



Co-funded by
the European Union

POWER OF DIGITALIZATION IN FIGHTING AGAINST CLIMATE CHANGE (PART I)

ERASMUS+ KA2 COOPERATION PARTNERSHIPS PROJECT IN
THE FIELD OF SCHOOL EDUCATION



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VIENNA, AUSTRIA

02.10.2024



Power Of DIGItalization
in fighting against
climate change



Arch. DI Tomas Alonso Hernandez MSc.

- Architect expert in sustainability
- Master of science in urban development-smart cities
- Sustainability consultant: Member of DGNB and BREEAM
- Energy auditor



**Power Of DIGItalization
in fighting against
climate change**

AGENDA

- How SketchUp and digital tools can help fight climate change
- Overview and example of projects made with digital tools like Sketchup
- Example from strategies against climate change in urban areas.
- Basic Tools of SketchUp and exercise.
- Exploring the 3D Warehouse



Become a Master Modeller

SketchUp was built to be an intuitive, easy-to-learn system, with our online tutorials and support service you will master the program in no time.



No Experience Necessary

SketchUp is nimble and lightweight software that does not require specialist teams to implement and maintain the package.



Find a 3D model of anything

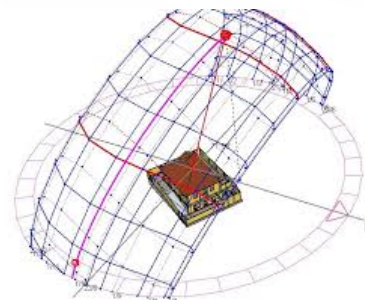
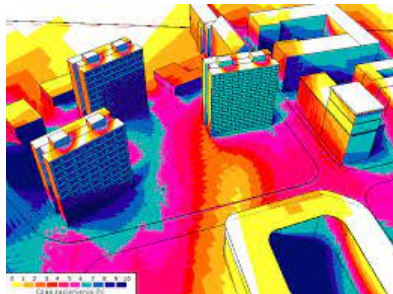
Need an oven for the kitchen you're designing? An automobile for your driveway? A rhino for your zoo? Find it all in [3D Warehouse](#), the world's biggest library of free 3D models.



Integrate with 100s of Extensions

SketchUp integrates with an enormous library of extensions which can take your modelling to the next level, including producing renders, designing interiors and testing components.

- Curic sun
- ShadowAnalysis



SketchUp



LayOut



Extension Warehouse



3D Warehouse



Style Builder



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THE IMPORTANCE OF SKETCHUP FOR URBAN PROJECTS



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THE IMPORTANCE OF SKETCHUP FOR URBAN PROJECTS

Why 3D modeling matters:

- Enhances understanding of how changes will impact the environment and public spaces.
- Offers stakeholders a clear vision of the project before implementation.



