

HANDSHAKE HAZARD

Teacher's notes



BACKGROUND INFORMATION

Bacteria can be easily spread through families and communities due to poor hygiene. Simple steps such as thorough hand washing can reduce the spread of bacteria from person to person.

The aim of this activity is to raise awareness of the transmission of bacteria and to show how easily germs can spread from person to person and on to different surfaces around the house and school. The key message is that thorough hand washing can reduce the spread of bacteria.

MATERIALS TO RUN HANDSHAKE HAZARD

- Glo Germ™ gel or equivalent*
- Soap
- Warm water
- Paper towels
- UV torch
- Worksheets (optional)
- Flipchart or whiteboard
- Stickers, e.g. coloured dots or stars
- Lab coats (optional – to prevent clothes getting dirty)

*Alternatives to Glo Germ™ and UV torches

If Glo Germ™ (or equivalent) and UV torches are unavailable, you can substitute this with either a non-toxic children's paint or a mixture of vegetable oil and glitter.

Sourcing Glo Germ™

Glo Germ™ is available from the following websites:

www.hygienicsolutionsuk.com

www.handinspection.co.uk

(This is not an endorsement; other suppliers are available).

SAFETY NOTES

The Glo Germ™ product is non-toxic and non-staining. However, when running the activity please ensure that you:

- only apply Glo Germ™ gel to the students hands
- tell the students not to touch their faces or anyone else's whilst the Glo Germ™ is on their hands
- ensure that all students wash their hands thoroughly at the end of the activity.

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If using an alternative product please check with the manufacturer that it is suitable for this activity.

If using the vegetable oil option you must check whether any of the children have sensitive skin conditions or food allergies.

The UV LED torch should only be operated by the supervising adult or activity leader. When using the torch please ensure that the torch is pointed at the floor, work surfaces or students' hands.

Under no circumstances should the torch be pointed at anyone's face.

ACTIVITY PREPARATION

Before the class starts we recommend the following preparation:

1. Prepare the results table

The results table shown below allows you to record the class results. It also provides an opportunity for a focused discussion on the spread of bacteria through hand to hand contact and the importance of hand washing.

How many people found bacteria on their hands after contact with...				
	Group 1	Group 2	Group 3	Group 4
Dirty hands (no hand washing)				
Clean hands (washed with soap and warm water)				

2. Prepare a large hand diagram

Draw a large hand on an A1 flipchart as shown in the diagram (right).

This allows you to record the class results from the hand section (column 2) of the observation sheet. It is also a tool to highlight the areas of the hand that can harbour bacteria and need particular attention when the students are washing their hands.





RUNNING THE ACTIVITY

Split the class into groups of around 6 - 8 students. Each group has to complete both stages of the activity and record their results on their observation sheets.

Stage 1: No hand washing

1. Form a line of people.
2. The first person in the line has Glo Germ™ gel squirted on their hands. Ask them to rub their hands together.
3. That person shakes the hand of the person next in the queue. That person then shakes the hand of the person next to them. This process is repeated around the whole group.
4. Dim the lights. Using the UV torch shine the light on to everyone's hands to see how many have picked up the "bacteria". If the torch reveals they have "bacteria" on their hands, they are marked with a sticker.
5. Students should record how many people have bacteria on their hands using their observation sheets.
6. Everyone in the group must now wash their hands thoroughly with warm water and soap to make sure their hands are clean.

Stage 2: Hand washing with soap and warm water

1. Form a line of people.
2. The first person in the line has Glo Germ™ gel rubbed on their hands. Ask them to rub their hands together. This time the first person must wash their hands with just cold water before shaking anyone's hand.
3. After washing their hands, they should shake the hand of the person next to them in the queue. That person then shakes the hand of the person next to them. This process is repeated around the whole group.
4. Using the UV torch, shine the light on to everyone's hands to see how many have picked up the "bacteria". If the torch reveals they have "bacteria" on their hands, they are marked with a sticker.
5. Students should record how many people have bacteria on their hands using their observation sheets.
6. Everyone in the group must now wash their hands thoroughly with warm water and soap to make sure their hands are clean.

