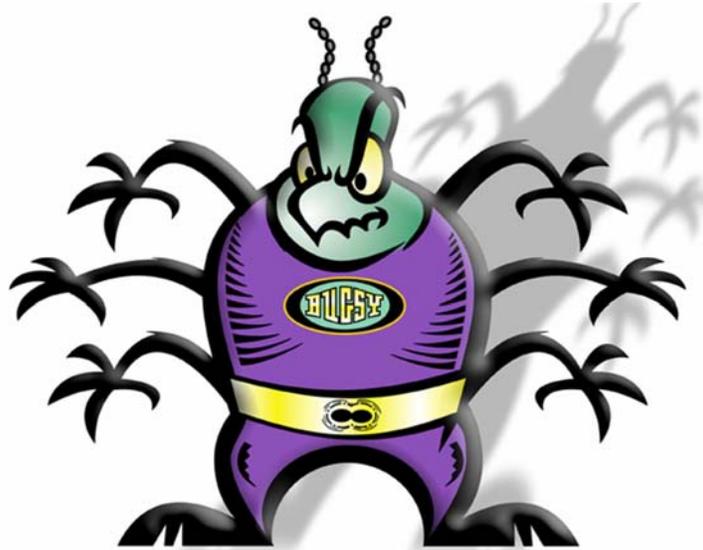


# DO BUGS NEED DRUGS?



## GRADE THREE

## GRADE



3

# Do Bugs Need Drugs?

## Overview

In this lesson, students will review the concept of germs as being either bacterial or viral as well as how these germs are commonly spread. Students also review the proper techniques and barriers to good handwashing. Through the activities, students explore their environments to determine where germs are most often found and transferred and why handwashing is so important, particularly when handling food.

## Learning Outcomes

Students will:

- Identify sources of bacterial and viral germs in a broader environment
- Practice strategies for protecting themselves and others from infection
- Recognize the importance of keeping spaces and materials clean
- Recognize and remove barriers to good handwashing technique

## B.C. Curriculum Learning Outcomes

### Health and Career Education:

#### Organizer – Healthy Living

- Students will describe practices that help to prevent the spread of communicable diseases (e.g. not touching infectious garbage, staying away from others when sick, washing hands)

### Science

#### Organizer – Processes of Science

- Students will ask questions that foster investigations and explorations relevant to the content

### Social Studies

#### Organizer – Skills and Processes

- Students will apply critical thinking skills to selected problems or issues
- Students will create a presentation on a selected topic
- Students will formulate a response to a relevant classroom, school or community problem or issue

#### Organizer – Governance

- Students will describe how understanding of personal roles, rights, and responsibilities can affect the well-being of the school and community



## GRADE



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## Teacher Information

Throughout the day germs accumulate on your hands from a variety of places. Germs are able to survive for hours or days on surfaces in our environment, on telephones, desktops (teachers' desks are especially contaminated), money and pets. Hands come in contact with many objects during the working day. In fact during one minute the average working adult touches about 30 different objects.

The hands are very efficient at picking up germs from contaminated surfaces. For example, a significant number of the germs on kitchen surfaces can be transferred to the hands. Rates of germ transfer to the hands depend on the surface that is touched. More germs can be transferred from smooth hard surfaces such as telephones and faucets compared with rough spongy surfaces like dishcloths or carrots, but a significant number of germs can be transferred from both.

You don't get sick just by having germs on your hands (unless you have a cut or scrape). Germs get into the body through the mucous membranes, such as those around your nose, mouth and eyes. About 40% of the germs on your fingers can be transferred to your lips if you touch your lips. Small children bring their hands up to their mouths about once every three minutes. It is important to teach children as they grow older that keeping their hands away from their face will prevent illness.

In schools and elsewhere, surfaces that are touched by many people are places where germs are transferred. This includes playground and gym equipment, desks, shared pens and markers, vending machine buttons, door knobs and handles, washroom taps, telephones, bus rails, and many others. Students need to become aware of the "invisible" germs on these surfaces and to learn responsible behaviours that will protect themselves and others from illness.

