



GERMS

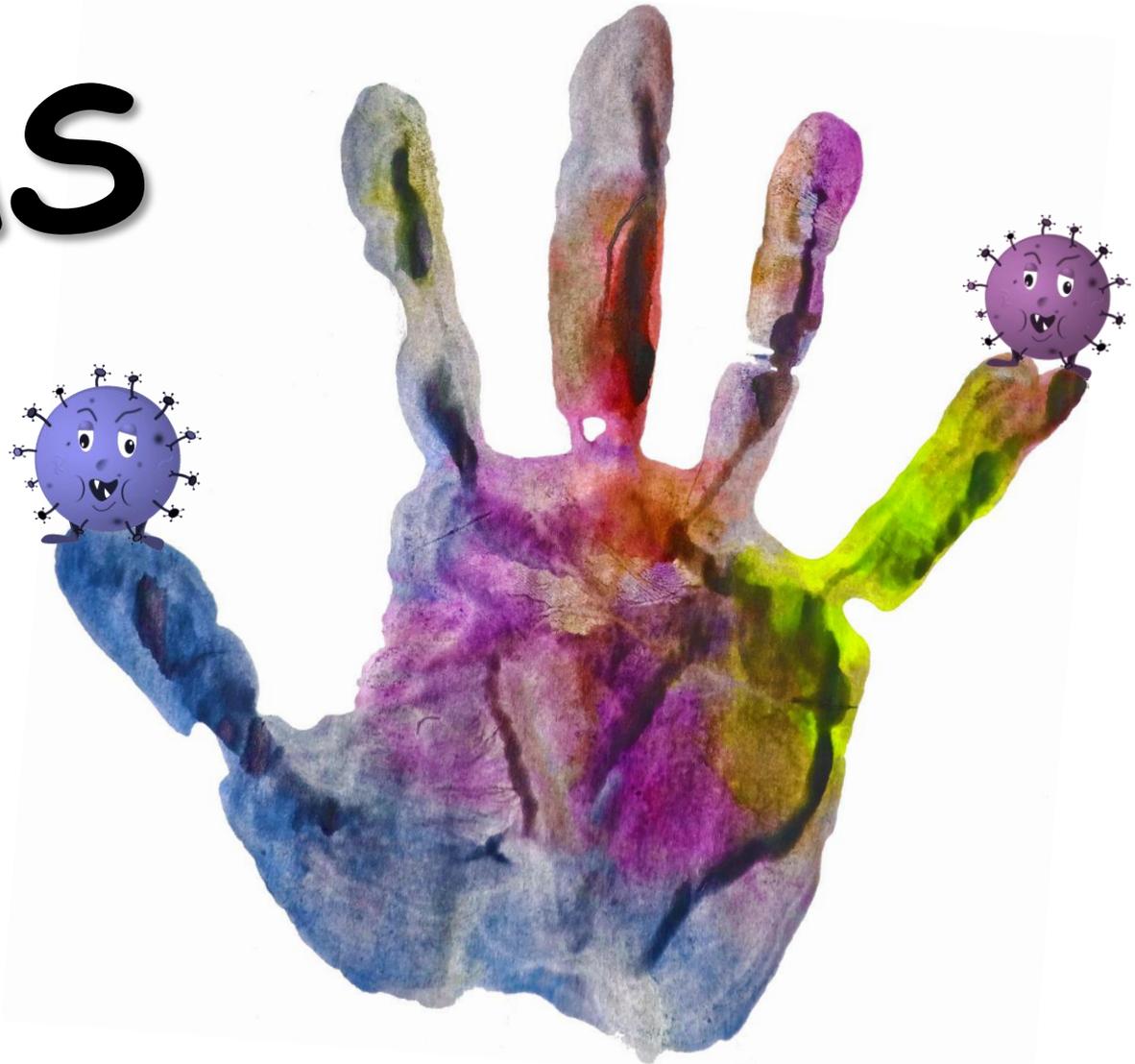
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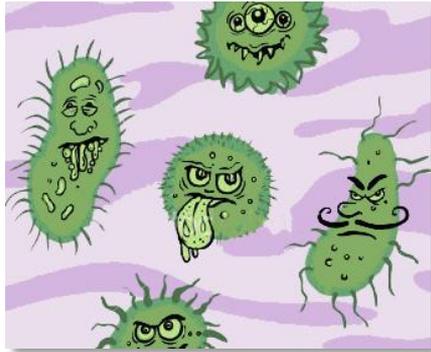
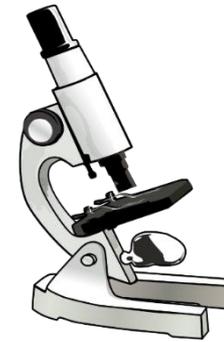
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What Are Germs?

- Germs are tiny, microscopic organisms that can make us feel sick and cause disease.



What Types of Germs Are There?

- Four major types: bacteria, viruses, fungi, and protozoa.

What Do Germs Do?

