

SOIL

An invisible part of the forest





SOIL FROM TOP TO BOTTOM

LITTERFALL CONSISTS OF BOTH LIVING AND DEAD ORGANISMS AND PLANT ROOTS. THERE ARE CAVITIES IN IT FILLED WITH WATER OR AIR. IT IS FULL OF LIFE, EVEN THOUGH IT IS A THIN LAYER.

HUMUS IS RICH IN NUTRIENTS AND MINERALS, IT STILL CONTAINS QUITE A LOT OF AIR AND WATER.

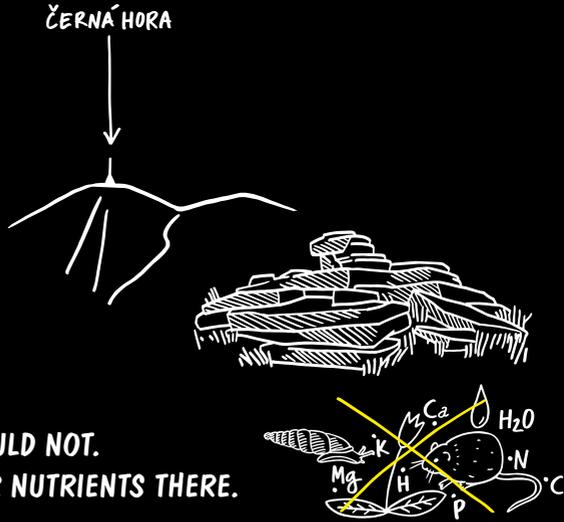
THERE IS LITTLE HUMUS, MORE MINERALS AND A LOT OF CLAY IN THIS LAYER. THESE ARE THE FINEST ROCK PARTICLES, TO WHICH NUTRIENTS ATTACH THEMSELVES. THERE ARE A LOT OF CLAY PARTICLES, WHICH MEANS THEY CAN CARRY A LOT OF NUTRIENTS.

SMALLER AND BIGGER PARENT ROCK PIECES. THEY WERE BROKEN OFF FROM THE BEDROCK BY FROST, CARBONIC ACID AND WATER. ALSO PLANT ROOTS ASSISTED IN IT.

PARENT ROCK AROUND THE KRKONOŠE TREE TOP TRAIL, IT IS A PRIMEVAL PARTLY MELTED AND COMPACTED MUD. IT DETERMINES THE SOIL PROPERTIES.

1

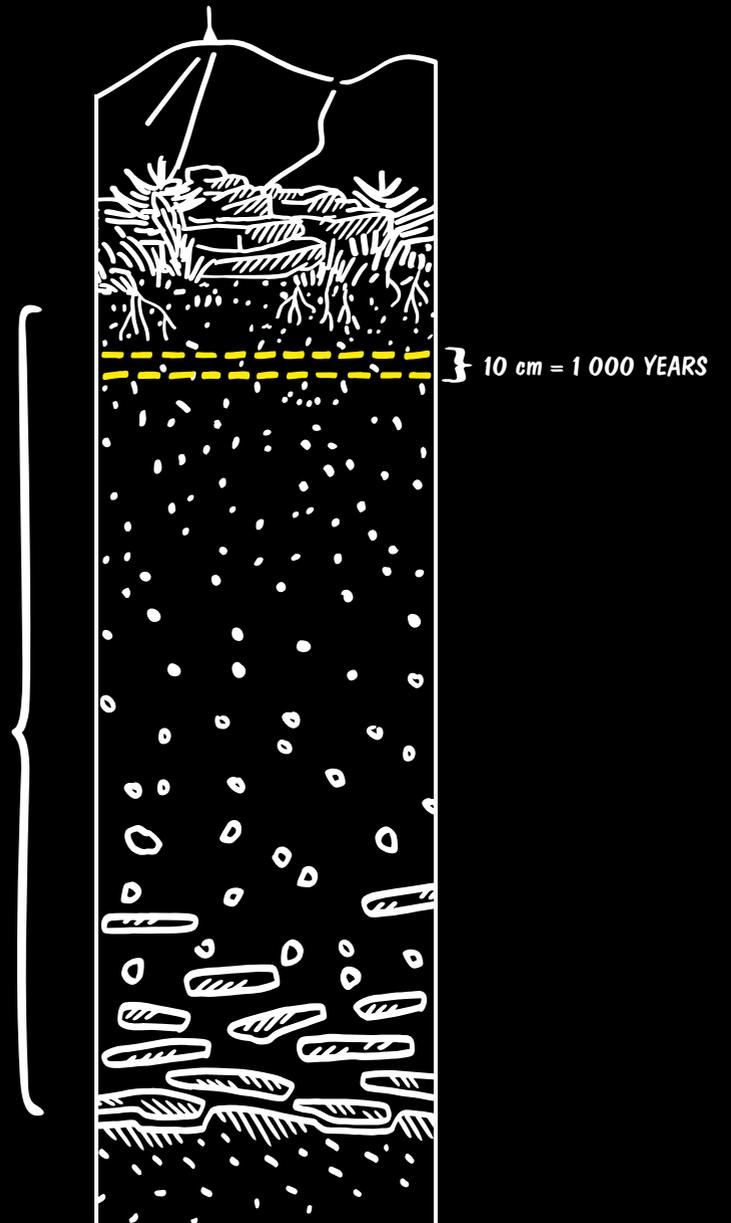
WOULD WE SURVIVE ON BARE ROCK?



