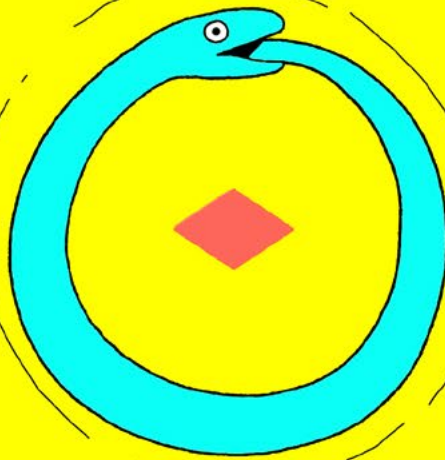


SUN TRAVERSES ALL
SELVAGEM DROPLET



notebooks
SELVAGEM



“Thousands and thousands ago, in the midst of the dark,
a god emerged.

He created a light.



Thousands and thousands ago, in the midst of the dark,
he created the hummingbird, messenger of the day.

Thousands and thousands ago, in the midst of the dark,
he created a primeval tree.

Thousands and thousands ago, in the midst of the dark,
he created a snake.



Thousands and thousands ago, in the midst of the dark,
he created a bird, the owl, messenger of the night.

He created the gods of protection.

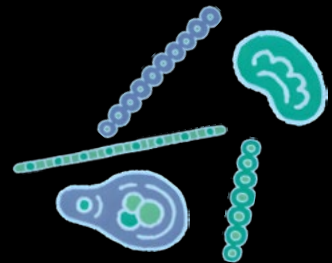
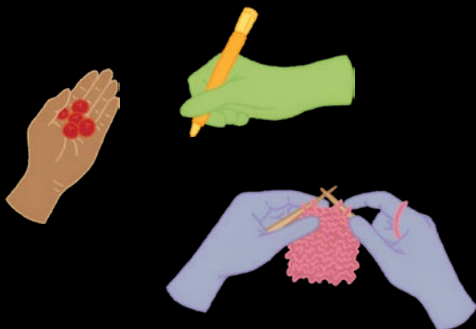
Thousands and thousands ago, in the midst of the dark,
he created the planet.

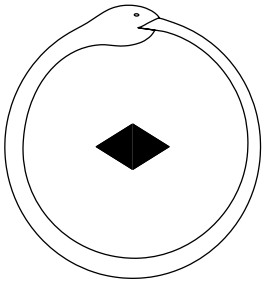


Thousands and thousands ago, in the midst of the dark,
he created water, wind, life on the planet.

This is why you should not be afraid of darkness.”

Guarani POETICS NARRATED BY CARLOS PAPÁ





SUN TRAVERSES ALL Selvagem Droplet

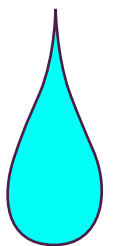
This notebook accompanies a Droplet, a short animation that reverberates Selvagem's ways of knowing for children of all ages.

Selvagem is an association that promotes a cycle of studies on life and supports [Living Schools](#), a movement to strengthen and pass on traditional knowledge in Indigenous territories.

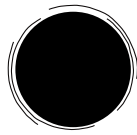
The [Selvagem Droplet](#) concentrates a sea of knowledge found in the cycles, notebooks, audiovisuals, meetings and books that make up Selvagem, especially studies with the *Guarani*, *Maxakali*, *Tukano-Dessano-Tuyuka*, *Baniwa* and *Huni Kuĩ* Living Schools.

A droplet, by definition, is a small portion of something. Although tiny, droplets propagate waves and nourish soils. By nature, the Selvagem Droplet is radial. This Droplet has Sun as its centre and expresses the interactions of this cosmic force with life on the planet. Nothing in the Droplet is linear, just as life doesn't fit into a timeline. Cyanobacteria, humans, mycelium, life on land and in the sea all coexist, collaborate and foster a more complex system that interacts as a dance.

Here you will find myths of origins, cosmologies, astronomies, sciences of life and proposals for activities, as well as links to more extensive content from our cycle to help you deepen your research and spark your curiosity. May this Droplet be freshening!



SUMMARY



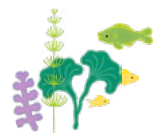
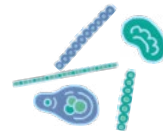
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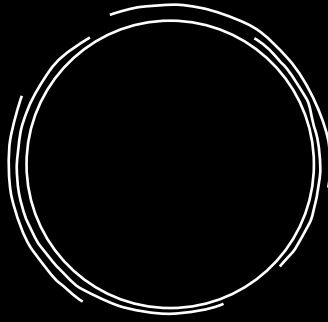
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DARKNESS

Darkness is the mother of the entire universe.

CARLOS PAPÁ

The *Guarani* people live in the meridional region of South America in a vast territory overlapped by the territories of Paraguay, Brazil, Argentina, Uruguay and Bolivia. They name this entire region *Yvy Rupa*. Find out more on the [Living Schools](#) page.

For the *Guarani* people, the darkness is the mother of *Nhamandu*, a being who created everything. For the *Dessano*, the world's grandmother *Yebá Buró* emerges from the darkness. Many origin myths begin in the dark, just as life that springs from within the soil, from the womb or from an egg.

On the other side of the Earth lies the darkness of night, when it is day here. In the cosmos, when there are no celestial bodies to reflect light, everything is dark, just as inside our bodies everything works in the dark.

The darkness is mysterious, sometimes scary, but it also embraces sleep. Dreams and thoughts emerge in the darkness like a little cinema of the mind.

There was no world before. Darkness covered it all. While there was nothing, a woman came to be by herself. This happened in the midst of the darkness. She appeared sitting upright on her white quartz bench. While coming into being, she covered herself with her ornaments and made a kind of room. This room is called *Uhtãboho taribu*, the 'White Quartz Room'. Her name was *Yebá Buró*, the 'Grandmother of the World', or otherwise 'The Grandmother of the Earth'.

ANTES O MUNDO NÃO EXISTIA, [THERE WAS NO WORLD BEFORE], Dessano-Kehíripõrã MYTHOLOGY, DANTES, 2019

The *Tukano* (*Yepamahsã*) and *Dessano* (*Umukori-mahsã*) peoples live in the borderland between Brazil and Colombia, in both countries. In this region, in the north-west of the Amazon, they live in the Upper Rio Negro basin, on the banks of the *Uaupés* and *Apaporis* rivers and their tributaries. Find out more on the [Living Schools](#) page.



ACTIVITY

This activity can be done in several ways.

It consists in feeling the darkness through some experiences.

To deepen the senses, the room can be darkened and the participants blindfolded.

1

EXPERIENCE - SEEING WITH YOUR EYES CLOSED

In a group, a mentor hands out items with different scents, flavours and shapes to several blindfolded people; or several people hand these items to a single blindfolded person.

The objects can be from the room, be collected from the surroundings or brought from home.

What do you see?

