



VIVO

MA Eco-Social Design
Semester 1 // Community Garden Project

PFLANZBAR

A greenhouse for the unibz
community garden to grow
and observe plants in an ideal
environment.

A project by
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ABSTRACT

In one of our first meetings with the VIVO Garden group we got to know that one of the main wishes about garden components would be a greenhouse. This made us think about its different uses and benefits. This involved research about different structures of greenhouses and how these depend on the plants, which will be grown and kept within the object. Furthermore we also investigated about the germination process of plants; what they need, how they grow, and how an ideal environment can be created. This influenced the way in which we built the greenhouse, how we imagined it to be used; its function and the type of plant we wanted to focus on.



SEEDLINGS AND BABY PLANTS

As we found out that sowing and the growth of small plants can be quite tricky we hoped to facilitate this process through the greenhouse. By building different levels within the construction we wanted to underline the different levels of plant growth. Starting from the bottom with sowing the seed up to the next two levels where you can translocate the plants according to their height and the amount of sunlight needed. The plants on the other hand get certain mobility within the greenhouse but also when transplanted into the beds. The levels of the greenhouse are adjustable by removing the horizontal elements to give more space to certain plants if needed. The greenhouse can therefore - to a certain extend - also adapt to the plants needs.



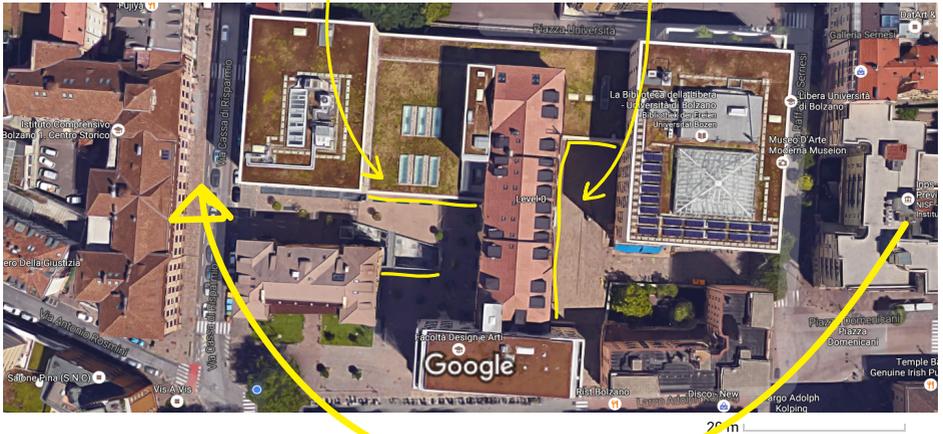
FUNCTIONS

As just mentioned one of the central ideas about the greenhouse was to give the garden group a tool to prepare their own seedlings and young adult plants, which can later be transplanted into the beds. The protected environment created by the greenhouse can so facilitate the first step of the plant growing for the gardening activity.

This protected environment within the greenhouse might give the chance to have a successful starting point to the garden activity. Moreover the greenhouse should be an object or place where germination and the growth of plants can be observed. The shape and the positioning of the greenhouse should therefore be favourable for this observation. By enabling that people can walk around the greenhouse the plants and their growth can be observed from all angles. This

might also provide a sensation of exhibition and installation of something one can be part of.

best places where to put a greenhouse in the Uni.



HOW THE GREENHOUSE CONCEPT CAN WORK WITHIN THE UNIVERSITY?

The greenhouse will be used and maintained by the garden group. However there are some features, which can also make other students and people from outside the university participate in the process of plant growing. People benefit from through observation from the greenhouse and the processes within it. A thermometer and hydrometer are installed in the greenhouse to provide a help to facilitate the growing process of the plants. This is a way in which also people from outside of the garden group and the university can take part by controlling that there are ideal growth circumstances in the greenhouse and contact someone through the contact details if something is not going alright.

