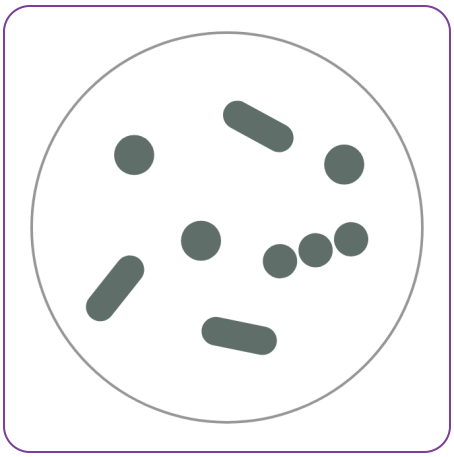
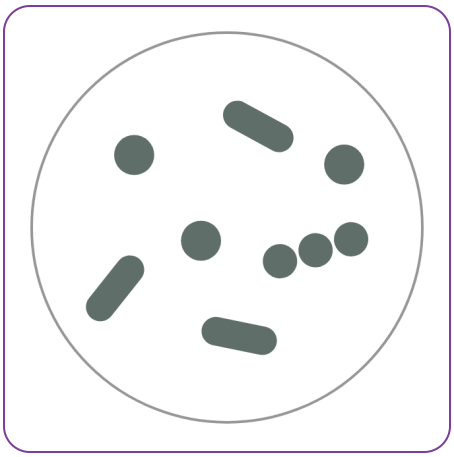
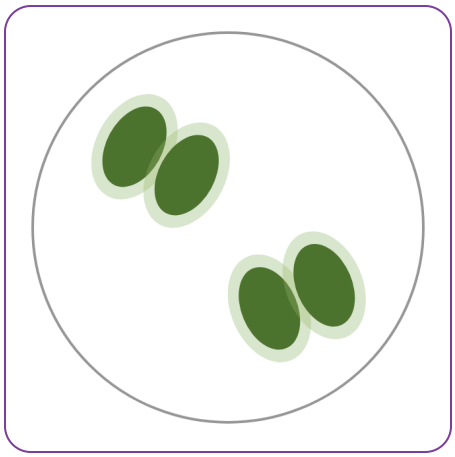
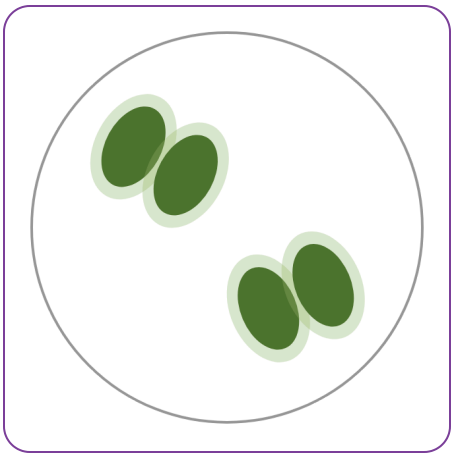
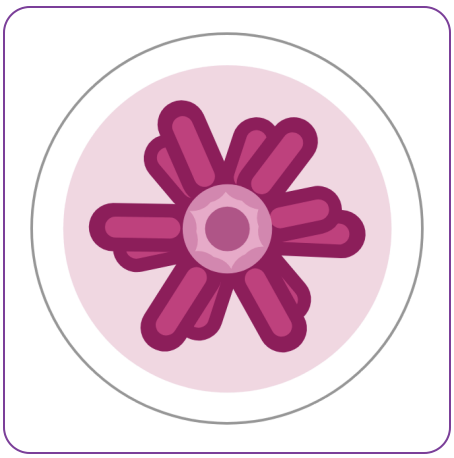
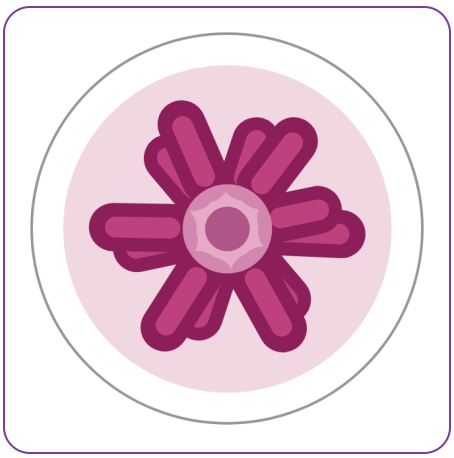
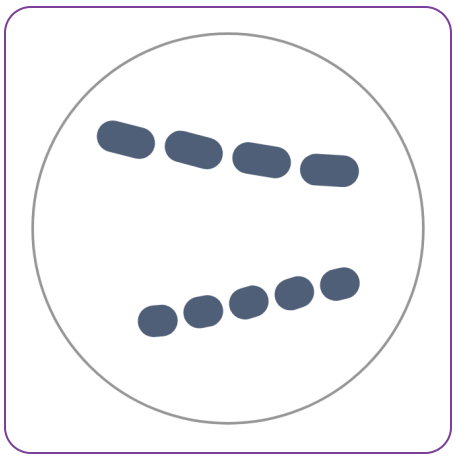
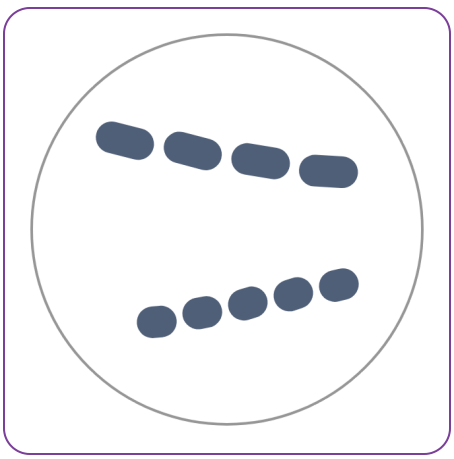
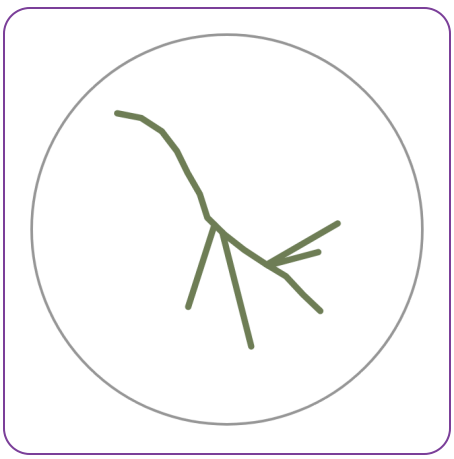
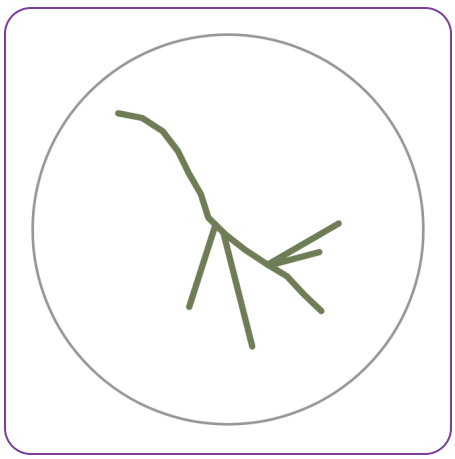





