

Being a Germ Scientist (4th Grade)

This is a longer lesson; it can be split into two parts and taught over multiple days.

Materials and Ingredients

- ✓ *Germs Make Me Sick* by Melvin Berger
- ✓ seasonal fruits and/or veggies
- ✓ paper plates and spoons, if needed
- ✓ teacher knife, cutting board, bowl

Handwashing Activity

- ✓ hand soap and paper towels
- ✓ Petri dishes (2), tape
- ✓ text and activity sheets

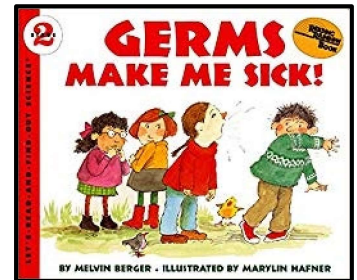


Food Preparation

- ✓ Wash and cut up fruits and/or veggies

Introduction

- ✓ Start off with a short brain boost (see next page).
- ✓ Discuss why and when we should wash our hands.
- ✓ Read the book *Germs Make Me Sick*.
- ✓ *Wash your hands regularly!*
To keep from getting sick, washing your hands will do the trick!



Process

- ✓ Read "Being a Scientist" text as a class.
- ✓ Go over activity sheet and explain Petri-dish Experiment to students. Do activity as a class.
(refer to complete lesson for details)
- ✓ Have students wash their hands using soap and warm water.
- ✓ Serve the fruit water and seasonal fruit/or veggies.
- ✓ Eating fruits and vegetables, also helps us from getting sick!
- ✓ *Wash your hands regularly!*
To keep from getting sick, washing your hands will do the trick!



Family Letter

- ✓ Send home the family letter to let parents know about the fun activity students did in class.





Let's Wake Up Our Brains! Brain Boost Exercise!

Run those Germs Off- Repeat to get your heart going!

- ♥ Run, run, run in place
- ♥ Run those germs off
- ♥ Jump, jump, jump in place
- ♥ Jump those germs off
- ♥ Jog, jog, jog in place
- ♥ Jog those germs off
- ♥ Hop, hop, hop in place
- ♥ Hop those germs off
- ♥ Wash, wash, wash those germs off
- ♥ Good –Bye Germs!!

Song to Sing to Help us Wash our Hands

“Happy Birthday to you,
Happy Birthday to you,
Happy Birthday dear Germs,
It's the last one for you!”

(sing twice)

or

The ABC Song

Petri-dish Experiment

Part One:

- ✓ Remind students that we all have germs on our hands.
- ✓ Pick a volunteer and have him/her shake hands with a few students.
- ✓ Have the volunteer put their (right) hand on the door knob, phone and desk.
- ✓ Ask the class if they think that student's hand has germs on it.
- ✓ Have the volunteer press his/her (right) fingers firmly on the agar (pink jelly) of one of the Petri dishes.
- ✓ Explain to the class that the student volunteer put invisible germs from his/her fingers onto the dish.
- ✓ **Tape closed**, date and label the first dish “unwashed hand”.
- ✓ Store it upside down (gel side up) and at room temperature.
- ✓ Ask the students what they think will happen inside the Petri dish.

Part Two:

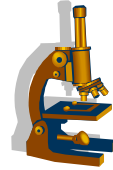
- ✓ Have a volunteer wash his/her hands thoroughly at the sink.
- ✓ Have the class sing the “Happy Birthday Germs” song two times as he/she washes.
- ✓ Have the student press clean fingers firmly against the agar in the second Petri dish.
- ✓ **Tape closed**, date and label the dish “washed hand”.
- ✓ Store it upside down (gel side up) and at room temperature.
- ✓ Ask the students what they think will happen inside the Petri dish.

Note: If there is no sink in the classroom send the student to the restroom to wash his/her hands.

IMPORTANT: Do not wait more than a couple of days to observe the germs as they will continue to grow in both dishes and you will not be able to see a difference between the two.

IMPORTANT: Keep the tape the petri dishes taped closed and throw them away after observing.

Being a Scientist



Everyone says that washing your hands with soap and water will help get rid of nasty germs that cause colds, vomiting, diarrhea and the flu. But how do we know this is true?