NO, WE WOULD NOT.
THERE IS NO WATER OR NUTRIENTS THERE.

3

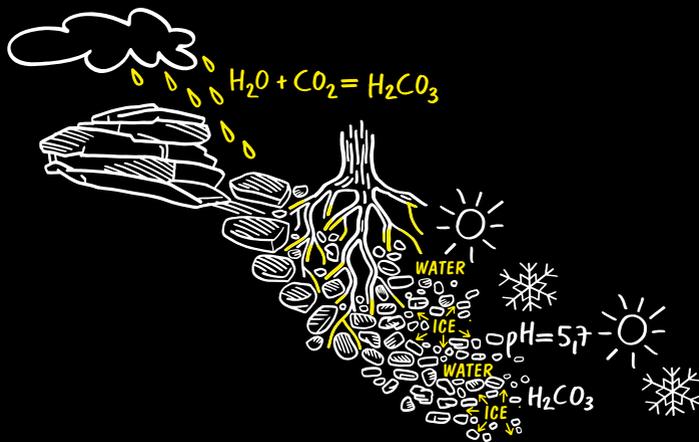
HOW FAST DOES SOIL "GROW"?



UP TO 1,000 TIMES SLOWER THAN YOU.

2

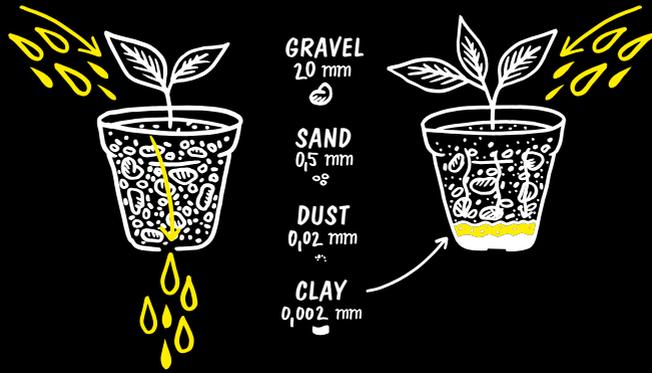
WHAT BREAKS UP THE ROCK?



CARBONIC ACID (H_2CO_3) WILL ERODE IT, AND ROOTS AND ICE WILL
BREAK IT UP. JUST LIKE WHEN YOU FREEZE WATER IN A GLASS BOTTLE.

4

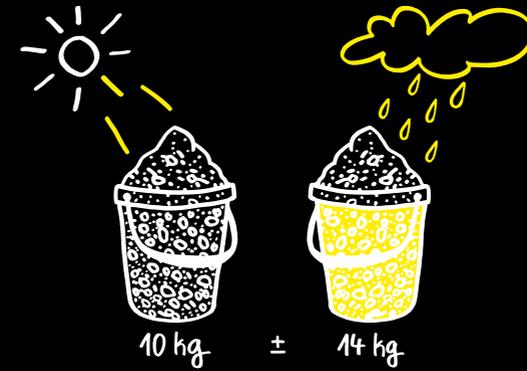
WHAT WOULD THE SMALLEST PARTICLES OF SOIL DO IF THEY WERE PRESSED TO THE BOTTOM OF A FLOWER POT?



