



Key crack activity with 3D printing

In this activity, kids will have to design and subsequently produce a key that is capable of accomplishing a 360° rotation inside a 3D printed keyhole.

 Difficulty **Medium**

 Duration **1 hour(s)**

 Categories **Machines & Tools, Recycling & Upcycling, Science & Biology**

 Cost **15 EUR (€)**

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Introduction

In this activity, kids will have to design and subsequently produce a key that is capable of accomplishing a 360° rotation inside a 3D printed keyhole.

Watch this video to find out how it works.



Materials

Tools

- 3D printer, or 3D pens
- computer with internet connection
- measuring tools
- paper and pencils to sketch drawings

Step 1 - Set up an account on Tinkercad

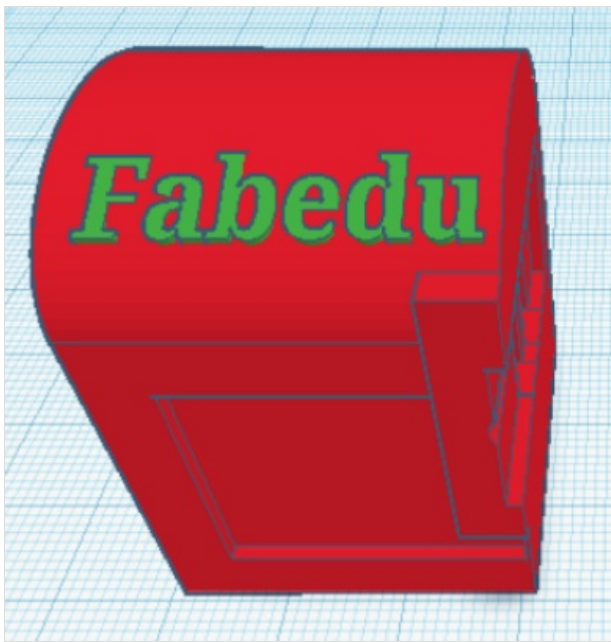
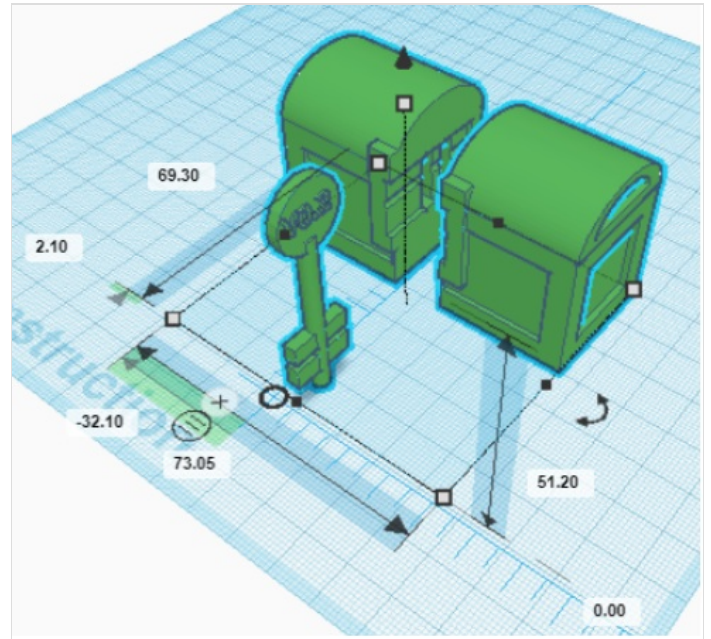
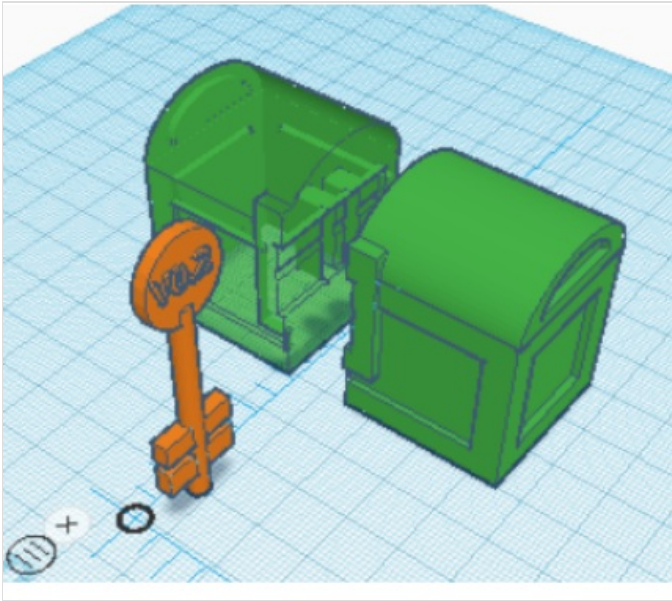
Once you're done, enter this address on your web browser. You will land on a tinkercad design that you will be able to customize.