BACTERIA

Azotobacter

nitrogen fixer

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

Dr. Dirt's Microbe Memory

BACTERIA

Bacteria

rods and dots (cocci)

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

Dr. Dirt's Microbe Memory

BACTERIA

Bacteria

rods and dots (cocci)

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

Dr. Dirt's Microbe Memory

BACTERIA

Purple bacteria

PNSB

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

Dr. Dirt's Microbe Memory

BACTERIA

Purple bacteria

PNSB

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

Dr. Dirt's Microbe Memory

BACTERIA

Azotobacter

nitrogen fixer

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

Dr. Dirt's Microbe Memory

BACTERIA

Lactic acid bacteria

LAB

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

Dr. Dirt's Microbe Memory

BACTERIA

Purple bacteria rosette

PNSB

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

Dr. Dirt's Microbe Memory

BACTERIA

Purple bacteria rosette

PNSB

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

Dr. Dirt's Microbe Memory

BACTERIA

Actinobacteria

Thin, branching threads that give soil its earthy smell.

Dr. Dirt's Microbe Memory

BACTERIA

Actinobacteria

Thin, branching threads that give soil its earthy smell.

Dr. Dirt's Microbe Memory

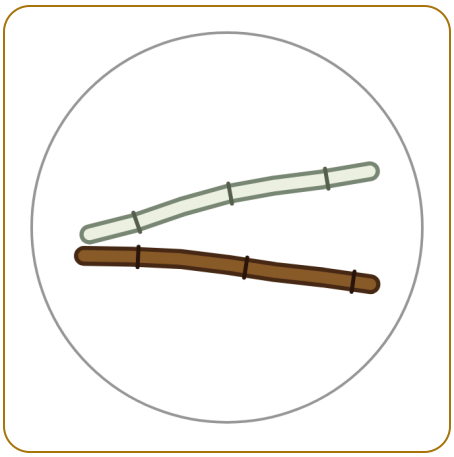
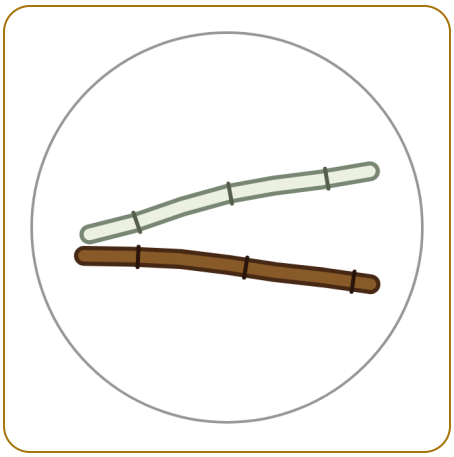
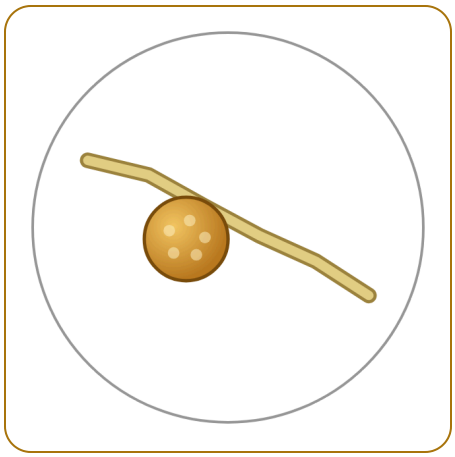
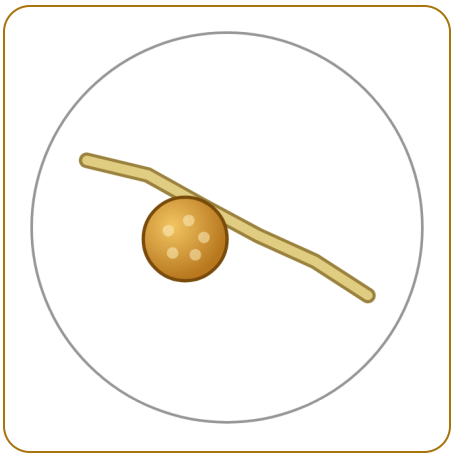
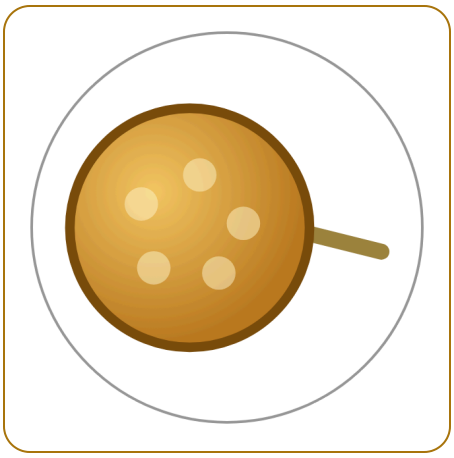
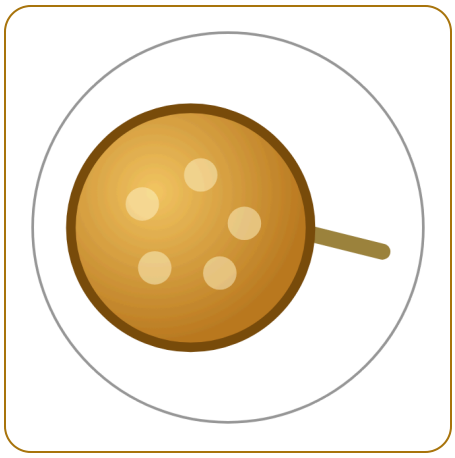
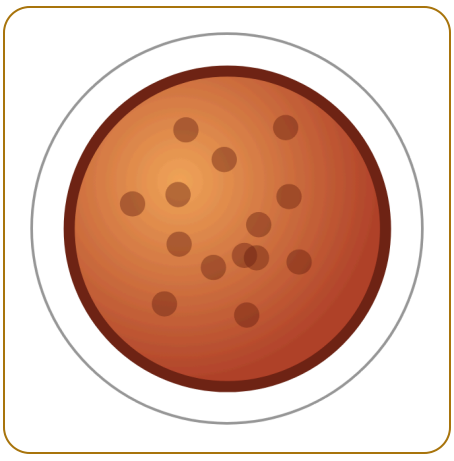
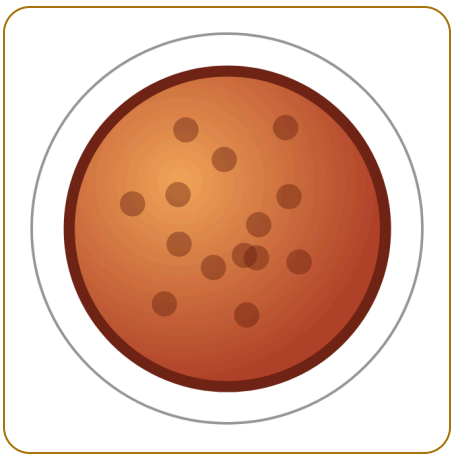
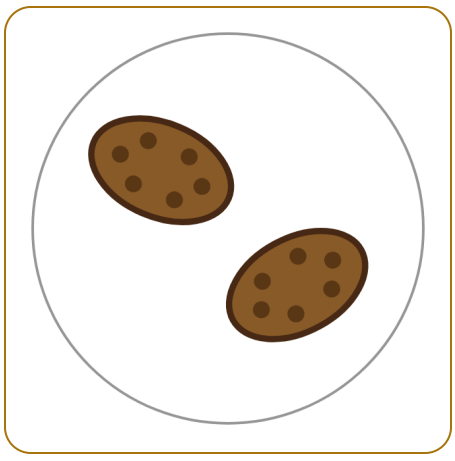
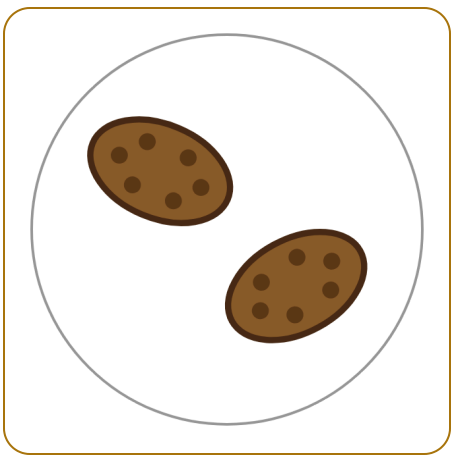
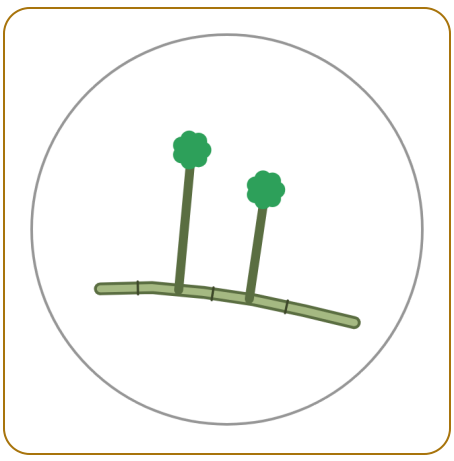
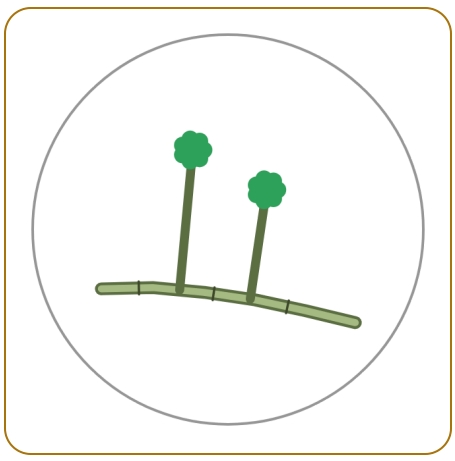
BACTERIA