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Discussing the results

Students should complete their observation sheets during the activity so they can talk about their results. For a focused discussion, record the class results on a flipchart or whiteboard using the results table shown in the preparation section.

Question 1: How many people in your group had bacteria on their hands after shaking hands with a person who did not wash their hands?

Explain that our skin naturally secretes oil which helps to keep the skin moist and stops it drying out. However, this is also a great place for microbes to grow and multiply, and can help them to “stick” to our skin. If we do not wash our hands we can pass any microbes we pick up from our surroundings to other people when we touch them. Some of these microbes can be harmful and make us sick, especially if eaten or breathed in.

Question 2: How many people in your group had bacteria on their hands after shaking hands with a person who did wash their hands?

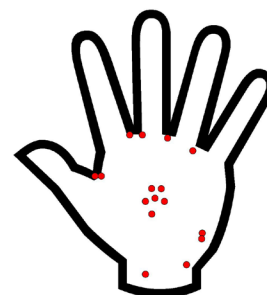
Question 3: Is this more or less than before? Why?

Explain that washing our hands helps to remove microbes. Washing with water will remove some bacteria but not all. Washing our hands with soap helps to break down the natural oils on the surface of the hands that trap the microbes and therefore remove them, leaving the surface of our hands clean.

Question 4: Where on your hands did you find the bacteria?

Place a sticker on the hand poster to show where each student found bacteria. An example of a completed hand diagram is shown on the right.

Bacteria and other microbes can stick to our hands and there are some areas where they can easily hide and avoid being washed away, in particular, under our nails and in between our fingers. These are hot spots for bacteria growth so it is important that we make sure we wash these areas carefully.



Question 5: Where do you think we can pick bacteria or other microbes up from our hands?

Bacteria and other microbes such as fungi and viruses can be found all around us. For example, they can be found in our surroundings, such as at home or school, in the garden, on animals and our pets. So if we have touched or fed an animal it is really important to wash our hands afterwards. Or, if we have been playing in the garden and our hands are muddy or dirty, again it is really important to wash our hands before eating or touching our face.

It is important to stress that not all microbes are bad for us; there are “good” microbes and “bad” microbes.



FURTHER INFORMATION AND RESOURCES

Additional sources of information on the web for teachers and students to increase their knowledge of pathogens include:

Global Handwashing Day

Website with games, posters and resources to support the teaching of handwashing aimed at preschool and primary school students.

www.globalhandwashingday.org.uk/resources.html

Wellcome Trust Big Picture: Epidemics

These are online articles on issues surrounding disease epidemics looking at:

- how individuals and governments should respond to the possibility of new outbreaks
- the role pharmaceutical companies have to play in disease control
- who should be priority for vaccines when there is not enough medicine to go around.

The website also has an excellent online picture gallery of a range of different infectious microbes including, fungi, bacteria and viruses.

<https://bigpictureeducation.com/epidemics>

E-bug

E-bug is an online antibiotic and hygiene teaching resource aimed at Key Stage 2 and Key Stage 3 students. Created by the Health Protection Agency (HPA), it involves a consortium of 18 partner European Union countries. It has a range of games, interactive quizzes, disease fact sheets and much more.

www.e-bug.eu

BBC broadband classroom clips

This website offers video clips to support the teaching of bacteria in the classroom. Some recommended clips to support this activity are listed below.

- Understanding the size of the bacteria: www.bbc.co.uk/education/clips/zkptsbk
- The bacteria that lives on the skin: www.bbc.co.uk/education/clips/ztvfb9q
- Seeing the bacteria carried on hands: www.bbc.co.uk/education/clips/zwrs34j
- The importance of handwashing in food hygiene: www.bbc.co.uk/education/clips/z78b4wx