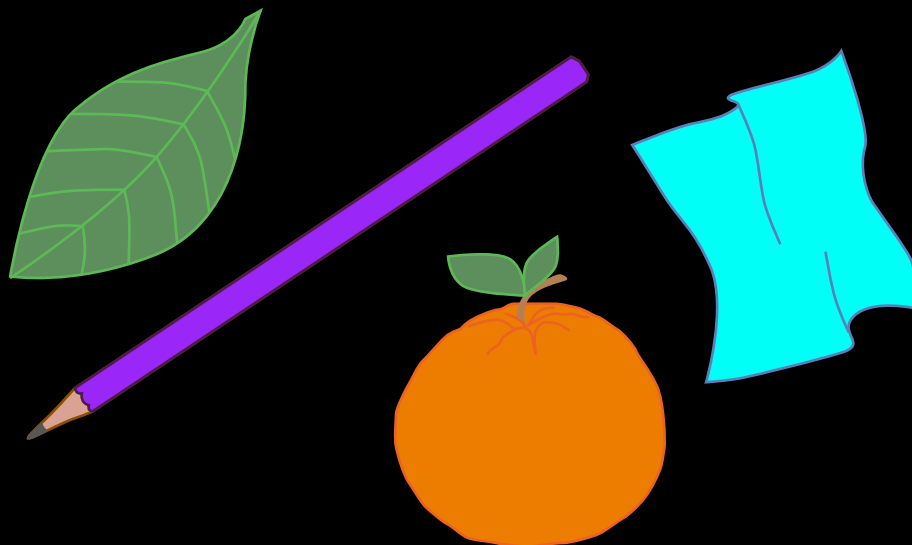
What do you feel?

What do you recognise?

What do you remember?

What do you hear?

What sprouts within you with your eyes closed?



2

EXPERIENCE - SEEING THE SOUND

A blindfolded person is in the middle of the room.

The other participants are spread around the room.

One at a time, the participants make sounds, say things and sing.

Do you recognise whose voices these are?

Can you detect where they are coming from?

Can you pick someone out and find them in the dark?

3

EXPERIENCE - PERCEIVING SPACE

Under the guidance of a non-blindfolded person, the blindfolded participants explore the surrounding space and allow themselves to dance to the sound of music.

What do you feel?

Does your body move differently in the dark?





HUMMINGBIRD

For the Guaraní, the hummingbird is the messenger.

JOSÉ WERÁ

Hummingbirds are birds from the continent known as America, inhabiting areas from Alaska to Tierra del Fuego. Several Indigenous peoples of this continent consider them enchanted beings, and they feature in songs and myths. Hummingbirds belong to the *Trochilidae* family and are the only birds that can fly backwards and remain still in the air. Their flight is extremely agile and they are able to flap their small wings 70 to 80 times per second.

In other places, such as the European, Asian and African continents, there are birds from the *Nectariniidae* family, slightly larger than hummingbirds and not as agile when flying.

For the *Ashaninka*, hummingbirds are free and healing spirits.

In the *Guaraní* history of origin, the primeval hummingbird, *Maino*, is the messenger of the day and feeds *Nhamandu*, the creator of everything.

The *Ashaninka* live in an area that extends over a vast territory, from the Upper Juruá region and the right bank of the Envira river on Brazilian lands to the slopes of the Andean mountain range in Peru, occupying parts of the basins of Urubamba, Ene, Tambo, Upper Perene, Pachitea, Pichis and Upper Ucayali rivers, as well as the Montaña and Gran Pajonal regions. Most of their population is in Peru. Find out more at [ISA - Socio-Environmental Institute](#).





Brown Violetear



Saw-billed Hermit



Rufous Hummingbird



Ruby-topaz Hummingbird



Anna's Hummingbird



Ruby-throated Hummingbird



Sword-billed Hummingbird



Hooded Visorbearer



Fork-tailed Woodnymph



White-necked Jacobin

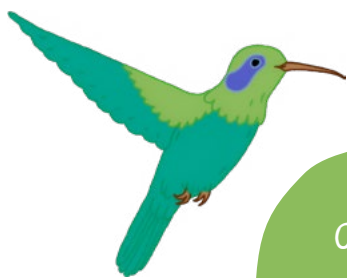


Swallow-tailed Hummingbird



White-vented Violetear





Our father, the last, our father, the first
made his own body arise
From the primeval night

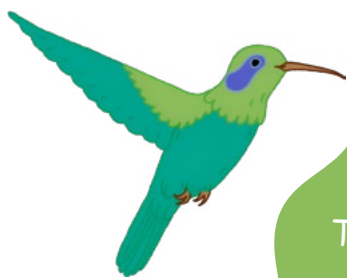
The divine soles of the feet,
the small round seat:
in the heart of the primeval night,
he unfolds them, by unfolding himself.

Divine mirror of the knowledge of things,
divine understanding of all things,
divine palms of the hands,
divine palms of flowering twigs:
he unfolds them, unfolding himself, Nhamandu,
in the heart of the primeval night.

On top of the divine head,
the flowers, the plumes that crown it,
are dewdrops.

Among the flowers, among the plumes of the divine crown,
the primeval bird, Maino, the hummingbird,
flutters, flits.

TRANSLATION FROM *A FALA SAGRADA: MITOS E CANTOS SAGRADOS DOS ÍNDIOS GUARANI*
[*THE SACRED SPEECH: MYTHS AND SACRED SONGS OF THE GUARANI INDIANS*].
PIERRE CLASTRES. PAPIRUS, 1990.



THE FLIGHT OF HUMMINGBIRD

This is the story of a vast forest on fire. The voracious fire pops and crackles, spreading rapidly with the wind and the drought. The animals flee their homes in fright. Tapir and Jaguar run, Sucuri slithers and Toad hops away. In the treetops, Caracara soars in the dense smoke. They huddle together in the pasture at the edge of the forest, eyes wide open. But Hummingbird rushes to the stream. She snatches a single drop of water in her beak. She returns, drops the water on the fierce fire and goes back to the stream. She brings another drop. Hummingbird goes back and forth in the sweltering heat. The other animals stare, immobilised. "I don't know what to do," whimpers Marmoset, "these flames are so scorching hot and I'm scared." Sparks fly and the air smells acrid. "This fire is so big," howls Maned Wolf, "and I'm so small." "This smoke burns, I can't breathe," croaks Toad. All the animals, much bigger than Hummingbird, are too terrified to try to stop the fire. "I can't see," shrieks Great Kiskadee. "My tail will burn," moans Squirrel. Hummingbird continues her task. She speeds off for more water, pouring drop by drop on the burning forest. At last Capybara asks: "Hummingbird, what are you doing?" Hummingbird glances at the other animals. And says: "I do what I can".

THE FLIGHT OF HUMMINGBIRD, RETOLD BY GERRIE SCHRIK



ACTIVITY

This activity consists in making paints from materials you can find close by: fruit, flowers, other plants, soil, coffee grounds, among other things. After producing the paints, we'll make beautiful watercolours of hummingbirds on absorbent paper.