- Once germs invade our bodies, they snuggle in for a long stay.
- They are **PARASITIC**, they steal energy from their hosts. As they gobble up nutrients and energy, they produce wastes called **TOXINS**.
- Toxins cause symptoms of common infections like fevers, sniffles, rashes, coughing, vomiting, and diarrhea.

Types of Germs

Virus

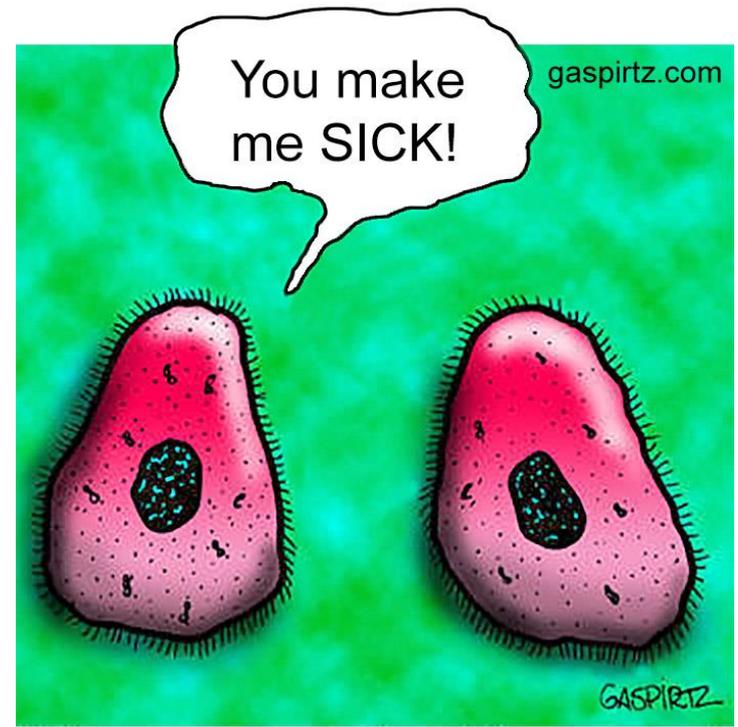
Bacteria

Fungi

Protozoa

While going through the slide, take notes on the following:

- What is it?
- What causes it?
- What is its environment?



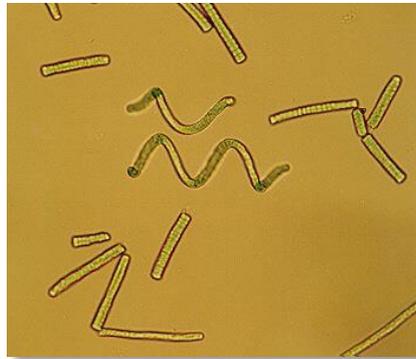
When germ relationships go bad

BACTERIA

- Tiny single celled organisms that can reproduce outside of our bodies or within our bodies.
- They can cause infections.
- Not all bacteria are bad. Some live in our intestines and help us use the nutrients in food.



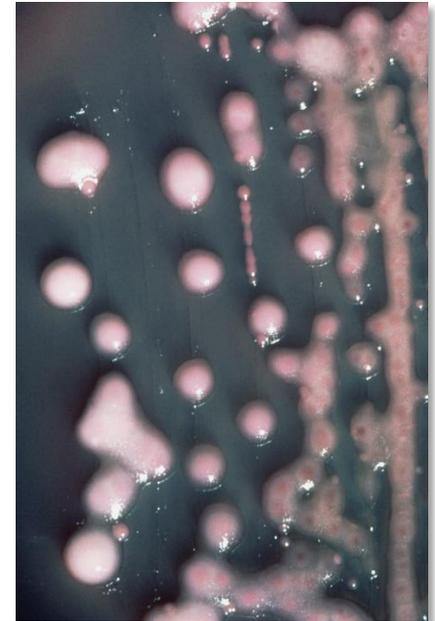
Rod-shaped bacteria that is harmless to humans.



Spiral-shaped cyanobacteria.

FACTOID: DID YOU KNOW THERE ARE MORE BACTERIA IN OUR BODIES THAN THERE ARE CELLS?

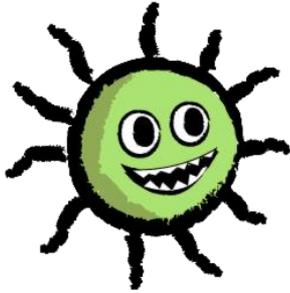
Bacteria outnumber human cells by about 10:1 in the human body.



Harmful bacteria that can cause pneumonia.

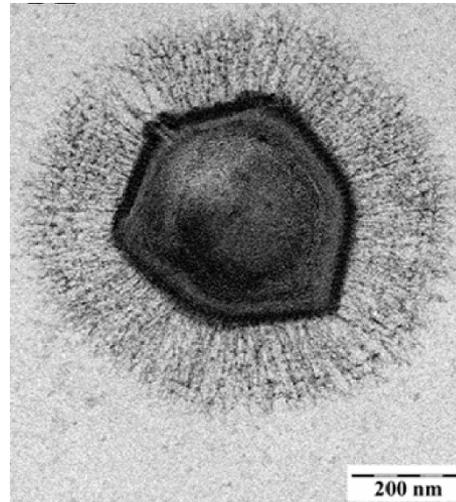
VIRUSES

- Depend upon a host to survive, grow, and reproduce.
- Once inside a body, viruses can spread and make organisms very sick.
- They cause chicken pox, measles, flu, conjunctivitis, and many other diseases in people.

