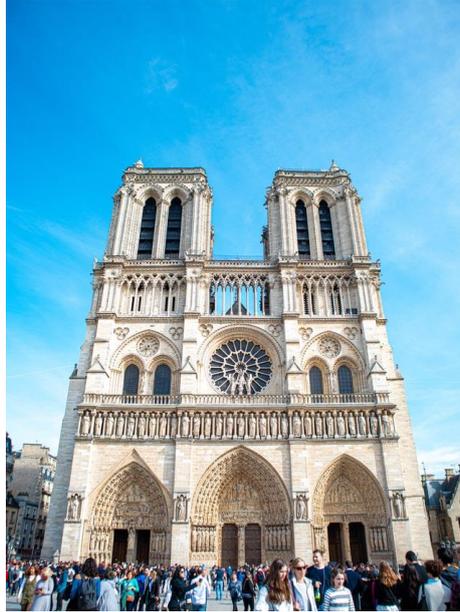


Notre Dame Printing Project



Description

Notre Dame is one of the most iconic monuments in Europe. It is in Paris, besides it is visited by thousand tourists every year.

In the year 1160, Maurice de Sully ordered its construction but this process lasted 100 years. Throughout its history it has suffered damages and renovations because of the test of time and historical events, as we could see in the French revolution.

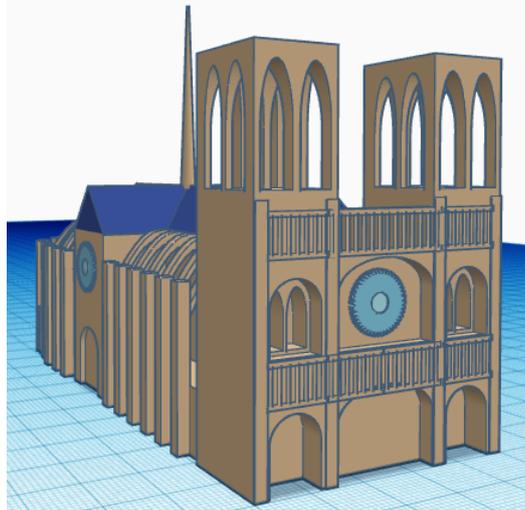
Apart from the catholic activities held in the cathedral, Notre Dame is also popular because of the celebrations that took place there, such as Napoleon´s coronation. It is also famous because of the film The Hunchback of Notre Dame which is set in this building.

In 2019 it suffered critical damages because of the fire, its spire and one part of the roof fell. In this activity we will build this cathedral, trying to restore Notre Dame as it was before the fire.

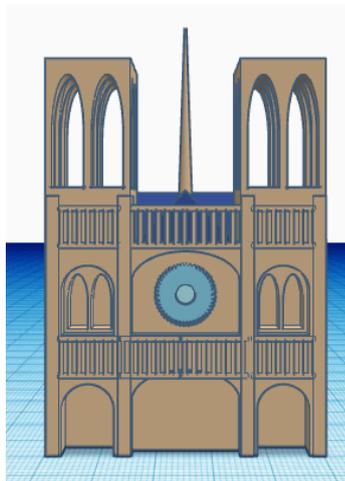
Objectives.

- Replicate this monument in Tinkercad.
- Combine simple shapes to get complex shapes.
- Solve the possible embedding problems of objects and gaps.
- Rotate objects.