CITIZEN PARTICIPATION

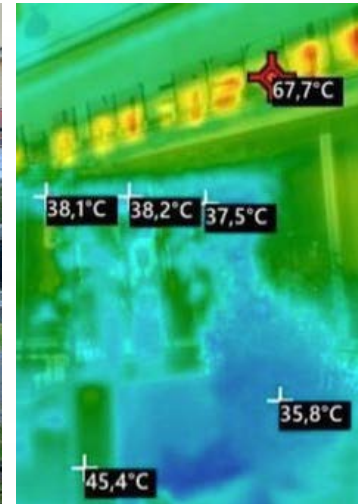


CITIZEN PARTICIPATION





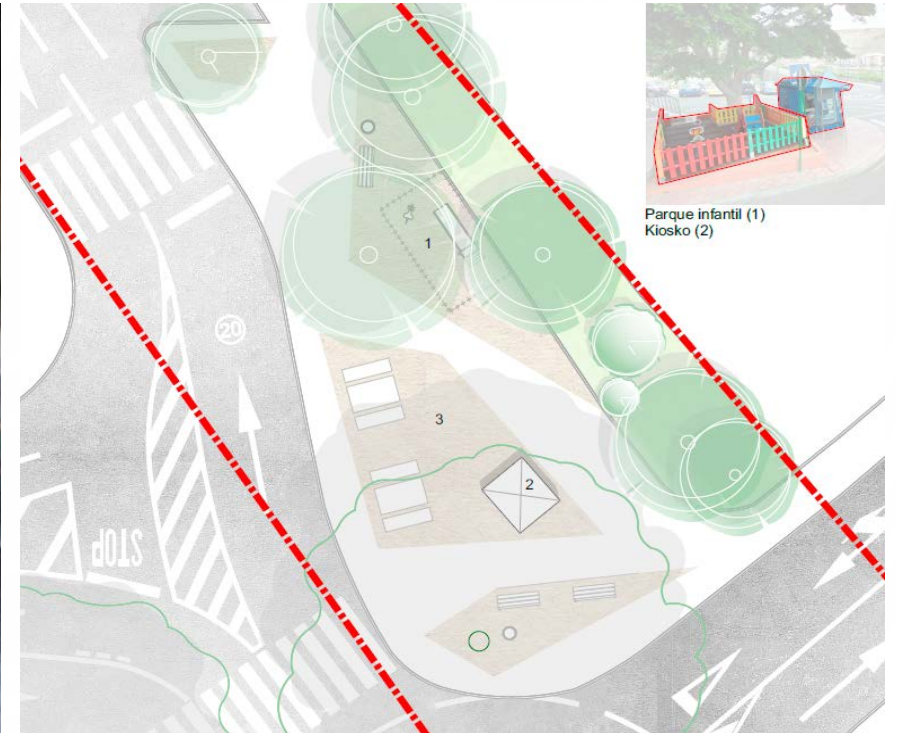
CITIZEN PARTICIPATION



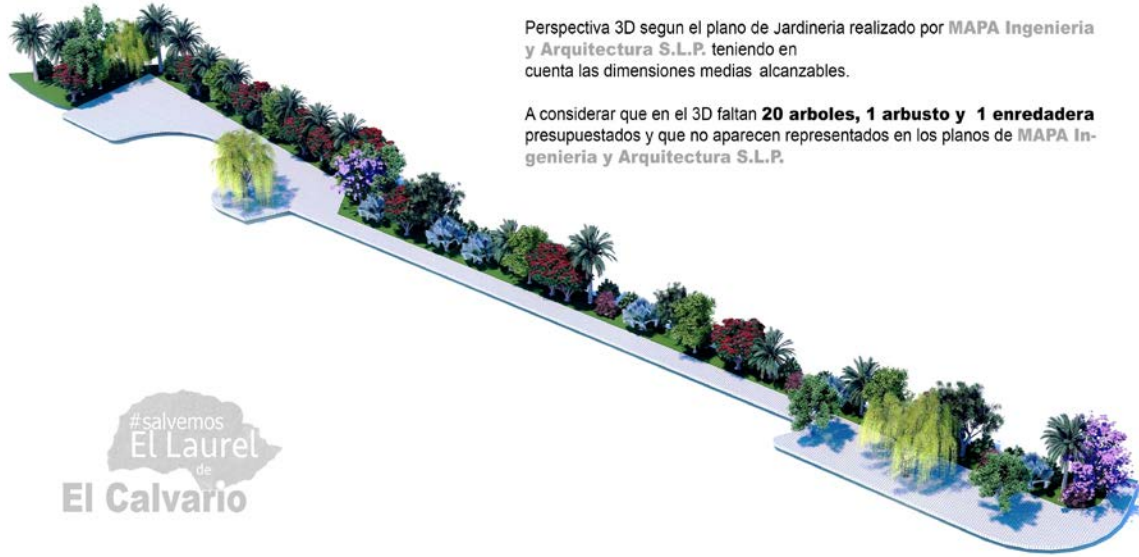
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THE POWER OF DIGITALIZATION IN CITIZEN PARTICIPATION

CITIZEN PARTICIPATION (SAN SEBASTIAN DE LA GOMERA)



CITIZEN PARTICIPATION (SAN SEBASTIAN DE LA GOMERA)



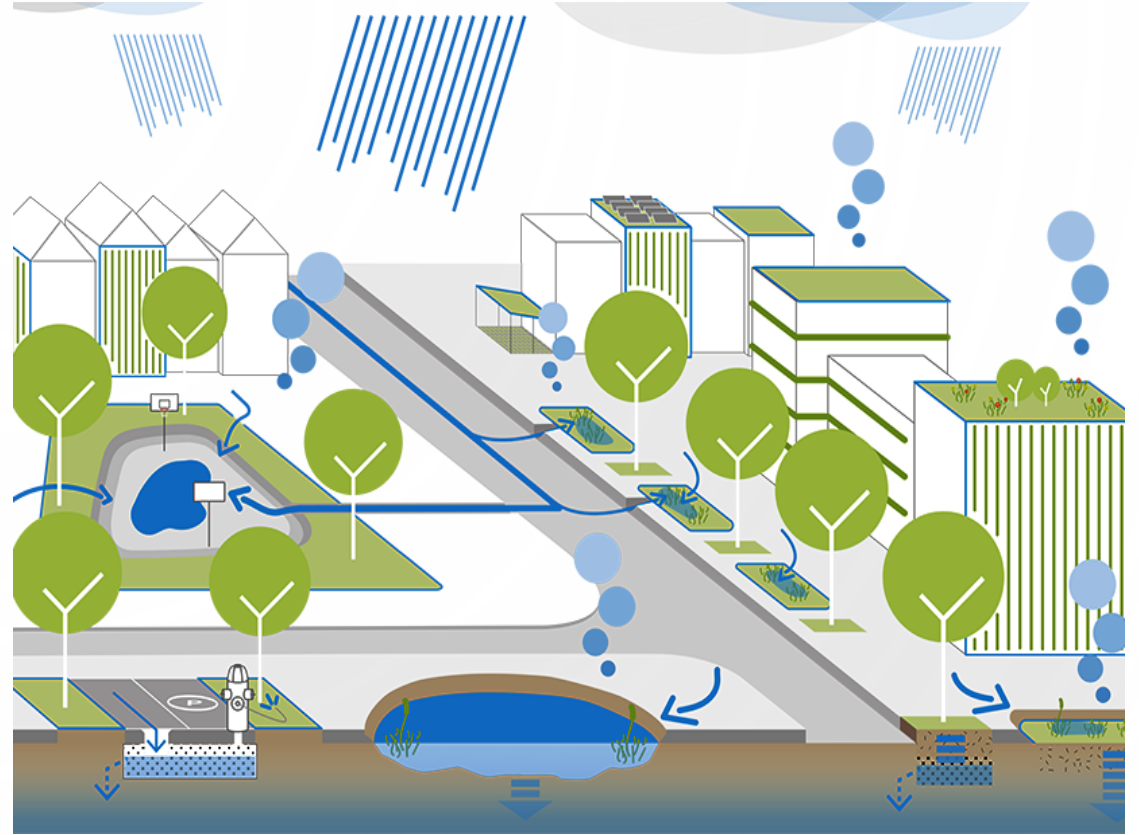
STRATEGIES IN VIENNA IN THE URBAN AREAS



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Urban Heat Island Effect





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REDUCTION OF CAR USAGE IN CITIES





POP UP CITY



THE OTHER SIDE OF DIGITALIZATION: ENVIRONMENTAL AND SOCIAL IMPACTS



Children as young as seven mining cobalt used in smartphones, says Amnesty



Exposed: Child labour behind smart phone and electric car batteries



Approximately 2.2 million litres of water is needed to produce one ton of lithium. ”



Europeans are the biggest producers of e-waste



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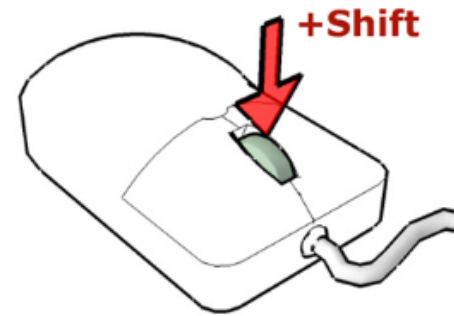
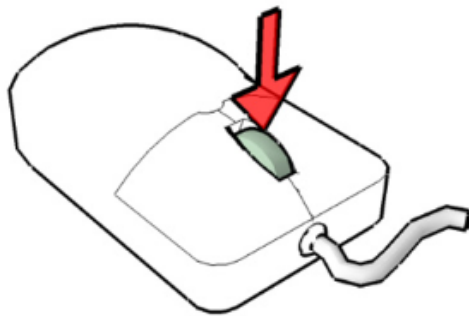