THEY WOULD NOT LET ANYTHING IN BETWEEN THEM, EVEN WATER, BECAUSE THE CAVITIES BETWEEN THEM ARE SMALLER THAN DROPS OF WATER.

6

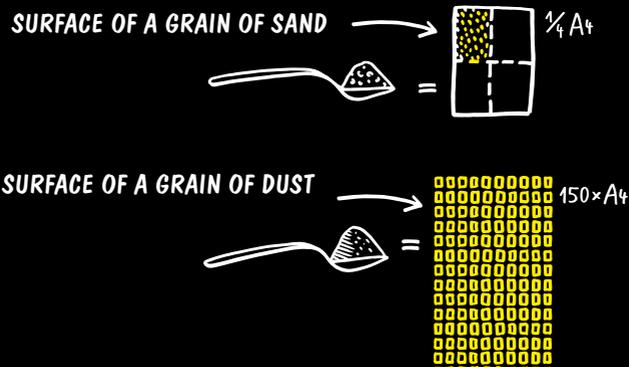
WHY IS DRY SOIL LIGHTER THAN MUD AFTER IT RAINS?



THERE IS LIGHT AIR IN ITS CAVITIES, BUT THERE IS HEAVIER WATER IN THE MUD.

5

WHAT ARE THE SMALL SOIL PARTICLES GOOD FOR?



LOTS OF WATER AND NUTRIENTS FIT ON THEM, SUCH AS ON A LARGE TABLE.

7

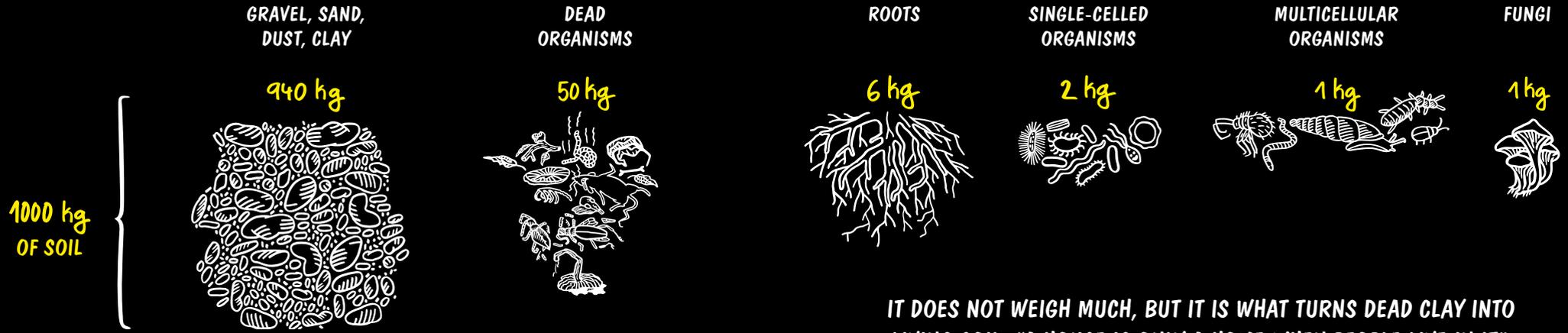
WHY ARE THERE PUDDLES IN THE RUTS LEFT BY TRACTORS?



COMPACTED SOIL HAS NO CAVITIES; IT HAS NO SPACES FOR AIR OR WATER. A TRACTOR WOULD ALSO SQUEEZE EVERYTHING OUT OF YOU.