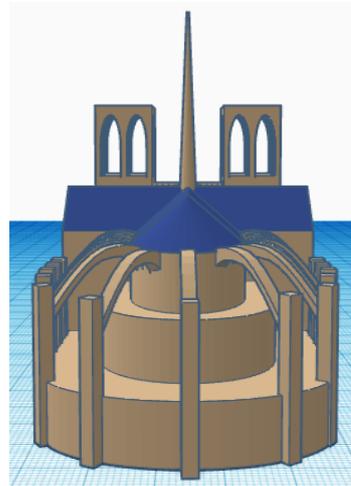
Reference model designed in Tinkercad



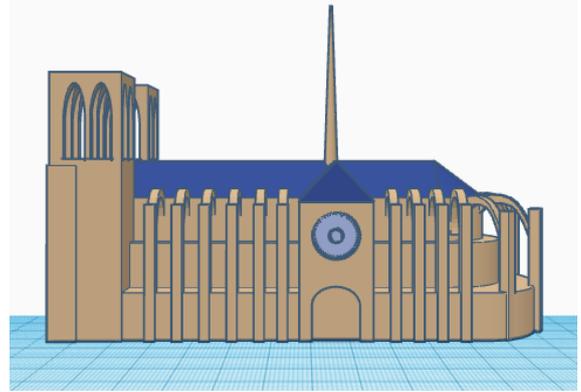
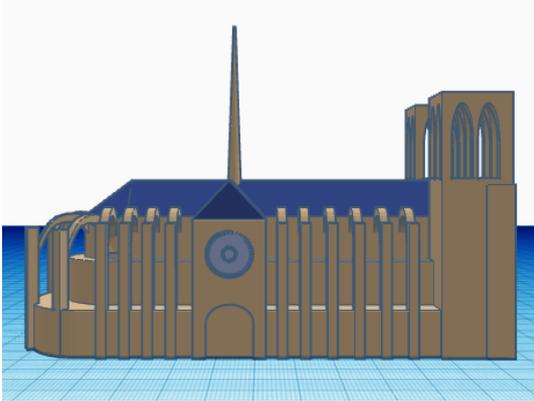
Front view



Rear view



Lateral views



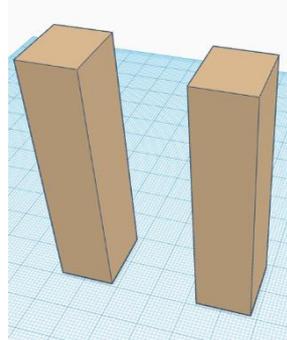
Model features

This model has been designed by only using basic shapes, we can use another kind of objects in order to detail the cathedral.

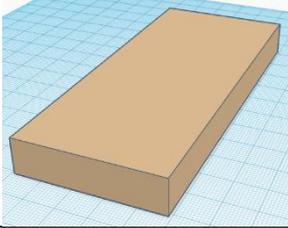
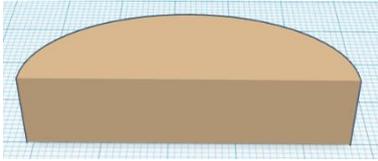
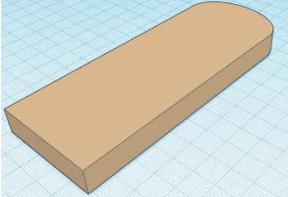
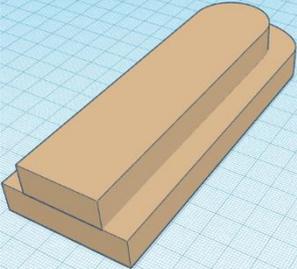
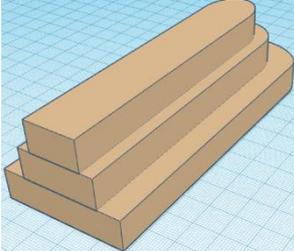
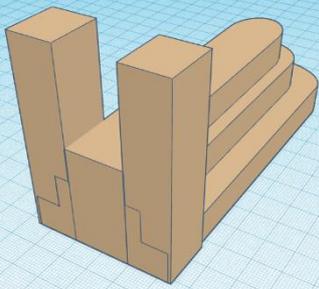
The project is divided in 4 parts:

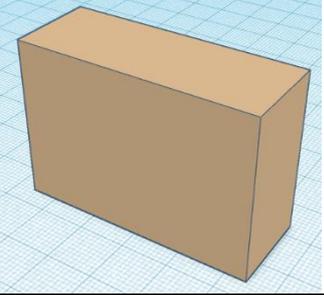
- Central structure.
- Roof and spire.
- Arches.
- Details.

