

# Integrating Hand Cleaning Into the Curriculum

With the evidence that links hand cleaning to reducing absenteeism, incorporating hand cleaning education into the schoolday is not necessarily a question of “why,” but a matter of “how.” The answer lies in integrating the topic of handwashing into your existing curricular areas. The idea-starters below are linked to national education standards – use them to get your students excited about clean hands.

Best of all . . . clean hands can keep you and your students in school and learning, which can also lead to higher standardized test scores! (Ohlund, LS, & Ericsson, KB. 1994. Elementary school achievement and absence due to illness. *Journal of General Psychology*, 155:409-421.)

**Note:** For access to the following National Standards, visit:  
<http://www.educationworld.com/standards>  
<http://www.mcrcel.org/compendium/browse.asp>

## MATH

**Introduction:** Germs *can* do math – they “divide” every 20 minutes under optimal conditions!

*Bacteria facts:*

- One bacterium is far too small to be seen without using a microscope. Most are about 1/1000 of a millimeter in diameter.
- In just 12 hours, one bacterium could multiply to more than 8.5 billion under perfect conditions. After three days, with no bacteria dying, there would be enough of them to cover the entire earth.
- Working in teams, have students measure 1 mm, then picture the size of 1/1000 mm. Starting with a single bacterium, calculate how many bacteria there would be after one hour, two hours, and three hours at the 20-minute fission rate.
  - Track the bacterial growth on a graph sheet.
  - Create a visual representation of the mathematical results, using materials selected by the teams (e.g., putty, polymer clay, play dough, salt dough, string, paper, beads, paper clips, etc.)
  - Share visuals with the class. Discuss the graph.
  - Draw conclusions about bacteria that can make us sick and the relationship of bacterial growth to handwashing.

### National Standards Links:

- Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer.
  - Select and use appropriate statistical methods to analyze data.
  - Develop and evaluate inferences and predictions that are based on data.
  - Recognize and apply mathematics in contexts outside of mathematics.
- (National Council of Teachers of Mathematics)

## SCIENCE

- Conduct a germ investigation. Have students swab commonly-touched surfaces like doorknobs, water fountains, bathroom sinks, cafeteria tables, and classroom materials. Use agar plates to culture bacteria. Monitor their growth using a microscope. What do students observe? Ask them to discuss how their findings relate to hand cleaning.
- Use a fluorescent agent to track how germs can be passed along from surface to surface. Ask your school nurse for details.
- Try this experiment to demonstrate how soap works: Put oil and water together in a clean jar or bottle with a tight top. Shake the jar or bottle. Have students observe what happens. Then, add some hand dishwashing detergent to the jar or bottle, close the lid, and shake again. Ask: What happens? Why? How does this relate to washing our hands?

### National Standards Links:

#### Science as Inquiry

- All students should develop abilities necessary to do scientific inquiry and understandings about scientific inquiry.

#### Personal and Social Perspectives

- All students should develop an understanding of personal health; populations, resources, environments; natural hazards; risks and benefits.
- (National Academies of Sciences)

## SOCIAL STUDIES

- Study and report on an epidemic from the past or from the present, such as the typhoid epidemic spread by “Typhoid Mary” in New York in the early 20<sup>th</sup> century. Teams can report on the epidemics to the class and discuss how hygiene could have affected the cause and the outcome of each one.
- Research what different organizations are doing to promote hygiene in different areas of the United States and around the world.
- Monitor current events related to health and hygiene (i.e., foodborne illness, colds, and flu). Bring in information to share the connection between the news stories and hand cleaning with the class.

### National Standards Links:

- Students understand economic, social, and cultural developments in contemporary United States.
- Students gather and use information for research purposes.
- Students demonstrate competence in the general skills and strategies for reading a variety of informational texts.
- Students know the location of places, geographic features and patterns of the environment.
- Students understand the impact of significant political and nonpolitical developments on the United States and other nations.

(Mid-Continent Research for Education and Learning)

## LANGUAGE ARTS

- Write and deliver persuasive speeches on topics such as clean hands, why it's important to stay healthy, school bathroom upkeep, etc.
- Craft articles, advertisements, or videotaped commercials to inspire other students and members of the school community to adopt a hand cleaning campaign.
- Develop content about a school hand cleaning campaign for the school newspaper, Web site, or morning PA announcements.

### National Standards Links:

#### *Communication Skills*

Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

#### *Communication Strategies*

Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

#### *Evaluating Data*

Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and nonprint texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

#### *Applying Language Skills*

Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

(National Council of Teachers of English)

## FAMILY AND CONSUMER SCIENCES; HEALTH

- Incorporate discussions of hand cleaning as part of an overall personal hygiene component in class. Ask: How does hand cleaning help us stay healthy? Why is hand cleaning important in a school setting? Encourage students to think beyond the obvious. For example, staying healthy means staying in school, where you can learn, socialize, play sports, and so on; keeping yourself healthy can also keep others around you healthier, etc.
- Invite the school nurse, food service director, or a local public health official to visit and to discuss the importance of hand cleaning in school.
- Many middle school students are concerned about looking good. Ask them to research and report on the connection between hand cleaning and healthy skin. They might even create mini-magazines that focus on the link between good health and hygiene!
- Explore and report on local/county/state regulations about hand cleaning facilities.
- Create special posters for use in the cafeteria and at home, highlighting the places where germs "hide out" and stressing the importance of hand cleaning in food settings.
- Create "germ flow charts" that detail the many ways germs can be spread through a typical day at school, at home, and in social settings.

### National Standards Links (Health):

- Students will comprehend concepts related to health promotion and disease prevention.
- Students will demonstrate the ability to practice health-enhancing behaviors and reduce health risks.
- Students will demonstrate the ability to use goal-setting and decision-making skills to enhance health.
- Students will demonstrate the ability to advocate for personal, family, and community health.

(Joint Committee for National School Health Education Standards)

## ART

- Create a "clean hands" game, complete with a colorful game board and playing pieces. Remind students that the goal of the game should be finding and getting rid of germs!

### National Standards Links:

#### *Choosing and evaluating a range of subject matter, symbols, and ideas*

- Students integrate visual, spatial, and temporal concepts with content to communicate intended meaning in their artworks.
- Students use subjects, themes, and symbols that demonstrate knowledge of contexts, values, and aesthetics that communicate intended meaning in artworks.

#### *Making connections between visual arts and other disciplines*

- Students describe ways in which the principles and subject matter of other disciplines taught in the school are interrelated with the visual arts.

(Consortium of National Arts Education Associations)