8

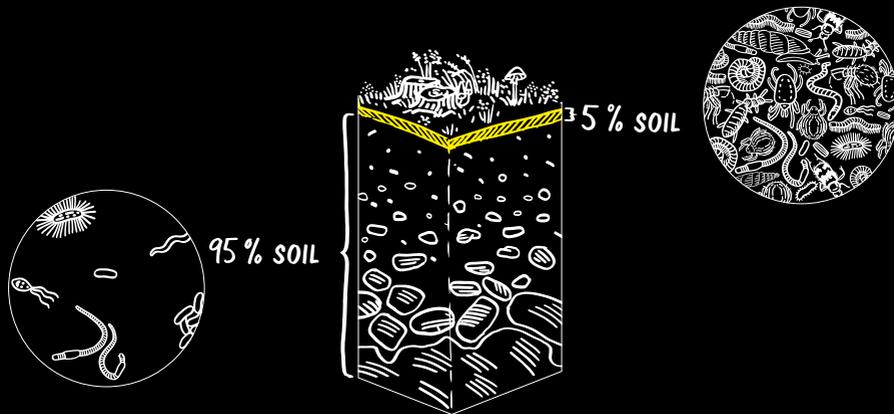
HOW MUCH DOES THE LIFE IN THE SOIL WEIGH?



IT DOES NOT WEIGH MUCH, BUT IT IS WHAT TURNS DEAD CLAY INTO LIVING SOIL. "A HOUSE IS ONLY A HOME WHEN PEOPLE LIVE IN IT".

9

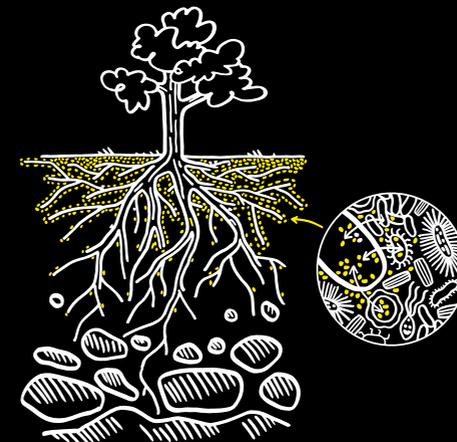
WHERE IS THE SOIL MOST ALIVE?



JUST UNDER THE SURFACE. WHERE THERE IS MOST FOOD.

10

WHERE ARE THE SMALLEST CREATURES?



EVERYWHERE, ESPECIALLY AROUND THE ROOTS, WHERE THEY CAN HELP.

11

WHY ARE THE WORMS LIVING UNDER THE SURFACE MORE COLOURFUL THAN THOSE WHICH LIVE DEEPER UNDERGROUND?



THEY DON'T NEED TO BE COLOURFUL. THE SUN DOESN'T BURN THEM AND NOBODY CAN SEE THEM. IN THE DARK YOU ALSO CANNOT SEE WHAT YOUR FRIEND NEXT TO YOU IS WEARING.

13

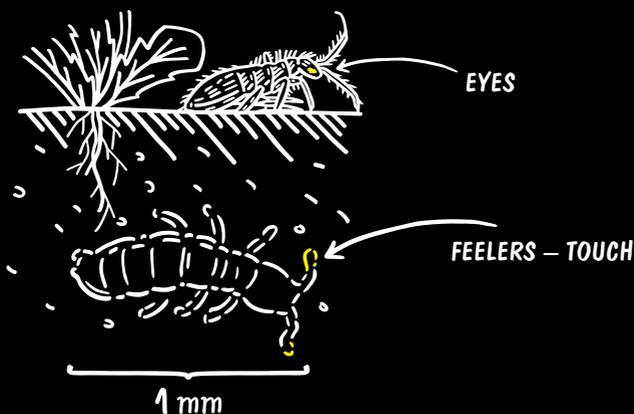
WHY ARE THEY SKINNY, SMALL AND ONLY CRAWL?



THERE IS NOT SPACE FOR ANYTHING ELSE. TRY JUMPING UP AND DOWN UNDER THE TABLE!

12

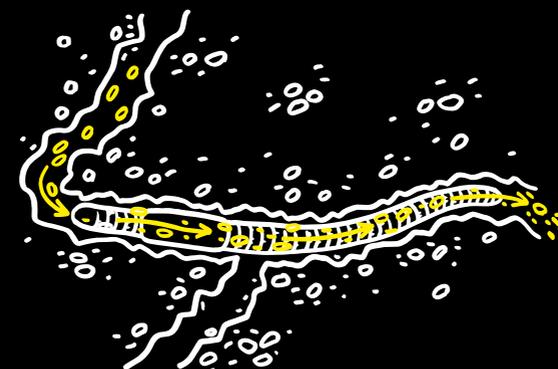
WHY DO THE CREATURES IN THE SOIL NOT HAVE EYES?



