Lesson 28 - Science Experiment
Wash Your Hands!

28

Instructional Targets

Scientific Inquiry

- Observe and ask questions about the natural environment.
- Make simple observations and participate in simple investigations.
- Use senses to learn about the natural environment.
- Use simple tools to gather data.
- Communicate with others about observations and investigations.

Differentiated Tasks

Level 3 Students will...	Level 2 Students will...	Level 1 Students will...
• Follow steps of a scientific process related to grades K–2 science topics.	• Follow steps of a scientific process related to grades K–2 science topics, with support.	• Actively participate in a scientific process related to grades K–2 science topics.

Topic Connection

In this unit, students learn about rules at home and at school, as well as the consequences for not following the rules. In this science experiment, students will explore washing hands, which is an important rule for health and personal hygiene. Students will observe how germs can spread, as well as which method of washing hands gets rid of the most germs. After completing this experiment, discuss with students how handwashing can help stop the spread of germs and help prevent illnesses such as COVID-19.

Topic Words

home*	rule	safe	school*

Science Words

ask*	experiment	observe
conclusion	guess	question*
data	hypothesis	scientific process

* Power Words

Lesson at a Glance

	Activity 1	Activity 2	Activity 3	Activity 4
Instructional Activities	Introduce the Experiment	Make a Guess / Hypothesis	Conduct the Experiment	Review and Share Findings
See how these activities fit into the **Suggested Monthly Plan**.				
ULS Materials and Resources	**Picture/Word Cards** vegetable oil ½ t measuring spoon glitter hands water pencil germs spread	**Experiment Steps 1 and 2**	**Experiment Steps 3 and 4** **Picture/Word Cards** ½ t measuring spoon vegetable oil glitter water soap timer paper towel Wash Your Hands!	**Experiment Step 5**
	Instructional Tools: Scientific Inquiry Processes			
Additional Materials	**Real Objects** vegetable oil ½ t measuring spoon glitter water pencil		**Experiment Materials** ½ t measuring spoon vegetable oil glitter water soap timer paper towel	

Lesson 28 - Science Experiment
Activity 1 - Introduce the Experiment

Instructional Targets

Scientific Inquiry

- Observe and ask questions about the natural environment.
- Make simple observations and participate in simple investigations.
- Use senses to learn about the natural environment.

Instructional Routine

Introduce	• Introduce the activity by asking a focus question. For example, ask, "What is a rule you should follow after using the restroom—wash your hands or play with a toy?" Remind students that washing your hands after using the restroom is a rule. Discuss other rules students follow for personal hygiene, such as brushing teeth. • Tell students we are going to observe germs on our hands. Say, "Today, we are going to observe germs on our hands. Your job is to observe and tell about the germs." • Review the learning goal with students: **I will observe and tell about the germs.**
Model	• Display the vegetable oil. Explain that people naturally have oil on their skin, and that germs stick to the oil. Then display the glitter and explain that, today, the glitter will serve as make-believe germs. Put 1/2 teaspoon vegetable oil on your hands and then sprinkle some glitter onto your hands. Rub the front and back of your hands to spread the glitter germs around. Comment aloud about the germs on your hands. For example, say, "The germs are all over my hands. They are on the front and back of my hands." • Model picking up a pencil and observing how the glitter germs spread from your hands to the pencil. For example, say, "I have glitter germs on my hands. When I pick up the pencil, some of the glitter germs stick to the pencil. Now there are glitter germs on both my hands and the pencil. The glitter germs spread. If someone else picks up the pencil, they could get glitter germs too."
Provide Practice	**Level 3:** Have the student participate in observing and describing the germs. Encourage the student to ask questions and share observations with his or her peers. **Level 2:** Have the student participate in observing and describing the germs. Encourage the student to ask questions and share observations, using visual supports as needed. Picture/Word Cards for 'germs' and 'spread' are provided. **Level 1:** Have the student participate in observing the germs. Have the student use his or her active participation mode to select a word that describes the germs from a field of two choices (may be errorless choice).
Review	• Revisit the learning goal. Ask, "Where were the germs first? What happened when I picked up a pencil? What happened to the germs?" Remind students that the germs spread from the hands to the pencil and that we should wash our hands to help get rid of germs so they don't spread.