Structure

3D Object	Size	Image
Box x2	15mm wide x 18mm long x 69mm high	

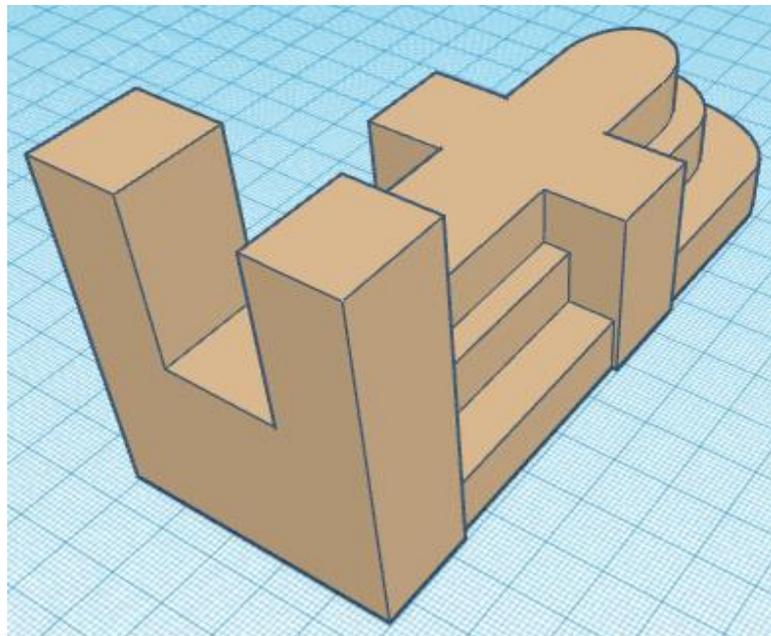


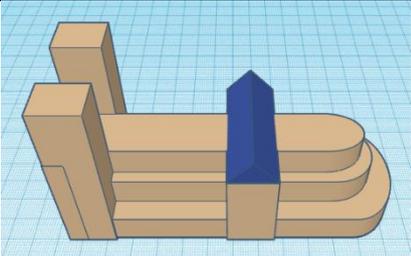
<p>Box</p>	<p>48mm wide x 113mm long x 12mm high</p>	
<p>Round roof</p>	<p>48mm wide x 16.5mm long x 12mm high</p>	
<p>Link box and round roof</p>	<p>Align, link and group both shapes in order to get that result.</p>	
<p>Duplicate last shape</p>	<p>30mm wide x 120mm long x 12mm high</p>	
<p>Duplicate previous shape</p>	<p>20mm wide x 115mm long x 12mm high</p>	
<p>Link all the structures</p>	<p>Align and group.</p>	

<p>Box</p>	<p>50mm wide x 18.5mm long x 36mm high</p>	
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Once we have finished the pieces of the structure, we align and group them together.

Roof and spire



3D Object	Size	Image
<p>Roof</p>	<p>50mm wide x 18.50mm long x 10mm high</p>	



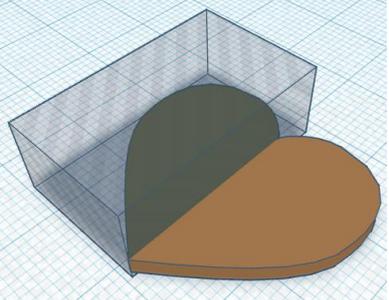
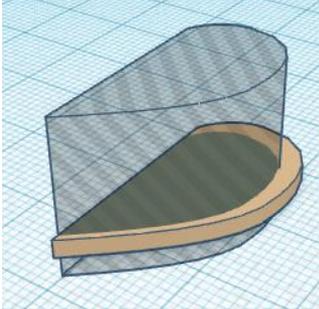
Roof	20mm wide x 88mm long x 10mm high	
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Cone	23.60mm wide x 19.60mm long x 10mm high	
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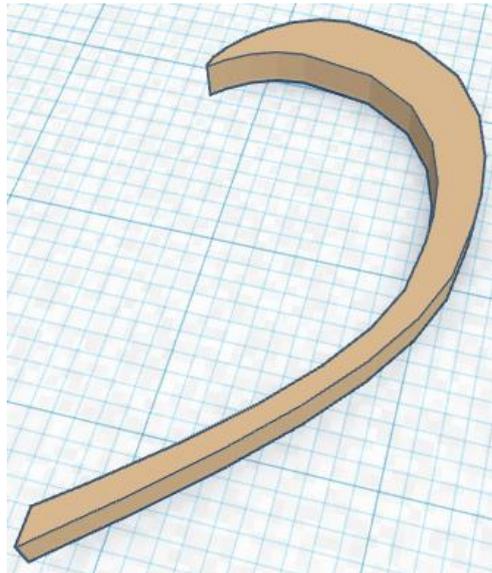
Cone	5.94mm wide x 5.94mm long x 89mm high Radio base: 2.98mm	
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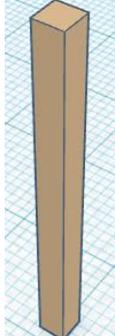
Arches

