



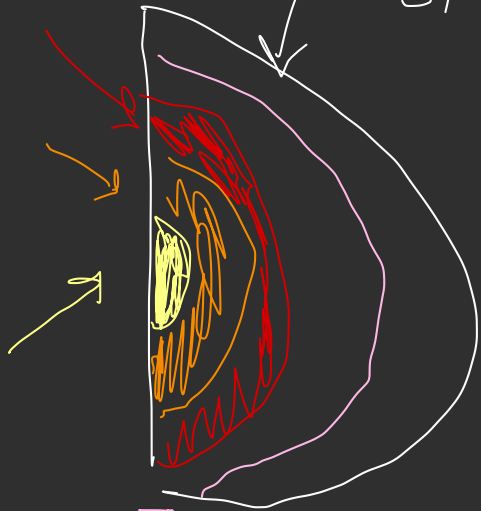
Soils: The **Living** Skin of the **Earth**

Lower Mantle

CRUST

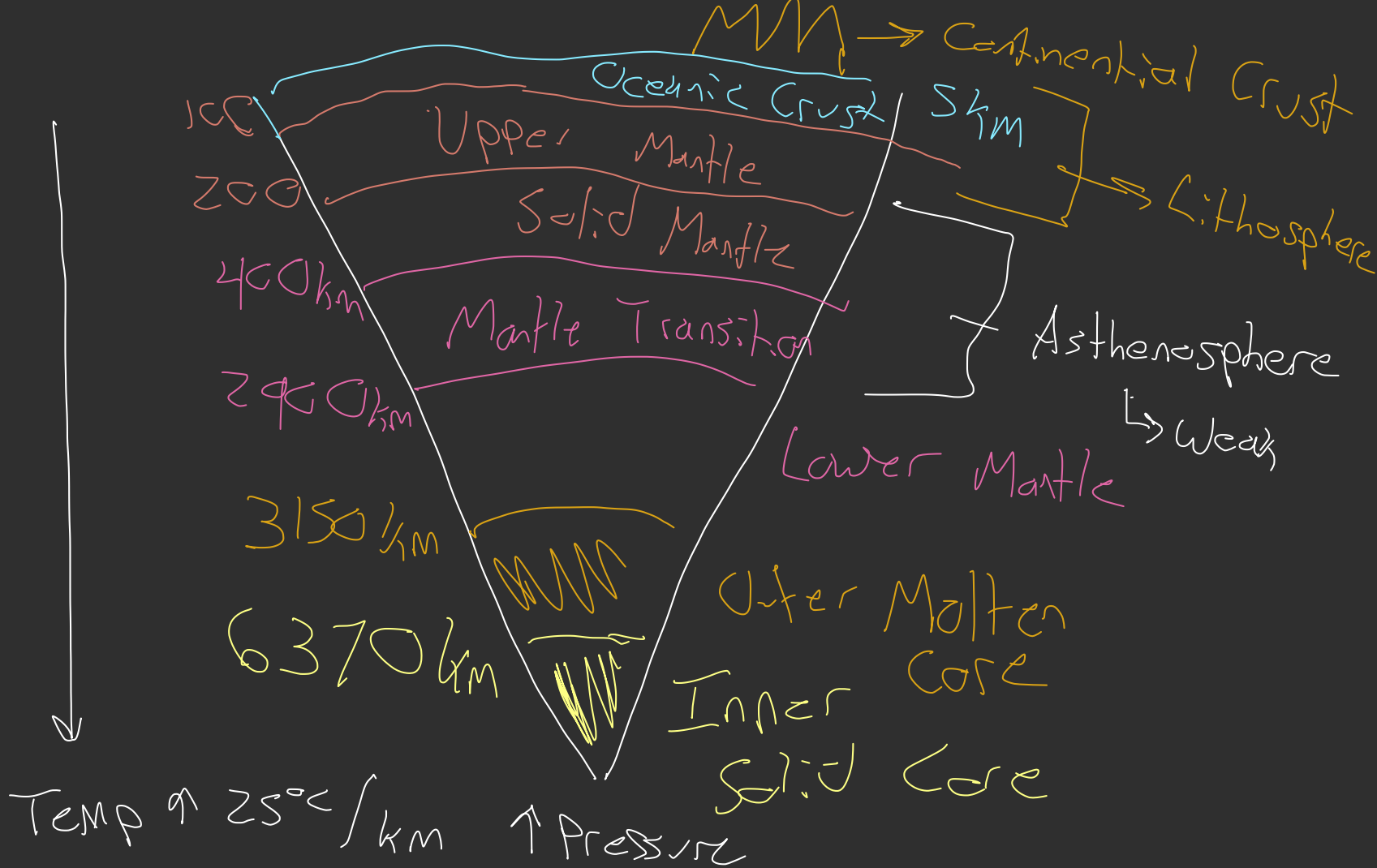
Liquid
Outer
Core

Solid
Inner
Core

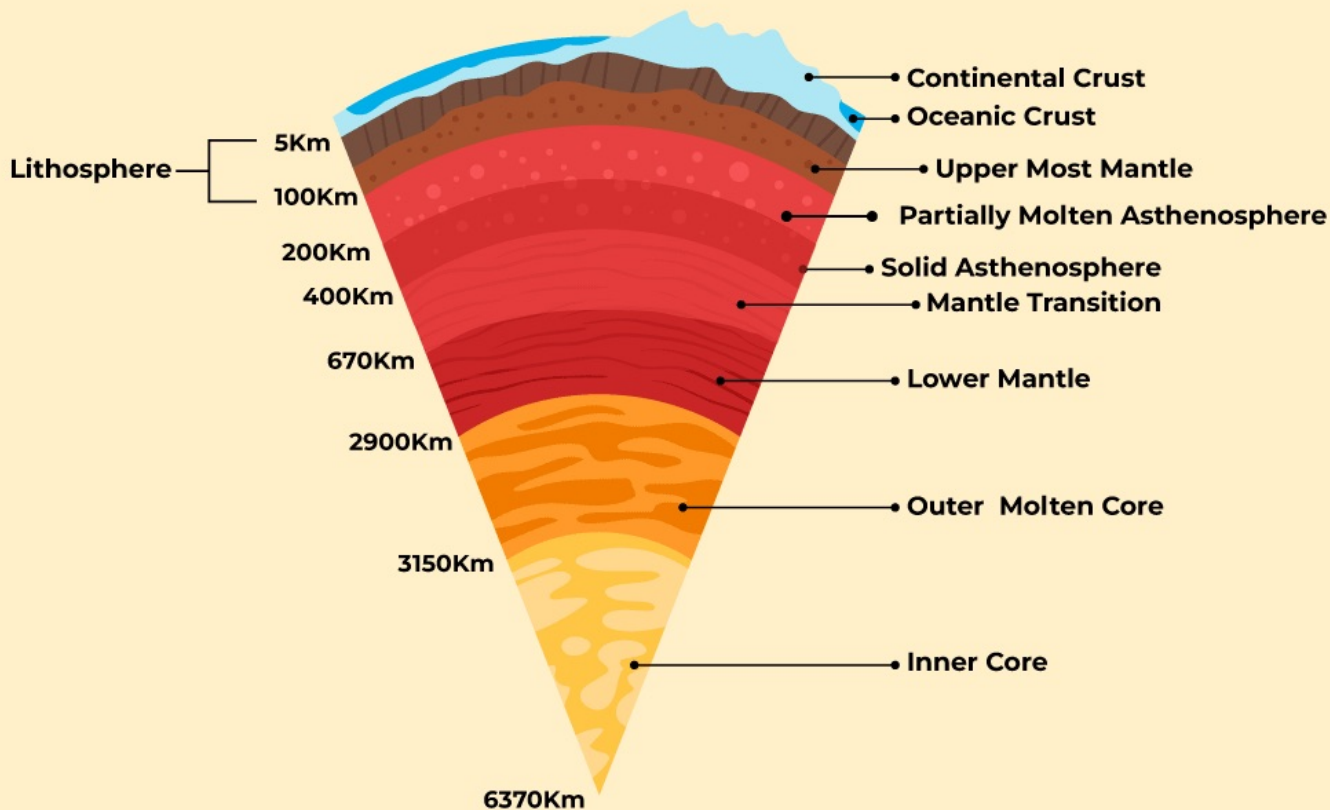


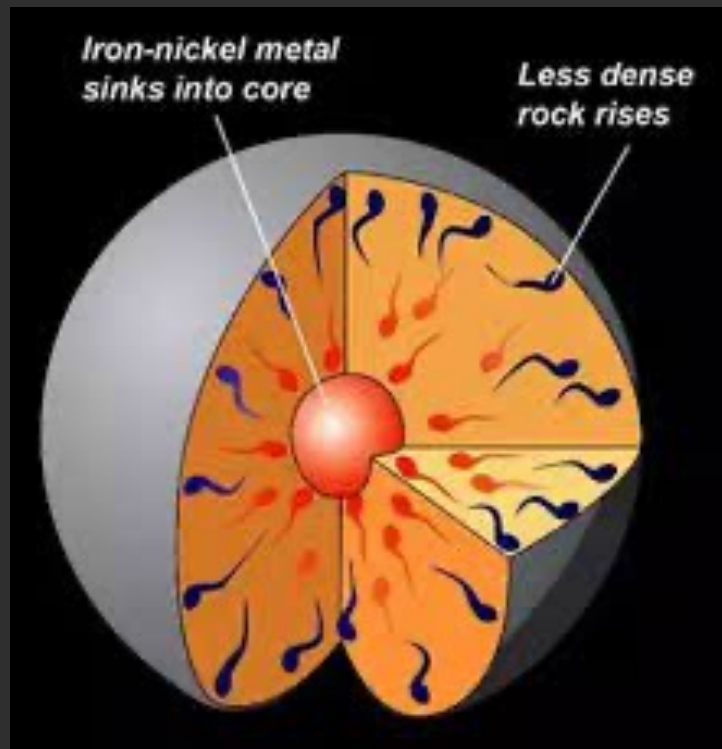
