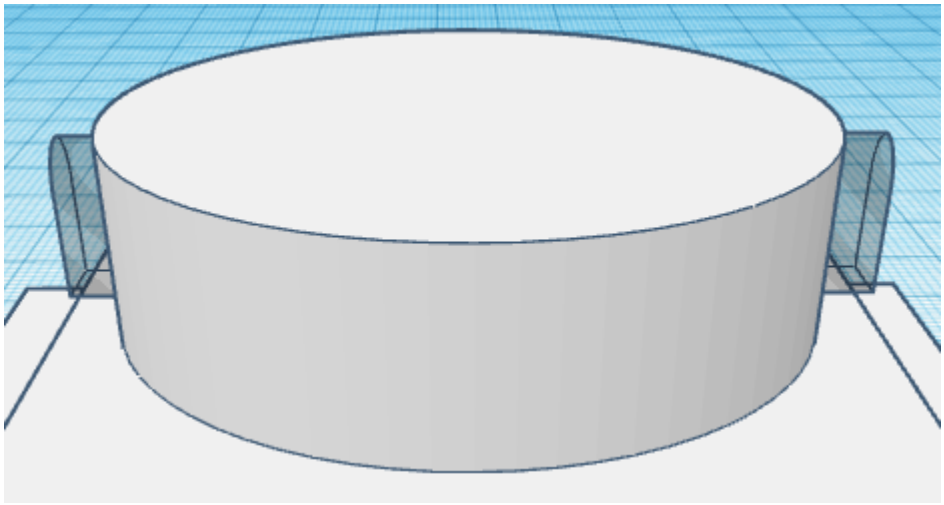


Domes and façade details

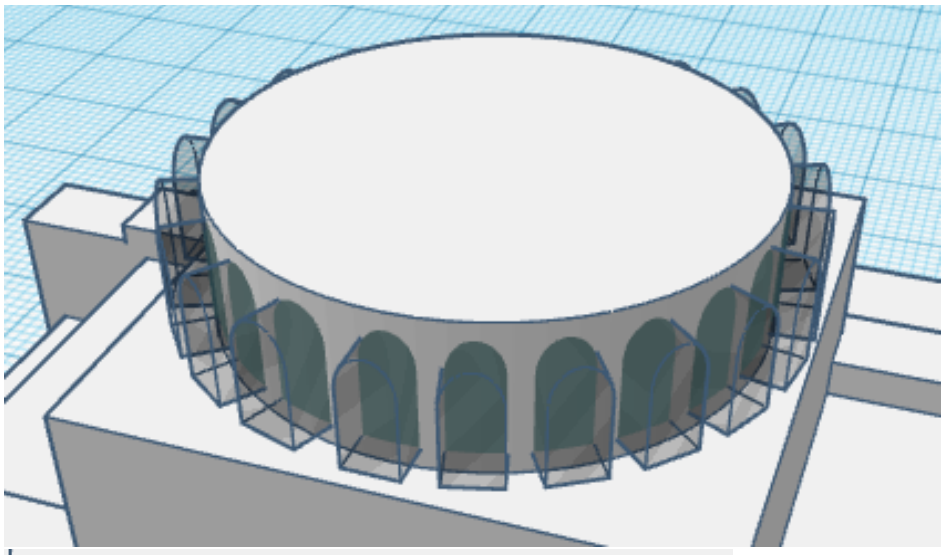
3D Object	Size	Picture
Box	2.40mm wide x 2.40mm long x 3.60mm high	

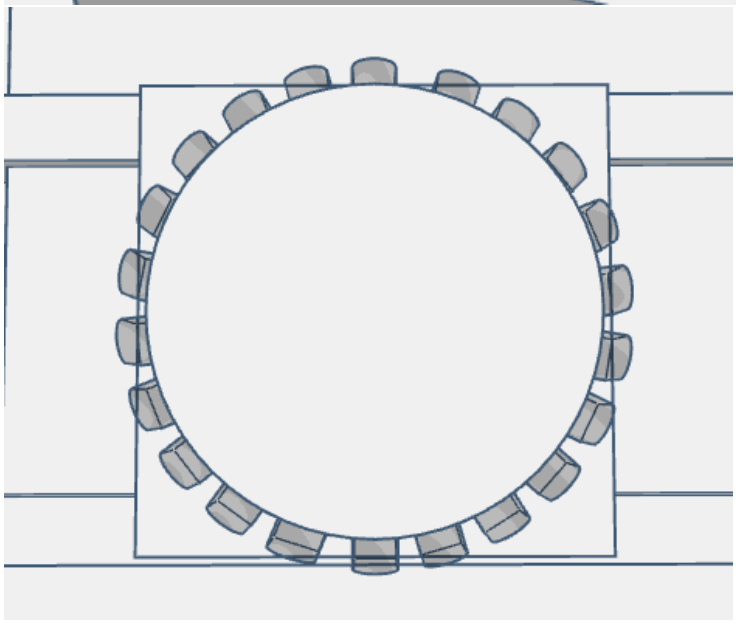
Round roof	2.40mm wide x 2.40mm long x 1.60mm high	
Box and round roof group	Align and group	

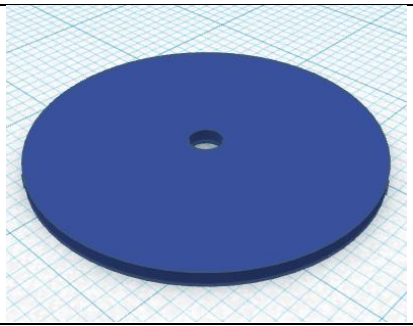
We have to place the empty arches in the upper cylinder as shown in the picture

