BACTERIA



Bacteria

rods and dots (cocci)

Tiny dots and rods: the base of the soil food web.

BACTERIA

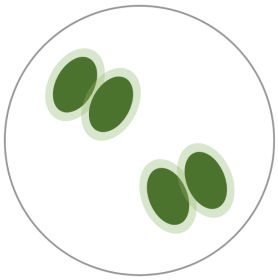


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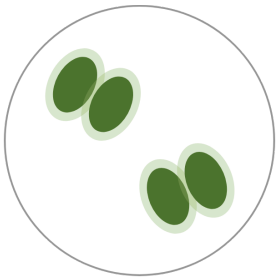


Azotobacter

nitrogen fixer

Fat paired cells that turn nitrogen from the air into plant food.

BACTERIA



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BACTERIA



Purple bacteria

PNSB

Purple-red rods that use light and clean up smelly, sour spots.

BACTERIA

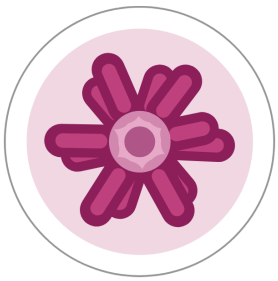


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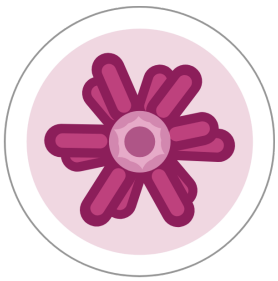


Purple bacteria rosette

PNSB

Purple rods spreading out from a soft centre, like a flower.

BACTERIA

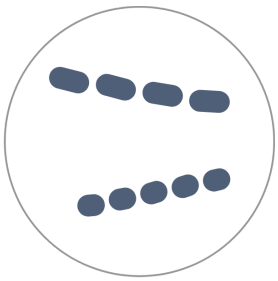


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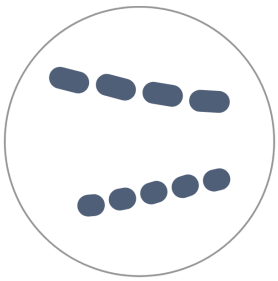


Lactic acid bacteria

LAB

Rods in short chains that ferment, as in bokashi and sauerkraut.

BACTERIA



Lactic acid bacteria

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Rods in short chains that ferment, as in bokashi and sauerkraut.

BACTERIA



Actinobacteria

Thin, branching threads that give soil its earthy smell.

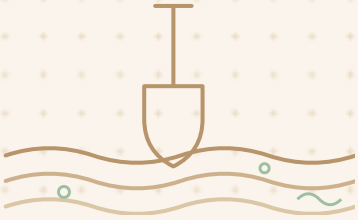
BACTERIA



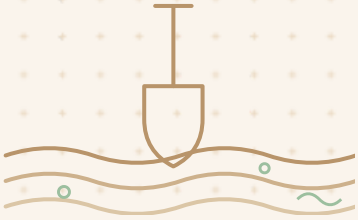
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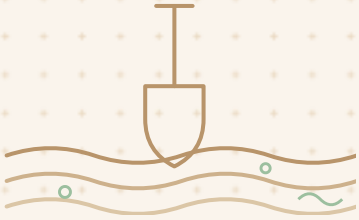
Dr. Dirt's
Dig Deeper



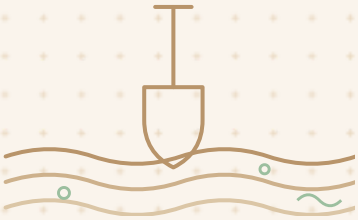
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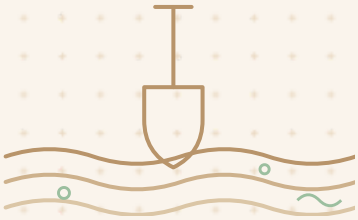
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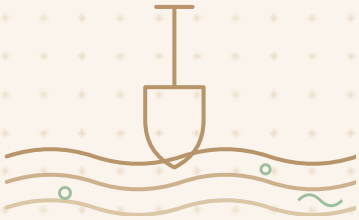
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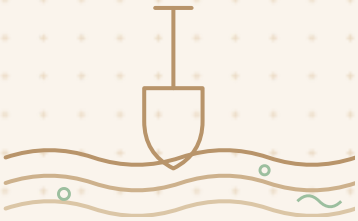
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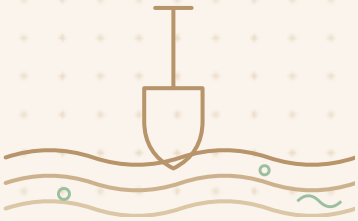
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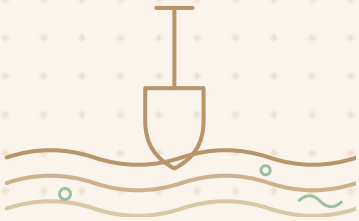
Dr. Dirt's
Dig Deeper



