Glo Germ Gel
Experiment Kit

HOME SCIENCE TOOLS
THE GATEWAY TO DISCOVERY

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Kit Contents

- *Glo Germ™ Gel simulated germs, 8 oz.*
- *Mini UV blacklight*

Introduction

Germs are everywhere, all around us. There are different kinds of harmful germs – bacteria, viruses, fungi, and protozoa. Bacteria, microscopic one-celled creatures, get nutrients from their environments in order to survive. Living inside our body, harmful bacteria can cause infections. A virus lives inside a host like a plant, animal or person, but it can also stay on objects like doorknobs or toilet seats for a short time. Viruses spread from person to person, making you sick. Fungi are also microscopic, but they are a multi-celled organism. Fungi love to grow in damp, warm places, stealing their nutrition from living things like plants or people. Protozoa are one-celled organisms that can spread disease through water and can cause intestinal diseases. If you get the flu, that is caused by a virus. Colds and sore throats can be caused by bacteria or a virus. Harmful bacteria can be eliminated and disease can be limited just by washing our hands!

Using the Glo Germ™ Gel

The Glo Germ™ gel isn't really a bacteria or virus; it simulates germ behavior, showing how important it is to wash your hands properly. The Glo Germ™ gel is non-toxic, but you should still wash your hands after using it.

To demonstrate how hand washing can remove germs, apply the Glo Germ™ gel to your hands according to the bottle's instructions. Look at your hands in a dark room under the blacklight. What do the "germs" look like? Wash your hands, and view them with the blacklight again. Were the "germs" all gone? Real germs can be just as tough to get rid of, so proper hand washing is very important in protecting our bodies from sickness and disease.

To wash your hands thoroughly to remove germs, use warm water and plenty of soap. Follow these easy steps to proper hand washing:
- Rinse your hands in very warm running water.
- Squeeze soap into your hands. Rub them together for 10-15 seconds. One way to remember how long to rub for is to sing "Happy Birthday" while you do it. When lathering your hands with soap, be sure to scrub under the fingernails and in between all of your fingers.
- Rinse your hands with warm water, making sure to wash away the soap.
- Pat your hands dry with a clean towel.

Experiments

Once you've seen how important washing your hands is and the germs that remain if you're not thorough, test which method of washing is most effective.

Water Temperature – Experiment #1: Try rubbing the gel onto your hands, making sure to apply it to all areas, front, back, and around all the fingers.

1. Rinse your hands in cold water. Rinse for 1 minute (don't rub your hands against each other), and then observe the results with the blacklight.
2. Turn the water temperature up to warm, and stick your hands in for 60 more seconds without rubbing your hands together. What was the effect?
3. Turn the water to hot (but not burning!), and stick your hands under the water for 60 seconds. Again, don't rub your hands against each other.

Is the Glo Germ™ gel all gone? Which water temperature seemed to work best? (Wash your hands thoroughly with soap and water after the experiment is finished.)

Time or Temperature? – Experiment #2*:* Is the amount of time you wash your hands for or is the temperature of the water more important?

1. Put the gel on your hands and stick them under cold water for 60 seconds. You can rub your hands together, but do not use soap. What is the result? How do your hands look under the blacklight?

2. Now, thoroughly wash your hands with soap and water until all the Glo Germs are gone. Reapply the gel, this time rinsing your hands in hot water (but not burning!) for 30 seconds. Look at your hands under the blacklight. Do they look as clean as when you washed them for longer with cold water?

Hot Water or Soap? – Experiment #3: Here's another experiment you can try, but you'll need two people to help you. Have one person use a timer to time the other two, who will be washing their hands.

1. Put the same amount of gel in both participants' hands. Give one person a bottle of liquid soap, and tell him to wash his hands, using only cold water. The second person will wash his hands in warm or hot water, but without using any soap. Set the timer for two minutes, then start washing!
2. When the timer goes off, both of the hand-washers should turn off the water and stop washing their hands.

Whose hands show the most germs? Based on the other projects, what does this tell you about the importance of soap for removing germs?

Glo Germ's Resistance to Different Types of Soap – Experiment #4:
To test different hand soaps and see what affect antibacterial soap has on the Glo Germs (which simulate actual germs), you will need at least three kinds of soaps to compare. Try bar hand soap and several kinds of liquid hand soap (with lotion and without, antibacterial, and even a natural or organic liquid soap if you wish).

1. Wash your hands with each kind of soap to see the effect on the Glo Germs. Make sure to record the results so you can compare them. Use a fresh application of gel for each test.
2. Always use the same temperature of water and have a timer for 15 seconds set each time you wash your hands.

What were the results? Did you predict which soap would work the best, and was your prediction correct? Why do you think that particular soap worked best?

For Further Study

To learn more about germs, use the Glo Germ™ powder. The powder shows cross-contamination of harmful bacteria. Cross-contamination is when germs transfer from one source to another through physical contact. Not cleaning food properly can result in food poisoning from cross-contamination. This is why keeping a clean kitchen and handling raw fruits, vegetables, and meat carefully is important.