MODULE TOPIC: Rate of Reaction

RATIONALE: Production of drug nanoparticle suspensions as the new way for big pharma to produce a "better" products.

STANDARD(S) & INDICATOR(S):
5.1.8. B.2. Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.

OBJECTIVE(S):
Students Will Be Able To:
1. Solve molarity problems by calculating the number of moles in the solution.
2. Measure rates of reaction of Alka Seltzer at different temperatures and for different concentrations of drug as function of time.

MATERIALS:
Chemistry Book, 100ml graduated cylinder, pipette, water, 250 ml beaker, tongs, stopwatch ,Alka Seltzer tablets(10), hot plate, Thermometer, Safety equipment.

BACKGROUND INFORMATION:
- Water, the common solvent.
- Type of chemical reaction.
- Stoichiometry of reactions

CLASSROOM ACTIVITY DESCRIPTION (LABORATORY/EXERCISES/PROBLEMS)
including detailed procedures:
1. Students choose a partner.
2. Brief overview of lab materials and equipment.
3. I verbally told the groups objective of the lab and what to do step by step and they were responsible to write the instructions in a lab notebook.
4. Partners discussed procedure step by step
5. Start the experiment and collect data.
6. At the completion of the lab they were to clean up and compare data and discuss their findings.

SAMPLE QUESTIONS TO ELICIT CLASS DISCUSSION:
1. What constitutes clean water?
2. What is a concentration?

HOMEWORK ACTIVITY/EXERCISES/PROBLEMS:
1. Practice problems
2. Lab Report

PARAMETERS TO EVALUATE STUDENT WORK PRODUCTS:

- Solutions to molarity problems.
- Report of collected data via tables and graphs.

REFERENCES:

- PHSschool.com
- Chemistry book

Supporting Program: Center for Pre-College Programs, at the New Jersey Institute of Technology

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