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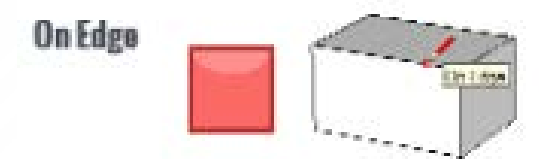
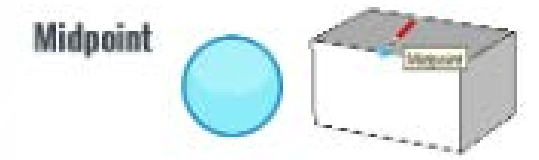
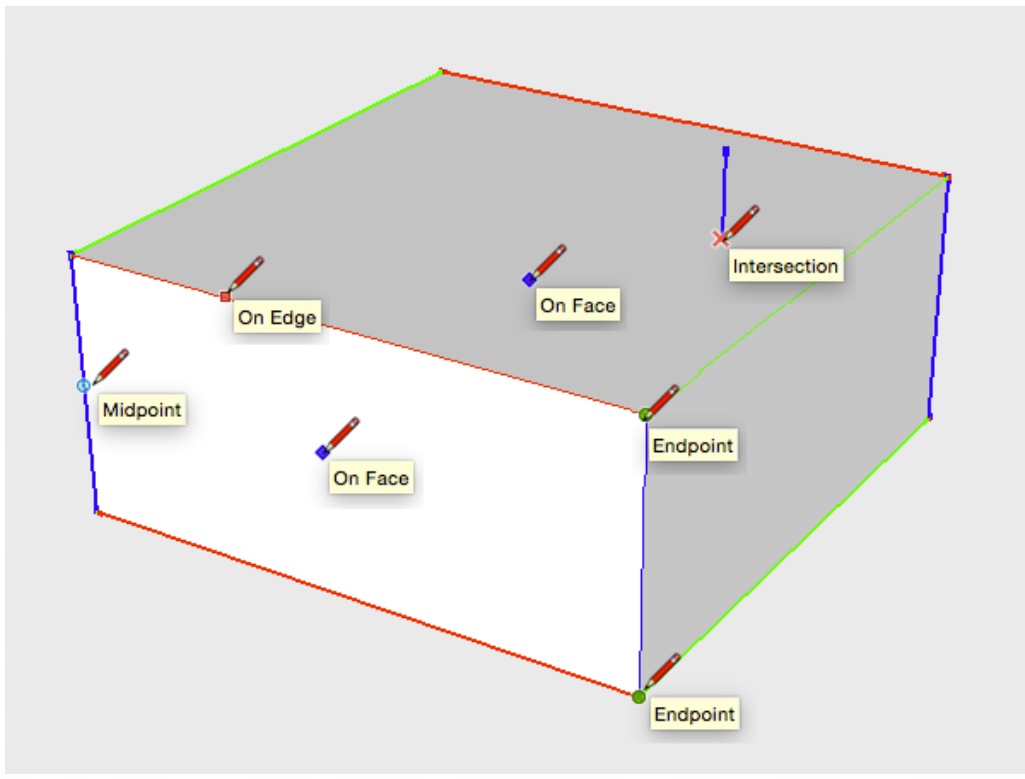
Navigating with a Mouse

The camera tools you use the most are always right at your fingertips. The best way to get around in SketchUp is by using a 3-button scrollwheel mouse.

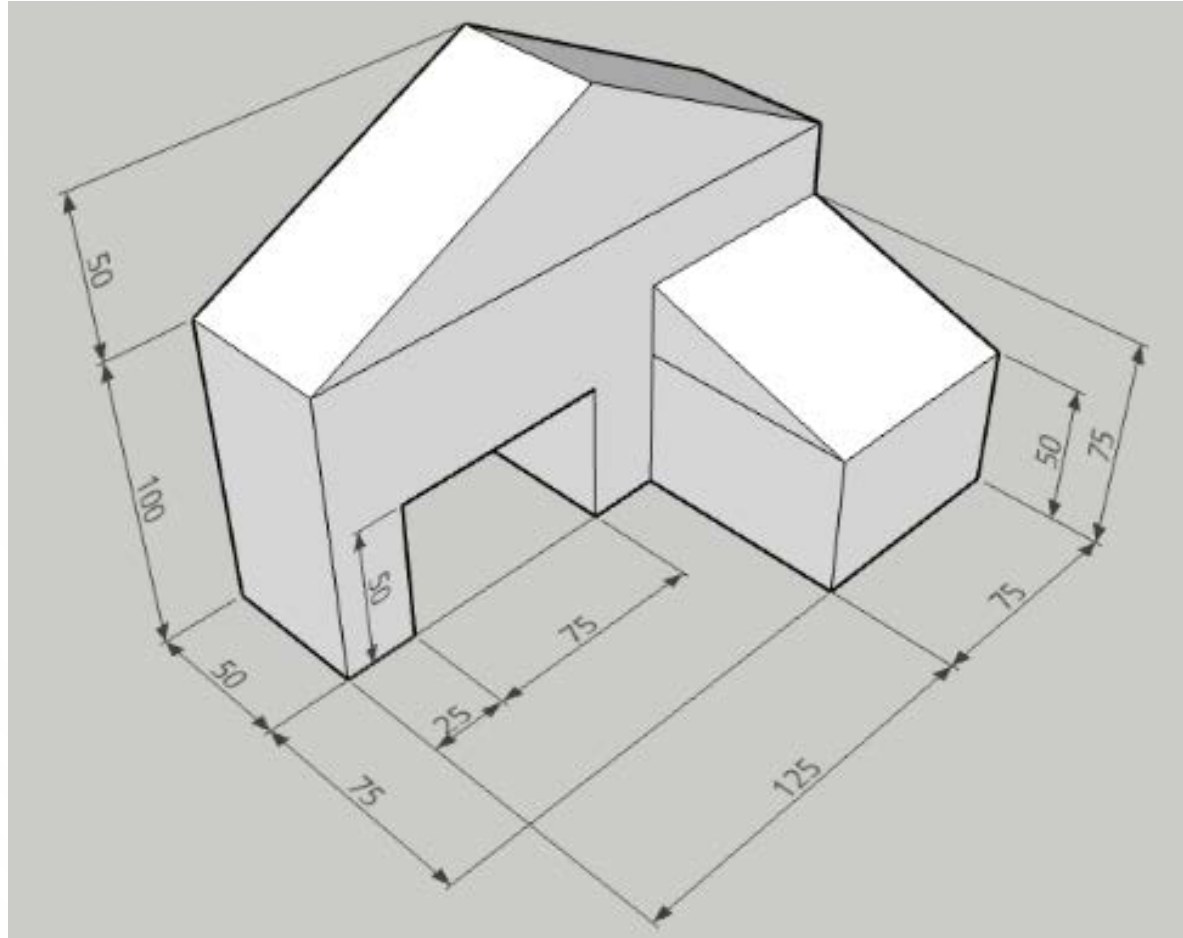
- Roll the scroll wheel to zoom.
- Hold down the scroll wheel button and move your mouse to orbit.
- Hold down the scroll wheel button and Shift key, then move your mouse to pan.



