

# FUTURE URBAN FORESTS

## Youth-led Strategies to Green our Cities



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Future Forests is an Erasmus+ Youth Project focused on rethinking urban spaces through nature-based solutions.

Our objectives are to raise environmental awareness, support active youth participation, and equip young people with the skills to design and implement urban greening initiatives.

Through collaboration, training, and real-life experimentation, the project connects ideas with action and empowers youth to shape cities.



A Copenhagen-based organisation using hands-on learning, urban greening & real-life environmental projects to engage children and youth in shaping their surroundings.



A Brussels-based placemaking organisation using youth work, non-formal education & creative tools to help young people shape public and shared spaces.



A Madrid-based organisation using visual tools, non-formal education & co-creation to support active citizenship and build collective knowledge in communities.



## 1. GREENING OUR CITIES

### Cities, Humans and Plants

In 1950 about 20 % of the world's population lived in cities and today, in 2026, this figure is 45 %. We call this phenomenon urbanisation - the move of people from towns and rural areas to bigger clusters, known as cities. As our cities grow in population, and thus in scale, several problems are known to occur. Cities tend to be hotter, more polluted, more prone to flooding and in many ways less healthy than the surrounding areas. Luckily for us, many of these problems can be mitigated by using natural solutions, and trees play a key role in this transition. Throughout this folder we explore some of the themes associated with this transition, and we start by defining some of the problems and definitions.

#### Heat Island effect

Cities are always hotter than their surroundings - on average by 6 degrees C. Even though more people globally suffer from cold than from warmth, this is still an issue to be taken seriously. In warm regions, and even sometimes not so warm ones - heat becomes a health problem in the summers. So much in fact that many hot cities have special emergency plans for how to handle heat - from opening up community cooling rooms to making sure that vulnerable populations are monitored. There are a number of reasons why cities become hot: stone and concrete absorb heat quickly, traffic and businesses create heat and shade is often lacking. This is where green spaces, and specifically trees, come into the picture. Trees have the double effect of creating shade while also lowering cooling the air around them by their water transpiration. Green spaces as a whole, with all the plants in them, contribute to this cooling effect, but if one was to single out the most crucial part of them it



#### Managing Water

Large quantities of rain can be a difficult thing to manage in a heavily urbanised area - in other words, cities are sensitive to flooding. This is mainly due to many hard surfaces (unable to let water through) and insufficiently large sewage systems (the pipes are old). The problem is complex but one part of the solution is green spaces. They can both function as a "sponge" (meaning the soil can hold water), as a "pipe" (meaning they can lead water either down into underground bassins or onwards to larger bodies of water) and lastly as a "pool" (meaning the design can be such that certain areas become water filled if necessary). This filtering effect of the green spaces also serves a greater purpose by preventing some of the pollutants of the city to become a problem in our greater water systems.

#### Air and Energy

Have you ever noticed how windy it tends to be in some city spaces? This is because urban areas with high and tight buildings create what could be described as a wind tunnel or a canyon. It can be unpleasant and it also becomes an energy problem because the winds increase the heating demand in summer and cooling demands in winter. Trees can contribute significantly to help this situation. Because of their complex structure (much the opposite of a smooth-surfaced high-rise building) they slow down the air particles, thus making it less windy. As this happens the surface of plants (again, it's true for basically any plants, but trees do it at a larger scale) also collect particles in the air. By doing so, they function as an air filter cleaning out small particles that are detrimental to our health as humans.

#### Health

The examples above are related to physical health but there is also a whole discussion to be had about mental health and how it is connected to green spaces. This is a relatively new field of study and typically talks about direct (such as experiencing plants in our surroundings) and indirect (such as parks being areas for social activities) relationships between green spaces and mental health in society at large

## 3 + 30 + 300

The 3+30+300 principle was introduced in 2021 by Dutch scholar and urban forestry expert Cecil Konijnendijk, and has since been widely used. It argues for the importance of mature trees in cities and proposes a simple method to measure if there are enough of them.

