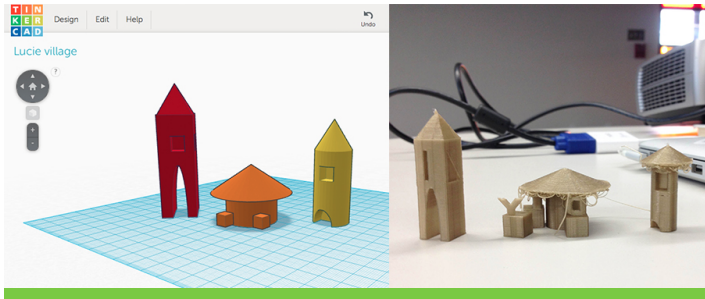


Imaginary village



🕒 2h30 | 👤 10 | 📌 1 | 📄 0 | 🗳️ 0

Public

7-12 y-o

12-15 y-o

Software

TinkerCAD

Description

Learning goals:

- master the basics of TinkerCAD
- understand some basic concepts of architecture

This workshop is an introduction to the basic concepts of architecture.

Participants will use TinkerCAD to create imaginary houses or buildings using basic geometric shapes. At the end of the workshop, each participant will have their 3D printed building. Together, participants will create each of the buildings making up the imaginary village.

Timing

1. Introduction and presentation of 3D printing - 15 mins

Introduction of the world of 3D printing with video (<http://www.dragontape.com/#!//6319966877908992>) and presentation.

2. Overview of the activity - 5 mins

Briefly explain the flow of steps for the day's activity.

What will the participants do? : Create an imaginary home or building

Which software will be used? : TinkerCAD

3. Log in each participant to the software TinkerCAD - 5 min

Ask each participant to log into the software TinkerCAD.

Provide usernames and passwords.

4. Introduction to TinkerCAD - 15 min

Facilitation plan

The facilitator will run through the entire 3D modeling process to demonstrate the software TinkerCAD.

Participants watch while the facilitator describes what they are doing.

The facilitator asks participants to follow along, up until the 3D printing step.

After launching the 3D print of the demo model, participants create their own 3D model. The facilitator moves around the room to assist and re-explain concepts as necessary. Demonstrate common questions or repeat challenging concepts to all participants. Often participants want reminders for how to select, group, and subtract objects.

Key concepts in TinkerCAD to show participants

- The workplane
- Zoom in/out (scroll)
- Rotation of the viewpoint (right-click and move mouse)
- Reset the viewpoint ("Home view" button)

- Pan view (hold shift + right-click, and move mouse)
- Sidebar with various parts and how to place them on the workplane
- The geometric primitives ("Basic Shapes" tab) available in the sidebar
- The solid vs hole state of a shape
- Selecting an object (left-click)
- Selecting multiple objects (hold shift + left-click)
- Using a selection box (hold left-click and move mouse, release left-click)
- Group / ungroup multiple objects (adding / subtracting)
- Handles for scaling and translating objects

For more information, see the instructions here : TinkerCAD

5. Create a model in TinkerCAD - 15 mins (facilitator)

Example imaginary building

1. Place a box on the workplace and make it taller (tower)
2. Place a cone on top of the box, and align the shapes (roof)
3. Group the objects. **Important! The objects must be grouped to print properly**
4. Add a box, scale it down to a window, place it so it intersects the tower (window)
5. Add a dome, scale it down to a doorway, place it at the base of the tower (door)
6. Make sure the window and door are intersecting the tower. Select the window and door, set them to the "hole" state.
7. Select all the objects (tower + roof + window + door) and group them together.
8. Rename the file with your name
9. Export the STL file
10. Import the STL file in Tinkerine ou Cura
11. Set the printing parameters and start the 3D print!

6. Create the model in TinkerCAD - 45 min (participants)

After having demonstrated the process, ask each participant to create their imaginary home or building. Once they start playing with TinkerCAD, move around the room to assist and answer questions. Demonstrate common questions or repeat challenging concepts to all participants (selecting, grouping, and subtracting objects).

After 45 minutes, ask participants to export their files.

7. Saving the STL file

Ask participants to rename their files

- click on the nonsense name in the top menu bar
- Download the STL file :
- Export : Everything in Model, STL

Use a USB key to gather the STL files from participants.

8. Import the files in Tinkerine or Cura - 5 min

Open the preferred slicer software

Import the STL file

Adjust the print settings (fill, wall thickness, speed, height, ...)

Save the file (.Gcode) to the SD card

9. 3D Printing - 30–45 mins

Insert the SD card in the 3D printer

Select the previously saved file (.Gcode)

Start the print!

10. Feedback - 5 min

Ask the participants to provide feedback on the workshop while the models are being printed.

Participant's guide

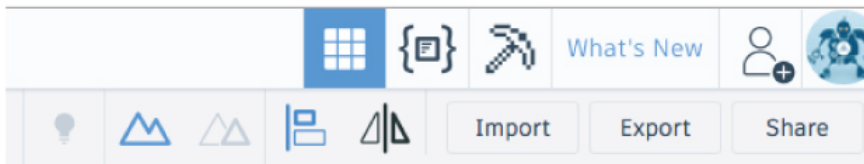
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2. Reminder



REMINDER



Functions :

1. Group objects : select the objects and click on  
2. Ungroup objects : select a group of objects and click on  
3. Align objects : click on  and select one of the alignment point.
4. Rotate or 'mirror' an object : click on  and select one of the orientation arrow.