

Exchange Activity Summary

Name: _____ Class Period: _____

- a. Total number of cups: _____
 b. Number of cups with alkaline (NaOH) solution at the beginning : 3
 c. Number of cups with alkaline (NaOH) solution after exchanging liquids: _____

- Use the numbers recorded above and calculate the percentage of the number of cups with liquids that became alkaline after three exchanges. Show your calculation. **The percentage increase of cups with alkaline solution can be calculated in two ways: $\{(c-b) \div a\} \times 100$; or $\{(c \div a) - (b \div a)\} \times 100$. Both calculations lead to the percentage of the cups contaminated with NaOH through liquid exchanges.**
- The exchange activity is a simulation of how an infectious germ can spread quickly from person to person without his or her knowledge. If sodium hydroxide (NaOH) represents an infectious germ, what do other parts of the activity represent? Record your answers in the chart below? [Hint: Think about the words and questions discussed at the beginning of the class.] **Place the previously completed Word List and Questions transparency on an overhead for students.**

Exchange Activity	Representation in Real Life
Sodium hydroxide (NaOH)	An infectious germ
Cup with liquid	A body part that can be infected by a germ
Exchanging liquid between cups	Interaction leading to the transmission of the germ or how a germ is transmitted by human interaction. This simulates a type of human interaction that transmits the germ—people are the agents through which the germ spreads. This differs from other vectors such as air, water, insects, etc.
Clear color of the liquid	Normal or healthy appearance
Pink color of the liquid	Visible symptom of an infection or disease
Phenolphthalein (C ₂₀ H ₁₄ O ₄)	Test for the germ or progression of the infection when visible symptoms appear

- What are some infectious diseases that the exchange activity simulates? List three. **Students can recall the list of diseases that they discussed earlier or may come up with new ones. The disease can be transmitted via various types of direct human interaction, sometimes with delayed symptoms—for example, flu, cold, strep throat, HIV, hepatitis, meningitis, measles, mumps, chickenpox, etc.**
- How would you prevent the spread of the disease, represented by NaOH during the activity? How would you change the activity to prevent or minimize the transmission of the disease among students? List at least two changes. **Students can come up with various prevention strategies such as clicking cups instead of exchanging liquids (stopping transmission route by changing the types of interactions among people); using the indicator before the exchanges so that they know who has NaOH (testing everyone and alienating those with NaOH).**
- How can we protect the rights of those who are infected and still prevent the spread of disease? **Challenge students to consider how to protect the rights of those with infectious/contagious disease as well as the rights of those without the infection.**