GUESS THAT SMELL!

Round 1

HINTS

-Hint 1: The moon and I know each other well

-Hint 2: I contain the tallest mountain on Earth, but that mountain isn't Everest

HINTS

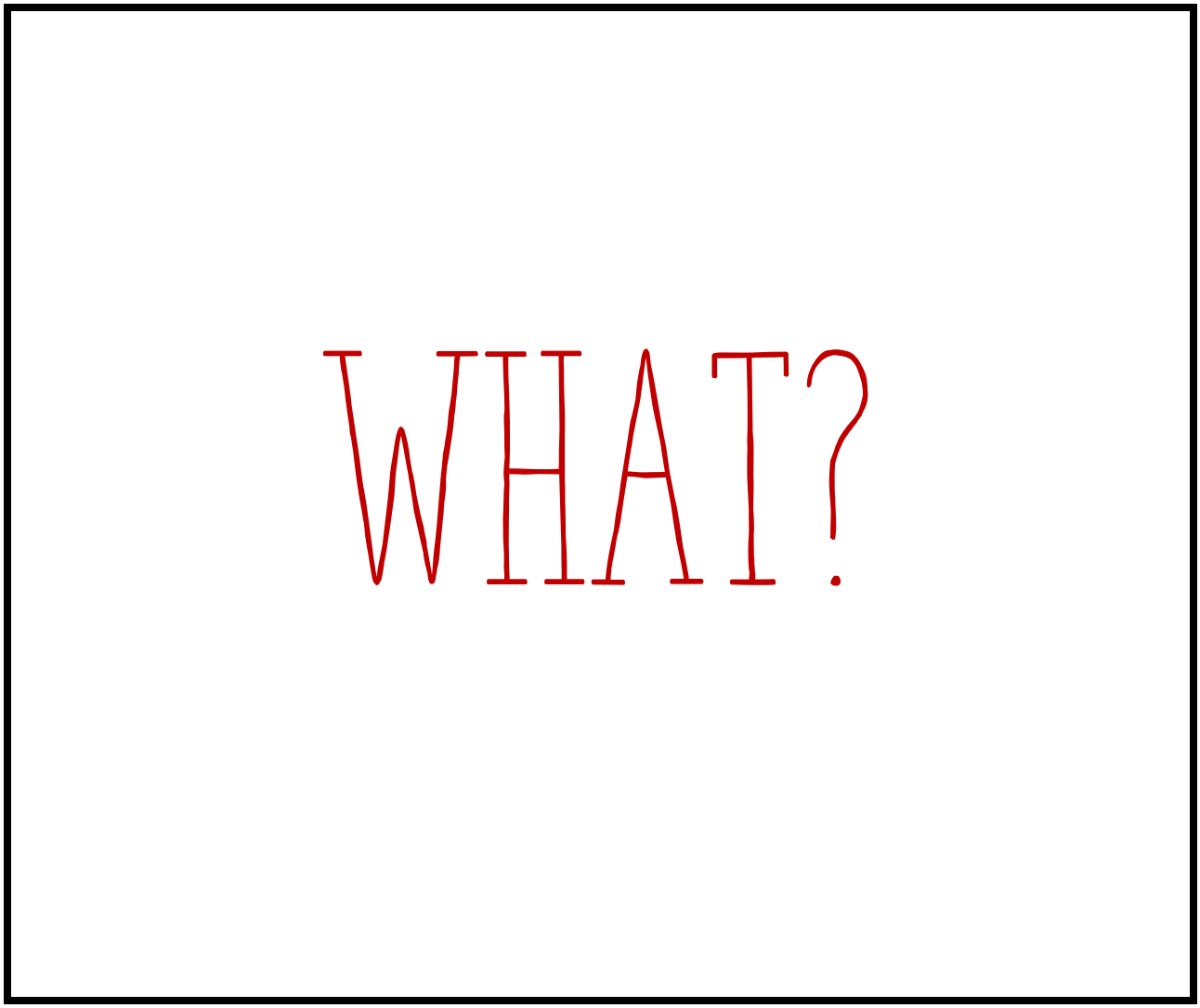
-Hint 4: I'm a popular tourist attraction, and I cover 347 miles of Oregon

ANSWER

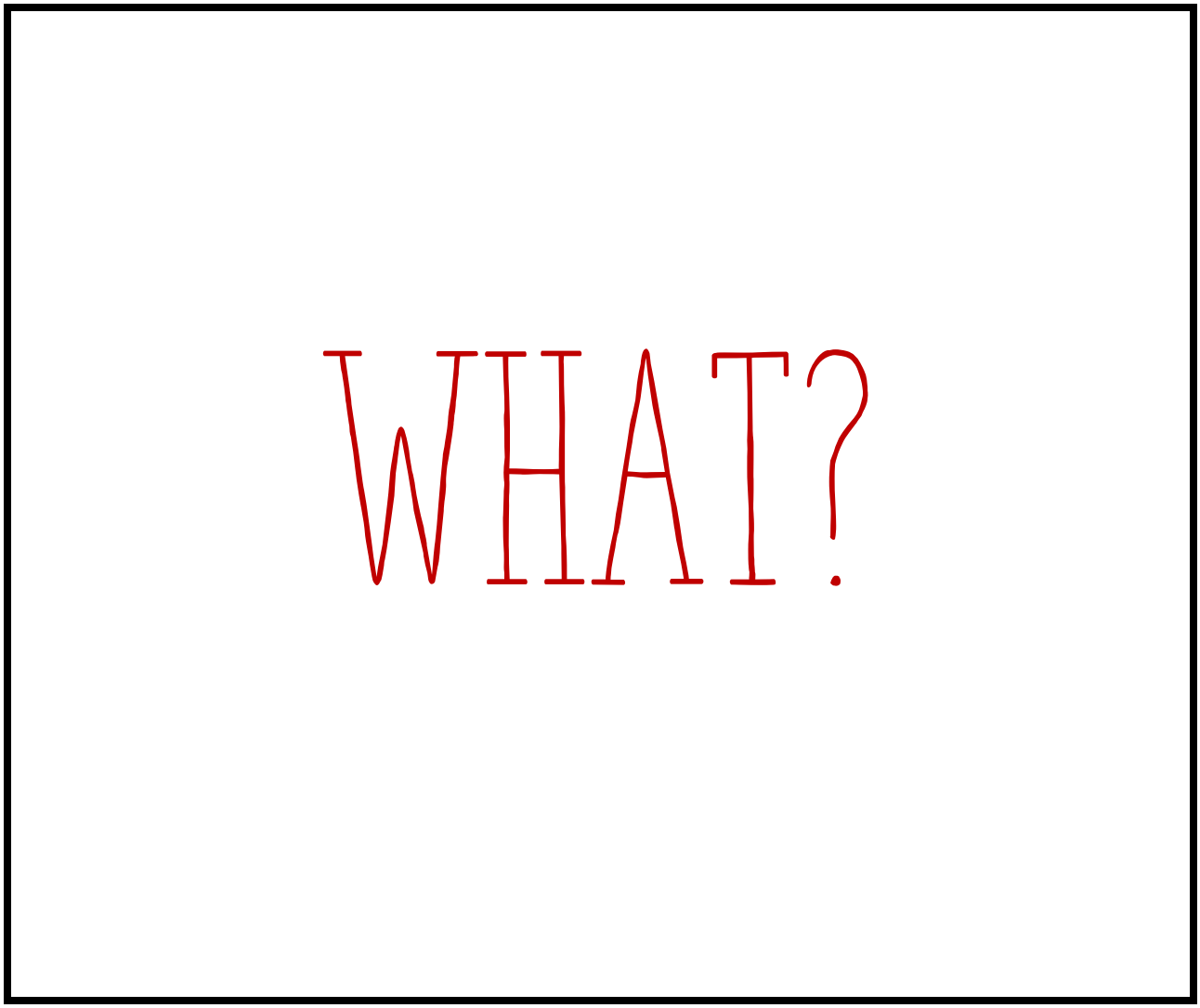
The answer is...

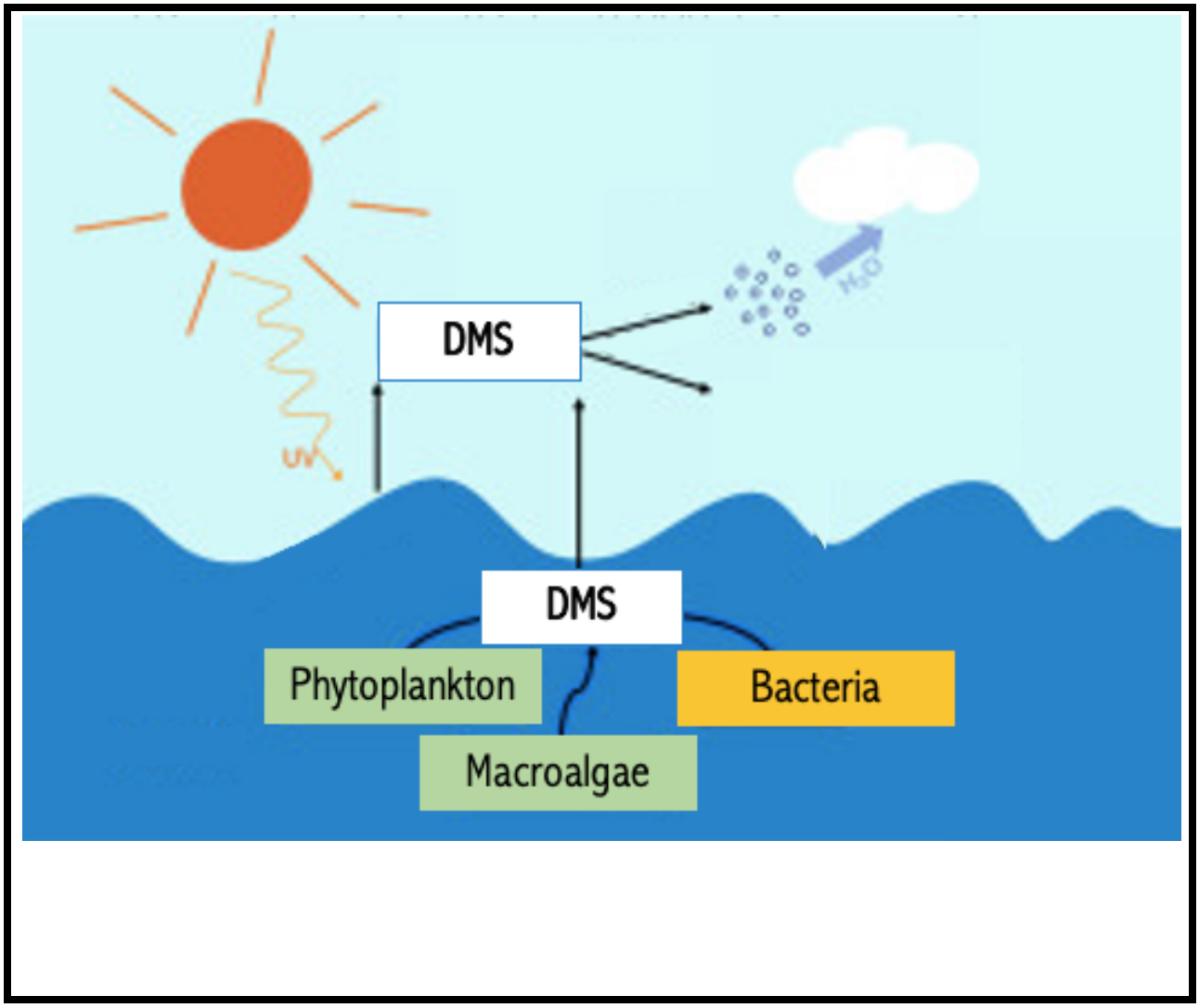
The Ocean!

smells like... dimethyl sulfide


WHAT?

Dimethyl Sulfide (DMS) is an oil in the ocean. On warm days, it is released as a vapor, which makes the ocean stinky. Once in the atmosphere, DMS attracts water molecules, forming clouds.


WHAT?

