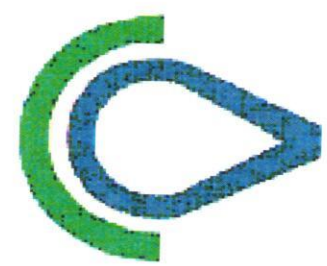
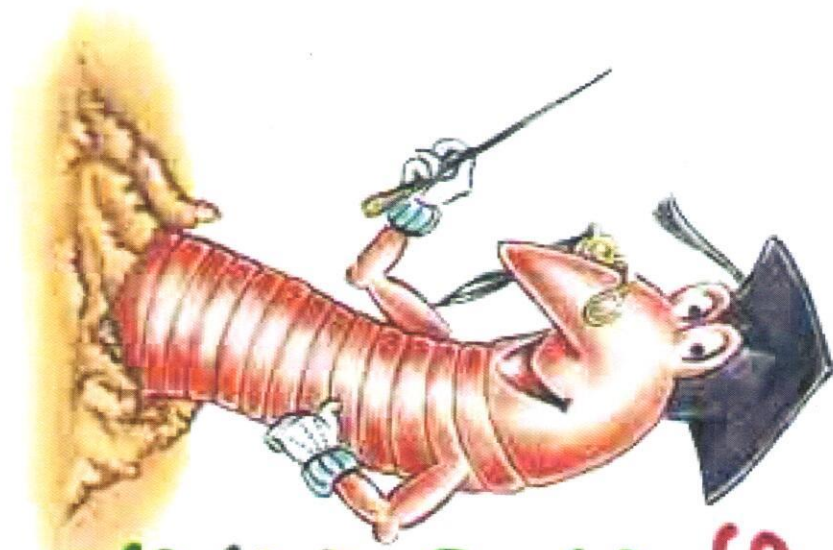


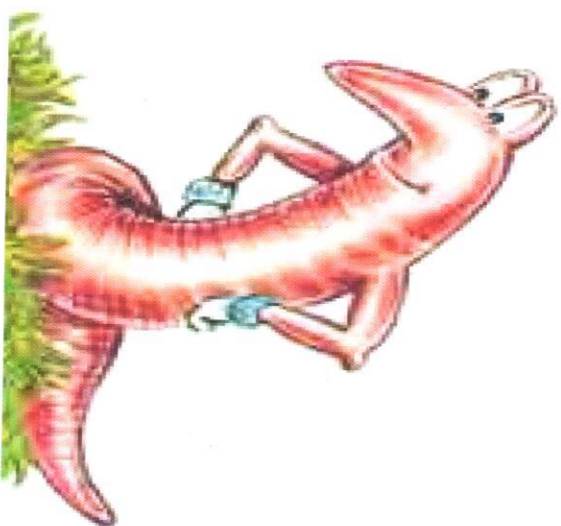
S.K. Worm
Answers
Your
Questions
About
Soil and
Stuff!



U.S. Department
of Agriculture
**Natural
Resources
Conservation
Service**

Hello, worm lovers and soil
supporters! It is I, S.K. Worm.

The S.K. stands for "Scientific
Knowledge." But you can call
me *Skworm*, as in squirm
around and wiggle all over the
place.



It's a dirty job but someone has to do it--

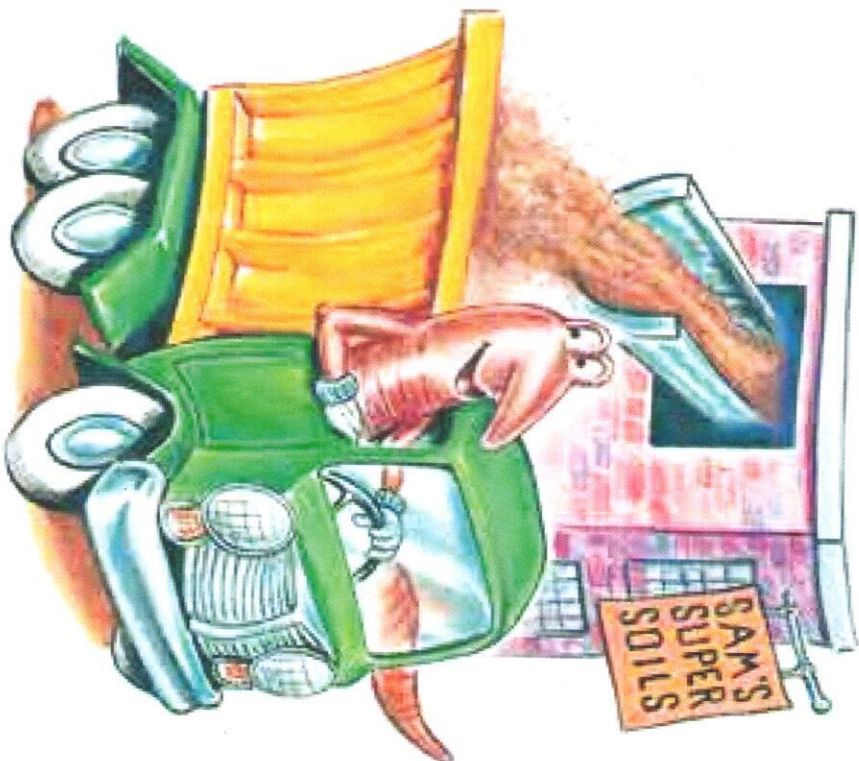




**S.K. Worm, the
official annelid, or
worm, of the U.S.
Department of
Agriculture's Natural
Resources
Conservation Service
answers questions
about soil.**