For hundreds of years scientists have been asking questions about the world around them. Then they try to answer the questions by doing experiments. One day a scientist asked the question, “**Does washing your hands with soap and water get rid of germs?**”

To answer this question scientists devised an experiment to grow germs from unwashed and washed hands. They had to repeat their experiment many times to make sure it was right.

For their hand washing experiment, scientists used **Petri dishes** to grow germs. Petri dishes contain a pink jell-like substance called **agar**. If you put germs on agar, they will eat the agar and multiply. As they multiply into hundreds of thousands of germs they become **colonies** of germs. A single germ is invisible to the human eye but a colony is easy to see because of the large number of germs that make up the colony.

The scientists thought they would see more germs growing from an unwashed hand and fewer germs growing from a hand washed with soap and water. This was their **hypothesis**. They **experimented** many times and finally came to their **conclusion**. What is **your** hypothesis and why? What do **you** expect to see when you perform this experiment?

Glossary

Petri dish – flat plastic container with cover

agar – food for germs

colonies – groups

hypothesis- an idea based on what you already know and what you want to prove through an experiment

experiment – a way to prove something or test your hypotheses

conclusion – what you decide from your experiment results



Siendo un Científico

Todos dicen que lavarse las manos con jabón y agua ayuda a eliminar esos horribles gérmenes que causan resfrío, vómito, diarrea y gripe. ¿Pero como sabemos si esto es cierto?

Por miles de años, los científicos han hecho preguntas acerca del mundo que los rodea. Ellos entonces tratan de contestar estas preguntas haciendo experimentos. Un día un científico hizo esta pregunta. “**¿Será que lavarse las manos con jabón y agua elimina los gérmenes?**”

Para contestar esta pregunta, los científicos hicieron un experimento donde cultivaron gérmenes de manos sucias y manos limpias.

Para el experimento de lavarse las manos, los científicos usaron **placas de petri** para cultivar gérmenes. Las placas de petri contienen una sustancia como gelatina rosada que se llama **agar**. Si pones gérmenes en el agar, ellos se lo comen y se multiplican. Cuando se multiplican en cientos o miles se convierten en **colonias**. Un solo germen no se puede ver, pero una colonia es fácil de ver debido a la gran cantidad de gérmenes que forman la colonia.

Los científicos pensaron que verían muchos gérmenes en la placa que provenía de una mano sucia y pocos gérmenes en la placa de una mano limpia lavada con jabón y agua. Ésa fue la **hipótesis**. Experimentaron muchas veces y finalmente llegaron a una conclusión. ¿Cuál es **tú** hipótesis y porqué? ¿Qué esperas ver **tú** cuando realices este experimento?

Glosario

Placa de Petri – un contenido de plástico con tapa

agar – comida para los gérmenes

colonias – grupos de gérmenes

hipótesis - una idea basada en lo que ya sabes y lo que deseas probar por medio de un experimento

experimento – una manera de probar algo o probar tu hipótesis

conclusión – lo que decidiste basado en los resultados de tu experimento.

Being a Scientist



Scientist: _____ Date: _____

Science Question: _____

Hypothesis: I think _____

I think this is true because I already know _____

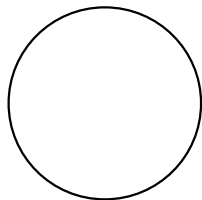
Experiment Materials:

2 Petri dishes, 1 unwashed hand, soap, water, 1 washed hand, marker, tape

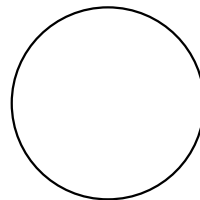
Experiment Steps:

1. _____ will shake hands with 2 people and put their hand on the door and then press his/her right fingers on the Petri dish marked “unwashed hand”.
2. _____ will then, wash his/her hands well with soap and water and then press his/her right fingers on the Petri dish marked “washed hand”.
3. We will tape the Petri dishes shut, label them, and wait 48 hours.