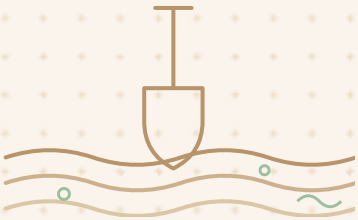
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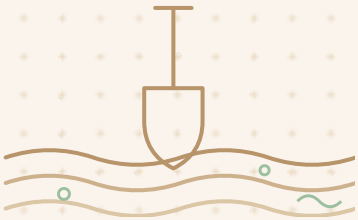
Dr. Dirt's
Dig Deeper



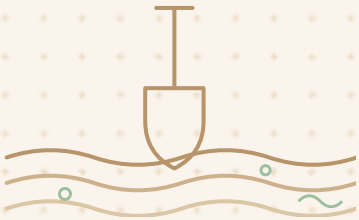
Dr. Dirt's
Dig Deeper



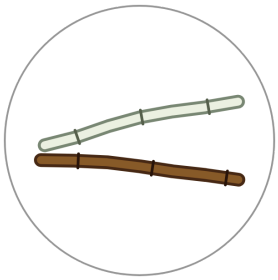
Dr. Dirt's
Dig Deeper



Dr. Dirt's
Dig Deeper



FUNGI

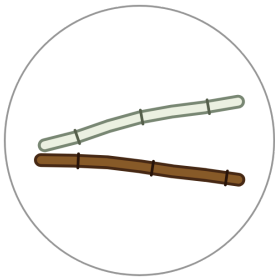


Decomposer fungus

clear or brown threads

Wide, even threads with cross-walls. It breaks down woody stuff.

FUNGI

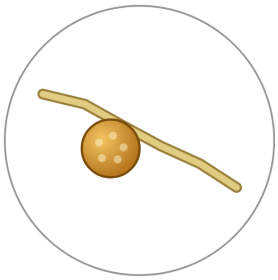


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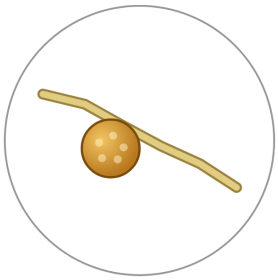


Mycorrhizal fungus

root-partner threads

No cross-walls, round spores. It trades water for root sugar.

FUNGI

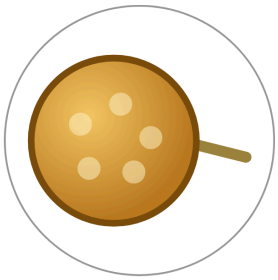


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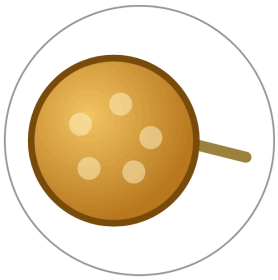
FUNGI



Mycorrhizal spore

A big round spore that grows a new root-partner thread.

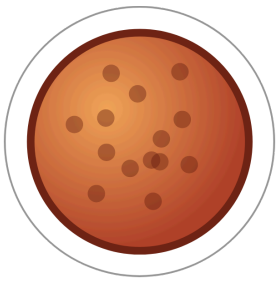
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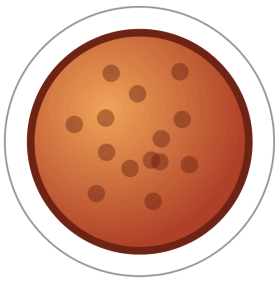


Acaulospora spore

volcanic soils

A pitted orange-red root-partner spore of young volcanic ash soils.

FUNGI

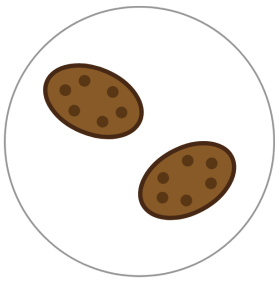


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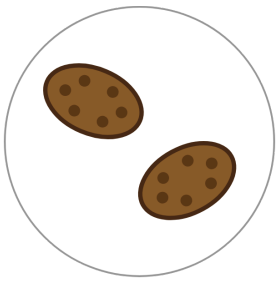


Forest root-partner spores

ectomycorrhizal

Small brown warty spores of fungi that wrap tree roots.

FUNGI

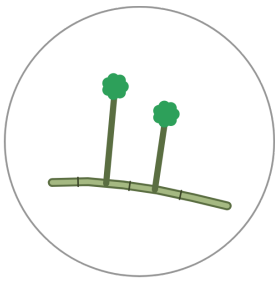


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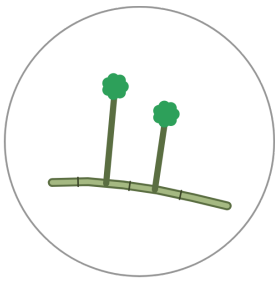


Trichoderma

helper fungus

Right-angle branches and green spore tufts. It guards roots.