Is Soil Made Through Magic?



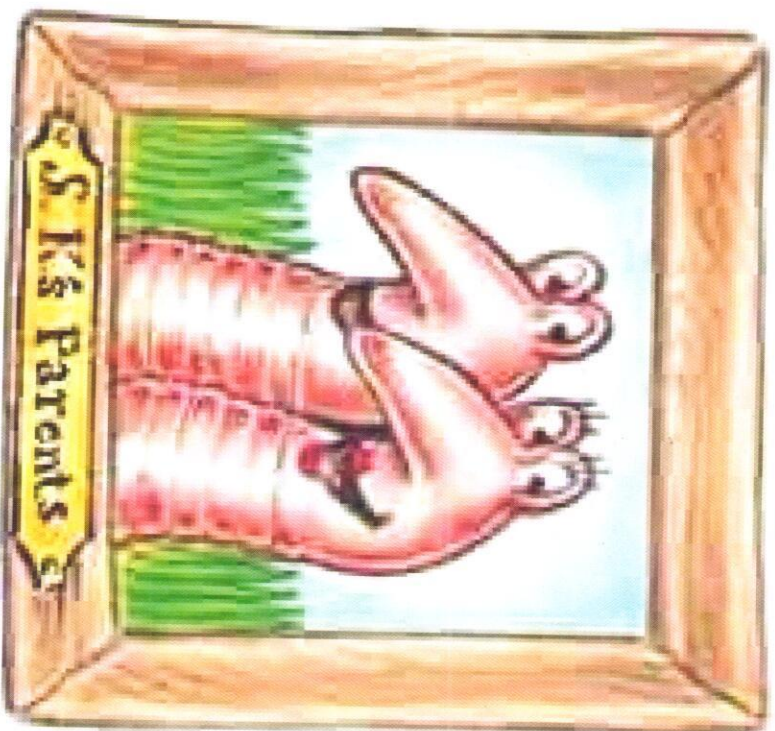
- Soil doesn't just appear out of nowhere. A magician doesn't wave a magic wand and...poof!... soil shows up. And it's not made in a soil factory.



- Soil comes from broken up pieces of rock and dead leaves, tree limbs, and dead bugs - those kinds of things.



Does Soil Have Parents?



Does Soil Have Parents?

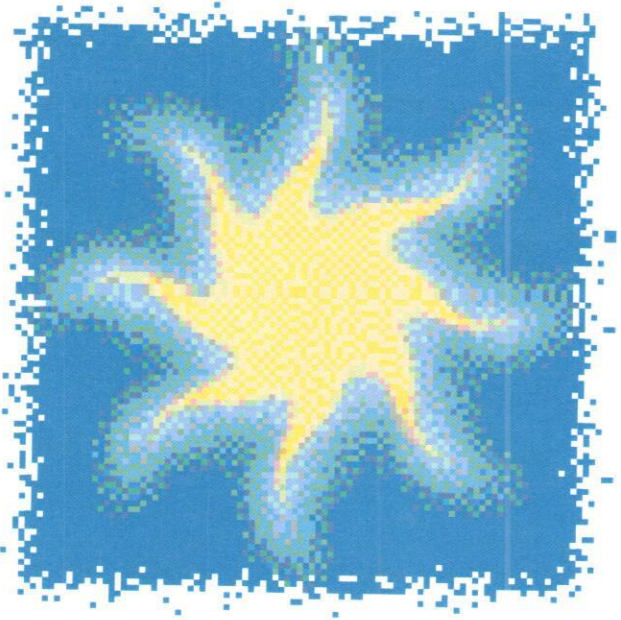
- Soil doesn't have a mom and dad.
- But it is made up of something called *parent material*-the basic stuff needed to make soil.

Parent Material



What does weather do to the soil?