Below is a short summary from the 3+30+300 Handbook, summarized within the project Ygdrasil, the Living Nordic City Project.

#### 3 - Visible Green

Everyone should be able to see at least three large trees from where they live, work, learn, or receive care. This promotes psychological well-being and connection to nature, and also enhances mental recovery, concentration, learning, and creativity. The trees should be of a certain size to count, they should be "large". In the Ygdrasil project guidelines this means a canopy surface of at least 28 m<sup>2</sup> or a crown radius of 6-8 m.

#### 30 - Protective Green

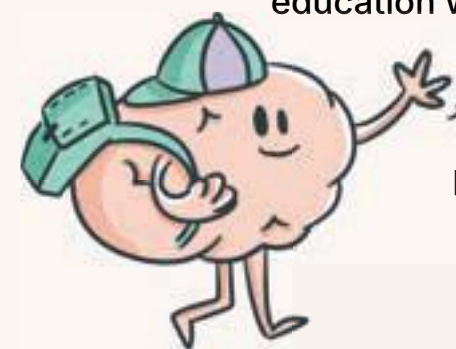
Neighbourhoods - based on local definitions and needs - should have at least 30% tree canopy cover. Meaning, that if you look at the area from a satellite view, at least 30% of what you see should be trees. Local needs and conditions can be taken into account - for example, if your city is by the coast or has a big lake, the water is typically included since it is beneficial to the 300 aspect. Buildings and roads are included in the total however, making "30" an ambitious but achievable goal. Some cities, like Barcelona, Bristol, New York, and Vancouver have set a 30% canopy target, while cities such as Sydney and Washington DC aim even higher.

#### 300 - Recreational Green

We should all have a high-quality, publicly accessible green space of at least 0.5-1.0 hectares (1ha = 100 000 m<sup>2</sup>) no more than a 300 metres walk or bike ride away, ensuring accessibility for recreation and fostering healthier lifestyles. This larger green area should also have a diversity of usage so that it can contain many different activities. Larger green spaces can also offer more biodiversity and higher quality nature experiences. The World Health Organization, Regional Office for Europe (2017) has recommended a minimum size of 0.5-1.0 ha to achieve this. In other words, we should not be too far away from a larger park.

#### A practical pathway: SPARK - SENSE - DREAM - DO (Learn, Make, Show)

Future Forests connects sustainability education with participation and placemaking through a simple pathway aligned with non-formal learning.



#### SPARK

(Learn) builds motivation and shared language: heat islands, wellbeing, inequality, tree equity and the 3-30-300 rule.

#### SENSE

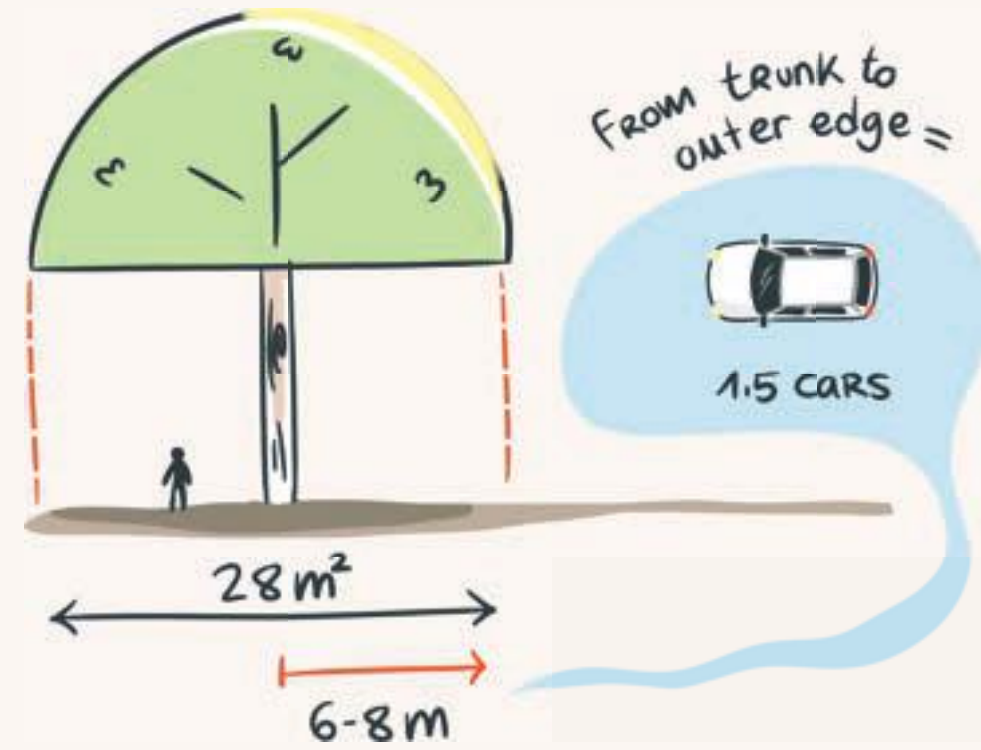
(Learn to Make) helps youth read the city through workshops and citizen sensing: mapping heat, shade and comfort, documenting "green gaps", and producing evidence youth can show.