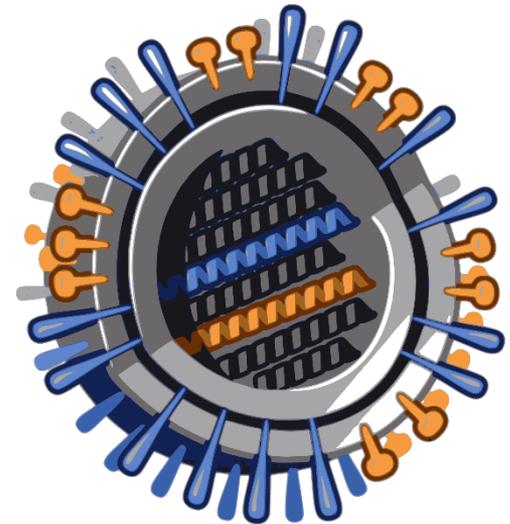


Is a virus a living organism?

Hint: A living organism is a **living thing** that has (or can develop) the ability to act or function independently.



Electron microscope image of a virus.



Drawing showing the inside of a virus.

FUNGI

- Multi-celled plant-like organisms.
- Unlike plants, fungi cannot produce their own food from photosynthesis. Fungi get nutrition from other plants, food, and animals.
- They thrive in damp, warm environments.
- Most are not dangerous. They can cause athlete's foot, and rashes or allergies.



Trichaptum mushrooms on a log.



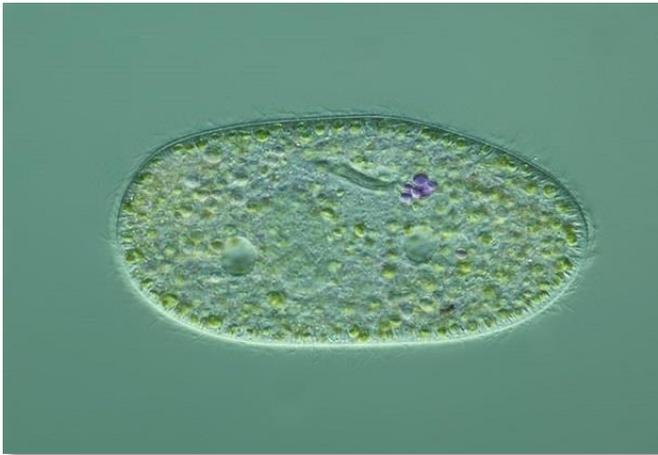
Slimy stalked puffball fungi.



Powdery mildew fungus.

PROTOZOA

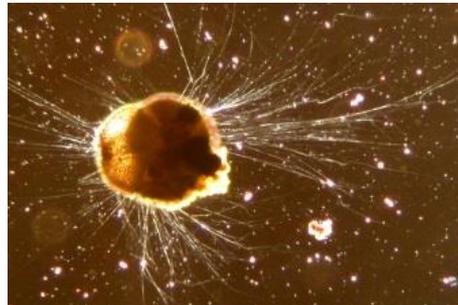
- One-celled organisms like bacteria. Protozoa love moisture and spread through contaminated water.
- They cause intestinal infections that lead to diarrhea, nausea, and belly pain.



A green *Paramecium*.



Electron microscope image of Foraminifera.



A live Foraminifera.

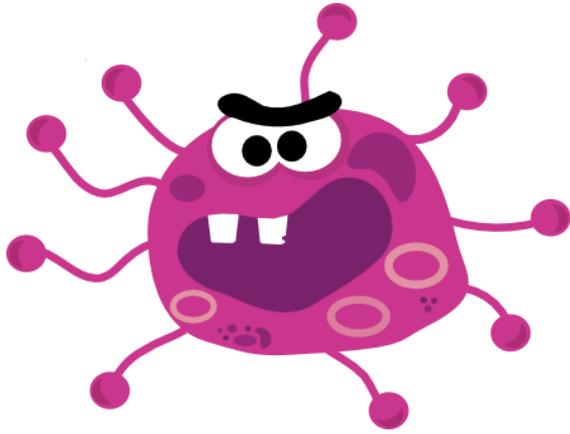
CONJUNCTIVITIS

- Conjunctivitis or Pinkeye is a common eye inflammation caused by bacteria.
- **Symptoms:** red, itchy, crusty, or goeey, irritated eyes.
- You can catch it just by touching an infected person or surface. If you then touch your eyes, the infection can spread.
- **Cure:** You will need to see a doctor for a prescription. Don't wait. It is very contagious.
- Avoid catching conjunctivitis:



**Wash your hands often
with warm, soapy water**

COMMON COLD



- A cold is an infection of the upper respiratory system. It is caused by a virus. There are over 200 kinds of viruses. The RHINOVIRUS is the most common cold virus.
- You catch a cold when a virus docks or lands and sticks to the inside of your nose like a small spaceship attaching to a mother ship!
- **Symptoms:** Mucus, red and runny nose, sneezing, hoarseness, soreness, feeling tired.
- There is no cure so to prevent catching a cold:



**Wash your hands often
with warm, soapy water**

STREP THROAT

- Strep Throat is a contagious disease caused by *Streptococci* bacteria.
- *Streptococci* bacteria hang out in the nose and throat. Sneezing, coughing, shaking hands, or touching things can easily spread strep to others.

