SOIL BIODIVERSITY FOR KIDS

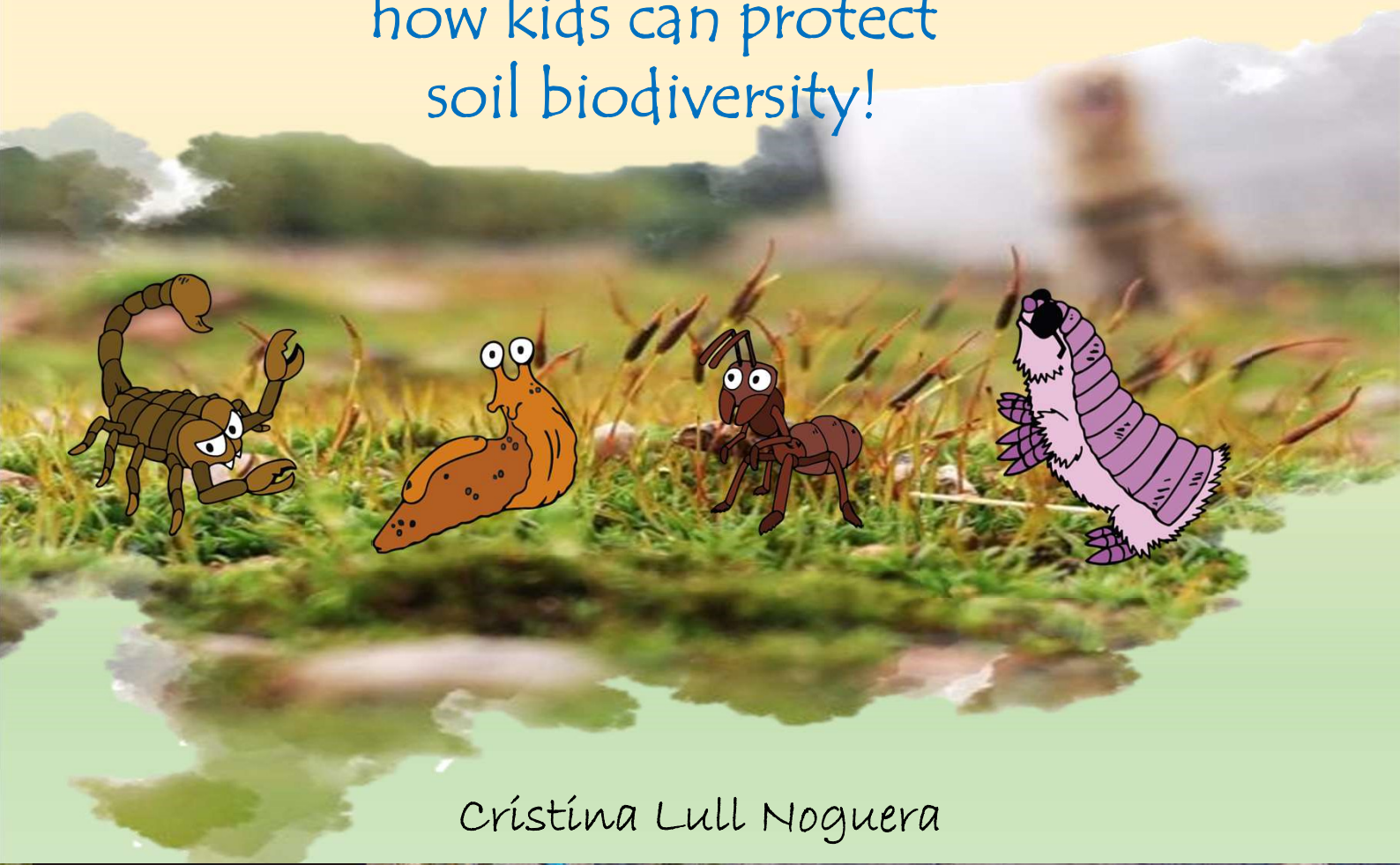
World Soil Day

"Keep soil alive, protect soil biodiversity"

5 December 2020

The soil king

how kids can protect soil biodiversity!



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SECS

SPANISH SOCIETY OF SOIL SCIENCE
SOIL EDUCATION AND PUBLIC SAFETY SECTION

Healthy and biodiverse soils allow us to grow a variety of vegetables and plants needed for good human nutrition. The organisms in soil make nutrients available for plants and they do many other beneficial activities that kids will discover in this booklet. Encouraging schoolchildren to take care of soil will be beneficial for their future and everyone else's.