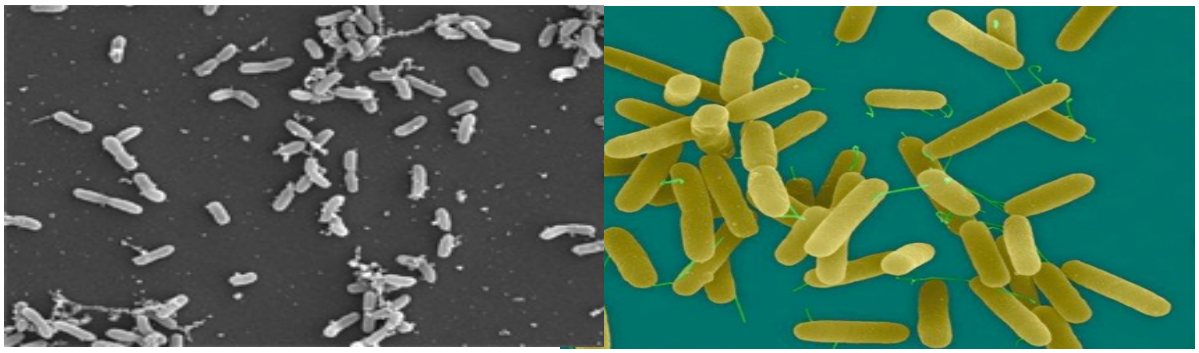

DMS
UV
H_2O
DMS
Phytoplankton
Bacteria
Macroalgae

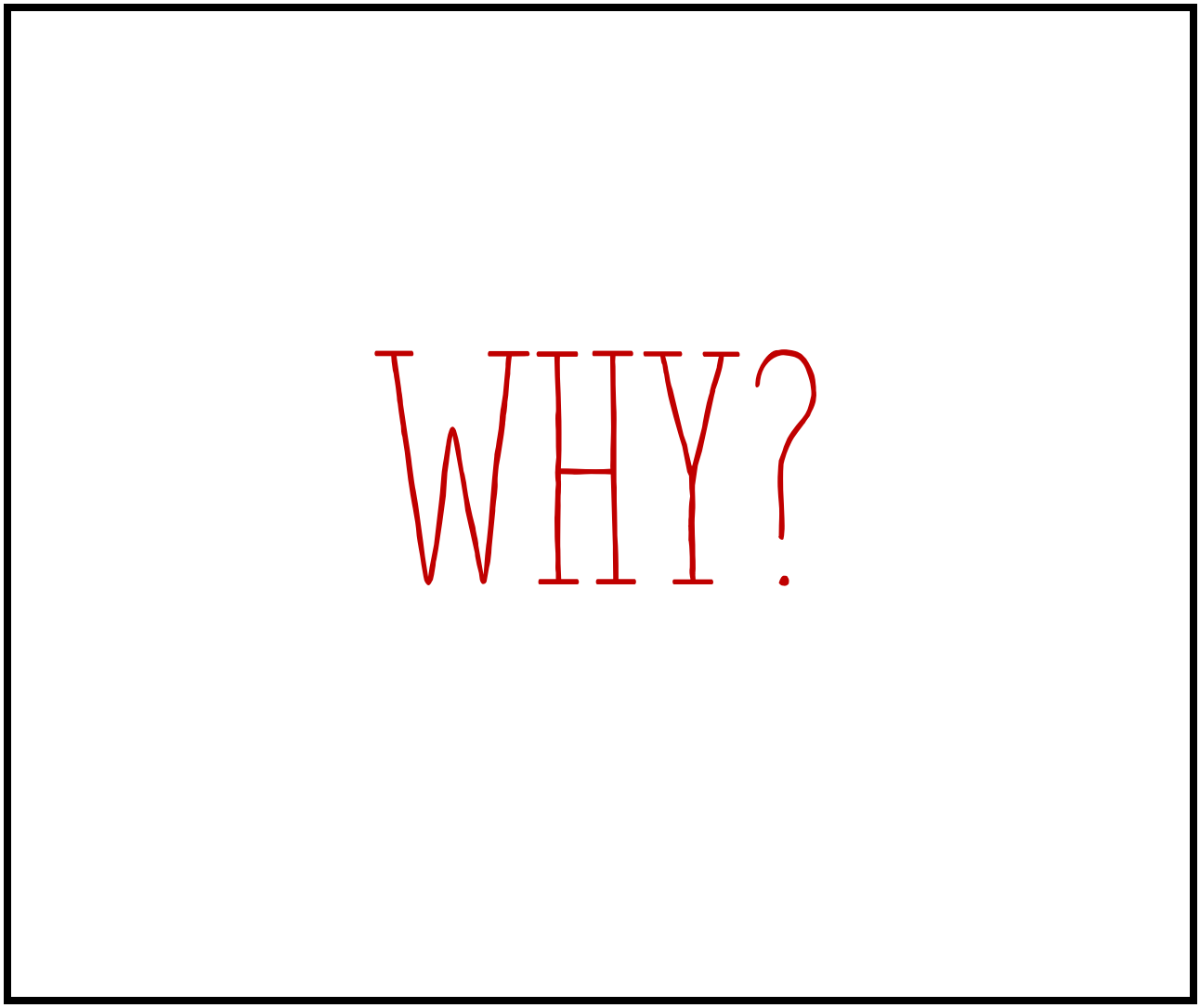

WHO?

DMS is made from DMSP, which contains more carbon and oxygen than DMS. Algae, bacteria, and plants all make DMSP and release it into the ocean.


WHO?

There, bacteria and algae remove the carbon and oxygen from DMSP, making DMS.




WHY?

DMSP is a good source of carbon and oxygen, and organisms need both. They remove the propionate, and release DMS as waste.

GUESS THAT SMELL!

Round 2

HINTS

-Hint 1: There are more than 7 species of me in Oregon

-Hint 2: I live all over the state, but I like how cool it is by the coast the very best.

HINTS

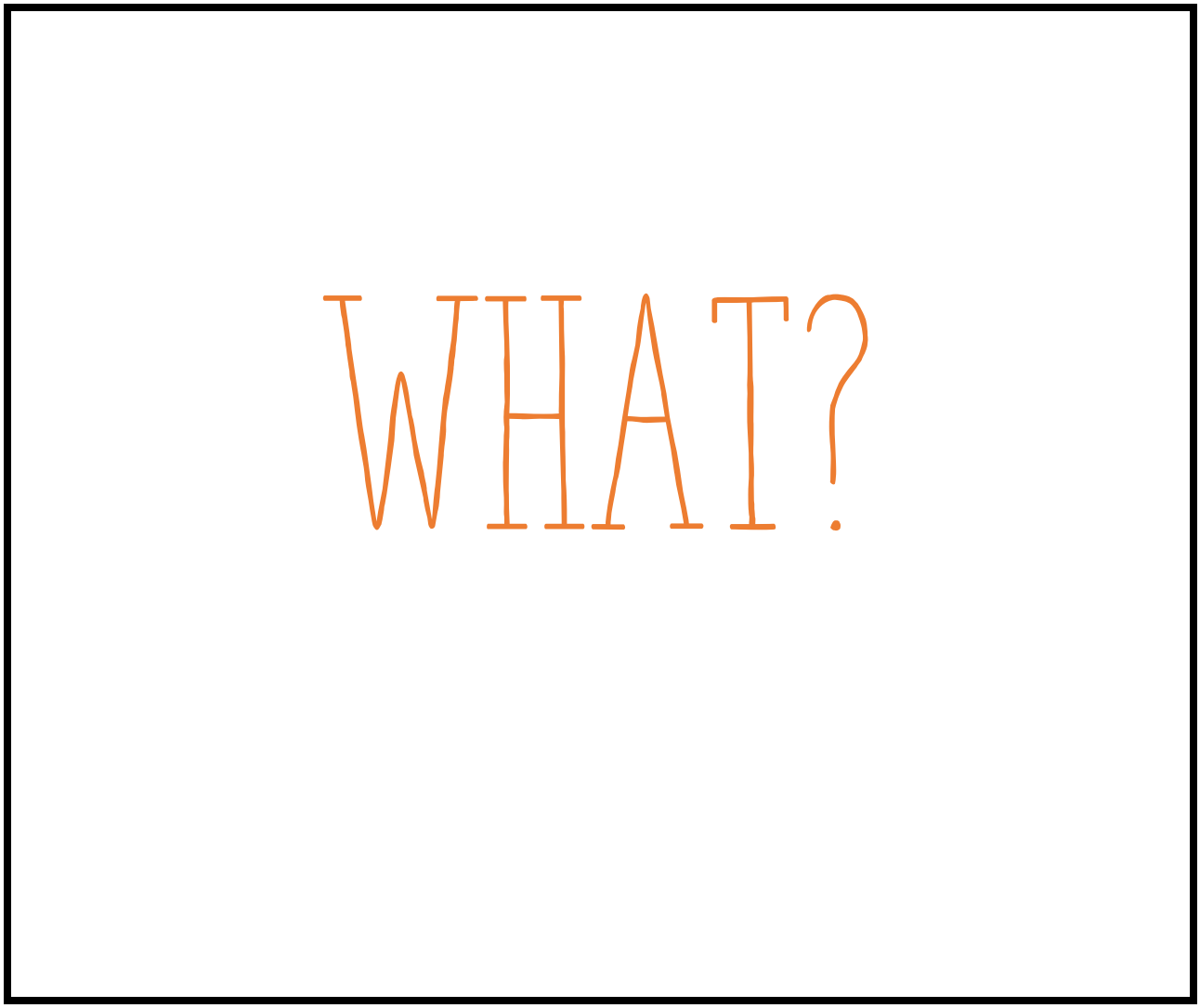
-Hint 4: Beavers love to knock me down and use me

ANSWER

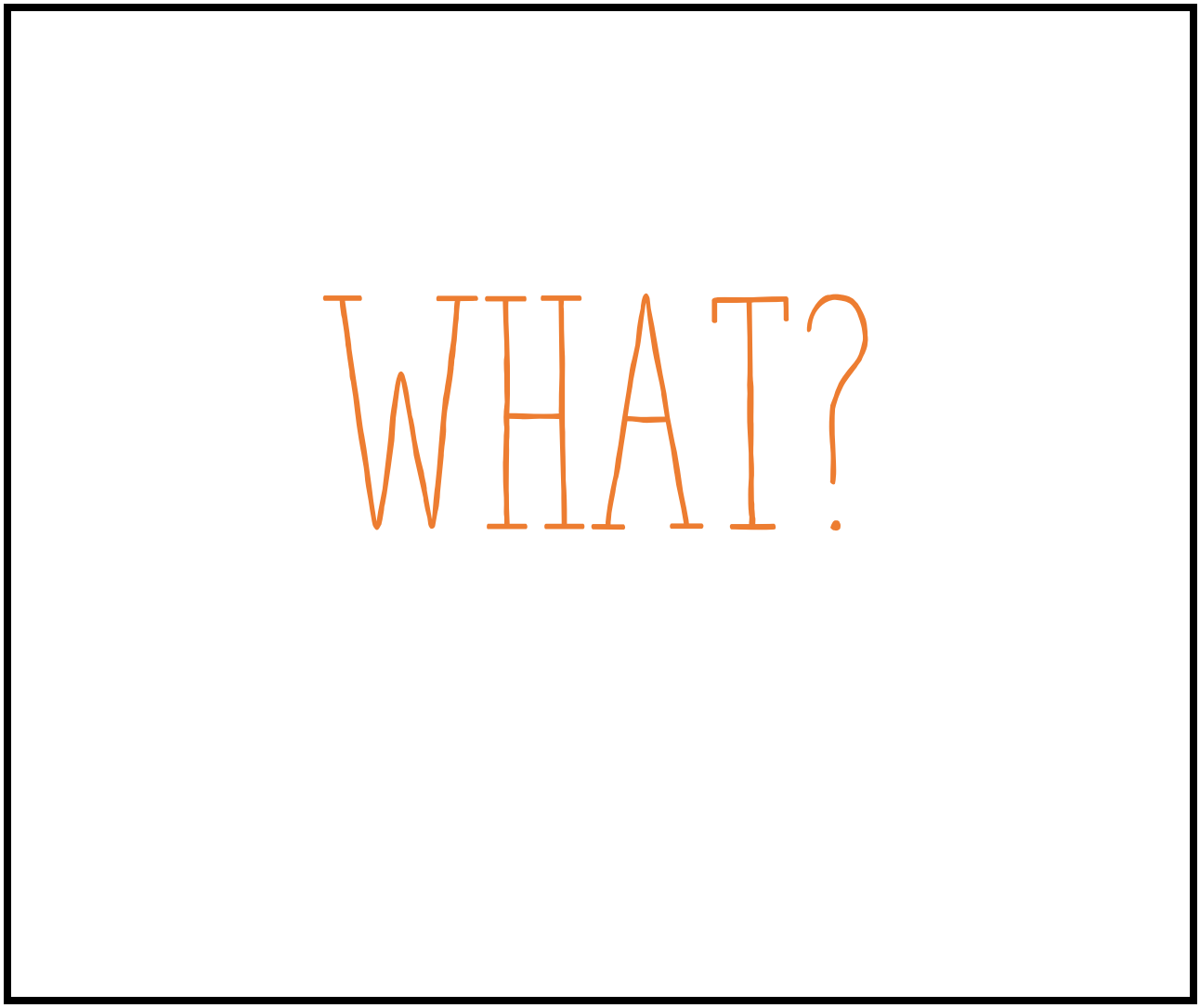
The answer is...

Pine Trees!

smells like... alpha-pinene


WHAT?

Alpha-pinene is found in many things. It is anti-microbial, and is used in cleaning products that kill bacteria and viruses. Alpha-pinene is also used in candles, soaps, air fresheners, and other things that smell good.


WHAT?

Your brain recognizes alpha-pinene as a relaxing scent, which is why you may feel less stressed in a forest!