Lactic acid bacteria

LAB

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

Dr. Dirt's Microbe Memory

FUNGI

Mycorrhizal fungus

root-partner threads

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

Dr. Dirt's Microbe Memory

FUNGI

Decomposer fungus

clear or brown threads

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

Dr. Dirt's Microbe Memory

FUNGI

Decomposer fungus

clear or brown threads

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

Dr. Dirt's Microbe Memory

FUNGI

Mycorrhizal spore

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

Dr. Dirt's Microbe Memory

FUNGI

Mycorrhizal spore

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

Dr. Dirt's Microbe Memory

FUNGI

Mycorrhizal fungus

root-partner threads

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

Dr. Dirt's Microbe Memory

FUNGI

Forest root-partner spores

ectomycorrhizal

Small brown warty spores of fungi that wrap tree roots.

Dr. Dirt's Microbe Memory

FUNGI

Acaulospora spore

volcanic soils

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

Dr. Dirt's Microbe Memory

FUNGI

Acaulospora spore

volcanic soils

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

Dr. Dirt's Microbe Memory

FUNGI

Trichoderma

helper fungus

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

Dr. Dirt's Microbe Memory

FUNGI

Trichoderma

helper fungus

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

Dr. Dirt's Microbe Memory

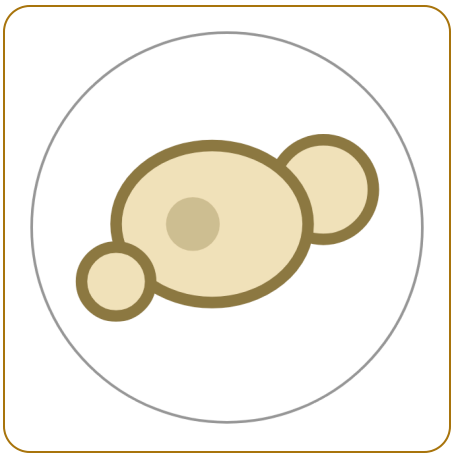
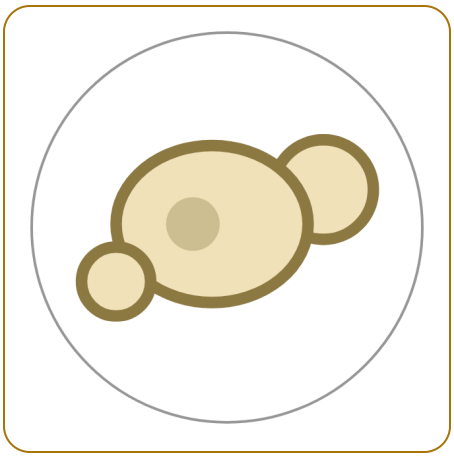
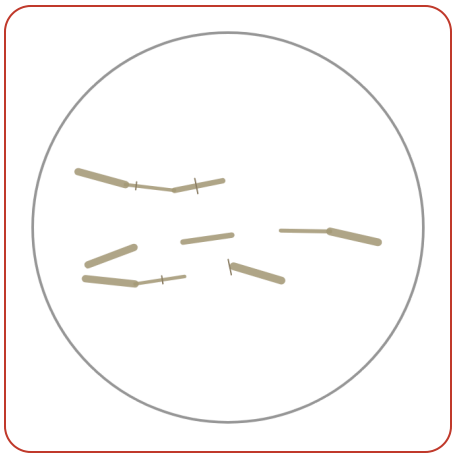
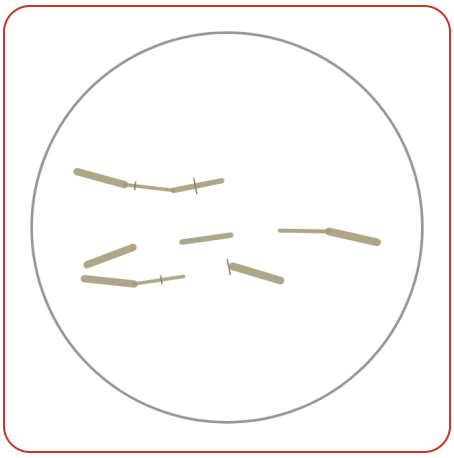
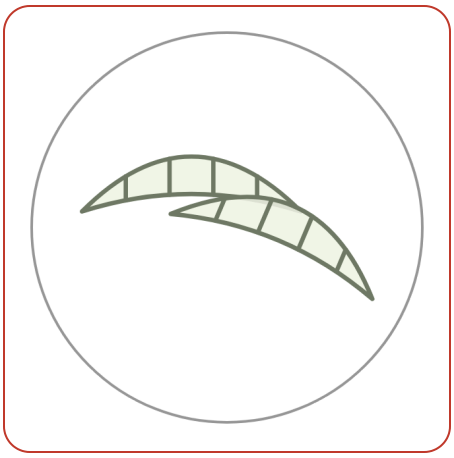
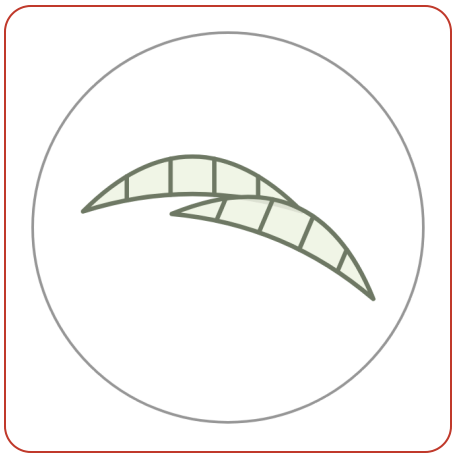
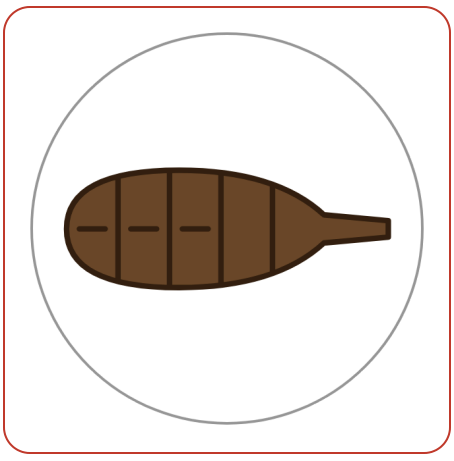
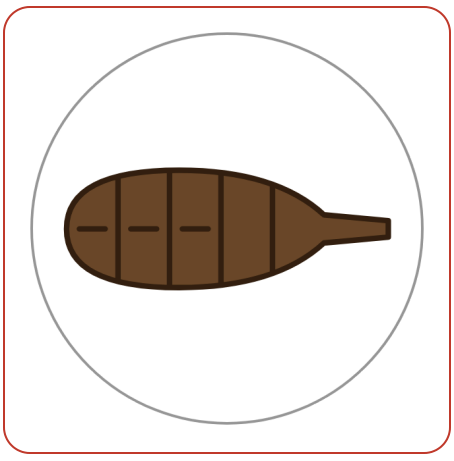
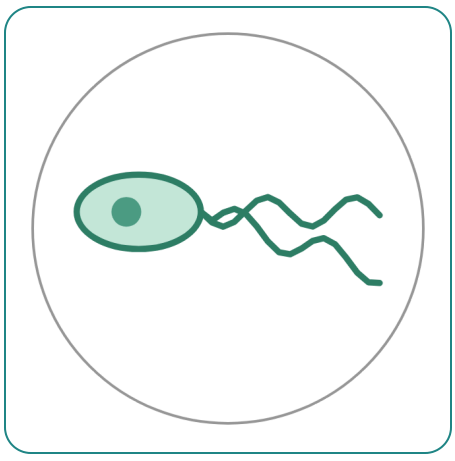
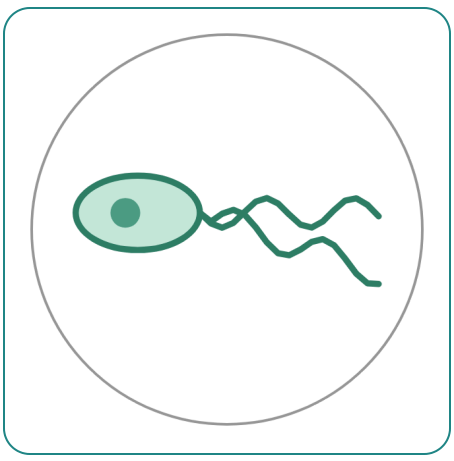
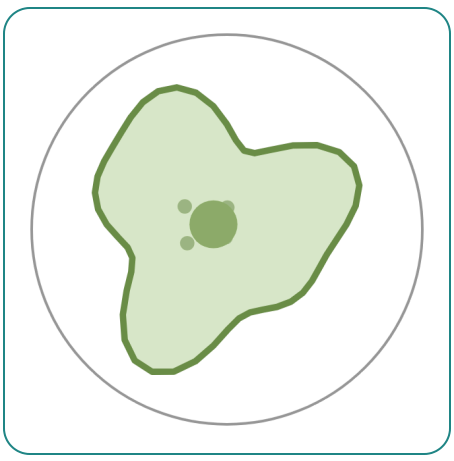
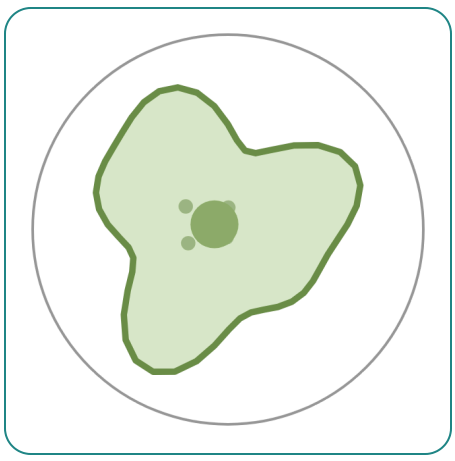
FUNGI

Forest root-partner spores

ectomycorrhizal

Small brown warty spores of fungi that wrap tree roots.

