[The Washington Post]

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BY BILL O'LEARY — THE WASHINGTON POST

How Clean Is Your School?

INSIDE

Janurary 23, 2007

A Word about How Clean Is Your School?

We don't see them, but our health depends on them. A single germ can become more than 8 million germs in one day. The minute microorganisms — bacteria, virus, fungi and parasite — can cause absence from school and life-threatening illness.

From the healthy act of washing one's hands to not sharing bottled water to showing respect for the school custodians, living well and maintaining a healthy school environment requires awareness and small gestures. When a problem of cleanliness is identified, students and teachers should be aware of the means to inform their community, share solutions and express their concerns.

Readings and activities in this guide highlight some key rooms to check for cleanliness: the cafeteria, bathroom, locker room and classroom. Students will read Post articles about the Redskins locker room, a local high school's football player, sanitizing of wind instruments, and norovirus identified in a local hotel. KidsPost articles profile a student in Japan and introduce bacteria. Students are to apply concepts to their school setting. Discussion questions, a word find and writing projects are included

The online guides provided by The Washington Post NIE program suggest activities to use with Post articles and the reproducibles that we have created for you. Select the ones that are appropriate for the age of your students, time available and curriculum fit.

Lesson: School safety includes an awareness of germs and the prevention of illness. In a healthy school environment, respect is shown to the building services staff for the important work they do in keeping the school clean and the school community well.

Level: Low to high

Subjects: Science, Biology, Health

Related Activity: Journalism, Character Education

NIE Online Guide
Editor: Carol Lange
Layout: Bill Webster
NIE Teacher Advisory Team Members contributing to this guide: Linda White, Parkland Magnet Middle School for Aerospace Technology, Rockville, Md.

Send comments about this guide to Margaret Kaplow, Educational Services Manager, kaplowm@washpost.com.

An Integrated Curriculum For The Washington Post Newspaper In Education Program

How Clean Is Your School?

Explore MRSA and Locker Rooms

Give as homework and/or review the vocabulary words in the sidebar on page 5.

Read and discuss "Blitzing Microbial Infections," Howard Bryant's Sports section article on the precautions taken by the Redskins against microbial infection. Questions and activities could include:

- What is MRSA? How can one get a MRSA infection?
- What factors influence the spread of MRSA bacteria?
- What high-tech approaches are available to keep locker rooms germ-free?
- What low-tech methods are suggested?
- Provide students with information on the cleaning fluids used in your school. Give them the cost of one container and ask them to determine the cost per square foot. Compare this figure with the cost of the treatment used by the Redskins. Compare with the cost of using bleach.
- What is being done in your school's locker room to prevent infection?

Have students write an article or prepare a podcast to inform your student body about MRSA. Students will need to do some more research on MRSA. Who within the school and your community might they interview? Include actions that student athletes and students who take Physical Education class may take.

Consider Hygiene

Define the terms "incubation period," "nurture," "hygiene," "personal hygiene," and "public hygiene."

The Centers for Disease Control and Prevention emphasizes and most people know the importance of keeping hands clean to avoid getting sick and spreading germs to others. A mother of a FCPS student writes about her germophobia and the need for school systems to teach and practice basic public hygiene. After reading the letter, discuss:

- What is the harm in sharing a bottle of water or sipping from the same straw?
- Do members of teams at your school share bottled water?
- What precautions are being taken to prevent the spread of germs at your school?

Write a letter to the principal or athletic director suggesting improvements or commending the health and safety concerns that are being addressed.

Find the Germs

Give students "Find the Germs," a word find. After students have located the words, discuss what each term means and its place in one's health. "Air" will give opportunity to talk about covering coughs and sneezes. "Hairs" will initiate discussion of the role of nose hairs in catching many germs before they enter the body.

Where are germs located in your school? Where may harmful germs be found? A desk, computer mouse, doorknob or backpack on the floor? After identifying most likely locations, discuss and ask students to write about how the germ-laden area might be prevented or corrected.

In the blank box, students might draw another scene where

CONTINUED ON PAGE 4

Read About It

Germs

Collins, Ross
Bloomsbury, 2004 (Ages 5-7)
How to get sick from the germ's point of view. Lively and educational.

Germs! Germs! Germs!

Katz, Bobbi & Steve Bjorkman (illus.)
Scholastic, 1996 (Ages 4-8)
An introduction to personal hygiene

Germs Make Me Sick!

Berger, Melvin & Marylin Hafner (illus.)
HarperCollins, 1995. (Ages 5-9)
A Read-and-Find-Out Science book. In everyday scenes, find out about germs and how the body fights the harmful ones.

The Janitor's Boy

Clements, Andrew
Simon and Schuster, 2000 (Ages 9+)
A fifth-grader is embarrassed that his dad is the school janitor

Messy Bessey, Messy Bessey's School Desk

McKissack, Pat and Fredrick & Dana Regan (illus.)
Children's Press, 2000 (Rookie readers)
From a series, these books encourage children to clean their rooms and desks.

Yoko & Friends School Days: The Germ Busters

Wells, Rosemary
Volo, 2002 (Ages 4-8)
The Germostat catches germ spreaders

The Demon in the Freezer: A True Story

Preston, Richard
Random House, 2002 (Ages 16+)
The author of *Hot Zone*, skillfully presents the history and lethal potential of the smallpox virus.