NOTE

Some kinds of plants have a lot of pigment, such as red beet, spinach, red cabbage, collard, curcuma, among others, as well as carrot peelings and coffee grounds. When collecting materials to make paints, it is important to respect the plants. Only remove material that already has fallen to the ground and avoid collecting live plants in large quantities so as not to damage the local ecosystem — plants are the home and food of many beings in nature. Beware: some plants are toxic, so don't pick leaves and fruit that you don't know.

HOW TO PREPARE

- Red beets, carrots, roots and tubers in general should be grated or mashed in a blender with little water. After straining them through a cloth, use the liquid to paint your watercolours;
- Leaves and flowers must be macerated. Add a little water, strain the liquid through a cloth and use the liquid to paint your watercolours;
- Used coffee grounds can be an option as long as it is unsweetened;
- The water in which beans are soaked also carries pigment.

To paint, you will need paper, preferably a kind that accepts very liquid paint, and a brush.




SUN

A luminous star that spins on its imaginary axis and makes everything spin around it. Earth, planets, satellites, small moons, asteroids, comets, cosmic dust... The Sun spins emitting luminous radiation that makes our planet visible. These rays transport energy as electromagnetic waves – visible and invisible light. They also transport the heat that affects Earth's movements. This energy makes the biosphere active and possible.

SELVAGEM [ARROW 2, THE SUN AND THE FLOWER](#), ANNA DANTES

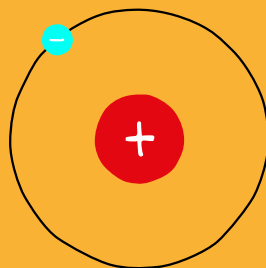
Sun is a star. A huge star from our point of reference, but compared to other stars in the universe, Sun is considered a dwarf star. Sun is the centre of a system in which eight planets and countless celestial bodies orbit. We live on one of these planets and only here Sun becomes life.

Sun is the source of light, heat, energy and life of our planet. The Earth is a planet made up of several worlds, all related, all with their own points of view or particular perspectives. Worlds of ants, termites, anteaters, earthworms, bacteria, fish, 435,000 different plant species. Many worlds. All connected. Even the world of humans is not just one: each people, each culture lives and creates a world based on different understandings. And Sun, beyond what NASA describes, or what we learn from scientists, or what each of us sees when we look at the sky, Sun is *Nhamandu*, *Oriya*, *Heeri*, *Bari*, *Muhipu*, *Mãyõn* and many others.

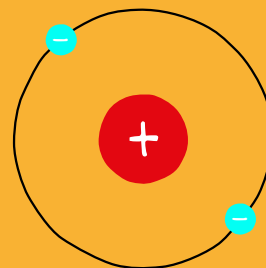


Once upon a time, five billion years ago, there was a large cloud of hydrogen (mainly hydrogen, but not only) that suffered a certain instability. Why did the cloud suffer instability? Because another star was dying nearby and exploded. And when it exploded, it threw all the matter, which was previously contained within it, into space. All of this reached this hydrogen cloud, like some kind of wave crashing on the beach. The cloud felt that impact, became somewhat unbalanced and began to collapse. And then it started to become ever denser and denser, because gravity doesn't rest, it is always working. This hydrogen cloud compressed more and more. Eventually, it was so dense that the temperature inside its heart reached 15 million degrees Celsius.

And when that happened, the star was born. Why? Because when the star reaches this temperature, the hydrogen is so compressed that it transforms into another element, called helium, which is element number two in terms of complexity. Hydrogen has one proton and helium has two. This process is called nuclear fusion, and it is the conversion of hydrogen into helium, in the heart of the star, which generates all the energy, all the light. All the heat we feel here on Earth comes from this process of nuclear fusion.



hydrogen



helium



What is amazing about this story is that in this process of life and death of the star, all the chemistry of the universe is produced. And this is so beautiful. All the chemical elements that exist in the universe, the calcium in your bones, the iron in your blood, the carbon in your cells, the oxygen we breathe, all these chemical elements are formed during the life of a star and when it starts to die. Because the star is like that, right? It's kind of like us: there's birth, there's life and eventually that fuel, which is the hydrogen becoming helium, finishes and the star begins to die. And when the star dies, it dies in a huge explosion.

Our dance is completely connected to the Sun. So, when we say that the Sun is the great booster of life, that's really what it is. And there is more, it's not just the light and heat from the Sun that form a bridge between that star and us. Because in the process of nuclear fusion, which I have mentioned at the beginning and which makes the Sun shine, particles called neutrinos are generated. They are also nicknamed the ghost particles, because they can pass through everything. Neutrinos from the Sun are passing through us now. But it's not just one that traverses. There are trillions and trillions. The trillion has one number one and twelve zeros. Trillions of neutrinos per second passing through you. They are a bridge between the heart of the Sun and your heart.

ADAPTED FROM *THE MARRIAGE OF LIFE WITH THE SUN*, MARCELO GLEISER,
SELVAGEM NOTEBOOK



NHAMANDU – FIRST GUARANI SUN

Nhamandu Chant 🎵

Nhamandu Tenondé, ho yvá rapy re [The first Sun, from the reflection]

Mba'e kuaa gui, onhembojerá... [Of his divine wisdom, originated]

Pytũ ymã mbyte gui [From the midst of the primary darkness]

Nhanderu, Nhamandu Tenondé [Our father, the first Sun]

Nhamandu Tenondé [The first Sun]

Tenondé, Tenondé... [The first, the first...]

NHAMANDU – FIRST SUN, CARLOS PAPÁ, SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)



ORIYA – ASHANINKA SUN

Oriya, as we call Sun – this being was also transformed. God, Pawa, handed it over to him and said: “See, you will continue taking care of all the weather, of the heat, of the warmth”. It is this warmth that causes birth and death, this temperature that controls our life. So Oriya has done this part.

PAWA, THE ASHANINKA CREATOR, MOYÉS PIYÁKÓ, SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)



HEERI – BANIWA SUN

The Medzeniakonai (Baniwa) are inhabitants of the cultural and multilingual system of the Upper Rio Negro, an area that covers the northwest of the Amazon Basin, in a cross-border region with Venezuela and Colombia. Find out more on the [Living Schools](#) page.

In ancient times, when Ñapirikoli was in his world, Sun didn't move around, he stayed still in one place, because he was Ñapirikoli's very body. Heeri felt himself as part of Ñapirikoli. This is how time turned out to be, for us of the new generation, and for all humankind in the world. There was change so that there could be night, and Sun could rotate. Ñapirikoli went in search of the night with his father-in-law. This is how Sun's history is for us Baniwa.

ADAPTED FROM HEERI – THE BANIWA SUN, FRANCISCO BANIWA, SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)

The Huni Kuĩ are a people from the Amazon rainforest who are spread across Peru and Brazil, in the states of Acre and the south of Amazonas. They are the largest Indigenous population in Acre. They speak Hãtxa Kuĩ, the 'true language'. Find out more on the [Living Schools](#) page.