3D Object	Size	Image
Heart	29mm wide x 27mm long x 2mm high	

<p>Link heart and empty box</p>	<p>Adjust so it cuts in half</p>	
<p>Duplicate the last shape and empty it.</p>	<p>Increase height in order to cross the previous shape.</p>	

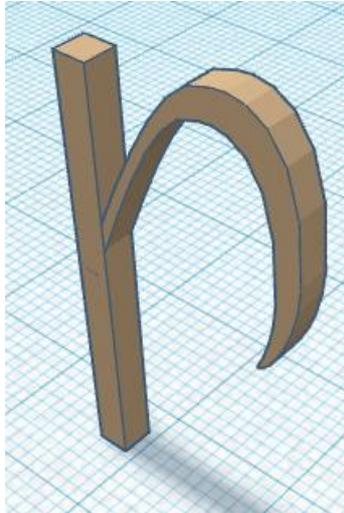
Once we have grouped the half heart and the half empty heart the result will be like that:



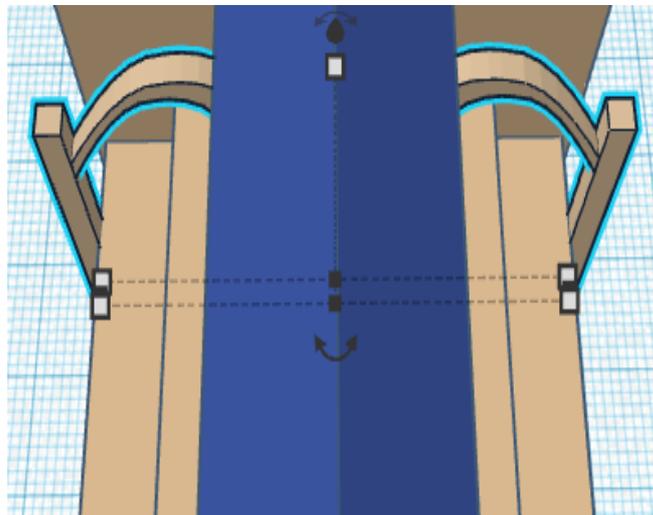
<p>Box</p>	<p>2.20mm wide x 2.20mm long x 30.20mm high</p>	
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We have to link the shapes this way:

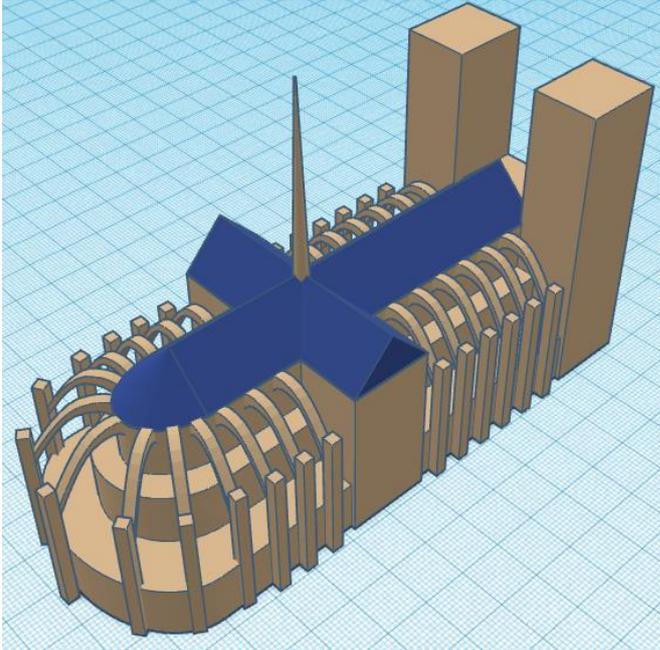


We have to link the resulting shapes as shown in the image

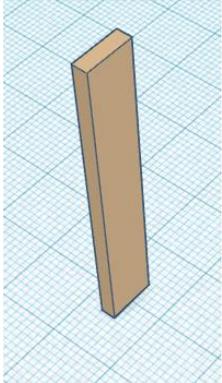
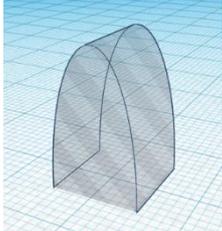