CONTINUED FROM PAGE 3

germs may abound or a means of preventing the spread of germs.

As a science project collect specimens and determine whether bacteria and virus are present.

Have students use digital cameras to take pictures of potentially germ- or vermin-laden hazards around the school. Use these to illustrate an article or a series of Fact Sheets about germs and prevention of illness. Students could then develop a newspaper or newsletter to distribute to the entire school or to take home.

What means are in place to report unclean conditions? Who is responsible for oversight of the school's physical environment?

Read About Germs

Read about germs and cleanliness (See suggested books). Discuss together how students can keep from spreading germs or becoming a "Messy Bessey."

Tune in to Germs

"Tune In to a New Worry?" is a Health article about the potential for transmission of pathogens through shared musical instruments. It also presents the entrepreneurial spirit. Questions that might be posed:

- Give examples of the writer using "music" to organize her article.
- Why would businesses and individuals swab wind instruments? Why not other instruments where fingers touch?
- Does Lepore overstate the potential to spread bacteria in order to promote his business?
- Should parents consider sanitizing used wind instruments after renting or purchasing them?

Write a survey to give members of the school's band and orchestra. Do they disinfect or sterilize their instruments?

Clean Your School

Read "My Name is Yuki," eighth in a KidsPost profile series. In what ways is her life as a student in Tokyo, Japan, similar to that of American students? How does it differ? Are your students surprised that students in Japan clean their schools?

Discuss the importance of having a clean school. Questions could include:

- What happens if our school is not clean?
- Is it possible to have a germ-free school?
- Why do we need to clean up the cafeteria area and watch where we eat snacks?
- What can we do to make our school more healthy?

Distribute and read "Who is Responsible for Keeping My School Clean?"

Although students and teachers take responsibility for cleaning their schools in other countries, in the United States, we still have what's known as the janitorial type of cleaning. Engage students in a "character and etiquette" activity. Discuss and make a list of the ways students should always be respectful to the people who have responsibility for keeping our environment clean and operating at top-notch level. Building services staffs are extremely important. If schools didn't pay people to clean, our schools would not be safe places in which to learn. Include in the list some of the responsibilities that custodians and building engineers

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On the Web

Clean Hands Save Lives!

www.cdc.gov/cleanhands/

"Clean Hands Campaign" of the Centers for Disease Control and Prevention information and links

My Family & Germs

www.dettol.co.uk/kids.shtml

Just for Kids section includes "What Are Germs?" "Science Lab," and an "Artist Studio." "Find the Germs" provides fun and a good introduction to bacteria, virus, fungi and parasites.

Be Clean, Be Safe at School

www.stock2forflu.com/be-safe-at-at-school.php

The best way to wash hands and stop germs.

Clean Up the Classroom

www.cloroxclassrooms.com/

Download the Teacher Activity Guide. Site includes "Germs 101."

Glo Germ

www.sciencekit.com/

Kit containing powder, lotion and ultraviolet light to illustrate the spread of germs.

Thorough Control

http://asumag.com/Washrooms/university_thorough_control/

American School & University article on MRSA and the need for cleanliness in restrooms and locker rooms

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have and brainstorm in what shape we and our schools would be without someone to do those jobs. Examples include ensure heating and air conditioning are working, clear the snow from the sidewalk, keep the lights and other electrical systems working, and clean the facilities.

In what ways can students and teachers assist custodians? What are ways to thank the building services staff?

What is Norovirus?

Read "Norovirus Cleaning Begins at Dulles Hotel" to learn about the contagious virus. Discuss its symptoms, prevention and cause. How contagious is it? Where has it been identified? What actions are recommended after discovery?

Meet Members of Monera

Give students the KidsPost article, "You Are Not Alone," which introduces them to beneficial and harmful bacteria. Teachers might have some microscopic images ready to show the lively and varied organisms.

After reading this and other articles in this guide, students should understand how important it is to have and to use soap daily at school and home.

Extension

Who cleans the schools in other countries? Do your students have pen pals in other countries? Perhaps your school has an exchange teacher or a teacher who has lived abroad. Find out from them who clean their schools.

Read the other "My Name Is ..." profiles in the KidsPost series to learn about the schools that students attend and health issues.

Answers

"Find the Germs" is found on page 11 of this guide.

In the Know

Define each of the words that can are used in "Blitzing Microbial Infections."

Abrasion

Apocalyptic

Antimicrobial

Bacteria

Efficacy

Epidemiologist

Infection

Lethal

Microbe

Microscopic

Organism

Preventative

Proliferate

Relegate

Resistant

Susceptible

Ultraviolet light

Virulence

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WASHINGTON REDSKINS

The Redskins gave a tour of their training and locker rooms that they have had treated to help prevent infections. Shown is a hand out photo of the locker room being sprayed by a technician.

Blitzing Microbial Infections

Redskins Take Multiple Precautions Against Dangerous MRSA

By Howard Bryant
Washington Post Staff Writer

• *Original Date of Publication: August 3, 2006*

The Washington Redskins took quiet steps during the offseason to combat one of their tiniest and toughest foes — a microscopic organism that is becoming increasingly dangerous and potentially lethal.