FUNGI

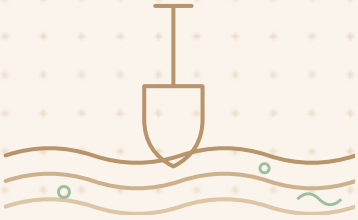


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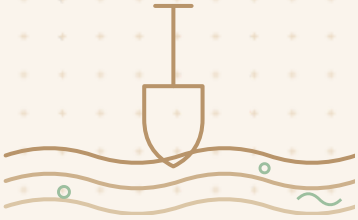
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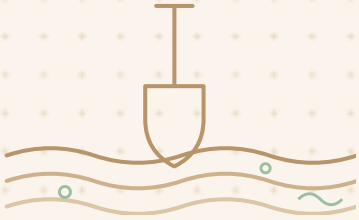
Dr. Dirt's
Dig Deeper



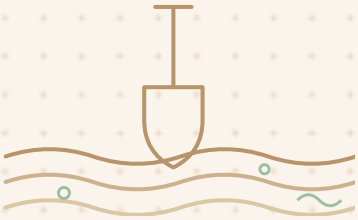
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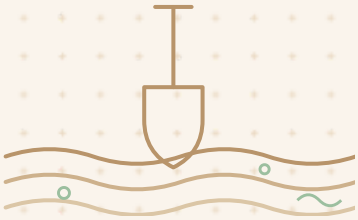
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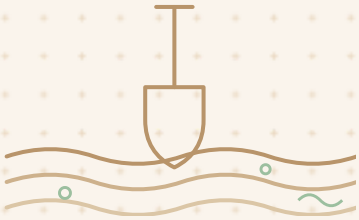
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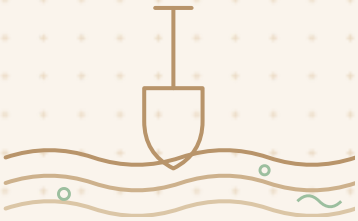
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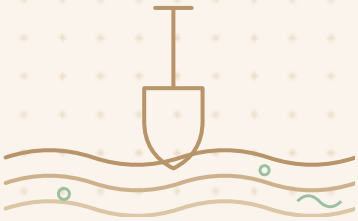
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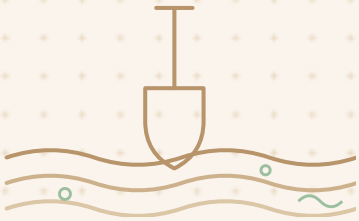
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Dig Deeper



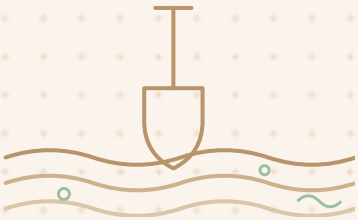
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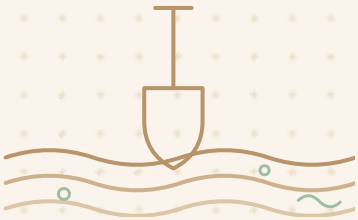
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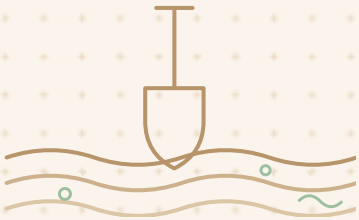
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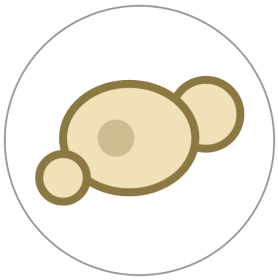
Dr. Dirt's
Dig Deeper



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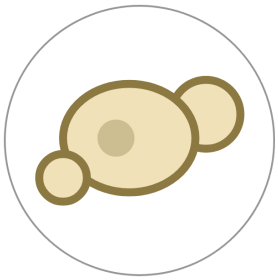
FUNGI



Yeast

A one-celled fungus that buds off little daughter cells.

FUNGI



Yeast

A one-celled fungus that buds off little daughter cells.

FUNGUS LOOKALIKE



False fungus

lookalike, often a water mold

Thin, wispy, broken threads. Not a true fungus.

FUNGUS LOOKALIKE

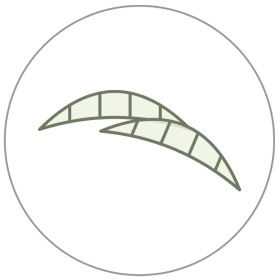


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DISEASE FUNGUS

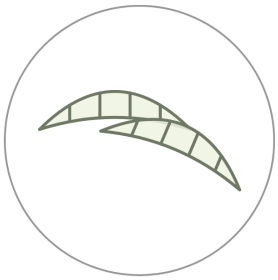


Fusarium spores

disease fungus

Clear curved canoes with cross-walls. It can cause root rot.

DISEASE FUNGUS



Fusarium spores

disease fungus

Clear curved canoes with cross-walls. It can cause root rot.

DISEASE FUNGUS



Alternaria spore

disease fungus

A dark brown club with a beak and a brick-wall pattern.

DISEASE FUNGUS

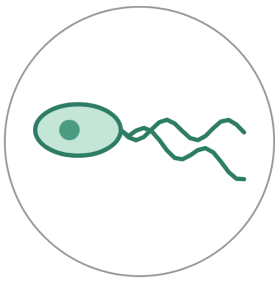


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disease fungus

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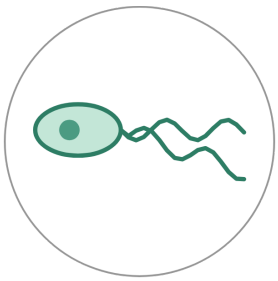
PROTOZOA



Flagellate

A small oval that whips about with its tails and eats bacteria.