Upper mantle





Earth's Interior





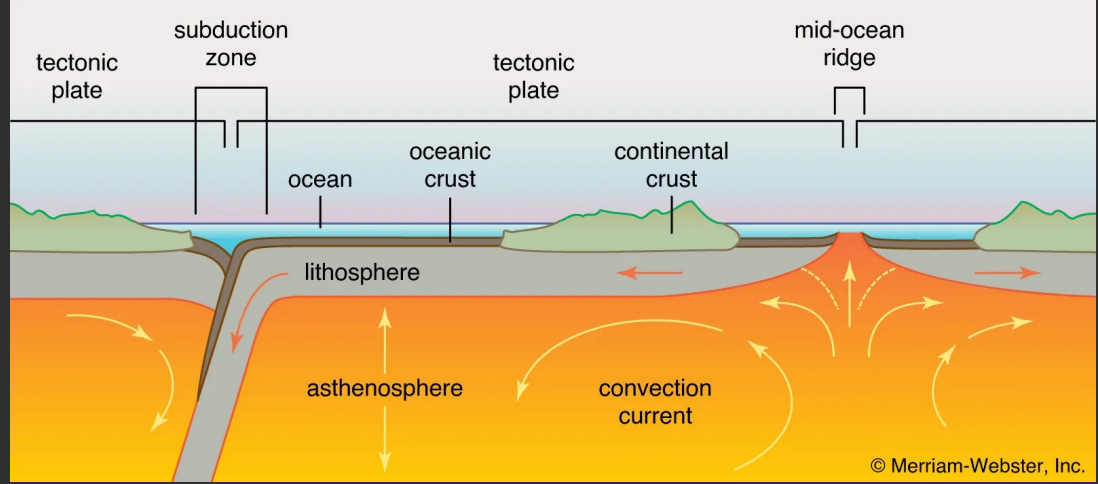
Core

→ Fe, Ni, S

→ Temp:

Inner: 5,000 - 6,000 °C

Outer Core 4,500 - 5,000 °C

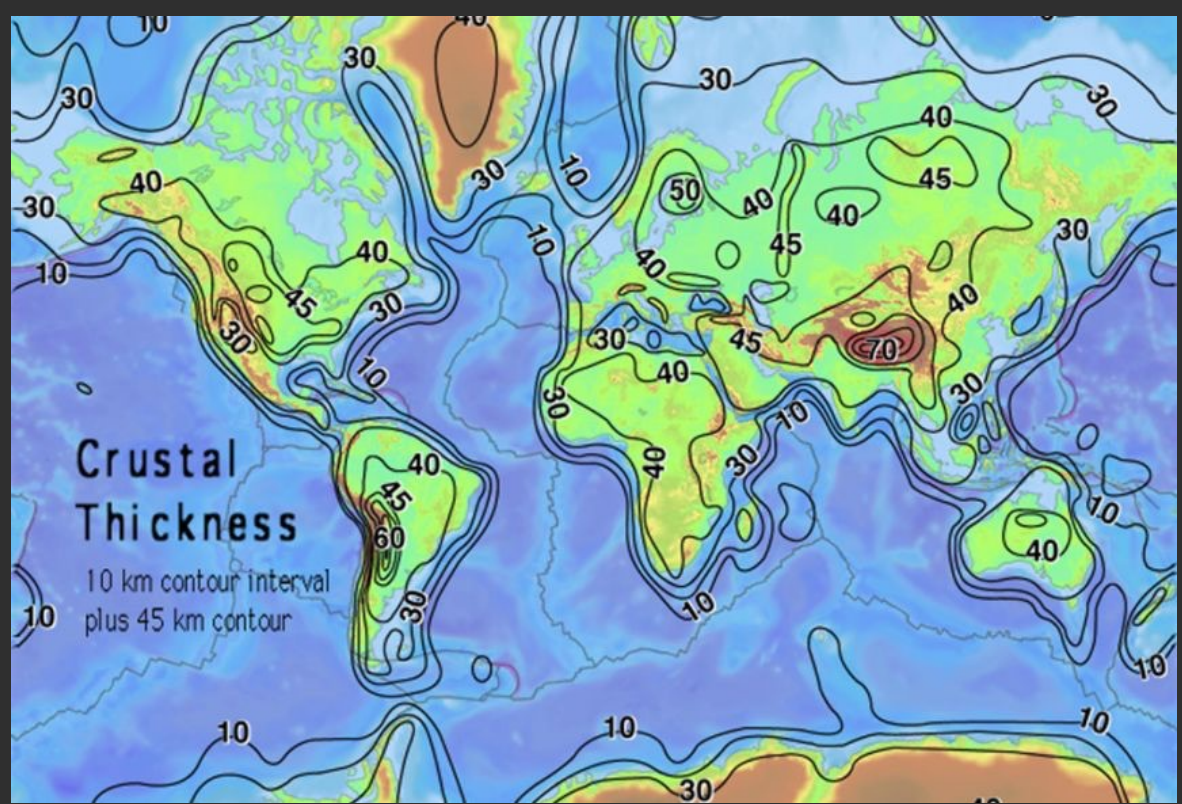


Crust

→ S, A,

Varies in

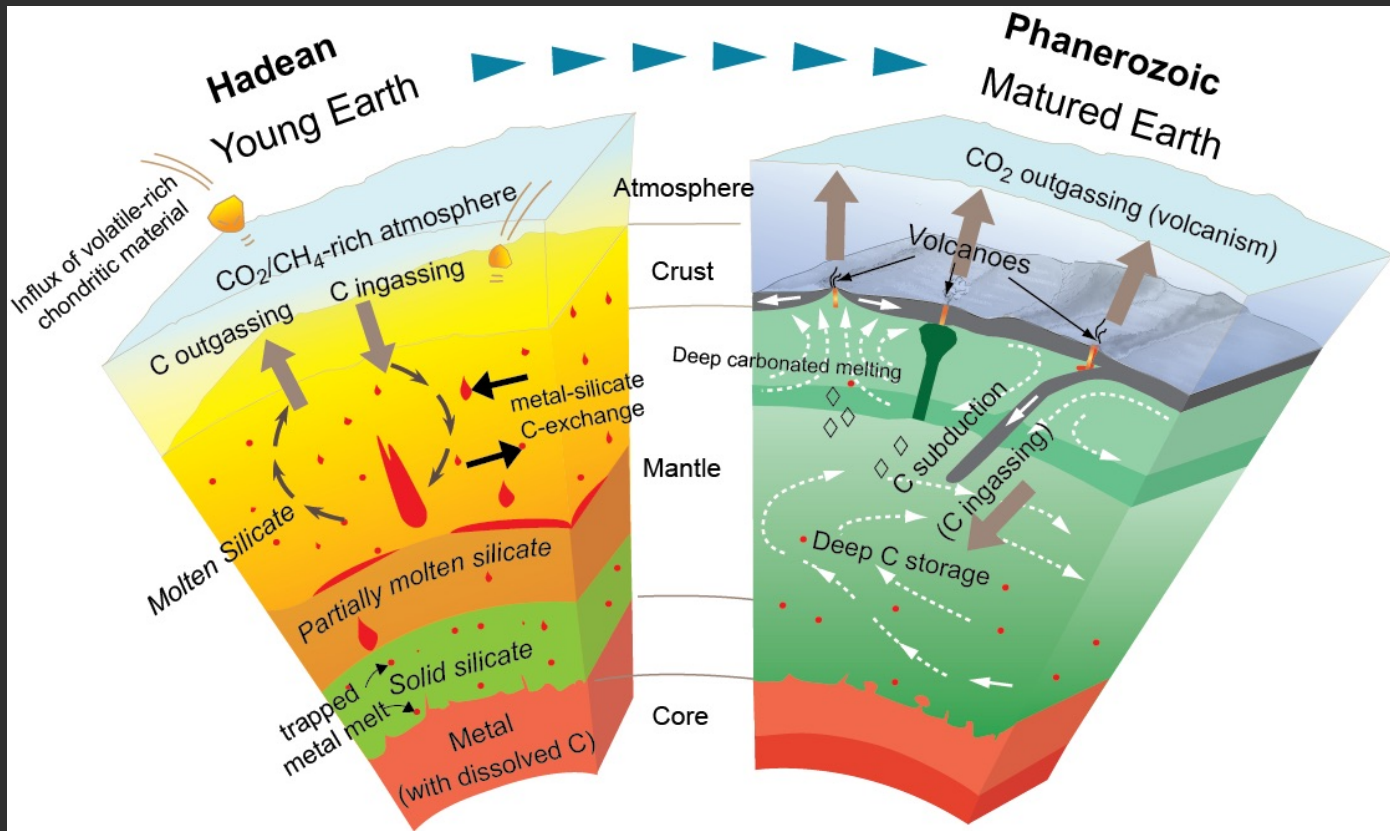
Thickness



Isostasy → Physical, chemical,
and mechanical differences that
allow crust to float.

→ As mantle cooled, water
trapped inside mineral erupted;
Outgassing and solidifying mantle

→ Some materials remained liquid
"Incompatible materials" → Eventually ^{become} crust



CRUST = Lithosphere

- Igneous
- Metamorphic
- Sedimentary

- Oceanic Crust → Dense!