The microbe, methicillin-resistant Staphylococcus aureus (MRSA), is a bacteria once relegated to hospitals and prisons but now — because athletes are in such close contact with one another and share Jacuzzis, whirlpools and athletic equipment — is proliferating in locker rooms at all levels of sports.

Over the past two years, the Redskins have had five cases of MRSA, team physician Tony Casolaro said last year.

"We're concerned about it," said Bubba Tyer, the Redskins' director of sports medicine. "We don't want to lose any player. We don't want anything to affect their career and we want to do all we can do. It's a terrible infection that can cripple your team."

In addition to spending $17,000 on a new Jacuzzi system that is equipped with an ultraviolet light filtering system designed to kill germs, the Redskins

CONTINUED FROM PAGE 6

hired SportsCoatings Inc. to treat the training room, locker rooms and weight rooms with an anti-microbial coating the company claims will help kill various strains of the bacteria. Tyer did not divulge the amount the Redskins spent, but SportsCoatings spokeswoman Wendy Orthman said the treatment cost roughly $1.50 per square foot.

The Redskins aren't the first NFL team to take preventative measures where MRSA is concerned. Some teams are doing so with different products this year and others, such as the St. Louis Rams, have done so in the past, using bleach.

But preventing MRSA doesn't end with simply an expenditure of money. Players must be retrained. To Tyer, who has taken a personal interest in the prevention of MRSA, especially at the high school and college levels, the Redskins' high-tech approach has little value if the team and players do not adopt basic, low-tech methods, such as washing hands with an alcohol-based sanitizer, avoiding sharing towels and daily athletic gear. Last season, the Redskins' locker room was filled with benches. This year, each locker has its own stool.

"We spent a lot of money this offseason," Tyer said. "We have new carpet, new paint, new benches. Having said all of that, it's improved our facilities a great deal."

Players are constantly reminded not to let down their guard. A reminder among the collection of player photos hanging on the wall should be a photo of Brandon Noble, a backup defensive lineman last year who has been twice treated for a MRSA infection on his right leg and whose career is in limbo.

There are also signs throughout the training room, reminding players to avoid entering the whirlpools or Jacuzzis without first having showered. At each entrance to the training room are oversized dispensers of antibacterial liquid soap. In the locker room's bathroom area, across from the new Jacuzzi, is a sign adjacent to the sink, reminding players not to share razors.

Representatives from the Centers for Disease Control and Prevention also inspected the Redskins' facilities, Tyer said.

The Redskins have taken a futuristic — if not apocalyptic — view of fighting germs in an environment that is frighteningly ripe for them, medical experts say. Last week, the Toronto Blue Jays confirmed that the staph infection that has kept right fielder Alex Rios on the disabled list for the past month is a version of MRSA, which can enter the body through a tiny opening in the skin and spread rapidly. Blue Jays pitcher Ty Taubenheim, who is suffering from an infection on his foot, also is on the disabled list, but it is unclear whether the infection is MRSA.

The Redskins aren't the first NFL team to take preventative measures where MRSA is concerned. Some teams are doing so with different products this year and others, such as the St. Louis Rams, have done so in the past, using bleach.

In 2003, Jeffrey Hageman, an epidemiologist with the CDC and expert in sports-related MRSA cases, investigated the St. Louis Rams and found that five of 58 players developed MRSA infections, likely from turf abrasions. In his research on the Rams, Hageman found linebackers, linemen and players of high body mass to be particularly susceptible.

To health experts and sports physicians alike, the reason for MRSA's growing prevalence is confounding. According to CDC spokeswoman Nicole Coffin, disease experts believe that MRSA has not grown in virulence because of environmental forces, meaning that the Redskins' locker room is perhaps no more naturally predisposed to MRSA today than it might have been 20 years ago. The difference, she said, is in the need to increase prevention methods.

Staph infections have been part of the sports world for years, but in recent years, medical experts say, the MRSA bacteria have become highly resistant to common antibiotics, such as penicillin. In turn, the potential for its spread, some experts believe, has been heightened by the inappropriate use of antibiotics, such as using antibiotics to treat viruses and not bacteria. These misuses can increase the resistance of bacteria.

The Redskins aren't finished with their preventative measures. Tyer said the team plans over the next few weeks to apply the same treatments to their facilities at FedEx Field. In addition, Tyer said, the Redskins plan to use similar prevention methods for road games.

But will the sprays and other precautions work? Orthman said the application of anti-microbial spray protected a surface for life without the possibility of the bacteria becoming resistant. Orthman also said that the chemicals that comprise the treatment do not weaken over time.

According to Coffin, the CDC does not evaluate the efficacy of products, nor do they test the methodology behind products.

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A Son's Illness Validates a Mom's Worries About Hygiene

• *Original Date of Publication: January 12, 2006*

Okay, call me a germophobe nut case if you want, but when I went to my 14-year-old son Wes's first high school football game and saw all the boys sharing the same water bottles, I wanted to stand up and scream.