Dr. Dirt's Microbe Memory

FUNGUS LOOKALIKE

False fungus

lookalike, often a water mold

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

Dr. Dirt's Microbe Memory

FUNGI

Yeast

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

Dr. Dirt's Microbe Memory

FUNGI

Yeast

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

Dr. Dirt's Microbe Memory

DISEASE FUNGUS

Fusarium spores

disease fungus

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

Dr. Dirt's Microbe Memory

DISEASE FUNGUS

Fusarium spores

disease fungus

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

Dr. Dirt's Microbe Memory

FUNGUS LOOKALIKE

False fungus

lookalike, often a water mold

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

Dr. Dirt's Microbe Memory

PROTOZOA

Flagellate

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

Dr. Dirt's Microbe Memory

DISEASE FUNGUS

Alternaria spore

disease fungus

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

Dr. Dirt's Microbe Memory

DISEASE FUNGUS

Alternaria spore

disease fungus

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

Dr. Dirt's Microbe Memory

PROTOZOA

Naked amoeba

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

Dr. Dirt's Microbe Memory

PROTOZOA

Naked amoeba

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

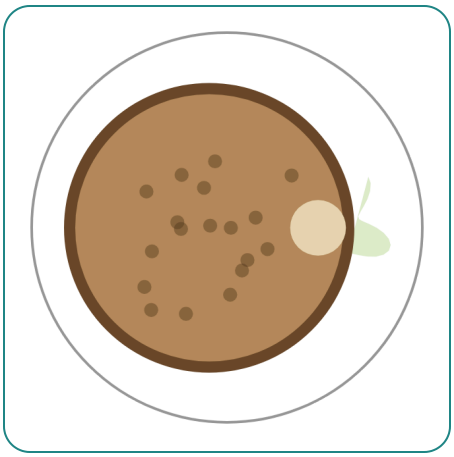
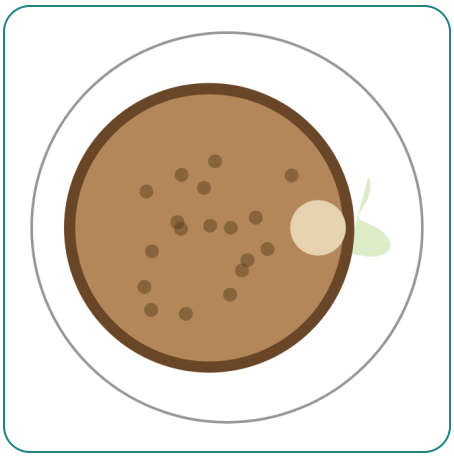
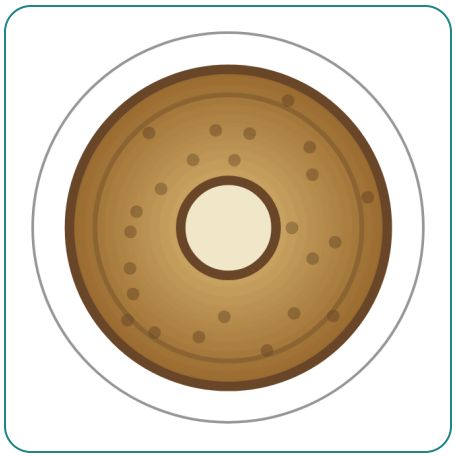
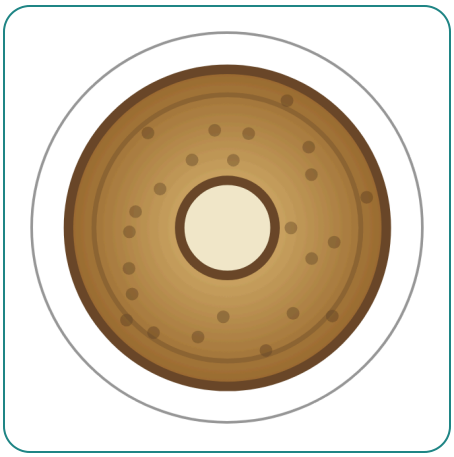
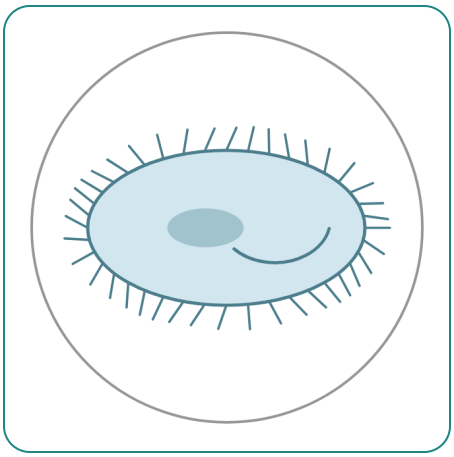
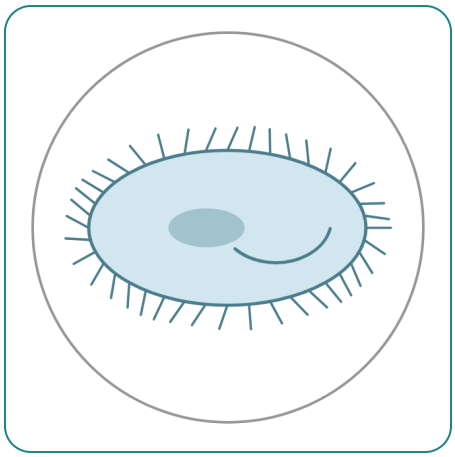
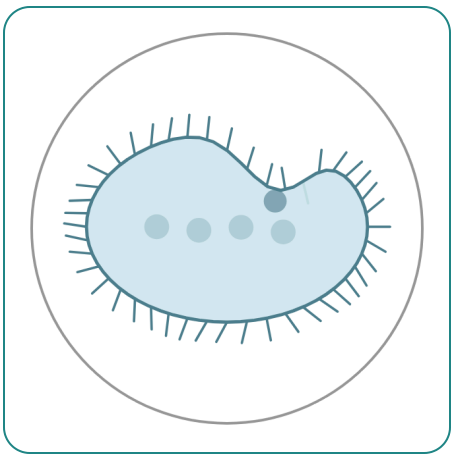
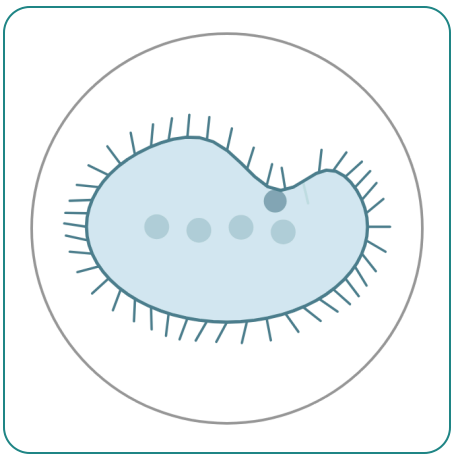
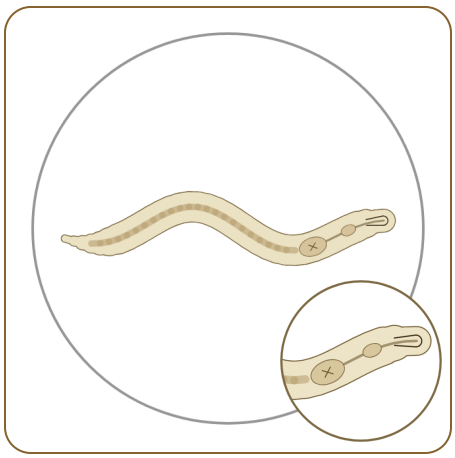
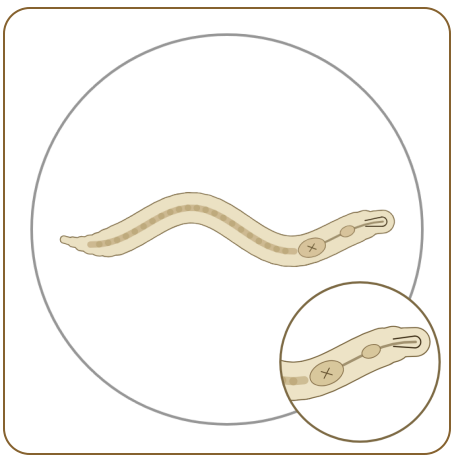
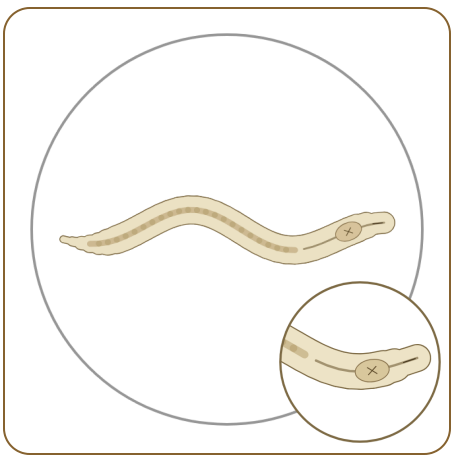
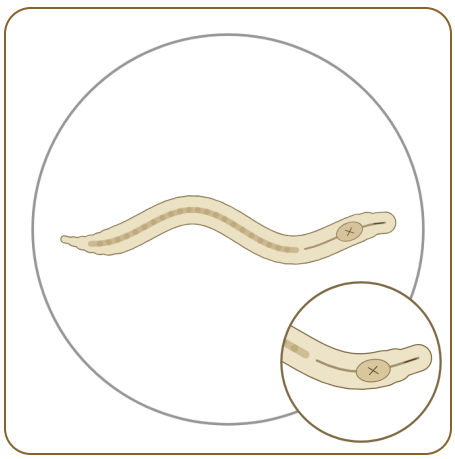
Dr. Dirt's Microbe Memory