Remember to wash your hands before activities where germs could be introduced into the body and after activities that are likely to result in direct contact with germs. These are: before eating or preparing food, after using the washroom, after handling garbage, after playing with pets, after blowing your nose, and before and after helping children with cuts and scrapes.

It is particularly important for children to make handwashing a habit, to recognize the important times to wash their hands, and to know that handwashing contributes to their health and the health of those around them.

Hand Sanitizers. Alcohol-based hand sanitizers kill many germs on the hands. Hand sanitizers are especially useful when soap and water are not available, such as on the playground or on field trips. These products are not effective unless they contain at least 60% alcohol. Note that hand sanitizers do not clean the hands and do not work if the hands are greasy or dirty, so they are not a substitute for handwashing.



## GRADE



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## Teacher Information - continued

Plain Soap. If you have the opportunity to select the soap at your school, use plain soap. Plain soap is just as effective as antibacterial soap in removing germs from the hands. Further, plain soap does not promote antimicrobial resistance, a growing medical concern in the community.

## GRADE



**3**

### Lesson Outline

1. Where the Germs Are – pages 7 - 8
2. Handwashing Protects You and Others – pages 9 - 10
3. How to Wash Your Hands – Handwashing Video – page 11

### Student Activities

1. School Tour – page 13
2. Handwashing Detectives – pages 14 - 15
3. Where Germs Hang Out – page 16
4. Potato Experiment – page 17

### Teacher Materials

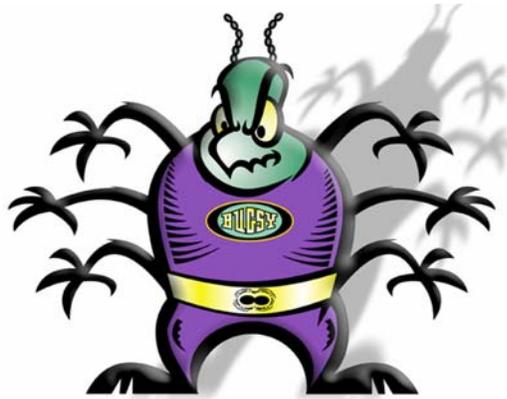
1. Picture of Buggy – page 19
2. Handwashing Video – available to download from the website
3. How to Wash Your Hands poster – page 20
4. Handwashing Song Sheet – page 21
5. Practical Solutions to Handwashing Problems – pages 22 - 23
6. Follow up and Home Connection – page 24

**GRADE**



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## **Lesson Outline**



### **Grade 3**

1. Where the Germs Are – pages 7 - 8
2. Handwashing Protects You and Others – pages 9 - 10
3. How to Wash Your Hands – Handwashing Video – page 11

## Where the Germs Are

### Introduce Buggy

**Materials:** Picture of Buggy

Introduce Buggy to the class and explain that Buggy is here to help them learn about where germs are. Buggy has important messages as we go along. Buggy is a bug. Not a bug like a ladybug! He's a germ bug. Being a germ bug, he knows where all of the other germs hang out. He's here to help you find them.

**Note:** Graphic can be downloaded to an overhead or viewed on line from a projector or SMART Board.

Explain to students that today they will be learning about how to protect themselves from germs and how to stop germs from spreading to other people.

#### ? *Do you remember what germs are?*

Sum up:

- Germs are tiny living organisms that can only be seen by a microscope
- Germs are classified as either bacteria or viruses. (Review similarities and differences from Grade 2)
- Germs can be either on surfaces or airborne

#### ? *Can you name some of the places where germs are in the classroom, home, public places like restaurants or malls?*

Allow students to provide some answers. Sum up and prompt students to identify the most critical places and chart their ideas/suggestions.

#### ? *What safety measures do you think we have here in B.C. and Canada and to prevent disease from spreading?*

- Provincial environmental health protection oversees the inspection of restaurants and food service locations, public swimming pools and hot tubs, and businesses providing personal services (such as beauty salons, barber and tattoo shops) to assure public health standards are met. Also oversees the drinking water program, tobacco enforcement and communicable disease control and onsite sewage management.
- The FOODSAFE Program is a comprehensive food safety training program designed for the food service industry
- Government inspection of food, animals and plants.
- Public health services such as immunization for children, management of communicable disease outbreaks, providing disease information to parents/schools/public



## Where the Germs Are - continued

? ***What happens to you if you don't wash your hands after touching something with germs on it?***

The germs can get into your body to make you sick. The germs get into your body through your nose or mouth or eyes. Then they make you sick.