All the moms at our bus stop did, too. When I told them the next day about the dozen or so water bottles and the 70 or so boys who drank from them, there was a moment of stunned, horrified silence, then a loud gasp, then a collective shout: "That is so disgusting!"

My son and my husband (and presumably every other male in the universe who is not a health care provider) were unperturbed. "Oh, Mom, I'm not going to catch anything," Wes said, with his usual teenage rolling of the eyes.

All right, I thought, I'll be a good mom. I won't call the coach at Oakton High and lecture him about communicable diseases and public hygiene. I won't be the mom-who-causes-trouble. I won't make my son be the-boy-who-gets-no-playing-time because he has the-mom-who-causes-trouble. I'll sit down and shut up and retch quietly behind my hand when I see the-boy-who-coughs-his-guts-out take a drink and hand the water bottle to my son.

Then my son came down with infectious mononucleosis, otherwise known as mono. And when I asked the doctor about the incubation period, he told me it was about four to eight weeks. Then he turned to my son, who was lying, half-asleep, on the examining table, and said, "So you know when you started those two-a-day football practices in August, and you were all sharing the same water bottles? That's probably when you picked it up."

BY LARRY KOBELKA — THE WASHINGTON POST

I wish I could tell you that I did not shout, "Aha, I told you so!" I wish I could say that I was so concerned for my son's welfare that I did not take one tiny moment to bask in germophobe glory. Alas, even germophobes gloat sometimes.

But a week later, when my son was back at school part time and one of his friends — a girl who weighs all of about 95 pounds — greeted him in the hallway with a good-natured whack to the spleen that doubled him over and sent him to the hospital, where he spent two nights in the intensive care unit, I was no longer gloating over my germophobe brilliance. I was simply worrying that my son was going to lose his spleen.

Did you know that mono causes the spleen to become enlarged and highly susceptible to bursting? I didn't know that. Do the football coaches know that? Do the high school principals and school district officials who let the football players all drink from the same water bottles know that? And do they know that there's a pandemic flu lurking on the horizon?

All right, obviously, I have no way of knowing where Wes actually picked up the germs that gave him mono. But I do know this: Although he was, statistically speaking, extremely unlikely to pick up a sexually transmitted disease when he was in fifth or sixth grade, this same school district has been teaching him about the evils of STDs since at least that time. Wouldn't it be a good idea to teach their own staff about the basics of public hygiene? Don't they know that when 70 boys all share the same dozen water bottles, somebody's going to catch something? Don't they know that some of those things can make those boys really sick?

When I was in high school, oh so many years ago, the football teams had a giant jug of water and a giant stack of paper cups. And yeah, somebody had to make sure there were always enough cups, and somebody had to make sure there was a trash can right next to the water jug so that all those cups didn't get thrown on the ground, and somebody had to constantly buy more cups.

But you know what? I would bet there are a whole lot of moms — and probably even some dads — just like me, who would gladly supply enormous stacks of cups for every game and every practice, if it meant that our sons would not be the-boys-who-get-no-playing-time because they are lying on their backs, hooked up to IV drips and half-a-dozen monitors in a hospital ICU.

Our children take their good health for granted. But as parents, we know that good health has to be nurtured and guarded. I would hope that our high school coaches and principals and school district officials would more fully understand their role in protecting our children's health, particularly if that protection can be provided as easily as a stack of paper cups.

An Integrated Curriculum For The Washington Post Newspaper In Education Program

Tune In to a New Worry?

• *Original Date of Publication: September 5, 2006*

Massachusetts dentist and musician Lorenzo Lepore had an aha moment after a school band teacher asked how to make a sick student's wind instrument safe to issue to another student. Just sterilize it the same way you do other instruments, Lepore said. When the teacher replied that the school sterilized none of the instruments, Lepore heard opportunity's bugle call. The result: a service he calls MaestroMD.

"Does your wind instrument threaten your health?" reads the pitch at www.maestromd.com. "Laboratory studies have proved that dangerous bacteria can survive and grow inside a musical wind instrument." Those studies — on a small number of instruments — were commissioned by Lepore's company.

The business is aimed mostly at school systems — the first to get the treatment (gratis) are the schools in Lepore's hometown of Medford, Mass. — but worrywart parents can also sign up to have a single flute or trumpet sanitized. The company supplies prepaid shipping boxes to send instruments to a sterilization facility where the items, still in their cases, are infiltrated with ethylene oxide gas, long used to sterilize medical and dental instruments. The average cost is about $50 to $90 per item, though a tuba will cost you $319; the germ-free instruments are shipped back within 10 days.

BY L. WILLIAM KOBELKA FOR THE WASHINGTON POST

The Centers for Disease Control and Prevention knows of no disease outbreak tied to wind instruments.