PROTOZOA

Flagellate

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

Dr. Dirt's Microbe Memory

PROTOZOA

Arcella

testate amoeba, seen from below

A shelled amoeba that looks like a little brown donut.

Dr. Dirt's Microbe Memory

PROTOZOA

Testate amoeba

amoeba in a shell

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

Dr. Dirt's Microbe Memory

PROTOZOA

Testate amoeba

amoeba in a shell

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

Dr. Dirt's Microbe Memory

PROTOZOA

Ciliate

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

Dr. Dirt's Microbe Memory

PROTOZOA

Ciliate

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

Dr. Dirt's Microbe Memory

PROTOZOA

Arcella

testate amoeba, seen from below

A shelled amoeba that looks like a little brown donut.

Dr. Dirt's Microbe Memory

NEMATODES

Bacteria-eating nematode

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

Dr. Dirt's Microbe Memory

PROTOZOA

Colpoda

bean-shaped ciliate

The commonest soil ciliate, shaped like a kidney bean.

Dr. Dirt's Microbe Memory

PROTOZOA

Colpoda

bean-shaped ciliate

The commonest soil ciliate, shaped like a kidney bean.

Dr. Dirt's Microbe Memory

NEMATODES

Fungus-eating nematode

A thin, small spear for piercing fungal threads.

Dr. Dirt's Microbe Memory

NEMATODES

Fungus-eating nematode

A thin, small spear for piercing fungal threads.

