

Core knowledge content

Germs

Our bodies are pretty amazing. Day after day, they work hard digesting food, pumping blood and oxygen, sending signals from our brains and our nerves, and much more.

Germs are a group of tiny invaders called “micro-organisms” that can make our bodies sick. Germs are so small and sneaky that they can get into our bodies without being noticed. In fact, germs are so tiny that you need to use a microscope to see them.

What types of germs are there?

Germs are found all over the world and in all kinds of places. The four main types of germs are: bacteria, viruses, fungi, and protozoa. They can invade plants, animals, and people. Germs can also live on surfaces like sinks, counters and doorknobs. They are just waiting to be picked up by your hands. If you touch your eyes, nose or mouth with unclean hands then there is a chance you may get sick.

Once germs get into our bodies, they want to stay for a while. They get all their nutrients and energy from you. They also produce waste products called toxins which are actually like poisons. Those toxins can cause symptoms of common infections, like fevers, sniffles, rashes, coughing, vomiting, and diarrhea.

When you are sick, doctors try and figure out what germs are doing. Sometime they take a closer look by doing tests so they can tell which germs are living in your body and how they are making you sick.

How can you protect yourself from germs?

Most germs are spread through the air in sneezes, coughs, or even breathing. Germs can also spread in sweat, saliva, and blood. Some germs pass from person to person by touching something that is contaminated, like shaking hands with someone who has a cold and then touching your own nose.

Hand-washing is the single most important thing you can do to prevent germs from getting into your body and making you sick.

Hand-washing

You use your hands to do many things like greeting people, eating your lunch, writing your name, drawing or coloring, reading a book and throwing a ball. Your hands are very busy during the average day and they can get pretty dirty and covered with germs.

Your hands are the one part of your body that touches door knobs, faucets and other places touched by other people. That’s the way many germs that cause illnesses are passed from one person to the other. Washing your hands is the first line of defense against getting sick.

It is important to wash your hands well:

- when they are dirty
- before you eat

Teaching Tool

Hand-washing and germs

- after using the toilet
- after playing outside
- after touching or feeding an animal
- after coughing, sneezing or blowing your nose
- before and after visiting a sick relative or friend

Six-step method of hand-washing

1. Using warm water (not cold or hot), get your hands wet
2. Apply plenty of soap
3. Rub your hands together until you make bubbles. Wash both the tops and bottoms of your hands, between all of your fingers, around your thumbs, fingernails and wrists. Wash for at least 15 seconds (the time it takes to sing the ABC song)
4. Rinse off all of the soap
5. Take a paper towel and dry off your hands
6. Turn the water off with the paper towel and then throw it away

Alcohol-based hand sanitizer

When there is no soap or water available, waterless hand soaps (hand-rub/hand sanitizer) are a good alternative. Use hand-rub when you cannot see any dirt on your hands.

1. Squirt hand-rub into each palm (about the size of a loonie)
2. Rub fingertips of each hand in opposite palm
3. Rub hands together palm to palm
4. Rub in between and around fingers
5. Rub the back of each hand
6. Rub each thumb
7. Rub each wrist
8. Rub for at least 15 seconds until hands are dry

Respiratory etiquette

Coughing or sneezing can spread germs up to six feet away. That's as far as across the long side of a picnic table. If a person coughs or sneezes into the air, the micro-organisms/germs go into the air and can land on other people or objects like desks, books and even toys. These germs can get into a person's body when they touch these things.

To help stop the spread of germs:

- Cover your mouth and nose with a tissue when you cough or sneeze
- Put the used tissue in a waste basket right away
- If a tissue is not available, cough or sneeze into the upper sleeve or elbow, not the hands
- Wash hands often with soap and warm water for at least 15 seconds
- If soap and water are not available, use an alcohol-based hand-rub

Supplemental knowledge content

Teaching Tool

Hand-washing and germs

Germs

Bacteria are tiny, one-celled creatures that are found throughout nature, including in the bodies of human beings. Some bacteria are good for our bodies. They help keep things in balance by helping keep the digestive system in working order. Some bacterial infections include sore throats (tonsillitis or strep throat), ear infections, cavities, and pneumonia.

Viruses need to be inside living cells to grow and reproduce. Most viruses cannot survive very long if they are not inside a living thing like a plant, animal, or person.

Fungi are multi-celled, plant-like organisms. Unlike other plants, fungi cannot make their own food from soil, water, and air. Instead, fungi get their nutrition from plants, people, and animals. They love to live in damp, warm places, and many fungi are not dangerous in healthy people. An example of something caused by fungi is athlete's foot, that itchy rash that teens and adults sometimes get between their toes.