Check Understanding

- **Level 3:** Can the student make and share an observation?
- **Level 2:** Can the student make an observation?
  Can the student share an observation?
- **Level 1:** Can the student participate in making a supported observation? How?
  Can the student communicate about a supported observation? How?

Instructional Targets

Scientific Inquiry

- Observe and ask questions about the natural environment.
- Communicate with others about observations and investigations.

Instructional Routine

Introduce	• Introduce the activity with a focus question about one of the concepts explored in Activity 1. For example, ask, "What happened to the glitter germs when I picked up the pencil--they spread or they stayed in the same place?" Discuss students' responses. • Continue discussion by reading the "What We Know" statements on the experiment page. Compare or have students compare these statements to what they learned in Activity 1. • Tell students they will now begin an experiment. Say, "Today, your job is to ask a question and make a guess/hypothesis." • Review the learning goal with students: **I will ask a question and make a guess/hypothesis.**
Model	• Read Step 1. Emphasize that right now you can only make a guess or hypothesis about the answer to this question. Point out that the final answer will come from doing the experiment. • Read Step 2 and model making a guess/hypothesis. For example, say, "I know that washing hands with soap and water can help get rid of germs. Since it is longer, I think washing hands for more time will get rid of the most germs. I will choose 'Washing hands with soap and water for 20 seconds gets rid of most of the germs.'" • Continue modeling, showing students how you record your guess/hypothesis.
Provide Practice	**Level 3:** Have the student independently make a guess/hypothesis. **Level 2:** Have the student make a guess/hypothesis, using visual supports as necessary. **Level 1:** Have the student make a guess/hypothesis by making a selection from 2 to 3 choices (may be errorless).
Review	• Revisit the learning goal. Point out that students completed the first two steps of the scientific process—they asked a question and made a guess/hypothesis.

Check Understanding

- **Level 3:** Can the student independently make a guess/hypothesis?
- **Level 2:** Can the student make a guess/hypothesis with visual support?
- **Level 1:** Can the student make a guess/hypothesis by making a selection from 2 to 3 choices (may be errorless)?

Instructional Targets

Scientific Inquiry

- Make simple observations and participate in simple investigations.
- Use simple tools to gather data.

Instructional Routine

Introduce	***Note: A sink with running water is required to complete this experiment. Additionally, Core Materials Task 2.0 can be used to review the steps for washing hands.*** • Introduce the activity with a focus question such as, "What can we do to get rid of the germs on our hands?" Discuss students' guesses/hypotheses made in Activity 2. • Introduce the materials needed for the experiment. Picture/Word Cards are provided to support vocabulary development. • Tell students they will now complete two more steps in the scientific process. Say, "Today, your job is to do an experiment and gather and record data." • Review the learning goals with students: **I will do an experiment.** **I will gather and record data.**
Model	• Model reading and following the directions in Step 3 to complete the experiment. • When you come to step 4 in the directions, model how to gather and record data on the chart in Step 4.
Provide Practice	**Level 3:** Have the student participate in the experiment and independently gather and record data. **Level 2:** Have the student participate in the experiment and gather and record data with support. **Level 1:** Have the student use his or her active participation mode to participate in the experiment and in gathering and recording data.
Review	• Revisit the learning goals by discussing the steps of the experiment, as well as what happened during the experiment. • Point out that students completed steps 3 and 4 of the scientific process—they conducted the experiment and gathered and recorded data. Explain that the next step is to review and discuss the data they gathered.

Check Understanding

Level 3: Can the student participate in an experiment? How?
Can the student independently gather and record data? How?

Level 2: Can the student participate in an experiment? How?
Can the student gather and record data with support?

Level 1: Can the student use his or her active participation mode to participate in an experiment?
Can the student use his or her active participation mode to participate in gathering and recording data?

Instructional Target

Scientific Inquiry

- Communicate with others about observations and investigations.

