

RESOURCE LIBRARY

ACTIVITY : 1 HR 15 MINS

Clean Your Hands

Students review different types of everyday activities that can help stop germs from spreading. They then focus on cleaning our hands in particular and learn through a jigsaw activity about how soap and hand sanitizer work to kill germs. Finally, students prepare for the Germology Game Show by writing trivia questions, viewing an example of their final product, and writing an introductory paragraph to present the game to the community.

GRADES

3, 4

SUBJECTS*Biology, Health***CONTENTS**

3 PDFs

OVERVIEW

Students review different types of everyday activities that can help stop germs from spreading. They then focus on cleaning our hands in particular and learn through a jigsaw activity about how soap and hand sanitizer work to kill germs. Finally, students prepare for the Germology Game Show by writing trivia questions, viewing an example of their final product, and writing an introductory paragraph to present the game to the community.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/clean-your-hands/>

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DIRECTIONS

This activity is part of [The Truth About Germs](#) unit.

1. Lead students in categorizing everyday activities that help keep us from getting sick.

- Show or have students access their copy of the [Spreading Germs Card Sort](#) handout from the [Spreading Germs](#) activity. Ask students: *Which activities helped to keep us from getting sick?*
 - Responses from the cards include: Staying home when you're sick; wearing a mask; coughing or sneezing into your elbow; video call with friends or family; keeping six feet of distance between students at school; cleaning door handles, desks, countertops; washing your hands.
 - Students may also share their own ideas from the card sort, especially related to activities that they identified as "it depends."
- Explain that this activity is focused on one of the easiest and most effective activities to prevent germs from spreading and attacking our bodies: cleaning and washing our hands properly (at least 20 seconds using soap).
 - Remind students that they will use what they learn about this common activity to help explain the science behind *why* it's important to clean and wash our hands through their game show questions.

2. Provide resources for students to learn about how soap and hand sanitizer help to protect our bodies from germs.

- Distribute the *Clean Your Hands* handout to pairs or small groups of students. Review the directions, highlighting that students will become experts about one of the methods of cleaning our hands and will then explain that method to another student.
- Assign each student-group to focus on either soap or hand sanitizer and provide access to the relevant resources linked on the handout:

- Soap
 - Video: [The Science of Soap](#) (3:44)
 - Article: [Curious Kids: Why Do We Need Soap?](#)
- Sanitizer
 - Video: [How Does Hand Sanitizer Kill Germs?](#) (4:51)
 - Article: [Does Hand Sanitizer Really Work?](#)
- Provide time for small groups to read their assigned article, watch their assigned video, and complete the [Clean Your Hands](#) handout.
- Re-organize students to share what they learned about their method with a student who learned about the other method. Direct them to record key ideas on the designated hand-shaped text boxes on the handout.
- Circulate to support students' explanations, drawing on the key ideas below:
 - Soap gets rid of germs by physically removing them. Soap molecules bond with both the oils and fats on our hands (that contain germs) and water, so the water rinses the germs and oils away. This is why it's important to build up a soapy lather. A cool visual experiment to grasp this concept could be to mix water with oil in a clear container and seeing how you obtain two separate layers that do not mix.
 - The alcohol in hand sanitizer kills germs (and other microbes) by disrupting the proteins in their outer membranes.
- In preparation for writing their trivia questions and evidence-based answers for the Germology Game Show in the next step, ensure students respond to the final question on the handout: What facts or ideas from this activity do you want to share with your community through the Germology Game Show?

3. Guide question writing for the Germology Game Show to connect learning about clean hands to the unit driving question.

- Revisit the class *Know and Need to Know* chart for a final time. Review the questions in the "Need to Know" column to see if students can now answer them after the [Bodies Versus Germs](#) lesson and can move questions to the "Know" column. Elicit any new questions that students have developed and add them to the "Need to Know" column.

- Since students are preparing to dive into project work, address any remaining questions that are relevant to creating the Germology Game Show.
- Organize students into their original jigsaw groups from Step 2. Guide students to select one or two ideas from this activity to focus on for writing trivia questions and evidence-based answers. Use the section for this activity on the [Trivia Question Builder](#) handout to structure their process.
 - For this activity, evidence can come from the *Clean Your Hands* handout.
 - Circulate to support and press students' thinking as they work on their questions and evidence-based answers. Emphasize how they should make cause-and-effect connections between the different ideas and factors they are communicating about, such as, "Soap causes us to have less germs on our hands by lifting up the oil that holds on to the germs, which helps keep us from spreading germs to others."

4. Prepare for finalizing the unit project by having students engage with an example of their final product and write an introduction to the Germology Game Show.