POINT INFERENCE



STEP BY STEP EXERCISE 1



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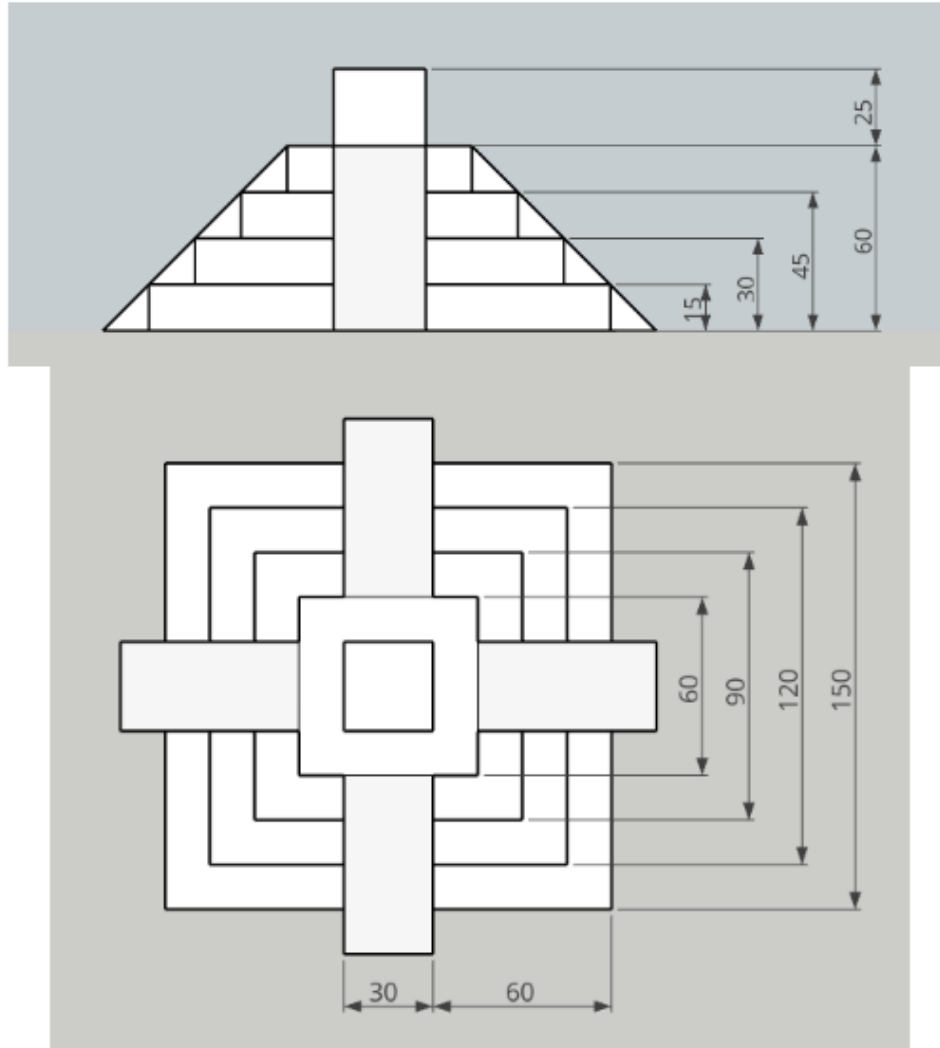
VIENNA, AUSTRIA

03.10.2024



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STEP BY STEP EXERCISE 2

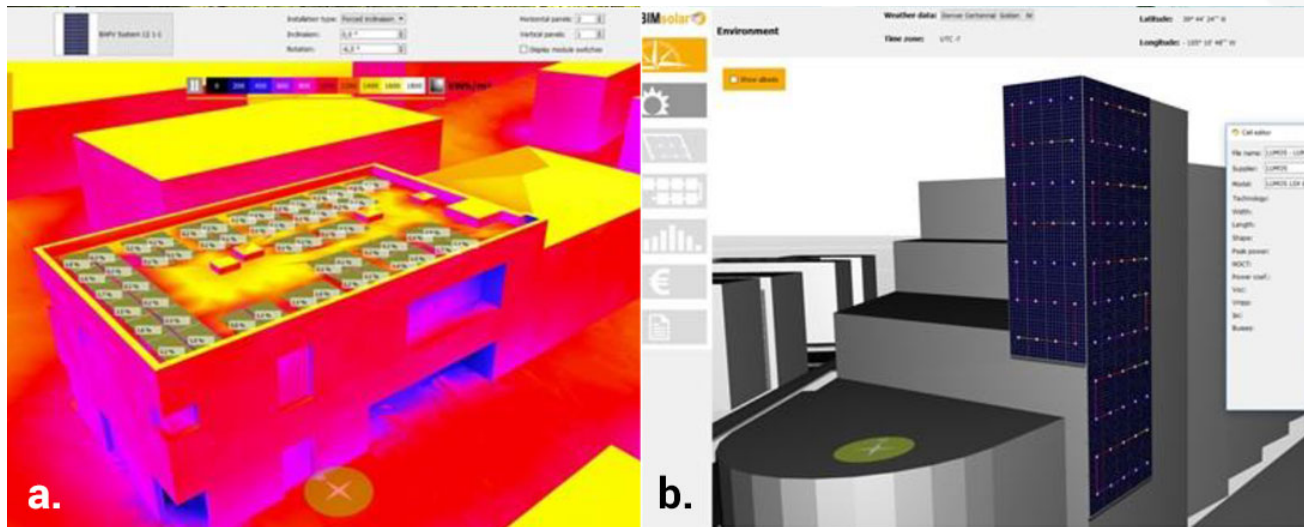


AGENDA

- **Using cadmapper** [http: cadmapper.com](http://cadmapper.com) (It is necessary to create an account)
- **Using Pvsites for calculating the PV system power** (BIM SOLAR – trial version)
- **Extensions (Only with Sketchup Pro)**
 - ShadowsAnalysis
 - CuricSun
 - AR-Media (It is necessary to create an account)
 - Veras (AI Artificial intelligence) (It is necessary to create an account)
- **Exploring the 3D Warehouse**
- **Layout**
- preparing the model for 3D printing