? ***What happens to other people if you don't wash your hands after touching something with germs on it?***

You can spread the germs around to the other things that you touch. Then, when other people touch them, they get germs on their hands. That can make them sick too.

Surfaces that are touched by lots of people are the places where germs are spread from one person to another. If I blow my nose and don't wash my hands, then the germs on my hands will be spread to all the things that I touch.

? ***What are some of the things that you touch that your classmates also touch?***

Sum up: Demonstrate and sum up: Teacher's desk, shared markers, pencils, crayons, papers, books, sharing food, sips, bites, licks, tastes and water bottles, etc.

? ***What about other places in the school?***

If they haven't already done so, prompt the students to think beyond the area around their desks. Sum up: Door knobs, railings, light switches, playground equipment, balls, washroom taps, etc.

? ***What about other places your home and in our community?***

Home: Telephone, computer keyboard, remote control, shared towels, countertops.

Community: Bus rails, elevator buttons, escalator railings, park benches, water fountain handles, money

? ***How did these germs spread?***

Sum up: By our hands as well as airborne particles/germs from coughing or just breathing out.

? ***How do these germs make you sick?***

Sum up: When our hands put the germs in our nose, mouth or eyes.



BUGSY SAYS GERMS ARE SPREAD BY THE HANDS.



## Handwashing Protects You and Others

Students will gain an understanding that they are responsible for their own safety and the safety of others. To minimize the spread of germs to each other and to shared objects, everyone needs to practice good handwashing techniques. Students will learn that handwashing protects themselves, their classmates, school personnel, and their families from illness.

### ? *What are some of the things you can do to stop spreading germs?*

Sum up: Handwashing, covering your cough and sneezing in your sleeve, staying home when you are sick.

Ask students to discuss in pairs or small groups, cleanliness rules that they have at home. Include expectations that the family has for cleaning bedrooms, bathrooms, the kitchen and all other living areas.

### ? *What products do you use to clean surfaces at home? What responsibilities does each person in your family have for cleaning?*

In debriefing, emphasize the need to keep our living spaces at home, school and in the community clean and safe. Part of disease prevention is regular cleaning or maintenance so that germs do not have the chance to collect. Review the expectations for keeping surfaces and spaces clean in the classroom.

Reinforce handwashing, covering your cough and sneezing into your sleeve or using a tissue (and remembering to wash your hands afterwards), staying away from others when you are sick are all ways to prevent the spread of illness or infection.

### ? *When you wash your hands it's important to do it right. Imagine that you are in the washroom/sink area and ready to wash your hands. What are the first things that you should do?*

Sum up: Turn on the taps. Get some soap.

### ? *Then what?*

Sum up: Rub your hands together with the soap. Rub all parts of your hands, palms, between your fingers, backs, thumbs, wrists, and fingertips and nails. Sing the Twinkle, Twinkle song to make sure you do it long enough.

### ? *Next?*

Sum up: Rinse all the soap and germs away.



## Handwashing Protects You and Others - continued

### ? *What are the other things that you need to do?*

Sum up: Wipe your hands. Turn off the water. Open the door. Throw away the towel. Leave the washroom/sink area.

### ? *What order do you think you should do these in? What happens if you turn off the taps with your clean hands?*

Sum up: You will get germs that are on the tap on your hands. When you turned on the tap your hands weren't clean. Neither were anyone else's hands who turned on the tap. Because of this the taps have germs on them. To keep from getting germs on your hands after doing such a good job washing them, get the paper towel, next dry your hands, and then use the towel to turn off the taps.

**Note:** If the paper towel dispenser in your washroom/sink area has a lever or button, the students should use their elbow or forearm to dispense the towel of get one before they start to wash. See Practical Solutions to Handwashing Problems for other situations that may arise. In the handwashing activity, students will be reporting on things in their washroom/sink area that make handwashing difficult and follow up with problem solving in the classroom.