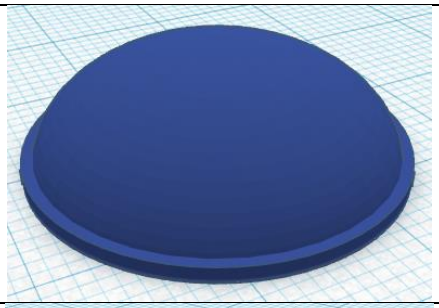
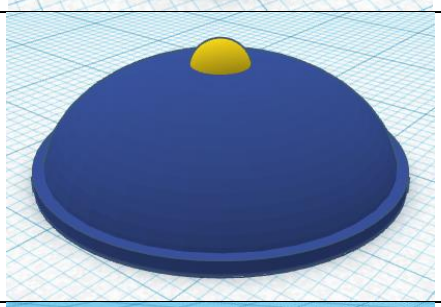
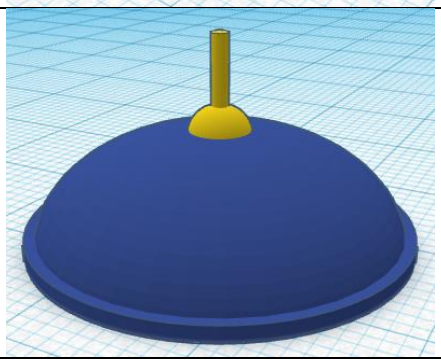


We select both arches and we rotate them 16º and then duplicate them until we complete all the structure:

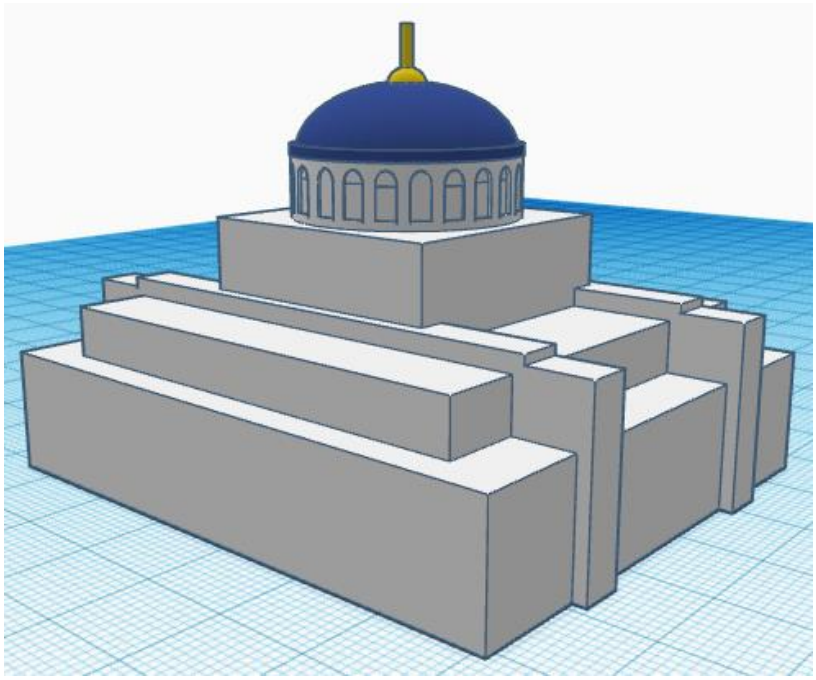


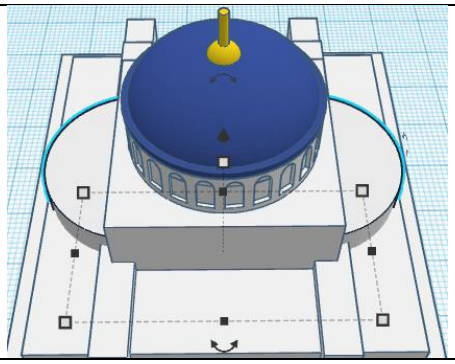


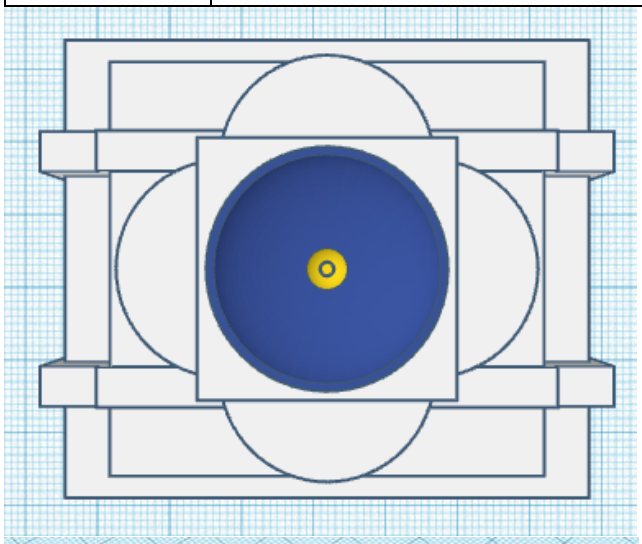
3D Object	Size	Picture
Tube	Wall thickness: 30. Sides: 64 25.20mm wide x 25.20mm long x 1mm high	