Heat



Cold



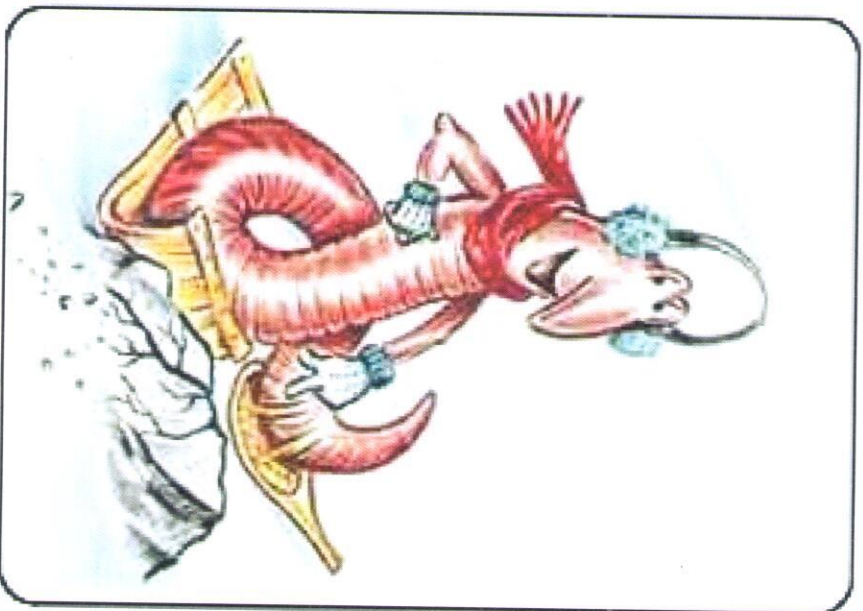
- Whether you believe it or not, weather helps make soil. When the weather gets hot, rocks can get bigger. When the weather turns cold, rocks can get smaller.

- If this happens often enough, the rock will crack and break up into small pieces that break into even smaller pieces. When they get really small they turn into soil.

What does hot weather do to the soil?



What does cold weather do to the soil?



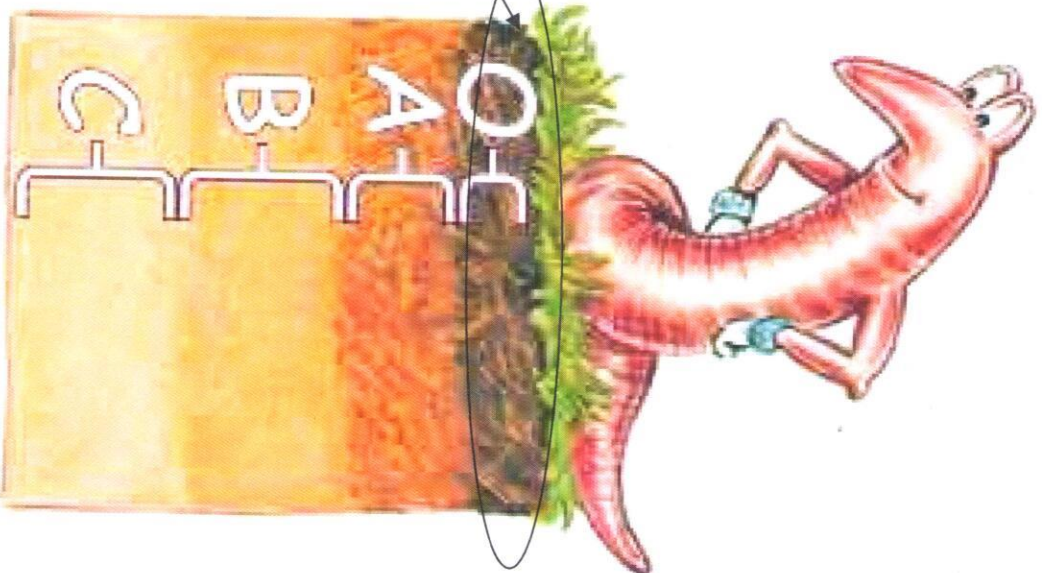
- Rain and ice can also get into rocks and break them apart. So, believe me, the weather does help make soil. And that's no snow job.



What's on, and in, the horizon?

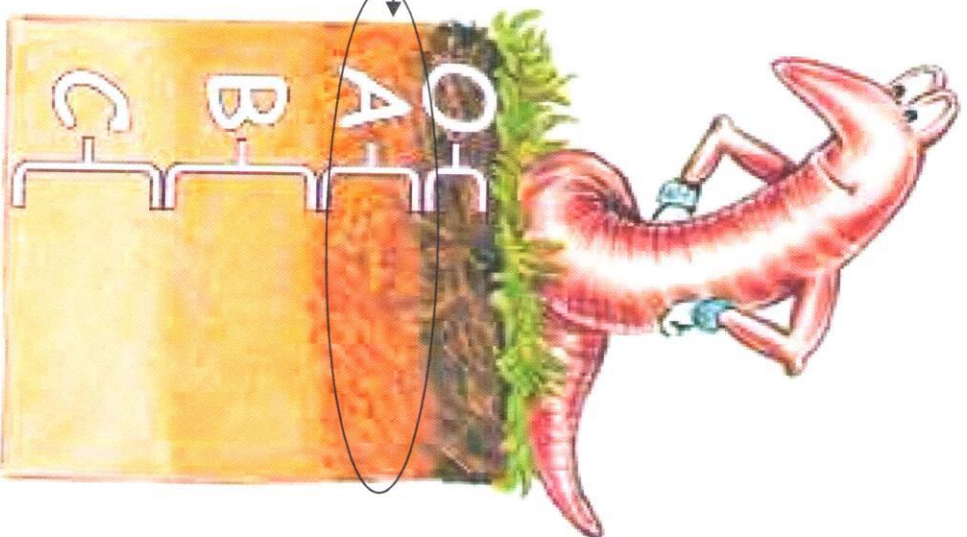
■ Did you know that there are horizons in the soil? They're named O, A, B, and C.