We would like to guide you in the knowledge of **soil biodiversity**.

We are...

Lolo
the scorpion

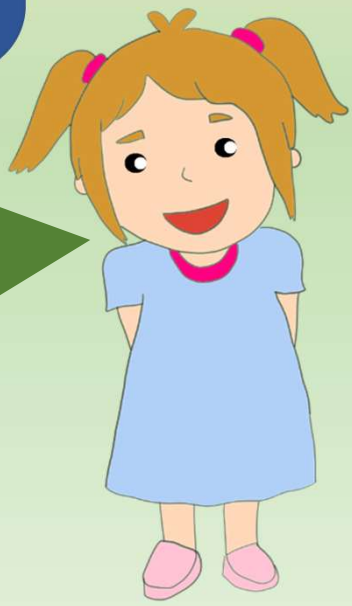
Louise
the ant

Eli
the slug

Gus
the pink armadillo

Hello! My name is Pablo. And she is my little sister, Claudia. Would you like to explore soil with all of us?

Hello everybody! We look forward to you joining us during our adventure!

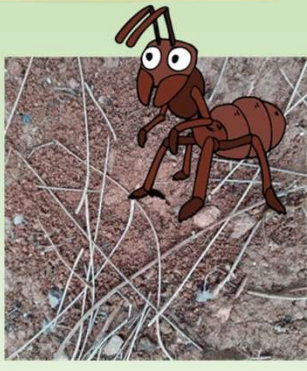


We have written on the board the questions we want to answer with the help of our soil friends.

- ✓ Soil as a habitat.
- ✓ What soil biodiversity mean?
- ✓ Soil inhabitants: what they are and what they do?
- ✓ Why is soil biodiversity important?
- ✓ What are the main threats to soil biodiversity?
- ✓ What can we do to protect soil biodiversity?







SOIL HABITAT

Soil is a mixture of mineral particles, organic matter, water, air and living organisms. Sand, silt and clay are mineral particles.

Sand is rough to the touch . Silt is soft and silky to the touch like wet talcum powder. Clay is soft to the touch, plastic, and sticky when wet.

And soil contain pore space, where many tiny organisms live.

Organic matter includes decayed plants and animals. Its decomposition gives nutrients for plants and microorganisms.

Soil has all we need to live: food, and water and air in its pores.

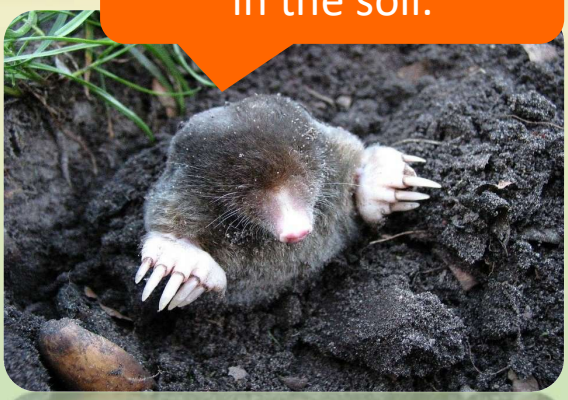
WHAT SOIL BIODIVERSITY MEAN?

Biodiversity refers to the diversity of living organisms in the soil. Soil is the habitat of many living organisms, including plants, animals, and microorganisms.

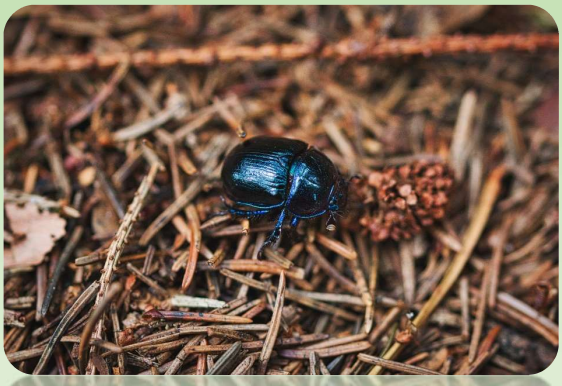
Plants

I live permanently in the soil.