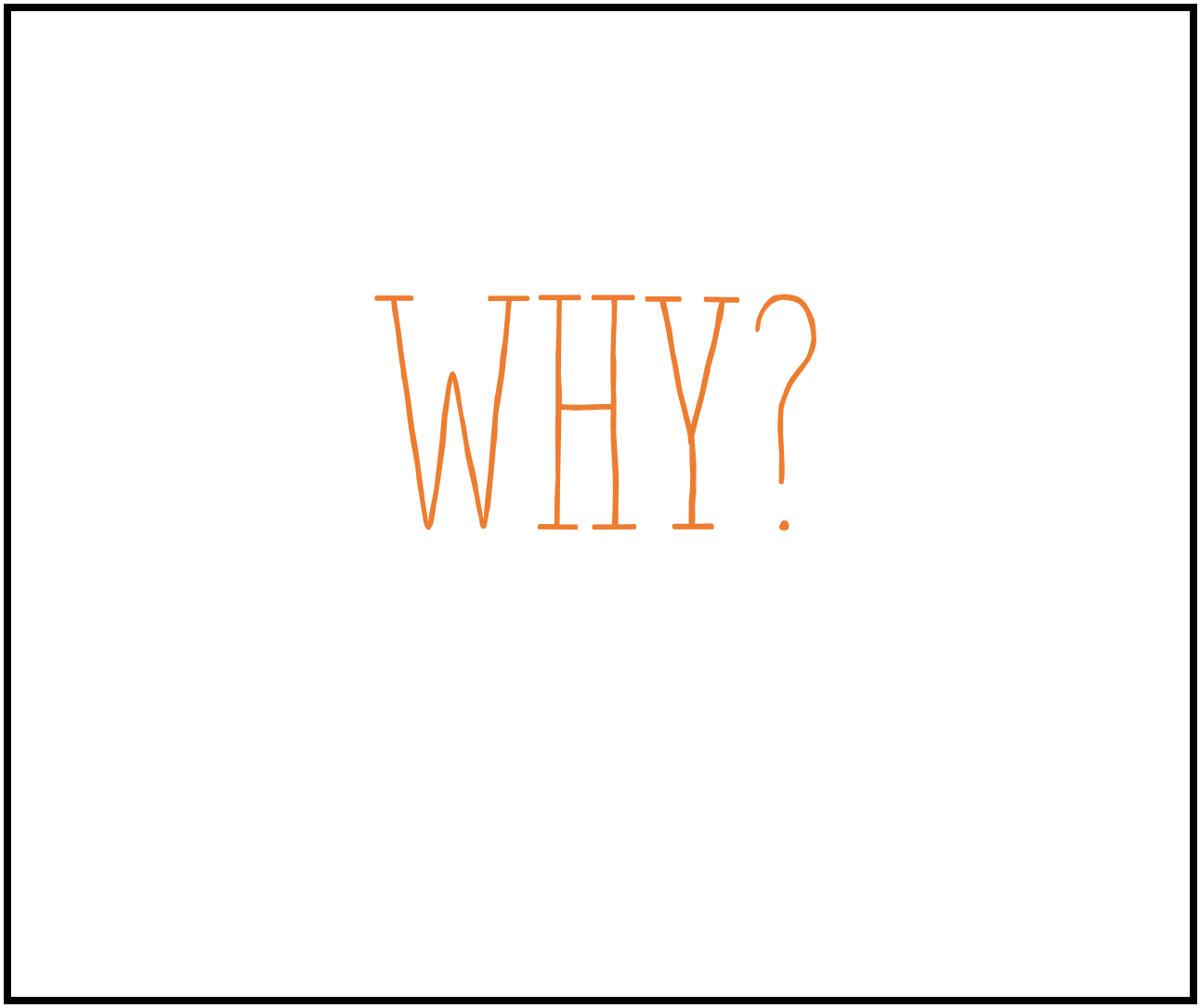

WHO?

Alpha-pinene is most notably made by pine trees, but is also released by other plant species. Most are trees called conifers, which are classified as releasing their seeds in a cone.

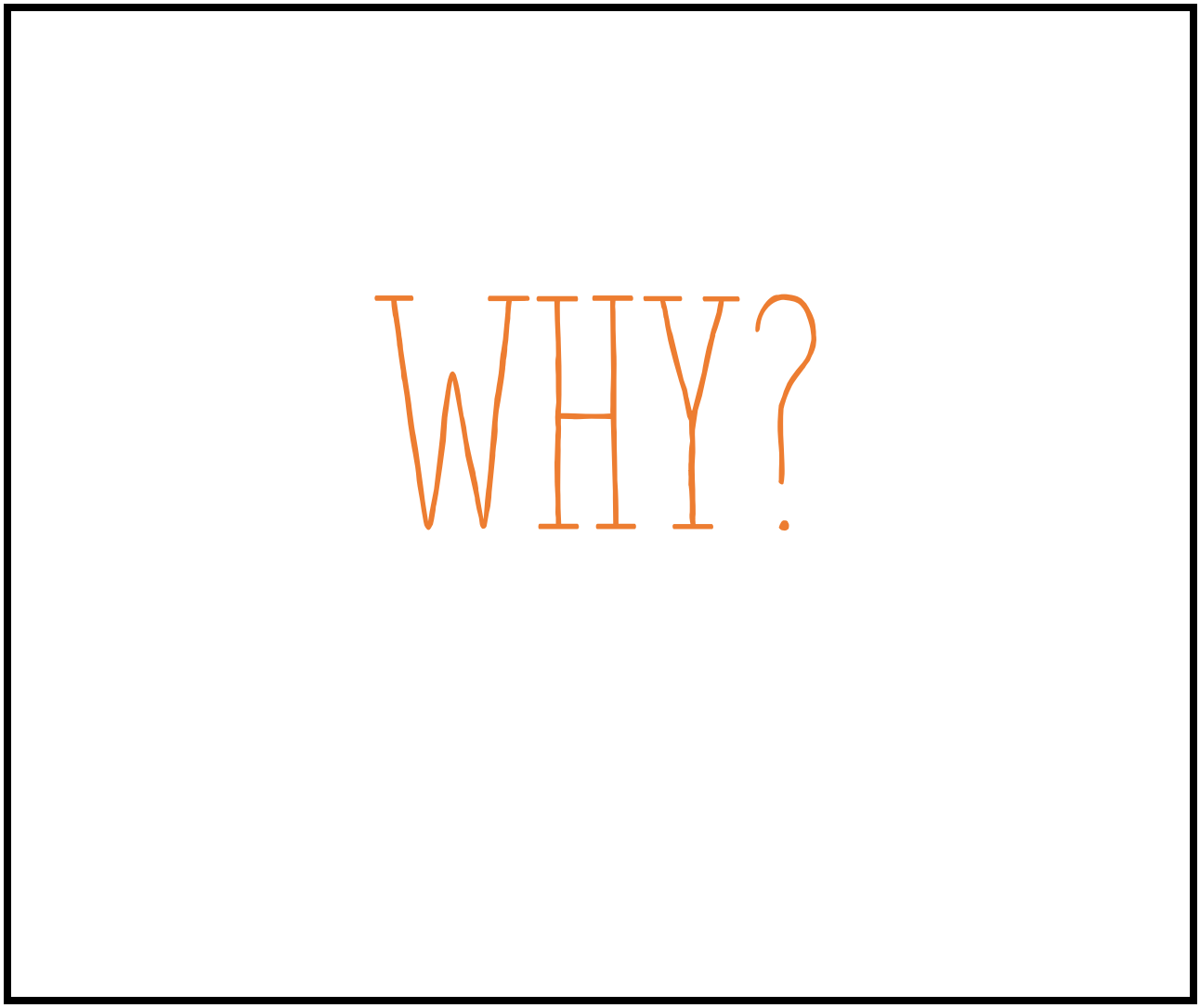

WHO?


Pine


Spruce


WHY?

Similar to DMS, alpha-pinene attracts water molecules when it enters the atmosphere, causing clouds to form. The clouds collect water until it starts to rain.


WHY?

By releasing alpha-pinene, the trees are giving themselves a source of water. This is part of why Oregon has so many trees, and so much rain.

GUESS THAT SMELL!

Round 3

HINTS

-Hint 1: I'm the second most expensive spice in the world.

-Hint 2: I'm native to Mexico and Central America, but you'll find me in your favorite desserts.

HINTS

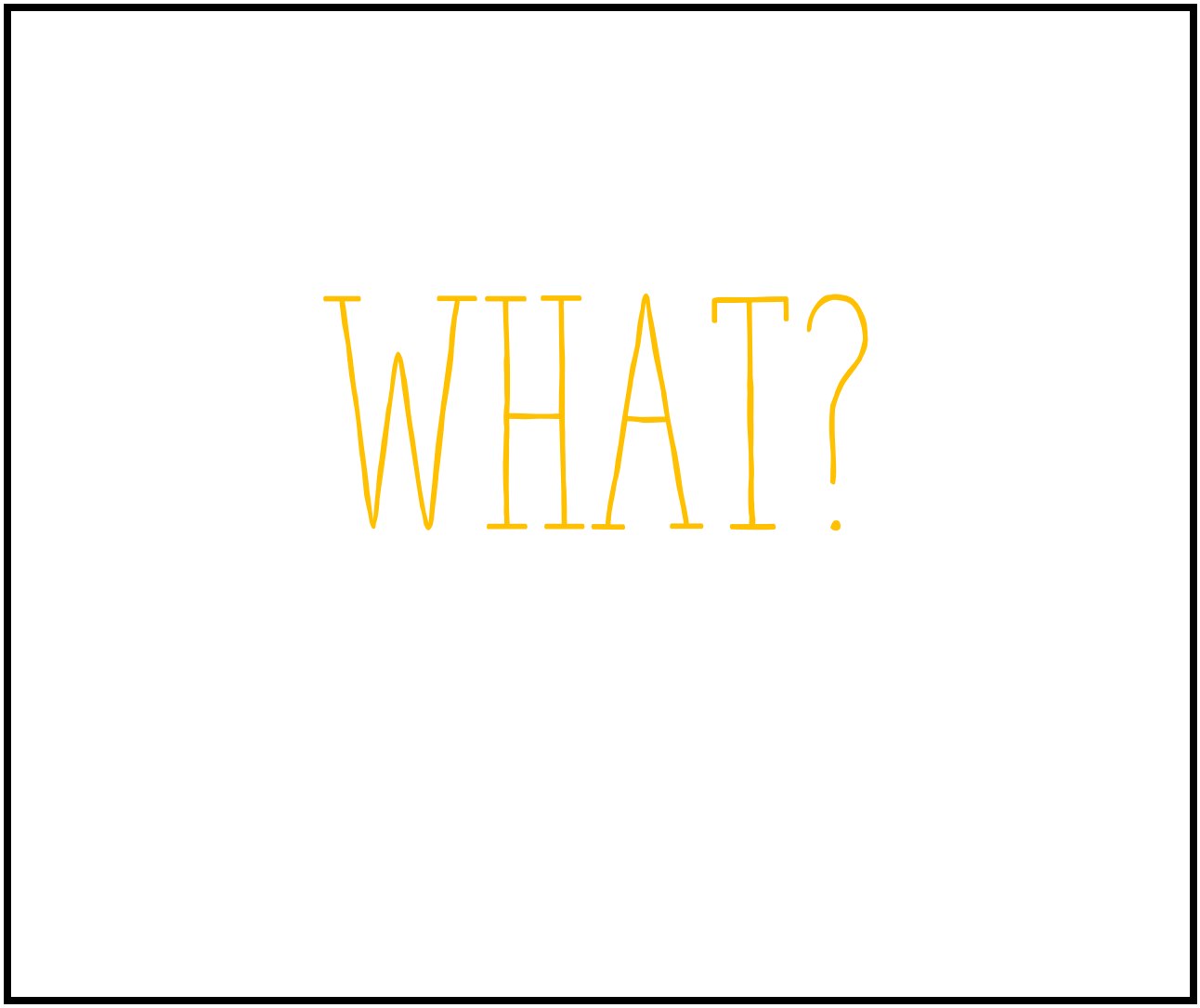
–Hint 4: I'm considered the most universally liked scent in the world.

ANSWER

The answer is...

Vanilla!

smells like... vanillin


WHAT?

Vanilla is one of the most popular scents and flavors in the world. It is made from vanilla bean, which is very expensive. Most vanilla is artificially made in a lab.

WHO?