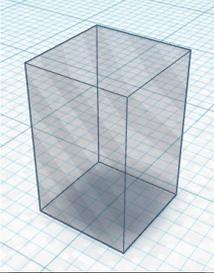
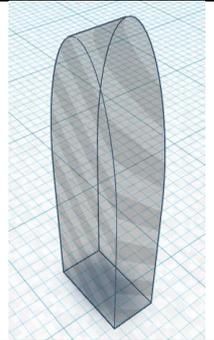
We duplicate the arches until we complete the structure.



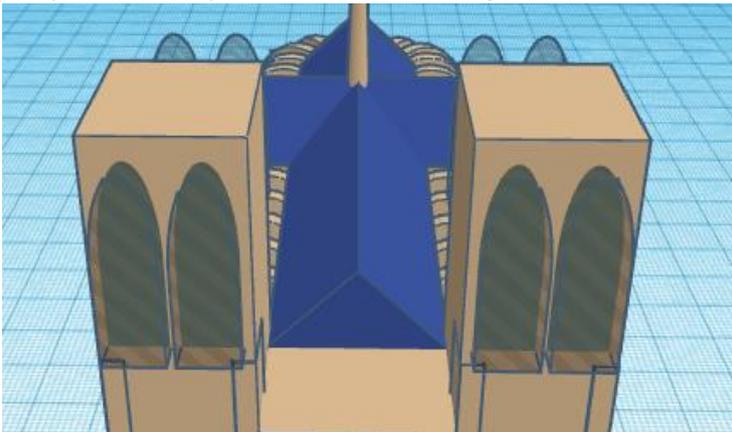
Details

3D Object	Size	Image
Box x4	2mm wide x 7mm long x 45mm high	
Empty round roof	6mm wide x 6mm long x 10mm high	

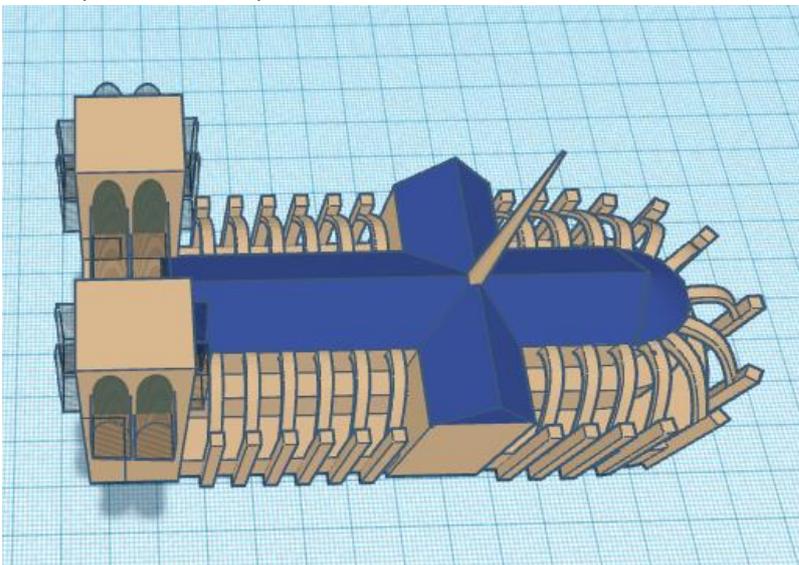


<p>Empty box</p>	<p>6mm wide x 6mm long x 10mm high</p>	
<p>Link empty round roof and empty box</p>	<p>Align and group both shapes and duplicate until we get 4 pieces.</p>	

We place the shape as shown in the image.

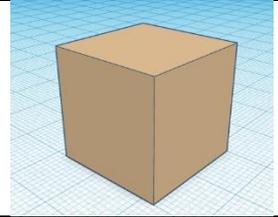
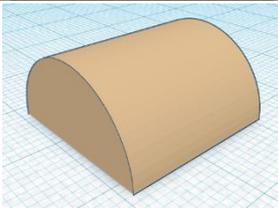
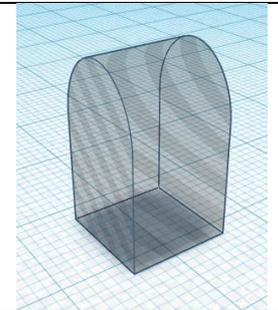


We duplicate the shape in order to cross the bell tower.