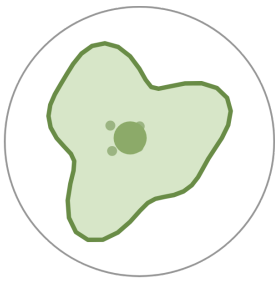
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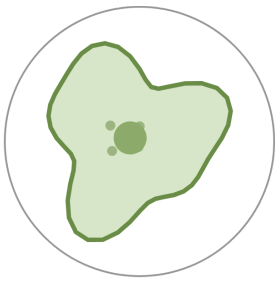
PROTOZOA



Naked amoeba

A shape-changing blob that squeezes into tiny pores to eat bacteria.

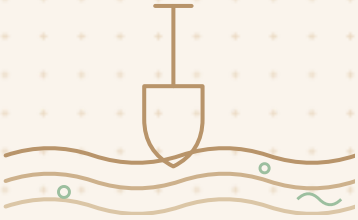
PROTOZOA



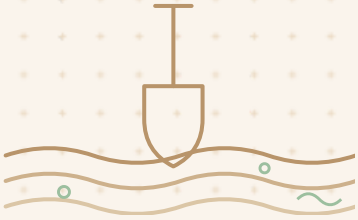
Naked amoeba

A shape-changing blob that squeezes into tiny pores to eat bacteria.

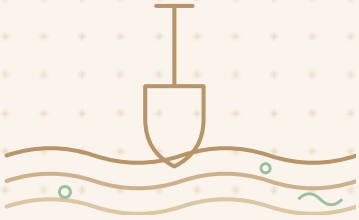
Dr. Dirt's
Dig Deeper



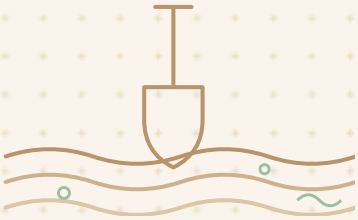
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Dig Deeper



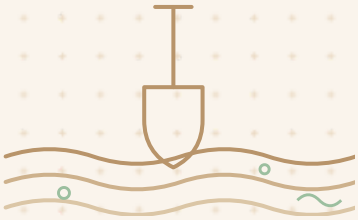
Dr. Dirt's
Dig Deeper



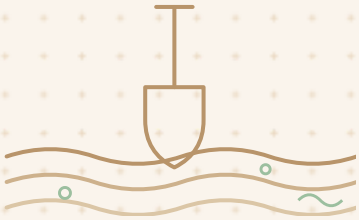
Dr. Dirt's
Dig Deeper



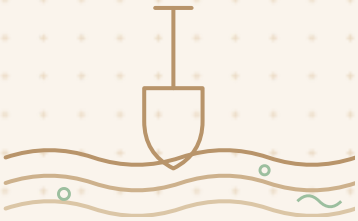
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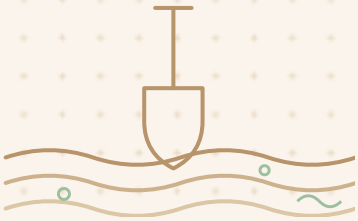
Dr. Dirt's
Dig Deeper



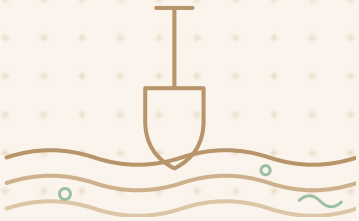
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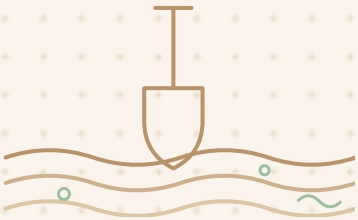
Dr. Dirt's
Dig Deeper



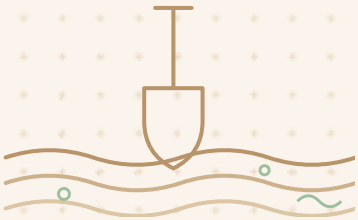
Dr. Dirt's
Dig Deeper



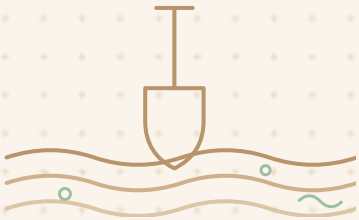
Dr. Dirt's
Dig Deeper



Dr. Dirt's
Dig Deeper



Dr. Dirt's
Dig Deeper



PROTOZOA

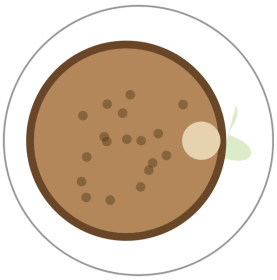


Testate amoeba

amoeba in a shell

It lives in a shell and pokes a soft foot out of the opening.