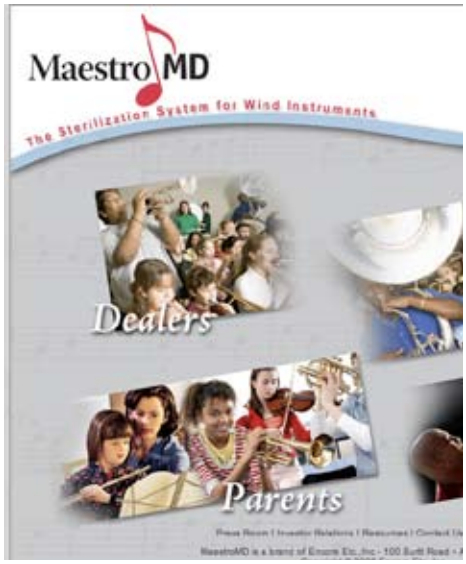
Play That Again

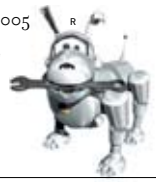
The Centers for Disease Control and Prevention knows of no disease outbreak tied to wind instruments. John Bradley, a member of the American Academy of Pediatrics Committee on Infectious Diseases, says that even if disease-causing bacteria could survive the usual summer gap between student rentals (which he considers unlikely), the pathogens associated with such illnesses as staph and strep infections, meningitis and tuberculosis aren't likely to do harm if encountered through a wind instrument.

On a Local Note

Gaithersburg-based Victor Litz Music Center, which rents about 1,500 band instruments each school year, swabs out its wind instruments during the summer and cleans mouthpieces with a germicide called Sterisol, says assistant manager Robby Rule. "I have high confidence in the instruments," he says.

— Jennifer Huget





KidsPost

My name is . . . Yuki

TOKYO
6,777 miles
FROM WASHINGTON

This is the eighth in a series of KidsPost Journeys around the world to show readers how children in other countries and cultures live and play. Today we **JOURNEY TO JAPAN.** *See where we go next month.*

Yuki Uchida has been riding trains and buses by herself since she was 6 years old.

TOKYO – Yuki Uchida, an 11-year-old girl who lives in the heart of Tokyo, thinks nothing of riding a packed train by herself to school. After all, like most Japanese children, she has been riding buses and trains by herself since she was 6 years old.

Tokyo, the capital of Japan, has 8 million people. And one of the most surprising sights to visitors is all the children in the city traveling either alone or in groups of two or three.

Yuki's trip takes about 40 minutes, including a change of trains and a 15-minute walk from the station. She said she likes meeting up with friends on the train. And on the way home they try to travel together as far as possible. "Sometimes when I'm tired I wish I could be picked up by car, but on the train I get to talk with my friends, so that's fun."

Asked if she thought it was dangerous, Yuki said, "If I see someone acting strange, I just move to another car."

Her one-way ticket costs 150 yen, about $1.40, which is half price because she is still in elementary school. When she enters seventh grade next year she will pay the full fare of 300 yen each way.

During the school year, which starts in April, Yuki gets up at 6:40 a.m., has a breakfast of rice, miso soup and fish, and leaves for school at 7:30. She walks to the train station with her father. He takes a subway to his job with a company that makes sure buildings can withstand earthquakes. (Japan has many earthquakes, although most are very small.) Yuki travels in the opposite direction.

BY SHUKO UCHIDA

BY JULIA DOHNER FOR THE WASHINGTON POST

Lunches are often elaborate. For example, the pickled plum in the center of the white rice makes the dish look like the Japanese flag.

Her school day starts at 8:45 and ends at 2:50. Lunch is from 12:15 to 1. Yuki's mom makes her lunch. Her favorite meal includes fried chicken, rice, a fried egg, a small tomato, spinach, a slice of fish paste and fruit. (Kids in Japan pack far more elaborate lunches than PBJ!)

From 1 until 1:20 every day, the students clean the school. Even though the students all change into "indoor" shoes at the entrance to the school, the classrooms get dirty.

The student cleaners work in teams of one boy and one girl. They do paper-scissors-rock to decide which teams will clean which rooms. Yuki's favorite room to clean is the art room, because the teacher gives out candy.

Yuki goes to a private school, which she entered in first grade after passing an examination. Her school activities — including cleaning — are similar to those of public schools, but her life differs from public school students' in one important way. As long as she doesn't want to switch schools, she doesn't have to take another school entrance examination.

The interest in private schools is great in Japan, particularly in Tokyo. And as more families have only one child, they spend a lot of money and effort to prepare children to take the entrance exams for elementary school, junior high and senior high. The biggest jump in private school attendance is for junior high, and about 25 percent of Tokyo junior-high-age students go to private school.

So the pressure is off Yuki, who is an only child. She goes to cram school (where students study just for the exams) one night a week to keep her skills up. Her regular homework usually takes less than an hour. She studies English at school once a week for one hour.

— Kathryn Tolbert

About Yuki

Where Yuki Lives

In a seven-story apartment building in Shibuya, an area of Tokyo that is considered a center of youth culture and fashion. Yuki is not that much into fashion, but she and her friends love to go to the photo booths to make photo stickers, called "puricura," at right, which means "print club."

Favorite TV Show

Yuki's favorite show is "The Ito Family's Dining Table," which gives ideas for things to do at home, such as how to make toys out of recycled material, tips for cleaning or folding clothes, and how to cook certain dishes.

Favorite Activities

Gymnastics and skiing. (Her name means snow; her parents love to ski.)

Favorite Thing to Do for Fun

Play board games with her father on Saturdays. She doesn't see him much during the week; he gets home from work every night after she is asleep.