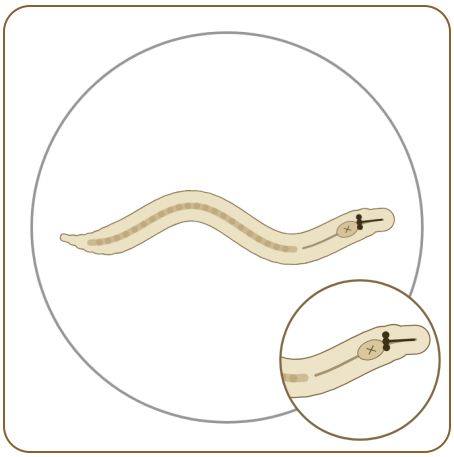
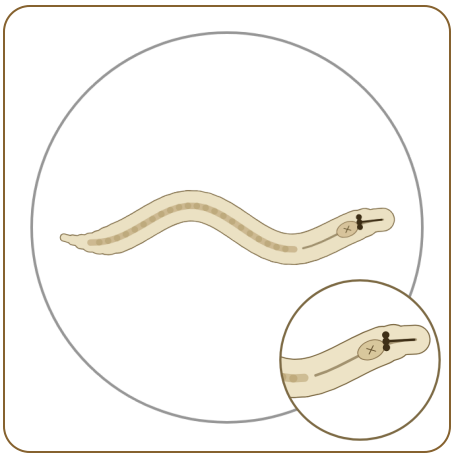
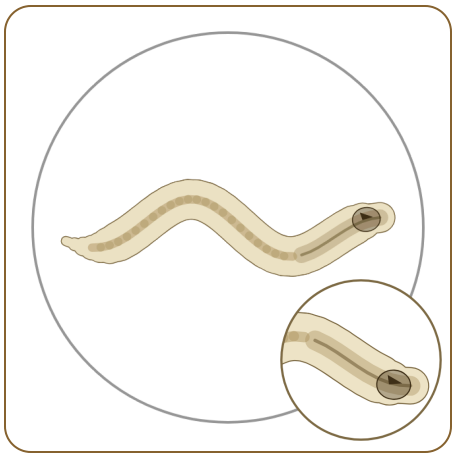
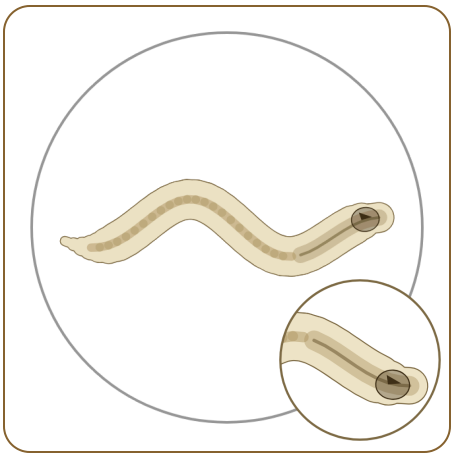
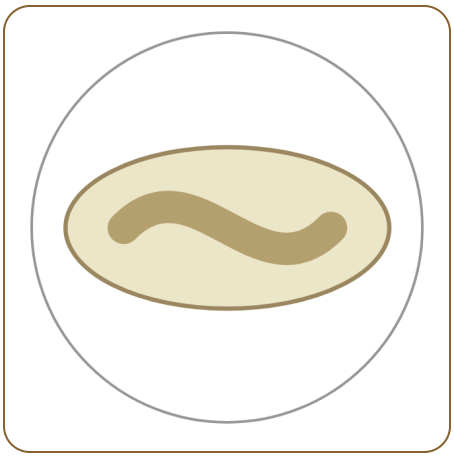
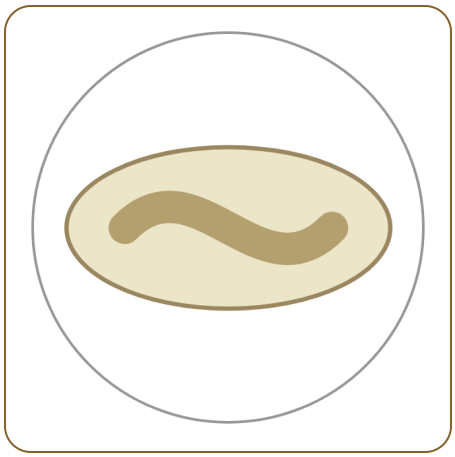
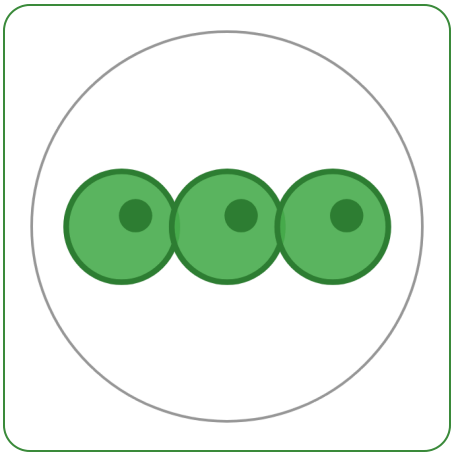
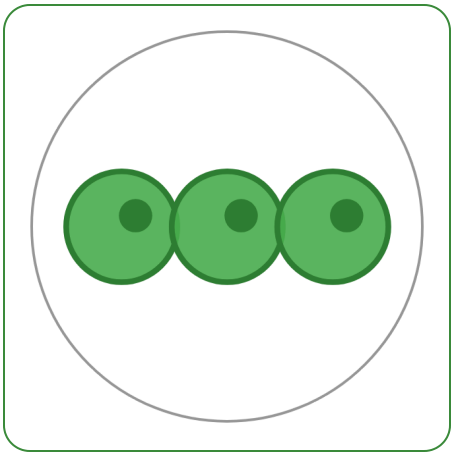
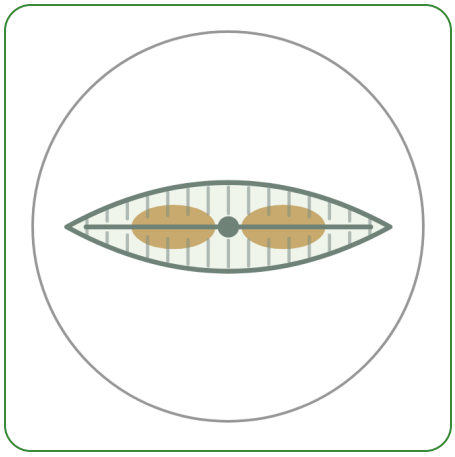
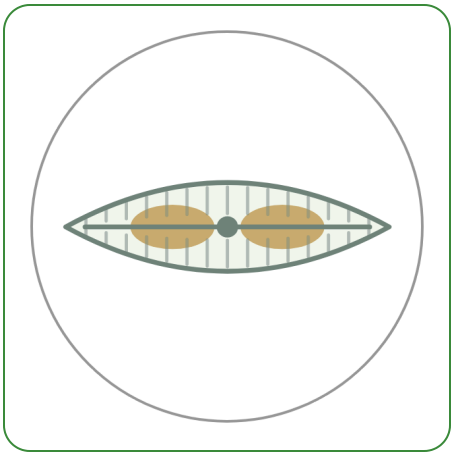
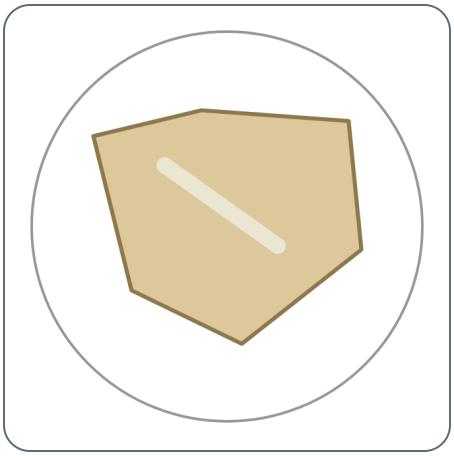
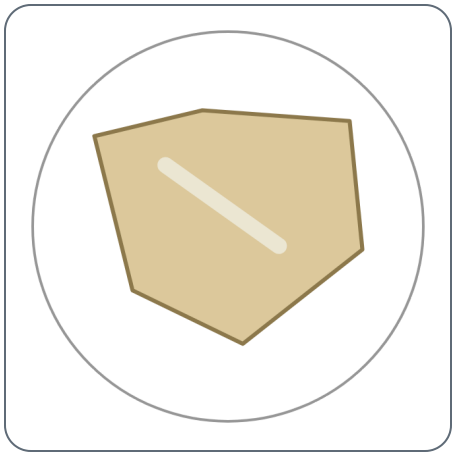
Dr. Dirt's Microbe Memory

NEMATODES

Bacteria-eating nematode

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

Dr. Dirt's Microbe Memory

NEMATODES

Predatory nematode

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

Dr. Dirt's Microbe Memory

NEMATODE (PEST)

Root-eating nematode

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

Dr. Dirt's Microbe Memory

NEMATODE (PEST)

Root-eating nematode

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

Dr. Dirt's Microbe Memory

NEMATODES

Nematode egg

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

Dr. Dirt's Microbe Memory

NEMATODES

Nematode egg

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

Dr. Dirt's Microbe Memory

NEMATODES

Predatory nematode

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

Dr. Dirt's Microbe Memory

ALGAE

Diatom

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

Dr. Dirt's Microbe Memory

ALGAE

Algae

Green cells that make their own food from sunlight.

Dr. Dirt's Microbe Memory

ALGAE

Algae

Green cells that make their own food from sunlight.