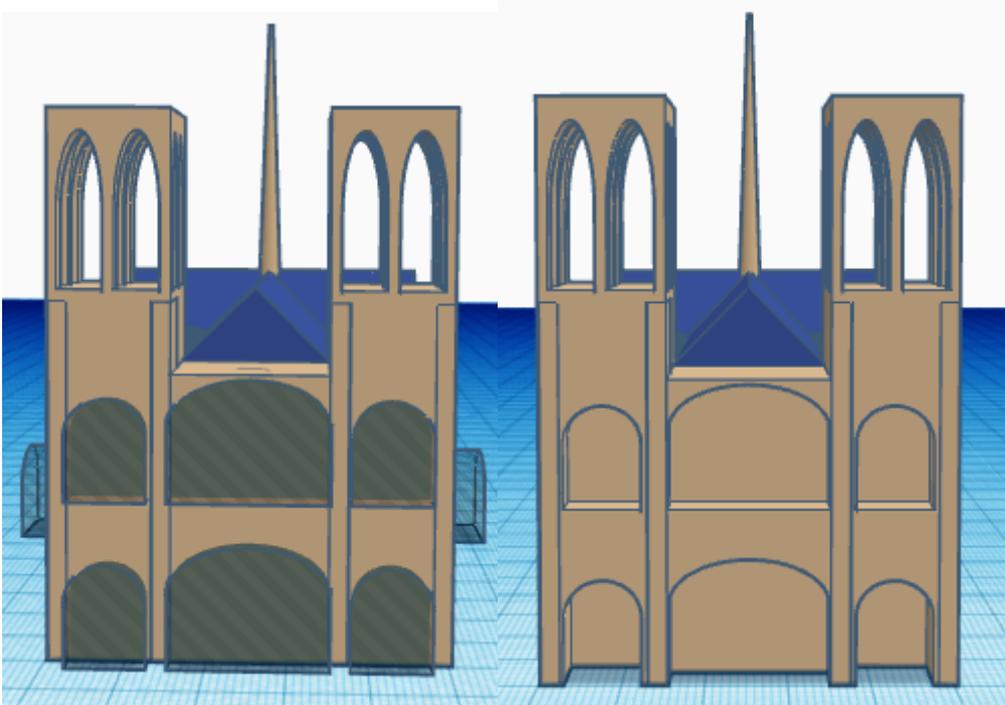




Let's create the arches:

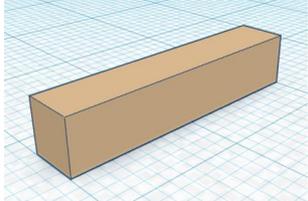
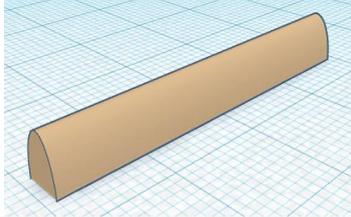
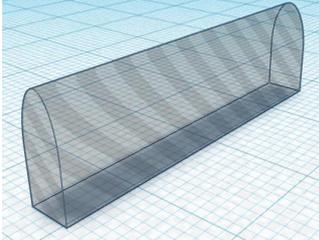
3D Object	Size	Image
Box	9.7mm wide x 9.7mm long x 11mm high	
Round roof	9.7mm wide x 9.7mm long x 6.3mm high	
Link round roof and box	Group the pieces and empty them	

Adjust the arches size so they fit in perfectly.