BY SHUKO UCHIDA

Yuki, center, at a bon-odori festival with school friends Ayuko Serizawa, left, and Sayo Yoshii. They are wearing summer kimonos called yukata.

Yuki's After-School Schedule

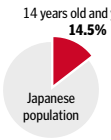
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Sports, including dodge ball, at public gym	Piano lesson	Cram school for two hours with a friend	Calligraphy lesson	Gymnastics

School Year for Public Schools

Year starts at the beginning of April.	***Summer vacation:*** July 21 - Aug. 31	***Winter vacation:*** Dec. 23 - Jan. 9	Year ends the third week of March.

Inside Japan

Size: About 146,000 square miles, making it a little smaller than California. (However, with a population of 127 million, Japan has nearly four times as many people.)



Religion: About 94 percent of the people observe Shintoism or Buddhism.

Language: Japanese is the official language. English is a required subject in middle school and high school. Many Koreans live in Japan and speak Korean as well as Japanese. There also are efforts to keep the aboriginal Ainu language from dying out.

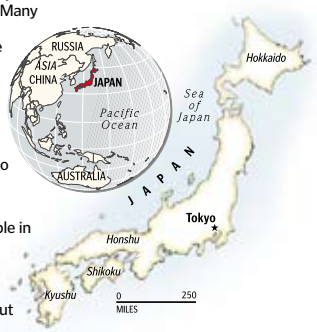
Economy: Japan makes lots of cars and electronic equipment (but you already knew that). It also grows rice, vegetables and fruits.

Television: There are about 72 television sets for every 100 people in Japan, compared with 84 TVs for every 100 people in the United States.

Good Web site for information about Japan: *web-japan.org/kidsweb.*

BY JULIA DOHNER FOR THE WASHINGTON POST

Students clean the school each afternoon.



Name _____ Date _____

Who Is Responsible for Keeping My School Clean?

Many schools have rules that include expectations of students being respectful and responsible. But students still expect someone else to clean up after them. And, sometimes teachers and administrators perpetuate the students' lack of responsibility by telling them that the janitor will clean up their messes.

In Japan, school children and their teachers are responsible for keeping their schools clean. For centuries, Japanese student participation in cleaning the school has been considered one of the ways of training the human mind.

Famous African American educator, Booker T. Washington, helped to clean Hampton Institute while a student there in 1872. Later when he headed Tuskegee Institute, he believed that students should do manual, in addition to academic, work. Students made bricks, they built buildings, they installed plumbing and did the carpentry. Indeed, during the early days of education in the United States, nearly all teachers and students had to chop wood for heat, clean the blackboards, sweep the floors and more!

Even today, in many schools — especially Montessori schools — children are in charge of, and take great pride in, caring for plants and animals, keeping the classrooms orderly, even cleaning and polishing wood. This is true in the United States as well as in other countries.

Many schools now have paper recycling and school beautification projects. With increasing concern about the environment, many schools are also looking at how clean are the air in the school and exhaust from the buses, the paint, the carpets and other surfaces. Clean schools not only lower the threat of the spread of illness, but also convey a caring message to the students and teachers.

At the heart of this concern and attention is one big question — who is responsible for cleaning your school? Are the students responsible? Is the principal responsible? Who do you think should be responsible?

Name _____ Date _____

Your Turn | Where may harmful germs be found?

Find the Germs

Find the twelve words associated with your health. You will need to read left to right, right to left, up, down, and diagonally.

Ache	Cold	Skin
Air	Germs	Soap
Bacteria	Hairs	Sore
Blood	Microbe	Virus

N	A	V	E	L	B
I	D	R	B	V	S
K	O	B	O	I	P
S	S	A	R	R	A
K	A	C	C	U	O
S	D	T	I	S	S
B	R	E	M	H	E
A	I	R	A	H	D
H	E	I	M	D	O
G	R	A	L	O	O
S	V	O	G	N	L
A	C	H	E	S	B

An Integrated Curriculum For The Washington Post Newspaper In Education Program

Norovirus Cleaning Begins at Dulles Hotel

By David Brown and Maria Glod
Washington Post Staff Writers

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The Hilton Washington Dulles Airport hotel closed yesterday for the weekend so crews could scrub and sanitize every surface after about 120 employees and guests were sickened by the highly contagious norovirus, which officials say is particularly severe this year.

As the last guests filtered out early in the afternoon, workers from a professional cleaning company prepared to scrub every nightstand and counter twice with a chlorine bleach solution. The crew will also clean carpets and drapes and mist each room with a disinfectant.

"It's a floor-by-floor, room-by-room, surface-by-surface process," said Jim Cree, the hotel's director of sales and marketing, who was washing his hands more than hourly yesterday to avoid the bug. "This will be the most sanitized building in the country."

This season is shaping up to be a particularly severe one for the illness sometimes known as "winter vomiting disease," said an expert at the federal Centers for Disease Control and Prevention, which helps track some of the 23 million cases of norovirus infection that occur each year.

First identified in 1972 but only routinely tested for in the past decade, norovirus is perfectly suited for causing dramatic outbreaks in crowded settings, including cruise ships, hospitals, nursing homes and hotels.