- **Symptoms:** Red sore throat with white patches, trouble swallowing, swollen glands, enlarged, red tonsils, headache, fever.



Wash your hands often with warm, soapy water

- **Cure:** See a doctor, get a throat culture. It tells if strep is infecting your throat.
- Your doctor will likely prescribe antibiotics.
- Finish ALL medicine to reduce antibiotic-resistant bacteria.

INFLUENZA

- Flu is a common name for **influenza**, a virus that attacks the respiratory system.
- There are 3 types of flu virus: Type A, Type B and a rare form that produces mild symptoms, Type C.
- Flu virus **mutates** or changes each year so it is hard for your body to produce antibodies. Flu virus is very contagious.

- **Symptoms:**
fever, headache, chills, dry cough, feeling tired, and loss of appetite.
- Flu may also cause vomiting, stomach pain, and diarrhea.



- Coughing, sneezing or even talking may be enough to spread the virus to others.

Wash your hands often with warm, soapy water

MORE ON INFLUENZA

- Up to 90 million people get the flu each year in the US.
- **Cure:** Antibiotics don't work on the flu virus.
- Treat with rest, drink lots of water and juice. Take acetaminophen, such as *Tylenol* or ibuprofen, such as *Motrin*. Do **NOT** take aspirin. When you have the flu, it increases the risk of Reye's syndrome, a serious illness.
- **STAY HOME FROM SCHOOL!**

FLU SHOT FACTS:

- Scientists make vaccines from dead or weak viruses that cannot give you the flu. They try to guess which viruses will be the most common each year.
- The flu shot will help your body produce antibodies against those viruses.
- You may still get the flu from another type of virus, but your chance is reduced.



SPREADING GERMS



- When a person sneezes, droplets from the mouth and nose spread at a rate of up to 150 feet per second. That is around 100 miles per hour!
- When most of the droplets evaporate, thousands of germ-carrying particles are left floating in the air.

PROTECT YOURSELF FROM GERMS

Germs spread through the air in sneezes and coughs or mix with body fluids like sweat, saliva, and blood.

To protect yourself, *avoid* those things.



"Stay back, you guys! This stuff has killed 99.99% of our fellow germs!"

Cover your nose and mouth when you sneeze or cough to avoid spreading germs.

Use tissues, your sleeves, or the collar of your shirt to catch sneezes. And...

Wash your hands often with warm, soapy water

Always wash after using the bathroom, before you prepare or eat food, after you handle money, after playing with pets or visiting a sick friend, and when you sneeze, cough, or blow your nose.

