

MY FIRST SOAP

Experiment Objective:

Making liquid soap by mixing ready-made chemical substances in specific ratios. Observing how soap cleans dirt.

Transdisciplinary Theme:

Who We Are

Where We Are in Place and Time



**CURIOUS
BOX** 



INQUIRY CYCLE

TUNING IN

Let's Spark
Curiosity



FINDING OUT

Let's Start
Exploring! / Video



SORTING OUT

What Should
Little
Scientists
Explore?



GOING FURTHER

For the
Inquisitive Minds,
Scientific
Explanation, What
Else Can We Do?



TAKING ACTION

Question of the day?



MAKING CONCLUSIONS

What Did We
Discover / Activity
Pages / Exit Card



MY FIRST SOAP



Let's Spark Curiosity

Before the experiment, a "Handwashing Steps" poster is hung in the classroom to pique curiosity. Students are asked the following questions:

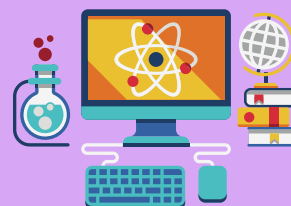
- What is a living thing? Can you give an example?
- Have you ever heard of living things that are not visible to the naked eye?

"We live with many living things around us. For example; insects, cats, dogs, plants... Besides these living things, there are also those we cannot see with the naked eye. Some of these living things are beneficial, while others are harmful. Does anyone know the names of living things among us?" After receiving answers, it is stated, "Yes, invisible living things are; bacteria, viruses, or germs 😊 When harmful germs enter our bodies through our noses, mouths, or other means, they make us sick. So, shall we conduct an experiment today to eliminate them? We will conduct our experiment with the same precision as scientists. Because scientists do not smell, taste, or touch any substance when they do not know what it contains. We will also conduct our experiment following these three rules. Let's wear our gloves and put on our goggles for our safety," it is said. Students are then asked to take out and examine the activity materials.

Let's Start Exploring!

The activity video is watched by pausing it. The set contents are checked before starting the activity. All steps of opening covers and packages are done simultaneously with the students

Watch the video by pausing it!



Set Content

- | | |
|---|--|
| <input type="checkbox"/> Experiment tray | <input type="checkbox"/> Transfer syringe |
| <input type="checkbox"/> Raw material 1 (inside the mixing container) | <input type="checkbox"/> Soap label |
| <input type="checkbox"/> Raw material 2 | <input type="checkbox"/> "Handwashing Steps" poster |
| <input type="checkbox"/> Stirring rod | <input type="checkbox"/> "My First Soap" experiment report |
| <input type="checkbox"/> Essence | <input type="checkbox"/> Louis Pasteur scientist card |
| <input type="checkbox"/> Pump | |

How Do We Do It?

1. The experiment tray is placed on the table, and raw material 1 is placed in the experiment tray.
2. Half of raw material 2 is added to raw material 1 (in the mixing container).
3. The mixture in the mixing container is slowly stirred with the stirring rod until it becomes a dense consistency, continuing for about 5 minutes.
4. After the mixture thickens, the remaining part of raw material 2 is added, and stirring continues slowly. This process also continues for about 5 minutes until the mixture becomes dense.
5. Finally, the entire essence is dropped into the mixing container, and it is stirred for another 3 minutes.
6. The prepared mixture is filled into the bottle using a syringe.
7. The pump is attached to the bottle.
8. The tip of the pump is turned open in the direction of the "open" inscription.
9. Soap labels are pasted on the soap bottles, and the soaps are ready for use!

What Should Little Scientists Explore?

Students are asked the following questions:

- Is it possible to get rid of germs by washing our hands?
- When should we wash our hands?
- How should we wash our hands?

Is it possible to get rid of germs by washing our hands?

Throughout the day, we touch many things with our hands. For example; doorknobs, elevator buttons, faucets... On the objects we touch, there are germs that we cannot see with the naked eye. These germs on objects transfer to our hands, and from our hands to our noses and mouths. When we do not wash our hands enough, these germs can make us sick. By washing our hands, we can remove these harmful germs from our hands. Therefore, it is necessary for us to develop the habit of handwashing. When we develop the habit of handwashing, the fight against diseases begins. We should maintain this habit at home, at school, and in restaurants. Hand cleaning with water alone does not provide effective hygiene. For thorough cleaning, water should

be used with soap. Especially in crowded places, soap should be preferred. In cases where access to water and soap is not easy, alcohol-based disinfectants should be used.