Advantages of a greenhouse

Artificial microclimate



multiple plant growing possibilities



All year gardening



Protection from environmental impacts



Plant isolation from insects and diseases



Transplant availability and success



SOW & GROW

sun
light

water

flower
makes seeds

bud
grows into flower

leaves
enable photosynthesis

seed coat

food and protection
for seed

shoot
grows upwards

sprout

stem

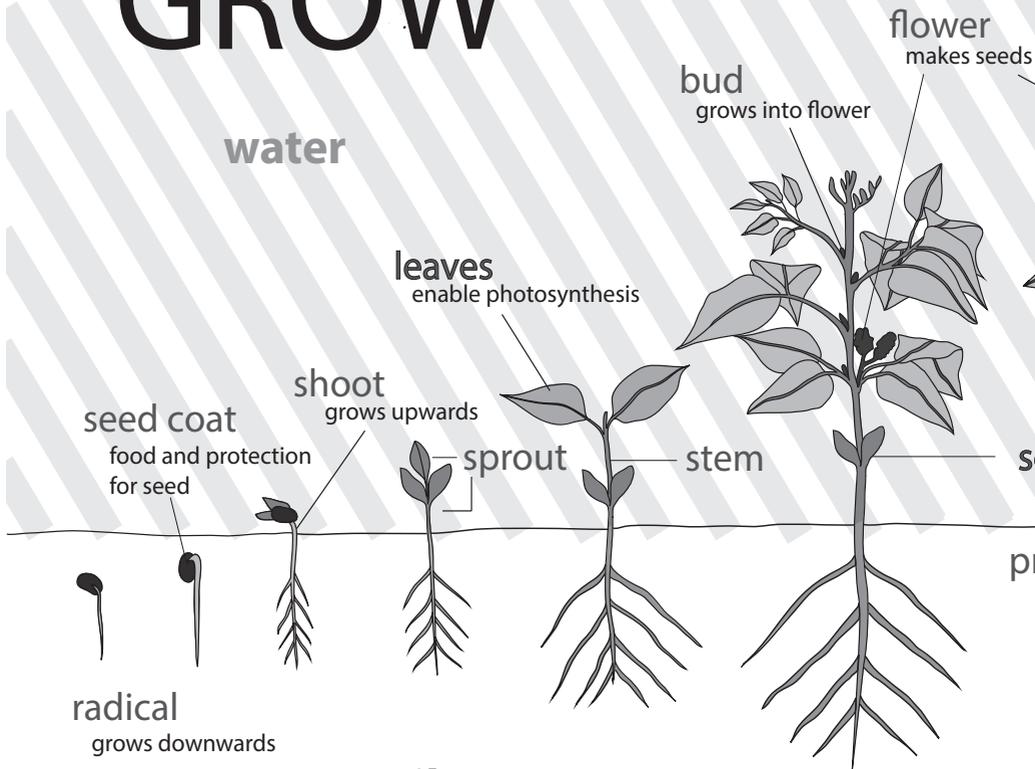
radical

grows downwards

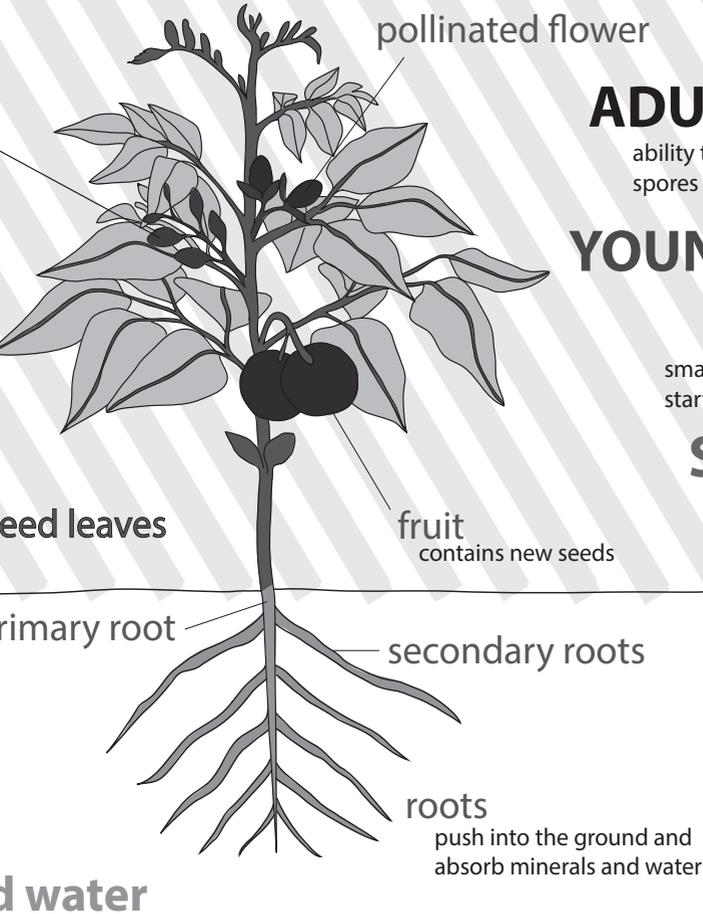
soil

stores water and provides plants
with minerals and nutrients

minerals and



Germination



pollinated flower

ADULT PLANT

ability to reproduce through spores and flowers

YOUNG ADULT PLANT

small plant with flowers to start pollination

SEEDLING

small plant with a few leaves

SPROUT

when shoot from seed hits the surface

SEED

starts to grow into a plant through imbibition/water

roots

push into the ground and absorb minerals and water



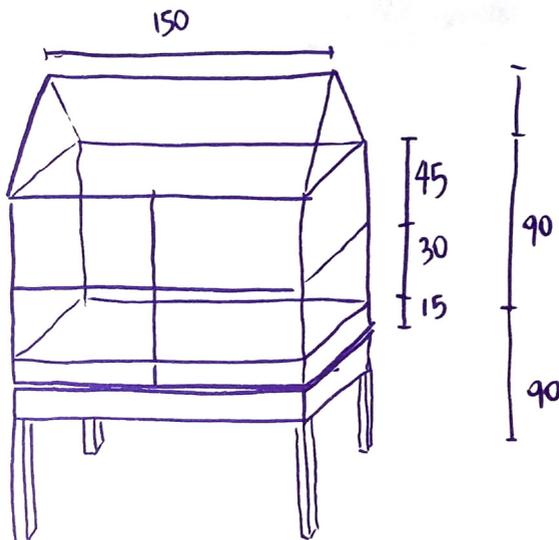
STRUCTURE DESCRIPTION

To enable ideal growth circumstances for the plants it was necessary to find out how we could build a greenhouse were an ideal environment can be created.

DIMENSIONS AND SHAPES

The greenhouse has a pointed roof. This is not only a aesthetic decision but much more a functional one. This shape allows a better air temperature circulation and distribution.