IT'S AS BLACK AS NIGHT, THERE IS NOTHING TO SEE, AND THAT'S WHY THEY DON'T NEED THEM.

14

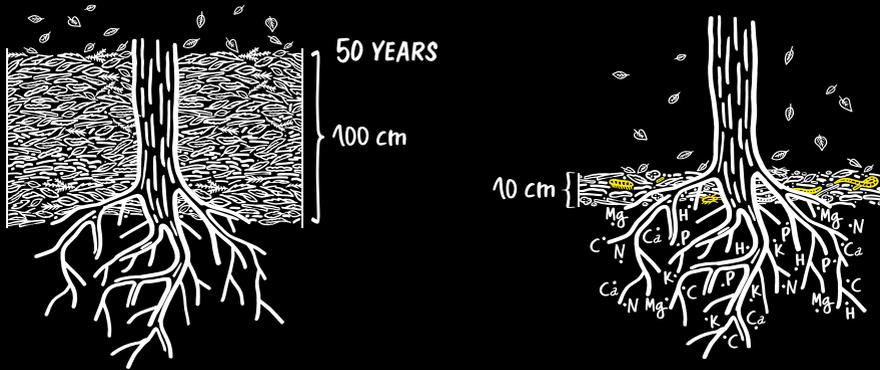
WHO MIXES THE SOIL?



THE SOIL CARRIES SOIL CREATURES INSIDE AND ON ITS SURFACE, JUST LIKE YOU CARRY MUD HOME ON YOUR BOOTS. SOMETIMES YOU ALSO EAT YOUR FOOD, AND SOMETIMES YOU... GO TO THE TOILET.

15

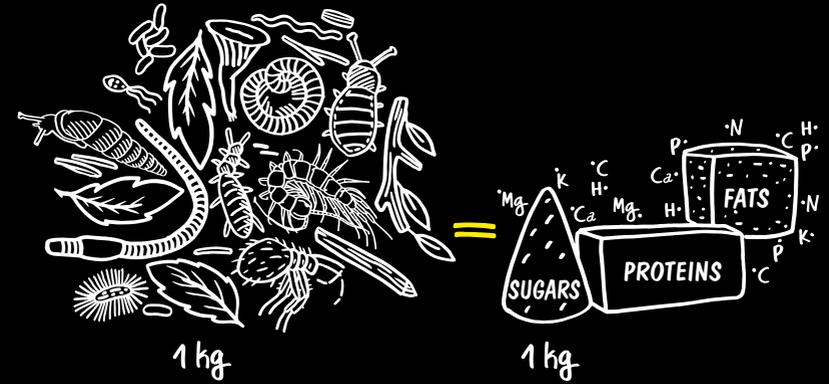
WHAT DO THE SOIL CREATURES ALSO DO?



THEY RETURN NUTRIENTS TO THE SOIL, LIKE WHEN YOU SPREAD COMPOST ON THE FLOWER BEDS.

17

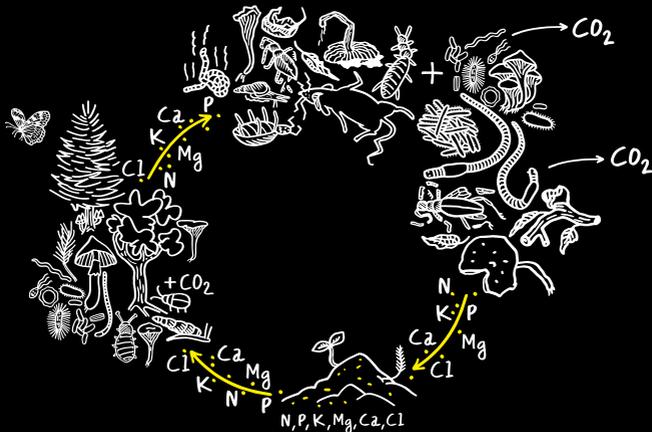
HOW MANY NUTRIENTS DO THE SOIL CREATURES GIVE BACK?



