



## Title: Keep Your Hands To Yourself!!!

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Grade Level: 5-6

Time Allotment: One or more forty-five (45) minute lessons

<b>Overview:</b>	Students will compare and contrast various methods of handwashing techniques to determine their effectiveness. The use of Glo Germ (a glow-in-the-dark material) will enhance their understanding of handwashing in the control of contagious diseases.
<b>Subject Matter:</b>	Health Science
<b>Learning Objectives:</b>	The students will be able to: Compare and contrast effective handwashing techniques Identify locations on the hands where contagious diseases are often overlooked
<b>Standards:</b>	<p><b>National Science Standards Addressed:</b>  <a href="http://www.nap.edu/readingroom/books/nses/html/">http://www.nap.edu/readingroom/books/nses/html/</a>            CONTENT STANDARD F: Science in Personal and Social Perspectives</p> <p>Missouri Science Standards Addressed:  <a href="http://www.dese.state.mo.us/divimprove/curriculum/webframeworks/05SC.PDF">http://www.dese.state.mo.us/divimprove/curriculum/webframeworks/05SC.PDF</a></p> <p>This lesson supports Science Performance Standards 1.8 and 4.6 in the student's preparation for the Missouri Assessment Program.</p>
<b>Media Components:</b>	<b>None</b>
<b>Materials:</b>	One ultraviolet light <b>Glo Germ Lotion and Powder (available at <a href="http://www.teachersource.com">www.teachersource.com</a>)</b> paper towels hand soap small canvas bag (found in most banks for small change) washable markers hand-sanitizer gel moist towelette
<b>Prep for Teachers:</b>	Place a small amount of Glow Germ Lotion onto various items around the classroom (i.e. door knobs, faucets, desktops, etc...) In addition, place a small amount of Glo Germ Powder into a small canvas bag and tie it tightly.
<b>Introductory Activity:</b>	Provide a "sign up sheet" for the day's activity and pass it around the class. Inform the students that they are to write their name on the paper as it reaches them and



	<p>to pass it to their neighbor.</p> <p>While this is occurring, inform the class that they will be in charge of reviewing the previous day's lesson. Toss the canvas bag (containing the Glo Germ powder) to a student and inform the class that the holder of the bag is responsible for stating one fact learned during the previous day's lesson. Once he/she states their fact, they will pass/toss the bag to another individual in the class.</p> <p>The "passing of the bag" will continue until all students have completed the sign-up sheet.</p>
<p><b>Learning Activity:</b></p>	<p>Once the students have completed the sign-up sheet, they will invariably want to know what the daily activity will be. Inform the class that they have just participated in a laboratory activity on the transmission of contagious diseases.</p> <p>Turn off all of the lights and shine the blacklight on the surfaces where you added the Glo Germ Lotion. These areas should be very brightly illuminated. Inform the class that a "culture" of germs was deposited on these surfaces by infected individuals, but did they remain on the surfaces themselves? Most students will say they noticed that something "slimy" or "gross" was on the surface. These are the individuals you will now identify as "infected."</p> <p>Shine the blacklight on the hands of these individuals. They should be glowing in the UV light. Ask these same individuals if they have come into contact with anyone else? If nobody is identified, start picking out students at random. Shine the light on everyone in the room. Everyone should have some traces of the Glo Germ on their hands, shirts, etc.</p> <p>At this time it may be beneficial to describe how their observations are useful in real life. The following text will be beneficial:</p> <p><i>Certain germs can make you sick, but do you know how they reach you? One of the leading ways germs travel is through cross-contamination. Cross-contamination happens when you touch someone who is sick or when you touch something that has been handled by a sick person. How can you help prevent cross-contamination? One way is to wash your hands properly with soap and warm water and then dry them with paper towels. It especially important to wash your hands at home, at school and everywhere objects are shared.</i></p> <p>Ask the students how many of them believe they can effectively wash their hands? Most will say that it is very easy. Direct the students to the restroom and have each of them wash their hands. When they return, have each student take a washable marker provided for them and to draw a 3-inch circle in the palm of their hands.</p> <p>Once again, shine the light on the palms of their hands. Several students will not have taken all of the Glo Germ out of the creases in their palm. Have the students observe their fingernails as well. It is very difficult to remove all of the Glo Germ material from these areas!!!</p>



<p><b>Culminating Activity:</b></p>	<p>Now ask the students to run an experiment using this material. Pass the canvas bag around one more time. Have the students place both hands on the bag and shake it around a little.</p> <p>Inform one-third of the class that they are to return to the bathroom and wash their hands with soap and water. Another one-third will use only water and the remaining third will use the hand sanitizer liquid.</p> <p>Before shining the UV light on their hands, ask the students which method they believe will be most effective in removing the Glo Germ. Shine the light and determine which method works the best. Students should see that the soap and water method worked the best.</p> <p>Have a student rub hand sanitizer gel into her "contaminated" hands, and of course it will simply spread the Glo Germ farther. Demonstrate this to the entire class! After which, have the student wipe off her hands with a moist towelette (wash &amp; dry cloth). You are certain to make the kids ooooooh and ahhhhhhh as the cloth will remove 99% of the Glo Germ. You may choose to inform the class at this time that the idea is to remove the germs from the hands, not to 'kill' the germs.</p> <p>Soap acts as a surfactant...(which makes the water wetter). Really this means that the soap breaks the surface tension of the water, which in turn, allows the water to carry hand contaminants away with it. Soap works to remove stuff from your hands even if there is not oil.</p> <p>Direct students to the computer lab and inform them to log onto the eEats website at <a href="http://www.kcpt.org/eats">www.kcpt.org/eats</a>. The students will need to "Enter the Site" and click on the last icon for "Packaging". Provide the students a <b><u>FOCUS FOR MEDIA INTERACTION</u></b> by asking them to answer the following question – <u>What safeguards are placed in landfills to protect our groundwater supply from being polluted and how can this safeguard be in danger?</u></p> <p>Allow the students to follow the prompts through each of the four icons on the screen until they determine that despite a large plastic liner placed underneath each landfill, glass can easily tear through the barrier as well as animals. Therefore, the "protective" barrier is not the best means of protection after all!</p>
<p><b>Cross Curricular Extensions:</b></p>	<p><u>Social Studies</u> – Do this unit at the same time as Americans are establishing their independence from Britain. Soap was a big import item for the early settlers and they weren't able to make their own soap right at first and it became a big problem for them. There was a lot of disease that wiped out great numbers of people because of unsanitary conditions in the early settlements. Check out the PBS website: <a href="http://www.pbs.org/wnet/colonialhouse/">http://www.pbs.org/wnet/colonialhouse/</a> for a look into colonial life. The resources from this site will provide several avenues for research into the daily lives of the settlers.</p> <p><u>Art</u> - Students can make use of the physical change aspects of the unit. A study of</p>



	<p>the artwork of M.C. Esher fits in nicely with this unit. After studying several examples, ask the students to use the same techniques using transformation, symmetry, tessellation, and changing negative space into positive space.</p> <p><u>Math</u> – Study tessellations and repeating patterns.</p>
<b>Community Connections:</b>	<p>Have students contact nurses, laboratories, hospitals, etc. and ask if they utilize Glo Germ in their training exercises. If not, invite them in for a brief “in-service” on the use of this material. If this product is already used, ask the professionals how they utilize this material in their exercises.</p>