

Kleist Health Education Center



**...starting children
and young adults on
a lifetime journey of
healthy living!**

***Enabling individuals to enjoy longer,
healthier lives!***



The Kleist Health Education Center (KHEC) is a non-profit state-of-the-art health education building on the Florida Gulf Coast University campus in Fort Myers, Florida.

The KHEC is one of only 32 health education centers in the United States and the only one of its kind in the state of Florida.

Visiting students receive motivating health education instruction from master's and doctoral level health educators. Instructors combine interactive teaching techniques with computerized visual aids to help impact student learning and decision-making skills. Students learn that the choices they make today will affect their own future and the future of our society.



This learning lesson is for children in Grades 4-6
Please use these slides to help guide you through your learning experience
with your children/students.
New vocabulary words are **bolded**

The **goals** of this *Learning Lesson* are:

- 1) To teach children that many microbes (organisms/germs) surround us in the world.
- 2) To teach children that there are good and bad organisms; not all germs can make us sick, some are good!
- 3) To teach children how to minimize the spread of germs.



How small are microbes?

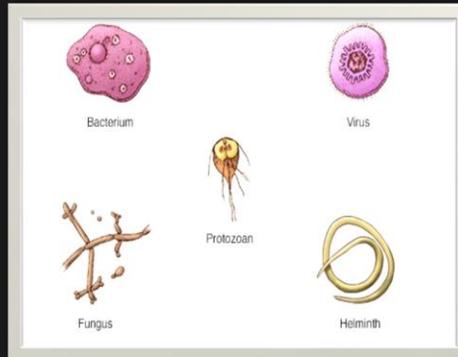
- Discuss with your child/children that you could fit thousands and thousands and thousands of **microbes** (tiny organisms) on the top of a pin.
- Microbes** are very, very small. Microscopic (can't see with just your eyes).
- On the slide, this microbe is ten thousand times larger than it really is.
- What instrument do we need to see microbes? Yes a microscope!



- Brainstorm, where can we find these tiny little organisms in our world? In our house? In our school?
- No matter where we go on earth, there are microbes there.
- Microbes are everywhere and on every thing.
- Why do you think microbes can hide so well? (They're so small!)

What kinds of microbes are there?

- Infectious agents come in many shapes and sizes. Categories include:
- Bacteria
- Viruses
- Fungi
- Protozoans
- Helminths (worms)



-Bacteria are one-celled organisms that can be seen only with a microscope. They're so small that if you lined up a thousand of them end to end, they could fit across the end of a pencil eraser.

-Not all bacteria are harmful, and some bacteria that live in your body are helpful. For example:, Lactobacillus acidophilus — a harmless bacterium that resides in your intestines — helps you digest food, destroys some disease-causing organisms and provides nutrients.

-Many disease-causing bacteria **produce toxins** — powerful chemicals that damage cells and make you ill. Other bacteria can directly invade and damage tissues. Some infections caused by bacteria include:

Strep throat

Tuberculosis

Urinary tract infections

-Viruses are much smaller than cells. In fact, viruses are basically just capsules that contain genetic material. To reproduce, viruses invade cells in

your body, hijacking the machinery that makes cells work. Host cells are often eventually destroyed during this process.

-Viruses are responsible for causing many diseases, including:

AIDS

Common cold

Ebola virus

Influenza

Measles

Chickenpox and shingles

Fungi

-There are many varieties of fungi, and we eat several of them. Mushrooms are fungi, as are the molds that form the blue or green in some types of cheese. Yeast, another type of fungus, is a necessary ingredient in most types of bread.

-Other fungi can cause illness. One example is **Candida** — a yeast that can cause infection.

-Candida can cause thrush — an infection of the mouth and throat — in infants and in people taking antibiotics or who have an impaired immune system.

- Fungi are also responsible for skin conditions such as athlete's foot and ringworm.

Protozoans are single-celled organisms that behave like tiny animals — hunting and gathering other microbes for food.

-Many protozoans call your intestinal tract home and are harmless. Others cause diseases, such as:

Giardia

Malaria

Toxoplasmosis

-Protozoans often spend part of their life cycles outside of humans or other hosts, living in food, soil, water or insects. Some protozoans invade your body through the food you eat or the water you drink.

Helminths are among the larger parasites. The word "helminth" comes from the Greek word for **worm**. If these parasites — or their eggs — enter your body, they take up residence in your intestinal tract, lungs, liver, skin or brain, where they live off your body's nutrients.

-Helminths include tapeworms and roundworms.



How can we spread microbes to others?

- How do we spread microbes?
- Discuss behaviors that can spread germs from person to person.
- Microbes enter the body through: the mouth, nose, eyes, and breaks in the skin. Discuss how
- Hands and mouths are a great way to spread microbes – hand shaking, sharing objects (cell phones, pencils etc.), items that our hands have touched can spread microbes.
- Can you think of some things that we share? Water bottles, food in the cafeteria,
- Behaviors like coughing and sneezing spreads microbes through droplets into the air for others to breathe in.
- Activity-** Spray water into the air using a spray bottle. Discuss just like these water droplets spread into the air, they then can land on someone and cause infection if they were harmful germs.

Keeping disease and infections away!

- Wash your hands regularly
- Avoiding close contact with people who are sick
- Clean surfaces that are touched often
- Avoiding contaminated food and water
- Taking appropriate medications when needed



-Discuss the best way to stay disease-free?

-Hand-washing. Often overlooked, hand-washing is one of the easiest and most effective ways to protect yourself from germs and most infections.

-Wash your hands thoroughly before preparing or eating food, after coughing or sneezing, after changing a diaper, after using the toilet, after playing with a pet, especially reptiles and exotic animals.

-Before you: prepare or eat food, treat a cut or wound, tend to someone who's sick, put in or take out contact lenses.

-Remember to keep your hands out of your eyes, ears and mouth.

-When soap and water aren't available, alcohol-based hand-sanitizing gels can offer some protection.

Additional Resources

- [How can I protect myself from the Corona Virus?](#)
- [Top 10 Spots for germs](#)
- [CDC Resources](#)
- [Proper Handwashing Video](#)



Here is a list of additional resources to help extend your Learning Lesson.

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**Thank you for using our KHEC resources.
We hope that you found this short learning lessons helpful!
Please contact us at: 239-590-7459 to make a program reservation for
your school or class.
Please visit our website: ww.fgcu.edu/KHEC**