Step 2 - Personalize the key crack design

For example you may change the color.

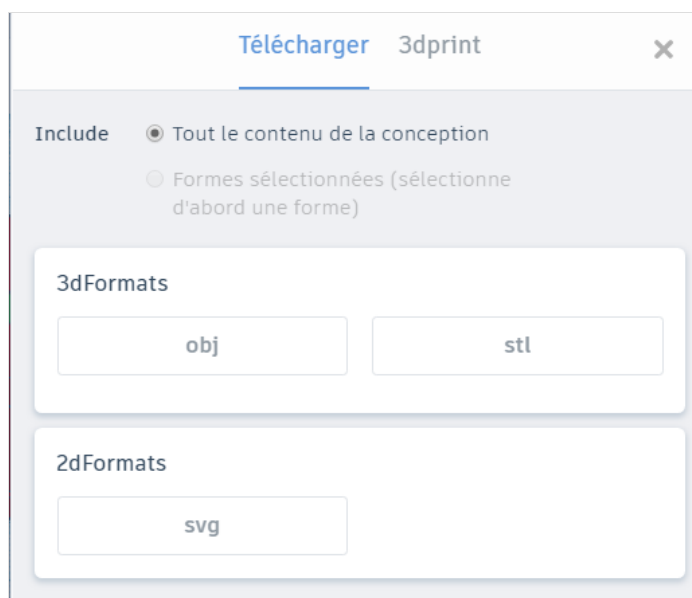
You may modify the size.

or add extra details, for example some text.



Step 3 - 3D print the design

Click on export
and choose either .obj or .stl format.



Step 4 - Have the kids produce a key

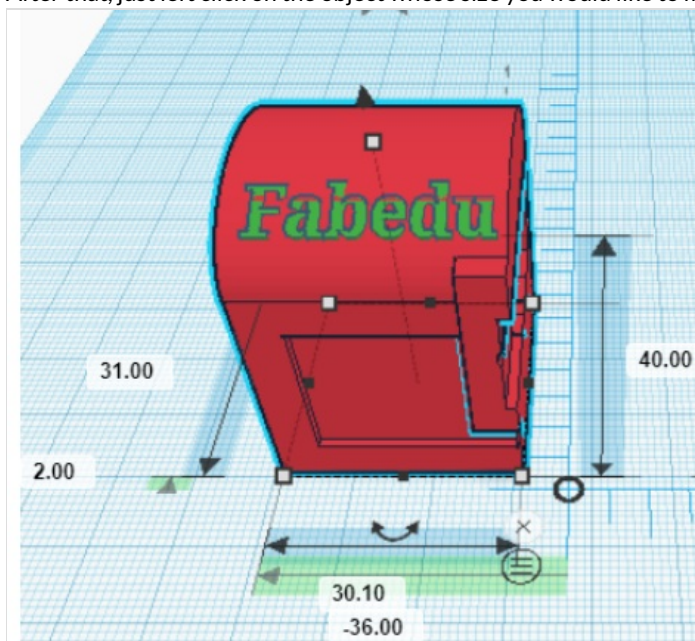
The key must be designed in such a way as to allow a 360° rotation inside the 3D design.

Kids can produce the key either on tinkercad (it will need to be 3D printed afterwards) or via a 3D pen.

To figure out the correct size of the key, they will need to observe the size of the 3D design.

To do so on tinkercad, select the measuring tool, and place it anywhere on the plan.

After that, just left click on the object whose size you would like to measure.



Notes and references

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