PROTOZOA

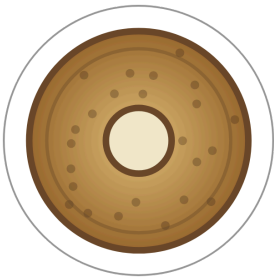


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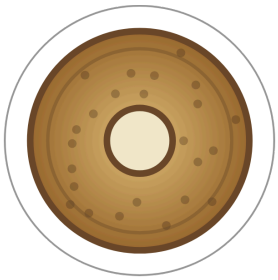


Arcella

testate amoeba, seen from below

A shelled amoeba that looks like a little brown donut.

PROTOZOA

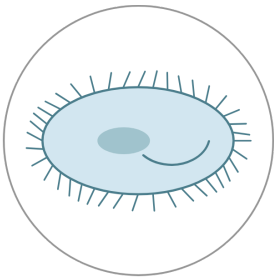


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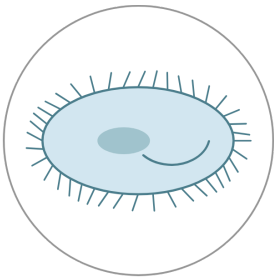
PROTOZOA



Ciliate

Covered in tiny hairs (cilia). A fast swimmer that eats bacteria.

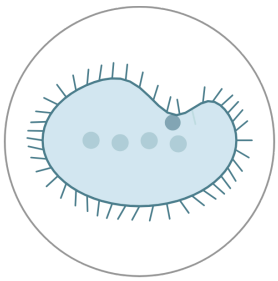
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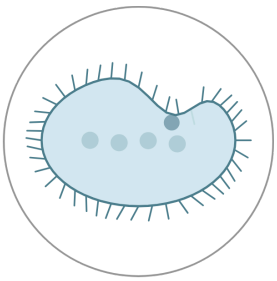


Colpoda

bean-shaped ciliate

The commonest soil ciliate, shaped like a kidney bean.

PROTOZOA

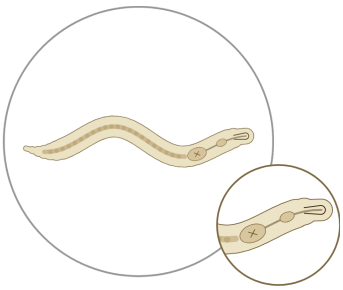


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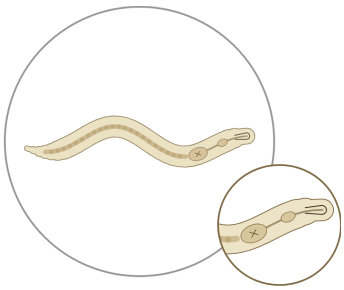
NEMATODES



Bacteria-eating nematode

An open tube mouth. It eats bacteria and releases plant food.

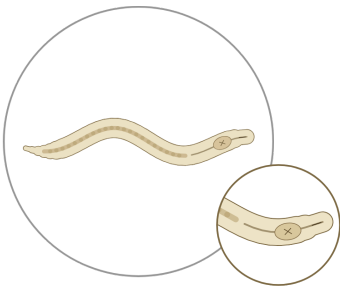
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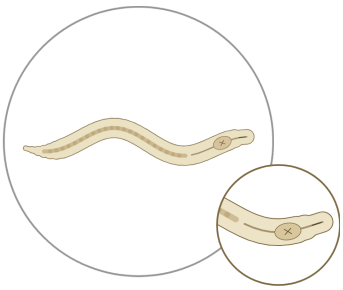
NEMATODES



Fungus-eating nematode

A thin, small spear for piercing fungal threads.

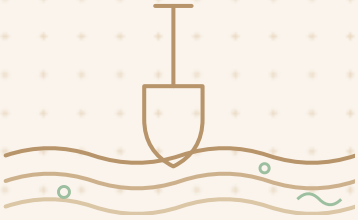
NEMATODES



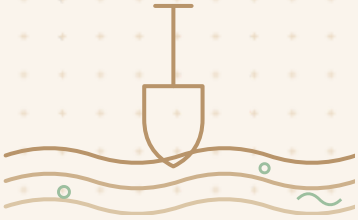
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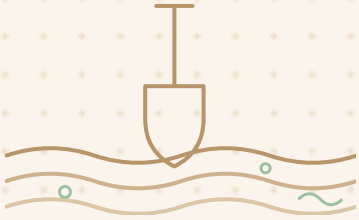
Dr. Dirt's
Dig Deeper