Results. Look at Petri dishes after 48 hours and draw what you see.



unwashed hand



washed hand

Conclusions:

Siendo un Científico

Científico: _____ Fecha: _____

Pregunta Científica: _____

Hipótesis: Pienso que _____

Yo pienso que esto es cierto porque yo sé que: _____

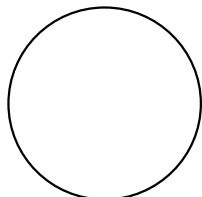
Materiales para el experimento:

2 Placas de Petri, 1 mano sucia, jabón, agua, una mano limpia, marcador, cinta adhesiva

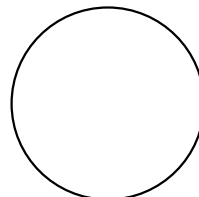
Pasos para el experimento:

1. _____ saluda con dos personas y toca el pomo de la puerta y entonces presiona tus dedos en la placa de petri que dice “mano sin lavar.”
2. _____ será entonces, lava tus manos bien con jabón y agua y presiona tus dedos de la mano derecha en la placa marcada “mano lavada.”
3. Le ponemos cinta adhesiva a las Placas de Petri cerradas, escribiremos la condición, y esperaremos 48 horas.

Resultados. Observa las Placas de Petri después de 48 horas y dibuja lo que ves.



Manos sucias



Manos limpias

Conclusiones:

Being a Scientist

Answer Sheet (Teacher Only)

Science Question: Does washing hands with soap and water get rid of germs?

Hypothesis: I think washing your hands with soap and water will get rid of germs.

I think this is true because my mom and dad tell me it is.

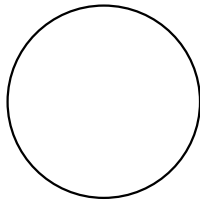
Experiment Materials:

2 Petri dishes, 1 unwashed hand, soap, water, 1 washed hand, marker, tape

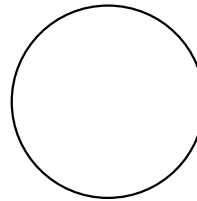
Experiment Steps:

1. Nina will shake hands with 2 people and touch the doorknob and then press her fingers on the Petri dish marked “unwashed hand”.
2. Nina will then, wash her hands well with soap and water and press his fingers on the Petri dish marked “washed hand”.
3. We will tape the Petri dishes shut, label them, and wait 48 hours.

Results. Look at Petri dishes after 48 hours and draw what you see.



unwashed hand



washed hand

Conclusions: I think that my hypothesis was right because the Petri dish with the unwashed hand grew more germs than the one with the washed hand.

Siendo un Científico (Profesor solamente)

Pregunta científica: ¿El lavarse las manos con jabón y agua hace que te liberes de los gérmenes?

Hipótesis: Pienso que lavándome las manos con jabón y agua conseguiré librarme de los gérmenes.

Pienso que esto es verdad porque mi mamá y papá me lo dicen.

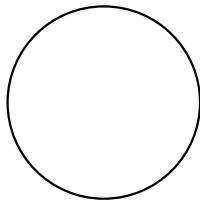
Materiales del experimento

2 placas de Petri, 1 mano sucia, jabón, agua, 1 mano limpia, marcador, cinta adhesiva.

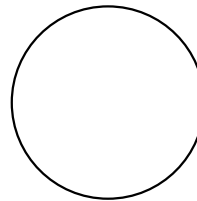
Pasos del experimento:

1. Nina va a saludar con dos personas y después presionará los dedos en el plato de Petri que dice “mano sucia”
2. Nina será entonces, se lavará las manos bien con jabón y agua y presionará sus dedos en la placa de Petri marcada “mano lavada”
3. Le ponemos cinta adhesiva a las Placas de Petri cerrados, los etiquetaremos, y esperaremos 48 horas.

Resultados. Mire los platos de Petri después de 48 horas y dibuje lo que usted ve.



Mano sucia



Mano limpia

Conclusiones: Pienso que mi hipótesis es correcta porque la placa de Petri con la mano sucia tuvo más gérmenes que la de la mano lavada.

WASH YOUR HANDS

WORD SEARCH PUZZLE

The words appear UP, DOWN, BACKWARDS, and DIAGONALLY. Find and circle each word.



