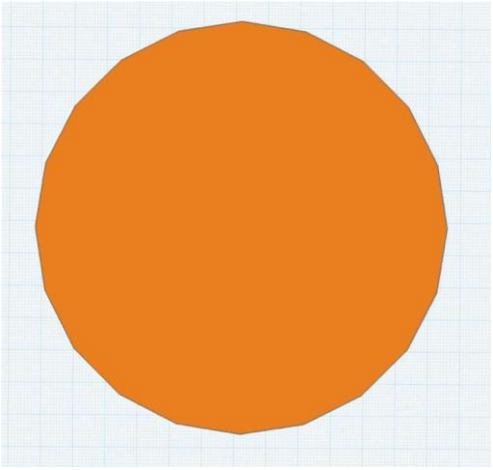
We would like to organize an end-of-year trip to Iceland. To do this, we had thought of creating some 3D souvenirs and printing them so that we could sell them and finance ourselves.

First of all, we will use the 3D online design program "Tinkercad" to create those souvenirs, and then we will create an e-shop to sell all the products that we can.

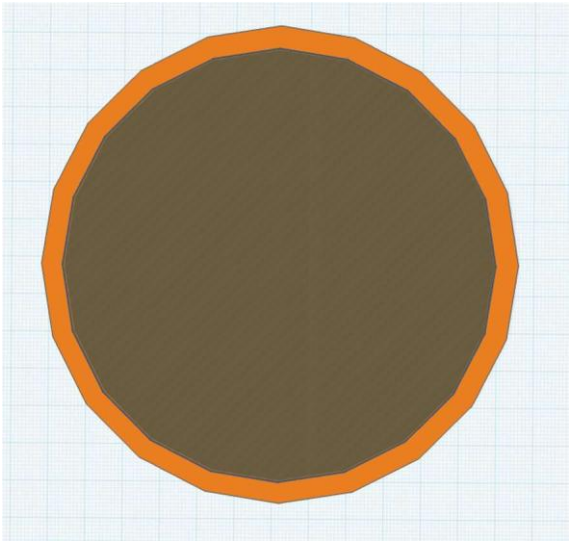
Your tasks:

2. CREATING A 3D SOUVENIR WITH TINKERCAD

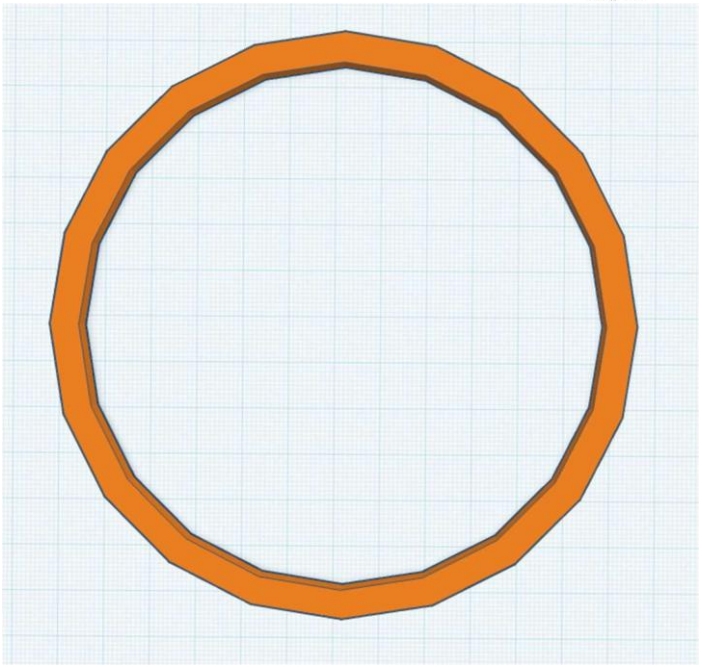
1. OPEN TINKERCAD o Access the online Tinkercad platform and log in with your account.
2. CREATE A NEW PROJECT o Click on "Create new design" to begin.
3. CREATE THE OUTER SHAPE o Add a solid cylinder with dimensions of 125x125 mm (height: 3 mm).



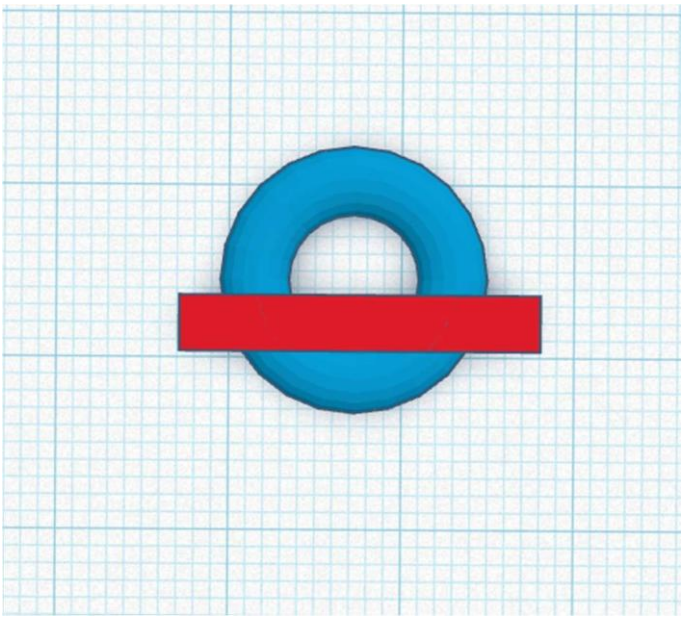
- Add a hollow cylinder with dimensions of 113x113 mm (height: 3 mm).