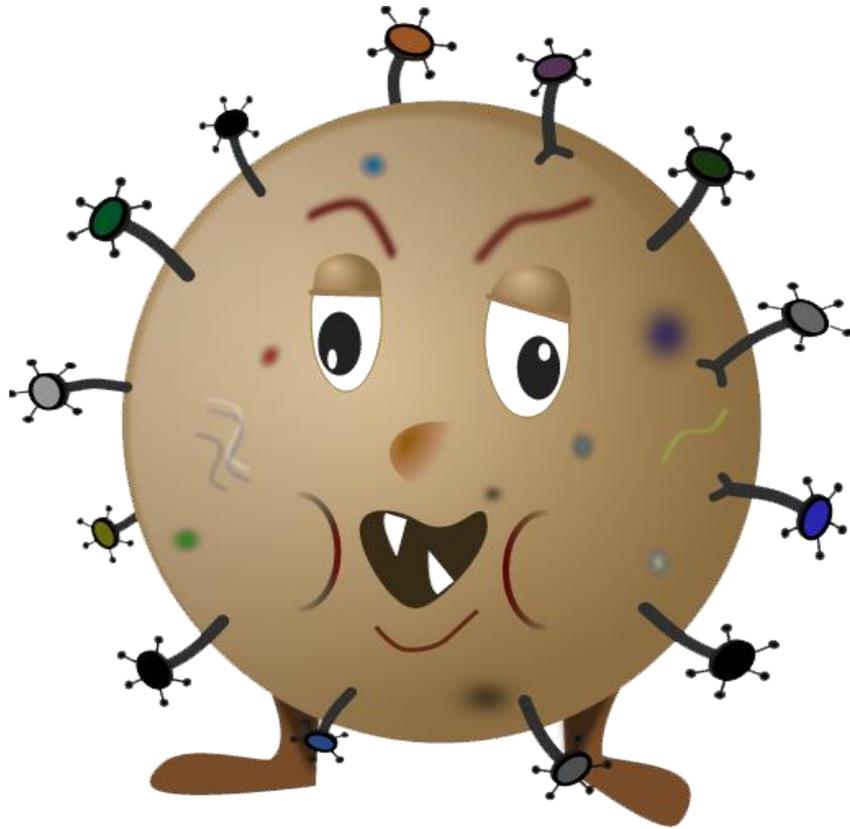




GOOD HAND WASHING TECHNIQUE



Let's See What You Learned

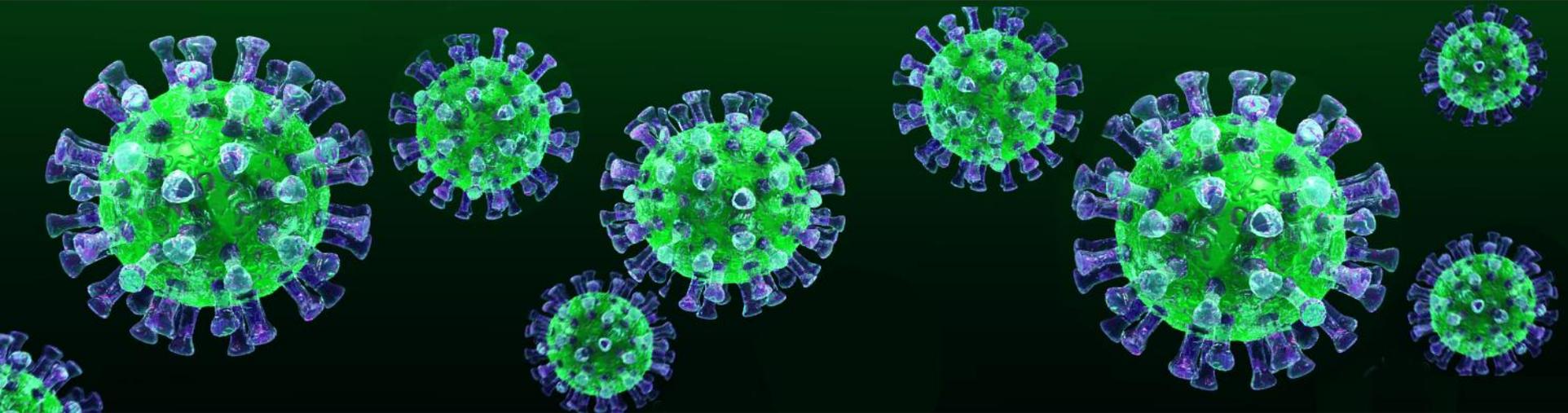


QUIZ



1. What are the four major types of germs?

- a. Dirt, grease, bacteria, fungus
- b. Dirt, bacteria, viruses, fungi
- c. Bacteria, viruses, fungi, mold
- d. Bacteria, viruses, fungi, protozoans

