

Horrid Hands (10-15 mins)



Curriculum Links (KS1 and KS2):

Science: Working scientifically; Living things and their habitats

English: Reading and Comprehension

PSHE: Core Theme 1 - Health and Wellbeing

Design and technology: Cooking and Nutrition

Art and design: Painting; recording observations, drawing and painting to share ideas

Learning Objectives:

All students will:

- understand that infection can be spread through unclean hands.
- understand that handwashing can prevent the spread of infection.



Most students will:

- understand when and how to wash hands.

Some students will:


- understand why we should use soap to wash our hands.

This activity is suitable for KS1, KS2 and community groups. It involves the use of UV gel and a torch to demonstrate the spread of microbes through our hands. The invisible UV gel represents “pretend microbes”, whilst the torch represents a “microbe detector”, as the gel can only be seen under the UV light.

For the **KS3** group, a variation of this experiment using agar plates can be used to observe culture growth after 48 hours using a similar process to the one outlined below ([video demonstration](#)).

Before you begin you will need:

- Background and lesson plans for “2.1 Hand Hygiene” (KS2 lesson pack) or “Spreading Bugs” in Beat the Bugs.
- Student worksheets 1 and 2 for each participant (KS2) and student handout 1 for each group of participants
- Arrange 4 desks side by side for the 4 stations. Each desk should have the following:
 - A sign reading “no handwashing”
 - A basin of cold water, paper towels, and a sign reading “wash in cold water”
 - A basin of warm water, paper towels and a sign reading “wash in warm water”
 - A basin of warm water, paper towels and a sign reading “wash in warm water using hand soap”
 - *NOTE: This can be simplified in the KS1 group to just use one basin with water and soap and focus on the appropriate steps for handwashing.*

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- UV torch and Glo Gel (or cooking oil and cinnamon, or hand moisturiser and glitter)
 - Hand soap
 - Hand basin or sink
 - Paper towels
 - Six steps of handwashing poster

Click here to access the resources for this activity for [KS1](#) , [KS2](#), and [community groups](#).


Risk assessment: ensure no allergies or sensitivities to soap or cinnamon, or moisturiser or glitter (if using).

Use the introduction in the lesson plan to discuss:

- Current handwashing practices
- How microbes can spread from our hands to our faces and to other classmates through touch

Use the following steps as a guide to implement this activity:

1. Divide the class up into four equal separate groups
2. Ask each participant to stand in a row one behind the other and designate groups as follows (In KS1 this is simplified so there are no different groups).
 - a. No hand washing
 - b. Wash hands in cold water
 - c. Wash hand in warm water
 - d. Wash hands in warm water with soap
3. Blindfold the lead person in each group and cover their hands in Glo Gel. The blindfold ensures that they don't wash their hands any better than normal. Ask the lead person to wash their hands according to the group they are in (or just in their "normal way" if KS1).

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4. Once completed, they should take off their blindfold, turn around and shake hands with the person behind them. It is important that they shake hands firmly and well. The second person should then shake hands with the third person and so on until everyone in the group has shaken hands with the person in front of them.
 5. When the task is complete, turn down the lights and shine the UV torch over everyone's hands, starting with group A.
 6. Ask participants to fill out their answer sheets (**SW1** and **SW2**) (KS1 can compare their hands to the SH1 in the KS2 pack).
 - Show participants the six steps of handwashing poster (Image of six steps of handwashing: palm to palm, back of the hands, in between the fingers, back of the fingers, the thumbs, and tips of the fingers) and then get them to wash their hands again using these six steps.
 - Use the UV torch to compare hands once more.
 - Note that the bits often missed out when washing hands include the thumbs, in between the fingers, and around the fingernails. Point these out when participants are comparing their own hands. Using the six steps of handwashing effectively ensures that the entire hand is washed properly, using soap to make sure microbes can be easily washed away.

Video (60 secs) [Example of UV gel hand hygiene experiment](#)

Use the plenary or discussion questions to check participant's understanding after the activity is completed. Then complete action plan (Beat the Bugs).



Glitter Microbes

Alternative to Glo Gel: Hand moisturiser and glitter can be used if UV gel and a UV torch is not available. Participants dip their hands into a bowl of glitter instead and shake hands with each other, as described above. They can then be placed into the four handwashing groups described as above. You should notice that those who wash their hands with soapy water will show that the glitter comes off easily, however those who only wash their hands with water alone, will still have glitter stuck to their hands.

You may wish to use eco-glitter alternatives which are soil and marine biodegradable. A more cost-effective eco-alternative could include use of cinnamon (though risk assessment regarding allergies must be carried out) – it is important to adapt the activities to your setting.”

Below you can find resources to aid this activity in the classroom.

The 6 Steps of Hand Washing



Palm to palm



The back of the hands



In between the fingers



The back of the fingers



The thumbs



The tips of the fingers

6 steps of handwashing