

How can we stop germs in their tracks?

GERMS. They lurk in every classroom. Each year, students miss an estimated 164 MILLION school days due to illness. In this project, students will fight back against these microscopic monsters with this public-service project designed to make your school—and the world—a safer and healthier place. They will collect germs from common surfaces such as desks, laptops, and more. Then, they'll test the effectiveness of disinfectants in fighting germs. Finally, they'll create a public service announcement for their school.

Imagine if kids could keep themselves and their families healthier by developing smart habits to protect against germs. What a great way to build healthy routines to last a lifetime!



Start with why

Lesson 1: Play the "Glitter Games"

Spark students' interest by playing "Glitter Games" to teach how germs are spread. Then, connect the spread of glitter to the spread of germs by reading an informational article.



Think it through

Lesson 2: Launch the Investigation

Give students a concrete understanding of germs and disinfectants by having them launch an experiment into how well different cleaners prevent the spread of bacteria.

Lesson 3: Learn Germs

Understanding germs is important when trying to prevent the spread of them! Students will complete research and watch a video to better understand germs and how we can stop them in their tracks.

SOCIAL STUDIES SOCIAL EMOTIONAL LEARNING

Lesson 4: What Do You Say in a PSA?

We learn best from concrete examples. Show your students various model public service announcements to help them reach a deep understanding of what good PSAs have in common. Have students make observations and create a class checklist of features for a good PSA.



Work it out

Lesson 5: Write the Message

Part of the a great Project-Based Learning experience is taking your work outside of the classroom and sharing it with the world. Have students use the writing process to craft a PSA that utilizes the lessons they learned to create an announcement that will really have an impact!

ENGLISH LANGUAGE ARTS

Lesson 6: Complete the Investigation

Revisit your bacteria experiment by collecting your results, analyzing your data, and drawing an exciting conclusion to your question: Which disinfectants REALLY prevent the spread of germs?

MATH SCIENCE



Fix it up

Lesson 7: It A "Peers" to Be Fixed

Great work comes from great revision. Help your students understand the importance of iterative thinking as they hone their PSAs until they are ready to share with your community.

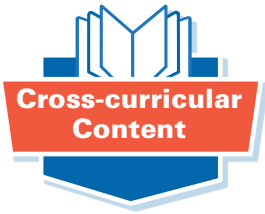


Share your awesome

Lesson 8: The Share Fair

Watch your students' hard work pay off as you share your PSAs with an authentic audience at your *Prevent the Spread* Share Fair. Spread your learning to help prevent the spread of germs!

Suggested project time: **8 hours**



Cross-curricular Content

English Language Arts

PLANNING, REVISING, AND EDITING

Students develop and strengthen writing as needed by planning, revising, and editing.

CCSS.ELA-LITERACY.W.4-5

Math

REAL-LIFE AREA

Students need some way to quantify the growth of the different dishes of bacteria. Teach them to extend their understanding of area to deal with irregular shapes!

CCSS.MATH.CONTENT.4.MD.A.3

Science

MULTIPLE SOLUTIONS

Compare multiple solutions for ways to reduce the impact of natural Earth processes on humans. **NGSS 3-5 ETS 1-2**

Social Studies

EVOLVING PERSPECTIVES OVER TIME

Explain connections between historical contexts and people's perspectives over time.

NCSS D2.His.5.3-5

Social Emotional Learning

RESPONSIBLE DECISION-MAKING AND SOCIAL AWARENESS

Students discuss responsible decision-making and social awareness by discussing a case study of scientific ethics.

CASEL CORE COMPETENCIES

Not teaching these standards?

Blue Apple projects include content connections for grades K–8. Go to BlueAppleTeacher.org to learn more!



Project Plan & Supplies

Kit Supplies

- Glitter
- Rubber Gloves
- Face Masks
- Petri Dishes
- Agar Powder
- Bar Soap
- Transparent Graph Paper

Online Resources

- Blue Apple Book List
- Glitter Games: Instruction and Mats
- Growing Bacteria—Sick Science! #210 (**YouTube 2:11**)
- "Battle That Bacteria!" Experiment Plan
- Characteristics of an Effective PSA
- And so much more!



Real-world Connections

Bring the World to Your Students

- Learn from Health Professionals
- Skype with a Scientist
- Get Camera Ready

Bring Your Students to the World

- Spread the News
- Be Talk-Show Worthy!
- Meet the Press



Collaboration Options

Replication Examination

Good science is replicable. After your students have analyzed the data from their bacterial growth experiment, have them compare their results with another class that did the experiment the same way. Results should be similar, so discuss the causes of any discrepancies.



Professional Development

Differentiated Instruction

How can I differentiate instruction for my students?

Cooperative Learning

How can I facilitate more cooperative learning in my class?

This is just the beginning!

Go online to access the complete project.



- Clear **learning targets** and **step-by-step instructions**
- Dozens of links to **supporting resources**
- **Mini-lessons** aligned to content standards
- **Videos and contact information** from industry experts
- **Ideas to collaborate** with other classrooms
 - Practical, point-of-use **instructional strategies**
 - Access to a grade-specific **Project Coach**