- Have students review different examples of the type of final product that they will be creating, in preparation for the rest of the step and for finalizing their trivia questions and evidence-based answers for the Germology Game Show in the next activity.
 - Examples include Kahoot-style quizzes about a topic they already know about, such as the quiz, [Gross Out](#); video clips of kid-friendly trivia shows; or MythBusters-style explanatory videos, such as [How Much Water Can a Wet Dog Shake Off?](#) (2:44).
 - Depending on the class' access to technology, students can also get inspiration for writing their game show questions by playing the Health IQ game after downloading the [CDC's Health IQ App](#) on a tablet or phone.
- Explain that all the trivia questions students have written throughout the unit will be finalized in the next activity, but first they need to consider how the Germology Game Show should be introduced to the audience of community members to spark their interest.
 - Guide students as they individually write a paragraph that expresses their opinion about why it matters for community members to understand the scientific reasons that germs make us sick more often in the winter. Their paragraphs can be used to introduce the Germology Game Show, so encourage creative writing and use of language.
 - Supporting sentence starters to provide to students include:

- Welcome to the Germology Gameshow! I think you should know about the science of winter germs because...
- One reason I think this is....
- For example, [connect between opinion and reason]
- Finally, [concluding statement that leads into the game show]

Informal Assessment

Use students' responses on the *Clean Your Hands* handout to assess their ability to understand key ideas from reading and media resources. Use students' questions and evidence-based answers to assess their understanding of how soap and hand sanitizer work, and how that connects to the unit driving question. Students' written paragraphs can be used to assess their ability to clearly express an opinion and support that opinion with reasoning.

OBJECTIVES

Subjects & Disciplines

Biology

- Health

Learning Objectives

Students will:

- Identify how everyday activities can help keep germs from spreading.
- Teach about and learn from a peer about how soap or hand sanitizer work to kill germs.
- Collaborate to create trivia questions and evidence-based answers for the unit project.
- Write an introductory paragraph about why it matters for community members to understand the science behind why germs make us sick more in the winter.

Teaching Approach

- Project-based learning

Teaching Methods

- Discussions
- Jigsaw
- Writing

Skills Summary

This activity targets the following skills:

National Standards, Principles, and Practices

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY

- **CCSS.ELA-LITERACY.RI.3.3:**

Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

- **CCSS.ELA-LITERACY.RI.4.3:**

Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

- **CCSS.ELA-LITERACY.SL.3.1:**

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

- **CCSS.ELA-LITERACY.SL.4.1:**

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

- **Writing Standards K-5:**

Text Types and Purposes, W.3.1

- **Writing Standards K-5:**

Text Types and Purposes, W.4.1

NEXT GENERATION SCIENCE STANDARDS

- **Crosscutting Concept 2:**

Cause and Effect

- **Science and Engineering Practice 6:**

Constructing explanations and designing solutions

- **Science and Engineering Practice 8:**

Obtaining, evaluating, and communicating information.

Preparation

What You'll Need

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per classroom, 1 computer per pair, Monitor/screen, Projector, Speakers

PHYSICAL SPACE

- Classroom

SETUP

Consider how to organize students into the reading jigsaw structure for Step 2.

To help promote the incorporation of an authentic audience for the game show, solidify logistics for how and when students will carry out the game show. See Step 4 for some ideas and options for the game show or alternative format.

For the live game show, start inviting community members to attend (if in-person) or tune in (if virtual).

GROUPING

- Large-group learning
- Small-group learning

ACCESSIBILITY NOTES

For Step 2, consider strategically grouping students in mixed-level reading pairs to support ELLs and struggling readers.

BACKGROUND & VOCABULARY

Background Information

As highlighted in this activity, washing or cleaning our hands is one of the easiest and most effective activities to prevent germs from spreading and attacking our bodies. Washing with soap and water for at least 20 seconds (singing the Happy Birthday song twice can help keep track of time!) is the ideal method since it physically removes germs and substances from our skin, but when not available, an alcohol-based sanitizer that is at least 60 percent alcohol is a recommended substitute.

Especially in the wake of a challenging and traumatic event such as the COVID-19 pandemic, it is important to empower students in project-based learning (PBL) units by orienting towards actionable solutions. This activity, as well as the unit as a whole, helps to do so by providing the science behind cleaning our hands, which students can leverage in their evidence-based game show questions for the unit's final product.

Prior Knowledge

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Recommended Prior Activities

- None

Vocabulary

Term	Part of Speech	Definition
germ	<i>noun</i>	disease-producing microbe.
molecule	<i>noun</i>	smallest physical unit of a substance, consisting of two or more atoms linked together.

Term	Part of Speech	Definition
soap	<i>noun</i>	substance used for washing and cleaning.

For Further Exploration

Articles & Profiles

- [Kids News: Hand washing: How does soap work and is hand sanitiser better?](#)

Video

- [SciShow Kids: How Do Soap and Water Make Us Clean?](#)



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