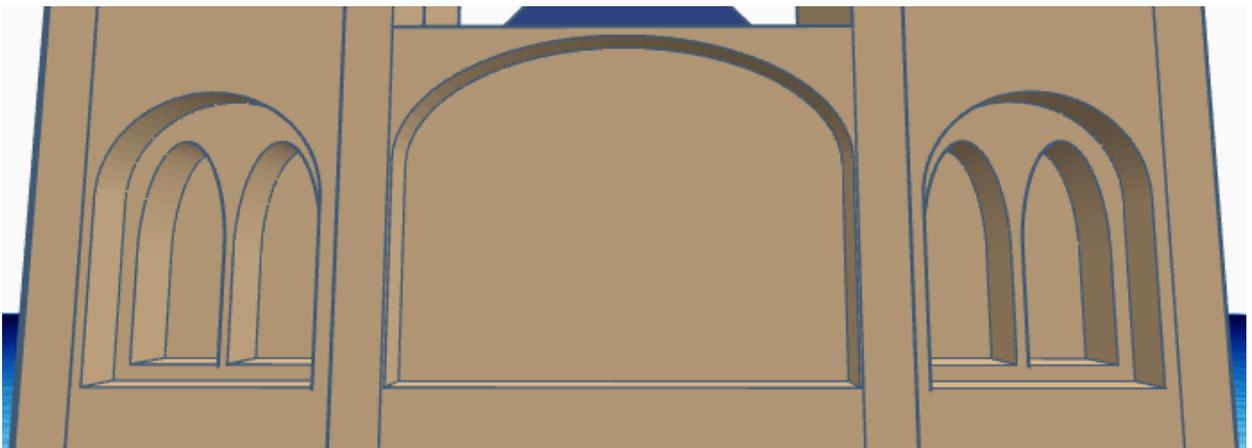




Now we create smaller arches.

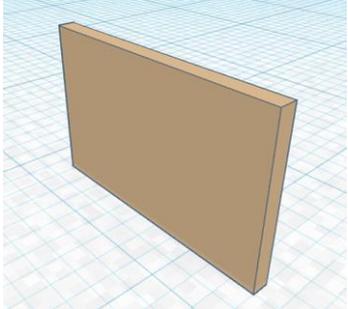
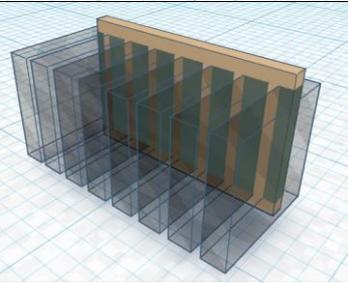
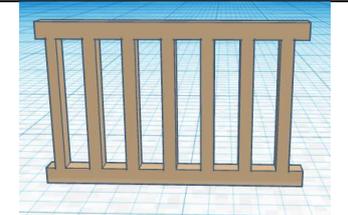
3D Object	Size	Image
Box	4mm wide x 33mm long x 5mm high	
Round roof	4mm wide x 33mm long x 5mm high	
Link round roof and box	Align, empty and group them.	

It has to look like this:



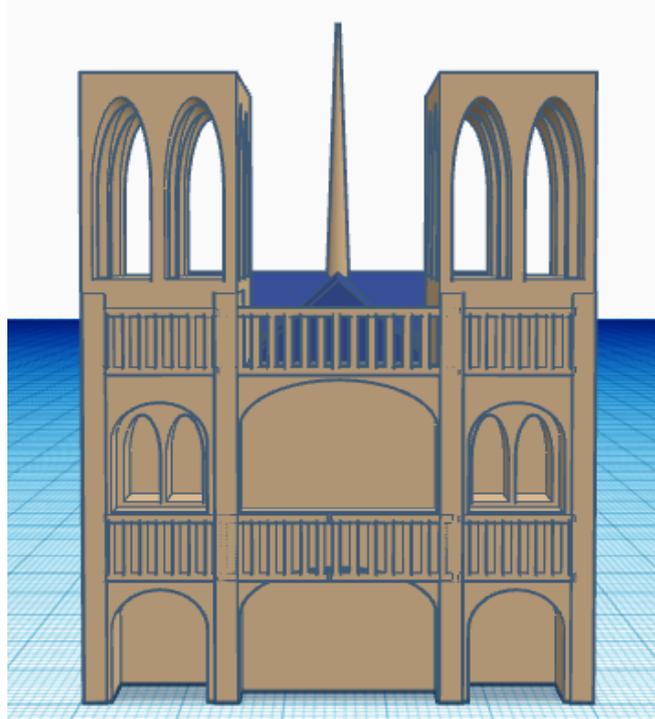


Last step, let's create the railings.

3D Object	Size	Image
Box	11mm wide x 1mm long x 7mm high	
Empty box x8	1mm wide x 6mm long x 5.70mm high	
Group		



When we place it, we get that result:



Now it is time to decorate the structure, in this case we have added the rose windows with a cylinder and duplicated hearts.