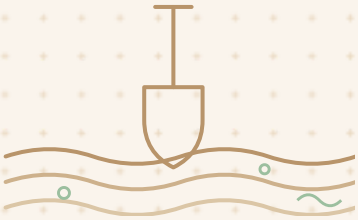
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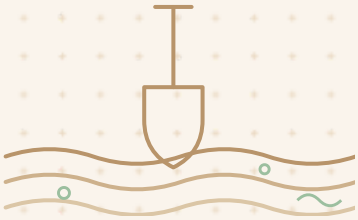
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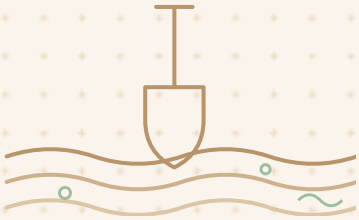
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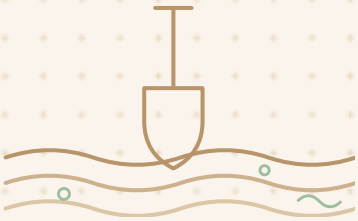
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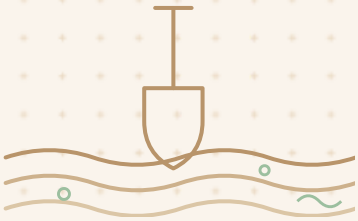
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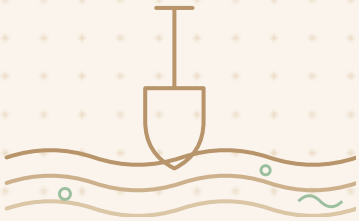
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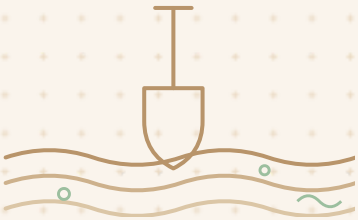
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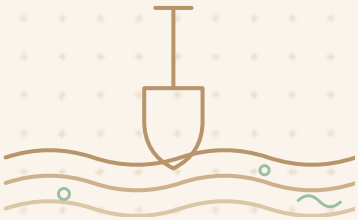
Dr. Dirt's
Dig Deeper



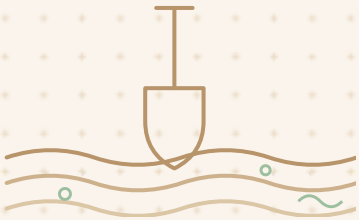
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Dig Deeper



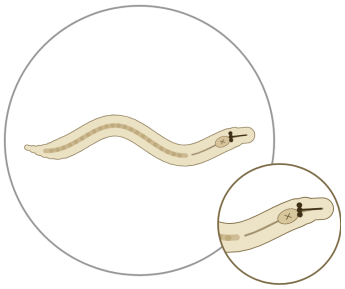
Dr. Dirt's
Dig Deeper



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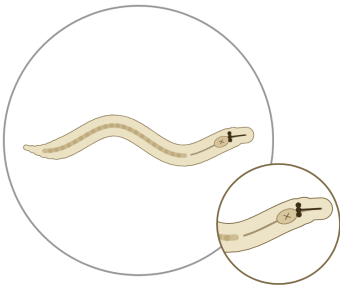
NEMATODE (PEST)



Root-eating nematode

A big spear with knobs that stabs roots. A pest!

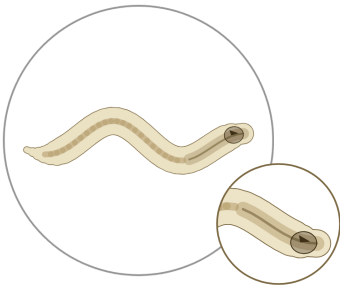
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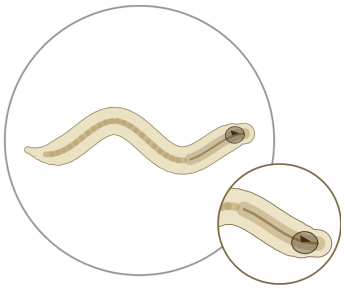
NEMATODES



Predatory nematode

A big mouth with a tooth. It eats other nematodes.

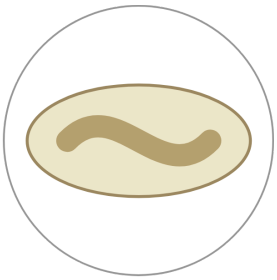
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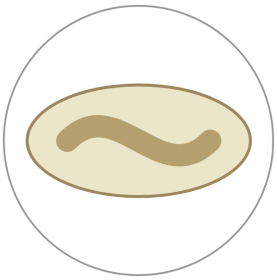
NEMATODES



Nematode egg

A smooth oval egg. Sometimes a little worm is coiled inside.

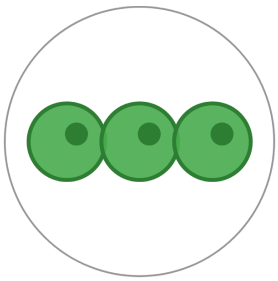
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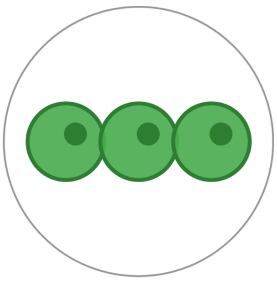
ALGAE



Algae

Green cells that make their own food from sunlight.

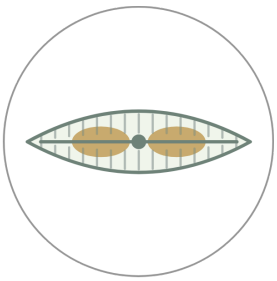
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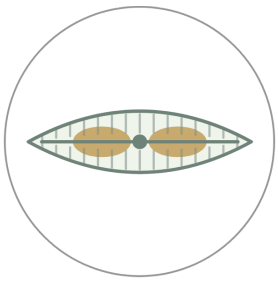
ALGAE



Diatom

A living alga in a glass shell, shaped like a little boat.