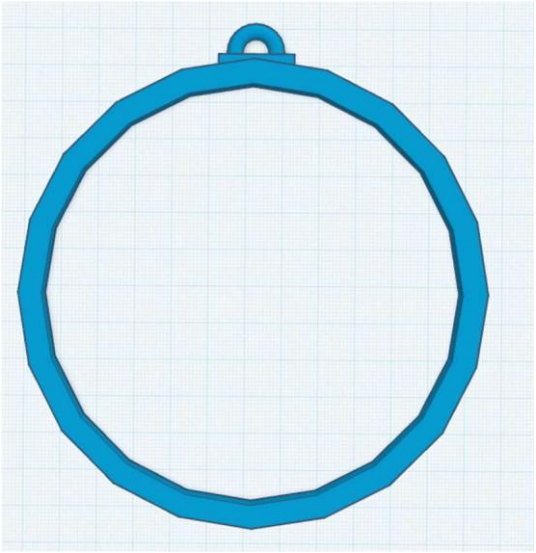
- Align both cylinders to their center.
- Merge both cylinders to obtain a circle with a central hole.



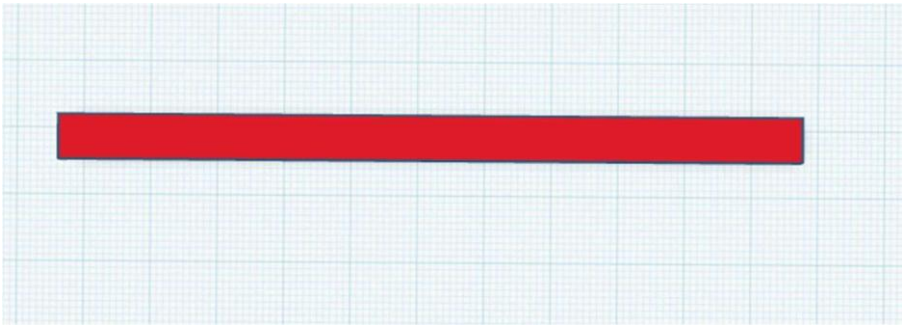
4. CREATE THE TOP ATTACHMENT o Add a torus shape with the following parameters:
   - Radius: 7.5 mm
   - Tube: 2.5 mm
   - Sides: 16
   - Steps: 24 o Add a cube with dimensions of 20x3 mm (height: 3 mm).



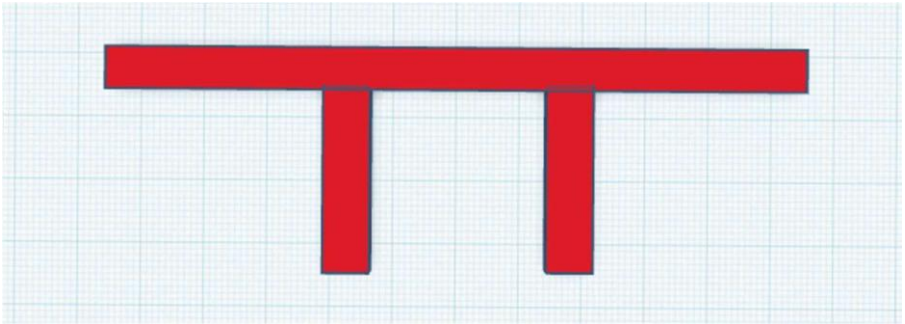
   - o Align the torus and the cube properly and merge them. o This will serve as the top attachment.
5. MERGE THE TWO PIECES o Align the top attachment with the outer circle. o Merge the two pieces to complete the outer shape of the design.



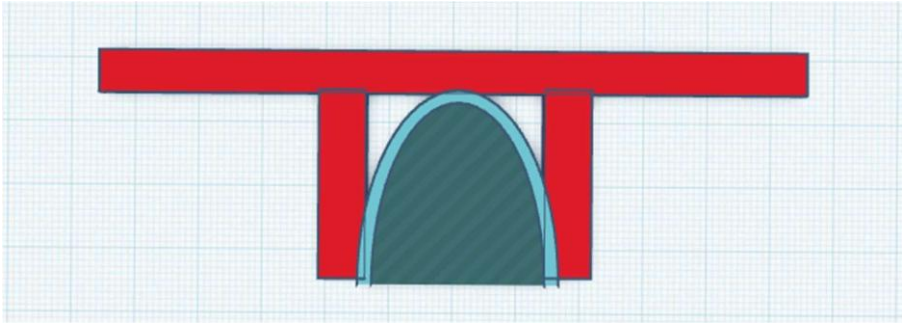
6. CREATE THE FIRST FIGURE (1/4) - THE BRIDGE o Add a cube with dimensions of 110x6 mm (height: 3 mm).



