

Activity 3: Student instruction sheet

Much ado about nothing: spot misleading science claims and explore rapid antigen tests and buffers

Warning!! The pH electrode must be cleaned with purified water after every measurement. Take care not to put the pH electrode too far into the sample; otherwise, fluid can get into the electrode, which can cause damage.

Materials (per group)

- 1 small glass of cola drink
- 2 disposable pipettes
- 1 COVID-19 Ag-RDT (that delivers false-positive results with cola)
- Phosphate buffer (e.g., from the test used in Activity 2)
- 1 pH electrode
- 4 beakers
- pH indicator paper

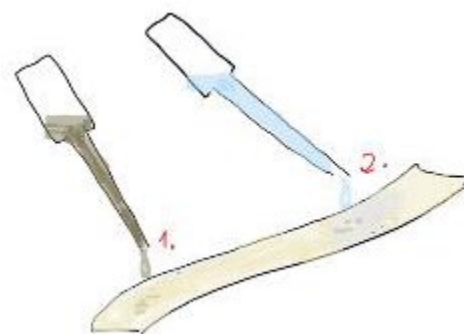
Procedure

Repeat the test from the video

1. Carry out the COVID-19 test according to the manufacturer's instructions but dipping the swab in cola instead of swabbing your nose.

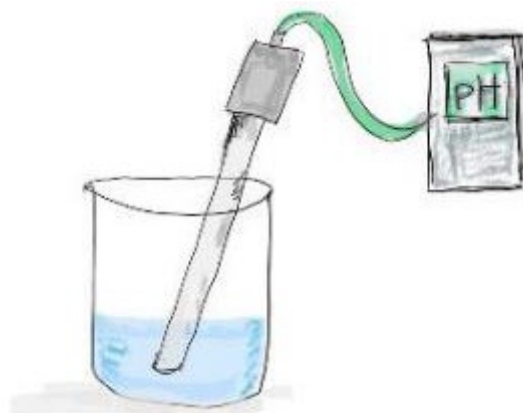
Test pH level with indicator paper

1. Tear off a small piece of indicator paper.
2. Use a pipette to put one drop of cola on one end of the indicator paper.
3. Take buffer solution from the test kit and apply one drop to the other end of the indicator paper.
4. Discuss your observations!



Test pH-level changes using the pH electrode

1. Add 20 ml of the phosphate buffer to a beaker.
2. Measure the pH level by holding the pH electrode in the solution.
3. Record the pH level shown on the display.
4. Get the beaker and pipette with cola from previous experiment.
5. Slowly add cola to the phosphate buffer while continuously measuring the pH level of the solution with the pH electrode.
6. Discuss your observations!



Images courtesy of the author