### ? *What happens if you open the door with your clean hands?*

Sum up: The germs on the door knob or handle, or on the door itself (if opens by pushing) can come off on your hands. Use the towel to open the washroom door.

### ? *What else can you do to help your classmates and the adults at your school keep their hands clean?*

Sum up: Keep the washroom/sink area tidy. Throw your towel away in the trash. If the trash container is not near the washroom door, take it with you and throw it away in your classroom.



BUGSY SAYS GOOD HANDWASHING PROTECTS YOU AND OTHERS FROM SPREADING GERMS WITH YOUR HANDS.

## How to Wash Your Hands - Handwashing Video

**Materials:** Handwashing Video – available to download from the website

Inform students that they are now going to see a handwashing video that will show them the proper way to wash their hands. Tell them to pay close attention to the video, as later they will be using a checklist to find ways to make handwashing easier in their washroom. They will need to know the six steps of good handwashing.

**Note:** Some students may have seen this video previously. For those students, ask them to use the video to make sure they remember all the steps of good handwashing. The video is included for all grades (K-Grade 3) to reinforce previous learning and as catch-up for students who have not seen it before.

After playing the video once ask the students to name the six steps of handwashing. They are:

1. Wet your hands.
2. Apply plain soap.
3. Rub your hands together for 20 seconds or the time it takes to sing Twinkle, Twinkle. Rub all parts of your hands including palms, between your fingers, backs of hands, thumbs, wrists, fingertips and nails.
4. Rinse your hands.
5. Dry your hands with a disposable towel.
6. Use the towel to turn off the taps and let yourself out the washroom door.

*Last, don't forget to leave the washroom neat and tidy!*

Show the video again and discuss the steps if reinforcement is needed.

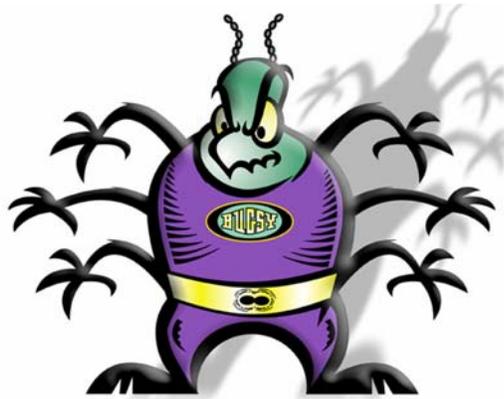
Ask students what they remember from the video about the parts of the hands that need to be scrubbed. Sum up: palms, between the fingers, backs of hands, thumbs, wrists, fingertips and nails. This step should take about 20 seconds, or the time it takes to sing the Twinkle, Twinkle song.

**GRADE**



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## **Student Activities**



### **Grade 3**

1. School Tour – page 13
2. Handwashing Detectives – pages 14 - 15
3. Where Germs Hang Out – page 16
4. Potato Experiment – page 17



## SCHOOL TOUR

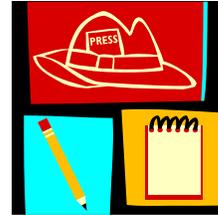
This activity will help students become aware of the different places where germs exist. Students will learn why handwashing protects themselves against illness and prevents the spread of germs to others.

### Materials

- Clipboards or another surface to write on

### Optimal Group Size

- Divide students into small groups (minimum four per group), depending on the number of areas in the school that will be covered



### Directions

- Inform students that they will be going throughout the school in small groups to identify surfaces that are touched by many people.
- Send students to: washroom, classroom, hallways, playground, library, auditorium, cafeteria, etc.
- Have each group appoint:
  - One or two Scribes to record the observations
  - Observers to identify the objects and surfaces
  - A Reporter to present results to the class
  - A Chart Maker to create a poster with the list of objects identified by their group.
- Have students go out to their appointed areas and identify surfaces and objects that are touched by many people everyday. One example would be a doorknob.
- Remind students that they need to be courteous and not disturb the other students in the school.
- Once they have gathered this information, have them come back to the classroom. Ask the reporter to present their findings to the rest of the class. Ask the Chart Maker to lead the group in creating a poster that lists the items identified by their group.
- Hang the lists in the classroom or on the public boards throughout the school.