■ O is the top horizon. It's about an inch thick made up of dead stuff that breaks down and keeps the soil "O"-so healthy.



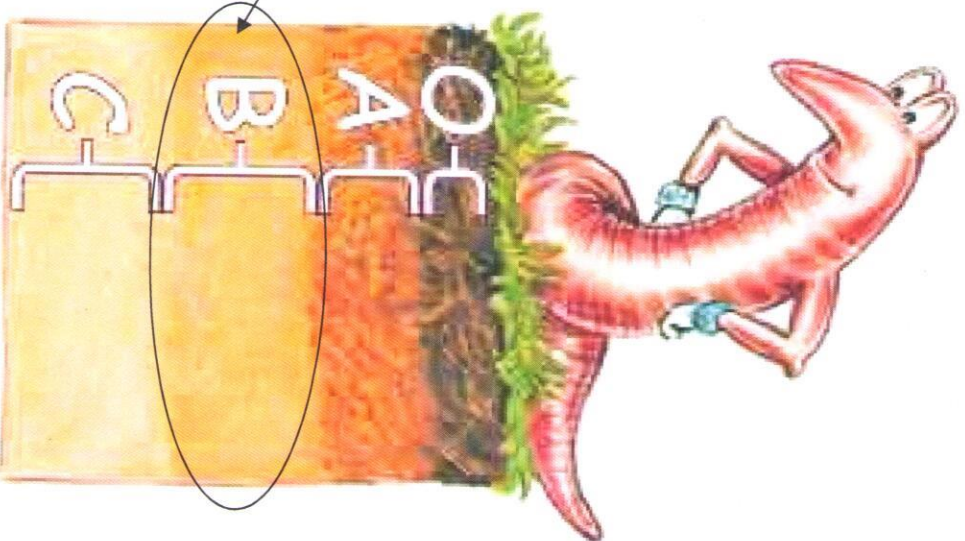
A Horizon

■ The A horizon is topsoil that's alive with roots, tiny microstuff like bacteria and fungi, and all kinds of critters like me. The A horizon is "A-OK" with me.

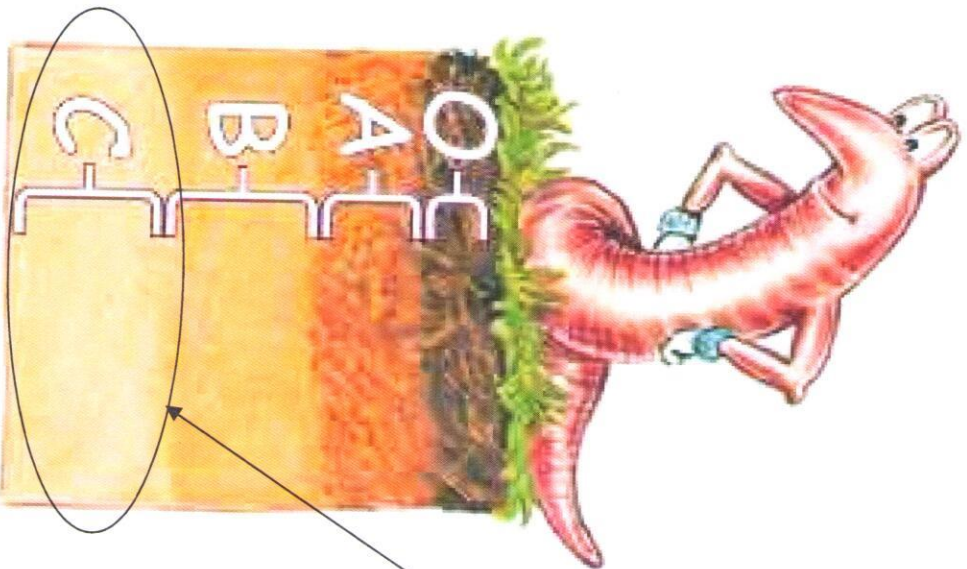


B Horizon

■ Number three is horizon B. Plants and animals have a tough time getting through B. Why? "B" cause it's very hard.