#### DREAM

(Make) turns insights into proposals: a tiny forest and its surrounding place (seating, play, water, meeting, learning), developed through co-design, prototyping and stakeholder perspectives.

#### DO

(Show) moves proposals toward impact: alliances, storytelling, pitching, a mini-campaign, or a stewardship plan so greening is cared for over time. The strength is the sequence: understand first, gather evidence next, imagine together, then act.



These three principles combined make a city with sufficient tree canopy coverage at both street and neighborhood levels. Additionally, it makes high-quality public green spaces available to everyone. As you might have noticed, this also means that the urban green is spread out over a city, making it fair for everyone. A city might have many trees as a whole, but if they are all in one neighbourhood, or one very large park, this still means that not everybody, or even very few, have access to the benefits in their daily life.

## The Urban Forest

A forest is usually understood as a (large) mass of (large) trees, typically not in a built area. It is also not only about trees - it is a green space where trees are present but together with other plants too, from small ones covering the ground to bushes and climbing vines. This space also comes with many other creatures - birds, insects, mammals such as deers, squirrels and hedgehogs just to name a few. The science and practice of managing a forest is typically referred to as "forestry". The aim of the management can be many things: making sure that wood is produced in desired quantities, wildlife preservation, or safety issues if the forest is used for recreation by many people.

In the 1960's, in North America, the term Urban Forestry emerged in response to widespread diseases of trees (such as Elm disease) - calling for forest management methods used in cities. It looked at the totality of city trees as a forest, a network in the same way as the countryside forest is. This idea would cross some of the borders we usually talk about in cities, for example private and public, since the trees and the creatures living in them would not recognize such borders. Thinking about it this way the green spaces of a city can be seen as a network, an intertwined web of species that live together as in a forest.

This also means seeing all kinds of spaces as urban green - not only parks - for example the side of roads, trees along a street, empty lots or green roofs and balconies. The networks of green spaces makes it easier for different species (including us humans) to move across the city. There is a whole field of study dedicated to urban forestry and other related topics such as urban ecology, all doing activities typically found in wild nature focused on cities.

The term "Rewilding" is another one that has a lot of relevance in this line of thinking - specifically when talking about how to live with other species. This desire to get more wilderness (in terms of plants and animals) is usually to help with biodiversity but can also be a question of simply enjoying the greater diversity that it brings - a lot of people enjoy seeing more kinds of animals and plants. The activity of rewilding is perhaps mostly done in more natural areas but the city also has a role to play. Having (and keeping) large trees is often one of the most efficient ways to achieve this but sometimes built structures are also used. As an example the city of Monster (NL) chose to construct a new bridge with built-in nesting spaces for bats, on the underside, in 2015.



Urban green spaces have a vital function in our cities for hosting social activities - they are places for play, cultural events, sports, markets, everyday socializing and much else. The role of urban green spaces, and how they are used, is changing (as it always has). The big question for our time might just be: how do we make them both social and wild at the same time?

