<http://depts.washington.edu/chem/facilserv/lecturedemo/KineticsofCrystalViolet-UWDept.ofChemistry.html>

**Summary:**  The color change of crystal violet is observed as it reacts with three different concentrations of sodium hydroxide.

**Hazards:**

Concentrated solutions of NaOH are caustic.

**Chemicals and Solutions:**

Crystal violet solution 1.5 x 10-5M

2M NaOH

**Materials:**

three 250 mL beakers or crystallizing dishes

two 100 mL graduated cylinders

**Procedure:**

Place 100 mL of the crystal violet solution into each of the three beakers.

Place the first beaker on the overhead projector.  To the first beaker add 100 mL of 2M NaOH and stir.  Time how long it takes for the solution to go colorless.

Dilute the 2M NaOH to 1M by adding 50 mL of the 2M NaOH to 50 mL of water.  Add the 100 mL of 1M NaOH to a second beaker of crystal violet placed on the overhead projector and stir.  Time how long it takes for the solution to go colorless.  (twice as long)

Dilute the 25 ml 2M NaOH to 100 mL 0.5 M and add to the third beaker of crystal violet on the overhead projector.  (This run should take 4 times as long.)

Alternatively, to save time, set the reactions up to run all at once on the overhead, using crystallizing dishes marked on the bottom with the sodium hydroxide concentration.

<https://www.chem.wisc.edu/deptfiles/genchem/demonstrations/General_Chemistry_Demos.html>

<http://ncsu.edu/project/chemistrydemos/Kinetics/Blue%20Bottle.pdf>

<http://www.flinnsci.com/media/478838/cf4866.pdf>

<http://ncsu.edu/project/chemistrydemos/Kinetics/Elephants%20Toothpaste.pdf>

<http://ncsu.edu/project/chemistrydemos/DemoList.html>