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Sand grain

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Sand grain

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

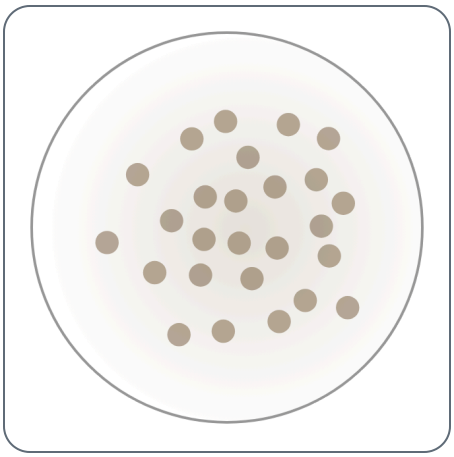
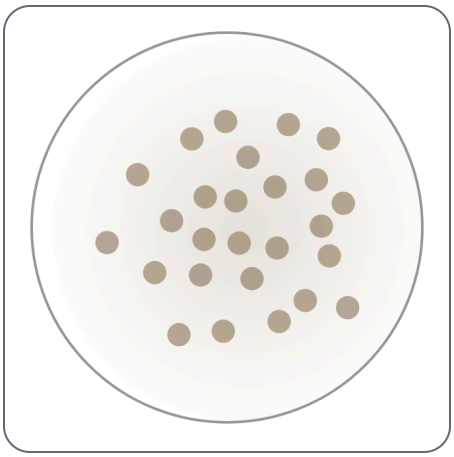
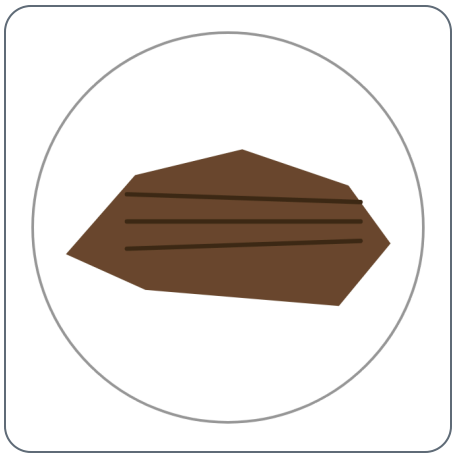
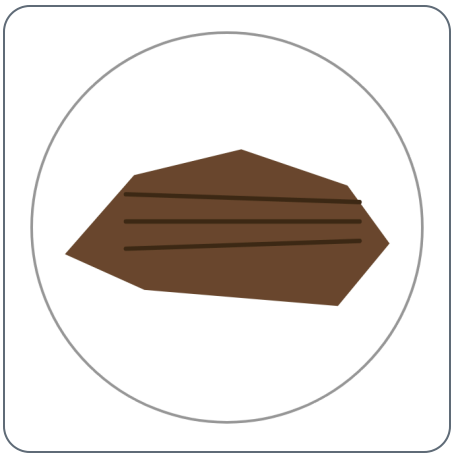
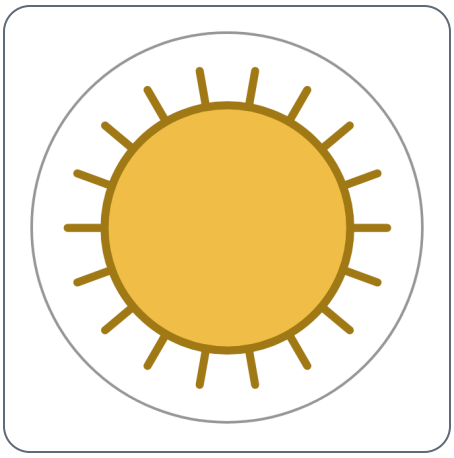
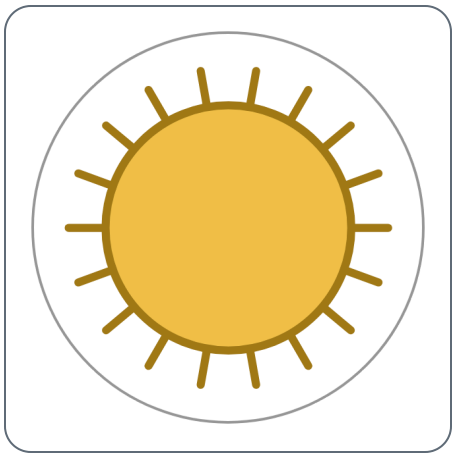
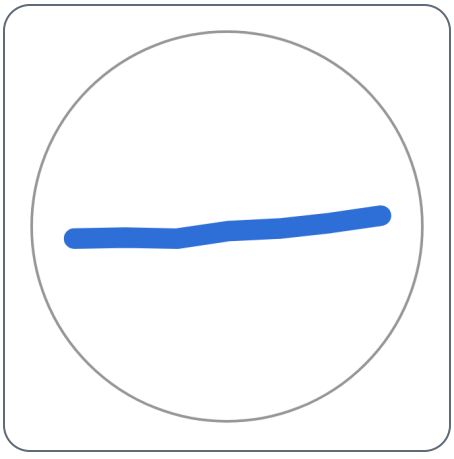
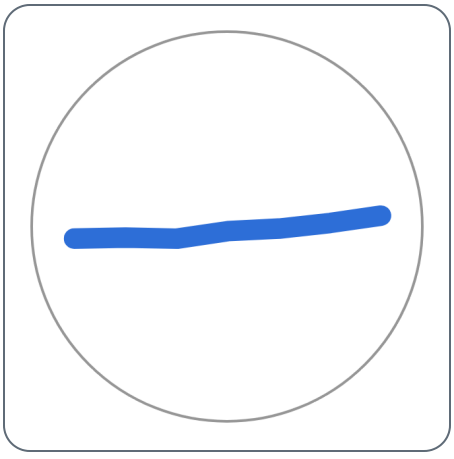
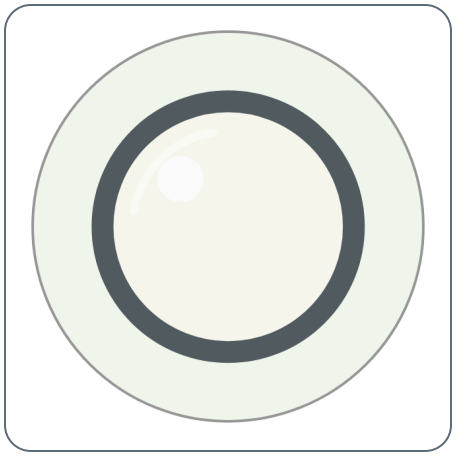
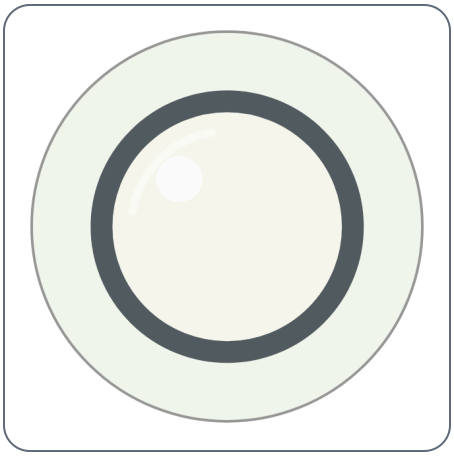
Dr. Dirt's Microbe Memory

ALGAE

Diatom

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

Dr. Dirt's Microbe Memory

How to play

MICROBE MEMORY: PICTURE & NAME

2 or more players, ages 5 and up

1. Lay the cards out in rows. Put one card of each pair **picture up** and its twin **name up**. Mix them all around.
2. On your turn, point to a picture and a name you think go together. Say the name out loud!
3. Flip the picture card over. If its back shows that name, keep both cards and go again.
4. If not, flip it back. Next player's turn.
5. When every pair is found, the most pairs wins!

Easier: play with 10 to 15 pairs. On your own: use them as flash cards. Guess the name, then flip to check.

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

NOT SOIL LIFE

Organic bits

old leaves and roots

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Clay flakes

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Clay flakes

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Pollen

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Pollen

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Organic bits

old leaves and roots

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Air bubble

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

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Microfiber

plastic thread

A thread from clothing. Litter, not soil life.

Dr. Dirt's Microbe Memory

NOT SOIL LIFE

Microfiber

plastic thread

A thread from clothing. Litter, not soil life.

Dr. Dirt's Microbe Memory

Dr. Dirt's Microbe Memory

Picture & Name

NOT SOIL LIFE

Air bubble

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

Dr. Dirt's Microbe Memory