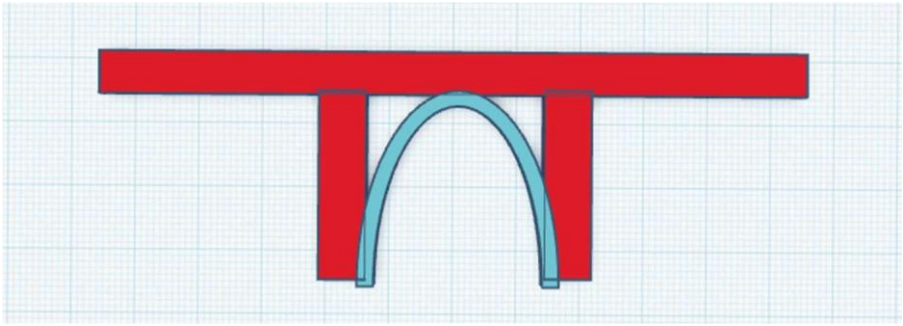
- o Add two cubes of 7x29 mm each (height: 3 mm), placing them at both ends of the main bridge section, at the bottom.



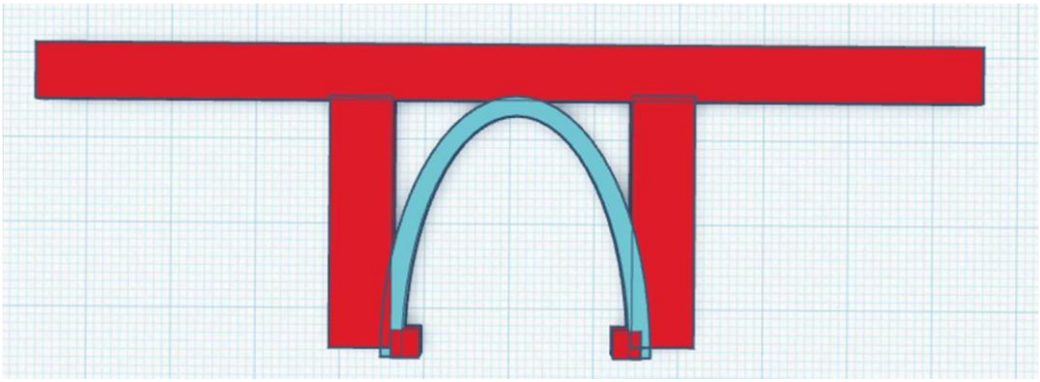
- o For the lower part of the bridge, add a solid "curved roof" shape with dimensions of 31x30 mm (height: 3 mm).
- o Add another "curved roof" shape, but this time hollow, with dimensions of 26x28 mm (height: 3 mm).



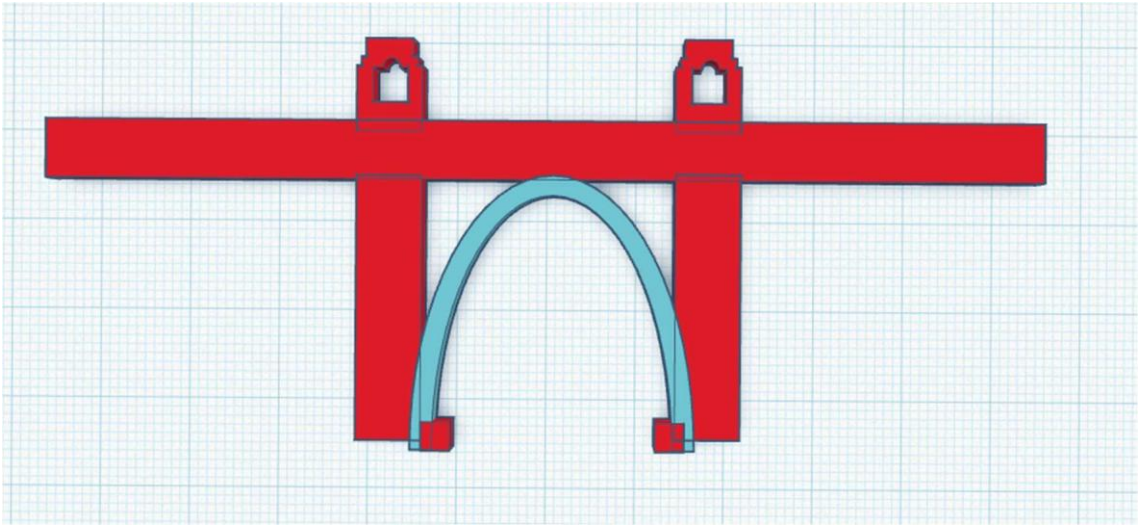
o Align these two shapes and merge them to create the arch at the bottom of the bridge.



o Add two decorative cubes with dimensions of 3x3 mm (height: 3 mm) at the base of the bridge.