Even a very small amount of the virus can cause infection. It survives prolonged periods on such surfaces as counters and door handles, and it can become airborne under some circumstances. Some common disinfectants — such as alcohol-based waterless hand scrubs — won't kill it.

The chief mystery about the microbe, to both scientists and the public, is whether norovirus infections are becoming more common or just better publicized.

"That is the key question, and I don't think we really have an answer to it," said Robert L. Atmar, a norovirus researcher at Baylor College of Medicine in Houston.

"We certainly have better tools to diagnose the infection now, and they are being applied more frequently. That said, it seems that in the last year, there has been an increase in the number of norovirus outbreaks that have been reported," he said.

Marc-Alain Widdowson, a medical epidemiologist at CDC, said that "this winter season seems to be worse than previous winter seasons. The last time we had things this bad was 2002-03."

The severity of outbreaks may vary year to year, as is the case with influenza, even if the long-term incidence is not rising, he said.

Current estimates are that at least half of the more than 75 million annual cases of food-borne illness in the United States are caused by norovirus. About 20 percent of people who go to a doctor because of acute diarrhea are infected with it. The virus is believed to cause 10 times as many cases of diarrhea-and-vomiting illness as the next-most commonly implicated microbe.

The Virginia Department of Health has reported 52 norovirus outbreaks — which account for many more individual cases — this winter, according to the most recent data available. Last month, dozens of Catholic University students fell ill with norovirus. Far from Washington, there was an outbreak on the Queen Elizabeth 2 during a voyage from England to New York.

In Maryland, 34 gastroenteritis outbreaks have been reported this year, state health officials said. Ten appear to be caused by norovirus, and test results are pending in the other instances.

A District health spokesman said last month's outbreak at Catholic University was the only large norovirus incident reported in recent years.

At the Hilton, guests first began reporting symptoms Tuesday night, and some suspected food poisoning, Cree said. The hotel contacted the Fairfax County Health Department, and scientists examined the restaurant and kitchen and collected stool samples from people who were ill. Tests on those samples confirmed norovirus as the culprit.

Hilton officials found reservations at other hotels for guests checking in mid-week and through the weekend and moved a gala and other events. Employees will return to work Monday, and the hotel is scheduled to reopen at noon Tuesday.

The Hilton isn't the only area hotel that has been forced to close because of the virus. In 2003, dozens of guests and visitors at the nearby Hyatt Dulles fell ill. The hotel reopened after three days of top-to-bottom cleaning.

Lucy Caldwell, a Virginia Department of Health spokeswoman, said the best way to avoid the misery of norovirus is frequent hand-washing. If you do become ill, disinfect everything you've touched. "Spend time cleaning the toilet, including the handle," Caldwell said. "Clean anything you touch. The soap dish, your phone, the remote control."

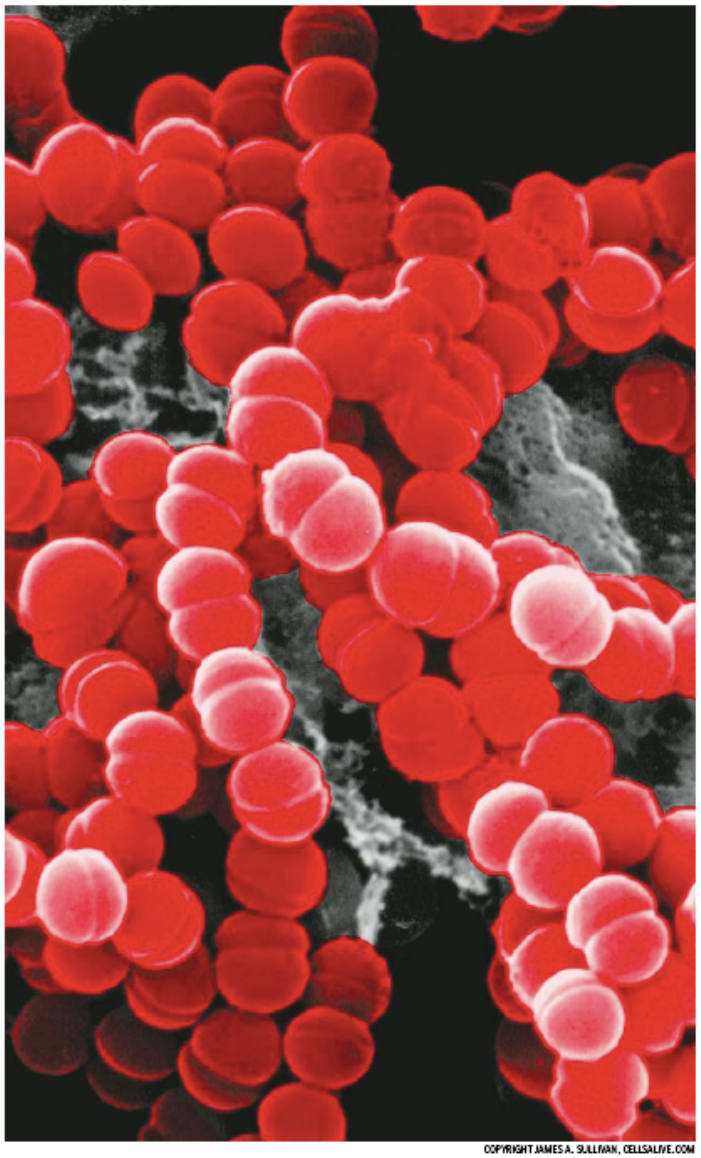
Norovirus is almost always passed through vomitus or feces. Perhaps as few as 10 virions — individual virus particles — are enough to cause infection. The incubation period is usually a day or more. Three-quarters of people report vomiting and diarrhea, although only one-third have fever, and symptoms usually last about five days.

