



The thorns of the hedgehog

Learning Objectives:

- Know how to manipulate simple shapes using tinkercad.com
- Understand how 3D printers work.

Level of Difficulty: Level 2

List of Materials Required:

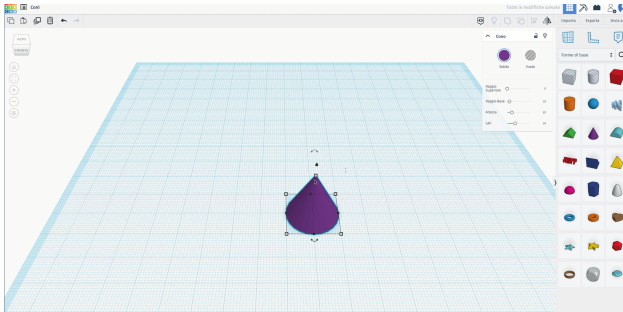
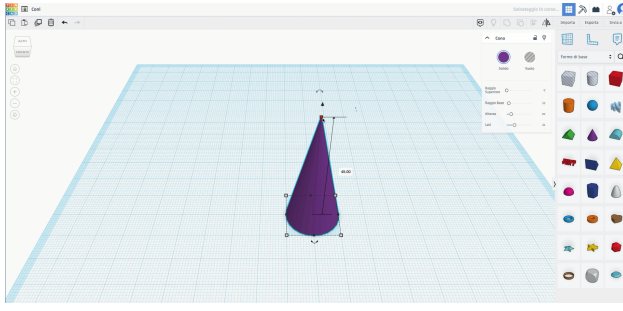
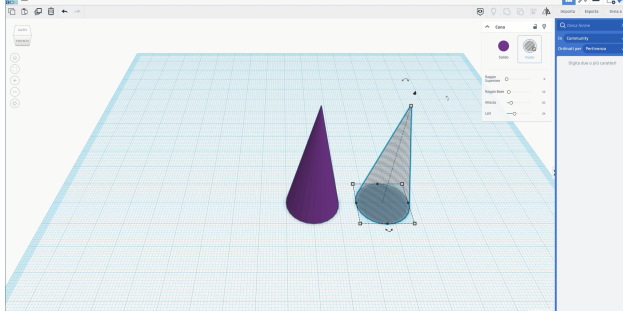
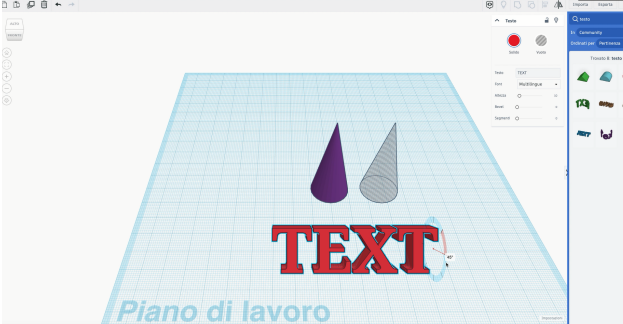
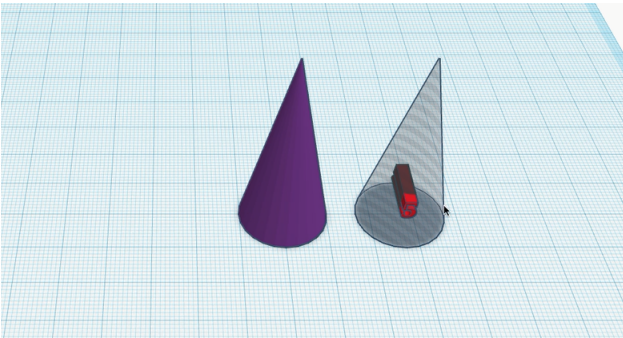
- A 3D printer
- A spool of filament for the 3D printer (as many colors as you want your thorns, minimum 2 for pair and unpair numbers)
- A cutter to remove supporting material or the thorn from the workplane

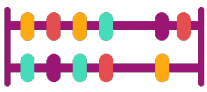
3D Modelling Skills Needed:

- Know how to move an object in the workplane
- Know how to create a cone
- Know how to create a hole
- Know how to resize an object
- Know how to group objects
- Know how to elevate and lower objects on the workplane



Step-by-step 3D Modelling

<p>Step 1</p>	<p>Create the cone by selecting it from the preset-shapes-menu.</p>	
<p>Step 2</p>	<p>Resize the cone in the settings menu: Base: 3 cm High: 3.5 cm (consider for every other cone at least a +0.5 in height)</p>	
<p>Step 3</p>	<p>Duplicate the cone and transform it into a hole.</p>	
<p>Step 4</p>	<p>Chose Text from the menu and rotate it to 90 °.</p>	
<p>Step 5</p>	<p>Resize the text to fit the cone, bring it to the desired high and write the number you want to appear on the cone.</p>	



Step 6	Group the hole and the text, move it to the full cone and centre both by using the corresponding feature.	
Step 7	Group the number and the cone, resize the number if necessary, and incline the number to be in line with the cone	

Creation of the Exhibit

Assemble/disassemble and store the exhibits, accompanied by the corresponding time-frames

Step 1	Print the cones from 1 to 10.	
Step 2	Print the A4 sheet.	



Design Map

Summary of the key steps for developing and creating the 3D Exhibit.