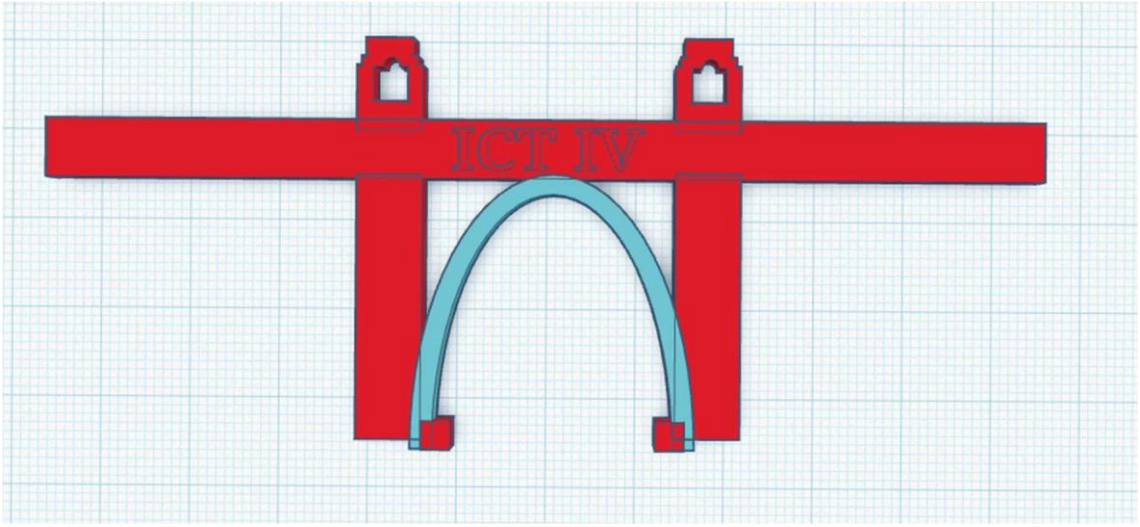


7. ADD THE UPPER DECORATIONS o Create a base cube of 7x7 mm (height: 3 mm). o Add an intermediate cube of 6x2 mm (height: 3 mm) on top of the base. o Add a top cube of 5x2 mm (height: 3 mm) on top of the intermediate cube. o Duplicate this structure to create two identical decorations and position them symmetrically. o Add a hollow cylinder with a diameter of 2 mm (height: 3 mm) in the center of each decoration.
   o Align and merge the decorations and the cylinder with the top of the bridge.

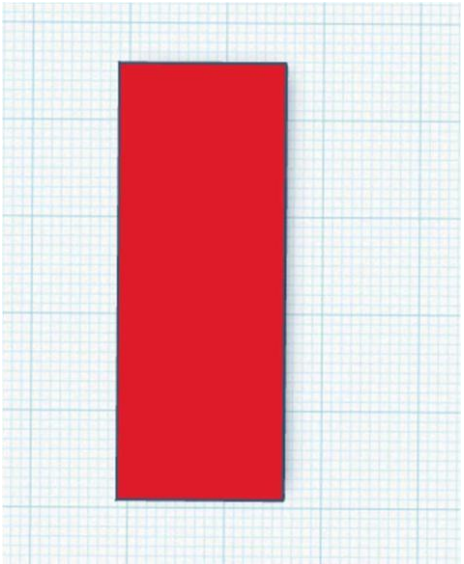


8. ADD TEXT TO THE BRIDGE o Use the text tool to create a text box. o Set the text to "ICT IV". o Choose the font "Serif". o Adjust

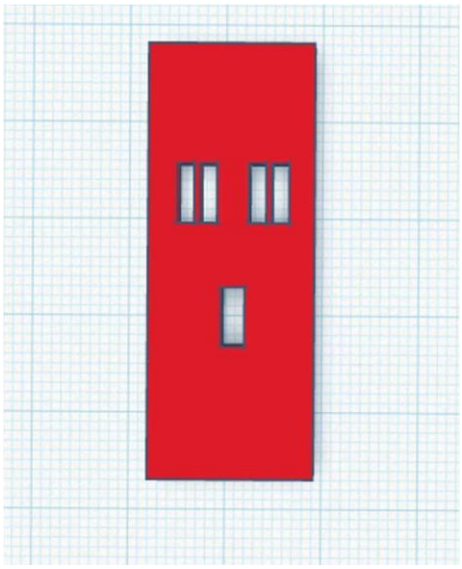
the text height to 4 mm. o Center the text along the main part of the bridge.