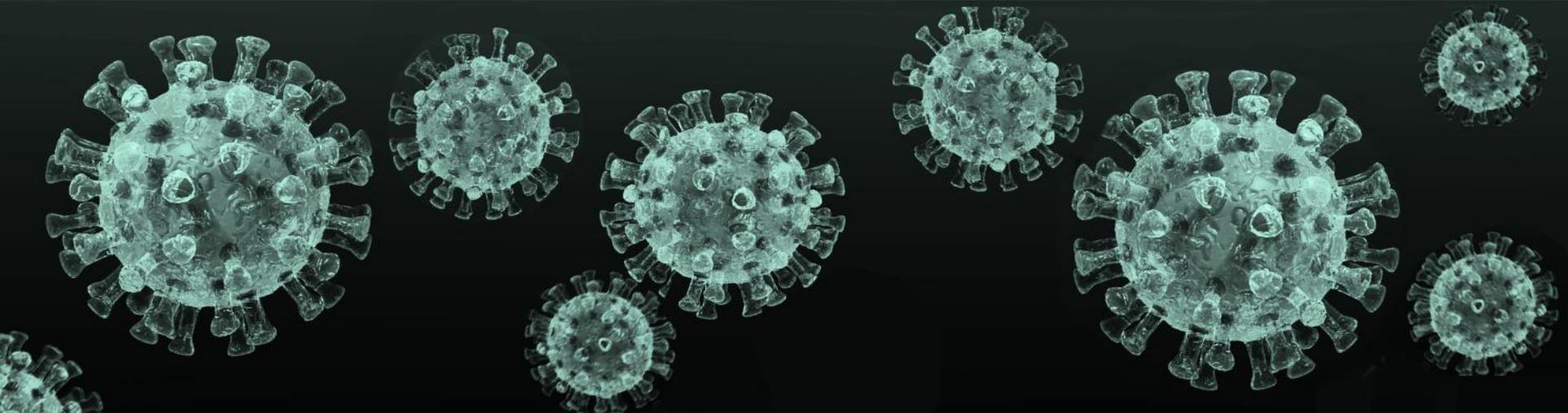


QUIZ



2. Not all bacteria are bad.

- a. True
- b. False

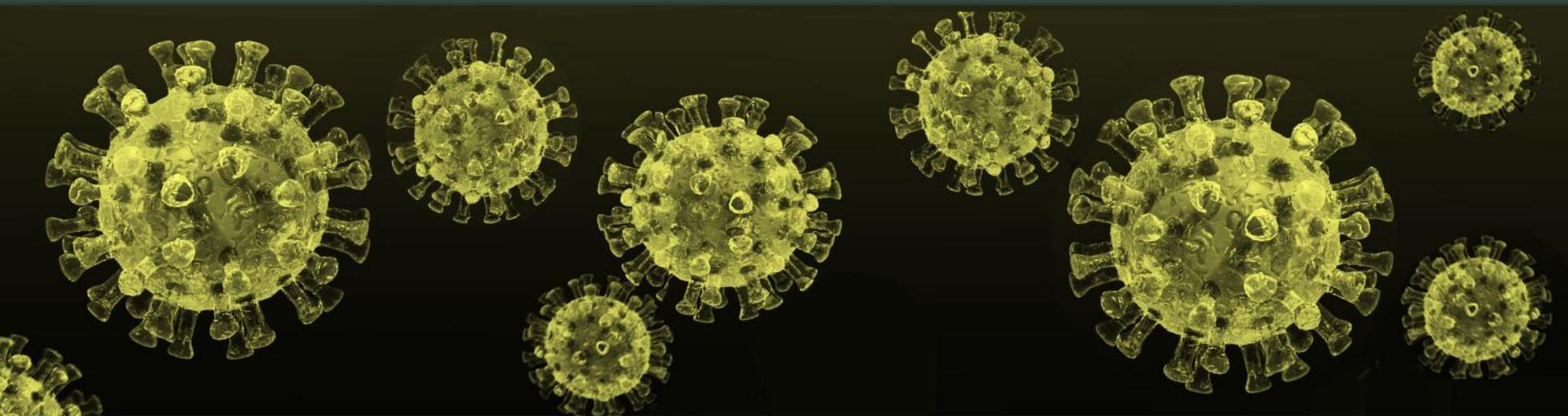


QUIZ



3. Viruses can only live inside of another organism's body.

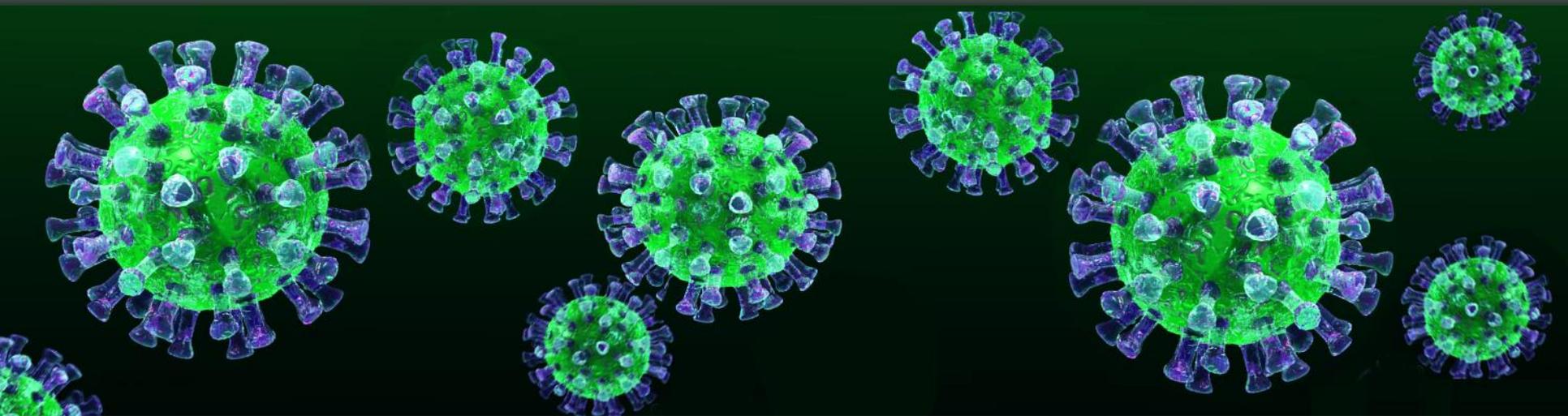
- a. True
- b. False



QUIZ

4. Fungi can produce their own food using photosynthesis.