#### Heat island

The **urban heat island effect** describes how built-up areas can become hotter than greener or less developed surroundings, because roads, buildings and other hard surfaces absorb and re-radiate heat more than vegetation or water.

A very effective citizen science tool for this topic is an **infrared or thermal camera**. Unlike a normal camera, it shows differences in **surface temperature**, making it possible to compare, for example, asphalt, paving, grass, trees, benches or playground equipment. This can quickly reveal which places store heat and which places provide cooling.



To use a thermal camera in a workshop, participants can walk through a neighbourhood and take images of different materials and situations: sun versus shade, paved versus planted surfaces, or parking areas versus parks. For useful results, it helps to photograph from a similar distance, focus properly, and compare similar surfaces under similar weather conditions. It is also important to explain that thermal cameras measure **surface temperature**, not **air temperature**, and that shiny or reflective materials can distort the reading because emissivity and reflected heat affect the image.

This makes thermal mapping a powerful learning tool: it is visual, immediate and easy to discuss in groups. It also creates a strong bridge between observation and action, helping participants move from "this place feels too hot" to concrete ideas such as more shade, more trees, different materials, or better-designed resting places.

#### Attitudes

To ask just about anyone affected by your project (your own group, the neighbors, passer-bys...) about their attitudes towards the space you are working with is also a form of citizen science. It's just not as focused on clear metrics when measuring. The totality can still give good numbers: you could for example say that "85 percent of the neighbors asked feel that the place has become more green" if you do a simple survey. Doing interviews or surveys can also be part of the activity with your group

#### CHECK OUT THESE APPS !



plumelabs.com



inaturalist.org/



# MAKE YOUR OWN GREENING PROJECT



This roadmap to a greening project with youth is meant to inspire and give good ideas on how to run a project. It is not, however, a complete guide nor is it meant to tell you where to start. Rather, you can see it as a set of things to think about when running your project. As is usually the case when running real in-life processes, things don't move from A to B to C. Instead, things have a tendency to run in whatever order is needed, sometimes going backwards and other times running on all stages at the same time. Another reason to not read this roadmap as a script, but rather as a set of ideas.



## THE GROUP

### Getting engagement / Recruiting

Engaging the group: activities & methods to start a group that is committed to the activities.

Building the group is about more than recruitment: it is about creating commitment, ownership and a sense of shared mission. You can start through open calls, local networks, schools, youth organisations and personal outreach, combined with low-threshold first activities that make it easy to join. Participation grows when young people are clearly valorised: through visibility, responsibility, learning opportunities, meaningful roles, public recognition, and where possible practical support. A Learn-Make-Show approach helps turn participants into co-creators and ambassadors, not just attendees, especially when their ideas are shared publicly and brought into dialogue with neighbours, partners and decision-makers.



## THE SITE

An urban green space can be many things, and most places can be used in some way. However, there are some aspects that are good to take into account when choosing your site:

### Who owns it?

Having a clear picture of who owns, and who manages, your site is a really good idea. No matter what the answer is, forming partnerships is important. Public versus private ownership comes with its own set of possibilities and problems. Public land has the advantage of being owned by everyone, in principle. This means that whoever is managing it also has a certain responsibility to actually listen to ideas and wants from the public. The problem can be getting in contact with the right person and figuring out how to get permissions. Private ownership comes with the opposite set of issues - it might be very easy to figure out who does the management and permission, but they are under no obligation to listen. Don't write it off immediately though - some very interesting projects have come out of land that is privately owned, but holds public projects on it.





During the Future Forests Training Course in Madrid, participants created practical tools to involve young people in urban greening. Based on the SPARK-SENSE-DREAM-DO process, these methods help youth move from curiosity and observation to imagination and action. The tools invite young people to explore green gaps, understand climate and biodiversity challenges, co-design ideas and take steps towards real change. They are made for youth workers, educators and local organisations who want to make greening more playful, inclusive and youth-led. *Scan the QR code to discover and use the tools!*



### Usage

Most land is used for something, and by someone. I might be very useful to do a simple analysis of this fact and map things such as:

- At what time of the day is it being used, and by whom?
- What are the needs of these groups to support the activity they are doing?
- How many people are we talking about? Does it vary a lot or is it equally distributed?
- Is there seasonal variability, or is it even all year around?