The dimensions have influenced the design of the construction. The ones we used are the minimum dimensions to build a functional greenhouse.

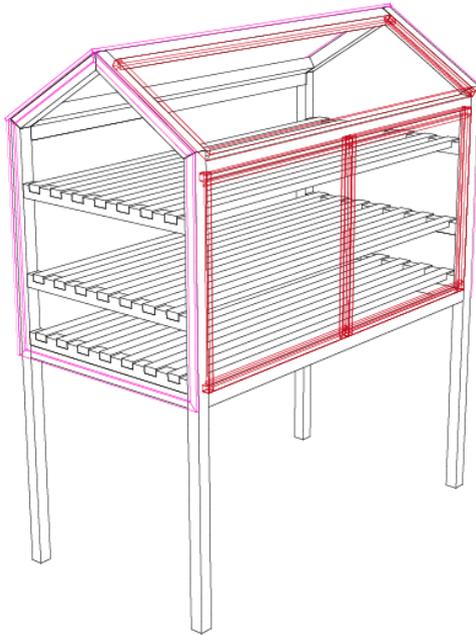


MATERIALS

For the basic structure we used wood. The fundamental transparent parts of the greenhouse were made with polycarbonate.

Polycarbonate is a material, which has similar features like glass.

However, it might be more appropriate for a public space as it cannot be broken very easily and therefore have a more durable but also secure product.



WATERING CAN

The watering can is useful for the greenhouse because it fulfils two functions; 1) watering the plants and 2) store heat and therefore balance the temperature within the closed space.



THERMOMETER AND HYDROMETER

These objects are necessary to control the circumstances of the plant environment.



VENTILATION

We have two different types of ventilation within the greenhouse; one is the top window on the roof of the construction and the other ones are the holes on the top of each side.

GREENHOUSE INFORMATION PANEL

These provide the participants of the garden group an aid of how to look after the plants and what they have to consider for making the growth of each plant successful.