→ 5-10 km

Comes from "Sima" Silicate, Magnesium Igneous
Mid-ocean ridges Rocks

Continental Crust

- Up to 70 km

thick

"Sial" = Silicate
and Aluminum
Intrusive

rocks
- Formed in
orogeny









Igneous → ignis = fire
ous = full of fire

→ Cooling and solidification
of magma or lava

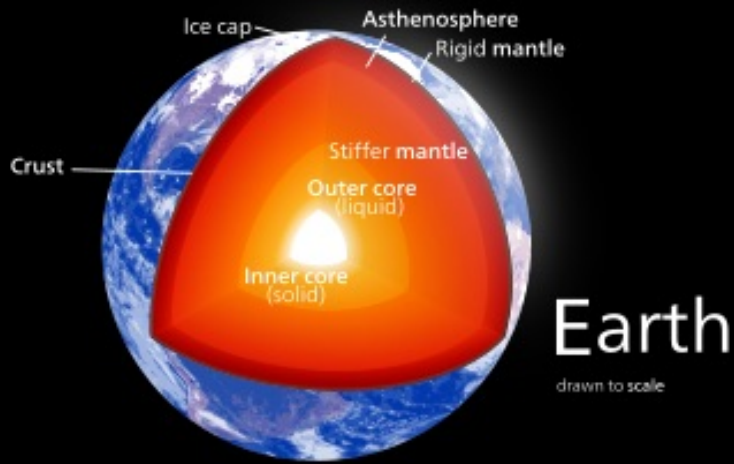
↑
Melting
of
Mantle
or
CRUST
75% → Crust

↓
Partially
melted
rock
expelled
from
interior
of planet



Intrusive = cools and
solidifies in crust
Extrusive = cooling and
solidifying on the surface

Note: I was wrong - More like 8-6%. oops



Sedimentary ρ

→ Accumulation or
deposition of mineral
or organic matter particles
on Earth's surface

→ $73\frac{1}{2}$ Earth's surface
 $8\frac{1}{2}$ of the crust



Metamorphic

→ Transformation of
existing rocks to
new rocks

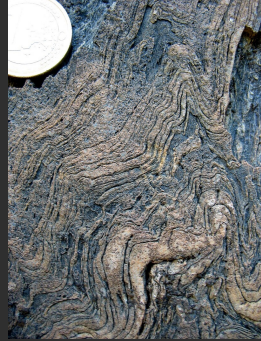
(Temp / Pressure)

