



The Thermo Shapes

Learning Objectives:

- Know how to manipulate simple shapes using tinkercad.com
- Understand how 3D printers works.
- know how to modify files already made in order to appropriate them.

Level of Difficulty: Level 1

List of Materials Required:

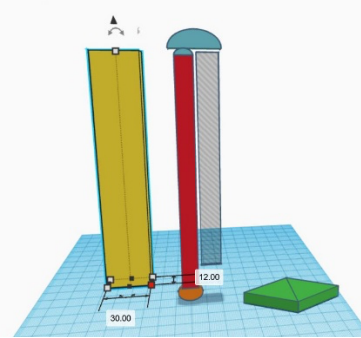
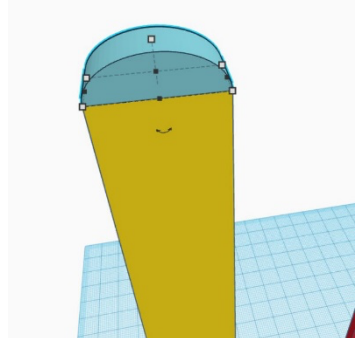
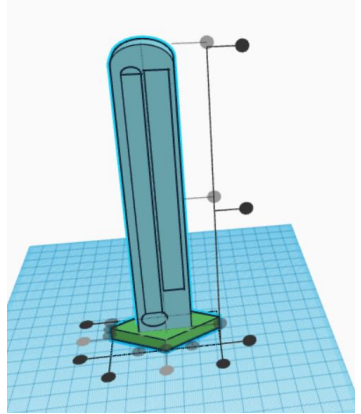
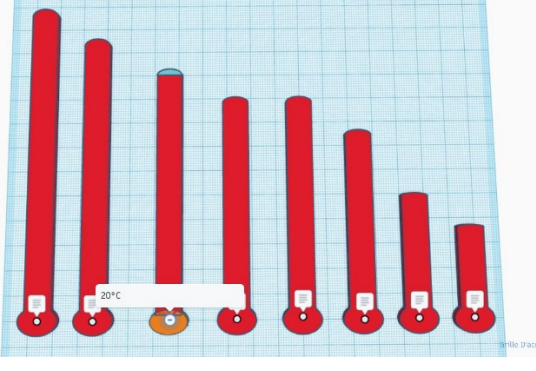
- A 3D printer
- A spool of filament for the 3D printer (different colors)

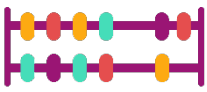
3D Modelling Skills Needed:

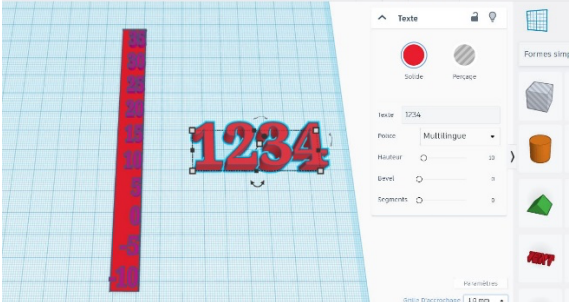
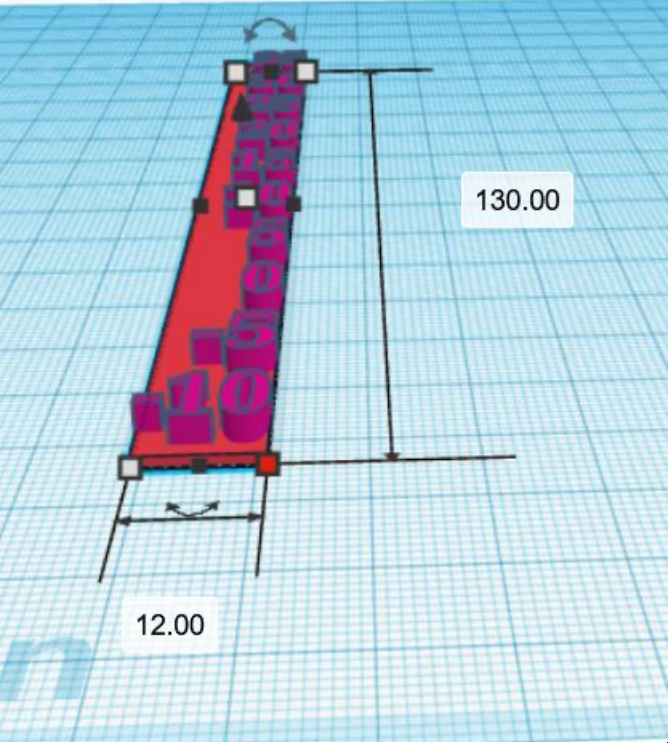
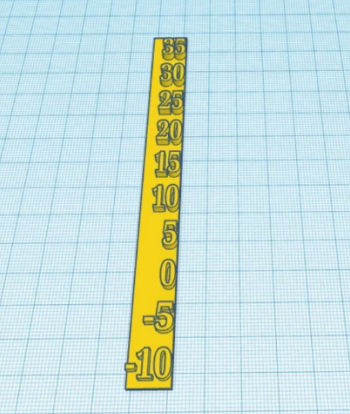
- Know how to move an object on the plan
- Know how to merge two shapes
- Know how to resize an object
- How to align different object
- How to rotate an object

