

① BPGT — bugs eat stuff in the soil & poop out stuff that's good for plants (like NO_3^- & NH_4^+)

② Plants & animals require N to make proteins & DNA. Plants & animals cannot get N from the air.

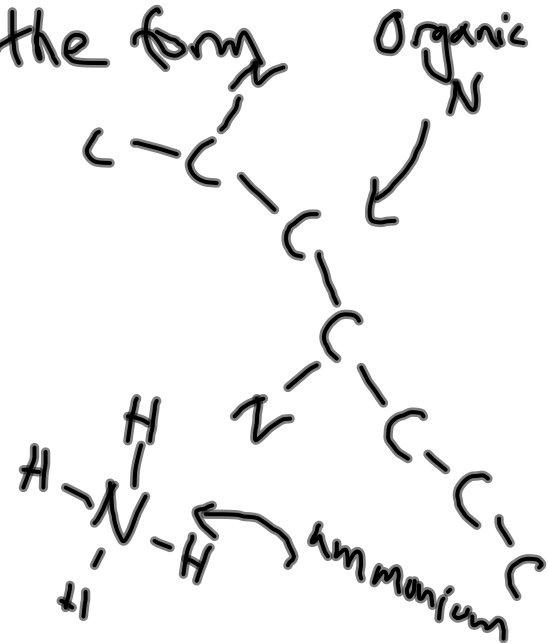
Bugs can eat soil debris & produce N that plants can use.



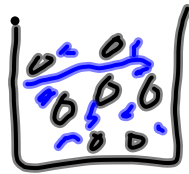
③ Soil organisms eat organic material & break it into smaller pieces.

★ Sometimes, organisms eat a little bit of soil particles to help them digest organic material

④ Organic nitrogen comes in the form of relatively long chains - too big for plant roots to absorb. NO_3^- & NH_4^+ are small enough to be absorbed.



⑤

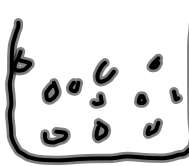


$$425\text{g} = \text{soil} + \text{water} + \text{beaker}$$

$$- 78\text{g (beaker)} = 347\text{g (soil + water)}$$

$$- 310\text{g (soil)} = 37\text{g (water)}$$

$$\boxed{} = 78\text{g}$$



$$308\text{g} = \text{soil} + \text{beaker}$$

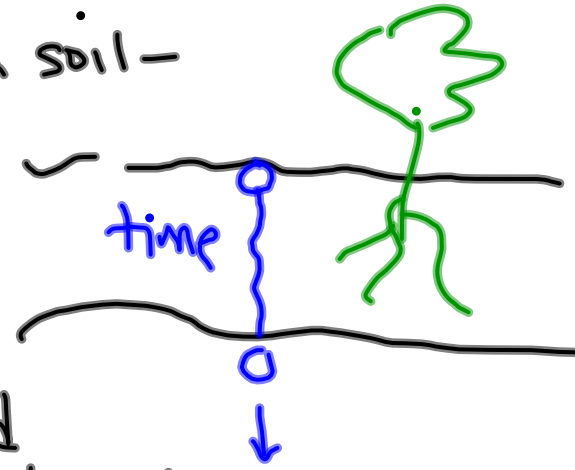
$$- 78\text{g (beaker)} = 310\text{g (soil)}$$

$$\frac{\text{mass of water}}{\text{mass of dry soil}} \times 100 = \text{water content (\%)}$$

$$\frac{37\text{g}}{310\text{g}} \times 100 \approx 12\%$$

⑥ Bleach kills all bacteria on instruments—
which allows us to see only the bacteria
from the soil

⑦ Soil permeability is the rate at
which water moves through soil—
generally, an "in between"
rate keeps enough water in
the soil for organisms to use
without drowning



⑧ Texture is the % of sand,
silt, & clay in soil (particle size)
—determines permeability, water
content, pH, nutrients, types of plants &
animals