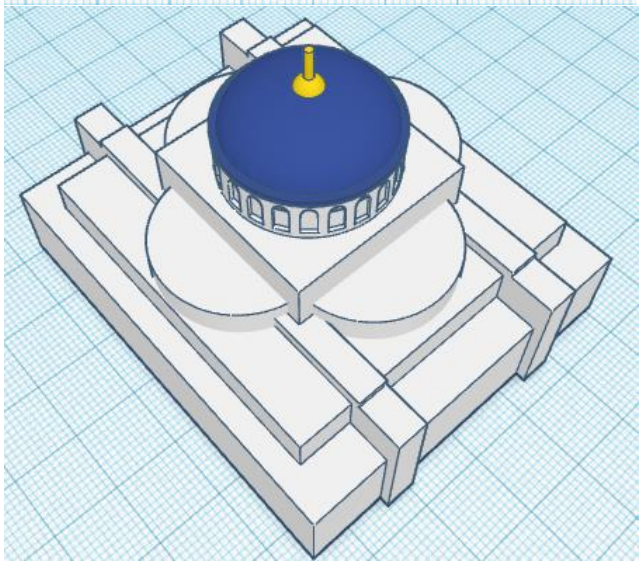
Half sphere	24mm wide x 24mm long x 7.5mm high	
Half sphere	4mm wide x 4mm long x 1.90mm high x 7.30mm height	
Cylinder	Sides: 64 1mm wide x 1mm long x 13.50mm high	

We place the dome on top of the main structure and we group them



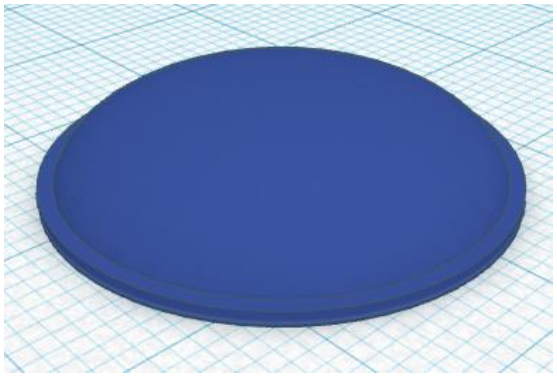
3D Object	Size	Picture
Cylinder x2	Sides: 64 25mm wide x 25mm long x 23.50mm high	

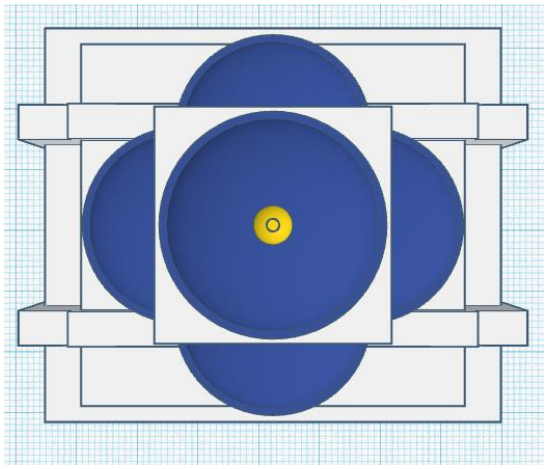




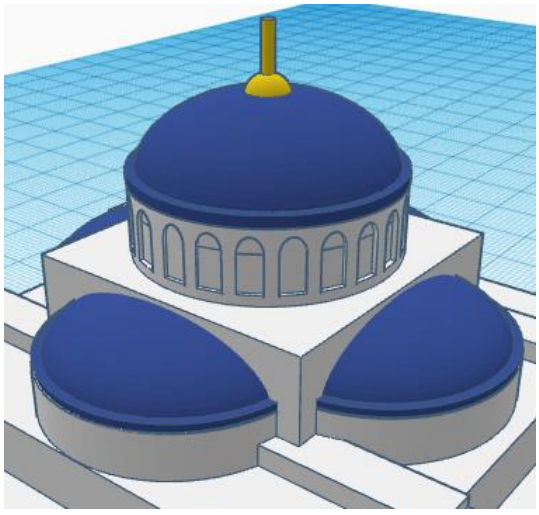
We duplicate both cylinders and we rotate them 90º, so it looks like this

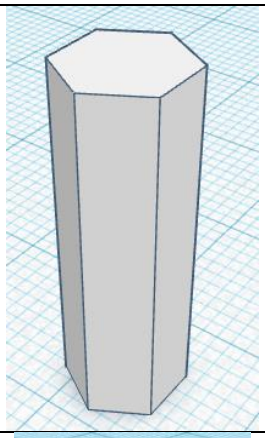
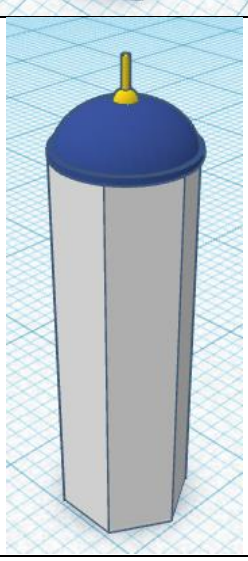
Now we duplicate the previous dome but removing the yellow parts and increasing its height to 5.20mm