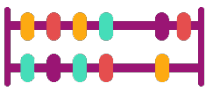


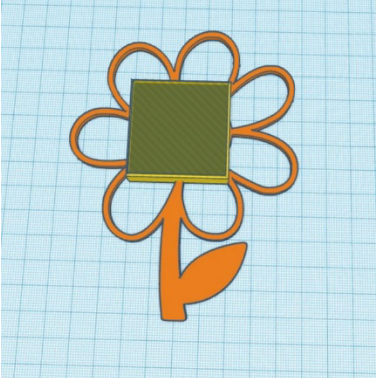
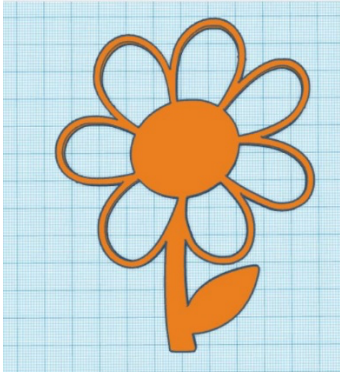
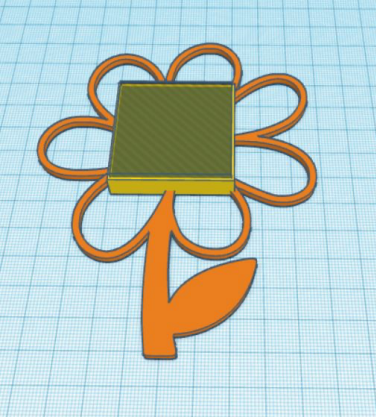
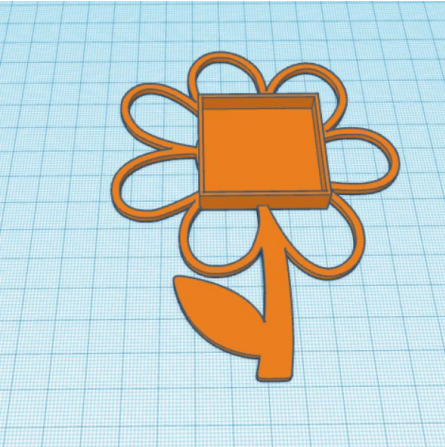
Step-by-step 3D Modelling

<p>Step 1</p>	<p>Create the thermometer</p> <p>Dimension: 30x12x160mm</p> <p>With the base: 167mm high</p>	
<p>Step 2</p>	<p>Add rounding at the top</p>	
<p>Step 3</p>	<p>Create the foot of the thermometer</p> <p>Choose the right shape</p> <p>Make the hole for the mercury and the numbers.</p> <p>Add 0.5mm to the shape to create the holes</p>	
<p>Step 4</p>	<p>Make the mercury with 3 shapes.</p> <p>vary the height of the thermometers according to the desired temperature</p> <p>vary only the central rectangle to change the temperatures</p>	



Step 4	Make the numbers	
Step 5	The bottom rectangle: 12x13x2mm The numbers: Thickness 3mm	
Step 5	Merge the shape	




Step 6	Make the support	
Step 7	Put the shape for the base Thickness: 2mm	
Step 8	Add foot for the thermometer Make the hole on it. Add 1mm more for the hole	
Step 9	Merge the shape.	
Step 10	Repeat with all the thermometers	



Creation of the Exhibit

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

Step 1	<p>Put the mercury and the numbers on the thermometer.</p> <p>For the mercury be careful to put by corresponding with the support.</p> <p>For a better contrast put some color on the numbers</p>	
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Design Map