- a. True
- b. False

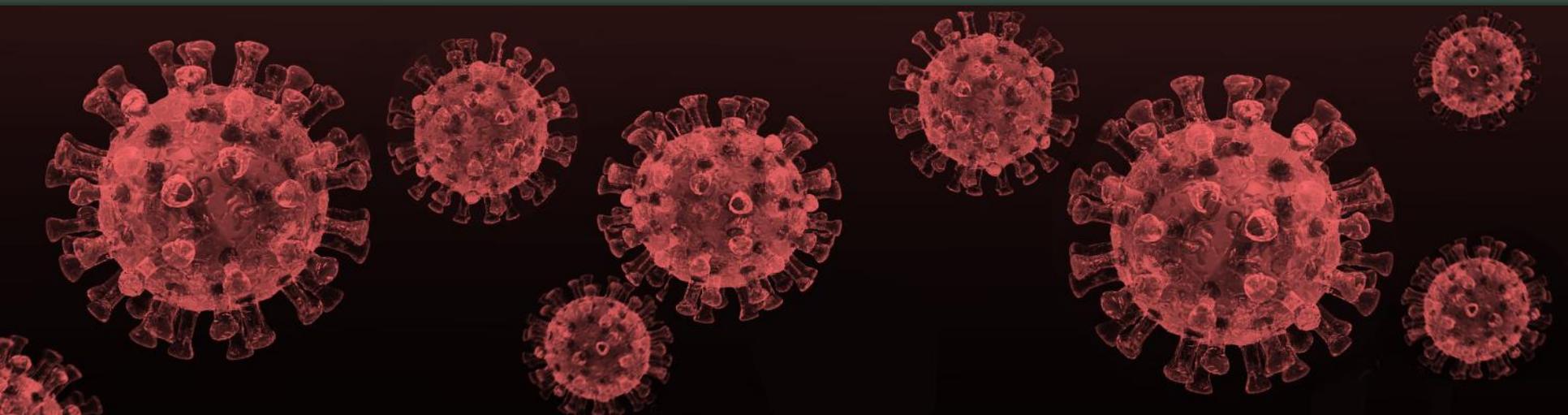


QUIZ



5. What causes conjunctivitis?

- a. Bacteria
- b. Fungus
- c. Sweat
- d. Protozoans



QUIZ



6. What causes athlete's foot?

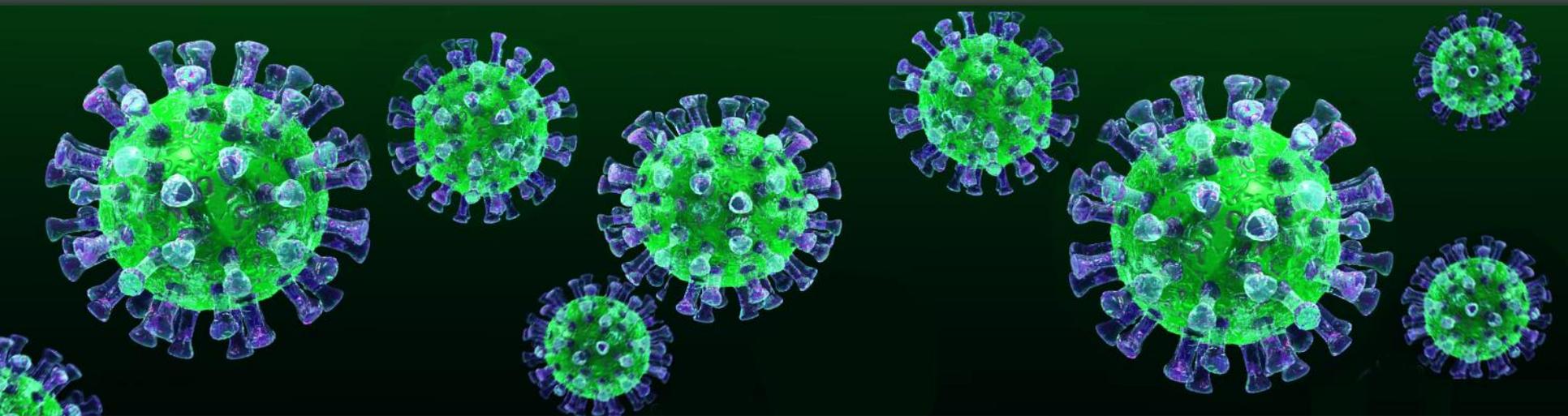
- a. Bacteria
- b. Fungus
- c. Sweat
- d. Protozoans