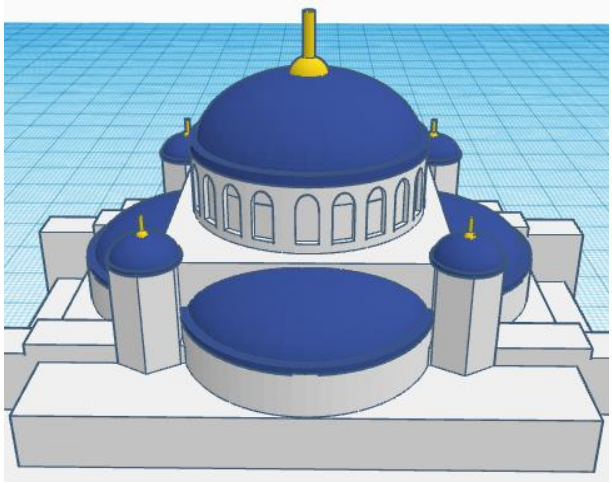


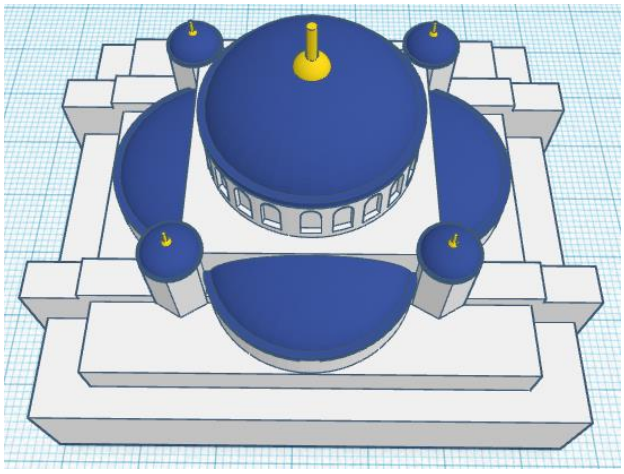
We place the domes on top of the white cylinders we have created as we can see in the picture

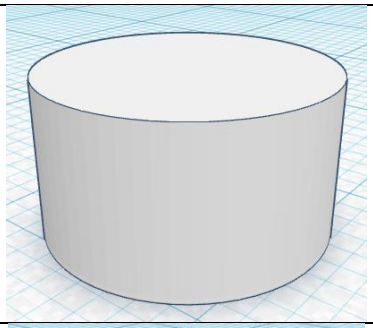
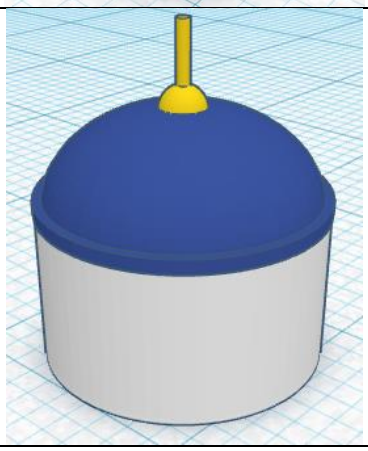


3D Object	Size	Picture
Polygon	6mm wide x 7mm long x 20mm high	
Dome (We have already created one)	6.90mm wide x 6.90mm long x 4.30mm high	

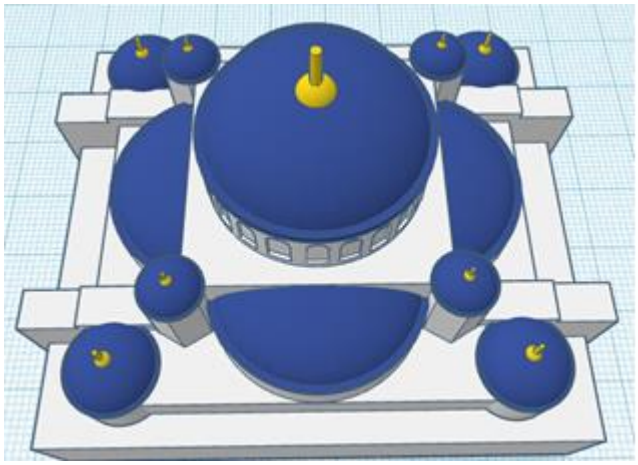
Once we have grouped the 2 shapes, we place them this way (9.50mm high)