Once you have a clear picture it might be a good idea to enter in conversation with current users and, just like with land owners and managers, form some kind of partnership. If you can make your project positive for these groups, and support their needs, you will have a much higher success rate.

### Mapping

No matter the nature of your project, it helps a lot to have a good map. It will help both with explaining your project to others but also for the work with your own group. By actually drawing something on a piece of paper you will have a much easier time explaining and understanding your project. You can typically start your mapping by using a service such as Google Maps to get a good base, but don't underestimate getting out on the site and measuring yourself.

### TINY FORESTS - a way to wild green

This method was pioneered by Japanese botanist Akira Miyawaki in the 1970s who, after observing local forested areas, wanted to mimic and boost natural development of wooded areas. In short the method consists of planting many small saplings in a high concentration rather than buying bigger trees. This mimics what would happen in nature (where small trees will appear from seeds either present in the soil or imported by wind or by animals) and makes the process start quickly. Another advantage of planting tightly and diversified is that even if some plants get damaged or even die, the others can compensate. In this sense the method is more like planting a whole forest (but tiny, thus the name) rather than just a few trees. The method is also relatively cheap because small saplings are quite inexpensive, as compared to larger trees from a nursery. Tiny Forests has since the 1970s been planted in many countries, including northern Europe, and resources with more detailed instructions can be found online.

## THE SUPPORT

A good idea needs the right support around it. This means looking for funding, but also checking whether your project connects to local or national priorities such as climate adaptation, youth participation, health, biodiversity or public space. Support can come in many forms: small grants, practical help from the local government, volunteers, local organisations, and professionals such as gardeners, designers, teachers or youth workers. It is also about lobbying: explaining your idea clearly, building partnerships, and convincing others that the project is worth backing.



or not...



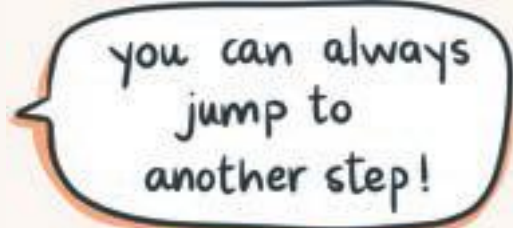
## THE NEEDS

Once you have a good idea of the site, the next step is to figure out what you want yourself, and what are the wishes of your group? Remember that a space does not have to be just one thing, in fact it is usually more successful if there are several types of activity in one place. It might be useful though to think of a couple of themes for your greenspace. For example - do you want a space that is wild and attracts animals and insects? do you want (or all) of it to be edible? do you need space to move in it, or just as many plants as possible? What kind of functions do you need to build for - seating, rain-cover, sun-cover, a scene?



### A few practical tips:

- Start small: one small grant, one supportive civil servant, or one local partner can already unlock a lot.
- Translate your idea into the language of policy: link it to themes like wellbeing, climate adaptation, biodiversity or youth engagement.
- Ask for more than money: tools, plants, storage, expertise, volunteers or communication support can be just as valuable.
- Build neighbourhood backing early: talk to local users and neighbours so the project feels shared, not imposed.
- Bring clear proposals: a simple map, sketch or short pitch makes it much easier for others to say yes.



## THE EVER AFTER



**Events** are a very good tactics to keep a place active. If you have created a new meeting place for people, think about what could be relevant to organize on the site. Consider what role your group could play in it. You can be more or less active. Let's say you make a flea market: is it your group organizing it or would you rather find someone from outside? A good idea is to ask local organisations if they would like to do something on your site. Maybe the local scouts want to use it once a week? Maybe the karate club can use it for outdoor training in the summers? No matter what, the local network is a valuable asset.