$> 150 - 200^{\circ}\text{C}$

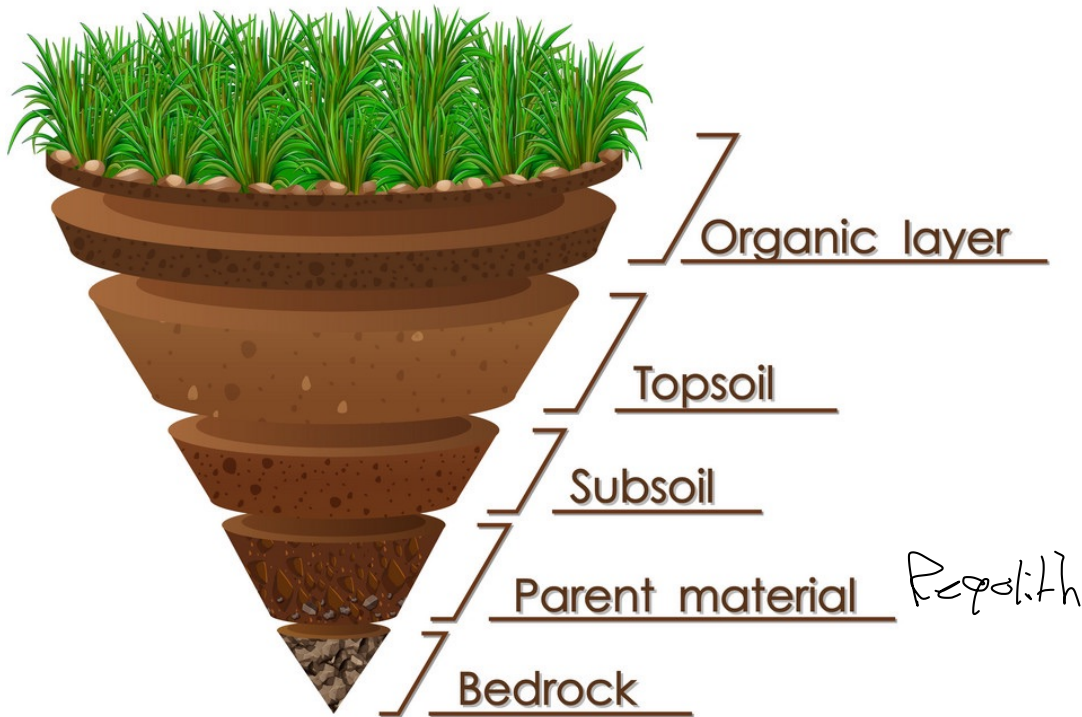
Gneiss, Marble, Quartzite

Note: I was wrong. More like 80-90%

$\approx 12 - 15\%$ of the crust



Soil Layers on Earth



2.5 - 5cm

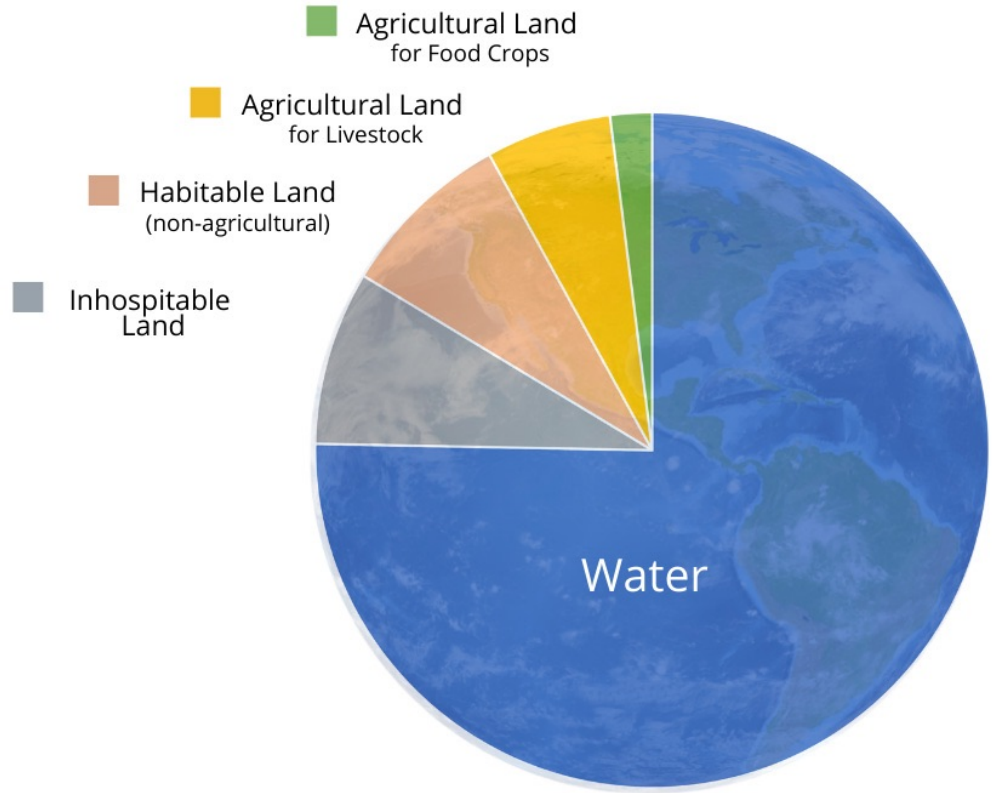
Thick

~ 10% of

Earth's
Surface

10%

So:1



Earth

In one m^2

of soil

→ 40 km!