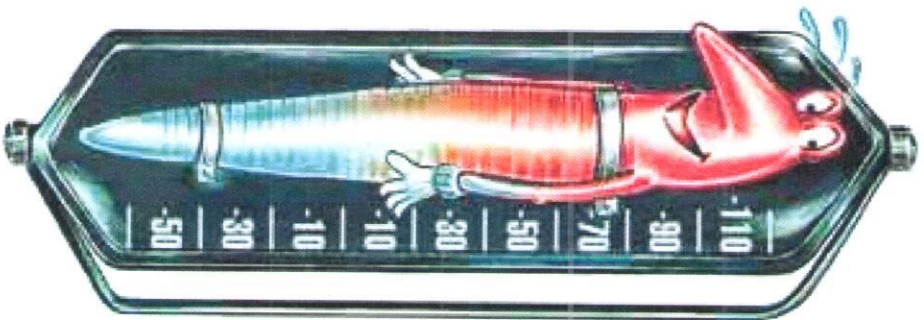
C Horizon



- See horizon C?
- You see, horizon C has less living stuff in it than O, A, and B. C is parent material that's made up of the rock and soil that formed the three layers above it.



How does soil help keep me cool?

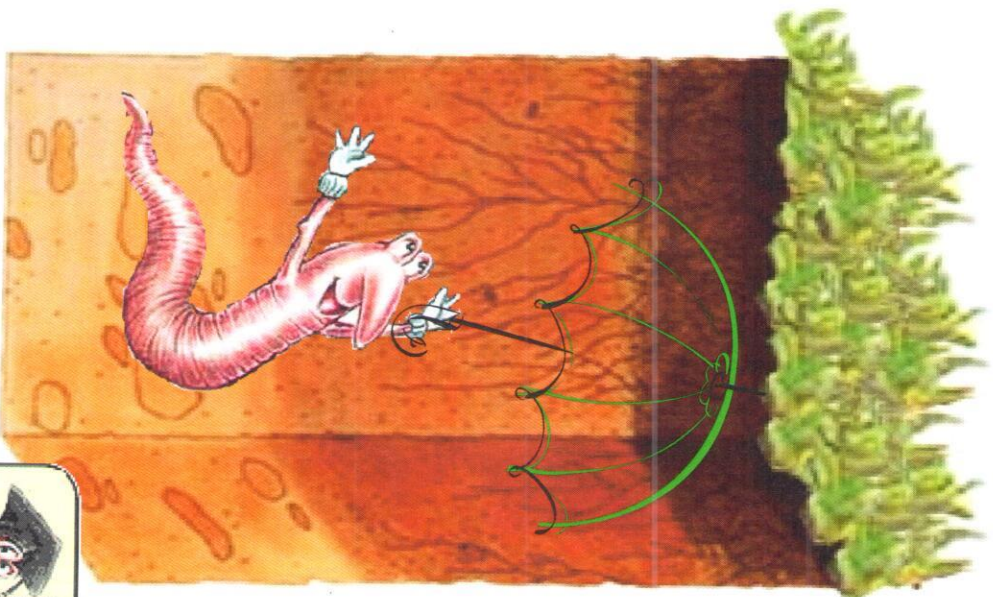


- When the soil is cool, I'm cool. If the temperature gets too cool, I can dig deeper to find a warm place to slither and snooze. But when the temperature is too hot, I don't feel so hot.



How does soil help keep me cool?

- In fact, if I get too hot, I'll dry up like a piece of old beef jerky. So, on really hot days, I look for a cool spot in the soil and coil myself up to keep cool and stay moist. If the soil is covered with plants, it cools the soil down and I stay cooler.



Do soils come in different colors?

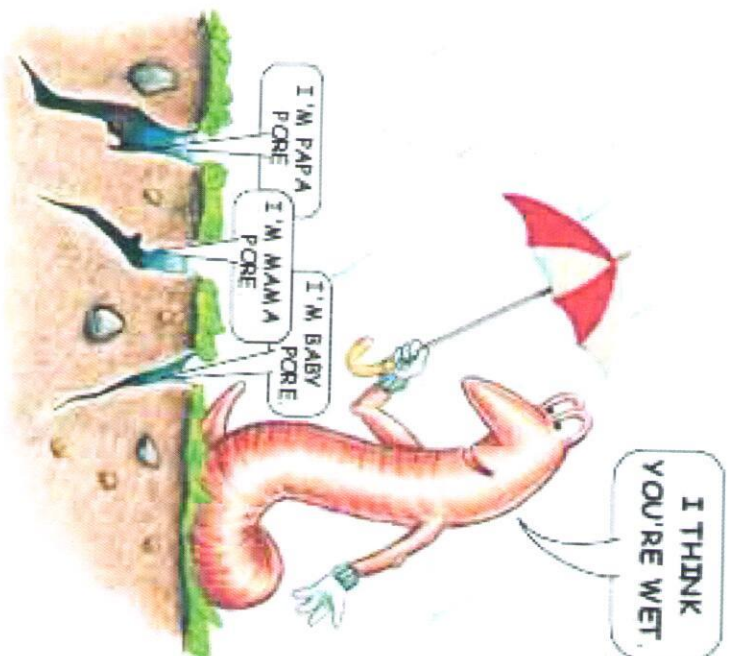


- They sure do!
- Soils can come in black, red, yellow, white, brown, and gray. Not exactly a rainbow of colors, but they look good to me!

