



Mucus Swap Activity

Materials Needed

1/8 cup (30ml) distilled water per participant
5 oz disposable cup for each participant
Sodium Carbonate Standard Solution 0.02N (Hach, cat. #18149) (Positive Solution)
Phenolphthalein Solution 0.1% (Hach, cat. #189753) (Testing Solution)
Dropper bottle
Measuring utensils
Disposal container large enough to accommodate liquid from all participant cups

Safety Procedures

- Do not sniff or drink solution
- If participant is exposed to solution, flush the area immediately with water

Before participants arrive

1. Add approximately 1/8 cup (30ml) of distilled water to a disposable cup for each participant; filling the cup about 1/3 full. This should be done just before the activity begins, to ensure pH changes do not occur. In addition, do not use tap water, as not all water sources are pH neutral.
2. To make “positive mucus” add ¼ teaspoon (~25 drops) of Sodium carbonate Standard Solution to one cup. (More if you have a large group) Place a small, inconspicuous mark on each of the “infected cups”, to be identifiable later.
3. Add stock phenolphthalein Solution to a dropper bottle, for easier distribution.

Once participants arrive

1. Pass out one cup to each participant, explaining that each represents an animal at an exhibition. Point out that each cup and the liquid inside looks the same. Discuss animal contact within a show setting, and then instruct students to exchange water (swap mucus) with three other participants. To complete an exchange, the participant should pour their fluid into another participant’s cup, and then half should be poured back in to the original cup. As students are exchanging mucus, announce that (n= how many infected cups) animal(s) came to the show already infected with a respiratory disease.
2. As students finish swapping, ask if they can tell who is “infected”, and how many additional animals they think may now be “infected”.
3. To determine whether each individual’s animal is “infected,” add 2 drops (~100ul) of phenolphthalein solution to each cup. If the liquid turns pink the animal is infected, if the liquid remains clear the animal is negative. Discuss how diseases spread within the animal population, and allow participants time to figure out who started as “infected” by tracking their swapping partners. Confirm using the inconspicuous marks on the infected cups.
4. Pour liquid from all cups in disposal container and thoroughly wash and rinse cups, if you plan to reuse.

Protocol modified from Lab-aids Experiencing Science Kit #906 “Track the Spread of Infectious Disease”