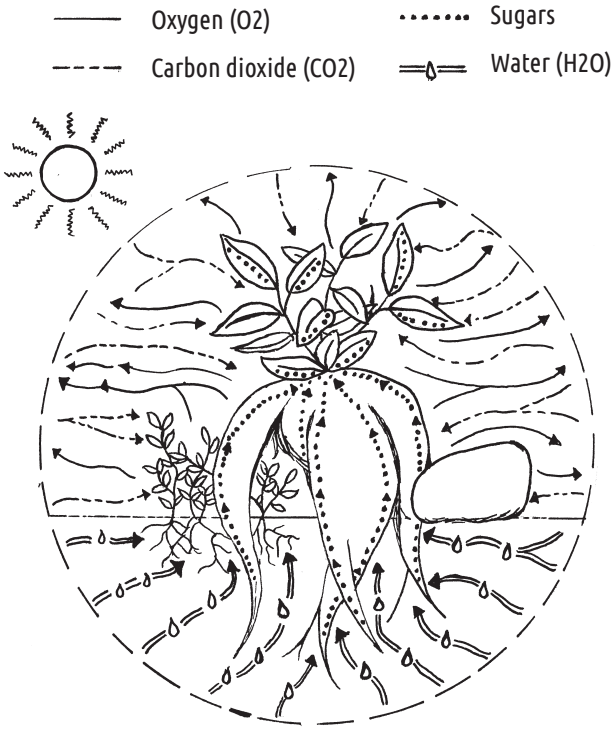
HOW DOES YOUR TERRARIUM WORK?

DAY

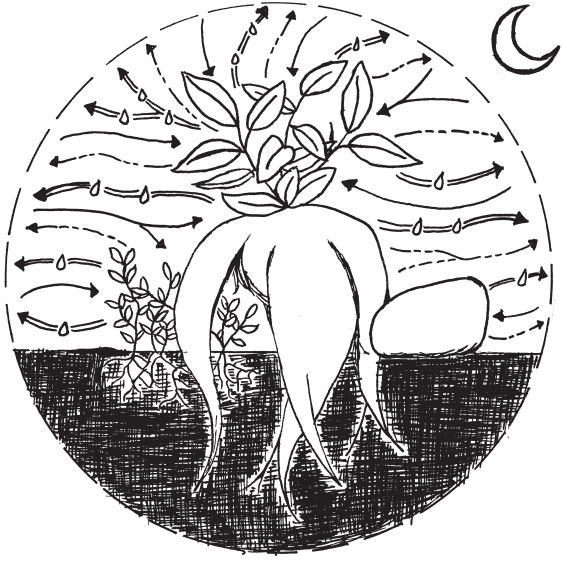
When plants receive light they convert water and carbon dioxide (CO_2) into sugars and oxygen. This is called photosynthesis.



Light + water (H_2O) + carbon dioxide (CO_2)—> sugars + oxygen (O_2)

NIGHT

Photosynthesis pauses when it is dark but the plants continue to respirate. During respiration, the plants absorb oxygen in the atmosphere and releases carbon dioxide and water vapour. This is why at night you will notice water condensate on the walls of the glass container. This water trickles down to the soil, to be reabsorbed by the roots and used again for photosynthesis.



Oxygen (O_2) + sugars —> carbon dioxide (CO_2) + water vapour (H_2O)

HOW TO TAKE CARE OF YOUR TERRARIUM?

Your terrarium will only need watering a few times a year. However, there are some problems to avoid. Generally you will need to occasionally:

- check the soil moisture
- prune to control the plants' size
- adjust the position of the terrarium according to ambient light in the room

WATERING

In principle, a closed terrarium maintains a humid environment allowing plants to cycle water. They live in near self-sufficiency, needing very little additional watering.

What kind of water?

As the the amount of watering is minimal (once or twice a year), the type of water used in the terrarium is very important to prevent contaminants and chlorine present in water from becoming concentrated and harming the plants. It is not recommended to use tap water, as its mineral content is often too high and consequently, it may weaken the soil acidity essential to many plants and leave a white residue on the glass and on the foliage, which can eventually suffocate the plant.

The best water for the needs of plants is rainwater. If you live in a city, where rain water may be polluted, you can use reverse osmosis bottled water or rainwater that is filtered.

Is condensate on the glass normal?

Condensation of water vapour forms a normal part of the water cycle of the plants in the terrarium. Condensate collects on the colder side of the container. For this reason turn the terrarium a quarter turn once to twice a month so that the water cycle happens evenly in the terrarium.