ALMOST ALL OF THEM, THE SOIL CREATURES ARE ALSO NUTRIENTS (YOU ARE ALSO MADE OF NUTRIENTS).

16

WHERE DO THEY GET THE NUTRIENTS FROM?



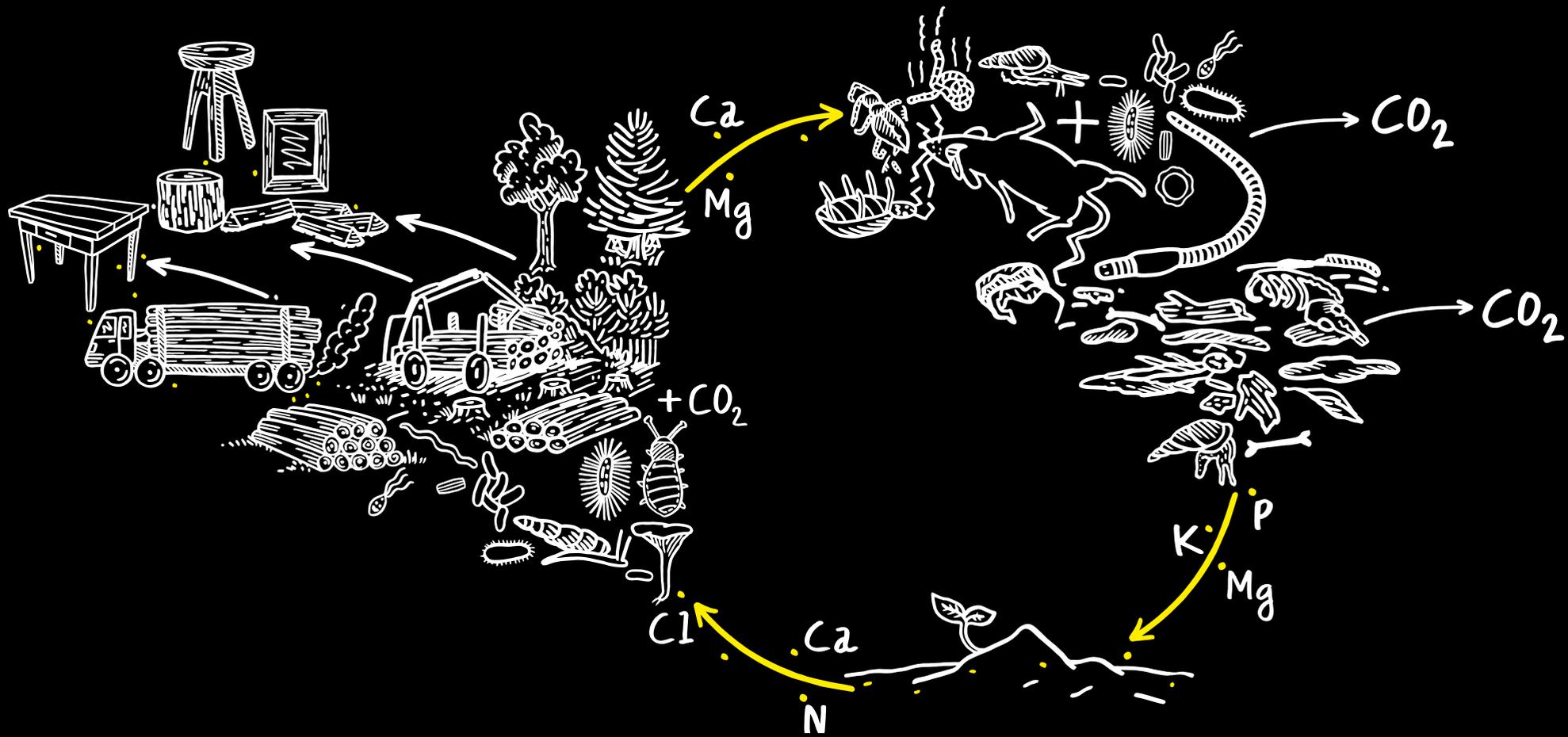
SOIL CREATURES CONSTANTLY GET THEM FROM DEAD BODIES. SOIL CREATURES CONSTANTLY GET THEM FROM DEAD BODIES. AND THE CYCLE GOES ON AND ON...