### Discussion Points

- ? *Surfaces that are touched by many people are places where germs can be left by one person and picked up by someone else. What can you do to protect yourself if you get germs on your hands?*
- ? *What can you do to stop the spread of germs to someone else?*
- ? *Can you think of places in your home where germs can be spread?*
- ? *Can you think of other places in the community where germs can be spread? What about malls, buses, airports, sports facilities?*

### Key Messages

TO PROTECT YOURSELF AND OTHERS: WASH YOUR HANDS  
COUGH AND SNEEZE IN YOUR SLEEVE.  
KEEP YOUR HANDS AWAY FROM YOUR FACE.



## HANDWASHING DETECTIVES

This activity is designed to identify barriers to good handwashing in your students' washrooms. Use this activity after students have viewed the handwashing video.

### Materials

- Hang the How to Wash Your Hands poster and the Twinkle, Twinkle song poster in the washroom ahead of time.

### Optimal Group Size

- One pair of students at each sink.



### Directions

- Explain to the students that they will be using the buddy system.
- One student will be washing their hands while their buddy watches to see which steps of handwashing are easy and which are hard. Then they will reverse the process so that their buddy has a turn observing.
- Remind students to use the posters as visual cues and to do all six steps of handwashing.
- Give each student a checklist with the steps of handwashing. Ask them to record which steps were easy and which ones were hard. For the steps that were hard, ask them to remember why so that they can talk about it in class.
- Give an example such as: The taps in the washroom go off automatically and there isn't enough time to rinse off all the soap. This makes it hard to rinse my hands.
- Pair up the students; send small groups to the washroom, one pair per sink.
- Facilitate a discussion in the classroom about the parts of handwashing that were easy and the parts that were harder. See Practical Solutions to Handwashing Problems.
- Use student comments to make good handwashing technique easier in your school. For example, if automatic taps are a problem, students can help push or hold the taps open for each other.

### Discussion Points

- ? *What are the steps of handwashing that were easy?*
- ? *What are the steps of handwashing that were hard?*
- ? *How can we make the hard parts easier to do?*

### Key Messages

HANDWASHING PROTECTS YOU AND OTHERS AGAINST INFECTIONS





# Handwashing Detectives



Steps of Handwashing	EASY	HARD
Wet hands		
Apply soap		
Rub hands together for 20 seconds		
Rinse hands		
Dry hands with a paper towel		
Turn off taps with towel		
Open washroom door with the towel		
Throw away the towel		
Leave washroom neat and tidy		





## WHERE GERMS HANG OUT

After students have completed the school tour and the lesson on where to find germs, this activity will help to identify and reinforce all of the most common places where germs hang out. Germs on common surfaces that are touched by many people are the ones most likely to be picked up by students and passed on to each other.

### Materials

- White or colored paper
- Crayons, markers, or pencil crayons.
- Scissors
- Tape for hanging up hand cut outs



### Optimal Group Size

- Entire class

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### Directions

- This activity can be done while some of the students are in the washroom being “Handwashing Detectives”.
- Ask students to trace the outline of their hands and color them with “germs”.
- Students can then cut out their handprints.
- Ask students to think of places in the classroom where they think the most germs might be.
- When all students are ready, all will post their hand cut outs in the places they have identified.
- The hand cut outs serve as a reminder of places where germs can be transferred. Discussion will focus on which places have the most handprints and why.

### Discussion Points

- ? *Where do you see the most handprints in the classroom?*
- ? *Why do you think those particular places have the most handprints?*
- ? *What happens to you if you don't wash your hands after touching something with germs on it?*
- ? *What can happen to someone else if you touch something when you have germs on your hands?*
- ? *What is the best way to prevent the spread of germs from one person to another?*

### Key Messages

HANDWASHING PROTECTS YOU AND OTHERS FROM SPREADING GERMS WITH YOUR HANDS.

SURFACES THAT ARE TOUCHED BY LOTS OF HANDS ARE PLACES WHERE GERMS ARE SPREAD.