BARI – HUNI KUĨ SUN

The next day, Sun appears and always continues to appear. He left us medicinal plants with the meaning of his name: Sun is called Bari. They are plants for treating evil spirits, for smudging, for bathing, for eye drops, for sniffing and for healing. He left four species: Bari sitã ashũ, or Sunray, Bari mukaki, Sunbitter, Bari pakeski, Sunshard, Bari rau ki, Sunmedicine.

ADAPTED FROM [BARI – HUNI KUĨ SUN](#), DUA BUSĚ AND NETĚ, SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)

MUHIPŮ – TUKANO SUN

Yepa-oãku made Sun emerge to illuminate the terrestrial world. Muhipu, Sun, was given the status of older brother to human beings. The responsibility of providing light to future human beings and of being the illuminator of the terrestrial world was bestowed upon him. By being the light of the world, Sun became the very life of human beings, became human existence itself. So, Yepa-oãku said: Sun will be beloved, a being with a big heart, a being of life. He also said: human beings and Sun will live together as beings of complementarity in this new terrestrial world.

ADAPTED FROM [MUHIPŮ • ABÉ – TUKANO AND DESSANO SUN](#), CARLA WISU AND KUMŮ DOE, SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)

MĂYŦN – MAXAKALI SUN

Sun and Moon teach us how to make many things, threads, clay pots – our Mother Earth's clay and Ant teaches us too. We also talk to Moon but Sun is the one who made the clay and with the clay we make pots. Without the clay and Sun there would be no way to do it.

ADAPTED FROM [MĂYŦN – MAXAKALI SUN](#), ISRAEL MAXAKALI AND SUELI MAXAKALI SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)

The Maxakali are the ancestral inhabitants of the forests that used to cover the entire riverbeds of the Pardo, Jequitinhonha and Mucuri rivers, in the region that today comprises the northeast of Minas Gerais and the extreme south of Bahia. Find out more on the [Living Schools](#) page.

ACTIVITY

This activity can be done in several ways.
It consists in locating yourself according to the Sun.

How to orient yourself by Sun?

From where you are, locate the direction of sunrise.

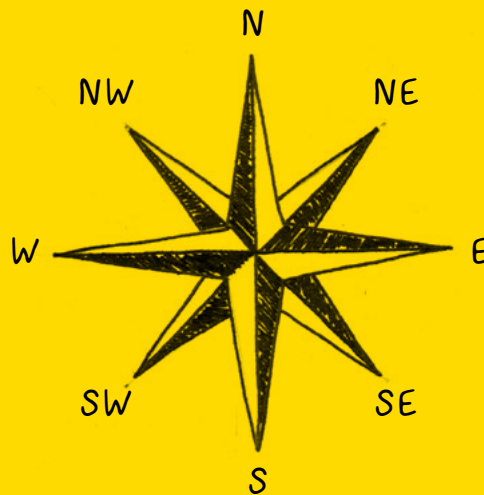
That's the east.

Face east.

Behind you, where Sun sets, is the west.

The south is on your right and the north is on your left.

That's how the cardinal directions work.



A compass is an instrument for spatial orientation that uses Earth's magnetic field to indicate the cardinal directions.

1

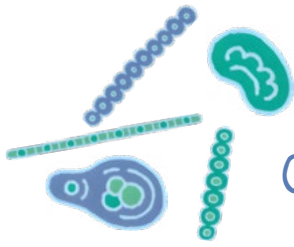
EXPERIENCE - ORIENT YOURSELF BY THE SUN

In a group, without the use of a compass, a mentor suggests routes based on the cardinal directions. For example: turn east, now walk three steps north, jump southwards...

2

EXPERIENCE - MAP

Think of some of the places you usually go to and, from where you are, try to localise them. Draw a map guided by the Sun.



CYANOBACTERIA

Cyanobacteria found a way to use sunlight to break the hydrogen bonds of water, spreading like a living green fire, releasing oxygen into the atmosphere. More than two and a half billion years ago the Earth started turning blue. The blue comes from the scattering of light by the oxygen atoms.

SELVAGEM [ARROW 5, AN INVISIBLE ARROW](#), ANNA DANTES.

Optical microscopes are instruments made up of lenses that magnify the image, making elements that are difficult to see, or even invisible, visible to the naked eye.

Invisible beings can only be seen with the use of specific instruments, such as microscopes, but they are everywhere. Some people see them in other ways, in dreams or visions. Cyanobacteria, also known as blue algae, are micro-organisms capable of photosynthesis. They have inhabited the waters since primordial times and are still here. Approximately three billion years ago, they were responsible for the accumulation of oxygen in our atmosphere, a change that made life as we know it possible on our planet.

The different forms of life, commonly presented as an evolutionary timeline, don't actually succeed each other by replacement or improvement; quite on the contrary, they coexist, as in a web. The most important processes for life on the planet are not carried out by human beings. We, the cyanobacteria, the plants and a multitude of visible and invisible beings share this home-planet. Even the already extinct dinosaurs are relatives of the reptiles and birds of our time.

As cyanobacteria are the primary food providers on Earth, their importance cannot be underestimated. Although tiny in size, they have visibly transformed the planet. Before space travel the scientists, science fiction authors and other people speculating about it often imagined that the Earth, seen from space, would be green. As we well know, they were wrong: the Earth is blue. By producing oxygen (O_2) as a waste gas, cyanobacteria have coloured the Earth blue, because the oxygen atoms scatter the blue light that is seen from space.

TRANSLATION FROM *LIVRO DE SERES INVISÍVEIS [BOOK OF INVISIBLE BEINGS]*,
DORION SAGAN, DANTES, 2021.