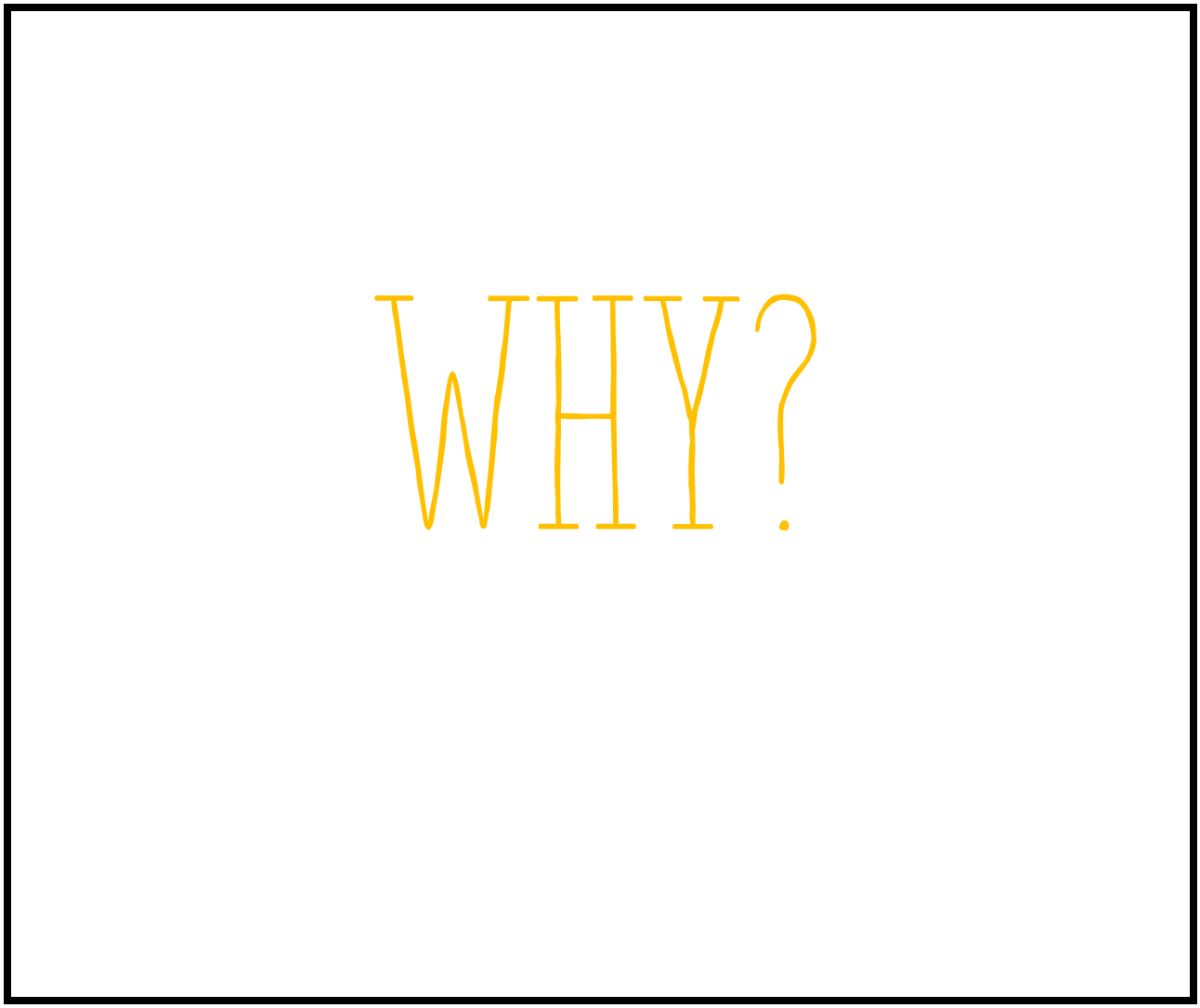
Vanilla beans are made by the vanilla orchid, which is a type of flower. They are fragile, difficult to keep alive, and difficult to get seeds from. This is why vanilla beans are so expensive.


WHO?

WHO?

Vanilla orchids do not produce beans very often. In order to farm them, farmers self-pollinate the plants to force them to produce the beans.

WHO?


WHY?

While vanillin tastes very good, nobody knows why the vanilla orchid makes it. One theory is that the sweet smell attracts pollinators, helping the orchid to create more seeds.

GUESS THAT SMELL!

Round 4

HINTS

-Hint 1: My name is famously hard to rhyme.

-Hint 2:I'm part of a bitter family, but I'm sweet.

HINTS

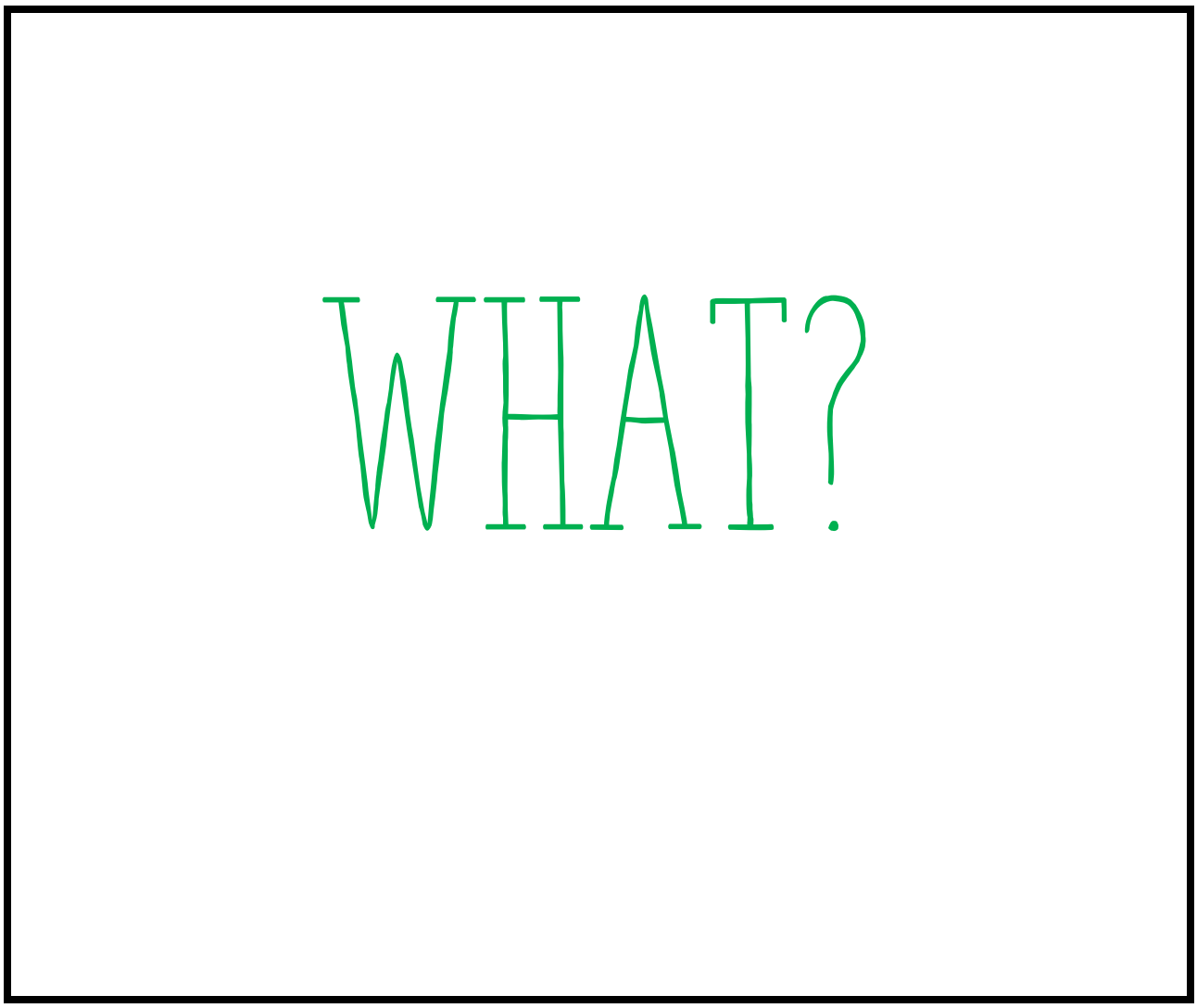
-Hint 4: I have the same name as the color that describes me

ANSWER

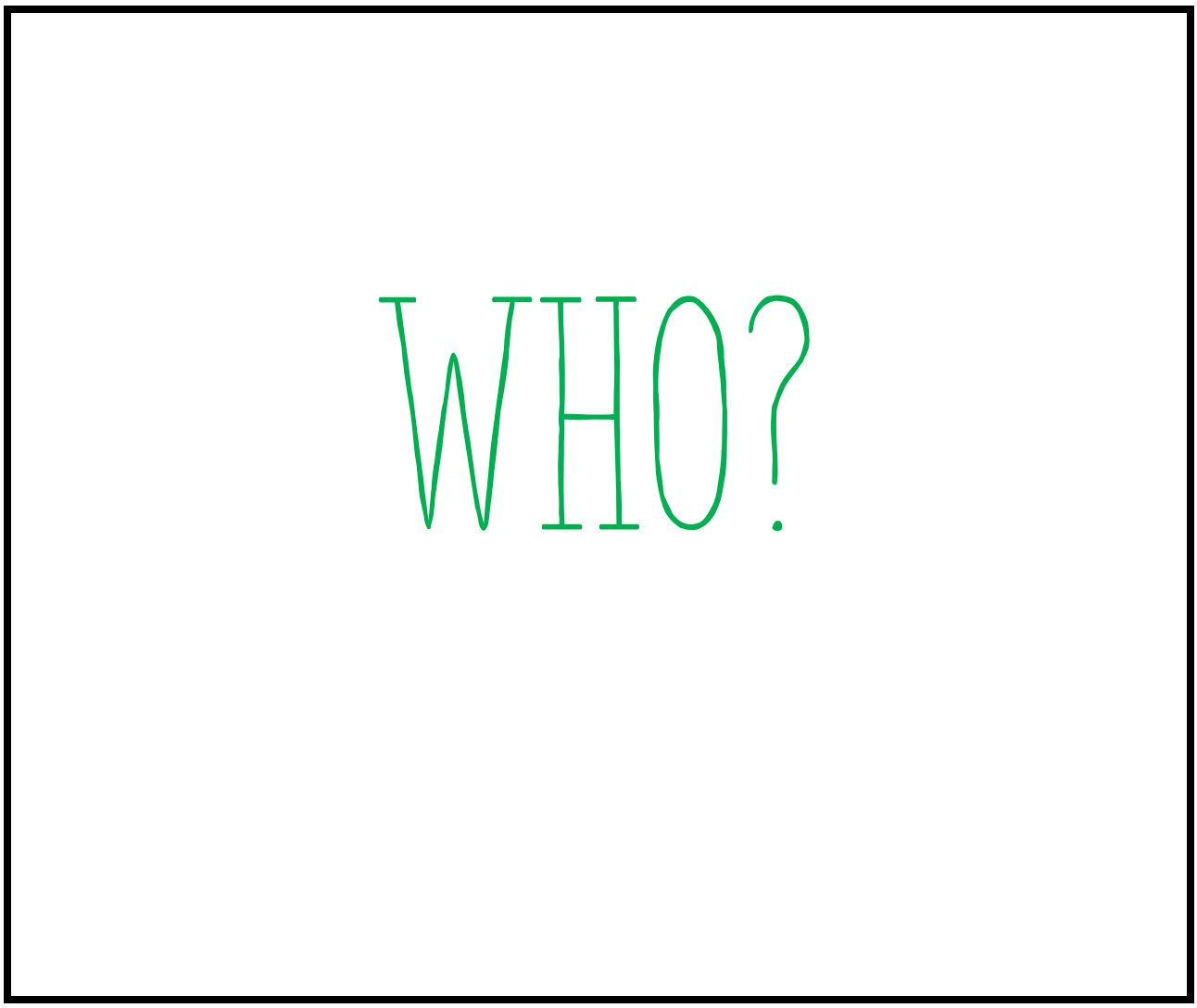
The answer is...

Oranges!

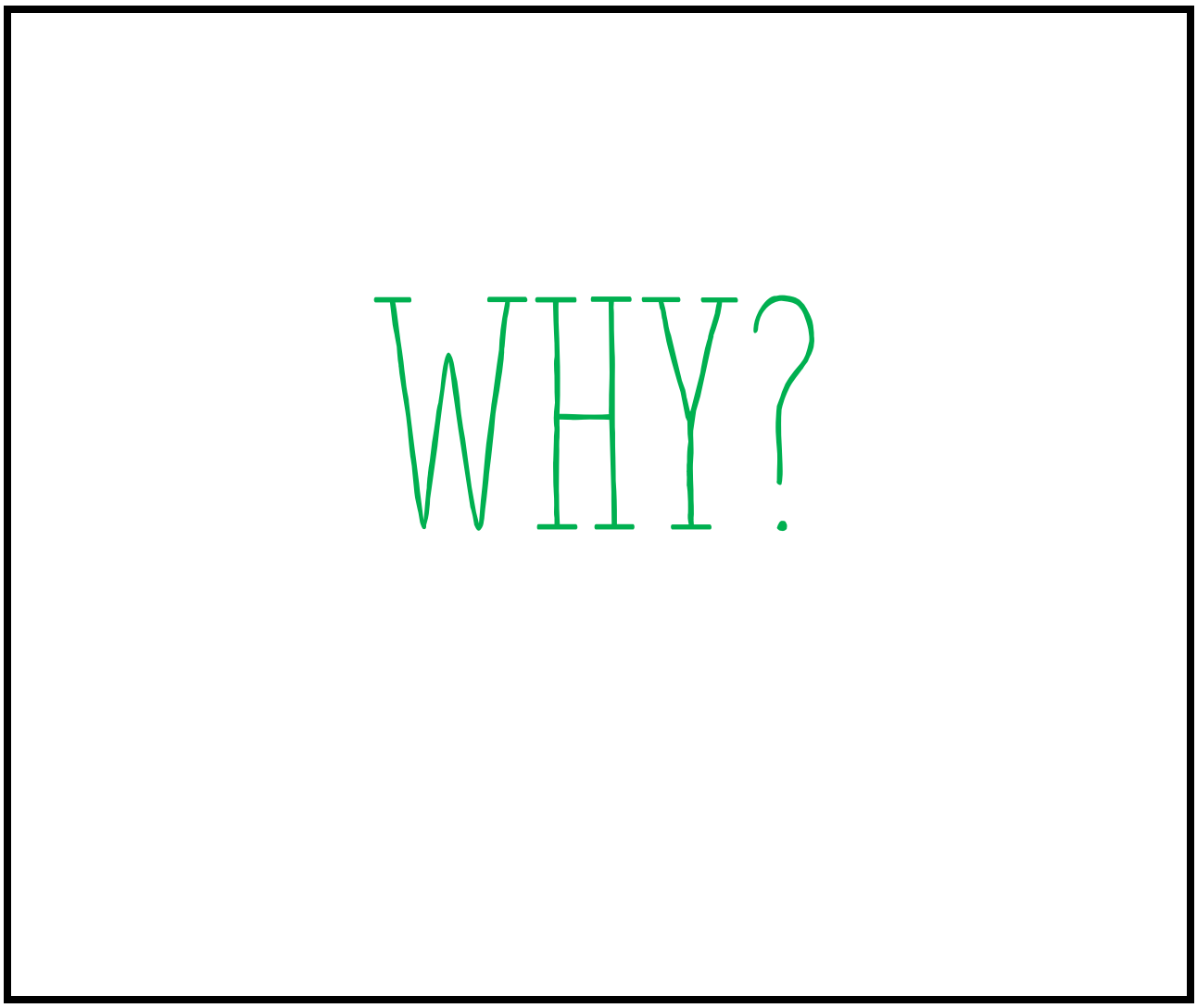
smells like... d-limonene


WHAT?

d-Limonene is the fruity smelling chemical in oranges. It is used as artificial flavoring, and like alpha-pinene, it is antibacterial and is used as a food preservative. It can even kill Covid-19 and the flu virus!