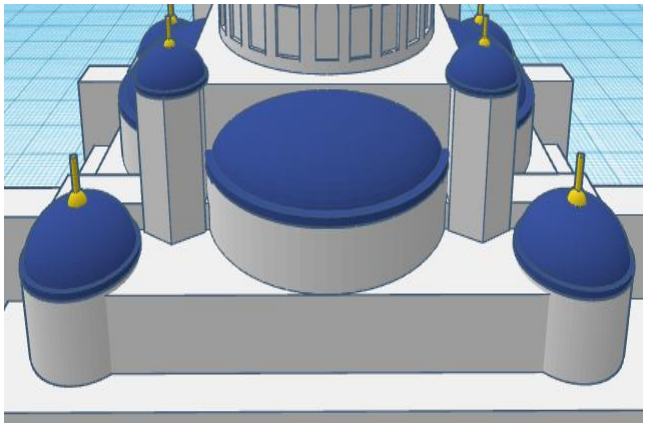


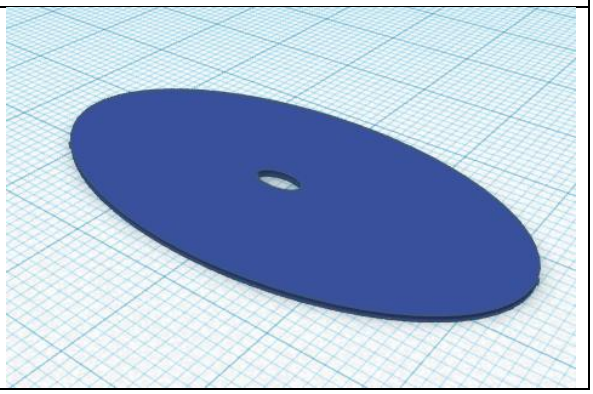


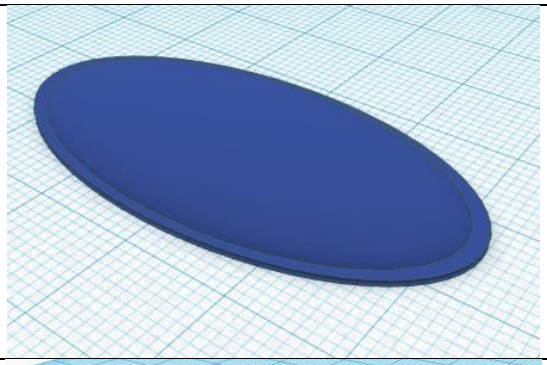
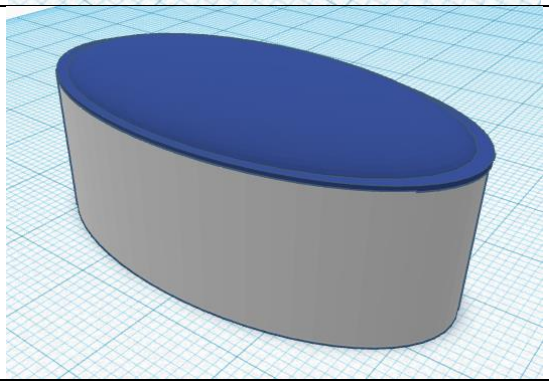
3D Object	Size	Picture
Cylinder	Sides: 64 10.50mm wide x 10.50mm long x 5.75mm high	
Dome (We have already created one)	10.60mm wide x 10.60mm long x 6.60mm high	

We group the shapes, we duplicate and place them this way over the structure

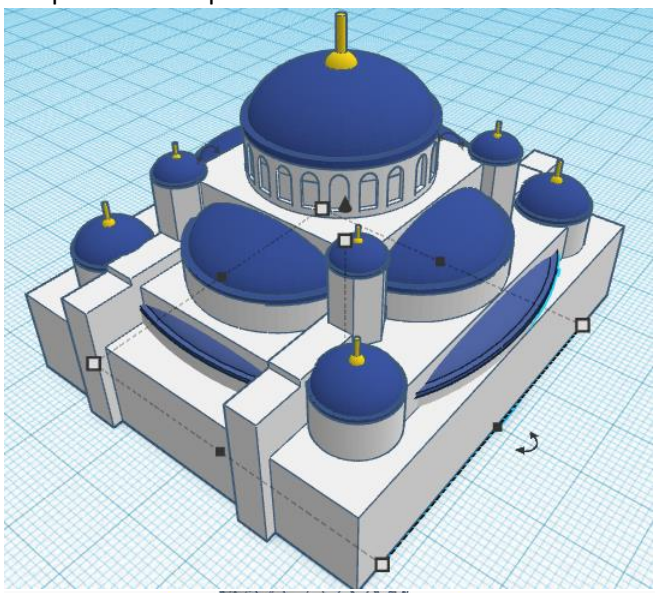


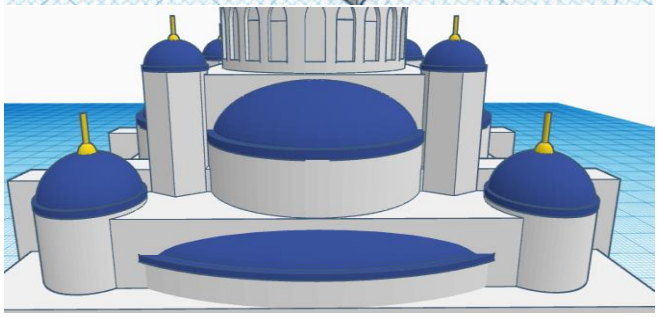


3D Object	Size	Picture
Tube	Wall thickness: 30. Sides: 60 47.60mm wide x 25.20mm long x 0.45mm high	

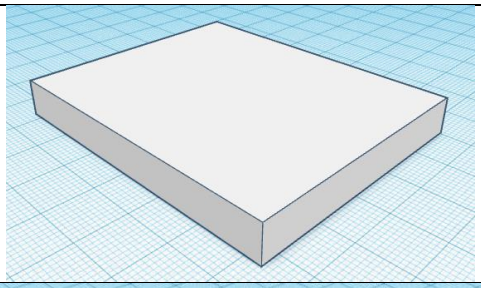
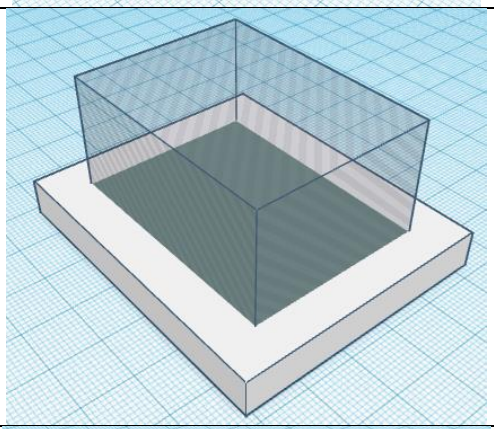
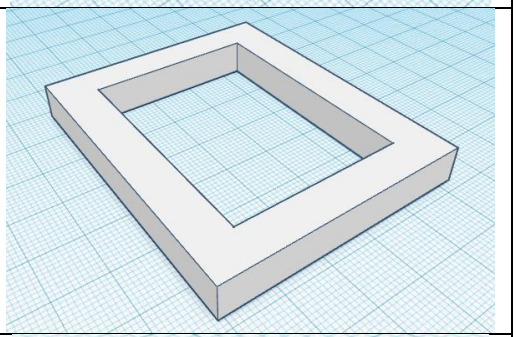
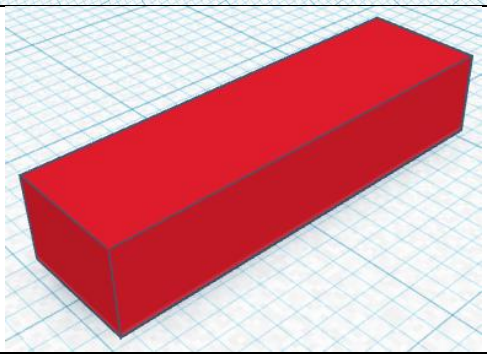
Half sphere	45.30mm wide x 24mm long x 3.50mm high	
Cylinder	Sides: 64 47.20mm wide x 25mm long x 15.70mm high	