18

WHAT HAPPENS IF THERE ARE FEW NUTRIENTS IN THE SOIL?

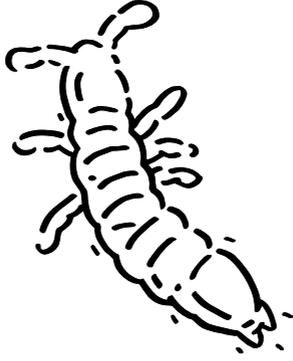


NOTHING MUCH WILL GROW THERE. YOU DO NOT OFTEN VISIT AN EMPTY FRIDGE, DO YOU?



1

WHY IS A SPRINGTAIL LIVING IN THE GROUND WHITE?



Because there is no light underground, so colour does not matter. If a soil bug has a colour, the fact that it lives in the ground is probably unrelated to this. In the darkness, it also does not matter what your neighbour is wearing.

3

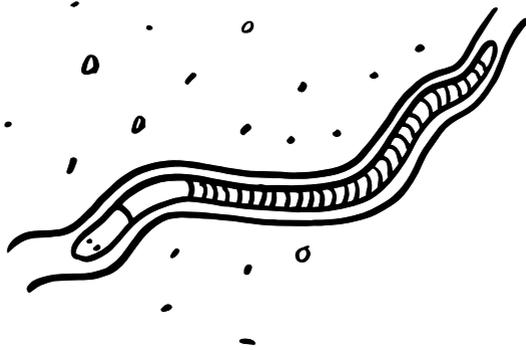
HOW MANY NUTRIENTS ARE IN 11.72 KG OF LIVE INSECTS?



If we concede that water is also a nutrient, then in 11.72 kg of live insects there are 11.72 kg of nutrients. (By the way, 11.72 km is the distance to the Sněžka Peak from the Tree Crown Trails in the Giant Mountains.)

2

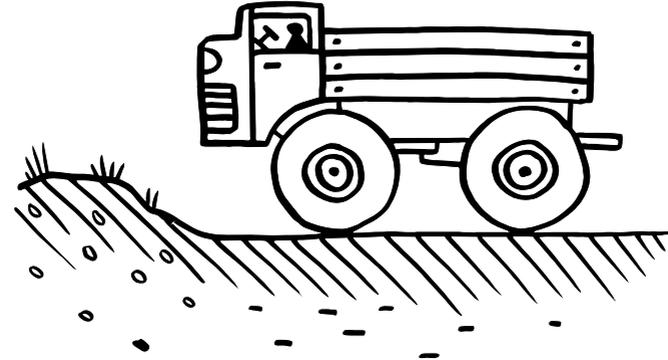
WHY IS A WORM SKINNY?



Because in the ground there are mostly small cavities, and a skinny worm finds it easier to push itself through them. Cave dwellers also do not tend to be very fat.

4

WHAT WILL A HEAVY CAR DO TO THE SOIL?

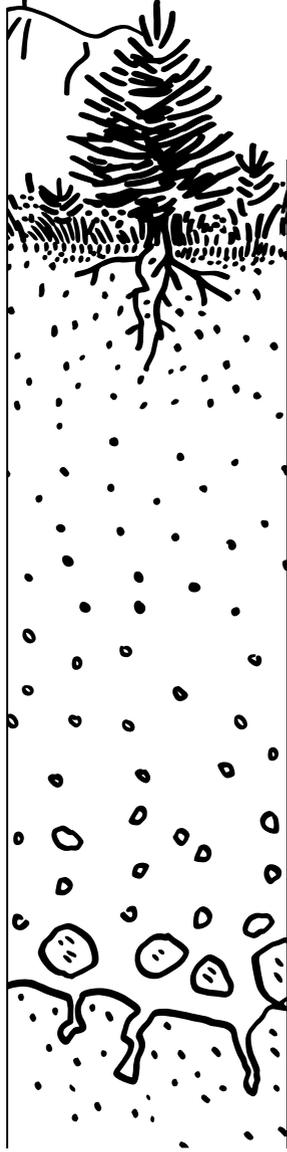


It will push the air and water out of it. Water will not get absorbed in the soil, and soil bugs will die out over time. The soil will stop being living soil. Without air, you would not survive long either.