WHO?

d-Limonene is found in citrus with other chemicals, but it makes up 98% of the oils in an orange rind, and is the primary chemical responsible for an orange's smell.


WHY?

The sweet smell of oranges attracts pests and bugs, including fruit flies, which degrade the rind and decompose the fruit. Once the fruit has decomposed, the seeds are ready to become a new tree.

GUESS THAT SMELL!

Round 5

HINTS

-Hint 1: You might see me on the side of the road, or in ranch dressing.

-Hint 2: If you don't like how I taste, you may have to dill with it.

HINTS

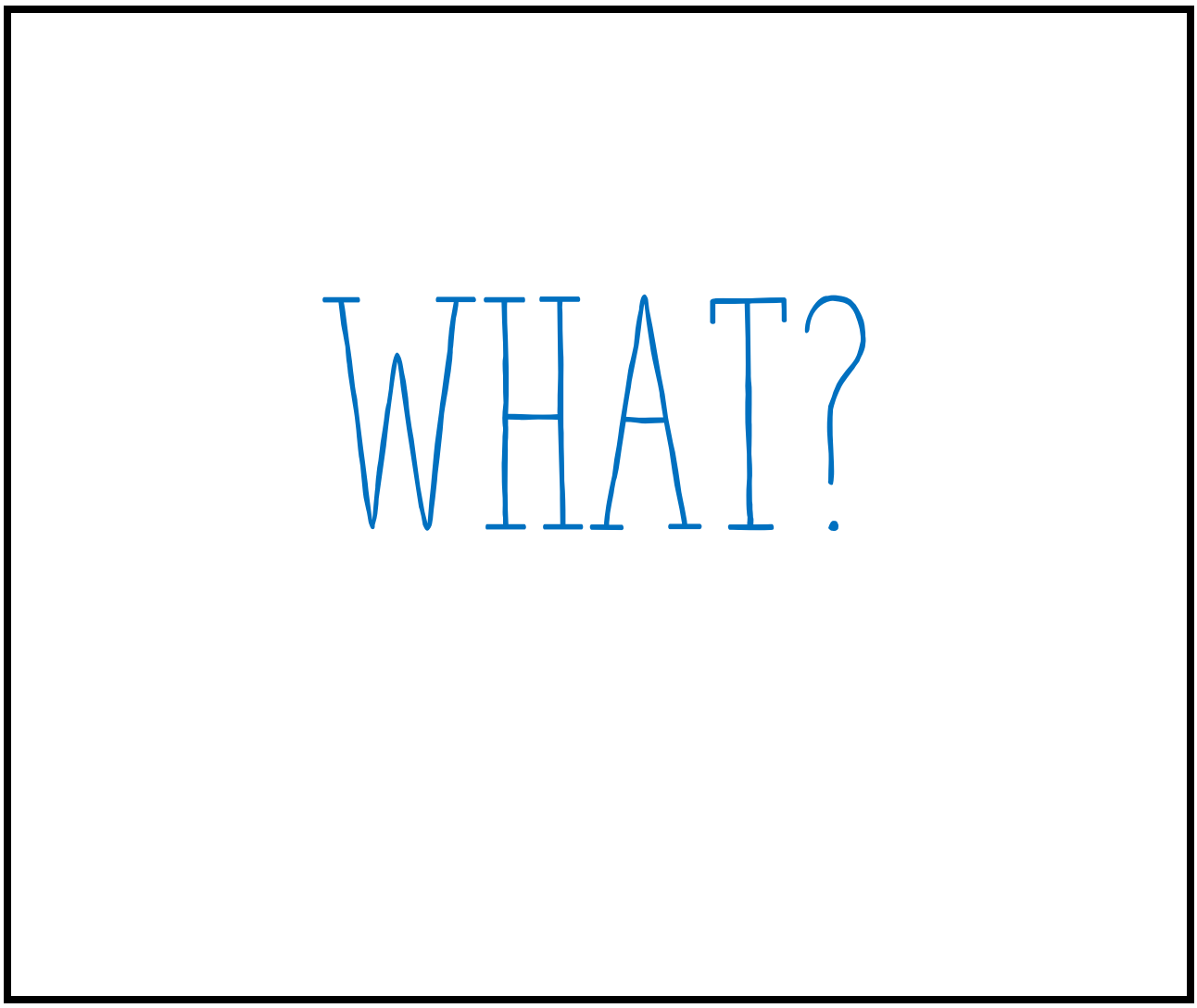
–Hint 4: Mirror mirror on the wall,
I mirror Round 4,
But don't smell like it at all

ANSWER

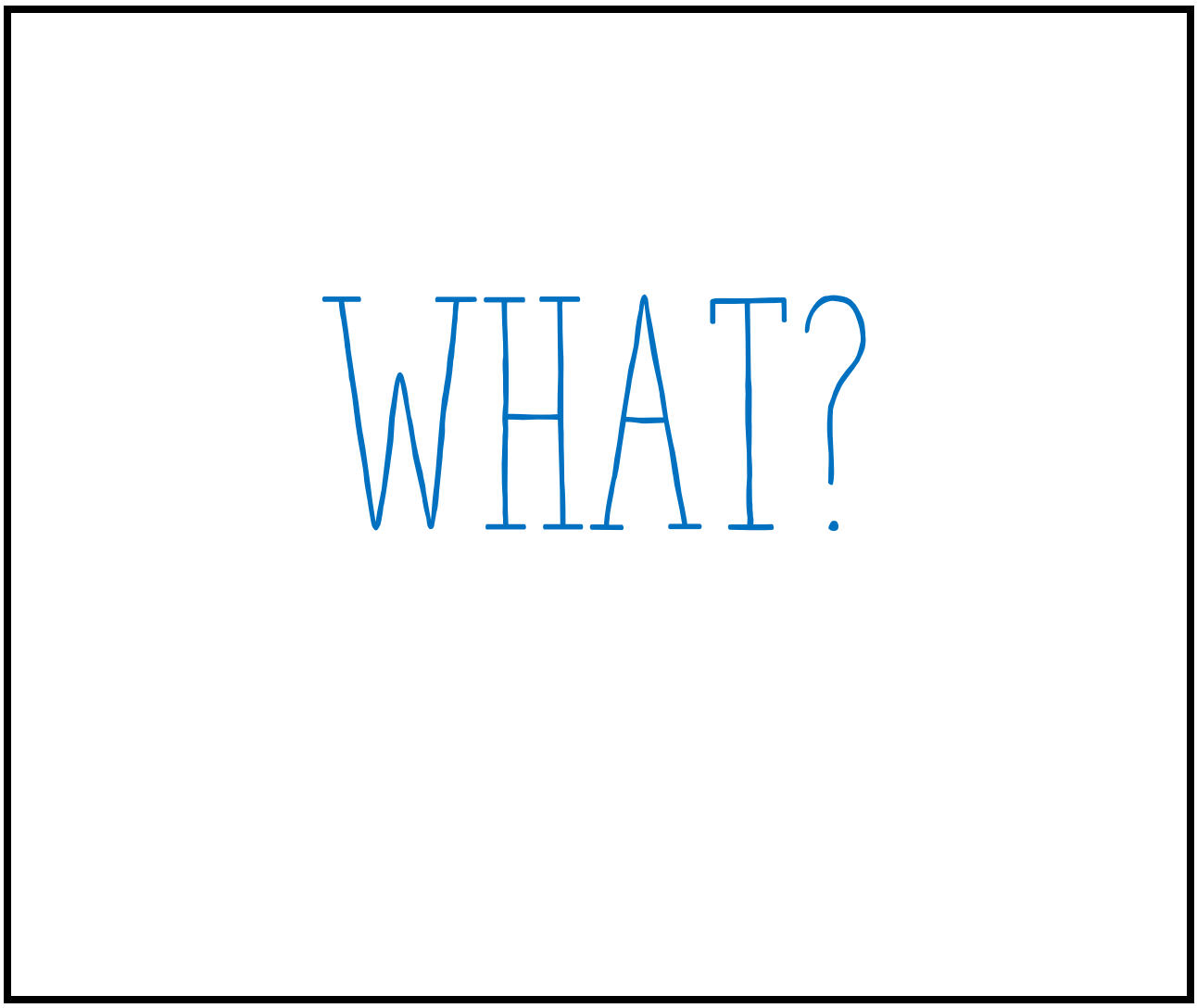
The answer is...

Dill!

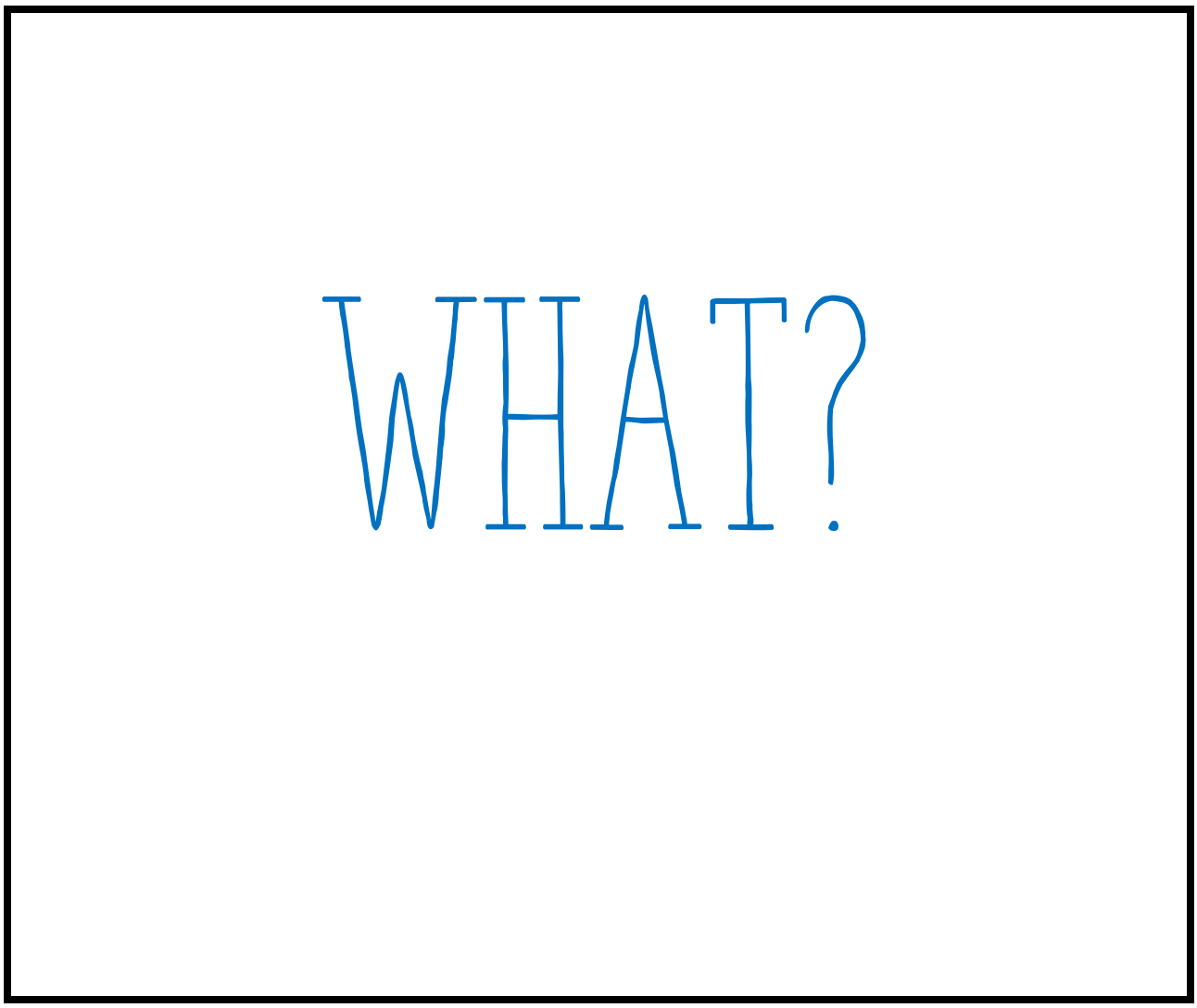
smells like... l-limonene


WHAT?