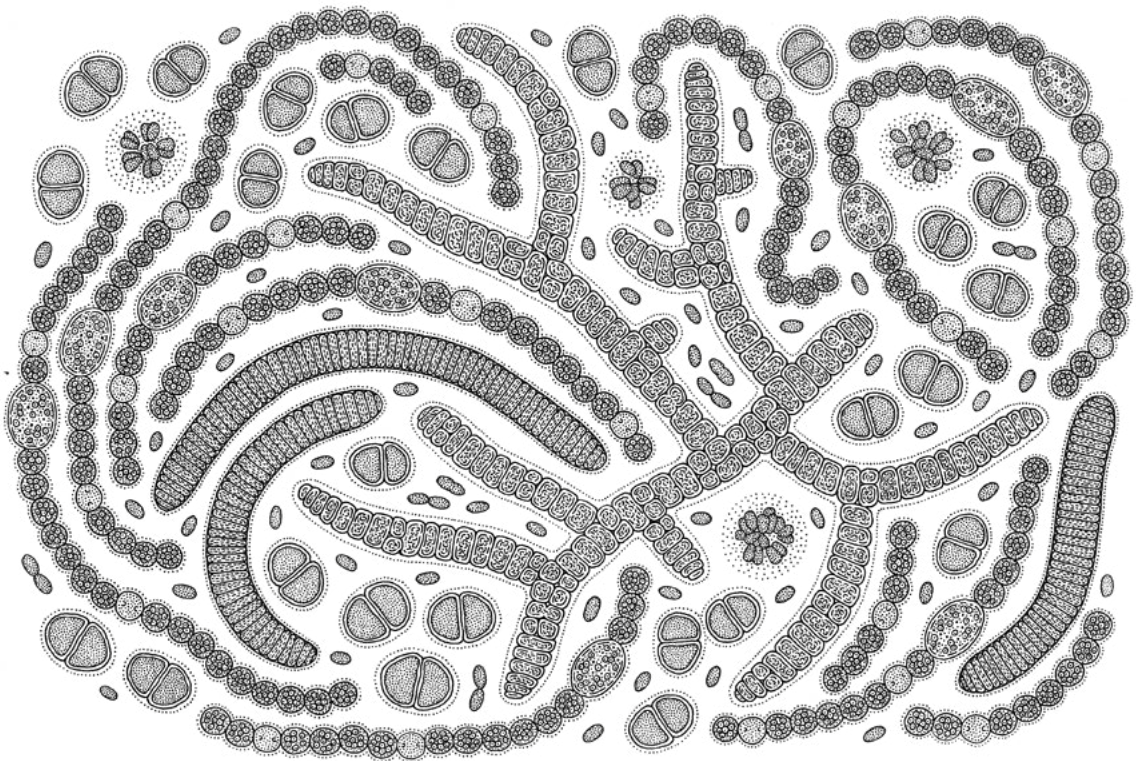
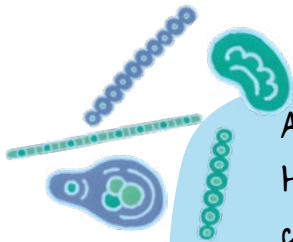


ILLUSTRATION BY AZA KALI, *LIVRO DE SERES INVISÍVEIS [BOOK OF INVISIBLE BEINGS]*, DORION SAGAN,
DANTES, 2021.



ACTIVITY

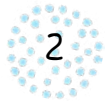
Here, two activities dialogue with different characteristics of cyanobacteria. One shows how light reacts to the medium it travels through. The other explores the passing of time, the interaction between elements in collaboration and the resulting whole.



1

ACTIVITY - LIGHT AND COLOURS

This activity requires a sheet of paper, an almost full glass of water and sunlight. Hold the glass over the white paper and let the light move through it. You should see the shadow of the glass on the paper. After that, tilt the glass until it projects a rainbow onto the paper. This happens because light is made up of different colours. When light shines through water, it splits into the colours of the rainbow: red, orange, yellow, green, blue, indigo and violet. This is why a rainbow is formed when sunlight shines through raindrops.

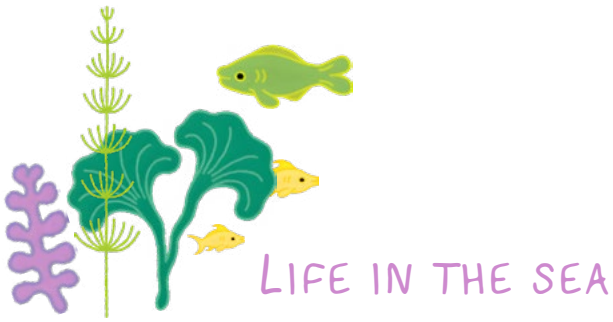


2

ACTIVITY - COLLABORATION AND COEXISTENCE

In a circle a mentor suggests a rhythm, like a conductor. Each child makes a sound in that rhythm. Little by little, the conductor indicates each child's entry into the composition until everyone is involved in the sound creation. At intervals, the maestro indicates who pauses and who continues, changing the volume of the composition.

What was it like when everybody made sounds together?
And when only a few people produced the sound?



*In the ocean, solar radiation is utilized to its utmost...
The surface of the ocean is covered by a continuous layer of green life,
the plankton. This is the field of production of free oxygen.*

ADAPTED EXCERPTS OF *BIOSFERA* [THE BIOSPHERE], VLADIMIR VERNADSKY, DANTES, 2019.

70% of the planet is water; 70% of the human body as well. In the human body, water is inside cells, around them and in the blood. The water inside our bodies has a mineral salt content similar to seawater. Our tears and sweat are like seawater. Life needs water to exist. Life began in water more than three billion years ago. More than half the oxygen in the Earth's atmosphere comes from the sea.

The sea is home to plankton, made up of micro-organisms that photosynthesise using sunlight and carbon dioxide for nourishment. Oxygen, so important for the atmosphere, is the residue of this light feast. Cyanobacteria are part of the plankton and coexist with an abundance of aquatic life: octopuses, sea snakes, sea anemones, seahorses, rays, algae, corals, turtles, sharks, moray eels, dolphins, marine plants, whales... For the **Guarani**, the sea is the gateway to the Land without Evil. For the **Tukano** and **Dessano** it is in the sea, more specifically in the Guanabara Bay, from where the snake canoe departs, the canoe of transformation, carrying future humanity, still in the condition of fish-people.



SNAKE CANOE BY TORĀMŪ KĒHIRI, *ANTES O MUNDO NÃO EXISTIA* [THERE WAS NO WORLD BEFORE], UMUSI PĀRŌUMU AND TORĀMŪ KĒHIRI, DANTES, 2019

Later, he [ʔmukosurãpanami, the great-grandson of the world] rose to the surface of the earth to shape humanity. He rose in a great lake called Diá ahpikõdihtaru, that is, “Milk Lake”, which must be the Ocean. As he was rising, the Third Thunderbolt came down into this great lake in the form of a gigantic boa constrictor. The snake’s head resembled the prow of a canoe. To them, it looked like a large canoe called Pamũrĩgahsiru, that is, “Canoe of the Future Humanity” or “Canoe of Transformation”.

TRANSLATION OF *ANTES O MUNDO NÃO EXISTIA* [THERE WAS NO WORLD BEFORE],
UMUSI PĀRÕUMU AND TŌRĀMÛ KĚHĪRI, DANTES, 2019. SEE ALSO SELVAGEM
ARROW, *THE SERPENT AND THE CANOE*

MORAY EEL

Moray eels are known as **Caramuru** by the **Tupinambá** people. They are fish with an elongated, cylindrical body, resembling a snake. They can reach 4 metres in length. They like tropical and subtropical seas. There are more than 200 species of moray eels.



SEA SNAKES

Sea snakes are aquatic reptiles from the *Hydrophiinae* subfamily. Like all sea dwellers, they can travel the world of water, but are most commonly found on coastlines of the Indian and Pacific Oceans. Sea snakes are mythical. They are the snake canoe for the **Tukano** and **Dessano**. Leviathan, a biblical sea monster, Tiamet, goddess in Babylonian mythology, Hydra, in Greek mythology. They are found in mythologies all over the world, from the Norse to the Chinese, from Narnia to the Odyssey, from the **Baniwa** to the **Guarani**.