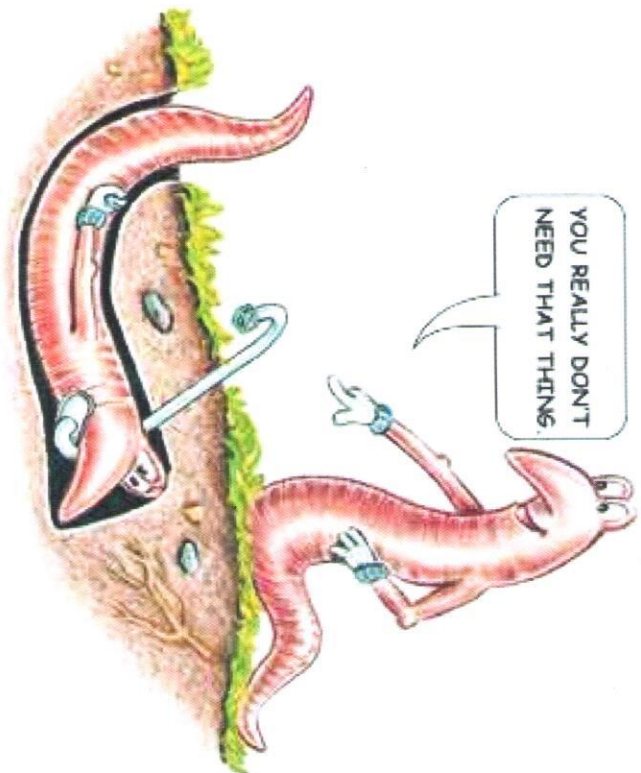


How does water stay in the soil?

- When water gets into the soil, it pours into pores. Pores are spaces in the soil that come in different sizes. The bigger the pore, the more water it holds.



How does air get into the soil?

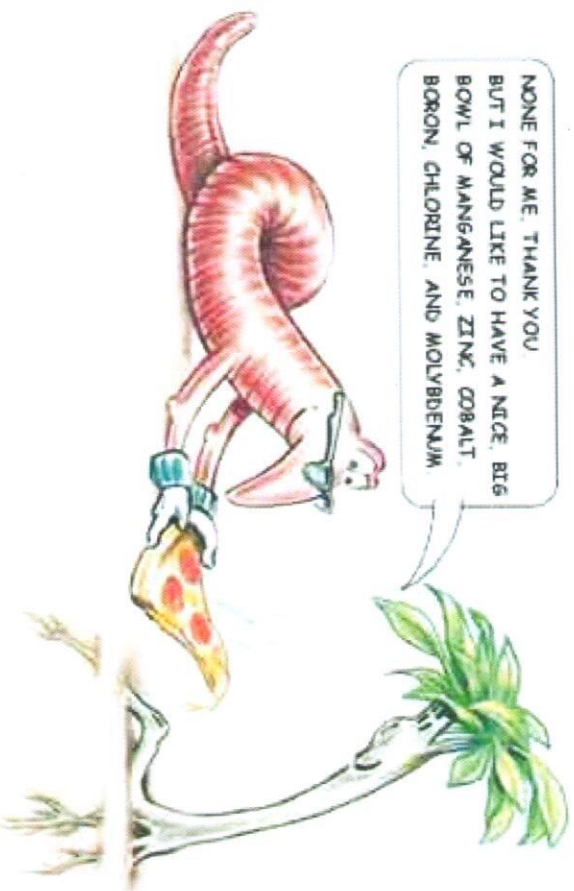


- The pores strike again!
- Air gets down into the soil through the same pores that let in and hold water. The burrows that I and my pals dig let in air, too. That's good news for undergrounders who need air. By the way, I don't have lungs for breathing. I breathe through my skin. Please, don't try this at home.