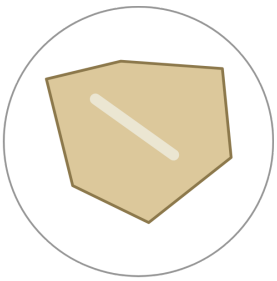
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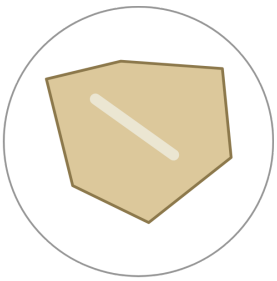
NOT SOIL LIFE



Sand grain

An angular mineral grain. Not alive: the soil's skeleton.

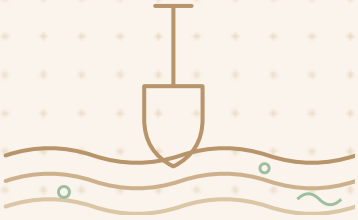
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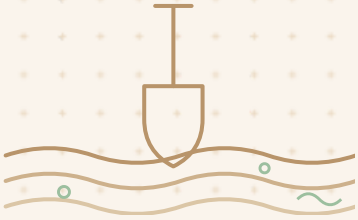
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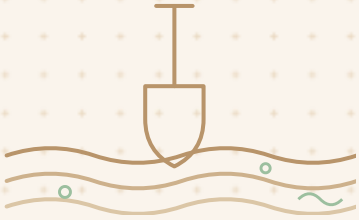
Dr. Dirt's
Dig Deeper



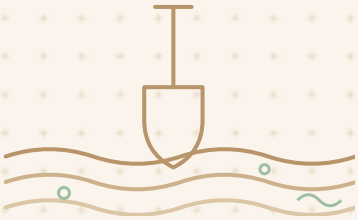
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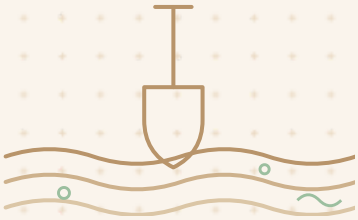
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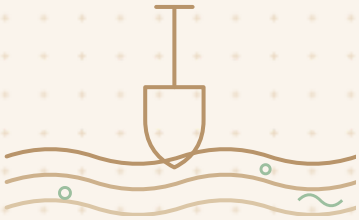
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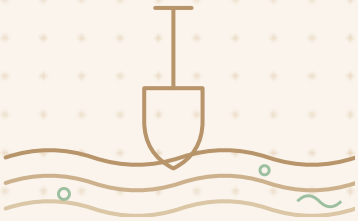
Dr. Dirt's
Dig Deeper



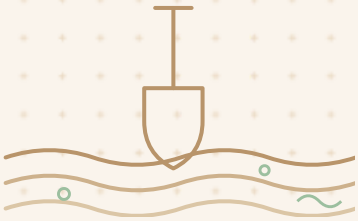
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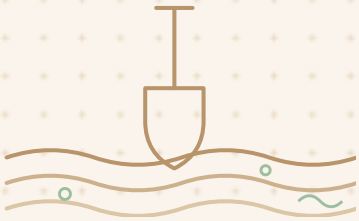
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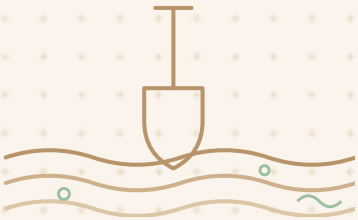
Dr. Dirt's
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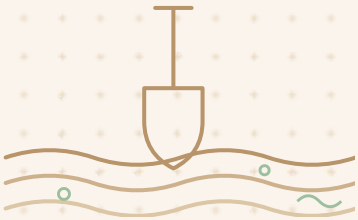
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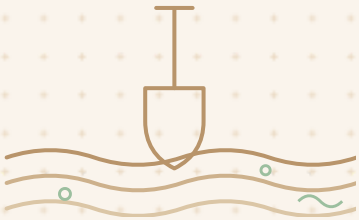
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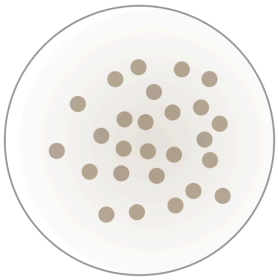
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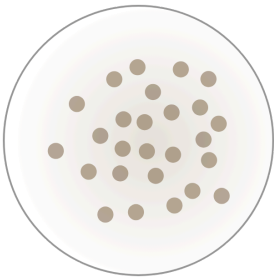
NOT SOIL LIFE



Clay flakes

Too tiny to see one by one: a faint, fuzzy haze and clumps.

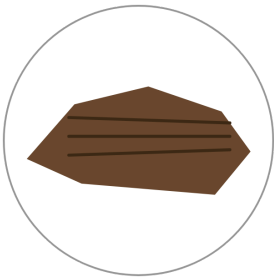
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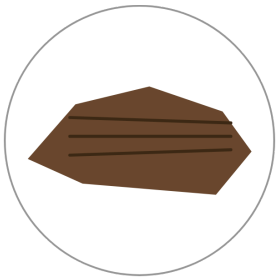


Organic bits

old leaves and roots

Brown bits of old plants: food for the soil life.