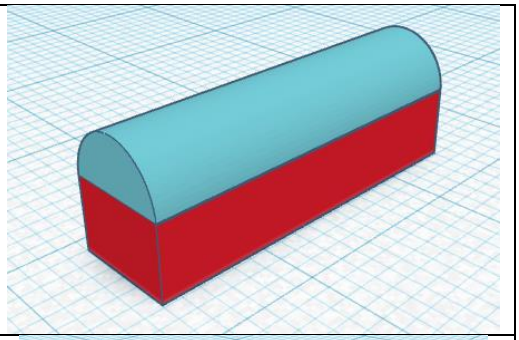
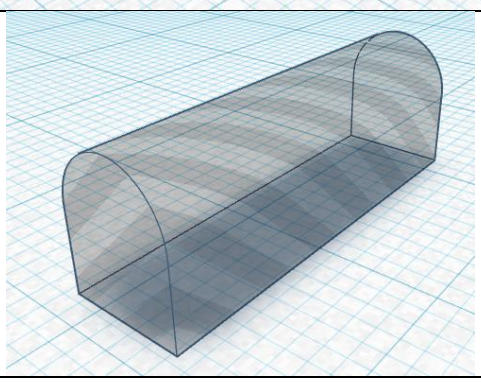
We place the shape on each side of the structure



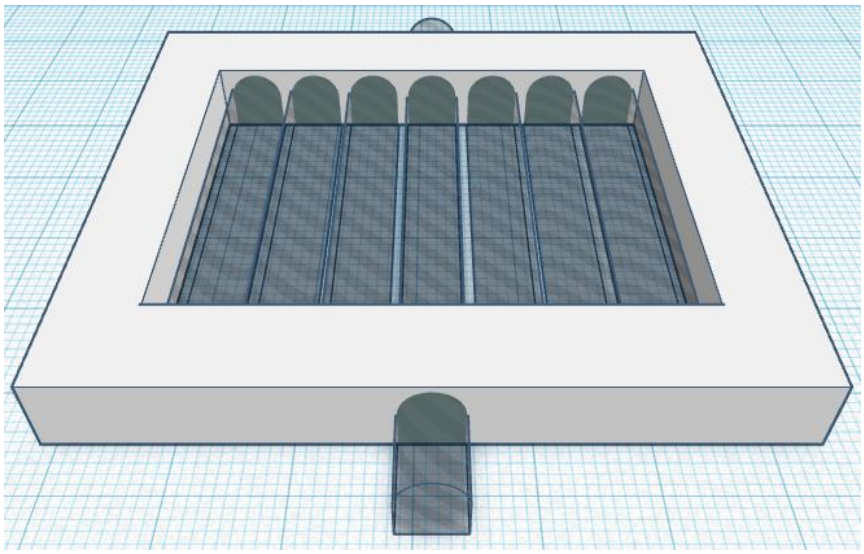


Courtyard

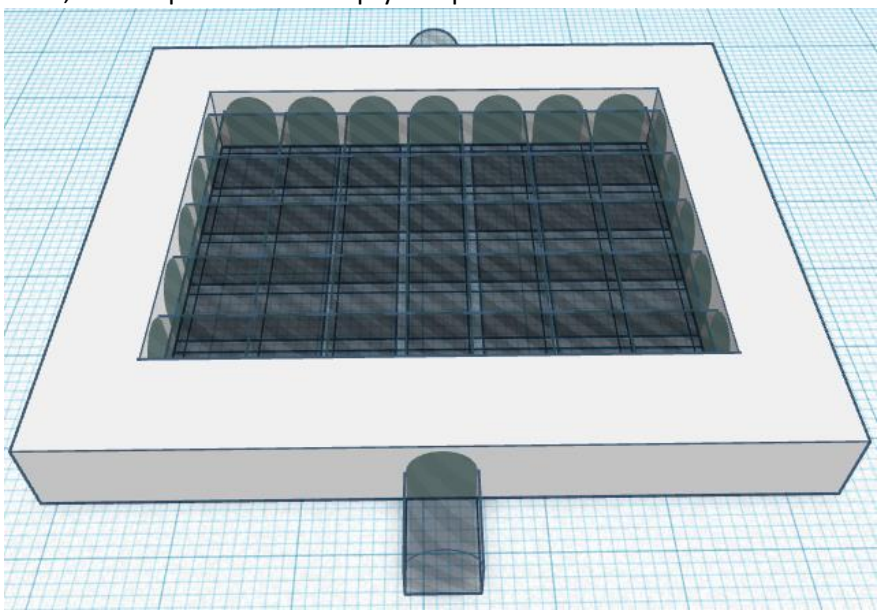
3D Object	Size	Picture
Box	65.70mm wide x 54mm long x 7.70mm high	
Box	50mm wide x 37mm long x 40mm high	
Box and empty box group	Align and group both shapes	
Box	5.70mm wide x 20mm long x 4mm high	

Round roof	5.70mm wide x 20mm long x 3mm high.	
Empty box and empty round roof group	We group the shapes and we empty it	