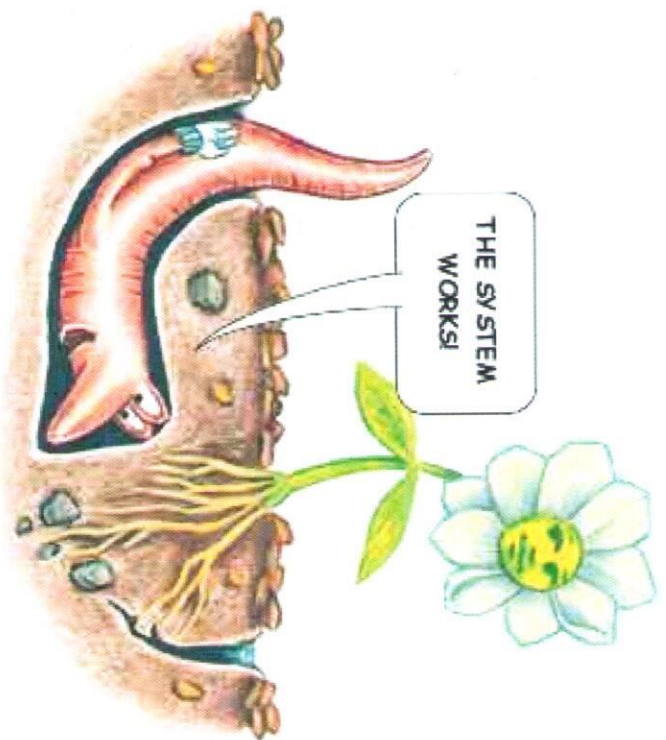


Why do plants like soil?

- Because they like to eat and drink.
- Soil has a lot of the things that plants need to satisfy their appetites. But not for pizza or banana splits. Those are too big to fit in the plant's roots. Plants have a hunger for nutrients with really strange names that you'll learn in high school.



Do roots just like soil?

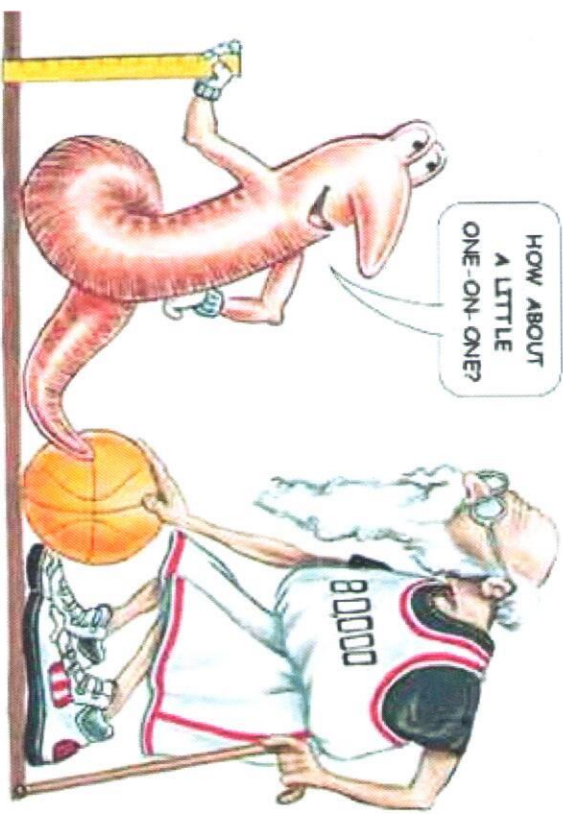


- No way!
- Roots love helping others. They drain water from the soil. That keeps the soil from staying too wet. And when the soil gets too dry, roots draw up water. This water has all kinds of good stuff in it that living things need to stay healthy. Roots help make soil, too. They split rocks into pieces that later become soil.



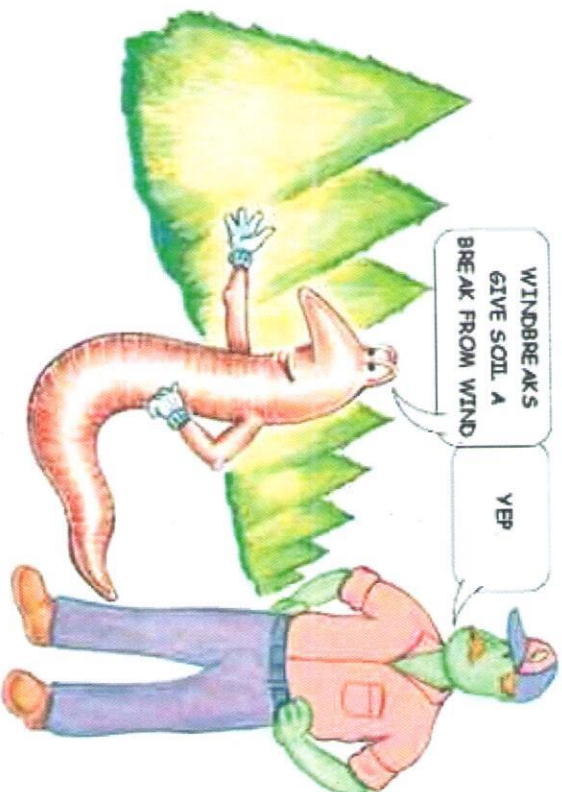
Does soil care about time?

- Soil is never in a hurry.
- Especially when it comes to making more soil. It can take 500 to 1,000 years to form one-inch of topsoil. If people grew that slowly it would take 80,000 years to grow a basketball player. Incredible!