NOT SOIL LIFE

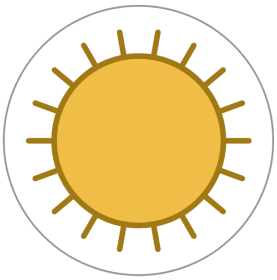


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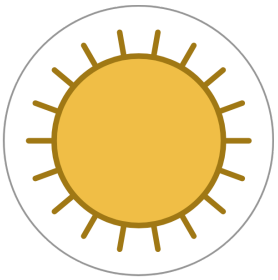
NOT SOIL LIFE



Pollen

A spiky grain from a flower, blown or washed into the soil.

NOT SOIL LIFE



Pollen

A spiky grain from a flower, blown or washed into the soil.

NOT SOIL LIFE



Microfiber

plastic thread

A thread from clothing. Litter, not soil life.

NOT SOIL LIFE

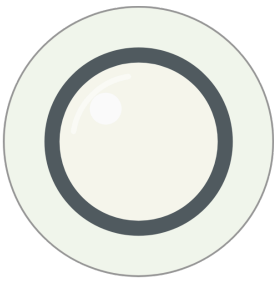


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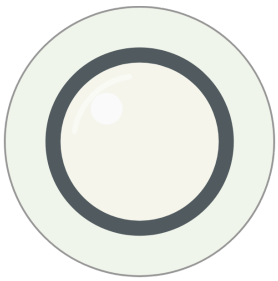
NOT SOIL LIFE



Air bubble

A dark ring with a bright middle, from making the slide.

NOT SOIL LIFE



Air bubble

A dark ring with a bright middle, from making the slide.

How to play

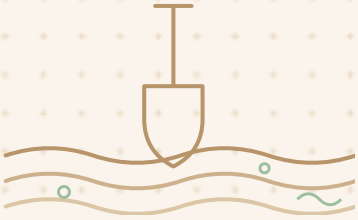
DR. DIRT'S DIG DEEPER

2 to 5 players, ages 5 and up (like Go Fish)

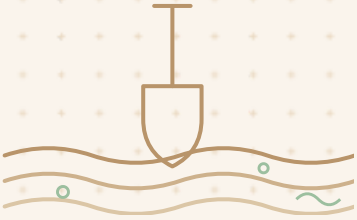
1. Shuffle. Deal 4 cards to each player. Spread the rest face down: that's the dig pile.
2. Lay down any pairs you already have.
3. On your turn, ask one player for a microbe you hold: "Do you have a Ciliate?"
4. If they do, they hand it over. Lay down your pair and ask again.
5. If not, they say **"Dig deeper!"** Draw one card from the pile. Drew the one you asked for? Show it, lay down the pair and go again. If not, it's the next player's turn.
6. Out of cards? Draw 4 from the pile.
7. When all the pairs are down, the most pairs wins!

Print at Actual size (100%), 2-sided

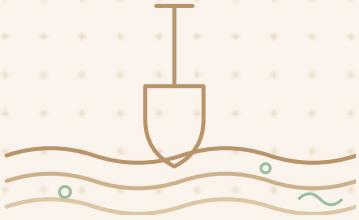
Dr. Dirt's
Dig Deeper



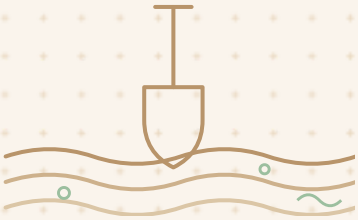
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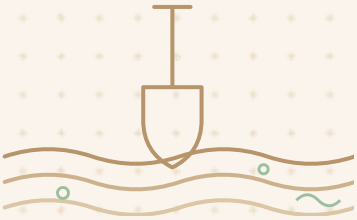
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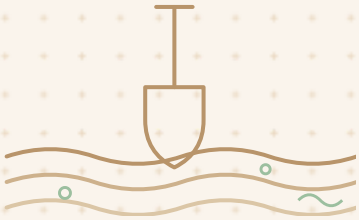
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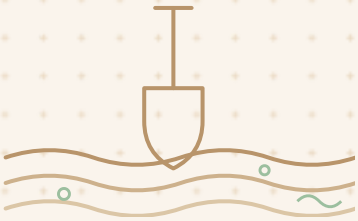
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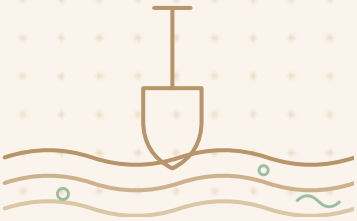
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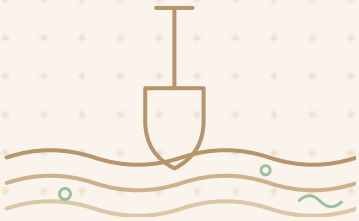
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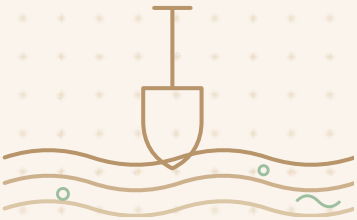
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