QUIZ

7. Protozoans cause intestinal infections.

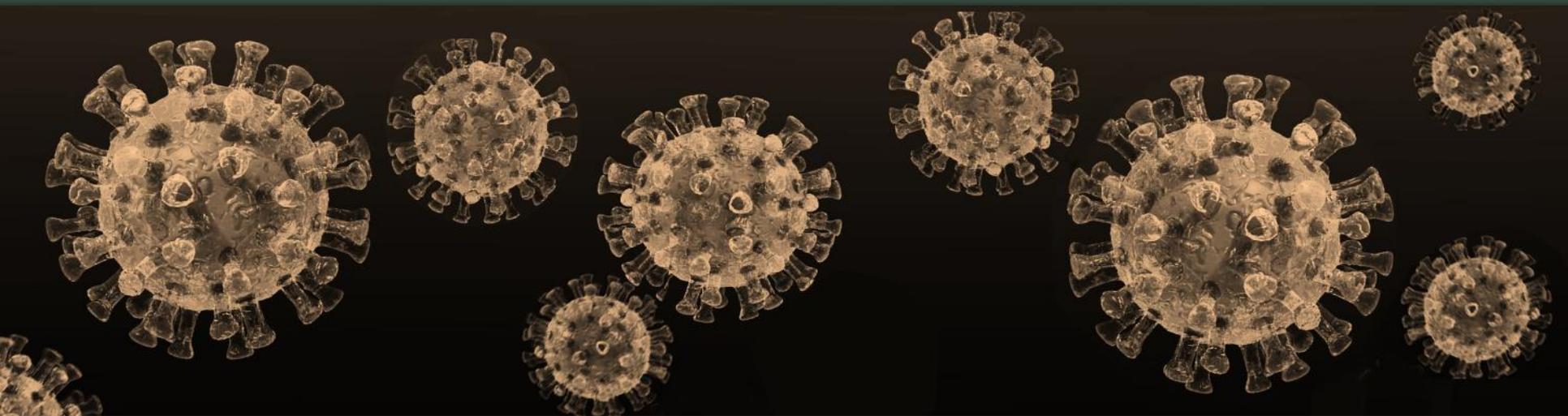
- a. True
- b. False



QUIZ

8. Colds and flus are **BOTH** caused by viruses.

- a. True
- b. False



QUIZ



9. Antibiotics can treat viruses.

- a. True
- b. False



QUIZ



10. Which of the following is **NOT** a good way to stop the spread of germs?

- a. Cough into a tissue
- b. Sneeze into a sleeve
- c. Wash your hands often
- d. Lick money

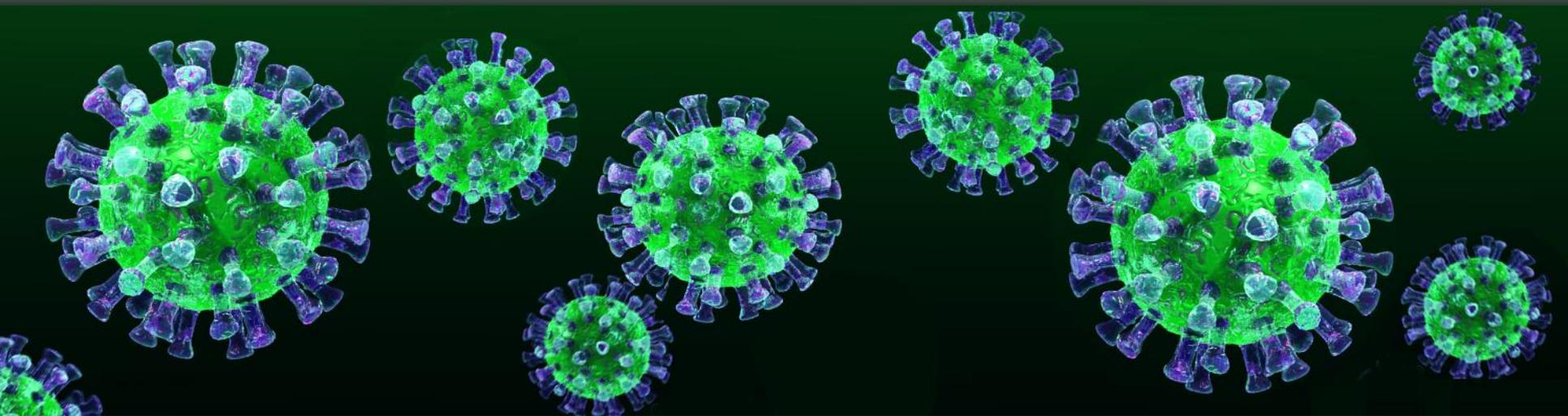


Image Links

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Slide 2:

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<http://presurfer.blogspot.com/2010/10/touch-screen-devices-can-harbor-flu.html>

Slide 3:

<http://gaspirtz.com/07-bacteria.shtml>

Slide 4:

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(<http://clipartist.net/links/clipartist.net/virus.png>)

http://clipartist.info/openclipart.org/2011/Sept/September/14-Wednesday/Smiley_Face_with_a_Cold_Sneezing_into_Handkerchief.svg.html

Slide 10:

http://commons.wikimedia.org/wiki/File:Pos_strep.JPG

Slide 11:

<http://blog.pkids.org/2011/05/02/be-ready-to-fight-those-germs/>

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<http://www.nysenate.gov/press-release/senator-grisanti-introduces-legislation-expand-availability-flu-vaccines>

Slide 13:

<http://commons.wikimedia.org/wiki/Category:Sneezing#mediaviewer/File:Sneeze.JPG>

Slide 14:

<http://blog.pkids.org/2011/05/02/be-ready-to-fight-those-germs/> (both)

Slide 15:

<http://blog.pkids.org/category/handwashing/>

Quiz Slides:

<http://commons.wikimedia.org/wiki/Category:Viruses#mediaviewer/File:Mers-virus-3D-image.jpg>