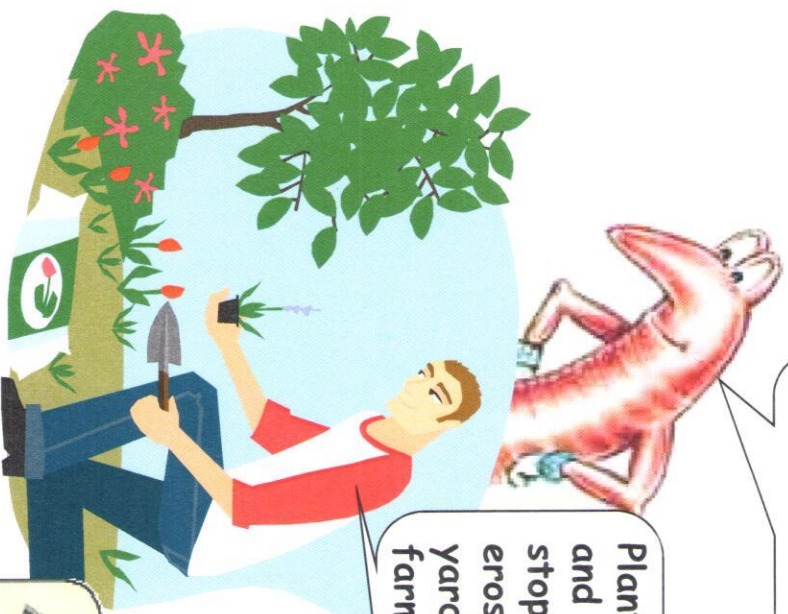
Can we keep the soil from blowing away?

- Wind erosion
- And there's soil saving going on right now. One way is with windbreaks, rows of trees that are planted beside fields to keep the soil from blowing away. The next time you're out in the country, take a look at the farmland and see all of the ways farmers keep their soil at home.



Can we keep the soil from washing away?

- Water erosion
- People are using plants and grass to hold the soil down. Farmers care for the land to keep the soil on the land so they can keep on growing food for us and help keep the water clean.



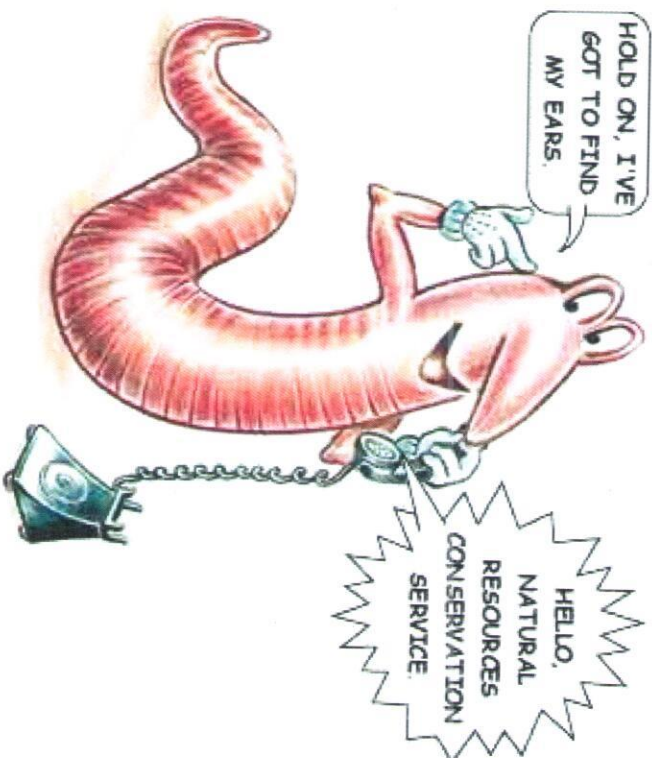
We can keep the soil from washing away by planting grass and trees.

Planting grass and trees stops water erosion in your yard and on farms.



What is soil conservation?

- It's smart.
- Soil conservation is the best way to make sure that we have the land we need to live on or, in my case, live in. If you see your soil eroding, protect it with grass or plants. If you see something that's making the soil sick, do everything you can to make the soil healthy again. If you live on a farm, make sure that the soil on your fields and pastures stays right where it is right now! Call my pals at the Natural Resources Conservation Service. They'll tell you all you need to know to get things going and growing!



You now have a worm's-eye view of that wonderful stuff we call soil. You are now such an amazing soil expert that you definitely deserve something special... A soil certificate!



S.K. Worm

*This certificate shows everybody in the world that you know a lot of really cool stuff about soil.
It also grants you the wonderful privilege of being a honorary worm.
To keep this privilege, you must promise to take special care of the soil and all natural resources.
And, you must always pick up worms off by sidewalks and gently put them
in the grass so they can live happily and healthily lives.*

S.K. Worm
Natural Resources Conservation Service



You are now a soil expert.

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