**Maintenance** needs to be thought about beforehand. Depending on your site this could be quite low key (a pocket forest just needs some weeding) or something much bigger (if you are growing vegetables they will need quite a bit of attention). There is always something though, and you might have to pick up trash from time to time. It is just part of the game when you are running a public space.

Making an **annual cycle** can be a big help in planning your activities.. Many things related to maintenance come regularly and vary with the time of the year. Writing it down and planning ahead accordingly can be a good help, and can also be turned into a group activity. Being a part of maintenance issues (even if it might seem a little boring at first) is a great way for people to feel ownership.

**Monitoring** can also continue throughout the years (see citizen science) because getting statistics of how your space is doing is a powerful tool when communicating to the outside. How many people use your space annually? Have you discovered any new species lately? How is the temperature in your space compared to the outside? All of these stats can come in handy and the collection of them can be part of your annual cycle.

## THE CELEBRATION

When the spot is ready and looking greener and nicer than before, it's time to celebrate with a public opening.

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**The Invitation** - Create simple invites in advance so that people can save the date. Include a starting time, a programme and an ending time. Share it online and print some for the neighbourhood. Don't forget to invite everyone who helped, plus local politicians you are or want to be connected with.

**Choose a conferencier** - Find a person who can be the one to welcome people and tie the programme together. It can be a youth worker or one of the youth who have participated.

**The speakers** - Make sure to have a representative of the land owners, local politicians and the youth who have been active in the project. Having a local politician making a speech gives the opportunity to promote the idea of green spots in your area.

**Activity** - Make a short and fun activity with the participants: spreading seeds, hunting for plants or a quiz. Make small teams, it helps getting people to know each other. Don't forget some snacks & drinks, who doesn't love that?

**The youth speech** - It might be helpful with more than one from the youth group to ensure comfort, and to get input from all who participated. This way the youth speakers can speak on behalf of a larger group and will have enough material. Make sure that wishes for further greening of cities are part of the speech, as a signal to local politicians attending the opening. Remember to thank everyone involved.



## THE DOING

### Building

A **built object** can anchor your project, and it doesn't have to be spectacular. It can be as small as a bench, a platform or maybe a shed. Doing a little construction together is a good way to get the group to come together, and you'll have an immediate result.



### Planting

Just as with plant selection this is a big topic. There are professions and an enormous amount of books dedicated to the subject. That being said, here are a few things to consider and look into more deeply:

**Time of year (colder months are better, generally speaking).** Many would think of planting as a summer activity, because the garden generally is seen as a summer thing (specially in northern Europe). This is, however, not necessarily the time to plant unless you are doing some specific vegetables. If you are going for perennials, shrubs or trees it is typically better to plant in the colder months (just not when it's freezing). Take a look at what time of the year might be recommended in your region.

**Watering is important** but can be easily forgotten. It's not only about plant survival but also about having a fun project to work on - carrying water long distances is not typically thought of as fun. If you have no sources of water nearby this can sometimes be fixed with water containers.

**The right tools** make everything so much more fun, and typically they are not that expensive. Think about it beforehand though and see what you can borrow or buy. Do you know the difference between a shovel and a spade? One is for digging and the other for shoveling - if you know, you know. Otherwise look it up. Now you know.

### Building

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**Tools, and the right tools.** Just like with planting, think about what you actually need and try to get the right stuff. This way you can focus on building what you want rather than getting stuck because things are missing. Don't be afraid to ask around - you can figure it out on your own but getting some tips can also save you a lot of time and worry.

**Borrow the tools.** Unless you plan to build a lot, or you have the right funding for it, you might want to borrow the tools you need as a first step. An electric screwdriver only gets used for a fraction of its potential - because most of them are owned by people who do not build for a living, so there are a lot of them out there to borrow if you ask around! The same can be said for many other tools.

### Do the (citizen) science!

If your project is based on things like climate mitigation, biodiversity or placemaking, it might be a good idea to measure the effects. It doesn't have to be complicated, but it is critical to measure before and after. Think about what metrics might be smart to measure, some are units (like how many insects or what temperature) and others can be attitudes (like how neighbors feel about the place). Even if it's not advanced, being able to show a before and after strengthens your argumentation, something you might need for further funding or to create goodwill around your project.