Protozoa are one-cell organisms that love moisture and often spread diseases through water. Some protozoa cause intestinal infections that lead to diarrhea, nausea, and belly pain.

Healthy Living

Physical activity

Children aged five to 11 should accumulate at least **one hour of moderate to vigorous-intensity physical activity daily**, but more is even better! To make the most of their physical activity, try to include vigorous-intensity activities at least three days per week and activities that strengthen muscle and bone at least three days per week.

What is moderate aerobic activity?

Moderate-intensity aerobic activity makes you breathe harder and your heart beat faster. You should be able to talk, but not sing. Examples of moderate-intensity physical activity include: walking quickly, skating, bike riding and skateboarding.

Teaching Tool

Hand-washing and germs

What is vigorous aerobic activity?

With vigorous-intensity aerobic activity, your heart rate will increase even more and you will not be able to say more than a few words without catching a breath. Examples of vigorous activity include: running, basketball, soccer and cross-country skiing.

What are strengthening activities?

Muscle-strengthening activities build up your muscles. With bone-strengthening activities, muscles push and pull against bones helping make them stronger. For children, climbing and swinging on playground equipment is an example of a muscle strengthening activity. Examples of bone-strengthening activities include: running, walking, and jumping rope.

Proper sleep

The Canadian 24-Hour Movement Guidelines for Children and Youth encourage children and youth to “Sweat, Step, Sleep and Sit”. For optimal health benefits, children and youth (aged five to 17 years) should achieve high levels of physical activity, low levels of sedentary behaviour, and sufficient sleep each day. A healthy 24 hours includes:

- Uninterrupted nine to 11 hours of sleep per night for those aged five to 13 years and eight to 10 hours per night for those aged 14 to 17 years, with consistent bed and wake-up times
- An accumulation of at least 60 minutes per day of moderate to vigorous physical activity involving a variety of aerobic activities. Vigorous physical activities and muscle and bone strengthening activities should each be incorporated at least three days per week.
- Several hours of a variety of structured and unstructured light physical activities
- No more than two hours per day of recreational screen time
- Limited sitting for extended periods

When viruses get inside people's bodies, they can spread and make people sick. Viruses cause chickenpox, measles, flu, and many other diseases.

Talking to students about healthy living

Healthy eating

What a person puts into their body is important for health. Healthy eating provides energy and nutrients to grow, develop, stay healthy and be active. Children should drink water when thirsty and drink less sugary drinks.

The following is a sample dialogue regarding healthy eating messaging for this age group:

Drink more water

Tell students: One way to take care of your body is to drink water. Kids need water to grow just like plants.

Prompt: How many of you like to drink water?

Response: That's great that so many of you like to drink water!

Prompt: When should you drink water?

Teaching Tool

Hand-washing and germs

Response: You are right! Anytime is a good time to drink water. Just remember to drink water whenever you are thirsty.

Prompt: Can anyone tell me where to get the best water?

Response: Water from the tap or water fountain is the best water to drink because it is always ready for you and it is free!

Note: *If students ask how much water they should drink each day, tell them that it depends on many things. They should drink water whenever they are thirsty and they should drink extra when they are physically active or outdoors in hot weather.*

Drink less sugar

Tell students: You have probably heard that it isn't a good idea to have too much sugar and that's correct.

Prompt: Sugar is found in a lot of things, but there is one main source of sugar. Does anyone know what that is?

Response: That's right...it is in our drinks. There are many drinks with a lot of sugar.

Prompt: Can you name some?

Response: Yes; drinks such as pop, slushies, smoothies, juices, sports drinks, sweetened teas and coffees, etc. all have a lot of sugar. Try not to have these too often and if you do, try to order small sizes.

Dental hygiene

Healthy teeth are important for eating, chewing, smiling, talking properly and keeping spaces open for adult teeth. Good habits in childhood help create healthy habits for a lifetime. Keeping teeth clean is critical to maintaining a healthy smile and preventing cavities. **A person should brush their teeth two times a day for two minutes each time (hard scrubbing should be avoided to prevent gum recession and tooth sensitivity), with a pea-sized amount of fluoride toothpaste.**

Brush in small circles to loosen any food and plaque. Work in a pattern: brush on the outside, brush on the inside, brush the chewing surfaces. To brush behind the front teeth, use the tip of the toothbrush: brush down on the upper and brush up for the lower. Direct children to ask their parent/caregiver to help to ensure they are doing a good job. Supervision and adult assisted brushing is advised for children six years of age and younger.

Flossing is also important to keep the mouth clean and free from bacteria. Flossing helps remove bacteria from in between the teeth, where the toothbrush cannot reach. It is important to have a parent/caregiver help with flossing.