Snail



Mole



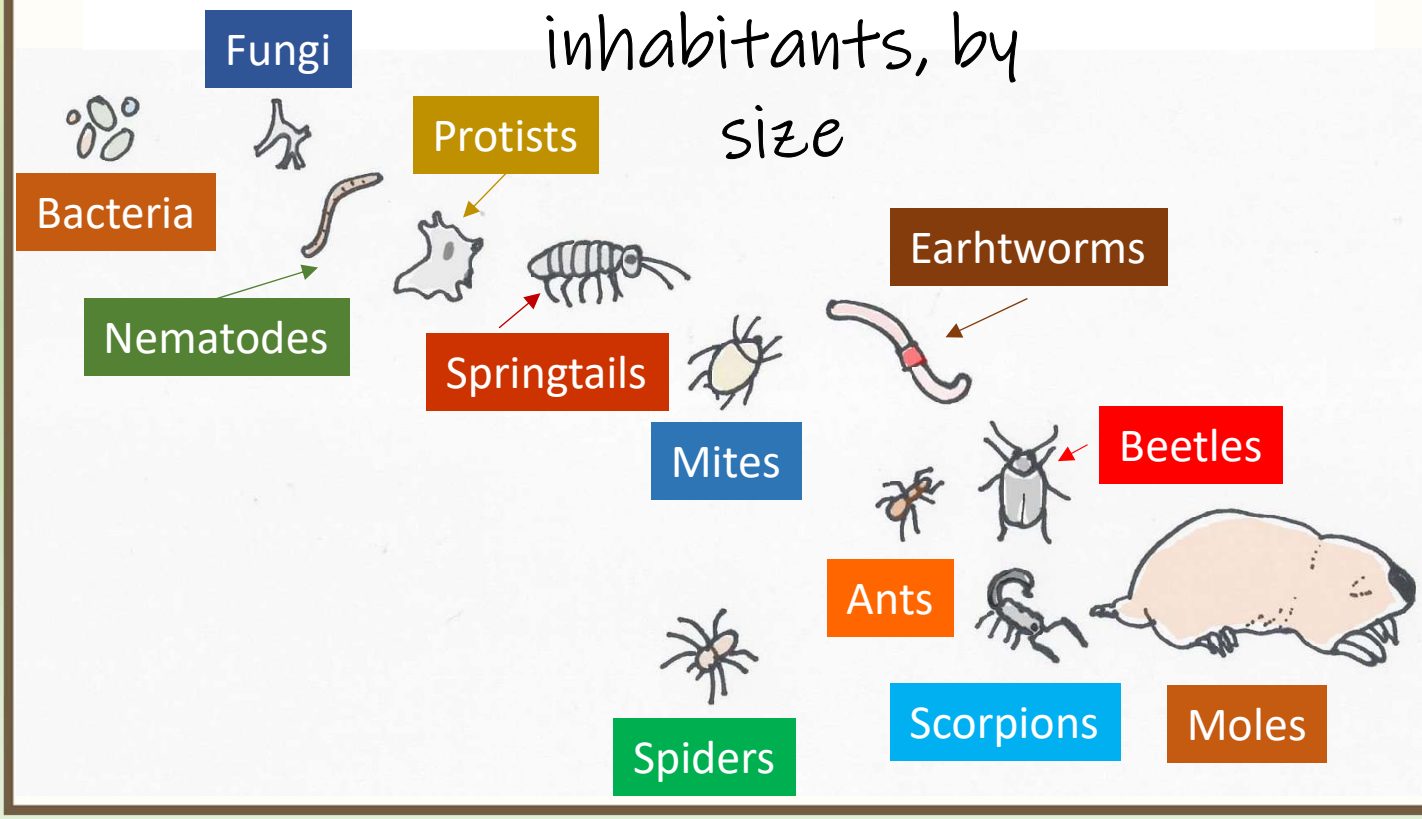
Beetle

Mushrooms

SOIL INHABITANTS

I have drawn a picture of soil living organisms. Soil is the factory of life. Its workers are small mammals, plant roots, invertebrates and microorganisms.