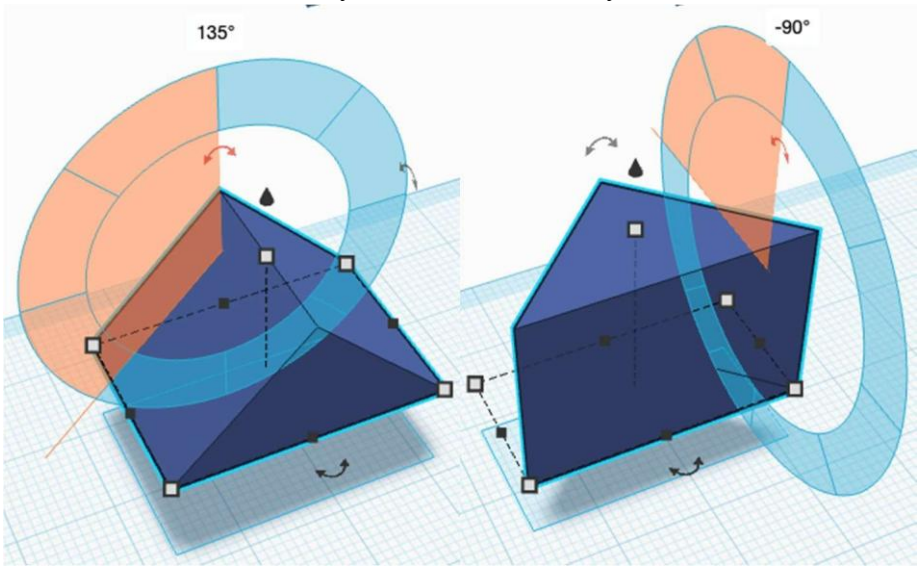
9. CREATE THE SECOND FIGURE (2/4) - THE POWDER TOWER (PRAŠNÁ BRÁNA) o Add a solid cube with dimensions of 16x43 mm (height: 3 mm).



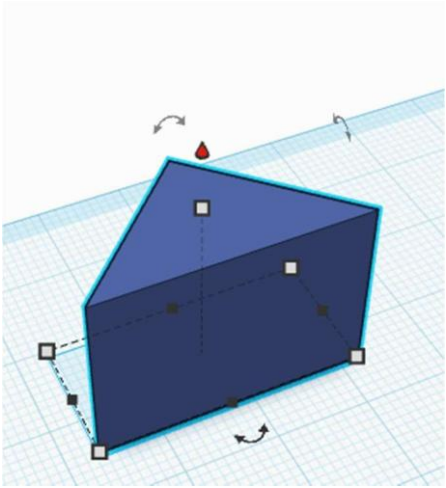
- o Add five hollow cubes with dimensions of 2x6 mm (height: 3 mm), arranging four at the top and one at the bottom to form windows. o Position the hollow cubes properly and align them with the main tower cube.
- o Merge all the elements to complete the main structure of the tower.



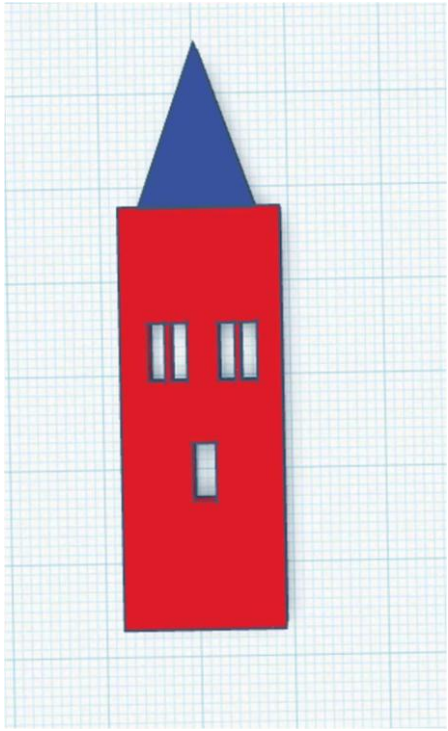
10. CREATE THE UPPER PART OF THE TOWER o Add a wedge shape ("roof") and rotate it 135º vertically and 90º horizontally.



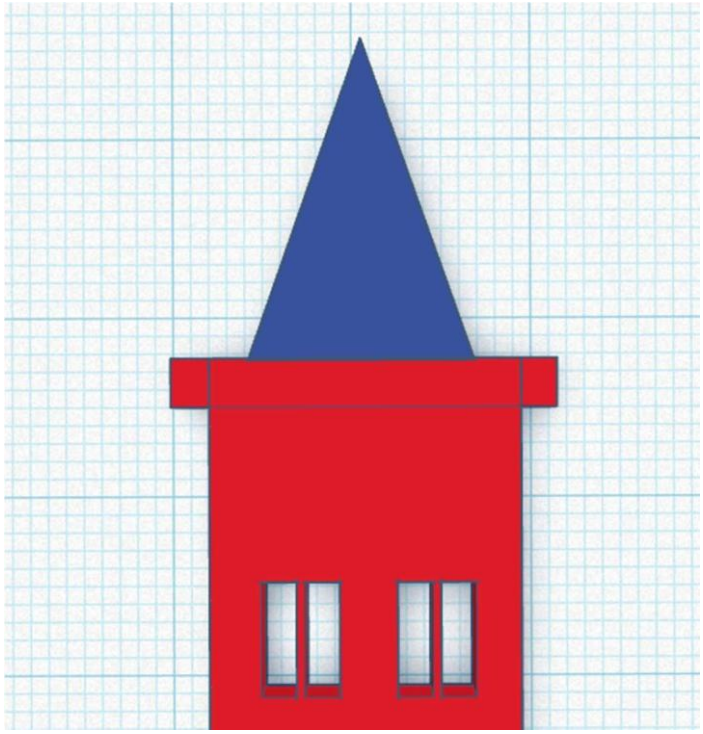
o Lower the wedge to be flush with the workplane using the top cone control.