Children should visit a dental professional as early as possible to prevent problems from starting.

Regular physical activity

Physical activity plays an important role in our health, well-being and quality of life. People who are

Teaching Tool

Hand-washing and germs

physically active live longer, healthier lives. Active people are more productive, and more likely to avoid illness and injury. Physical activity helps with healthy growth and development (stronger heart, bones and muscles), improves concentration and memory, gives us energy and decreases stress. It also improves self-esteem, prevents chronic diseases like cancer, type 2 diabetes and heart disease, and prolongs independence as we get older.

Physical activity doesn't only mean sports. It can include everyday things like walking the dog, gardening, playing tag, building a snowman, tobogganing, and chores like raking and sweeping.

Teaching Tool

Hand-washing and germs

Proper sleep

Every creature needs to rest. Little babies, kids, moms, dads, grandparents, even pets — they all sleep! Just like eating, sleep is necessary for survival.

Sleep gives your body a rest and allows it to prepare for the next day. It's like giving your body a mini-vacation. Sleep also gives your brain a chance to sort things out. Scientists aren't exactly sure what kinds of organizing your brain does while you sleep, but they think that sleep might be the time when the brain sorts and stores information, replaces chemicals, and solves problems.

For most children, sleeping comes pretty naturally. Tips to help catch all the ZZZs a person needs:

- Try to go to bed at the same time every night; this helps the body get into a routine.
- Follow a bedtime routine that is calming, such as taking a warm bath or reading.
- Limit foods and drinks that contain caffeine. These include some sodas and other drinks, like iced tea.
- Don't have a TV in the bedroom. Research shows that kids who have one in their rooms sleep less. If there is a TV in the bedroom, turn it off when it's time to sleep.
- Don't watch scary TV shows or movies close to bedtime because these can sometimes make it hard to fall asleep.
- Don't exercise just before going to bed. Exercise earlier in the day can help a person sleep better.
- Use the bed just for sleeping — not doing homework, reading, playing games, or talking on the phone. That way, the body is trained to associate the bed with sleep.

Body hygiene

The skin is alive and is the body's largest organ. It stretches over all parts of the body to act as a protective shield against heat and cold, injury and germs. It is important to take a shower or a bath every other day, or as needed.

Using soap and a clean washcloth, gently scrub all parts of the body. This will loosen dirt and body oil. Make sure to rinse off well. Soap left on the skin can dry it out and make it itch. Use a clean bath towel to dry off.

Pay special attention to parts like the area under the arms, between the legs and between the toes. When completely dry, it is important to put on clean underwear and clothes, or pajamas if getting ready for bed.

Hair care

One of the first things people notice about other people is their hair. Hair that is dirty and scraggly doesn't make anyone look or feel good. Therefore, it is important to take care of your hair. Wash your hair regularly because when your hair gets dirty, it gets oily. Sometimes this can make your head itch.

Teaching Tool

Hand-washing and germs

Wash your hair with shampoo, once or twice a week. If it is oily, every day or even every other day may work best. Be careful because your scalp can also become dry and itchy if you wash your hair too much. To keep your hair neat and free from tangles, comb or brush it. If you have hair that tangles easily, brush it before you wash it to get the tangles out. This will make it easier to wash and brush out your hair after shampooing.

Head lice are tiny wingless insects that need human blood to survive. They can't jump or fly. They are about the size of a sesame seed and they love to live in human hair. Anybody can get head lice, even people with the cleanest hair. You can get lice if your head or your hair comes into contact with the head or hair of someone who has them. Lice like to spread from head to head when people share hats, brushes or combs, helmets, or hair ties and ribbons. For that reason it is a good idea not to share anything that you wear on your head or use on your hair. There is a special shampoo and comb that can be used on your hair to get rid of the lice. There are very important directions to follow so ask a parent or grown up to help.

Resources

During the 2017-2018 school year, Niagara Region Public Health gifted all elementary schools with a hand-washing kit, containing one black light and Glo Germ, to be utilized in conjunction with this Teaching Tool.

To order additional Glo Germ or a replacement black light, please visit [Germ Wise](http://www.germwise.com) (www.germwise.com).

References

[Centers for Disease Control and Prevention](https://cdc.gov) (https://cdc.gov)

[Infection Prevention and Control Canada](https://ipac-canada.org) (https://ipac-canada.org)

Lau, C. H., Springston, E. E., Sohn, M.-W., Mason, I., Godala, E., Damitz, M., & Gupta, R. S. (2012). Hand hygiene instruction decreases illness-related absenteeism in elementary schools: a prospective cohort study. *BMC Pediatr.* 12 (52).