Germ City Hand Washing Program®

"Clean Hands, Healthy People"

Curriculum Guidelines and Presentation Suggestions

Seventh through Ninth Grade OR Middle School

DRAFT

Format: 50 minute sessions with 20 - 50 students.

Objectives:

The objectives and project goals of Germ City Hand Washing Program® are:

1. Enhance awareness of the importance of hand washing using science based education for youth, adults, and older Americans preparing food in the home.
2. Improve effectiveness and frequency of hand washing reaching a diverse audience in rural and urban settings including children, adults, senior citizens, and at-risk population groups.
3. Modify attitudes, enhance personal motivation, and facilitate positive behavior change for hand washing.
4. Generate data/research base to support future study and evaluate effectiveness of hand washing education programs related to behavior change, attitudes, and personal motivation.

The lesson emphasis is on Learning About the Importance of Hand Washing, Why It Is Important, and Practicing Effective Hand Washing for Behavior Change.

Suggested Preliminary Planning:

- Presentation for school faculty or science teachers
- Presentation for Parent-Teacher Organization

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Supplies: Germ City® Unit
Posters for Hand Washing and Times to Wash Hands
Evaluation Materials
GlitterBug® (**in a Pump Bottle)** from the Brevis Corporation:
One Pump Bottle is good for approximately 400 - 500 students. A small amount is satisfactory.

Set-Up: Set-up the Germ City® Unit in a central location that accommodates 20-50 students, teachers, and volunteers. The location must be within easy reach of restrooms with an adequate number of sinks for hand washing. You will need one grounded - three prong electrical hook-up. Make arrangements with school maintenance for supplies of paper towels and soap. Possible locations include a school library, gymnasium, science classroom/laboratories, or large hallway in the school. Generally, students are seated on the floor.

Think ahead about the "flow" of students through Germ City®. With large groups, it usually works best to line students up, ready to enter and then give directions for going through the tunnel, hand washing, and re-visiting the tunnel. Thinking ahead saves lots of valuable time for student interaction.

Ask for help from teachers. For each double sized (2 classrooms) class, it's best to have two Extension Educators along with the two classroom teachers. During visits to the tunnel, position one Extension Educator inside the tunnel to keep things moving. Teachers and additional volunteers position themselves in restrooms with students - reinforcing hand washing procedures, watching for water on the floor, and directing traffic.

Ensuring Success in the Classroom:

While the message and objectives for the Germ City® Hand Washing Program are straightforward, personal delivery often makes the difference between giving a talk and a presentation that engages children and facilitates behavior change. Here are observations from educators in Washington State that may be helpful to you. We've learned through experience - often the hard way - as we worked with more than 1,000 middle school students using 25 - 55 minute presentations.

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- Begin a class session with an attitude that assumes "Every teenager knows something about hand washing." This is positively reinforcing for students. *Teenagers are especially sensitive to educators who "talk with" them versus "talk to" them.* This approach also allows you to build on what they know and spend more time modifying attitudes, enhancing motivation, and facilitating behavior change.
- Be seated as close to students as possible. Rather than standing which creates separation, use a short stool or chair so that you are close to eye level with students. This makes a big difference in your "connectedness" with students. This approach is especially effective with smaller groups of middle school students.
- Use stories with objects and places that students are familiar with locally. For instance, in Western Washington we share stories about a petting zoo at a large fair that many students visit each September. There was an E. coli outbreak linked with the fair that received lots of publicity. If you are having difficulty finding a story, call your County Health Department or State Health Department and ask for their help. You'll find many interesting facts and be able to connect with students, parents, and teachers in meaningful, direct ways.
- Enjoy yourself and find your unique presentation personality. Our educators usually wear Germ City® tee shirts. Let your creativity and personality show!
- Engage student volunteers. Examples of engaging students will be illustrated in the lesson plan.
- Get teachers involved. Ask them questions, have them share personal observations after seeing the Germ City on their hands. Request their help during the visits to Germ City and during the hand washing in school restrooms.
- Ask what the quiet sign or hand signals are for quiet/attention.

We encourage you to add to our suggestions to ensure success by sending your unique observations and approaches to B. Susie Craig via e-mail: scraig@wsu.edu.

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The Lesson Plan

Components the Lesson:

1. Introduction
2. Bacteria, Viruses, and Hand Washing - A Conversation with Students
3. Hand Washing Experiment - Washing Normally
4. Visit the Germ City® on Your Hands
5. Observation and Discussion of Normal Hand Washing Practices
6. Discussion of Research, Microbes, Hand Washing, and Food Safety
7. Effective Hand Washing - The Method
8. What We've Learned - Do you Plan to Change?

1. Introduction

- Introduce Yourself, your University, and Germ City®
- General Lesson Approach: Students will participate in a Hand Washing Experiment - A Science Based Experience

2. Bacteria, Viruses,& Hand Washing -Conversation with Students

- Ask students to share what they know about Bacteria/Viruses and Hand Washing. Reinforce raising hands - waiting to be called on.