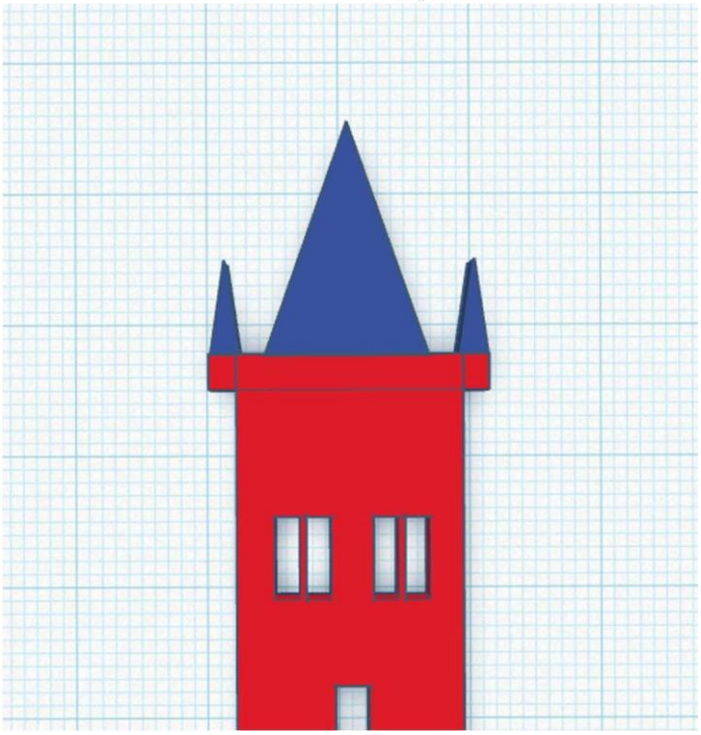
- Make the dimensions of the triangle of 12x12 mm (height: 3 mm).
- Align this triangle at the top center of the tower.



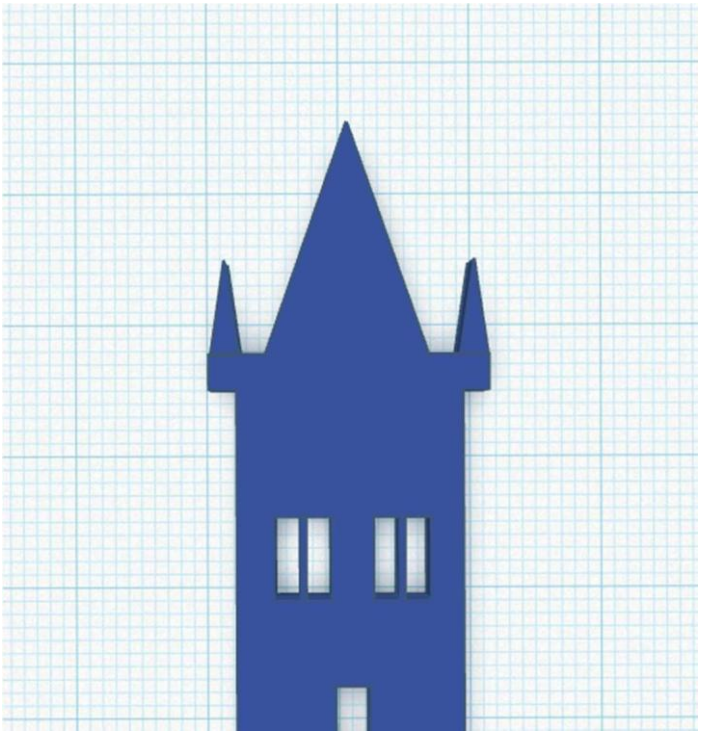
- Add one cube between these two figures of 20x3 (height: 3mm)