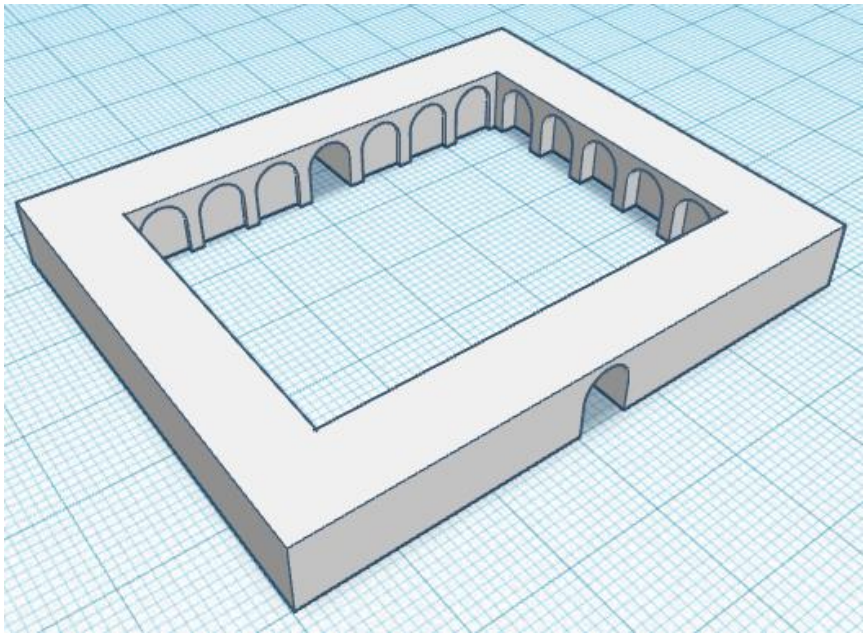
Now we create the doors of the courtyard, we duplicate the arche and lengthen it to create the holes as we can see in the picture.

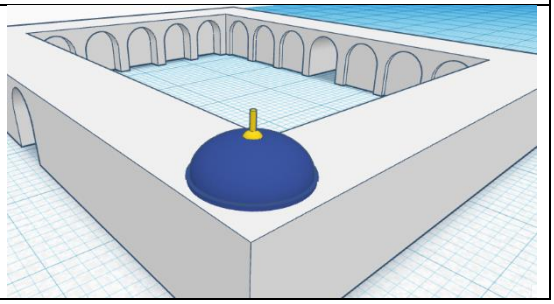


Then, we duplicate the empty shapes and rotate them 90º to cross the courtyard this way

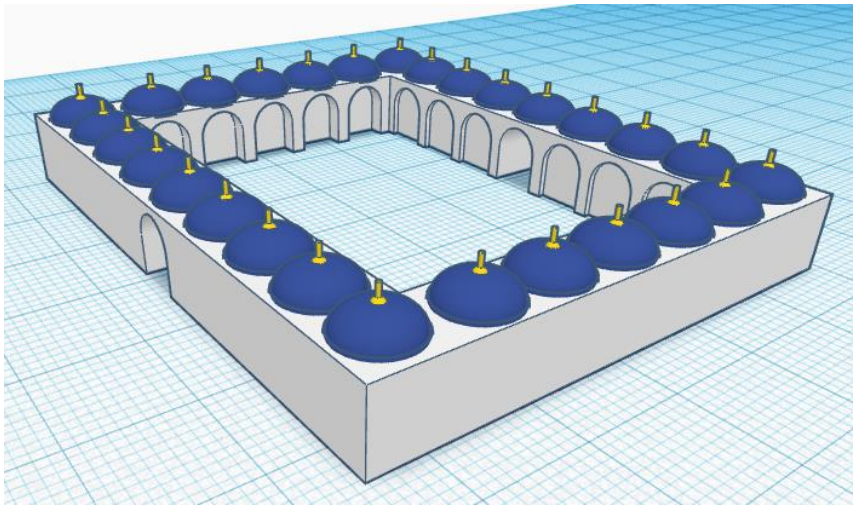


The result has to look like this.

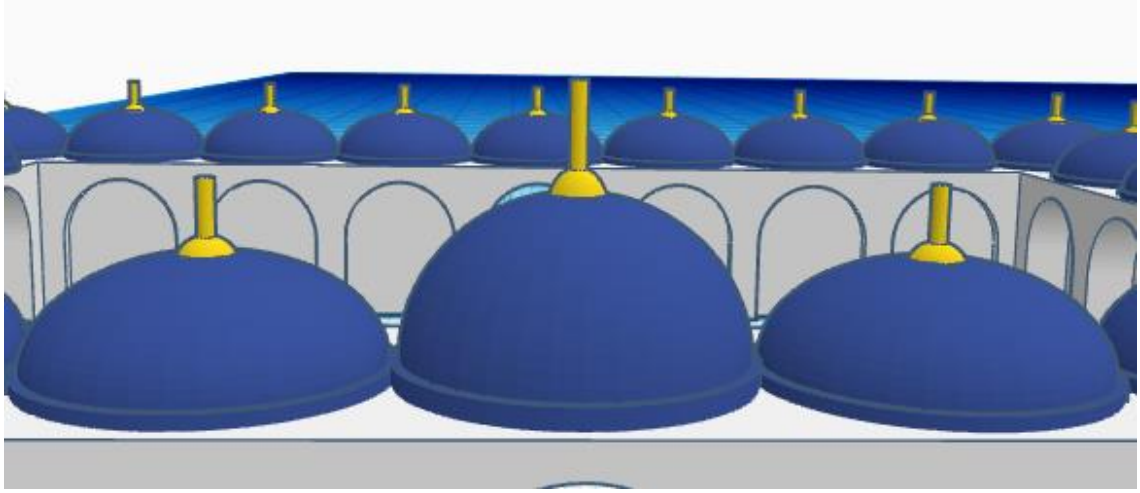


3D Object	Size	Picture
Dome (We have already created one)	7.20mm wide x 7.20mm long x 3.85mm high	

