

P6C Day 11, Soil - Greener

Name: Daniela Bravo

Username: Dani776

School: Olympian High School



Reflection

The aspects of regenerative agriculture that I can apply locally is starting a home compost bin and maybe even expanding to a community compost in order to feed the soil some more diverse nutrients. I could also plant cover crops like legumes and clovers within my own yard and cover the soil in straw or wood chips to retain moisture and provide a slow release of carbon into the soil.

My three interesting findings:

- Healthy soil consists of millions of bacteria that we can't see which are the most vital part of the cycle.
- Carbon is stored in plant roots and 40% of it leaks out into the soil which feeds the microorganisms.
- Pockets of air in the soil created from organic matter allow plant roots and microorganisms to move through it. The pockets also allow the soil to absorb water which is why more compacted soil has water runoff.



My Hero Journal

Soil Quest

Questions Soil Map

Grass
Street
Sidewalk
Houses
Concrete
Houses
Sidewalk
Street

- Moist, sticks together, soft, dark.
- Dry, dusty, rocky, light brown.
- Dry, does not clump together, falls apart, very light.

Observations:
I notice that the soil with grass on top of it and in yards is more wet and malleable, while the dirt on the edges of sidewalks, streets, and houses is dry and dusty. This may be because there are no nutrients being cycled on the surface of soil under concrete. However, in yards and lawns there is grass, keeping it moist.

Peeking under the plants

I notice that there are many ants running up the bush. The soil is cool and smells moist.

I wonder why lots of grass grows here but not many other plants.

It reminds me of the soil in my yard underneath my grass.

Bare Soil

The bare soil with no plants is very dry and does not clump together at all. It's dusty and crumbly. There are patches of this dry soil within the moist and soft clay like soil under bushes and plants.

The soil underneath plants seem to hold moisture a lot more effectively.

Wet soil

Sample 1: The soil sticks together easily. This was soil gathered from underneath grass.

Sample 2: The soil falls apart quickly and has no chance of clumping. This was soil gathered from a bare part in my yard.

When soil sticks together when wet, it means it is more effective at retaining moisture, being more beneficial for plants that need lots of water.

Soil in water



After mixing some soil from my side yard with water, a lot of it settled to the bottom, then there was a layer of water then some more soil above that. I believe the looser soil and woody pieces floated to the top, does that mean it does not absorb water well?

My Hero Journal

📍 Whats in the soil

Sample 1: This soil is dry and contains many rocks and a little bit of twigs. It smells like cool dirt and is the lightest in color.

Sample 2: This soil is a little bit moist and slightly clumps together. There is not much organic material and it smells of wet clay or paint.

Sample 3: This soil is cool and contains lots of chunks and clumps. It is filled with organic matter like twigs, woodchips and dried leaves. In the soil was many small young isopods and ants. It smells of moist dirt. This was also the darkest colored dirt.

Questions know, need, do

K
I know that soil releases carbon dioxide when it is tilled and plants capture carbon dioxide through photosynthesis. I also know that conventional farming is destroying healthy topsoil.

N
How can we individually add more nutrients to our local soils? What kind of soil has the least amount of nutrients? Which has the most? How long does it take to restore soil health?

D:
I could start a compost bin and get the community involved in it.

Sample 1



Sample 2



Sample 3



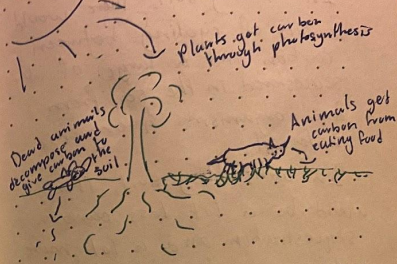
My Hero Journal

Uncover Healthy vs. Unhealthy Soil

Healthy soil is full of micro and macro organisms which allows nutrients to become available to plants. Healthy soil also contains organic matter, creating pockets for air and allowing roots and macro organisms to move through it more freely. A soil with these pockets can also retain water and sustain the living environment. Withered rocks also provide minerals to the soil which can be consumed by plants giving it vital nutrients.

Healthy Soil	Unhealthy Soil
<ul style="list-style-type: none"> Retains moisture Light & Airy Dark color Filled with bacteria & fungi 	<ul style="list-style-type: none"> Does not absorb water Compacted Light in color Dry Not much bacteria or fungi

Plants, Animals, and Soil



Reflect

- Some soils may not have enough bacteria to cycle through nutrients and support life.
- The plants capture carbon from the atmosphere and store it in their roots which leaks out to the soil.
- When animals die, they decompose and give nutrients back to the soil.

Soil & Atmosphere

In healthy soil, there would be lots of cycling between carbon and a large of it sequestered in the soil from dead organisms & organic material.

In unhealthy soil, there would be a lot less carbon sequestration and a lot more carbon release from the tilling of soil.

Carbon Release: Carbon is moved out of the soil and roots of plants back into the atmosphere.

Carbon sequestration: Carbon is stored in the soil from dead organisms and decomposing organic matter as well as being captured from the atmosphere through photosynthesis.

Soil & Climate

- When there is too much carbon release without enough carbon sequestration, the carbon in the atmosphere increases.
- Carbon sequestration mostly happens within healthy soils.

Both diagrams describe how the soil intakes carbon and releases it.

In healthy soil, water is easily absorbed but in unhealthy soil, it is too compact to absorb water, making it runoff and causing erosion.

Instagram Post

https://www.instagram.com/p/CySbo_TuZno/?igshid=M3RlODBinWF1ZA==