ACTIVITY

These are activities for playing with the word and the sound of the sea.

ACTIVITY - LAND-SEA

Known in several cities in Brazil, this game is a variation of another one that originated in Mozambique and it is very easy to play! All you have to do is draw a long line on the ground marking two spaces. On one side, write the word 'land' and on the other, the word 'sea'. Choose the participants who will be responsible for dictating the commands of the game among the participants. The others line up along the drawn line, without stepping on it. There is no limit to the number of participants. Everyone starts playing on the same side and obeys the commands 'land' and 'sea', each time jumping to the respective side. The commands should get faster and faster. Anyone who jumps to the wrong side, or intends to jump when they shouldn't, is out. The game ends when only one child remains.

SEA

LAND

ACTIVITY - SEA BOX

Let's make a musical instrument out of recyclable material to play with the sound of the ocean waves. The ocean drum is a percussion instrument that imitates the sounds of the ocean.

The following materials are needed:

- 1 round pizza box or any flat cardboard box;
- Maize kernels or beads;
- Adhesive tape;
- Paint to make it really beautiful.

Place the kernels in the box, seal it with the tape and decorate it. Then just move the drum in circular motions.



MYCELIUM

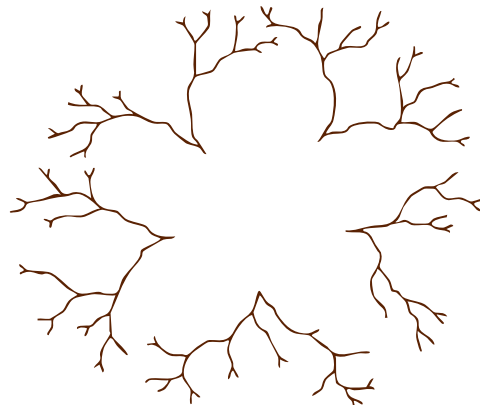
*What goes on beneath a forest floor is just as interesting —
and just as important — as what goes on above it.*

*A vibrant network of nearly microscopic threads is recycling air,
soil, and water in a continuous cycle of balance and replenishment.*

*FANTASTIC FUNGI: HOW MUSHROOMS CAN HEAL, SHIFT CONSCIOUSNESS, AND
SAVE THE PLANET, SUZANNE SIMARD, EDITOR EARTH AWARE, 2019*

Around 600 million years ago, the earth was dry, inhospitable and very hot. For this reason, life was mostly possible in water, where nutrients float and spread freely. On the other hand, on land the sunlight, the main source of energy for the planet, is abundant and shines most directly. For aquatic life to move to land, there was collaboration. And this collaboration can also be called symbiosis. Algae from the sea and fungi have established symbiotic relationships, fostering life on Earth.

The hyphae grow from the tip of fungi. They are like threads that can sense their surroundings and communicate with other hyphae, building networks. These networks, called mycelium, communicate silently under the ground, connecting with tree roots, sustaining them and helping them find water, absorbing and transporting nutrients and sharing information. Mycelium is the invisible foundation of forest life.



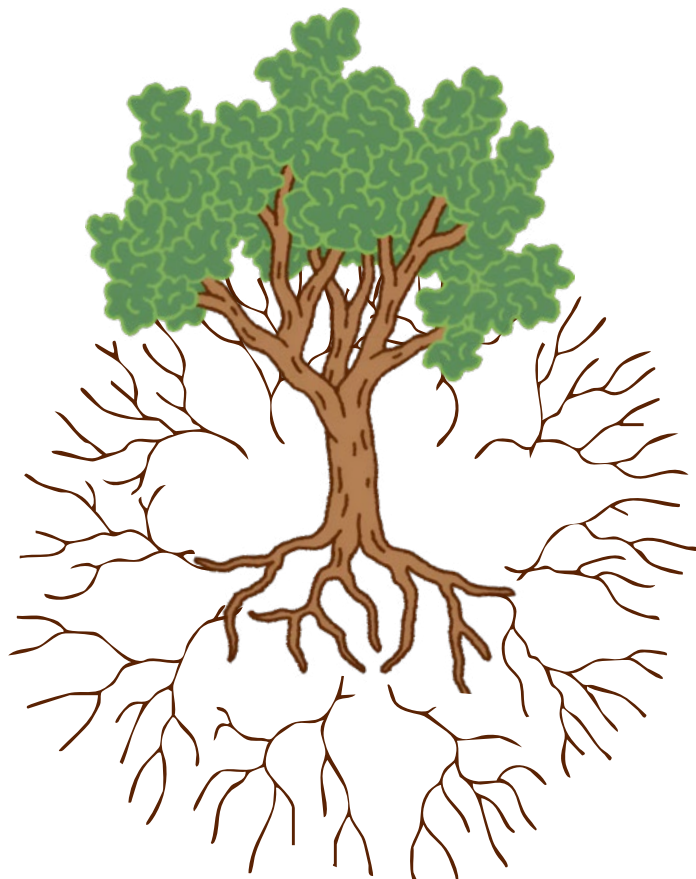
Mycorrhiza is a symbiotic association between plant roots and mycelium, which makes the exchange of nutrients between species possible.

Fungi are carbon reservoirs of nature, and play a vital role in the prevention of climate change. Thanks to their mutualistic relationship with trees, they receive carbon from tree roots, which helps them grow. The carbon is kept underground in the mycelium and not in the atmosphere.

Through decomposition they recycle all organic matter on the planet! There are fungi that can even decompose plastic and petrochemicals.

Much of life on land is dependent on the interactions between plants and mycorrhizal fungi, which expand the amount of soil that trees can explore with their roots by using their network of filaments (mycelium) to reach into smaller pores, allowing trees to access water and nutrients that would otherwise be unavailable to them.

ADAPTED FROM [FUNGI FOUNDATION WEBSITE](#)





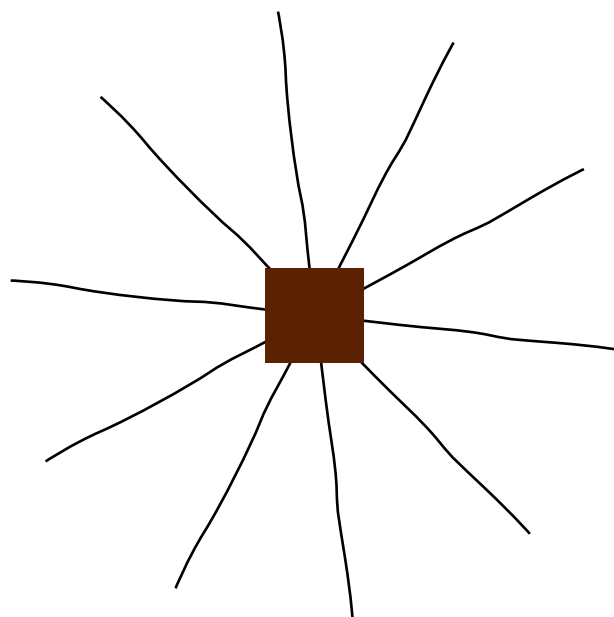
ACTIVITY

This activity is an experience of co-operative balance. The aim is to lift a board off the ground and move it without dropping it. This only works if everyone works together.