PLANT NAME

General Information about the plant:

Plant calendar

Sowing in Greenhouse
Transplantin to the bed
Harvesting

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	

In the greenhouse

Temperature

Humidity

Important Information

After transplant to the bed

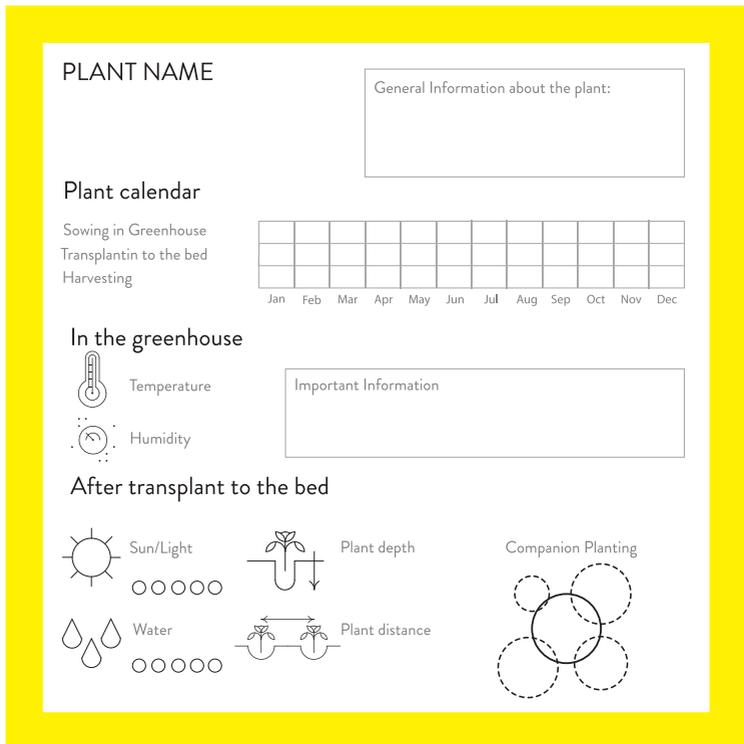
Sun/Light

Water

Plant depth

Plant distance

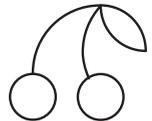
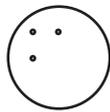
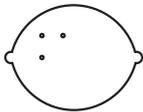
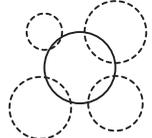
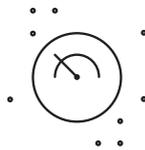
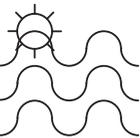
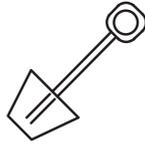
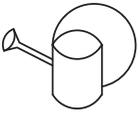
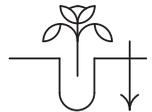
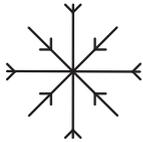
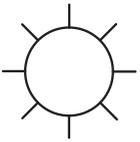
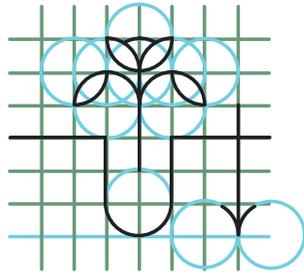
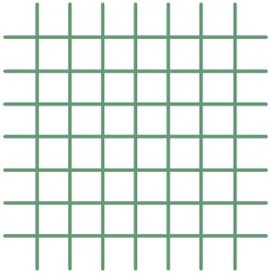
Companion Planting

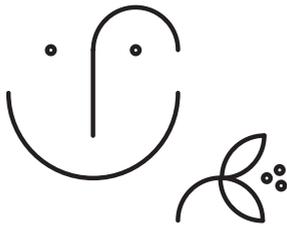


PICTOGRAMS

We design also some pictograms for the communications of some special features (like the termometer, hydrometer and the information panel).

These pictograms are design all in the same grid, that is 8 cm x 8 cm. This allows to have at the end clear and equals images.





Keywords

Community, Co-Design, Co-Production, Open Design, DIY, Dealienation

Teaching Team

Kris Krois (Communication–Interaction–Services)

Karl Pircher (Object–Spaces–Services)

Lisa Borgenheimer (Informationdesign)

Andrea de Chirico (Design & Materials)

Werner Stefano Villa (Digital Design & Fabrication)

Sabina Frei (Moderation & Participation)

Time Span

17. October 2016 – 17. November 2016

Partners

Roberto de Felice (Garden expert)

VIVO Garden group (Student Initiative unibz)