  Middle-school students will often talk about hepatitis A, E. coli, and other specific bacteria. In some schools, students have been involved in growing bacteria taken from sites around their schools. This is a wonderful concurrent activity.

  Stress these points:

  Bacteria/Viruses are everywhere
  Bacteria/Viruses can cause illness
  Bacteria/Viruses are so small that you can not see them
  You can get rid of Bacteria/Viruses by washing your hands

  Question: What types of scientists study bacteria and viruses?

3. Hand Washing - The Experiment

- Experiment with Hand Washing - An opportunity to observe the effectiveness of your hand washing practices.
- Very important to wash as you normally wash - do things exactly the same way. You might ask students to think about their hand washing behavior the last time they used the restroom or ate lunch in the school cafeteria.

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- Describe Germ City® and How It Works
  ∫ Describe how GlitterBug™ works under a black/uv light: GlitterBug™ is a hypoallergenic hand lotion with a special coloring substance (pigment) that is not visible under regular light. You will be able to see it under the black light in the Germ City tunnel. The lotion simulates bacteria or viruses on your hands. Just like bacteria, you can not see the lotion on your hands.

4. Visit the Germ City® on Your Hands

- Place a small amount of the lotion on hands. Instruct students to rub in like hand lotion - on both sides of hands.
- Stress these are simulated/pretend bacteria- that they will not hurt you or cause illness. You can not see the simulated or real microbes. When you go into Germ City, you will be able to see the simulated bacteria on your hands.
- ***Stress washing as you normally wash.***
- Ask students to line up quietly outside Germ City. Remind them to look at their hands inside the tunnel, go to bathrooms and wash their hands as they normally wash, and return to Germ City.
- Revisit Germ City - making observations about the experiment.

5. Observation and Discussion of Normal Hand Washing Practices

Ask students what they noticed and observed during the Experiment. Here are some of their most likely responses and your opportunity for teachable moments based on their experiences:

Observation: I really washed more than normal for me and it still wasn't good enough.

Learning Opportunity: Time is an important part of hand washing. How long does it take after you add soap to thoroughly scrub your hands. Discuss 20 seconds linking to singing or counting.

Observation: I used cold water and it looks like I have even more pretend bacteria on my hands.

Learning Opportunity: Warm water always works better than cold. It is much more difficult to adequately wash with cold water.

Observation: I did a better job on one hand than the other.

Learning Opportunity: Most people have a dominant hand. For instance if you are right handed, many people may do a more thorough job washing their left hand.

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Observation: I missed spots on the bottom of my hands and by my wrists.

Learning Opportunity: This is one of the most common areas to miss when washing your hands. Hand washing and tying shoes have a lot in common. Both are behaviors you practiced and learned….and do the same way every time. If you saw missed spots on your hands, it's very likely that you miss these same spots every time you wash your hands. What might your change? How long do you think you need to practice this change?

Observation: There are pretend microbes under my fingernails/near a small cut/ on my bandage/ in the rough edges of my calluses.

Learning Opportunity: There are many places that bacteria/viruses may wedge themselves like fingernails, cuts, or bandages. Ask students how they might handle these situations: Nail brushes at home, apply clean bandage after hand washing.

Observation: I missed the outside edges of my hands

Learning Opportunity: Like tying your shoes or putting on your clothes, we have patterns or an order of how we do things. Hand washing is the same way. It's likely that your hand wash pattern always misses the outside edges of your hands. What might you do differently?

Observation: I touched my face - my arms with the pretend microbes.

Learning Opportunity: This is a great example of how we move bacteria from one place to another. This is called cross contamination. Can you identify places around school or home that might be cross-contaminated? Examples: Bathroom doors, faucets, computer keyboards, balls, desk and table edges, other students' hands.

6. Discussion of Research,Microbes,Hand Washing, Food Safety

- Can you name times when it is very important to wash your hands?

1. After Using the Bathroom
2. Before You Eat
3. After Playing with Pets or Visiting the Petting Zoo
4. After Coughing or Sneezing. Show children how to cough or sneeze into their sleeve/arm.
5. After Playing with Outside - Link to Sports Activities
6. After Carrying Out the Trash/Garbage

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- Linking your Presentation to Research

ADULTS AND HAND WASHING

Do you think most adults wash their hands after using the restroom? Then ask why they think their answers are correct.

You will get a variety of responses that might include:

∫ No, because they have watched adults at sports events or other public places.

∫ Yes, because they're adults and they're supposed to wash. Or, adults answer yes because they are ashamed to tell the truth.

<u>This is a wonderful opportunity to talk about science and observation - reinforcing critical thinking skills.</u>

Microbiologists have studied hand washing behaviors and adults. In a 2000 study conducted by the American Society for Microbiology, 1,021 people were asked “Do you always wash your hands after using the bathroom?” 95% responded they did.