Main soil inhabitants, by size



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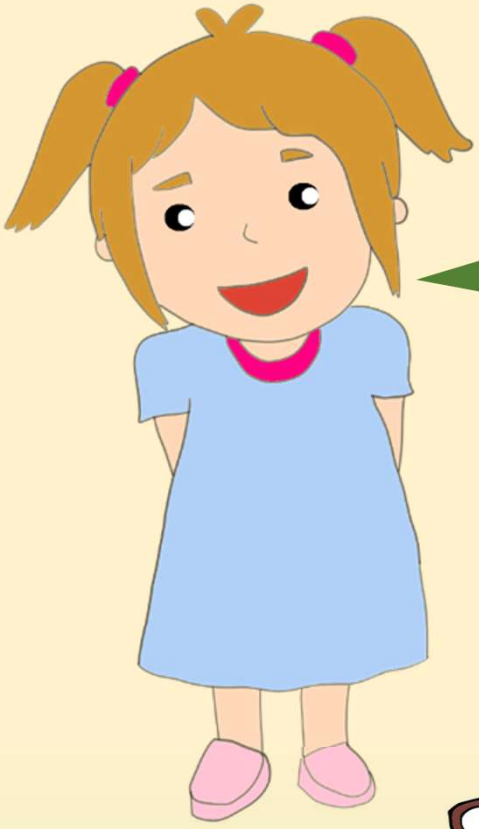
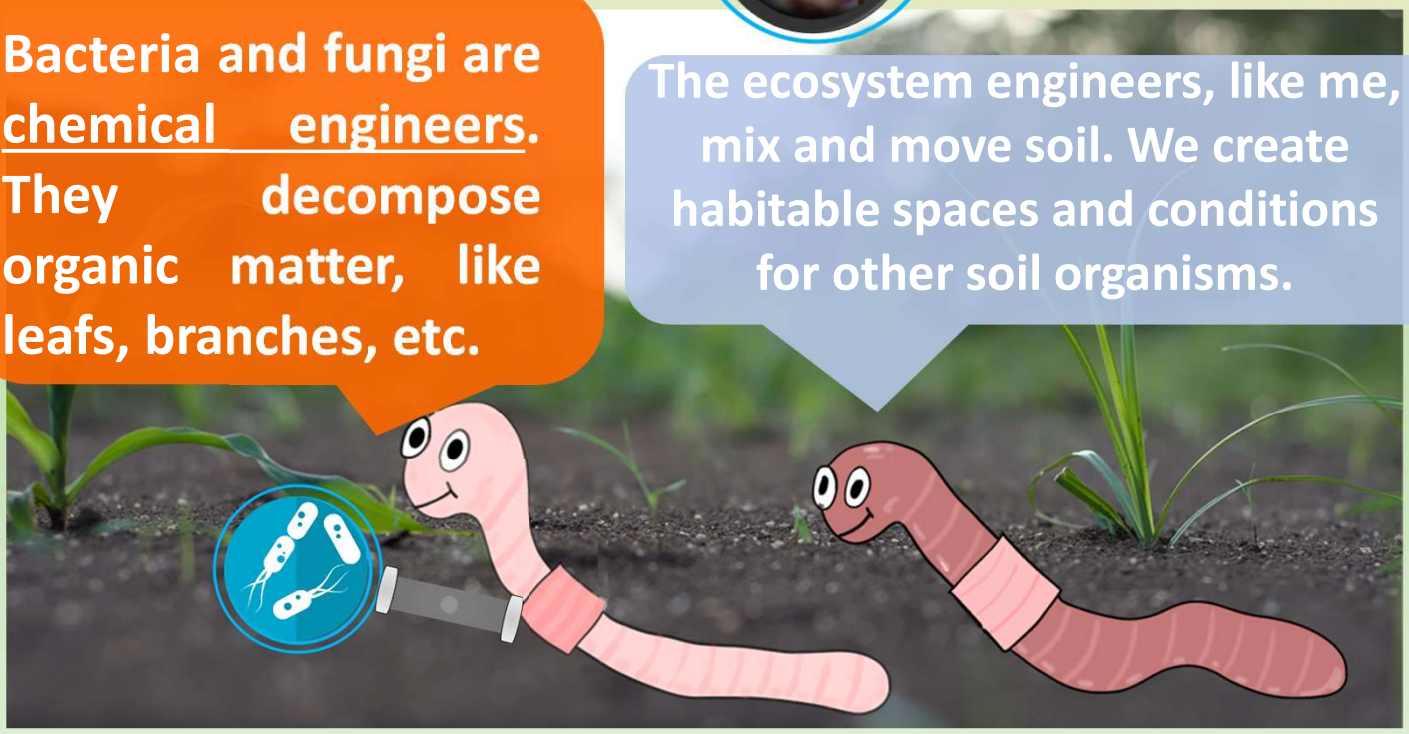


Soil organisms can be classified into 3 principal groups considering the work they do in the soil.

