ONLINE LESSON PLAN
Inclusive Best Practices Project: Co-Teaching

Respondents: **Pamela Temons**
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Keystone Central School District
Central Mountain High School

Date of lesson to be observed/taped: **March 12, 2009**

1. Lesson Title:

   Dilution and Neutralization of Acids and Bases

2. Teacher(s) Name(s):

   Teacher 1: Mrs. Pamela Temons, Chemistry Teacher
   Teacher 2: Mrs. Allison Allen, Special Education Teacher

3. Grade Level(s): 11 and 12

4. Content Area: Chemistry

5. Description/Abstract of Lesson:

   This lesson will be a continuation of a study of concentration and pH. We will perform a neutralization lab and then model the pairing of ions to form neutral (uncharged) compounds.

6. Primary Lesson Objectives:

   (1): Relate ions to pH.
   (2): Relate concentration of ions to pH.
   (3): Relate dilution to ion concentration and change in pH.
   (4): Relate neutralization to ion concentration in change in pH.

7. Cognitive Level:

   Knowledge
   Comprehension
   Application
   Analysis

8. Standards and Anchors Addressed:

Anchors: S11.A.1.3.1; S11.A.1.3.2; S11.A.2.1.3; S11.2.1.5; S11.3.2.1; S11.C.1.1.3

9. Guiding questions for this lesson:

(1): What happens to the pH of a solution if it is diluted with water?
(2): What happens to the pH of an acid if it neutralized with a base?
(3): How do ions form neutral compounds?

10. Assessment Tools:

Teacher questioning
Teacher observation with checklist
Discussion of lab results

11. Learning Connections:

We have been studying the properties of water in the context of a fish kill. We are working on solubility, concentrations of acids and bases, and these lead into ions and ionic compounds.

12. Instructional strategies used in this lesson:

Cooperative Learning
Guided practice
Inquiry-based learning
Role playing

13. Learning Activities or Tasks:

- Bell ringer activity: graph interpretation
- Whole group: review lab procedure for neutralization
- Small group: carry out neutralization and record data
- Whole group: describe results of neutralization; explain (in terms of ions) what happens
- Small group: "go fishing" for an ion - matching ions by charge and quantity to make neutral compounds
- Ticket out the Door : “I am still confused about ____ related to ions.”

14. Classroom Organization and Learning Environment:

Heterogeneous grouping
Teacher support
Peer tutoring
Scaffolded instruction

15. How and where will your students work?

Groups
Lab Stations

16. Materials and Resources:

Manipulatives
Lab Equipment

17. Lesson Evaluation/Teacher Reflection: To be completed following the lesson