



## TXT MSG FRM UNDR UR FT

What do **YOU, GORILLA's** in the Congo and **COLTAN** all have in common? Your **CELL PHONE!** Let's start with the coltan. It's a metallic ore that is mined out of the soil and is then refined into a heat-resistant powder. It does a great job of holding an electric charge in your cell phone.

The mining isn't easy on the people who do it... or the soil. Workers dig by hand large holes in streambeds, scraping away surface soils so they can get to the coltan. Where do gorillas fit in?

The main area where coltan is mined, in the eastern part of the Congo, is also home to the Mountain Gorilla. Clearing the soil to make mining coltan easier for the workers destroys the gorillas' food sources and homes. Speaking of food sources...the miners are far away from food supplies and so they hunt and eat the gorillas. It is estimated that in some areas the gorilla population has been cut in half. What can you do? **RECYCLE** or **DONATE** your used cell phone. Check out [www.eco-cell.org](http://www.eco-cell.org) for information on one outlet for recycling your cell phones. By recycling or donating your cell phone you can help fund the Diane Fossey Gorilla Fund International! You can also work with a local organization in your community that recycles cell phones.



## Ask Maxine

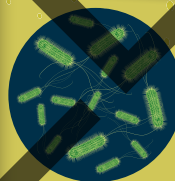
### Question:

I've always been interested in microbes. I think it is really cool to look in a microscope and see all of the organisms that are living around us that we can't see. Now that I know we can't live without healthy soil I was wondering if there is a career that would combine my interest in microbes with a job related to soil?



Maxine worked for NACD for 47 years. That's why we always ask Maxine.

### Answer:



There is a career that would combine your interests AND give you the opportunity to protect your own future! You should consider being a **Soil Microbiologist!** Your job could include:

- Investigating the response of soils to specific management practices and their effects on soil productivity.
- Investigating soil problems and poor water quality to determine sources and effects on humans and animals.
- Developing methods of conserving or managing soil that can be applied by farmers, forestry companies and other soil industries.
- Performing analysis of the microorganism content of soils to determine microbial reactions to plant growth.



I'm excited for you! There are many careers in the soil science field. I think you'll find one that you will enjoy!



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Conservation Districts

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**Soil**  
**Science**  
Society of America

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**Fig 4 Microbe Mix-Up:** BACTERIA, COMPOUNDS, ELECTRICITY, ENVIRONMENT, GENERATE, GEOBACTER, RADIOACTIVE, SOIL, TOXINS, WASTEWATER, WILDLIFE. Healthy soil... we have to have it.  
**Fig 5 Dig in & Fuzzle It Out:** NOSE: Trees and plants that grow in the soil provide us with oxygen to breathe. GLASS OF WATER: Soil filters and cleans our water. CORN STALK: Almost all of the food we eat grows in soil.  
**Fig 7 Profile It:** O = "Litter helps prevent erosion and holds in moisture in this horizon. A = The presence of animals and plants in the layer near the surface helps loosen and aerate this horizon. B = This horizon is tightly packed. C = This layer contains unconsolidated materials from which the soil forms. R = The solid material found at the base of the soil profile.  
**Fig 7 Fact or Fiction:** Only one fiction - The movie "Teenage Mutant Ninja Turtles" was inspired by the hatching of mutated sea turtles in the contaminated sandy soil on the island of Patumase.

#### ANSWER KEY

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Microbe images courtesy of Professor Derek R. Lovely,  
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Level 4 Grade 6 & Up



SOIL+WATER=CLOTHING,  
Food & More!



# Have You Used Any Soil Today?

Do you think you have used any

6:50 a.m.

Your alarm goes off for the third time, you can't hit the snooze button again, and you **HAVE** to get out of bed. Does this sound like you?

**YES** ☐ **NO** ☐

If you marked any of the "yes" boxes **YOU USED SOIL** within the first hour you were awake today! Soil is involved in almost every aspect of our lives. Most of us just aren't aware of it. For example:

Life Above Ground

Depends On Life Below Ground!

**HEALTHY SOIL...We Have To Have It!**

**Without healthy soil YOU may have to do without:** cell phones, computers, homes to live in, air to breathe, food to eat and much more. Healthy soil needs air, water, minerals, organic matter and living elements such as insects, worms and microbes.

Let's talk about a few of the **microbes** that can be found in soil and why we are glad they are there!

Those microbes sure are smelly!



**soil today? Let's take a look at how you may have spent your first hour this morning. Mark any boxes that apply to you!**

**6:55 a.m.**

You drag yourself into the shower, or to the sink, and turn on the water. Did you do one of these?

**YES ☐ NO ☐**

**7:05 a.m.**

You put on some deodorant and pull on a pair of jeans and a shirt. Do either of these apply?

**YES ☐ NO ☐**

**7:15 a.m.**

You head for the kitchen and eat a bowl of cereal with milk. Did you have cereal or milk this morning?

**YES ☐ NO ☐**

**7:25 a.m.**

You hop on the bus, into the car or onto the sidewalk and text a friend on the way to school. Do any of these sound familiar?

**YES ☐ NO ☐**

**7:55 a.m.**

You slide into a seat and log in for your first class of the day, Computer Literacy. Did you use a computer this morning?

**YES ☐ NO ☐**

Wherever you were sleeping when the alarm went off, wood is part of the building. Wood comes from trees that grow in soil.



Those jeans you wear are made from cotton, which comes from plants that grow in soil. Also, most deodorants contain aluminum which is mined from the soil.



If you used a cell phone to text this morning you used soil. Cell phones contain coltan, a mineral mined from the soil.



Last but not least if you used a computer this morning, you used soil. Copper, used in computer motherboards, is mined from soil.



You count on clean water when you step into the shower or up to the sink. Soil filters and cleans the water that is stored in underground rivers, aquifers and wells.



The milk you had for breakfast comes from a cow that eats hay grown in soil and cereal is made from grains that grow in soil.



The road your bus or car used or the sidewalk you used are placed on soil.

**You Have Used Soil Many times Today!**

## Actinomyces The Smelly Microbe

These bacteria help decompose organic matter which helps plants absorb nutrients and provide us with healthy food to eat. They also produce antibiotics to fight diseases. Actinomyces are responsible for the earthy smell you notice when you are near a freshly tilled garden or field.



navy bean



## Did You Know?

Millions of microbes can live in one gram of soil! One gram of soil is about the size of a navy bean.

## Have You Thanked a Microbe Lately?

Soil microbes break down and recycle the nutrients found in organic material into forms that plants can absorb and use. Why should you be grateful? **List the food you have eaten in the last 24 hours.**



**BREAKFAST**

**LUNCH**

**DINNER**

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**Now circle the food items that have ingredients that come from plants or animals.** Almost everything we eat is based on plant material or animals that eat plants!