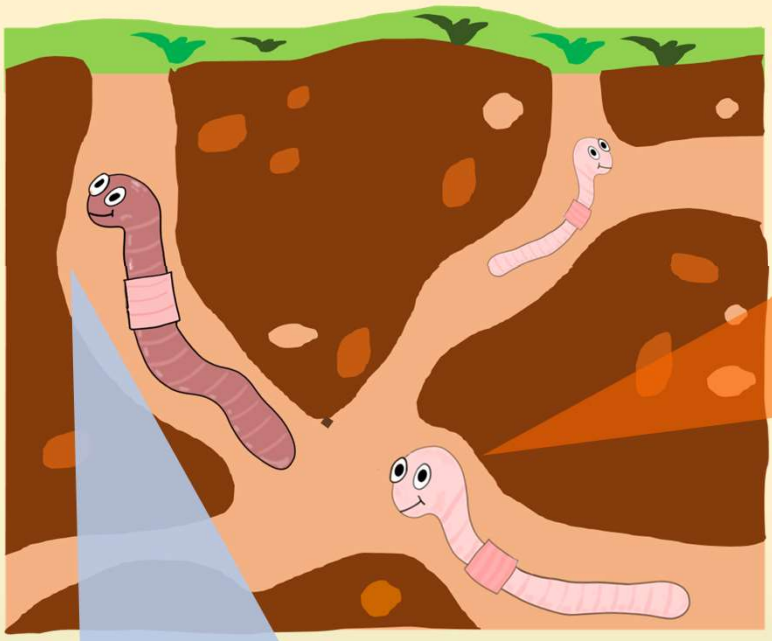
Protist, nematodes, microarthropods are biological regulators. Some act as plant pests, and others activate microflora. They help to fragment organic matter

Bacteria and fungi are <u>chemical engineers</u>. They decompose organic matter, like leafs, branches, etc.

The ecosystem engineers, like me, mix and move soil. We create habitable spaces and conditions for other soil organisms.



WHY IS SOIL BIODIVERSITY IMPORTANT?



We create and refresh soil, decomposing organic matter to maintain the soil's productivity.

We provide the structures required to retain and store water within the soil and in underground reservoirs.

And we enable the soil to store and release carbon, helping to regulate the climate.

We control pests.

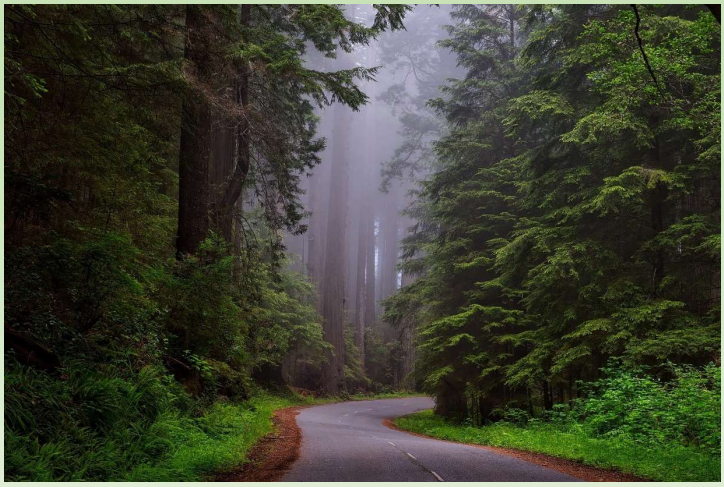
TREATS TO SOIL BIODIVERSITY

Fires burn any organic matter and living organisms in the soil.

Soil contamination can hurt or kill soil organisms.

Crushing soils through the use of heavy machinery results in compaction, therefore, there is less space and air for living organisms.

The covering of soil for housing, roads or other land developments is known as soil sealing. Soil sealing puts biodiversity at risk.



HOW TO PROTECT SOIL BIODIVERSITY

Now that we know how important soil organisms are, let's take care of them. We leave you here some of our initiatives.

We can prepare a campaign with our classmates to explain:

- **The importance of crops rotation, mulching and the use of organic residues in the fields. All of these practices can encourage biodiversity.**
- **How soil contamination resulting from agricultural processes can have damaging consequences for soil biodiversity.**
- **The changes induced by fire on the biological soil components (vegetation, animals and soil microorganisms). Awareness and education are key components in the prevention of fires.**
- **Soil organisms need a healthy soil to live and work ;-)**

WE HOPE YOU HAVE ENJOYED THIS INTRODUCTION TO SOIL EBIODIVERSITY. SEE YOU SOON WITH MORE ADVENTURES!

LOLO, ELI, LOUISE Y GUS

HELP US TO SURVIVE ON THE SOIL

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Lolo, Eli, Louise and Gus have been designed by Francisco Javier Galán Onrubia