## POTATO EXPERIMENT

This activity will help to teach students about germs and why it is important to wash their hands before handling food. Students will be able to actually observe germs growing on the potato.

### Materials

- Two parboiled potatoes. Waxy potatoes work best.
- Two clean, unused plastic zip lock bags
- Labels for bags marked “Washed Hands” & “Unwashed Hands”

### Optimal Group Size

- Entire class



### Directions

- Peel the potatoes and parboil for 2-3 minutes. Wash your hands before handling the potatoes to keep the germs off. Store them in the zip lock bags. Prepare potatoes ahead of time so that they have a chance to cool.
- Take the potato from the “Unwashed Hands” bag and pass it around the classroom before students have washed their hands. Immediately after recess would be an ideal time.
- Once everyone has touched the potato place it back in the “Unwashed Hands” bag. Zip up the bag making sure it is completely sealed.
- Ask two or three students to wash their hands properly. Pass the other potato among these students. Place the potato in the bag marked “Washed Hands”. Zip up the bag making sure it is completely sealed.
- Place both potatoes in a warm place for 3-5 days and then discuss observations as a group.
- **Note:** Both potatoes will show growth, but the “Unwashed Hands” potato will have more growth.

### Discussion Points

- ? *Ask students to predict what will happen to each potato and why.*
- ? *If the experiment does not go as predicted, get students to think of why things didn't work. (Maybe the clean potato was dropped or someone didn't clean their hands very well.)*
- ? *Ask students to think about how many germs they have on their hands after observing the unwashed potato.*
- ? *Have students think about why it is important to keep their hands clean and why they should be practicing proper handwashing technique.*

### Key Messages

IT IS EASY TO TRANSFER GERMS FROM YOUR HANDS TO SURFACES, FOOD, OR OTHER PEOPLE.

IT IS IMPORTANT TO WASH YOUR HANDS BEFORE EATING OR PREPARING FOOD.

**GRADE**



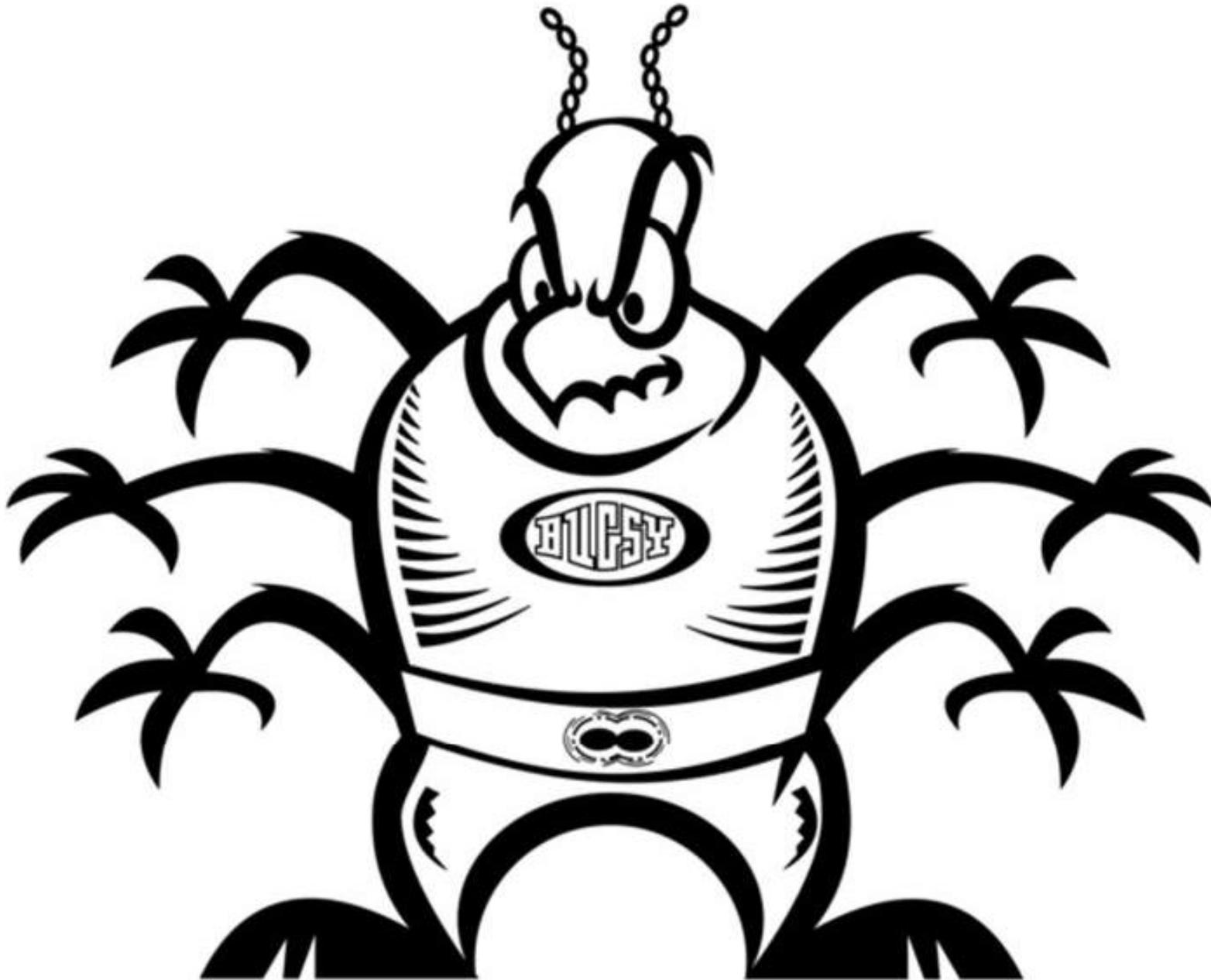
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## **Teacher Materials**