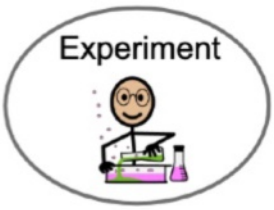
Instructional Routine

Introduce	• Introduce the activity by asking a focus question such as, "What did we do in our experiment—wash hands or brush teeth?" Remind students that they washed their hands for 3 different amounts of time. • Prompt students to recall the steps of the experiment. Say, "First we washed our hands with soap and water for 5 seconds. Then, we washed our hands for 10 seconds. Last, we washed our hands for 20 seconds. After each hand washing, we recorded on a chart how much of the glitter germs were left on our hands. Today, your job is to look at your chart and decide if the guess/hypothesis you made in Step 2 was correct." • Review the learning goal with students: **I will decide if my guess/hypothesis was correct.**
Model	• Display a completed data form from Step 4. Model using the data to answer the questions in Step 5. • Discuss why the guess/hypothesis you made in Step 2 for each nest is correct or incorrect.
Provide Practice	**Level 3:** Have the student use data from Step 4 to answer the questions in Step 5 independently. **Level 2:** Have the student use data from Step 4 to answer the questions. Provide support as necessary. **Level 1:** Review the data from Step 4 with the student. Then have the student answer the questions in Step 5 by selecting an answer from a single option or errorless choice.
Review	• Revisit the learning goal by discussing what happened in the experiment and by having students share their findings. • Explain that students have now completed all five of the steps in the scientific process. Review the steps.
Extension	• To extend this lesson, put a small amount of washable paint on your hands. Move your hands in the same motion you use to wash your hands for 20 seconds. Then, stop and observe where the paint is on your hands. Do you see any parts that didn't get covered in paint? These are places you might miss when washing your hands. When washing hands, be sure to wash the front and back of hands as well as between your fingers and on the tops of your thumbs. Also, scrub under your fingernails.

Check Understanding

- **Level 3:** Can the student use data to independently decide if a guess/hypothesis was correct?
- **Level 2:** With support, can the student use data to decide if a guess/hypothesis was correct?
- **Level 1:** Can the student make a selection from a single option or errorless choice to indicate if a guess/hypothesis was correct?

experiment



Wash Your Hands!

NEED

½ t measuring spoon

vegetable oil

glitter

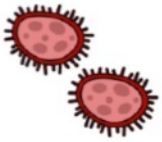
water

soap

timer

paper towels

What We Know:



- We can have germs on our hands.
- We can spread germs if our hands are not clean.
- Germs can make us sick and others sick.
- We can get rid of germs by washing our hands with soap and water.

Step 1: Ask a Question

- How long do you need to wash your hands to get rid of the most germs?

Step 2: Make a Guess / Hypothesis

I think...

Washing hands with soap and water for 5 seconds gets rid of the most germs.

5

Washing hands with soap and water for 10 seconds gets rid of the most germs.

10

Washing hands with soap and water for 20 seconds gets rid of the most germs.

20

See Experiment Steps 1-2

Step 3: Do an Experiment

1. Put ½ t oil onto hands. Rub oil all over hands.

2. Sprinkle glitter onto hands and rub onto front and back of hands.

3. Wet hands under running water. Put 1 squirt of soap onto hands. Wash hands for 5 seconds.

4. Rinse hands with running water. Observe hands. Dry off hands. Record observations on the chart.

5. Repeat steps 1 and 2.

1 - 2

Step 3: Do an Experiment

6. Wet hands under running water.
   Put 1 squirt of soap onto hands.
   Wash hands for 10 seconds.

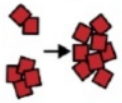
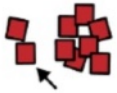
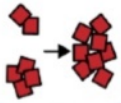
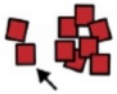
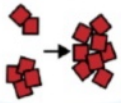
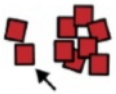
7. Rinse hands with running water.
   Observe hands. Dry off hands.
   Record observations on the chart.

8. Repeat steps 1 and 2.

9. Wet hands under running water.
   Put 1 squirt of soap onto hands.
   Wash hands for 20 seconds.

10. Rinse hands with running water.
    Observe hands. Dry off hands.
    Record observations on
    the chart.

Step 4: Organize Data

	What is left on your hands after washing with soap and water?		
5  Washing for 5 seconds	most of the glitter germs 	some glitter germs 	no glitter germs 
10  Washing for 10 seconds	most of the glitter germs 	some glitter germs 	no glitter germs 
20  Washing for 20 seconds	most of the glitter germs 	some glitter germs 	no glitter germs 