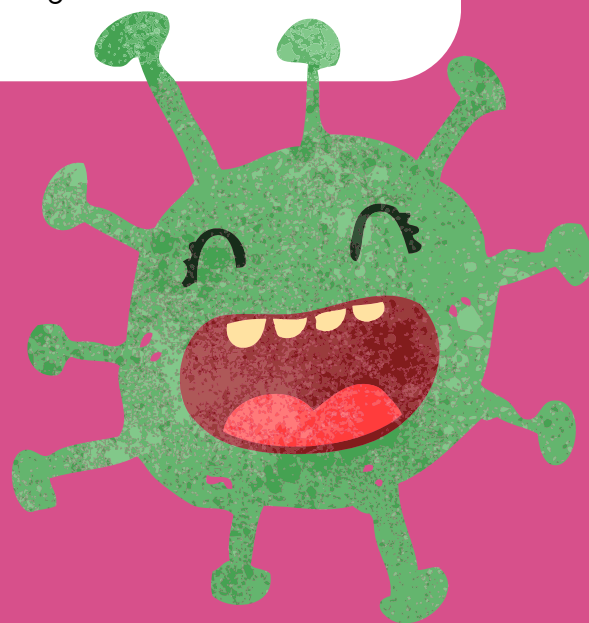
In addition to the germs that make us sick, there are also beneficial ones. Beneficial bacteria protect us from diseases that can come to our bodies, help our digestive system, and contribute to the production of various foods . For example; yogurt, vinegar, bread...

When Should We Wash Our Hands?

- Before and after eating
- After using the toilet
- After covering our mouth with our hands during sneezing and coughing
- After using public transportation
- After handling money
- After coming home from school hands should be washed properly.

How Should We Wash Our Hands?

When cleaning with water and soap, hands are first washed with water; then soap is taken. The soap is spread over all surfaces of the hands and foamed well. Wrists, palms, fingers, spaces between fingers, backs of the hands, and the insides of the nails are rubbed for at least 20 to 30 seconds. "The thumb of one hand is rubbed by grasping it with the fingers of the other hand; the fingertips are cleaned by rubbing against the palm of the other hand, and the spaces between the fingers of both hands are interlaced and rubbed together."





For the Inquisitive Minds, Scientific Explanation

Students are asked the following question:

- How does soap clean the dirt on our hands?
- Why do we use soap and water together when washing our hands?

How does soap clean the dirt on our hands?

Soap has long chain structures inside. This long chain is the part that loves water. There is also a part of soap that does not like water. The part that does not like water clings tightly to the dirt and surrounds it. During rinsing, this structure, which has clung to the dirt, separates from our hands and flows away with water. Thus, our hands get rid of dirt and become clean 😊

Recommendation: You can better explain to students how soap cleans our hands by creating a drama. Before the activity, draw water and germs on pieces of paper for two students. Give a ready-made soap to the third student.

- Three students are selected from the students.
- A student with soap in his/her hand says, "Come on harmful germs. I'm not afraid of you; it's time for you to stay away!"
- The second student takes a piece of paper with drawn germs. Approaching the student with soap slowly.
- The student with soap says anxiously, "I need water. Where is my water? I can't get rid of germs by myself!"
- The third student takes a piece of paper with drawing of water. Runs towards the student with soap and says, "I came to help you; we will succeed together."
- The student with the soap takes the hands of the students holding water and germs and pulls them in for a hug.
- The student with the germs steps away from the others and runs out of the class.

What Else Can We Do?

Dear teacher,

You produced a liquid soap with our little scientists. You can do the "**Escaping Microbes**" experiment in the classroom to better observe how microbes fly away with soap and water.

Escaping Microbes



Materials

- ½ cup of water
- ½ cup of milk
- a pinch of black pepper
- a wide shallow dish
- the produced soap

Escaping Microbes

- Fill half of the dish with water. Pour milk into the remaining half and stir.
- Sprinkle black pepper on top of the mixture to completely cover it. (The black pepper represents the microbes.)
- Take a small amount of soap with your fingertip and touch it to the milk.
- Observe the black pepper (microbes) escaping from the soap.

What Happened?

The surface of water and other liquids is mostly crust-like. This is because the small particles that make up liquids attract each other more strongly, especially at the surface. This is called surface tension. Liquid soap reduces this surface tension. Therefore, starting from the point where the liquid soap touches the water, the particles on the surface of the water spread further. As the particles spread, they push the peppercorns to the sides.



What Did We Discover? / Exit Card

"The Little Scientists, we have produced a soap that has the power to eliminate harmful microbes. Who is making soap for the first time?" After receiving responses, it is emphasized, "Let's not forget to wash our hands regularly with water and the soap we produced." Using the handwashing steps poster, the steps are demonstrated in the classroom or at the sink. Then, a letter from Louis Pasteur is read. Students are asked to draw how the soap cleans dirt in their experiment report and create an exit card.

Question Of
The Day?



What else can we use to remove the microbes on our hands besides soap and water?

Communicators

Balanced

Principled

Knowledgeable

**Open
Minded**

Caring

Inquirers

Thinkers

Which learner
profile did the
Scientist (Louis
Pasteur) exhibit?

Risk-Takers

Reflective

Why?

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