Doing something is better than doing nothing. An easy way to start, and it should be done in all projects, is to ask your group about their attitudes towards the place before and after or during the project. You can do it as an open discussion or as a questionnaire. Just remember to document it.

## THE RESOURCES

### Materials

Another big topic and again, there is a lot of info in books and online. A few things we have found helpful to consider are:

For wood construction it really pays off to get wood that is naturally suited for outdoor use. What is available (and at what price) depends on your region and so the only way is to ask around. You might have better luck with asking directly at a sawmill rather than at a DIY shop both for better pricing and better choices. It might also be worth asking around for free stuff that would otherwise be thrown out - like off-cuts. This can be true both for sawmills and DIY shops, so don't be afraid to ask, especially if your budget is tight

A material to not be underestimated are woodchips! It is, simply put, small pieces that have been cut (chipped) for usage either as plant cover or on pathways. To put out woodchips on your paths in the garden is a bit like repainting your living room - it just looks fresh and taken care of! Also, it's easy and fun to shovel and spread so it's a really good communal activity. There are different kinds you can get - the most durable is the one made from solid wood (as opposed to bark) but there are also mixed varieties and "wilder" ones made from bark, small branches and sometimes even pine cones.

### Soil (or not soil)

Your site will consist either of a hard surface (such as asphalt) a soft surface (such as a lawn) or a combination of the two. They both come with things to consider.

**Hard surfaces** - These will primarily be asphalt (like on a road), tiles (they can be solid stone or made out of concrete) or concrete (a larger surface that has been cast on site meaning it is essentially just one big chunk). What they all have in common is that they have been put/poured onto a stable-enough material - typically a combination of pebbles and sand. To get down to that material you either need to lift lifts (which you can typically do yourself) or cut through asphalt/concrete (which is oftentimes better left to a professional).

In the case of starting with a lawn it is highly recommended to get rid of as much grass as possible. This is because grass has a tendency to take over everything. A simple way to reduce the amount of grass without doing too much digging can be found in the "No Dig" method of gardening. Detailed instructions can easily be found online.

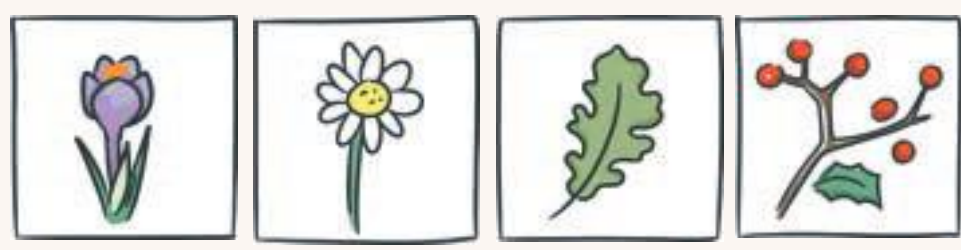
### Plants

Choosing your plants is, quite a large subject. There is no shortage of books and on-line resources dedicated to the subject. Here are a couple of ideas to get you started and thinking:

**Layers and timings** - not everything is the same height or grows in the same way in a forest. Some plants go upwards to reach the sun, like trees, and others have adapted to cover ground. Some are early starters and their strategy is to get green and flower fast before there is too much competition. Others do the opposite - they will wait until late in the season and profit from being the last ones still going. Diversity is the key to get as much out of your planted area as possible and typically it's smart to do two types of schedules: the first one is about height - make sure you have a bit of everything, and don't forget ground covers. The second one can be made as a calendar: note down the flowering times and see how much you can spread it over the year.



**Biodiversity** - to make your planted area as useful as possible for other species, think about food and shelter. For pollinators like bees, a long flowering season is important, and variety in shapes is positive for insects. Some researchers say that indigenous plants (naturally occurring in your country) are essential because local animals have adapted to them, while others argue that the variety and flowering times of imported species are just as important.



Choose plants and trees for different seasons