See Experiment Steps 1-4

Step 5: Find the Conclusion

Did washing your hands for 5 seconds get rid of the most germs? **5**

yes

no

Did washing your hands for 10 seconds get rid of the most germs? **10**

yes

no

Did washing your hands for 20 seconds get rid of the most germs? **20**

yes

no

Was your guess correct?

yes

no

Step 5: Find the Conclusion

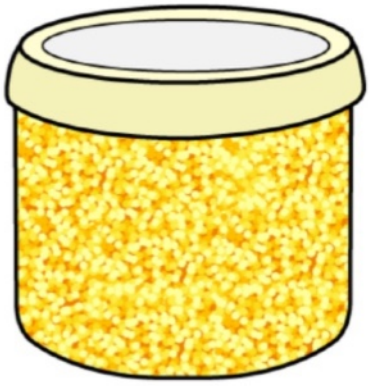
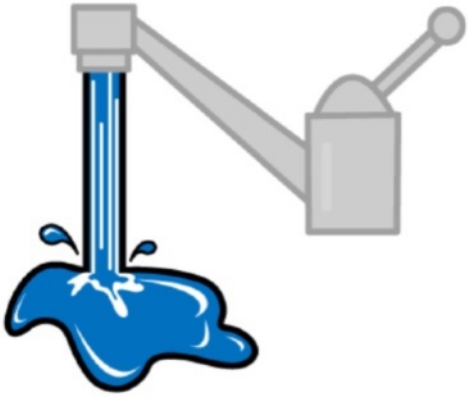
Explanation:

- We have oil on our skin. Germs stick to the oil on our hands. Water and oil do not mix well, so washing with only water is not a good way to wash your hands. Soap is made of ingredients that mix well with water and oil. When we wash our hands with soap and water, the soap helps carry away the oil and germs when we scrub and rinse our hands. The more scrubbing we do, the more dirt and oil can be lifted from our skin. The dirtier our hands are, the longer we need to wash our hands.

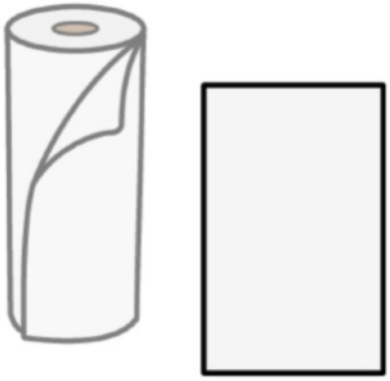
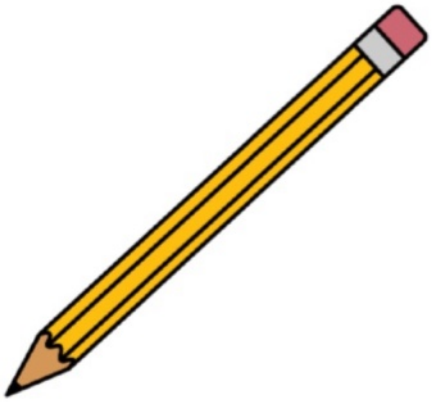
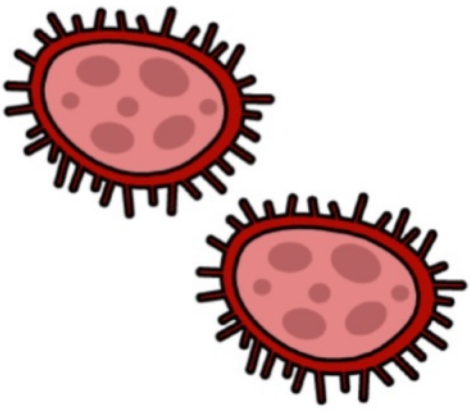
Extension:

- Put a small amount of washable paint on your hands. Move your hands in the same motion you use to wash your hands for 20 seconds. Then, stop and observe where the paint is on your hands. Do you see any parts that didn't get covered in paint? These are places you might miss when washing your hands. When washing hands, be sure to wash the front and back of hands as well as between your fingers and on the tops of your thumbs. Also, scrub under your fingernails.

For hands-on instruction, print, cut out and laminate.

½ t measuring spoon 	vegetable oil 
glitter 	water 
soap 	timer 

For hands-on instruction, print, cut out and laminate.

paper towels 	Wash Your Hands! 
hands 	pencil 
germs 	spread