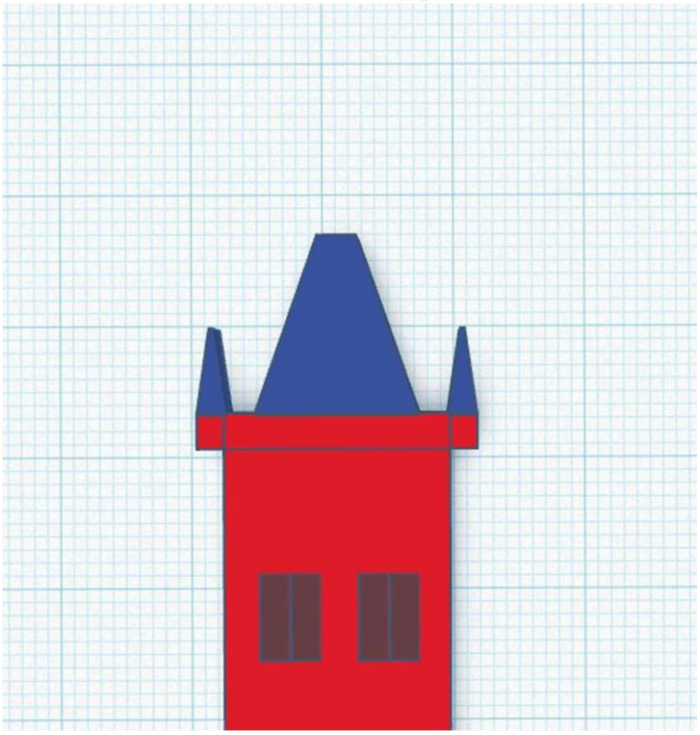
- Add two smaller triangular wedges on each side with dimensions of 2x6 mm (height: 3 mm). You can copy the big triangle and change the dimensions.



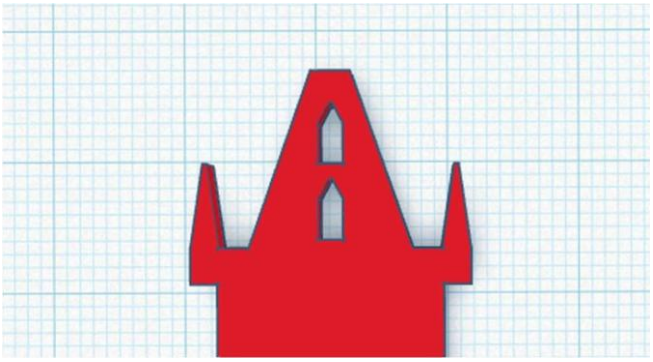
- Align these smaller triangles symmetrically to the left and right of the main triangle.
- Merge all three triangles with the rest of the tower to complete the upper section.



- Now make hollow cubes to cut the upper part of the triangles

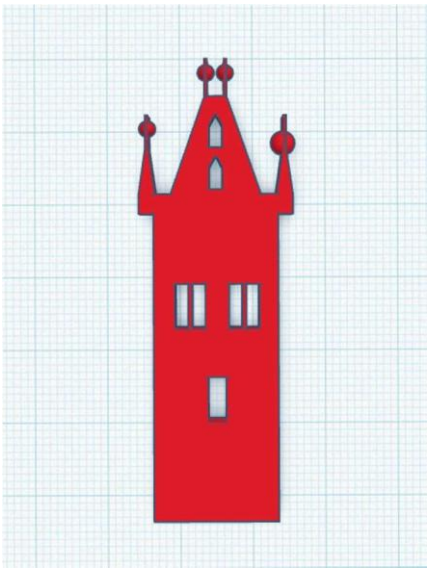


11. CREATE THE UPPER TRIANGULAR WINDOWS o Duplicate the triangular shapes created in the upper part.
    - o Adjust their dimensions to 2x2 mm (height: 3 mm) and make them hollow.
    - o Attach each hollow triangle to a cube of 2x3 mm (height: 3 mm). o Merge the hollow triangles with the cubes to create the upper triangular windows.



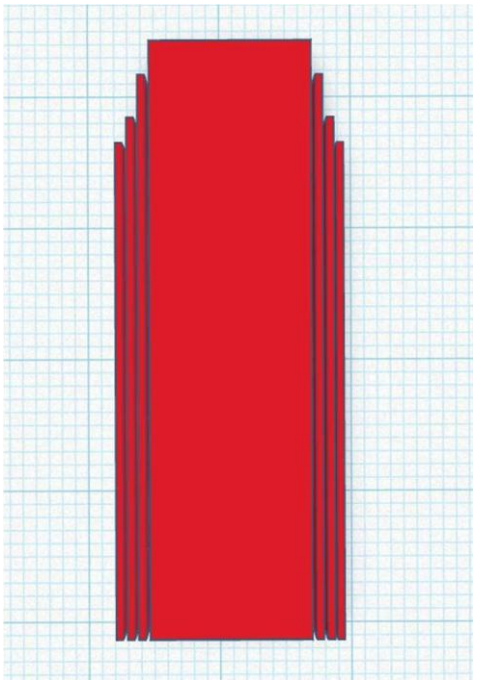
12. ADD DECORATIONS TO THE TOWER

- Add decorative cubes with dimensions of 0.3x5 mm (height: 3 mm).
- Add spheres with a diameter of 3 mm to complete the decorative details.