ACTIVITY - EVERYBODY TOGETHER

- At least eight children;
- One ribbon for every two children (each ribbon should be approximately 1 cm wide and 2 m long);
- A rectangular board measuring approximately 30 cm x 20 cm x 2 cm (wood, MDF, ceramic, etc.);

The children organise themselves in a circle. The ribbons are put on the floor so that every two children hold the tips on opposite sides of the circle. Before holding the ribbons, they are placed flat on the floor, forming the shape of an asterisk. The board is placed in the centre. Now each child will pick up their tip and all together they will try to lift the board.





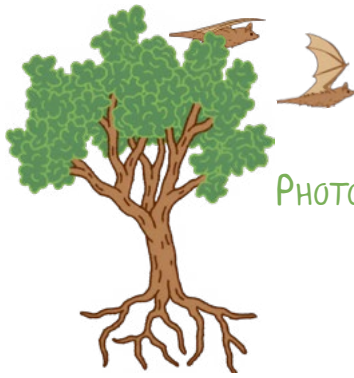
LIFE ON LAND

Wherever there are flows of energy, like sunlight coming from a star, systems and structures are formed, surviving for a while and then being extinguished. Life is one of these systems, but unlike the rest almost immortal. The reason for this is life's ability to pass on, from one generation to the next, the knowledge of what needs to be done in order to maintain life.

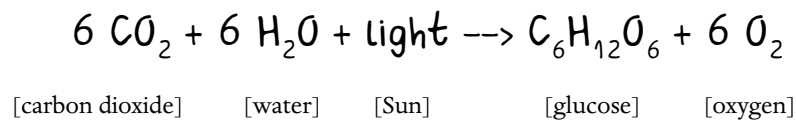
TRANSLATED FROM *VIDA, SENHORA DA TERRA*, JAMES E. LOVELOCK, SELVAGEM NOTEBOOK

Why is the planet called 'Earth' if Earth is 70% water? It turns out that we human beings use this kind of language that speaks, draws, writes and names things even in different languages. We humans live on earth, on the ground, and we have given our planet a name related to the place where we live: Earth. We don't live in the sky nor in the water. The Earth is like a round rock orbiting around Sun. The rocky mass of our planet is covered in life, and this life directly influences physical and chemical processes, regulating the conditions so that this existence continues to be possible. Earth is not just a sphere, but a biosphere. In the biosphere everything is related, functioning like a superorganism. Plants grow in association with the mycelial network, animals circulate and pollinate. The waste of some is put to use by others. Only humans produce things that leave waste that is difficult to absorb. However, everything is nature. Even what we produce artificially with nature.

On earth, it is plants that carry out photosynthesis — the conversion of solar energy into life. Although most oxygen comes from photosynthesis by algae and bacteria in the water, the photosynthesis of plants feeds the fabric of life.



PHOTOSYNTHESIS

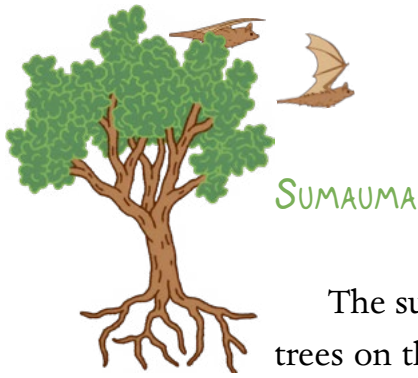


But the magician is the Sun behind all of this. To create all this life, this magician needs a kind of translator-interpreter. I think the Sun's translator-interpreters are the plants and they do this through photosynthesis. And photosynthesis really is magic.

These incredible beings manage to capture molecules of carbon dioxide and water. And in interaction with light they produce the oxygen we breathe, water and carbon molecules, especially sugars. And this transformation occurs through this whole biochemical process, which we don't need to detail here. I will just highlight the chloroplasts, these entities that are very important in the process.

So much is said about innovation that it seems like everything is innovation these days. Normally we associate the word "innovation" with machines, with the technological, the technical. Photosynthesis, to me, is the great innovation of the last 4.5 billion years of our planet's existence, because without it the diversity of life that exists today would not exist.

ADAPTED FROM *THE ANCESTRAL MEMORY OF PLANT METABOLISM*, FABIO SCARANO,
SELVAGEM NOTEBOOK



The sumauma, or kapok tree (*Ceiba pentandra*), is one of the largest trees on the planet. Their height usually varies between 50 and 70 metres — a 10-storey building is 30 metres — and can reach as high as 90 metres. Their roots spread throughout the forest and manage to reach water deep in the soil for the sumauma to feed and share food with several species of trees, connected by extensive networks of mycelium that promote underground communication. Their flowers are pollinated by insects and also by bats. As they drink the nectar, they carry the pollen on their fur from flower to flower. The **Huni Kuĩ**, also known as the **Kaxinawá**, the bat people, always build their villages close to these large trees. The Sumauma is a sacred tree for several peoples of the Amazon Rainforest. They say that this tree is the library of the forest.



BATS



Bats are found on every continent except for the poles, and account for a fifth of all mammals in the world. There are more than 1,400 different species of bat, and more than 167 of them are found in Brazil. Many are very important for the maintenance of life. Bats pollinate and seed several plant species, and are the only truly flying mammals. Their wings are made up of tissue that develops between their long fingers, and their wingspan varies from five centimetres to two metres. Most species use echolocation to move through space, emitting sounds — some species through their nose, others through their mouth — and capturing them with their ultra-sensitive hearing systems. Species that navigate visually have large eyes, small ears and a muzzle that resembles that of a dog, which is why they are known as flying foxes. In **Maxakali**, bat is **xũnĩm** and its song is very important for healing and for calling rain when Sun is very hot.



That is why there is a very strong history. There is the Sun's chant, which Bat sings to him when Sun shines very hot and it is not raining. So Bat sings, and then it rains. When we sing the Sun's chant it rains. The rain will wet the people, the plants, the forests and the water will get clean.

MÃYÕN - MAXAKALI SUN, ISAEI MAXAKALI E SUELI MAXAKALI,
SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)



Rhinolophidae rhinolophus



Nyctalus noctula



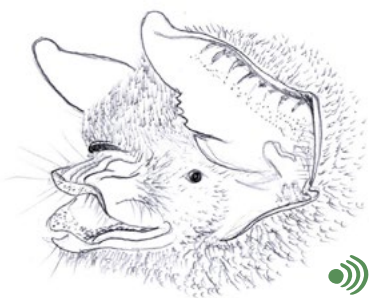
Cormura brevirostris



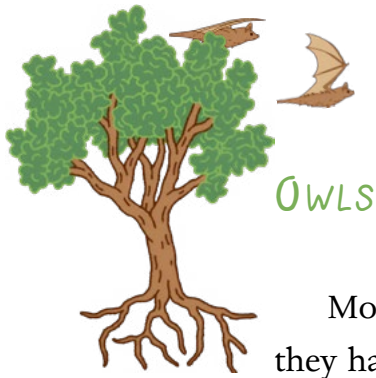
Hipposideros armiger



Furipterus horrens



Pteronotus personatus



Nhanderu tenondé,
for the Guarani, is
the first Celestial
Father.