E C S I N K W G S E L B B U B
T P T A M K A H T L A E H P M
I N I P R E Z I T I N A S A U
E L E W A P B U R C S P W W H
S W F V C L S R E H T A L G T
N E I H E B M D S G T H E R O
A L N Y B R L U I E V R I D I
E P G G Z J P K R K M D F E C
L O E I S K I N E S X D Y M L
C E R E T C E F N I S I D O O
U P S N N A E L C V S P E H O
E M K E A K F S T N E R A P H
W Y R D B A C T E R I A S O C
E S N I R C U T E A C H E R S

BACTERIA
BUBBLES
CLEAN
CLEANSE
DIRT
DISINFECT
DRY
FINGERS

GERMS
HEALTH
HOME
HYGIENE
KIDS
LATHER
NAILS
PALM

PARENTS
PEOPLE
PREVENT
RINSE
SANITIZER
SCHOOL
SCRUB
SINK

SKIN
SOAP
TEACHERS
THUMB
WATER
WIPE

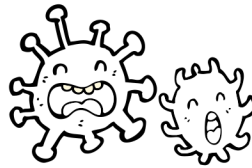
Handwashing

K-5 Family Letter

Dear Families,

Today, your student learned the importance of washing their hands regularly for at least 20 seconds. They practiced singing the song (below) while they washed their hands. If they wash while they sing the whole song, their hands will be clean.

Studies show that practicing regular handwashing reduces the number of school absences from viruses, colds, flu, and stomachaches in children.



Let's sing this song together before we eat using the tune of "wheels on the bus"!

This is the way you wash your hands, wash your hands, wash your hands.

This is the way you wash your hands, for 20 seconds at least.

Lather up and rub-a-dub-dub, rub-a-dub-dub, rub-a-dub-dub.

Lather up and rub-a-dub-dub, for 20 seconds at least.

One more time before you're done, before you're done, before you're done.

One more time before you're done, now 20 seconds a piece.

Wash your hands regularly!

To keep from getting sick, washing your hands will do the trick!

Science: See Soap in Action!

Materials: pinch of black pepper, soap, and shallow dish filled with water

1. Add the black pepper "germs" to the water.
2. Children stick their fingers into the water.
3. Pepper "germs" will stick to fingers. Rinse fingers.
4. Children put fingers in soap before putting them in the bowl of "germs".
5. Have the children watch as the "germs" scatter away from the soap.



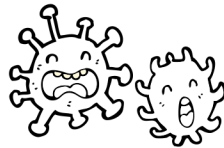
Lavar las manos

Carta familiar K-5

Queridas familias,

Hoy, su estudiante aprendió la importancia de lavarse las manos regularmente por lo menos por 20 segundos. Cantaron la canción que mencionamos mas adelante mientras se lavaban las manos. Si se lavan las manos mientras cantan la canción completa, sus manos estarán limpias.

Estudios de salud muestran que lavarse las manos de forma regular, reduce el número de ausencias escolares por virus, resfriados, gripe y dolores de estómago en los niños.



¡Vamos a cantar esta canción juntos antes de comer con la melodía de "ruedas en el autobús"!

A lavarse, du ru ru du ru las manitas, du ru ru du ru

A lavarse, du ru ru du ru ¡Las manitas!

Con jabón, du ru ru du ru con jabón, du ru ru du ru

Con jabón, du ru ru du ru ¡Con jabón!

Restregando, du ru ru du ru las manitas, du ru ru du ru

Restregando, du ru ru du ru ¡Las manitas!

Enjuagando, du ru ru du ru las manitas du ru ru du ru

Enjuagando, du ru ru du ru ¡Las manitas!

A secarse, du ru ru du ru las manitas, du ru ru du ru

A secarse du ru ru du ru, ¡Las manitas!

¡Lávese las manos frecuentemente!

¡Para evitar enfermarse, lavarse las manos hará el truco!

Ciencia: ¡Ver el jabón en acción!

Materiales: pizca de pimienta negra, jabón y plato poco profundo lleno de agua

- Agregar la pimienta negra "gérmenes" al agua.
- Los niños meten los dedos en el agua.
- Pimienta "gérmenes" se pegará a los dedos. Enjuague los dedos.
- Los niños ponen los dedos en el jabón antes de ponerlos en el tazón de "gérmenes".
- Haga que los niños observen cómo los "gérmenes" se alejan del jabón.