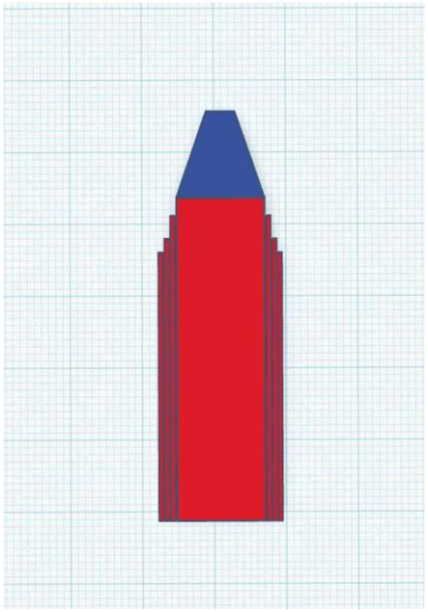
11. CREATE THE THIRD FIGURE (3/4) - HALLGRÍMSKIRKJA (HALLGRÍMUR CHURCH)

- Add a main cube with dimensions of 12x44 mm (height: 3 mm).
- On each side, add three decorative vertical cubes: o First cube: 0.5x41 mm (height: 3 mm). o Second cube: 0.5x38 mm (height: 3 mm).
  - o Third cube: 0.5x35 mm (height: 3 mm).
- Position these cubes as shown in the image to create the vertical details of the church.

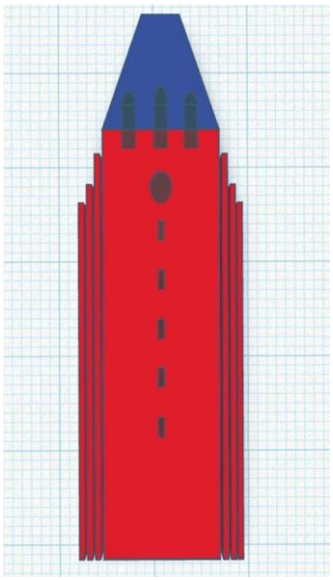


- Add a wedge shape ("roof") and rotate it 135º vertically and 90º horizontally. (You can use the same used in the previous figure)
- Lower the wedge to be flush with the workplane using the top cone control.
- Adjust the dimensions of the wedge to 12x17 mm (height: 3 mm).
- Position this wedge as the roof of the church.

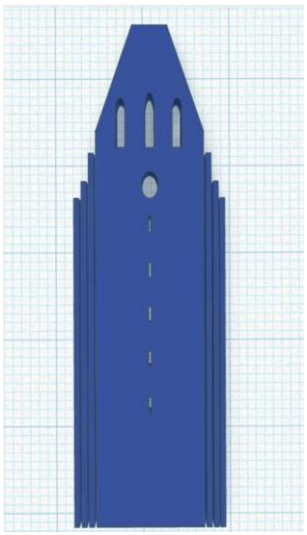
- Add a hollow cube and position it at the top of the wedge.
- Merge the hollow cube with the wedge to create a cut at the tip of the triangle.



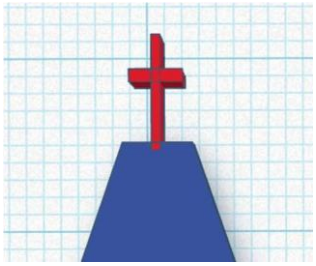
- CREATE THE WINDOWS (HOLLOW SHAPES) o Add five hollow cubes with dimensions of 0.5x2 mm for the lower windows.
  - o Add a hollow cylinder with dimensions of 2x3 mm for the oval window.
  - o For the arched windows:
    - Two external windows: Add a cube of 1x4 mm combined with a cylinder of 1x2.5 mm.
    - Central window: Add a cube of 1x4 mm combined with a cylinder of 1x4 mm.



  - o Align and merge all these hollow shapes to form the windows.

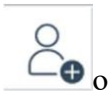


- Create the cross on top of the church using two cubes:
  - One vertical cube with dimensions of 0.5x6 mm (height: 3 mm).
  - One horizontal cube with dimensions of 0.5x3 mm (height: 3 mm).
- Align the cubes to form the cross and position it at the top center of the roof.



12. Now import the .stl provided of the 'Pałac Kultury i Nauki' of Warsaw
13. You can now order the elements as shown in the image and merge all of them to create the final design of the souvenir.

☐ Save as GroupX (Change the “X” for your group number) in .stl format

☐ And send also a link to all the teacher´s email using this button in Tinkercad ☐  o cestmir.glogar@mendelova-stredni.cz o lucie.matejikova@mendelova-stredni.cz o szymon.skalski@nowotarski.edu.pl o krzysztof.trojan@zst.nowotarski.pl o gretar@fnv.is o hrafnhildurg@fnv.is o javier.cerrada@salesianos.edu o antonio.yepes@salesianos.edu o jorge.soler@salesianos.edu

☐ Attach the .stl file to the shared folder on Drive too.