In one gram
of soil how
many hyphae \approx
10 - 30 m



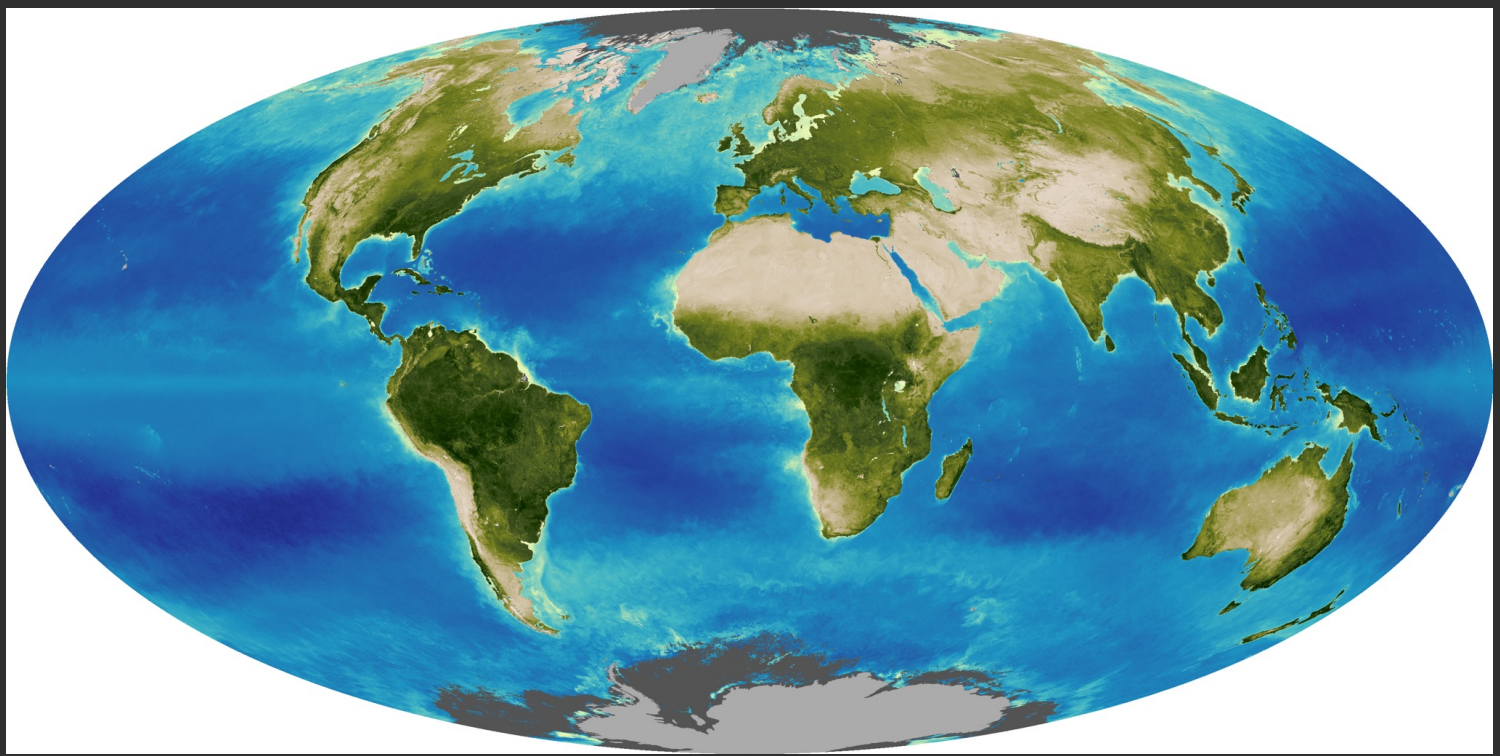


Arthropoda

Mites

250,000 species

100 genera



Soils: The living skin of the _____ Earth.

Altered

14% of

soil



MAPPING HUMAN MODIFICATION OF THE EARTH'S SURFACE