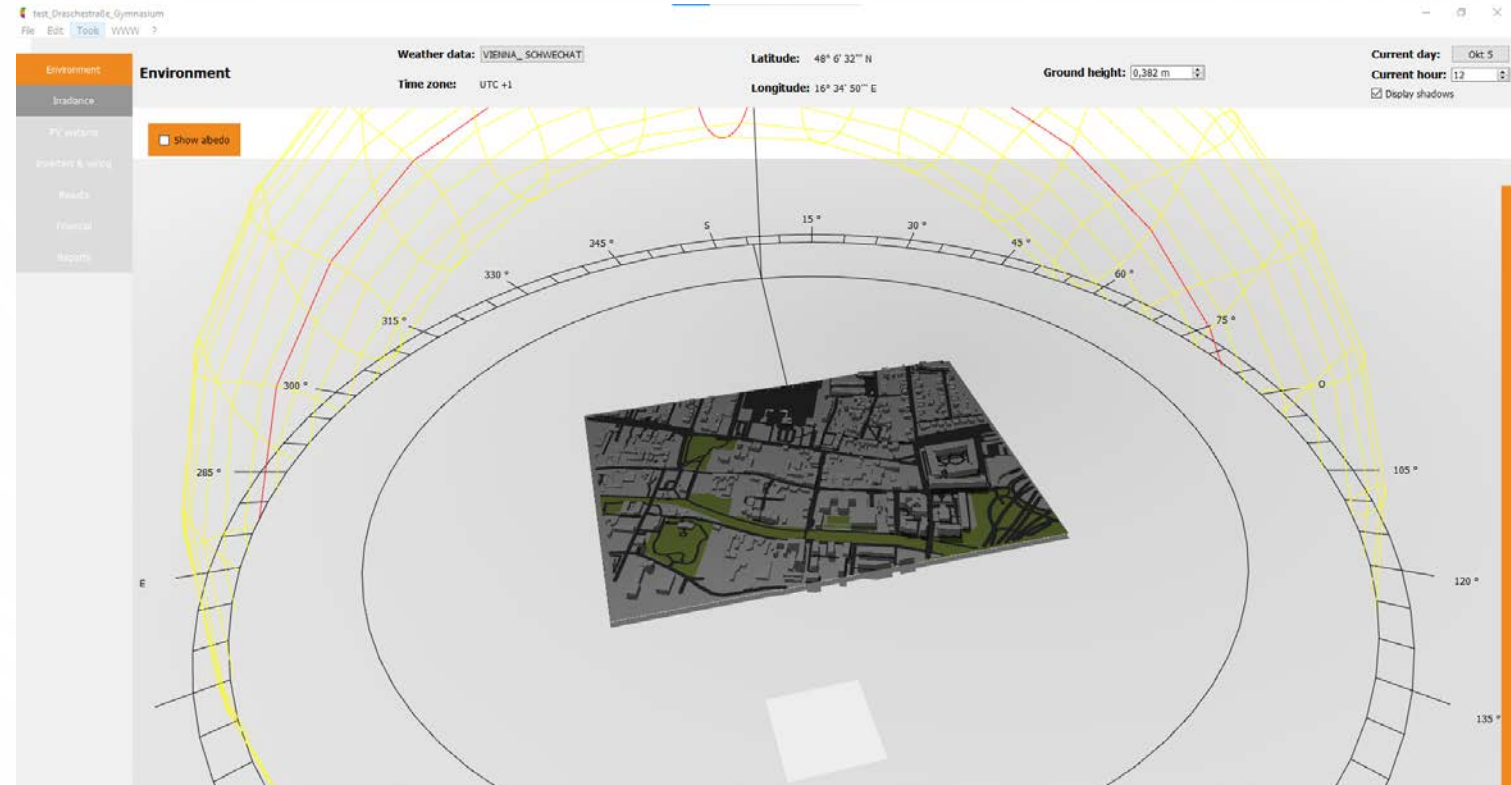
PV-SITES (NOW BIM SOLAR)

BIMsolar® is a web platform and a connected desktop software dedicated to promote solar innovations into architecture.



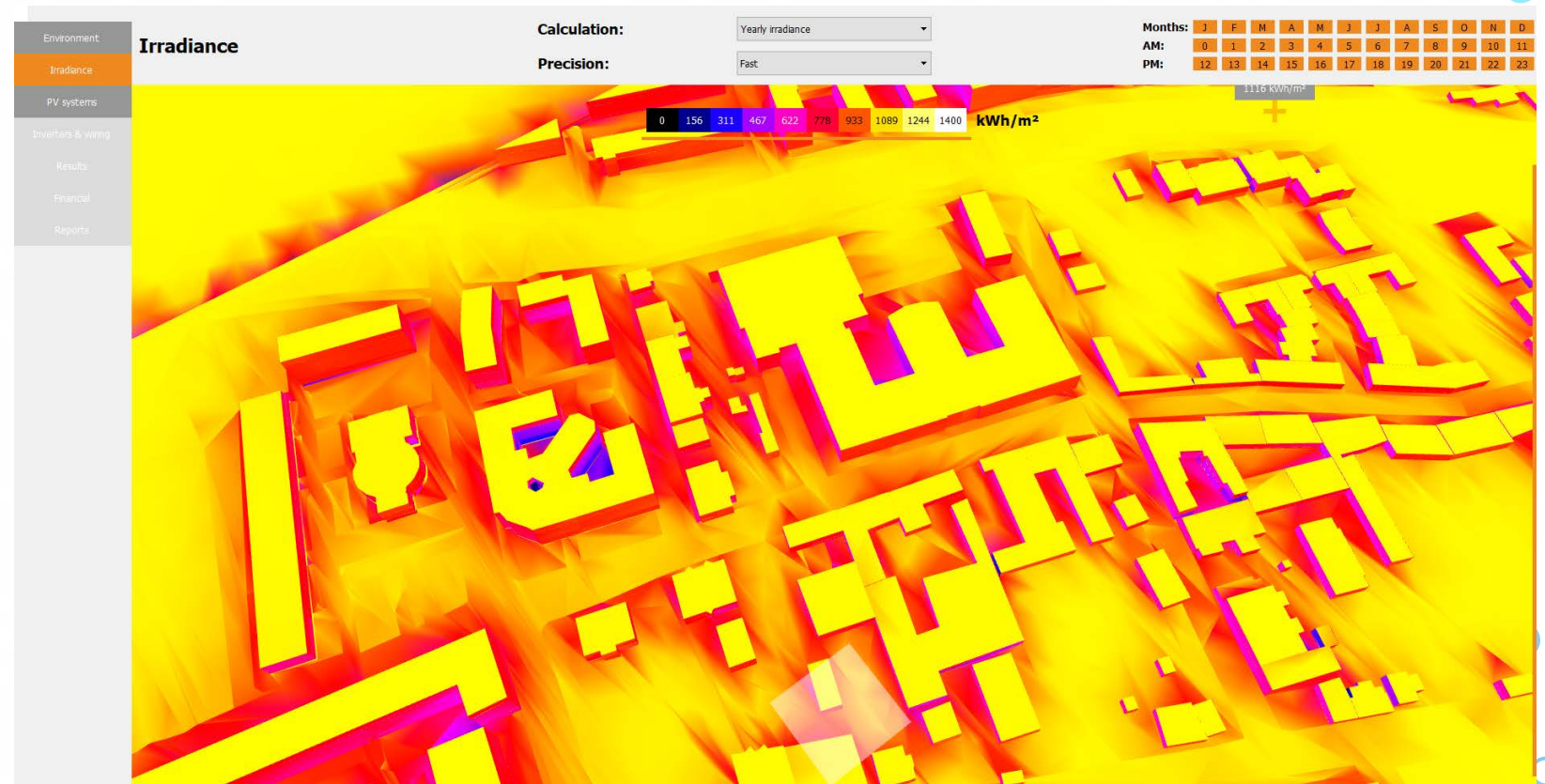
PV-SITES (NOW BIM SOLAR)

