Wildebeest graze and defecate.

Take up the nutrients only if you have the correct soil microbe card.

Discard this card.

Wildebeest graze and defecate.

Take up the nutrients only if you have the correct soil microbe card.

Discard this card.

Wildebeest drink from a watering hole and urinate.

Take up the nutrients only if you have the correct soil microbe card.

Discard this card.

Wildebeest drink from a watering hole and urinate.

Take up the nutrients only if you have the correct soil microbe card.

Discard this card.

Wildebeest dies and soft tissue decomposes.

Take up the nutrients only if you have the correct soil microbe card.

Discard this card.

Wildebeest dies and soft tissue decomposes.

Take up the nutrients only if you have the correct soil microbe card.

Discard this card.

Wildebeest dies and bones leach inorganic minerals into groundwater.

Take up the nutrients.

Discard this card.

Wildebeest dies and bones leach inorganic minerals into groundwater.

Take up the nutrients.

Discard this card.
Plants use organic carbon for energy and respire CO₂.

Animals eat organic compounds for energy and respire CO₂.

Inorganic minerals leach into groundwater.

SOIL MICROBE

Denitrifying bacteria convert nitrate into N₂ gas that escapes to the atmosphere.

Discard this card.

Discard this card.

No nutrients available.
SOIL MICROBE
Denitrifying bacteria convert nitrate into N₂ gas that escapes to the atmosphere.

No nutrients available.
Discard this card.

SOIL MICROBE
Bacteria decompose complex organic matter into inorganic forms that are available for plant uptake.

Nutrient uptake enabled.
Keep this card.

SOIL MICROBE
Bacteria decompose complex organic matter into inorganic forms that are available for plant uptake.

Nutrient uptake enabled.
Keep this card.

SOIL MICROBE
Ammonifying bacteria convert organic forms of nitrogen into ammonium, a form used by plants.

Nutrient uptake enabled.
Keep this card.

SOIL MICROBE
Ammonifying bacteria convert organic forms of nitrogen into ammonium, a form used by plants.

Nutrient uptake enabled.
Keep this card.

SOIL MICROBE
Nitrogen-fixing bacteria convert N₂ from the atmosphere into forms used by plants.

Nutrient uptake enabled.
Keep this card.

SOIL MICROBE
Nitrogen-fixing bacteria convert N₂ from the atmosphere into forms used by plants.

Add one N every turn.
Keep this card.

DETRITIVORE
Termites transport and break down complex organic matter. Termite mounds are hotspots for productivity.

Double all nutrient uptake.
Keep this card.

DETRITIVORE
Dung beetles transport and break down complex organic matter.

Double uptake from defecation.
Keep this card.