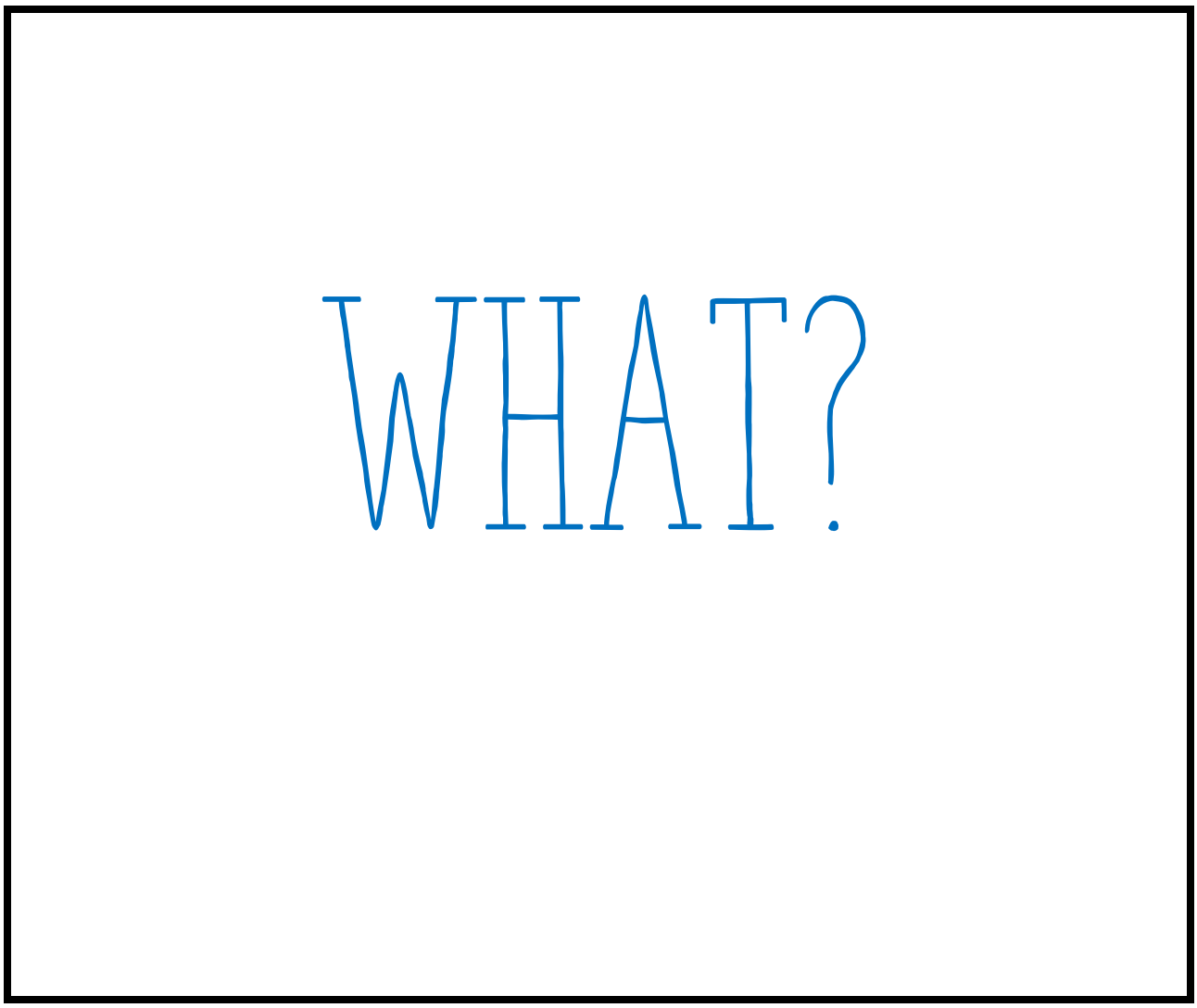
L-limonene is the main compound found in dill and caraway. Its odor has been described as smelling like pine, lemon, and citronella as well. It is recognizable as the solvent in cleaners, insect repellents, and degreasers.


WHAT?

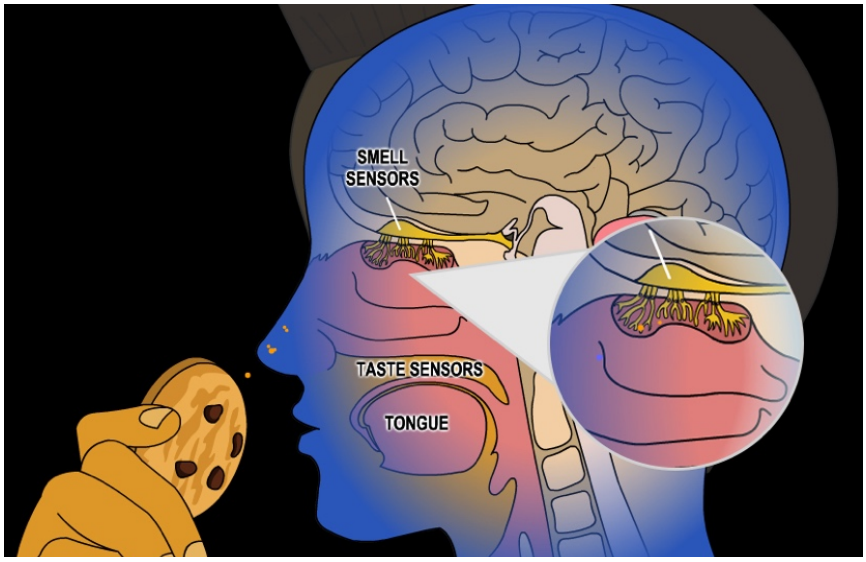
Because D and L-limonene are mirror images, they have the same physical properties and can be hard to separate. Most things outside of nature have a mixture of the two.

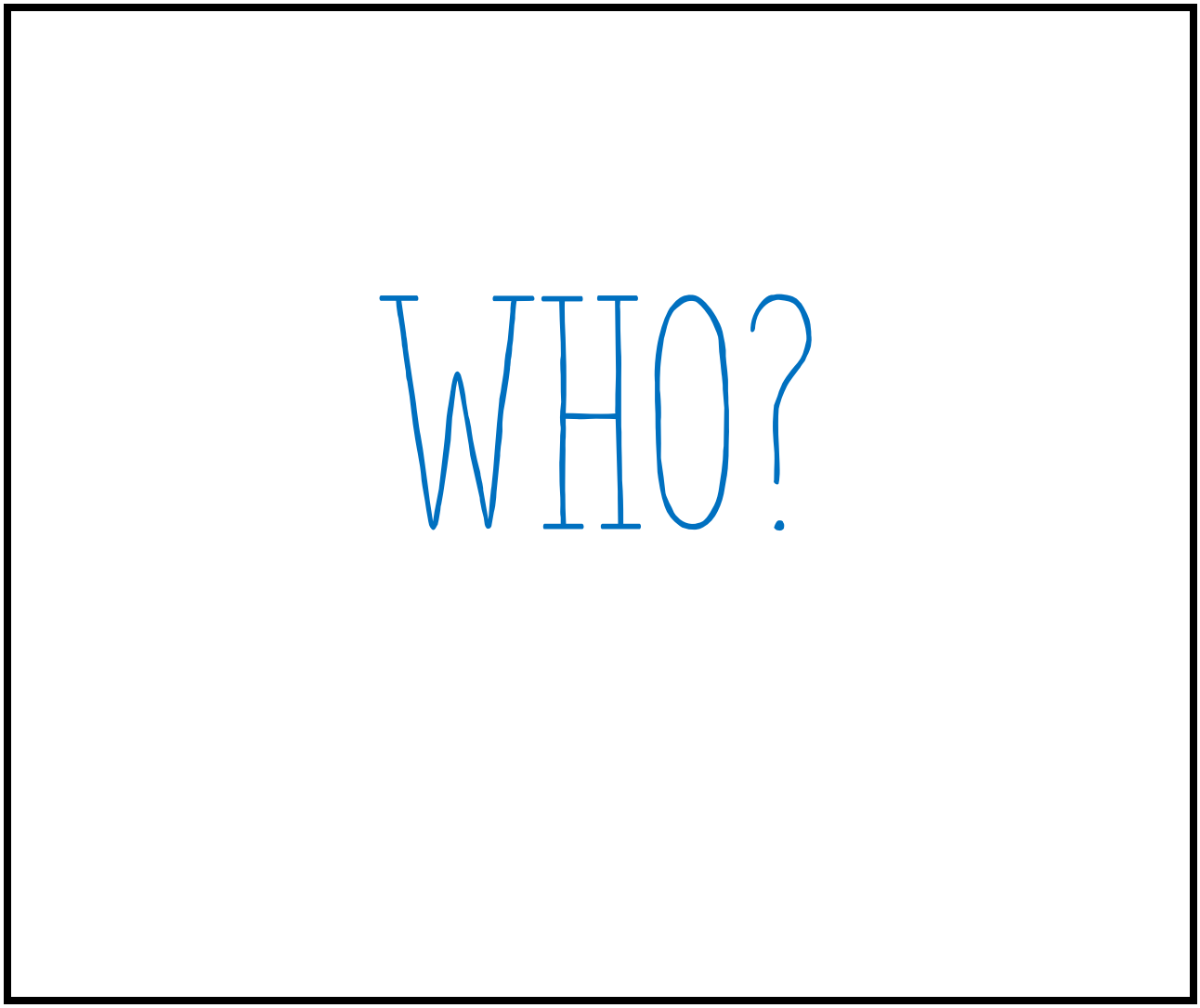

WHAT?

Even though D and L-limonene are mirror images, they smell different. This is because smell receptors in our nose each bind to only one type of molecule.

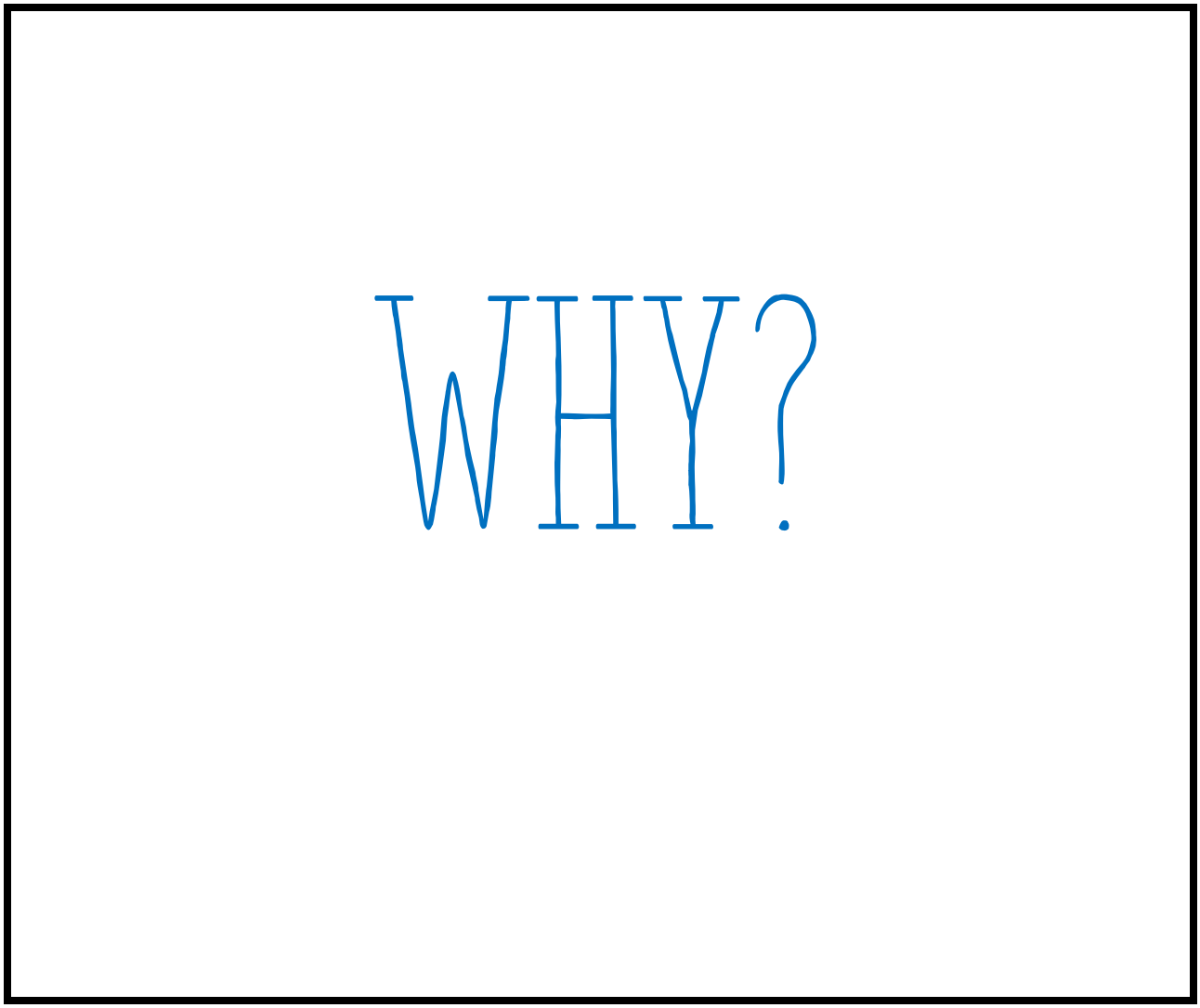

WHAT?