Most Owls are hunters with nocturnal habits. Unlike most birds, they have forward-facing eyes and, to compensate for this limitation in their field of vision, their heads can turn up to 270° . They have an extraordinary ability to fly silently, without making any noise, and their very acute hearing allows them to detect even the slightest movements of their prey. In parts of the Amazon, the feathers of the *Caburé* species are used as good luck amulets. For the Guarani people, the owls are of great cultural and spiritual importance. They are the messengers of the night and represent nocturnal energy. They are the ones who bring spiritual messages to our planet with their silent flight. In the myth of the creation of the world, Nhanderu transforms himself at first into an owl, in order to come into the world and give birth to humanity.

[Watch here the silent flight of the Owl](#) ►



The Hummingbird circled, breath after breath, after having blossomed. That Hummingbird carried the dawn of the day in motion, and that is what he was ordained to do. And that is why it blossomed. Thereupon, in the primeval surroundings of darkness, he made the Owl blossom. This is a being responsible for the night, responsible for the melodies of the night.

ADAPTED FROM NHAMANDU – FIRST SUN, CARLOS PAPÁ,
SELVAGEM [NOTEBOOK](#) AND [VIDEO](#)



ACTIVITY

This is an observation and sharing activity.

ACTIVITY - WHICH PLANTS ARE PART OF YOUR LIFE?

There are those who live surrounded by plants and don't know the names or the history of the beings with whom they share their lives. Plants are beings that travel through memories and cosmic knowledge; they are so generous that they can live in forests and inside other beings. Human beings establish many relationships with plants; from great teachers to food, all plants have a history and transmit a lesson.

Observe the plants that are present in your daily life and draw a beautiful picture of some of them. Invite the people you live with to also draw pictures, and talk about and with the plants at home.

Can you tell the story of this plant?

What does your family call this plant?

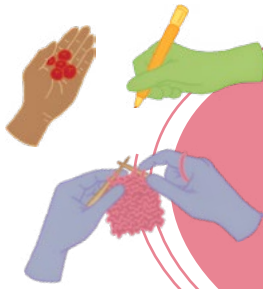


*In Guarani thinking, the fingers are the flowers of the body.
That's why the ancients say: Тхеро рѳте rankã potɣ, from the middle
of the carpus of the hands, flowers sprout, bringing about my body.*

CARLOS PAPÁ

The human hand, like verbal language, divides humanity and other natural beings. We are a very peculiar kind of animal. We create things and tell stories. Even so, as we are nature, everything we produce is still nature, although some products are so radically modified that they alter the Earth's cycles profoundly. Machines come from minerals; plastics, nail polish and gasoline come from petroleum (Latin for 'oil from stone'), a fossil fuel. Everything comes from the Earth.

What do we do with our hands? What beauty! What responsibility!



ACTIVITY

This activity suggests a reconnection with the earth and the grandmothers of the world. We will need clay. If you live in a place where there's clay in the soil, I invite you to collect some so we can create a droplet world.

ACTIVITY - A WORLD MADE OF CLAY

Clay is sacred to many peoples. Di'i **Mahso**, the grandmother of clay to the **Tukano** peoples, has existed since the foundation of the world, sharing clay from her own body for women to model ceramics. In Afro-Brazilian mythology, Nanã took an amount of clay from the bottom of the lake where she lived so that Oxalá could shape human beings.

Clay activities are a rich and expressive way of encouraging creativity and promoting the development of manual and sensorial skills.

With the clay in your hands, let your imagination flow. How about following the sequence of sproutings from the Droplet video to create a world entirely out of clay? Model the beings and try retelling these stories to your friends and family.



SUN TRAVERSES ALL

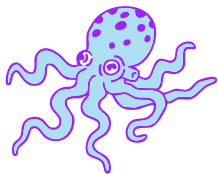
Sun radiates a vast amount of energy which reaches our planet in the form of light. This energy flows between different ecosystems and is essential for the maintenance and blossoming of life.



Plants, algae and some bacteria capture a portion of this light through the process of photosynthesis. In this process, sunlight, carbon dioxide and water are converted into glucose and oxygen. Glucose, the food produced in photosynthesis, stores energy in the form of chemical bonds.



The term used to refer to the units of energy contained in food is **calories**. In biological terms, the calorie unit represents the amount of energy needed to raise the temperature of one gram of water by one degree Celsius.



When other beings eat plants, or eat other organisms that have eaten plants, they break down glucose and other organic molecules to release the stored chemical energy. This energy is used for growth, movement, reproduction and other life processes. The energy that originates from Sun is, in this way, transferred between a multitude of organisms via the food chain.



When humans eat, they are consuming solar energy that has been stored by other beings, calories that were previously captured by plants, algae or bacteria, from the light radiated by Sun. For example, when you eat a banana, you are consuming the energy that the banana plant has stored through the process of photosynthesis.

SUN TRAVERSES ALL
English

MUHĪP̄ NIPETISEU AHSISTE SĀNŪKAMI
Tukano

太陽はすべてに行き渡る
Japanese

KUARAY REXAKĀ MA OGUEROVY PA
Guarani

BARI KAPUKEAI
Hätxa Kuĩ

MĀYŌN MŌTOPAHA
Maxakali

EL SOL LO PENETRA TODO
Spanish

ABE NIPETIRI YĒRĒ BORÉ SĪHĀ NŪKĀMI
Dessano

KAMOI YAALHAKA PHIOME
Nheengatu

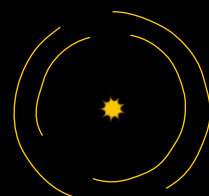
O SOL ATRAVESSA TUDO
Portuguese

LE SOLEIL TRAVERSE TOUT
French

DIE SONNE DURCHQUERT ALLES
German

IL SOLE ATTRAVERSA TUTTO
Italian

太陽穿過了一切
Chinese



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Opening animation: Matheus Marins

Soundtrack: Rodrigo Maré

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Production direction: Madeleine Deschamps

Production assistant: Daniel Grimoni

Translation coordinator: Alice Alberti Faria

Production: Selvagem

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To the Living Schools

To all the supporters

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The editorial production work of the Selvagem Notebooks is carried out collectively with the Selvagem Translation Group. The editorial direction is by Anna Dantes, and the coordination by Alice Faria. Layout by Tania Grillo and Érico Peretta. Coordination of English translations by Marina Matheus.

More information at selvagemciclo.org.br/en/

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Find out more at selvagemciclo.org.br/en/apoie/

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