

# Santa Ana High School Article of the Week #13

*Harmless Things You Should Really Wash Your Hands After Touching (1220L)*

**Instructions: COMPLETE ALL QUESTIONS AND MARGIN NOTES using the CLOSE reading strategies practiced in class. This requires reading of the article three times.**

**Step 1: Skim** the article using these symbols as you read:

(+) agree, (-) disagree, (\*) important, (!) surprising, (?) wondering

**Step 2: Number** the paragraphs. **Read** the article **carefully** and **make notes in the margin**.

Notes should include:

- Comments that show that you **understand** the article. (A summary or statement of the main idea of important sections may serve this purpose.)
- Questions you have that show what you are **wondering** about as you read.
- Notes that differentiate between **fact** and **opinion**.
- Observations about how the **writer's strategies** (organization, word choice, perspective, support) and choices affect the article.

**Step 3: A final quick read** noting anything you may have missed during the first two reads.

Your **margin notes** are part of your score for this assessment. Answer the questions carefully in **complete sentences** unless otherwise instructed.

Student \_\_\_\_\_ Class Period \_\_\_\_\_

## 'Harmless' Things You Should Really Wash Your Hands After Touching

Most of us recognize the importance of washing our hands throughout the day. We keep antibacterial soap by our sinks and hand sanitizer in our pockets. Then, after we press the flesh at networking events or finish our bathroom duties, we pretend we're a doctor scrubbing for surgery. But sometimes we're less fastidious when we encounter objects that seem beyond the reach of bacteria and viruses. In reality, we come in contact with an array of **fomites** -- materials or surfaces that are likely to carry infection -- every day of our lives.

**Water Fountain Button:** Charles Gerba, professor of microbiology at the University of Arizona, is a bacteria bigwig. In the 1970s, he warned us about toilet plumes -- clouds of contaminated water that fill our bathrooms every time we flush stuff down the loo. A few years later, he revealed the microbial landmines lurking in our kitchens, on sponges, cutting boards, countertops and sinks. And then he opened our eyes to the invisible, disease-carrying world found on TV remote controls in hotel rooms.

Back in the lab, they tested the swabs for adenosine triphosphate, or ATP, a chemical found in all living cells and therefore an indicator that bacteria. Of the water fountain buttons tested by the researchers, 23 percent earned ATP readings of 300 or more. A little more than half scored 100 [source: Castillo]. Either way, it's a sure sign that the water cooler is a great place to catch some gossip -- and your next cold.

**Communal Pen:** They say the pen is mightier than the sword, and thanks to Dr. J. Owen Hendley, a professor of pediatrics at the University of Virginia, we now have another reason to believe it's true. In 2006, Hendley co-authored a study

*Notes on my thoughts, reactions and questions as I read:*

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investigating the prevalence of rhinoviruses -- the germs responsible for the common cold -- in hotel rooms. Here's what Hendley and his team did: They asked 15 people with confirmed colds to spend the night in a nearby hotel. After the sniffing, sneezing guests checked out, scientists entered the rooms before the cleaning staff and tested various surfaces for the presence of rhinoviruses. As you might expect, they found virus particles on door handles, TV remotes, light switches, phones and alarm clocks. But they also found a large number on hotel pens [source: Associated Press].

By extrapolation, it's safe to assume that other communal pens -- at banks, grocery stores, day-care centers, restaurants and department stores -- are just as infected. In fact Dr. Neil Schachter, a pulmonary disease specialist at Mount Sinai Hospital, recommends that you should carry your own pen at all times and "use it instead of the doctor's, the delivery guy's or the restaurant waiter's" [source: Prevention].

**Pencil Sharpener Handle:** In 2009, Charles Gerba was at it again. This time, he teamed up with research scientists Kelly Bright and Stephanie Boone to see if disinfecting wipes could help control the spread of infectious diseases in elementary school classrooms. Their study focused on six classrooms in one Seattle school. Three of those rooms were part of the control group and received no intervention. The other three were thoroughly cleaned each day by parent volunteers who scrubbed 12 test surfaces with disinfecting wipes containing quaternary ammonium, a chemical compound often used in disinfectants, surfactants, fabric softeners, antistatic agents and wood preservatives.

Over seven winter weeks, the scientists swabbed the test surfaces in both the control and experimental classrooms several times. They sent the samples to a lab, where they were analyzed for the presence of bacteria and viruses. Their results confirmed what we already know from the first entry on our list: Water fountain buttons were hotbeds of microbial activity. Surprisingly enough, the next most contaminated object per square centimeter in the classroom was the manual pencil sharpener handle. The least contaminated objects were the classroom entrance and exit doorknobs.

**Soap Dispenser:** OK, let's get this straight. After you use the facilities -- especially public facilities -- you need to wash your hands, correct? But what do you do if the soap in the dispenser next to the sink carries as many germs as the toilet where you did your business? This isn't such a far-fetched question, according to some researchers at the University of Arizona. After sampling 132 refillable soap dispensers in public restrooms and restaurants, they found 23 percent were contaminated with viable bacteria, including *Serratia marcescens*, *Enterobacter aerogenes* and *Klebsiella pneumoniae* [source: Hoyle]. These are all pathogens, by the way, which means they're capable of causing disease.

More disturbing, the researchers don't think the germs are surviving in spite of the soap. They believe instead that the bugs are metabolizing chemicals in the soap to stay fat and happy. So where does that leave you when you're emerging from a public restroom stall? Look for dispensers containing sealed disposable bags, which tend to be bacteria-free. If they're not available, carry some alcohol-based sanitizer and use that on your hands. Using water with no soap, even hot water, will do little to remove bacteria from your skin.

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**Comprehension questions – answers may be in phrases.**

1. *Name one location not mentioned in the text in which one may find a communal pen.*
2. *Define **array** as used in the article.*
3. *List four kitchen items that are likely contaminated by bacteria.*

**Answer each question in one or more complete sentences and by providing complete explanations.**

1. *What is the best possible means of avoiding bacterial contamination? Cite evidence from the text to support your conclusion.*

**3. Create a public service announcement for school-age children to help them avoid illnesses caused by bacteria. Cite a minimum of three pieces of textual evidence to support the PSA.**