Name: Kent Morales Date: 9/17/12

Lesson Title/Subject: Biology/ Introduction to Biochemistry Grade(s): 9-12

Anticipated length of time for this lesson: 55 minutes

At what point in the sequence of the unit is this lesson? Check one:

x at the beginning of the unit of study

 between the beginning and the end of the unit of study

 at the end of the unit of study

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| PART A: DESCRIBE YOUR STUDENTS |

Grade Level: 9-12

Content Area: Biology

Subject Matter: Introduction to Biochemistry/ Properties of Water

Age range of students:14-17

Total Number of Students: 28

Number of Male Students:17 Number of Female Students:11

Percentage of students receiving free or reduced lunch:0

Areas in which students live (check all that apply) Urban x Suburban Rural

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| Ethnicity of students(give numbers) | 6 African American or Black3 American Indian/Alaskan Native1 Asian or pacific Islander10 White8 Hispanic or Latino Other (Specify)  |
| Language proficiency of students (give numbers) | 28 Fluent English Proficient0 English Learner |
| Identified special need categories represented (give numbers) | 3 Specific learning Disability Speech/Language Impaired Hard of Hearing Visually Impaired Deaf Orthopedically Impaired Deaf-Blind Emotionally Disturbed1 Other Health Impaired Mental Retardation Multiple Disabilities Autistic Brain Injury Established Medical Disability (0-5years) |

ENGLISH LANGUAGE LEARNER(S): There are no ELL’s in the class, though there are several Redesignated English Language Proficient Students. My goal with these students is to have them actively participate in class review discussion, and also to contribute orally or in writing in group review activity.

STUDENTS with IEPs: Oscar is the IEP student in the class. I will check regularly for understanding.

OTHER STUDENTS: Which students will require additional support with this lesson? Frank is a high-achiever with some difficulty focusing, and he requires regular checks for comprehension. Lorrie is a 504 student with a medical condition. She will be permitted immediate access to the restroom if requested.

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| PART B: LINK THE LESSON TO STANDARDS |

ACADEMIC CONTENT STANDARD(S): What academic content standard(s) does this lesson address?

Biology 1h. Students know most macromolecules (polysaccharides, nucleic acids, proteins, lipids) in cells and organisms are synthesized from a small collection of simple precursors.

Investigation and Experimentation 1d. Formulate explanations by using logic and evidence.

UNIT of STUDY: Describe the UNIT of STUDY that addresses the standards above.

The unit is Basic Chemistry. This unit will teach the students the basic chemical knowledge to understand a variety of chemical reactions that occur in specialized areas of an organism’s cells.

STUDENTS WITH IEPs: Identify the IEP goals for this subject area that will be addressed in this lesson.

Students will participate actively in group learning and lab exercises.

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| PART C: PLAN THE LESSON |

ACADEMIC LEARNING GOALS (outcomes/objectives) For This Lesson: What specifically do you expect students to know or be able to do as a result of the lesson? (Goals/outcomes/outcomes must be observable and measurable.)

1. Students will demonstrate background knowledge of properties of water by orally answering questions.

2. Students will be able to demonstrate understanding of the experimental procedure by completing lab activity with a partner.

3. Students will answer questions in writing about the properties of water and the results of their lab experiment.

LANGUAGE GOALS (outcomes/objectives) For EL Learners: What specific behaviors will the students demonstrate to show they have met the ELD standard(s)? (Outcomes must be observable and measurable.)

1. The students will participate in oral discussion, and will work in a group with other English Learners and Native speakers to write answers to lab activity questions. Teacher will also assist with the writing and speaking portions of the exercise and model academic content language.

STUDENT LEARNING GOALS (outcomes/objectives) for STUDENTS with IEPs: Describe how the Academic Learning Goals will be modified for students with IEPs (if necessary).

1.Students will work with sympathetic peers to create a low anxiety cooperative group exercise.

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| PART D: COMPONENTS OF THIS LESSON |
| Think about the sequence of this lesson. Describe your plans for instruction in the order in which they will be implemented. Under “Instructional Strategies,” explain what you will do to present the content to the students. What will you do/say? Under “Student Activities,” explain what the students will do during instruction. |

INTO-STUDENT ACTIVITIES: How will students be engaged during the introduction to the lesson? Consider grouping, pair work, guided practice, individual work, etc.

1. The teacher will prompt the students to write down the day’s agenda.

2. The teacher will ask students to take out homework to be checked off.

3. The teacher will have a student who missed the quiz due to illness will make up it.

THROUGH-INSTRUCTIONAL STRATEGIES:

1. List the steps of your lesson presentation.

4. The teacher will ask the students to clear their desks except for the homework.

5. The teacher will quickly check off typed lab report and ask students to return the assignment to the appropriate section of their binder.

6. The teacher will tell the students, “Today we are going to begin a unit about chemistry.”

7. The teacher will briefly explain the importance and breadth of chemistry in biology, then explain that the class will first focus on the most important molecule in biology, water.