- Import of building 3D models



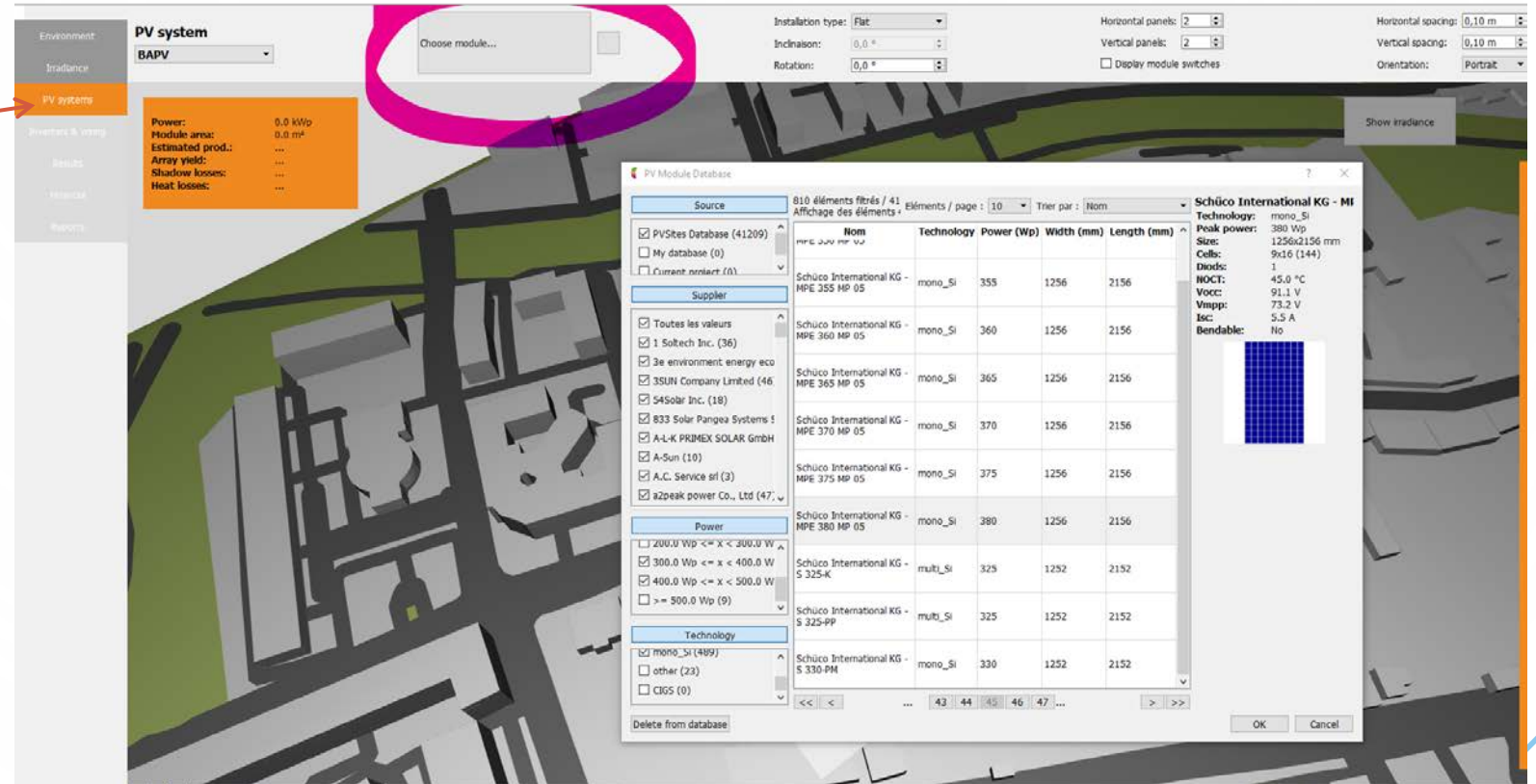
PV-SITES (NOW BIM SOLAR)

- Click on Irradiance



PV-SITES (NOW BIM SOLAR)

- Click on PVSystems
- Choose a type of photovoltaic panel.



PV-SITES (NOW BIM SOLAR)

- Finally, click on 'Result,' selecting all the modules to obtain the graph for production, irradiation, etc., of the selected modules.

This graph and all its data can be exported in a CSV table.

