

**Developed By:** Jim Wooten and Nancy Baker

**Grade Level:** 4

**Subject Area:** Human Identity

**Title:** Germs: Friends or Foes?

**Standards**

- 4.1.1 Observe and describe that scientific investigations generally work the same way in different places.
- 4.1.2 Recognize and describe that results of scientific investigations are seldom exactly the same. If differences occur, such as a large variation in the; measurement of plant growth, propose reasons for why these differences exists, using recorded information about investigations.
- 4.1.5 Demonstrate how measuring instruments, such as microscopes, telescopes, and cameras, can be used to gather accurate information for making scientific comparisons of objects and events. Note that measuring instruments, such as rulers, can also be used for designing and constructing things that will work properly.
- 4.2.4 Use numerical data to describe and compare objects and events.
- 4.4.10 Explain that if germs are able to get inside the body, they may keep it from working properly. Understand that for defense against germs, the human body has tears, saliva, skin, some blood cells, and stomach secretions. Also note that a healthy body can fight most germs that invade it. Recognize, however, that there are some germs that interfere with the body's defenses.
- 4.6.1 Represent data on a number line and in tables, including frequency tables.

**Goals and Objectives:**

- Affective:** Students will work individually in pairs and in groups to process in formation and execute experiments.
- Cognitive:** Students will use prior knowledge of germs to make predictions and observations.
- Psychomotor:** Students will set up experiments and prepare charts in journal of observations during two week period.

**Materials:**

- Petri dishes
- Germ source
- Applicators (swabs, paper clips)
- Rulers
- Student journals
- Inhibitors (water, salt water, mouth wash, tooth paste }

## Activities

1. KWL on “What is a germ?”
2. Predict in journals and group discussions.
3. Set up experiment with germs and prohibiters.
4. Daily record observations.
5. Access teacher resources.
6. At the end of two week period, analyze results and discuss in group.
7. Write in journal one question you would still would like answered concerning germs.

## Procedure

Note: Students should be paired up with two pairs (four students) working together.

### KWL

1. Students will create KWL chart in journal and spend five minutes recording individual thoughts concerning “shat are germs.” (See Worksheet #1)
2. Students share individual thoughts from above with group.
3. Groups share and teacher posts on wall chart.

### Predictions in Journal

4. Teacher distributes prohibiters and plans for activities Students predict in journal which prohibitor will be effective. (Use worksheet #2 for predictions.)

### Set up of Environment

5. Teacher reviews instructions on worksheet #3.
6. Students apply the germs to the gel pad and the prohibiters.
7. Students record process, draw picture of setup and begin daily observations in their journal.

### Daily Record

8. All students daily observe and one group member measures and reports to the group so that each student can record in their journal.

### Additional Reading/Resources

9. Teacher presents and describes options for additional research (see worksheet #4)
10. Students record for two weeks documentation of sources and at least ten interesting facts found or questions to investigate.

### Analyze

11. Students review and analyze final results and record in journal.
12. Students discuss finding with their own group including comparison of their original predictions to actual findings.
13. Students discuss and prepare group presentation.

### Group Presentations

14. Each group presents. All members should contribute in presentation.

Final Journal Record

15. Student writes in journal one question he/she would like to do additional research on. The student should also indicate the first resource or steps they would take to accomplish this.

**Assessment:**

“Flash” Quizzes  
Journal Writing  
Group Presentation and Discussions

**Assessment Rubrics:**

(See “Assessment Rubric Scoring Guide” on next page.)

## **ASSESSMENT SCORING GUIDE**

- 4** The journal and group work is completed correctly and contains additional, Unexpected or outstanding features.
- 3** The journal and group work is completed correctly with minimal mistakes.
- 2** The journal and group work is completed or partial completed, but shows lack of effort.
- 1** The journal and group may or may not have been attempted, but all areas show little or no effort.
- 0** The student did not participate in journal or group activities.