8. The teacher will introduce a demonstration involving the addition of paperclips to a small container full of water.

9. The teacher will ask students to make a prediction about how many clips they think can be added before the water overflows. Then the teacher will ask the students to share their prediction with their “elbow partner.”

10. The teacher will ask a student to volunteer his prediction and form a hypothesis which we can test experimentally for the demonstration.

11. The teacher will add paperclips to the container until the water overflows.

12. The teacher will ask the students to guess why so many paperclips fit.

13. The teacher will ask the students to take out a piece of paper to take Cornell Notes.

14. The teacher will lead the class in a lecture about the properties of water, using projected slides to highlight each topic.

15. The teacher will ask the students to put away their notes in the appropriate section of their binders and will distribute the lab activity worksheet.

16. The teacher will explain the lab activity, assign lab groups and stations.

17. The teacher will circulate throughout the lab to offer help and check for understanding.

18. The teacher will call students back to ask students to share results from their lab and finish questions.

19. The teacher will distribute homework assignment to be collected on Wednesday.

B. What strategies will you use to check for understanding?

The teacher will ask diagnostic questions to assess background knowledge. The teacher will circulate throughout the lesson to check individual student’s participation in group activities and ask questions to assess understanding. Teacher will also check content of student worksheets to assess understanding.

Through-Student Activities: How will students be engaged during each part of the lesson? Consider grouping, pair work, guided practice, individual practice; application, etc.

1. The students will write down the day’s agenda.

2. The students will take out homework to be checked off (typed lab report).

3. A student who missed a quiz due to illness will make up it.

THROUGH-INSTRUCTIONAL STRATEGIES:

1. List the steps of your lesson presentation.

4. The students will clear their desks except for the homework.

5. The students will present typed lab report and return the assignment to the appropriate section of their binder.

6. The students will make a prediction about how many clips they think can be added before the water overflows. Then the students will share their prediction with their “elbow partner.”

7. The students will volunteer to share prediction and form a hypothesis which can be tested experimentally for the demonstration.

8. The students will watch the demonstration.

9. The students will guess why so many paperclips fit.

13. The students will take out a piece of paper to take Cornell Notes.

14. The students will take notes about the properties of water.

15. The students will put away their notes in the appropriate section of their binders and will collect the lab activity worksheet.

16. The students will listen to explanation of the lab activity, assignment of lab groups and stations.

17. The students will circulate throughout the lab to offer help and check for understanding.

18. The students will return to their seats and share results from their lab and complete questions.

19. The students will collect homework assignment to be turned in on Wednesday.

BEYOND-INSTRUCTIONAL STRATEGIES:

1. How will you close the lesson?

The teacher will ask students to share results from their lab and draw a conclusion based on their experimental results.

The teacher will distribute and explain a homework assignment.

B. Describe any informal/formal assessments used.

Students will be assessed through informal questioning and evaluation of their worksheets as the teacher circulates throughout the classroom.

BEYOND-STUDENT ACTIVITIES:

What are students expected to do before the next lesson or class? Describe homework, if any.

Students will finish any remaining questions from the lab activity and complete homework assignment, “Physical Properties of Water.”

MATERIALS/TECHNOLOGY/RESOURCES:

What materials (supplies, equipment, teaching aids) need to be prepared and available? How will you use aides/volunteers in this lesson, if available? What technology links are made in this lesson?

Demonstration will be prepared using container filled with water, paperclips, and overhead projector.

Pictures depicting properties of water have been collected and prepared on a flash drive to be displayed using computer and projector.

Lab activity has been prepared with pennies, water, eye droppers, soap, and worksheet with directions, data tables and questions.

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| PART E: ADAPTATIONS |

ENGLISH LANGUAGE LEARNERS: Explain how your lesson plan is adapted according to each of the following components of the SIOP model: Preparation, Building Background, Comprehensible Input/Strategies, Interaction, Practice/Application, Review/Assessment.

Pictures and academic vocabulary have been incorporated into the worksheets to make content comprehensible and develop academic English. Teacher will call on Redesignated ELP’s during review so that they may practice speaking the academic content. Teacher will model proper usage of academic content. During the cooperative group exercises, the teacher will check to ensure that the Redesignated ELP’s are able to participate in the discussion and will provide additional support if needed (rephrasing, modeling correct grammar, questioning).

STUDENTS with IEPS:

List the specific accommodations/adaptations that you have made for your students with IEPs. Explain how these accommodation/adaptations provide access to the Academic Content Standards.

Students will work with sympathetic peers to create a low anxiety cooperative group exercise. More active participation in cooperative group exercises will allow IEP students to activate higher cognitive functions and obtain more content.

Are there other students for whom you want to make adaptations? Explain these adaptations.

Adaptations aren’t necessary for these activities, though teacher will check frequently for understanding with those students. Students will also be paired with students who can provide additional support during group exercise.