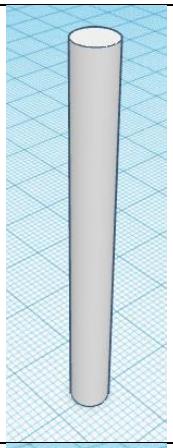
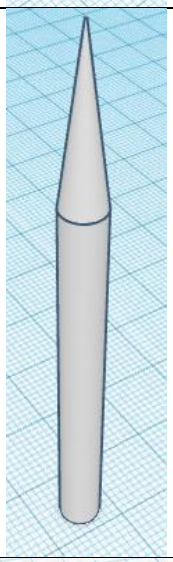
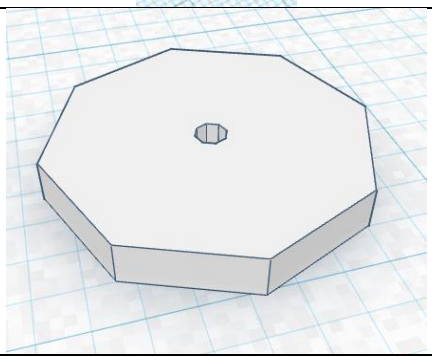
We duplicate this dome until we complete the roof of the courtyard



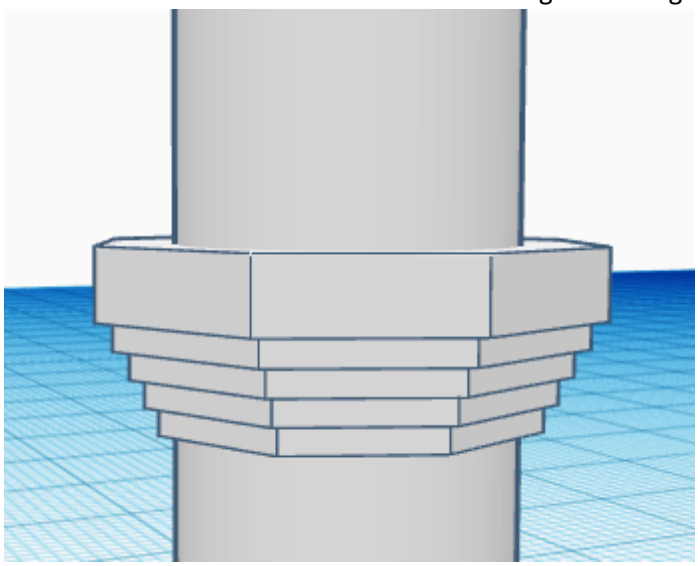
We will increase the size of the door dome (5.8mm)



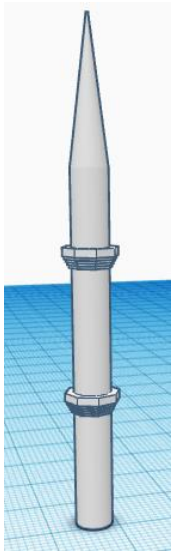
Minarets

3D Object	Size	Picture
Cylinder	Sides: 64 5mm wide x 5mm long x 50.85mm high	
Cone	Sides: 64 5mm wide x 5mm long x 20mm high	
Tube	Wall thickness: 30 / Sides: 8 7.65mm wide x 7.65mm long x 1mm high x 18.60mm height	

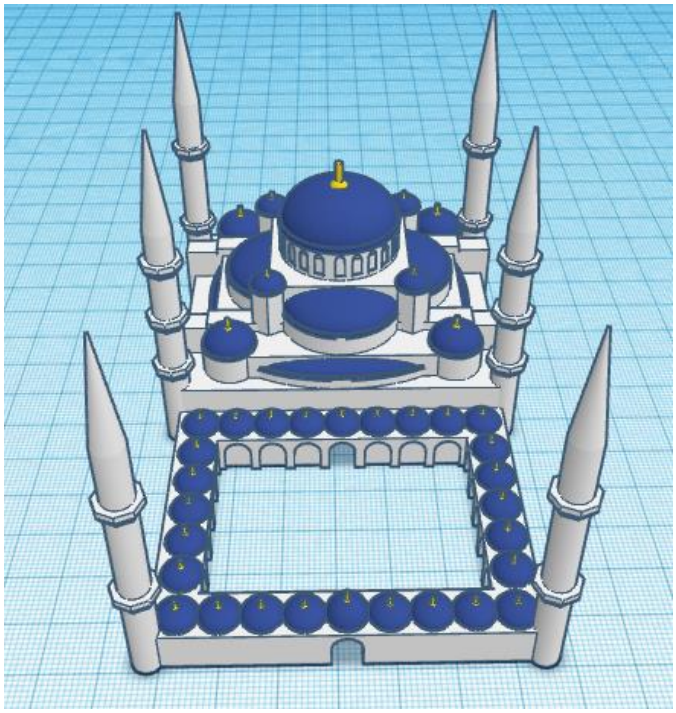
Once we have aligned them with the pieces and set the correct height, we duplicate 3 times this tube and scale it 7.15mm wide x 7.15mm long x 1mm high.



We duplicate again the tubes and place them at the height of 37.50mm



Then we duplicate the minaret to obtain 3 on each side.



Now it is time to decorate the mosque as we want, this is how it has to look like.