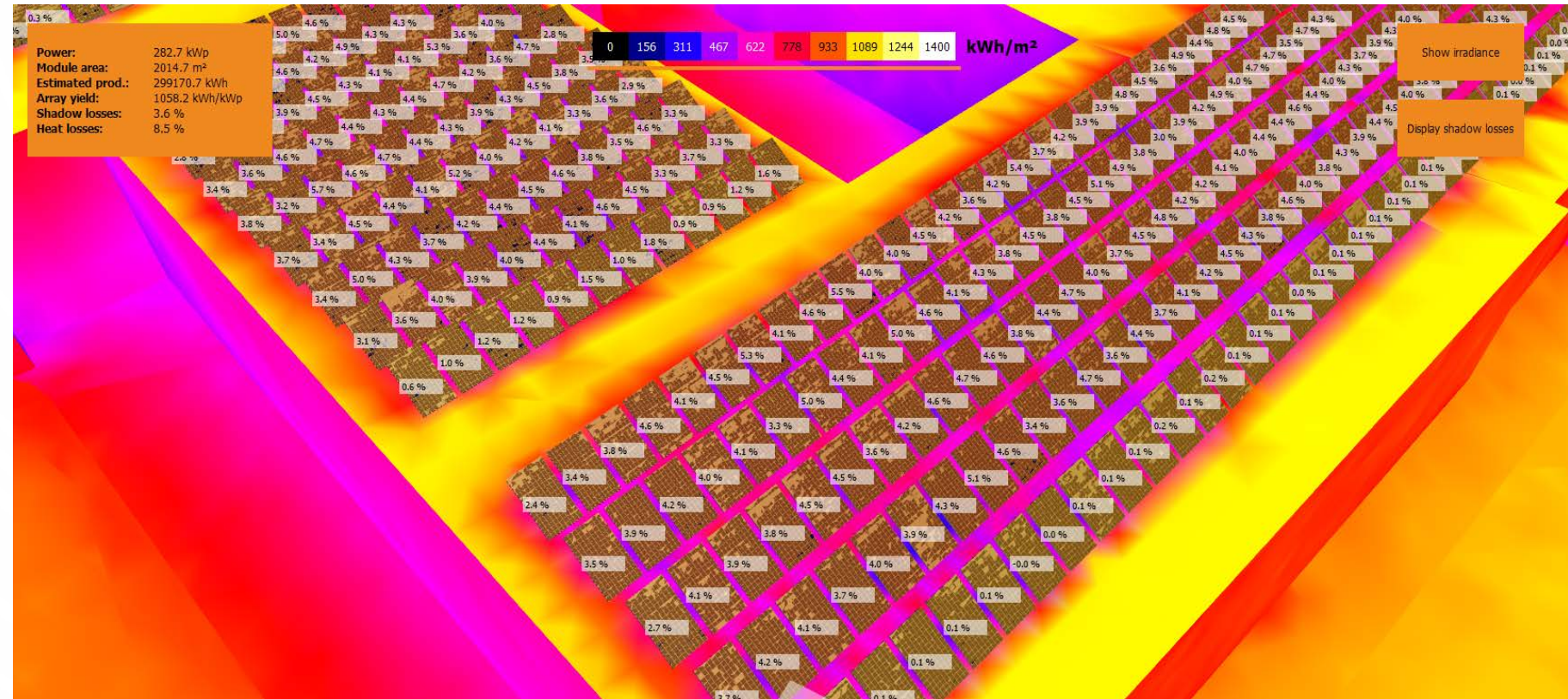
The screenshot displays the MiLat software interface. On the left, a sidebar menu includes 'Environment', 'Irradiance', 'PV systems', 'Inverters & wiring', 'Results' (highlighted), 'Financial', and 'Reports'. The main area shows a 3D model of a building with red solar panels. A 'Results' table is open, showing the following data:

Name	Modules
> BAPV Syst...	300
> BAPV Syst...	336
> BAPV Syst...	108

At the top right, there are settings for 'Data to display' (set to 'Production'), 'Data frequency' (set to 'Average day'), and 'Data unit' (set to 'kWh'). A bar chart titled 'Results' shows monthly production in kWh. The chart has a legend for 'Production' and buttons for 'Echelle auto', 'Enregistrer image...', and 'Enregistrer CSV...'. The production values for each month are approximately: Jan: 8000, Feb: 16000, Mar: 26000, Apr: 33000, May: 39000, Jun: 39000, Jul: 42000, Aug: 40000, Sep: 27000, Oct: 18000, Nov: 8000, Dec: 5000.

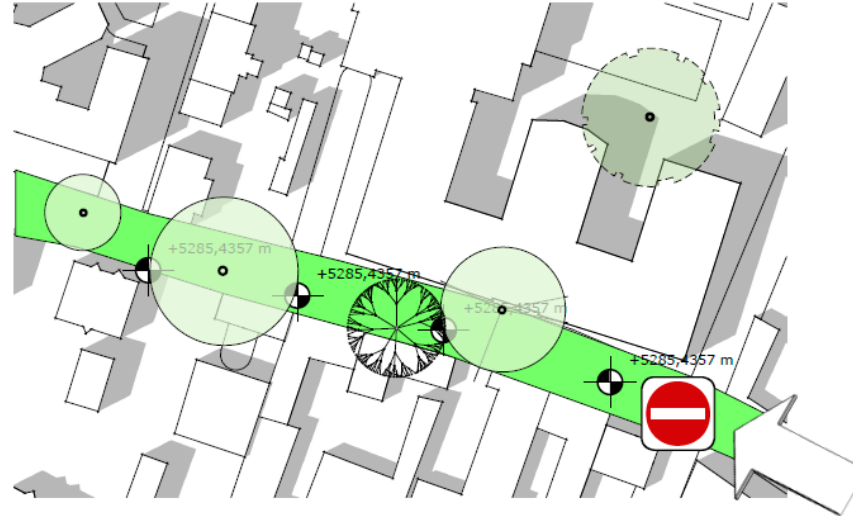
PV-SITES (NOW BIM SOLAR)

- By clicking again on 'PV systems,' we obtain all the information about the panels, as well as the estimated production, shadow losses, heat losses, and more. This program can be used to estimate the electrical energy production from photovoltaic panels, which could be used in our street projects, either for public use or for buildings (For example Draschestraße School)



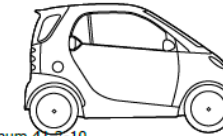
SKETCHUP LAYOUT

- SketchUp Layout is a tool used for creating professional 2D documents and presentations from your 3D SketchUp models. It allows you to create detailed drawings, add annotations, dimensions, and arrange different views of your model. Layout is essential for producing plans, elevations, and construction documents that are ready for printing or sharing.

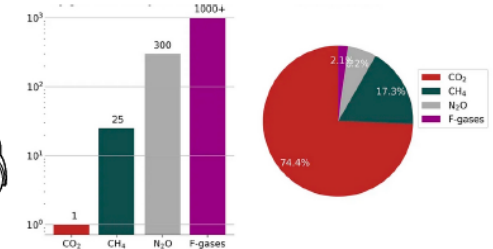


Text 1: Sallust
Bellum Iugurthinum 41.2-10
Im folgenden beschreibt Sallust die Auswirkungen auf Innenpolitik und Moral der Römer, die die Zerstörung Karthagos auf Rom und seine Bewohner hat: ante Carthāginem delētam populus et senātus Rōmānus placidē modestēque inter sē rem pūblicam tractābant; neque glōriae neque dominatiōnis certāmen inter civēs erat: metus hostilis in bonis artibus civitātem retinēbat. sed ubi illa formidō mentibus dēcessit, lascīvia atque superbia incessēre. ita