About 20 percent of whites appear to be genetically resistant to one strain of norovirus, called Norwalk virus. Death from the infection is uncommon, but it can occur in the debilitated elderly.

Norovirus has been responsible for several large, dramatic outbreaks that illustrate its extreme contagiousness and persistence.

Early this decade, 660 patrons of a restaurant in Nagasaki, Japan, became infected with norovirus. Boiled broccoli that had been handled with bare hands after cooking was the most likely source of infection.

Contaminated drinking water, and even insufficiently chlorinated swimming pools, have caused outbreaks of norovirus infection.
Staff writer Susan Levine contributed to this report.



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A microscopic photo of Streptococcus pyogenes, the bacterium that causes strep throat.

You Are Not Alone

For Better or Worse, Trillions of Bacteria Are Along for the Ride

Next time someone asks what's bugging you, tell them it's bacteria. You are literally crawling with the microscopic creatures, which are neither plants nor animals but belong to a separate kingdom called Monera.

Trillions — that's right, *trillions* — of these single-cell organisms live on your skin, in your mouth, up your nose, down your throat and (especially) in your gut. In fact, there are at least 10 times as many bacteria making themselves at home in and on you as there are cells that make up your entire body.

Most of our tiny companions are harmless, even if you can't help but notice the less-than-pleasant effect some of them have as they go about their business (bad breath, body odor and flatulence, to name just three).

But some bacteria will turn on you if you're not careful. For example, the ones in your mouth can contribute to tooth decay if not kept under control by brushing and flossing.

But most bacteria behave themselves. Many actually help us. Without certain organisms in the large intestine, for instance, we wouldn't be able to digest food properly or obtain important nutrients such as vitamin K, which bacteria can produce.

The good bacteria in our bodies also help crowd out or destroy the dangerous types that can make us sick. Still, some do manage to find their way in and make us miserable with sinus infections, diarrhea, strep throat and other ailments. We are fortunate, though, because we have antibiotics and access to clean water. Children in many developing countries die for lack of these essentials.

Each species of bacteria — there are hundreds in your mouth alone — is uniquely adapted to its chosen environment. Those that live on the skin, say, are highly tolerant of the salt in our sweat, while those in the stomach easily withstand the highly contcentrated acid produced there.

It's hardly surprising that bacteria thrive so well wherever they are. After all, they were Earth's first inhabitants and survived when the planet was a far less hospitable place. Now they are virtually everywhere, from the hottest spring to the coldest glacier, and their numbers are staggering. As scientist Stephen Jay Gould noted, there are far more of just one species of bacteria, called E. coli, living inside you right now than the total number of people who have ever lived.

If that grosses you out, get used to it. Because those bacteria aren't going anywhere.

— Michael Farquhar

REUTERS, ISTOCK PHOTOS

Academic Content Standards

This lesson addresses academic content standards of Maryland, Virginia and the District of Columbia.

Maryland

Health Education: Students will demonstrate the ability to apply prevention and treatment knowledge, skills and strategies to reduce susceptibility and manage disease. (Grade 3, 7.0 Disease Prevention and Control)

Health Education: Students will demonstrate the ability to use consumer knowledge, skills, and strategies to develop sound personal health practices involving the use of health care products, services, and community resources. (Grades 1 and 2, 3.0 Personal and Consumer Health)

The Maryland Voluntary State Curriculum Content Standards can be found online at http://mdk12.org/mspp/vsc/index.html.

Virginia

Life Science: The student will investigate and understand interactions among populations in a biological community. Key concepts include
- the relationship among producers, consumers, and decomposers in food chains and food webs;
- the relationship of predators and prey;
- the role of parasites and their hosts. (LS.9, Grade 6)

Biology: The student will investigate and understand life functions of monerans, protists, fungi, plants, and animals. Key concepts include
- human health issues, human anatomy, body systems, and life functions;
- how viruses compare with organisms; and
- observation of local organisms when applicable.

Standards of Learning currently in effect for Virginia Public Schools can be found online at www.pen.k12.va.us/VDOE/Superintendent/Sols/home.shtml.

Washington, D.C.

Science: Humans have a variety of mechanisms to stay healthy. (3.7)

Biology: As a result of the coordinated structures and functions of organ systems, the internal environment of the mammalian body remains relatively stable (homeostatic), despite changes in the outside environment. As a basis for understanding this concept, investigate and cite specific examples of how the mammalian immune system is designed to protect against microscopic organisms and foreign (or non-self) substances from outside the body and against some aberrant (e.g., cancer) cells that arise within. (B.7, 5)

Learning Standards for DCPS are found online at www.k12.dc.us/dcps/Standards/standardsHome.htm.