

# TEACHER NOTES

## LAB ADV

From Juniata College, Science in Motion

**LAB TIME** 20 minutes per trial

## PREPARATION

**TIME** 40 minutes

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| **T**: | Prepare one liter of 0.50 M phosphoric acid by diluting 28 mL of concentrated H3PO4 to one liter with distilled water. Each lab group will use 10 mL per trial. |
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| **T**: | Prepare one liter of 0.50 M NaOH by dissolving 20.0 g of the solid to one liter with distilled water. Allow 50 mL per group per trial. |
| **T**: | Make one set of materials available to each lab group. |

## ANSWERS TO QUESTIONS

1. How would the following affect your results?

1. The buret is dirty and drops of NaOH cling to the side walls of the buret as ii is drained.

*The volume of NaOH used will be lower, and the concentration of the acid will appear to be higher.*

*The concentration of the NaOH would be lowered slightly and would give a lower concentration for the acid.*

1. The buret tip is not filled at the start of the titration.

*Less base will be used than reported. The concentration of the acid will appear to be higher.*

1. 30 mL of unknown acid are used instead of 10 mL.

*If the volume used is recorded, there should be no effect on the final calculation.*

1. The buret is not read at eye level.

*The volume of base used may appear to be greater or smaller depending on the angle at which the buret is read.*

1. The base is added too rapidly in the region of rapid pH change.

*The endpoint will not be as accurate leading to a random error.*

1. 150 mL of distilled water is used instead of 90 mL.

*No effect*.

1. The original volume of base is not at 0.00 mL and a student assumes it is. *If the level was below the 0.00 mL line, then less base was used, causing a high acid concentration reading. If the level was above the 0.00 mL line, more base was used, causing a low acid level reading.*