If you can't see the terrarium plants because of heavy moisture on the inside of the glass—whether from warm temperatures or direct sunlight—open the cover for about 10 minutes, enough time for the heat inside to subside and for the excess humidity to evaporate. This may mean that the terrarium needs to be kept better sheltered from direct sunlight.

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If condensation on the glass bothers you aesthetically, open the jar for just the time needed to swipe the inside of the glass to make the moisture flow downward more quickly. However, avoid opening the cover as soon as condensation appears, or you will disturb the self-sufficient terrarium cycle.

When to water?

Let the soil guide you. Touch the soil once a month to check. When it becomes dry at the base of the plants, it's time to water.

How to water?

Use filtered water or rainwater. With a plant mister or by squeezing a fresh, wet sponge, water along the glass walls, at the foot of the plants, and over the surface gravel, avoiding the mosses. Depending on the size of the container, use from 3 tablespoons to about 50 to 300 ml of water.

Care of mosses

If mosses lose their green colour, take them out and dip them in filtered water, then squeeze them gently, like a sponge. Once they regain their fresh colour, return them to the terrarium. Remember that discolouration of the mosses is a sign that the terrarium needs watering.

LIGHT

Light is essential to the process of photosynthesis; it is what allows the plants to breathe in the terrarium.

Where must I place my terrarium to receive enough light?

The terrarium must be placed within 1 m from a window to receive sufficient light for photosynthesis, but it must not be exposed directly to the rays of the sun. The glass of the terrarium can magnify the sun's rays and cause the plant's foliage to burn resulting in large black spots on the leaves. Remember to turn the terrarium a half-turn once or twice a month so that it receives even light.

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Complementary light

If there is inadequate natural light, use a full-spectrum light bulb (6,200–6,500K) for 8 hours/day, placed 50 cm from the terrarium.

The risks of poor lighting

When the light is not bright enough, small, whitish, mould-like filaments may appear. This is a fungal growth that must be removed as soon as possible to prevent further spread. This is an indication of insufficient light or excess humidity.

TEMPERATURE

Keep the terrarium indoors to prevent exposure to harsh conditions (i.e. extreme temperatures or the intense direct sunlight). The plants need a warm, humid environment to survive, so keep it in a room where the temperature is 15˚C to 27˚C. If the temperature goes higher, open the container and mist the interior to add moisture. Don't place the terrarium close to a heat source, which could raise its temperature too high and encourage mould growth or cause leaves to drop off.

PRUNING

When the foliage touches the glass, simply trim the plants to keep the original proportions. When pruning the branches back, cut just above a leaf node. Once pruned, leave the terrarium open for 24 hours so that plants can form good scar tissue.

TROUBLESHOOTING

You notice moulds forming

If you notice a cottony white/grey mould, remove mould immediately with a clean cloth. If mould grows on a large part of a plant or leaf, cut it to its base or stem and remove it. Light will provide natural brakes to mould growth. It is important to follow the recommendations for light exposure to avoid conditions for mould.

Black spots appear on leaves

These can be caused by a fungus. Remove affected leaves to prevent spread, then remove the cover of the terrarium for 24 hours to let the

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plants form scar tissue. Large black spots also appear when leaves burn from direct sunlight.

Foliage turns yellow

This can be a result of either too much or too little moisture inside the terrarium. If the soil layer at the foot of the main tree is muddy or waterlogged, the terrarium was overwatered. In this case, the container must be left open for as long as it takes for the excess humidity to evaporate. Close it again when the layer under the surface is wet, but not saturated. If instead the substrate feels dry to the touch, the yellowing leaves may result from the terrarium being open too often and that it needs water. The yellowing leaves may also result from watering with tap water.

Green leaves are falling off

This is a natural phenomenon caused by the aging of the leaves or the need to replace them with young shoots, as in nature. If it happens frequently in the first weeks, the plant needs time to strengthen and develop its root system, and to adjust to the new humidity conditions

Leaf edges are dry and curl in

Leaves dry along their edges if heat is too extreme or the humidity is too low. If, placing your hand inside, you feel a major change in temperature, the terrarium may have overheated and needs a chance to regulate itself. Leave it open for a few hours and then close it again. Remember to adjust its location when the seasons change, to prevent direct exposure to the sun's rays. If the soil feels dry, follow the watering instructions.

I have spotted an insect in my terrarium

Insects may come in as larvae or eggs hidden in the plant mix from the start. Not all insects are harmful in a terrarium. You can let earthworms, centipedes, small snails, or small winged insects live with the plants. If you prefer, you can remove them. Remove slugs or large snails to keep them from eating the plants. Small white cottony patches on or under leaves or branches indicate the presence of mealy bugs, which can be treated with biological pest control or insecticidal soap. Other potential pests are red spider mites or aphids. These are treated like the mealy bugs.