Binding is specific, and molecules that have nearly identical structures won't bind to the same receptor.




WHO?

L-limonene is found in dill, caraway, fennel, carrots, and other related plants.


WHY?

Unlike D-limonene, L-limonene has a bitter smell. It repels pests, keeping the flowers and seeds safe. L-limonene is kept in the leaves, protecting the plant from losing its ability to produce energy from sunlight.

GUESS THAT SMELL!

Round 6

HINTS

-Hint 1: You wouldn't want to eat me, but you may eat the things that come out of me.

-Hint 2: Nobody wants me in their house, but I come in anyway

HINTS

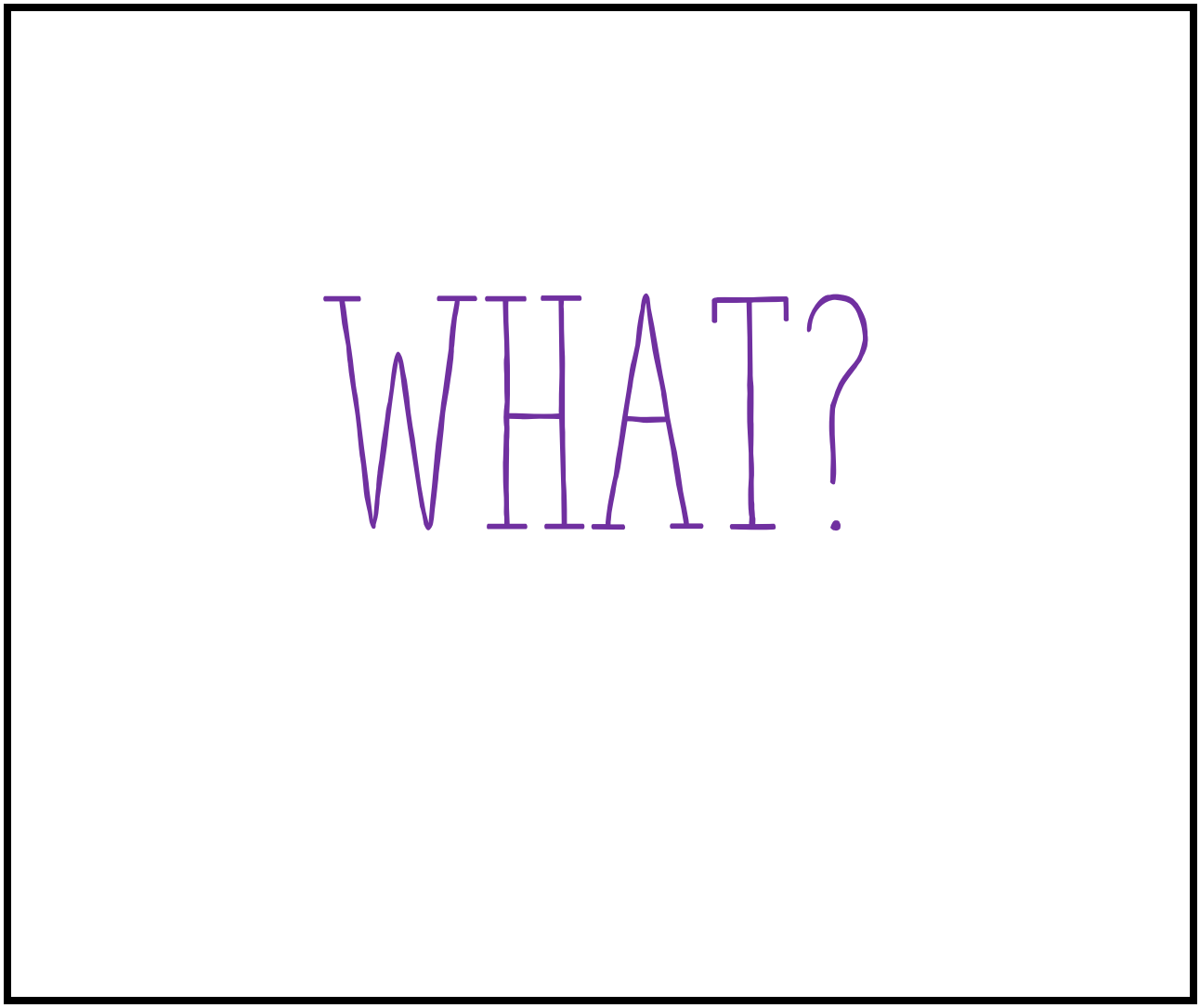
–Hint 4: I cover 7.5% of the Earth's surface, but you may still buy me in a store.

ANSWER

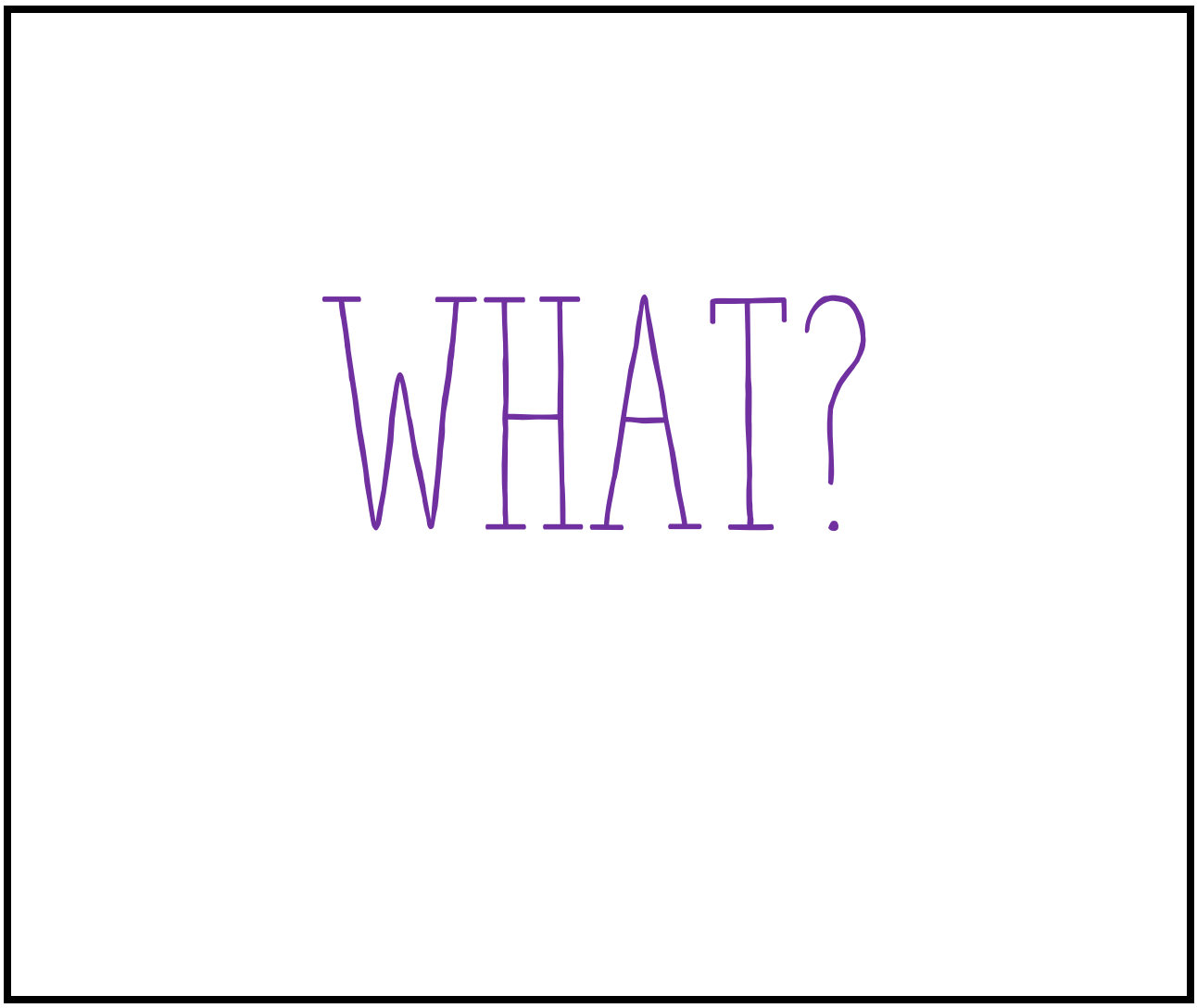
The answer is...

Dirt!

smells like... geosmin


WHAT?

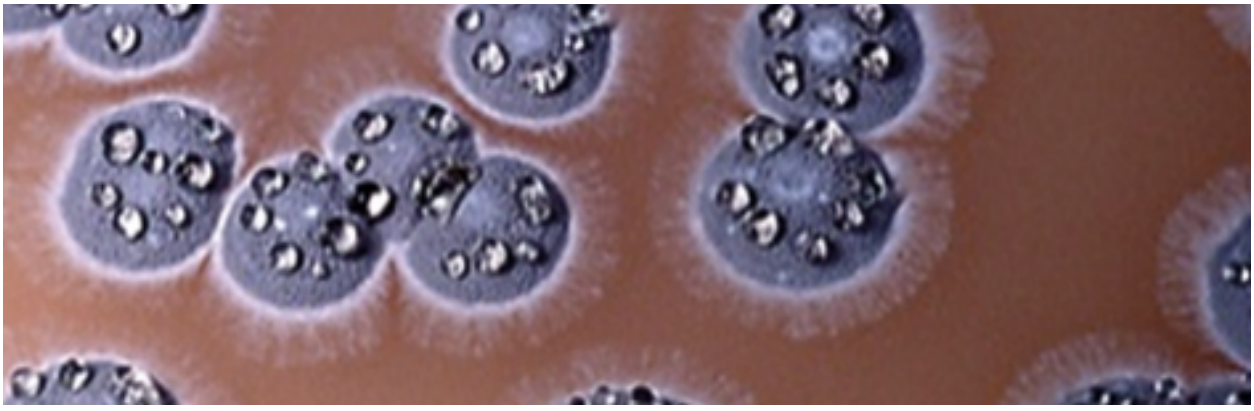
Geosmin is the compound responsible for the smell of dirt, as well as the smell of rain. As rain hits the dirt, the geosmin molecules are released and we can smell them.

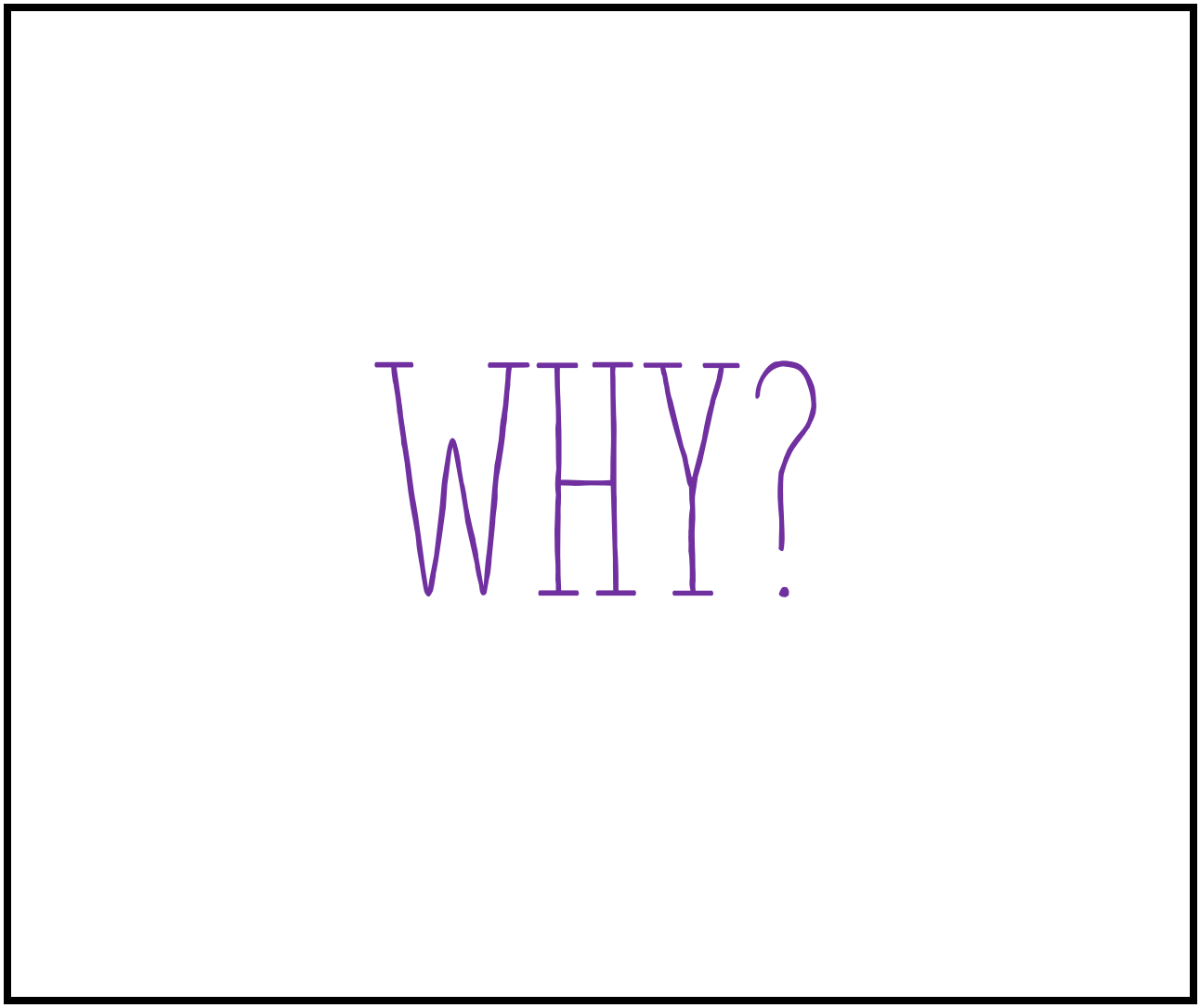

WHAT?