### **Grade 3**

1. Picture of Bugsy – page 19
2. Handwashing Video – available to download from the website
3. How to Wash Your Hands – poster – page 20
4. Handwashing Song Sheet – page 21
5. Practical Solutions to Handwashing Problems – pages 22 - 23
6. Recommended Children's Book, Follow up and Home Connection – page 24



# HOW TO WASH YOUR HANDS



**1 WET YOUR HANDS**



**2 APPLY PLAIN SOAP**



**3 RUB HANDS TOGETHER**



**4 RINSE YOUR HANDS**



**5 DRY YOUR HANDS**



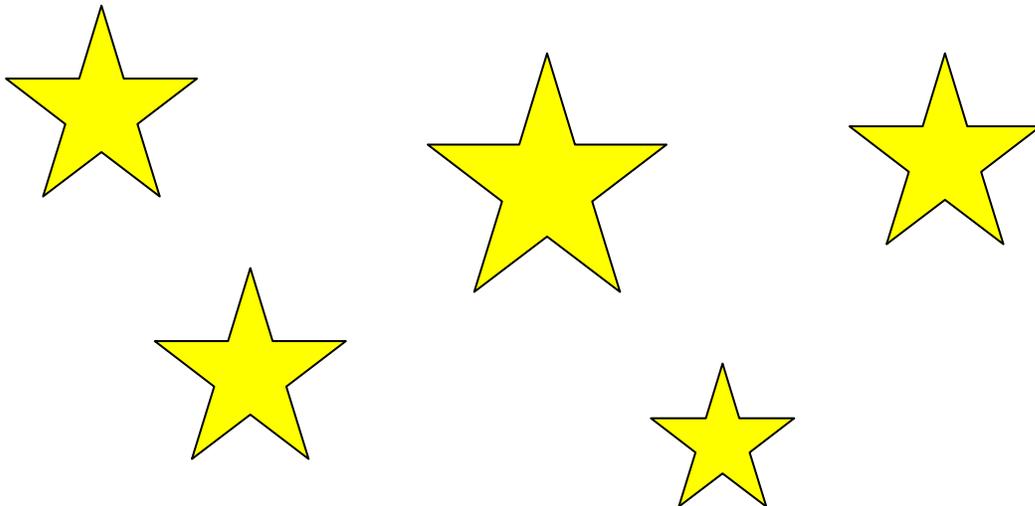
**6 TURN OFF TAP WITH PAPER TOWEL**

**LEAVE THE WASHROOM NEAT AND TIDY**



# Handwashing Song

Twinkle, twinkle little star,  
Look how clean my two hands are,  
Soap and water, wash and scrub  
Get those germs off rub-a-dub,  
Twinkle, twinkle little star,  
Look how clean my two hands are.



