# Olfactory titration instruction sheet.

## Aim:

To determine the value of the NaOH concentrations in solutions containing brown onion, red onion and garlic indicators by titrating them with 0.1 M HCl

## Safety:

A lab coat, goggles and gloves must be worn throughout this experiment.

## You will need:

3 x NaOH solutions containing onion indicator

1 x 5 mL notched syringe.

1x 1 mL notched syringe.

1 x 0.5 mL notched syringe.

1 x stirrer bar

1 x stirrer bar magnet

1 x stirrer plate (or a spatula/spoon to stir the mixture with)

1 x fan

1 x 200 mL beaker filled with HCl (Ask a teacher to top up this HCl throughout the experiment if you are finding it hard to draw liquid out of the beaker).

## Method

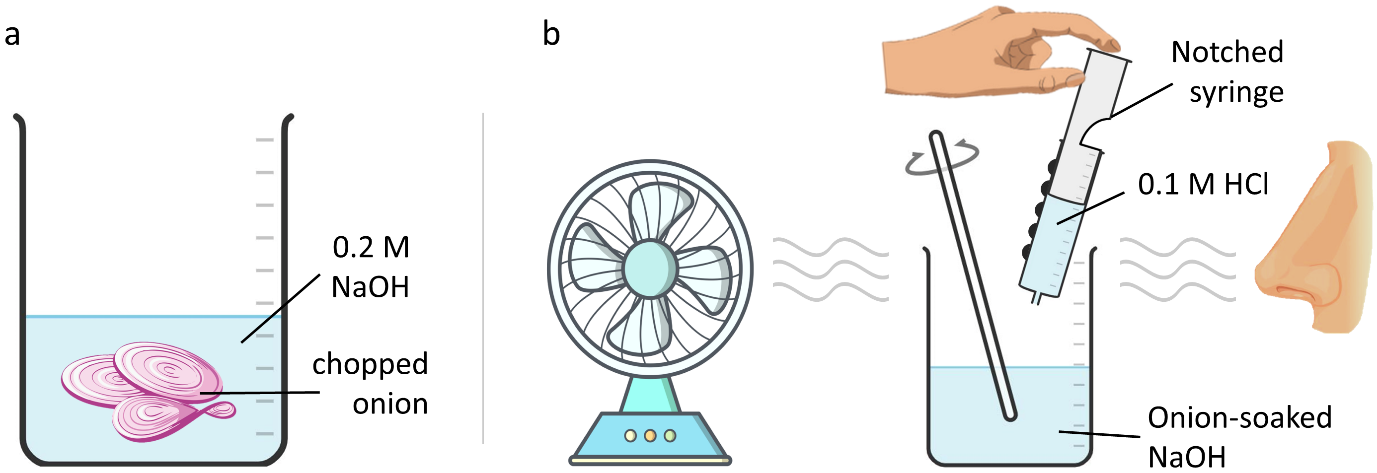
### Procedure for the student making observations:

1. Place one of the beakers containing the analyte solution on the magnetic stirrer plate and put the stirrer bar in the solution.
2. Turn the stirrer plate and fan on, sit about a meter away from the solution and check that the airflow of the fan is in line with your nose.
3. Observe the changes in smell as your partner transfers HCl into the analyte solution, telling your partner every time the intense smell appears or disappears.
4. When the intense smell lingers and does not disappear the reaction is over.

### Procedure for the student putting the HCl into the solution:

1. See instruction sheet on how to use the notched syringes (available in the downloads at the top of the page).
2. First run: Transfer the HCl in 5 mL increments until your partner observes a lingering smell change. Let’s call the value of HCl added on this run X mL.
3. Second run: Add 5 mL increments until you have added X-5 mL, then add 1 mL increments until your partner observes a lingering smell change. Let’s call the value of HCl added on this run Y mL.
4. Third run: Add 5 mL increments until you have added X-5 mL. Then added 1 mL increments until you have added Y-1 mL then add 0.5 mL increments until your partner observes a lingering smell change.

The value obtained in run three is the total volume of HCl added at the endpoint to the nearest 1 mL



A diagram of the experiment setup.