

Name _____

A Visit to the Microbe Zoo

Go to the Microbe Zoo website - <http://commtechlab.msu.edu/sites/dlc-me/zoo/>.

Welcome to the Microbe Zoo. Here you'll have a chance to learn more about the microbes in our world.

All the information you need to answer the questions is found in each part of the Microbe Zoo. This means you need *carefully* read the information in each Section.

Have fun learning about the Microbe Zoo.

Let's start our visit at Dirtland. *To get there, click on the Dirtland sign.*

1. How many microbes are there in one gram of dirt?
2. How many different species are found in that gram of dirt?

Click on Ag Acres

3. There are five different diseases listed that are caused by fungus, viruses, and bacteria. List these diseases, what microorganism causes it, and what it does to the plant.

Disease	Microorganism	What it does
Rust fungi		
Rhizoctonia		
<i>Agrobacterium tumefaciens</i>		
<i>Burkholderia cepacia</i>		

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Select Microbial Fertilizer, select Root Cellar.

4. Define symbiosis.

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5. What two things are gathered by Mycorrhizal fungi that help plants?

a.

b.

Go back to Ag Acres

6. Complete the table.

Bacterium	Kills Which Insects (flies, beetles, etc.)
<i>Bacillus thuringiensis</i>	

Go back to Dirtland and select Compost Pile

7. The microbes that are heat lovers are called _____.

8. Fungi live on _____ and _____ in the compost pile.

9. Are there any Styrofoam™ eating microbes?

Go back to Dirtland. Select Home Sweet Home

10. What creatures lurk in your couch and what do they eat?

11. What is growing on your shower curtain?

Go back to Dirtland. Select House of Horrors

12. This bacterium sucks the life juices (cytoplasm) out of another bacterium called *Chromatium* (don't worry, it won't attack you).

13. The Strangler Fungus catches and kills _____.

Go to the top of the page and select Snack Bar

14. List the four foods made by microbes listed in the first sentence.

a.

b.

c.

d.

15. _____ is used in making bread.

16. _____ is the bacterium that produces an acid that helps to eat away the seed pod of chocolate beans.

17. This dairy product is made from fermented milk. *Lactobacillus* bacteria give it a slightly sour taste.

At the top of the page, select Animal Pavilion and then Habitat on Humanity

18. You have more bacterial cells in or on your body than you have human cells.

a. True

b. False

19. What is the acid formed by *Streptococcus* bacteria (*Streptococcus mutans* is the main culprit!) (this is the acid that causes cavities)?

20. Why are there very few microbes in your stomach?

21. Each gram (about a thimble-full) from the large intestine contains up to how many microbes?

22. What vitamin is made in your intestines?

23. List the two bacteria that live on the skin and what they do.

a.

b.

Go back to Animal Pavilion and select Poo Corner

24. How many disease causing microbes are carried in poop?

25. *S. typhi* can cause food poisoning. How many *S. typhi* bacteria are there in a gram of poop?

At the top of the page, select Water World and then Pond

26. Name the two green microbes that grow closest to the top of a pond.

a.

b.

27. List the variety of algae found in a pond.

a.

b.

c.

d.

e.

f.

g.

28. Heterotroph means _____.

At the top of the page, select Space World and then Frequent Fliers

29. List the three types of spores that are "airborne microbes."

a.

b.

c.



A Visit to the Microbe Zoo

Key

1. How many microbes are there in one gram of dirt?

1,000,000,000

2. How many different species are found in that gram of dirt?

10,000

3. There are five different diseases listed that are caused by fungus, viruses, and bacteria. List these diseases, what microorganism causes it, and what it does to the plant.

Disease	Microorganism	What it does
Rust fungi	fungus	rust colored patches on leaves
Rhizoctonia	fungus	causes root rot
<i>Agrobacterium tumefaciens</i>	bacteria	produces tumors on plant stems
<i>Burkholderia cepacia</i>	bacteria	rots onion roots

4. Define symbiosis.

Two different organisms living together and this association helps both organisms.

5. What two things are gathered by Mycorrhizal fungi that help plants?

a. water

b. nutrients

6. What bacterium kills which insects?

Bacterium	Insects (flies, beetles, etc.)
<i>Bacillus thuringiensis</i>	cabbage worms, tent caterpillars, gypsy moths, mosquitoes, black flies, Colorado potato beetles, and Japanese beetles

7. The microbes that are heat lovers are called *thermophiles*.

8. Fungi live on *leaves* and *wood* in the compost pile.

9. Are there any Styrofoam™ eating microbes?

No

10. What creatures lurk in your couch and what do they eat?

Mites - dead skin cells

11. What is growing on your shower curtain?

Shower slimers

12. This bacterium sucks the life juices (cytoplasm) out of another bacterium called *Chromatium* (don't worry, it won't attack you).

Vampirococcus

13. The Strangler Fungus catches and kills *worms and nematodes*.

14. List the four foods made by microbes listed in the first sentence.

a. bread

b. root beer

c. cheese

d. chocolate

15. *Yeast* is used in making bread.

16. *Lactobacillus* is the bacterium that produces an acid that helps to eat away the seed pod of chocolate beans.

17. This dairy product is made from fermented milk. *Lactobacillus* bacteria give it a slightly sour taste.

Yogurts

18. You have more bacterial cells in or on your body than you have human cells.

a. *True*

b. False

19. What is the acid formed by *Streptococcus* bacteria (*Streptococcus mutans* is the main culprit!) (this is the acid that causes cavities)?

Lactic acid

20. Why are there very few microbes in your stomach?

Because it is acidic

21. Each gram (about a thimble-full) from the large intestine contains up to how many microbes?

ten trillion (10,000,000,000,000)

22. What vitamin is made in your intestines?

Vitamin K

23. List the two bacteria that live on the skin and what they do.

a. *Propionibacterium acne* - prevents the growth of other, unwanted microbes.

b. *Staphylococcus epidermidis* - resistant to the dry conditions often found on skin.

24. How many disease causing microbes are carried in poop?

More than 500

25. *S. typhi* can cause food poisoning. How many *S. typhi* bacteria are there in a gram of poop?

Ten billion (10,000,000,000)

26. Name the two green microbes that grow closest to the top of a pond.

a. algae

b. cyanobacteria

27. List the variety of algae found in a pond.

a. golden

b. yellow

c. brown

d. red

e. green

f. yellow-green

g. diatoms

28. Heterotroph means "*other eating*".

29. List the three types of spores that are "airborne microbes."

a. Bacterial spores

b. Slime mold spores

c. Fungi spores