## PRACTICAL SOLUTIONS TO HANDWASHING PROBLEMS

Problem	Hygiene Principle	Solution
Soap or paper towels not available	Handwashing by students, teachers and staff is the best way to stop the spread of infections in schools.	Inform custodial staff and/or principal. Suggest that the school administration hold an information session for custodial staff about the importance of handwashing. Handwashing protects custodial staff too.
Taps go off automatically and water does not run long enough	Water needs to run long enough to rinse off soap and germs.	Have students wash hands with a buddy so they can assist each other with the tap. Students should use a paper towel to push in the tap if they have already washed their hands.
Warm water not available	Cold water is a deterrent to handwashing.	Discuss with school administration. If it is not possible to have warm water, use cold. Cold water is less comfortable but will work (with soap) to remove germs from the hands.
Children cannot reach the taps or sink	Handwashing is important for all children.	Provide a stool or step that does not tip.
Need to conserve water. Taps should not be left running.	Good handwashing technique includes using a paper towel to turn off the taps. This prevents recontamination of the hands from dirty taps.	Suggest that students get their paper towel before washing their hands so that it is available when they need to turn off the taps. The towel can be tucked under the arm or into a pocket until it is needed.
Paper towel dispenser is far away from the sink		
Paper towel dispenser has a lever or button		



Problem	Hygiene Principle	Solution
Wastebasket is not near the door	Hands can be recontaminated by touching the washroom door or handle. Good handwashing technique includes using the paper towel to open the washroom door. To avoid making a mess, it's best to have the wastebasket near the door.	Move the wastebasket close to the door or prop open the door. If that's not possible, suggest that students take the towel with them and throw it away in the classroom.
Handwashing takes too much time	Handwashing prevents illness and reduces absenteeism. In the long run it saves time.	Establish routine times for students to wash their hands. Before lunch and after recess are ideal. Teach good handwashing technique and remove barriers so that students become proficient.
Custodial staff concerned about the mess in the washroom	Washrooms should be neat and tidy.	Reinforce the final message of good handwashing with the students to properly throw away their paper towel in the wastebasket.
Don't know if antibacterial soap is in use	Plain soap does not promote antibiotic resistance and is equally effective in preventing the spread of germs.	Ask about the soap that is used in your school. Read the ingredients. If the soap contains "triclosan" it is antibacterial soap. Antibacterial soap has negative medical side effects and does not work any better than plain soap. If antibacterial soap is in use, suggest switching to plain soap. Plain soap is generally less expensive.



## **Follow-Up and Home Connection**

- Have students prepare a class report of the school tour to present to the school principal. Include class observations, conclusions and recommendations for sharing information, reducing risks, and promoting good health.
- Expand the concept of the school tour to the home or other places in the community such as malls, buses, libraries and recreation facilities
- Organize an information session for parents and staff to discuss their involvement in promoting positive health practices at home, school and in the community.
- Expand the “Where Germs Hang Out” activity to the rest of the school. Create a display or bulletin board explaining what the posted hand outlines represent and how to reduce the risk of illness from germs
- Repeat the Handwashing Video throughout the year to reinforce good handwashing technique and the importance of healthy living.
- Plan a presentation for an upcoming assembly to reinforce the importance of keeping the school clean, safe and respectful for everyone. Invite a public health professional in to speak about the spread of infection and the importance of good, frequent handwashing.
- Have a primary class share their learning with a buddy intermediate class and invite discussion.
- Have students discuss with their families what immunizations they and their parents have had. Discussion may include the kind of viruses the immunizations were for, when and how they were given and how frequently. Some of these immunizations may have been for travel purposes, for childhood diseases or for seasonal flu.

### *Acknowledgement*

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*The program was adapted to meet the British Columbia Education curriculum by Joanne Matheson, Educational Consultant.*