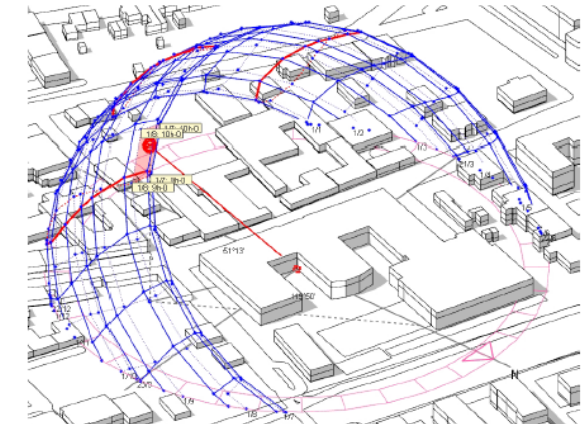
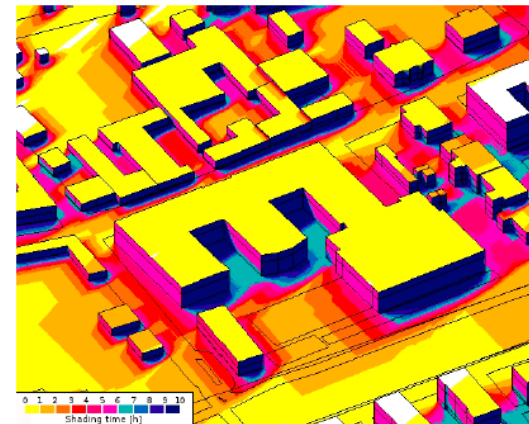
This is a example



Text 1: Sallust
Bellum Iugurthinum 41.2-10
Im folgenden beschreibt Sallust die Auswirkungen auf Innenpolitik und Moral der



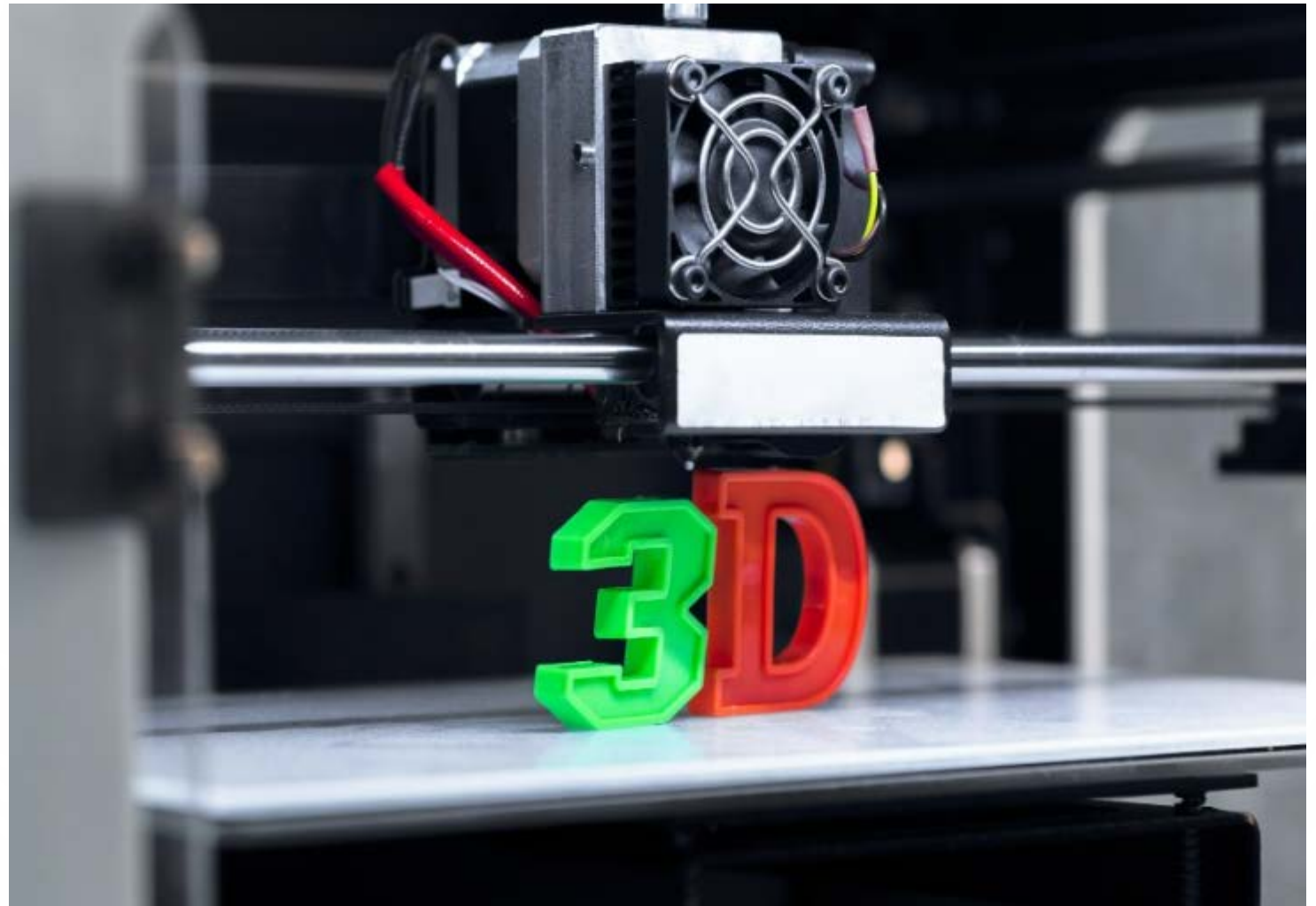
SHEET NUMBER	SHEET NAME
Sheet 001	Page 1
Sheet 002	
Sheet 003	
Sheet 004	
Sheet 005	
Sheet 006	
Sheet 007	
Sheet 008	
Sheet 009	
Sheet 010	
Sheet 011	
Sheet 012	
Sheet 013	
Sheet 014	
Sheet 015	



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PREPARING THE MODEL FOR 3D PRINTING

- To prepare a 3D model in SketchUp for printing, ensure that the model is fully solid with no hidden faces or internal geometry. All edges and surfaces should be clean and properly joined to form a solid object, as any gaps or errors may affect the print. Check for reversed faces (gray sides) and correct them by flipping them to ensure the entire model is properly oriented. Once the model is ready, export it in a suitable format for 3D printing, such as STL or OBJ, by going to File > Export > 3D Model. This will allow the file to be compatible with 3D printing software.



THANK YOU!

TEŞEKKÜRLER!

ΕΥΧΑΡΙΣΤΩ!

MERCI!

GRAZIE!



DZIĘKUJĘ!

HVALA!

GRACIAS!



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