Geosmin can also be found in most waterways and is filtered out of drinking water because of its taste, which humans associate with something unclean.

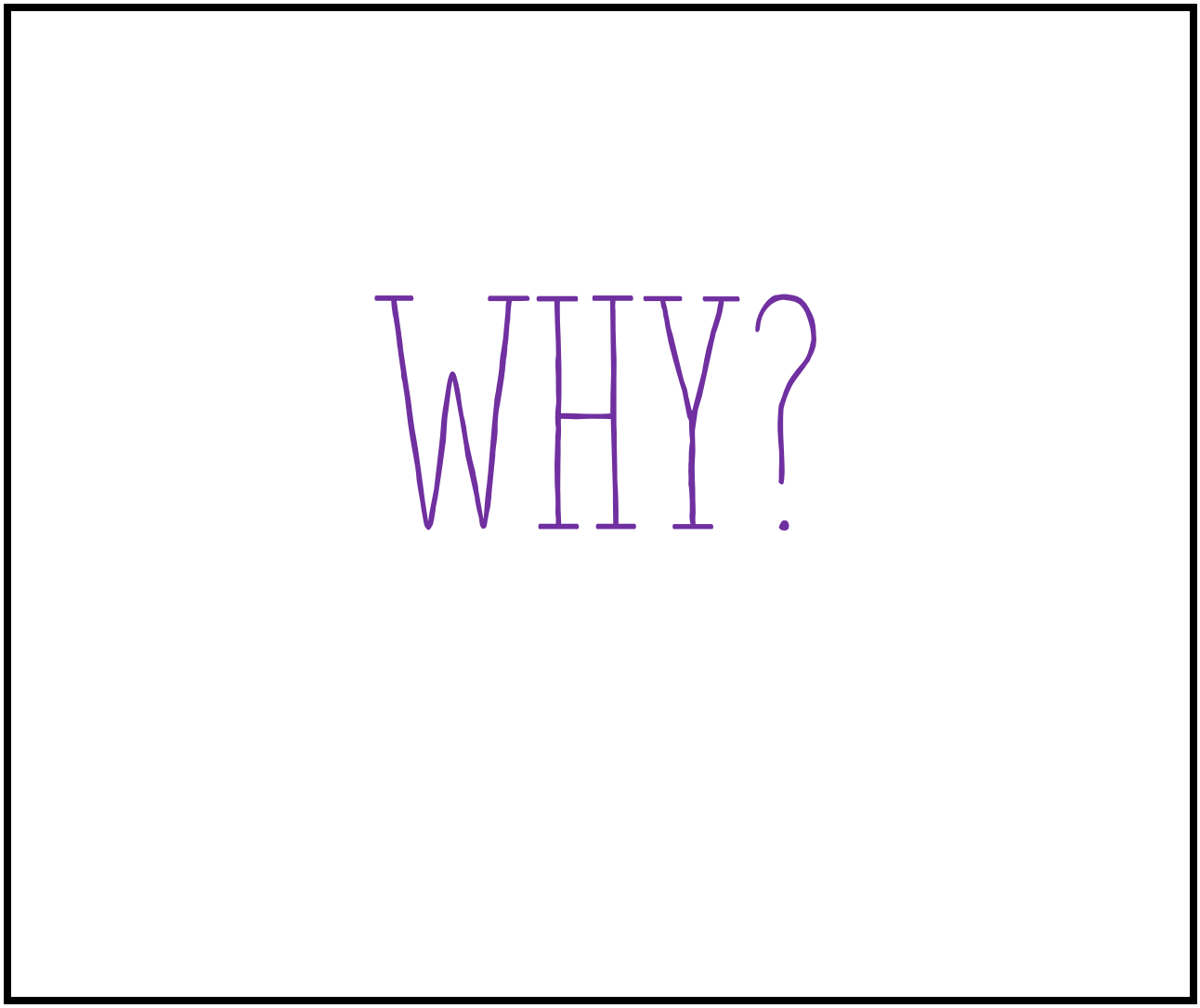
WHO?

Geosmin is produced by *Streptomyces* bacteria, which is common in soil. It is also found in many plants, fungi, and animals that do not produce it directly.

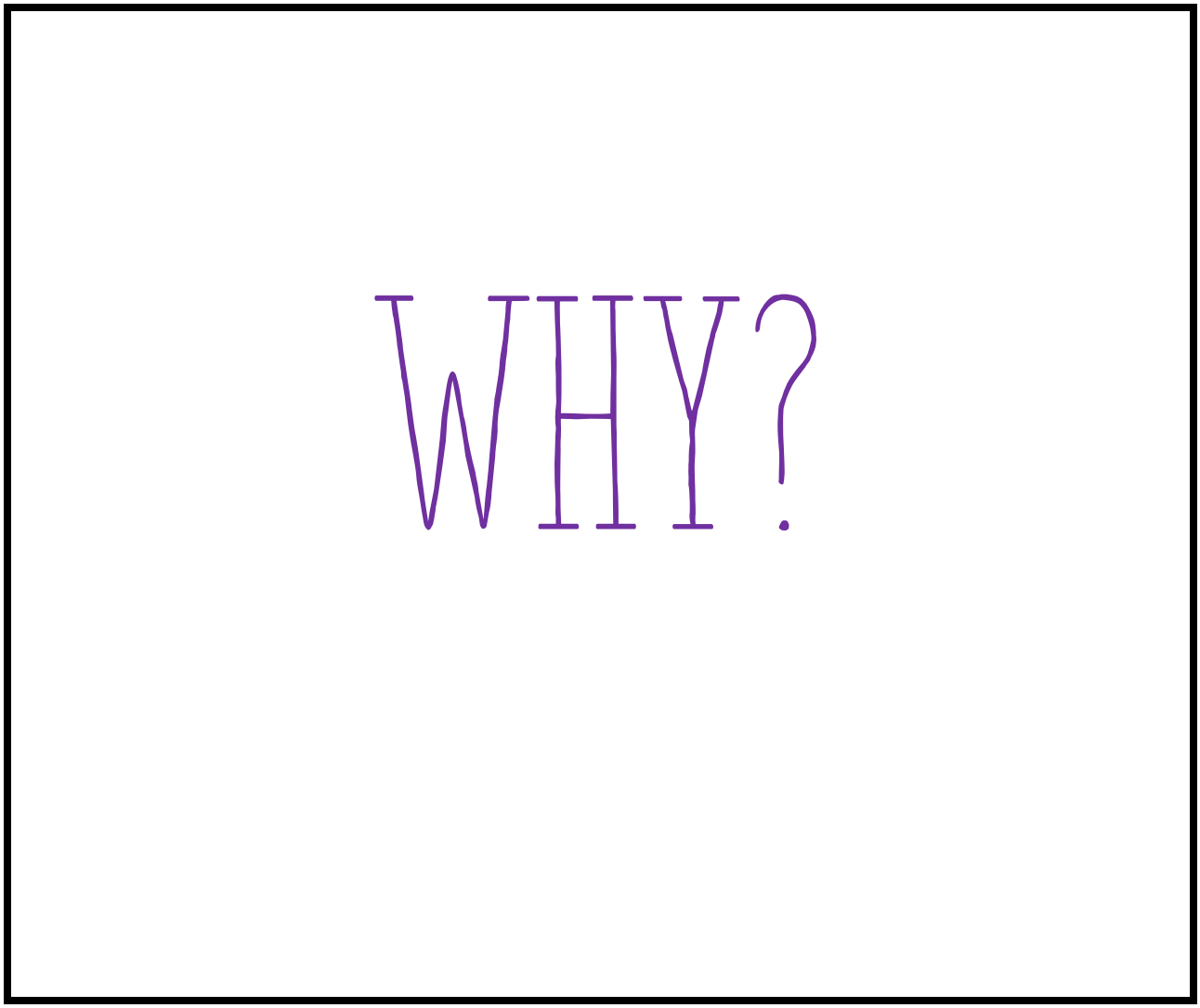



WHY?

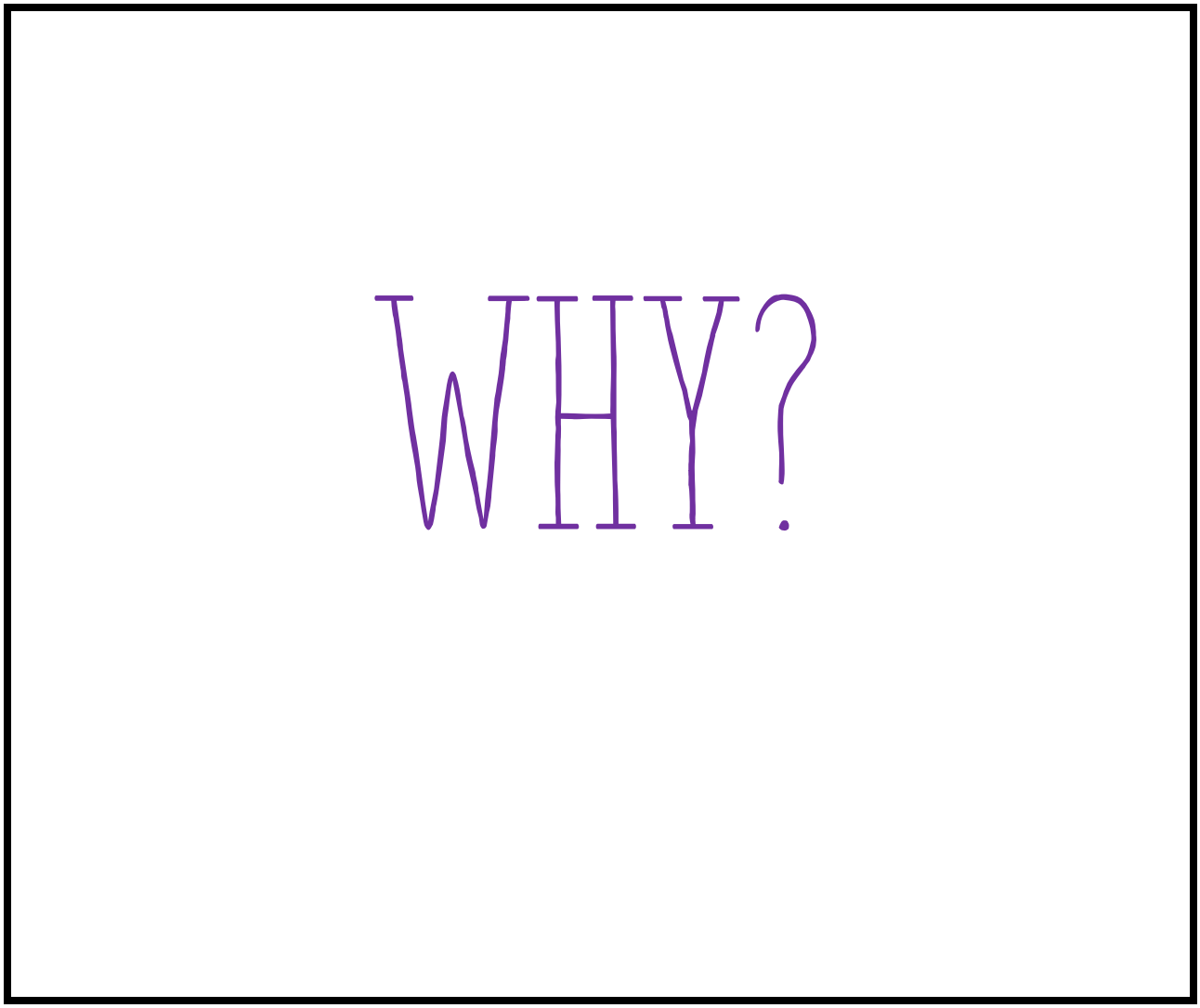
Because bacteria are too small to be seen, many things, including humans, eat them or breathe them in without realizing it, making us sick.


WHY?

Streptomyces bacteria do not want to be eaten and killed during the digestion process. Because we can't see them, they emit an odor so we know that they're there, which is beneficial for both species.


WHY?

Streptomyces and humans have "coevolved", meaning that we evolved at the same time in response to each other.


WHY?

When *Streptomyces* evolved to produce the smell, we had to evolve to be able to smell it and associate it as smelling gross so we won't eat it.