When 7,836 adults were observed in a subsequent follow-up study in public restrooms in five major metropolitan areas - like airports, train stations and a baseball stadium, only 68% washed their hands. The observers counted anyone placing their hands under water as a wash.

Follow-up Questions:

1. Does washing with water work?
2. Why not?
3. If you attending a baseball game, how might the hand washing behaviors of others affect you?
4. Why don't adults wash their hands?
    - It takes to long
    - I'm in a hurry
    - It doesn't make that much difference
    - My hands are/look clean
    - It dries out my hands
    - I'm healthy - I don't have to worry

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- **INTRODUCTION**
  DISCUSSION OF CROSS CONTAMINATION

  The Petting Zoo and Cotton Candy:
  Most students in Washington have visited a fair and enjoyed a petting zoo. Many also know about the outbreaks of E. coli linked to fairs and festivals. Here is a story in narrative form that has been effective with students.

  "My husband and I visited the Puyallup Fair last year. We had a great time watching
  children just about your age at the petting zoo. How many of you have visited a petting zoo? A little boy and girl were petting the baby calves and lambs. After they finished petting the animals, they came out of the barn and got in a small, red wagon. Their parents were pulling them around the fair grounds. They must have been hungry because their parents opened a big plastic bag of pink cotton candy for them. Each of them reached in and took some cotton candy and ate it. Pretend there were disease causing or pathogenic bacteria on the baby calf.

  Follow-Up Questions:
  1. Where have the bacteria moved? *From the calf - children's hands - cotton candy - children's mouth - children's body.*
  2. What could happen to the children?
  3. How does cross contamination occur in your school?
     A student will mention colds. That's a good way to illustrate the appropriate method of coughing or sneezing into your sleeve and discuss hand washing. You might discuss placed where someone cold virus might cross contaminate surfaces at the school - moving the virus from the infected student - surface like keyboards, doors - the next students hand - then the unwashed hand to their mouth (i.e. eating a sandwich at lunch) or rubbing their nose or mouth.
  4. How does cross contamination occur in you home?
     Highlight importance of hand washing, washing fresh fruits and vegetables, washing and sanitizing surfaces between uses - especially after working with fresh poultry, meat, or fish, and using paper vs. cloth towel for drying hands.

For a longer presentation: Discuss hepatitis A and the fecal-oral route of the transmission of this virus. Link food safety and job opportunities in food service. Many students have some understanding of hepatitis A and community health.

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- **CHILDREN AND HAND WASHING**
  Here's another research study with elementary school children in Detroit. Educators, like me visited a school with 600 children and talked with all the children about hand washing. 300 students were in the control group. What does control group mean? 300 children - or half the school were asked to wash hands four times each school day at planned times: Arriving a school, after recess, before lunch, and before leaving school. Children washing at scheduled times had 24% fewer sick days due to respiratory illness and 51% fewer days lost because of stomach upset than did children in classrooms without scheduled hand washing.

  Follow-Up Questions:
  1. What can you learn from this research?
  2. What applications does this research study have for your school?
  3. What behaviors would it be helpful for you to change?

7. Effective Hand Washing-The Method - Reinforce with Poster

With each step of hand washing, ask students what the "science" or reasoning is for each step:

- Look for a Paper Towel. Take one and place it under your arm.
- Turn On the Water. Get hands wet - with warm, running water.
- Add Soap
- Scrub Hands for 20 seconds.
  - First show them how to do it - Under and around nails, fingers, front and back side of hands, and wrists.
  - Practice washing while singing a favorite song: Row, Row, Row Your Boat (twice), or counting 1-1000, 2-2000 to 20.
- Rinse well Under Running Water.
- Take the Paper Towel From Under Your Arm and Dry.
- Shut off Water with Paper Towel and Open Door with Paper Towel.
- Place the Paper Towel in Waste Basket

Discuss RIGHTS and RESPONSIBILITIES of hand washing at school: Children will frequently talk about not having enough soap or paper towels at school.

Their RIGHTS: Encourage them to talk with the parents, teachers, and principal about the importance of hand washing and having supplies.

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Their RESPONSIBILITIES: Being respectful in their use of soap and paper towels, being neat, placing paper towels in waste containers. In some discussions, I've asked students to pretend they were the principal and discuss what students sometimes do with paper towels and soap.

8. <u>What Have You Learned - Do you Plan to Change?</u>

Ask students to share what they have learned & what they plan to change.

<u>Another Interesting Discussion - with Extra Time</u>

In many classes, there has been enough time to have a discussion of how architects, engineers, and builders construct restrooms to encourage people to wash their hands and to reduce the possibility of cross contamination. Those methods include:

- Restrooms without doors - halls with right degree angles
- Water that automatically comes on via a sensor
- Foot pedals for water - large round sink areas in elementary schools/stadiums
- Waste containers near the door - to place used paper towels
- Soap dispensers

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