LITTLE REPETITION

5

HOW LONG WOULD IT TAKE FOR A LAYER TO FORM THAT IS AS DEEP AS THE DOOR SNAIL COCHLODINA CORCONTICA'S SHELL IS LONG?

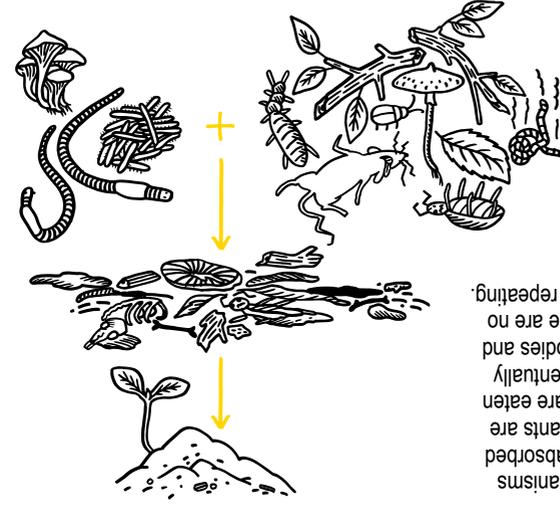


If the door snail has a 12 mm long shell and 1 mm of soil in the environs of Sněžka takes 10 years to form, then 12 mm of soil will have taken 120 years to form, which is longer than most people live! It is also dumb that soil cannot be produced, but it has to form on its own.

LITTLE REPETITION

6

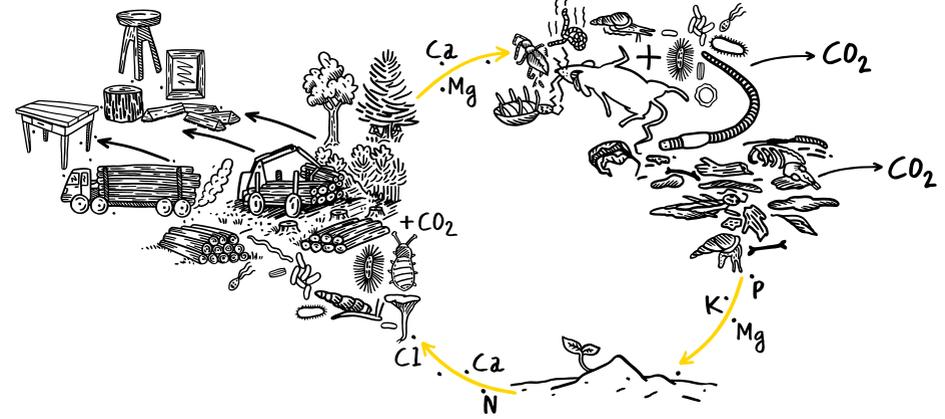
WHAT ARE SOIL BUGS GOOD FOR?



Bugs return nutrients from dead organisms back into the ground. They are then absorbed by plants, which helps them grow. Plants are eaten by herbivores, and herbivores are eaten by carnivores. But all of them will eventually be dead. Bugs break up their dead bodies and return nutrients to the soil. And people are no exception. This is how the cycle keeps repeating.

7

WHAT WILL HAPPEN IF...?



What will happen if...: wood is taken from the forest? Wood also contains nutrients. When wood is taken from the forest, nutrients are removed as well. Then the soil is poorer, and it becomes more difficult for new forest to grow. It is a good idea to leave some wood in the forest - branches, stumps, rotten trunks, which are difficult to process. Bugs will break them down, and this will return nutrients to the soil. Another generation of trees will use them for further renewal.



Soil – an invisible part of the forest

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Text: Jitka Loganová, Michal Skalka

Illustration: Barbora Zachovalová

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112



SOS

150



HASIČI

155



LÉKAŘ

158



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602 448 338 nebo **1210**



(+48) 985 nebo **601 100 300**

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