

SIOP Lesson Plan Template: Science

Name: Group C

Grade/Class: Jackson Middle School 6t Grade Science

Date: November 14, 2012

Content Objectives (SOLs):

6.5 The student will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Key concepts include

- b) the properties of water in all three phases

Language Objectives (WIDA):

Listening

- Follow multi-step oral commands/instructions [phase change dances]
- Identify information on charts or tables based on oral statements [zip-lock activity]
- Identify everyday examples of content-based concepts described orally. [Discussed during PowerPoint]

Speaking

- Ask for clarification [Why did the water change color at different rates?]
- Communicate in social situations. [Zip-lock activity in groups]
- Repeat words, short phrases, and memorized chunks.

Reading

- Make predictions based on illustrated text. [PowerPoint]
- Match cause to effect.
- Use pre-taught vocabulary.

Writing

- Label pictures and graphs. [Self explanation and zip-lock activity]
- Produce high-frequency words.

Materials and Resources:

Hot Plate
Food Coloring Dye
Glue Sticks

Beaker
Zip Lock Bags
Paper

Water
Glue

Science Safety:

During the engagement, students will only observe the boiling of water from there seats. Students will not come in contact with the dyes or hot water. Teachers will role model good safety habits by wearing goggles.

Links to Student Experience and Learning:

The students will be able to relate to the evaporation and condensation of water. The students will also be able to relate to the properties of water.

Key Vocabulary:

Molecules
Evaporation

Solid
Condensation

Liquid
Melting

Gas
Freezing

SIOP Features (Check all that apply)

Preparation:

- Adaptation of content
- Links to background
- Links to past learning
- Strategies incorporated

Scaffolding:

- Modeling
- Guided practice
- Independent practice
- Comprehensible input

Group Options:

- Whole class
- Small groups
- Partners
- Independent

Integration of Process:

- Reading
- Writing
- Speaking
- Listening

Application:

- Hands-on
- Meaningful
- Linked to objectives
- Promotes engagement

Assessment:

- Individual
- Group
- Written
- Oral

Lesson Sequence (what teacher will do, what students will do, key concepts and process)

Engagement:

The teacher will engage the students by having three easily labeled beakers in front of the class. One beaker will be on hot plate with water, another with cold water, and the last one with ice cubes. The students will be asked what they think will happen when we add color dye to each beaker. Teachers will ask each other to demonstrate to the students what kind of response is expected. Next, the color dye will be added and the class will observe how quickly they each change color.

Exploration:

Students will be given some time to draw their own explanations for the differences in how the dye reacted with the different states of water.

Explanation:

The teachers will present in the form of a PowerPoint the different properties of water at the molecular level in all three states. The students will draw these three states

correctly on the opposite side of the sheet they used for their own explanations. The students will discuss how their drawings differ from the teachers.

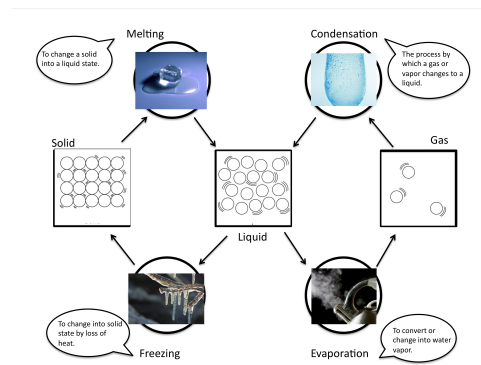
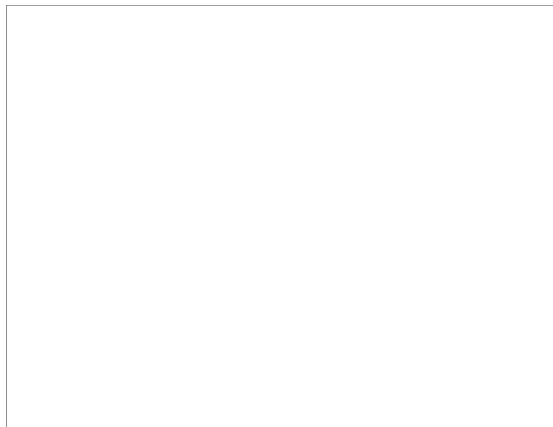
Elaboration:

The class will be divided into three different groups (solid, liquid, gas). The solid and group will dance really slowly. The liquid group will dance moderately. The gas group will dance extremely fast. We will introduce the terms evaporation, condensation, melting, and freezing. If a member of a group is chosen to experience one of these terms then they will have to switch to another group with the appropriate dance.

Evaluation:

The students will be evaluated in small group assessments (2-4 members). Each group will obtain a blank outline, zip-lock bag full of phase change clippings, and a glue stick. The groups will be expected to glue the clippings accurately on the outline [view Activity Sheet for Students].

Activity Sheet for Students:



Key:

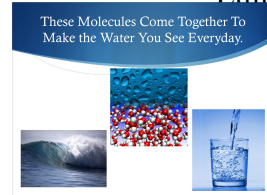
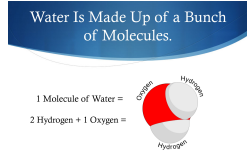
Presentation (video on last slide):

Emily Acken

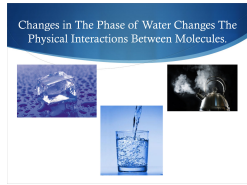
Mark Merrill

John Murray

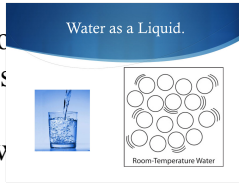
Debra Kellum



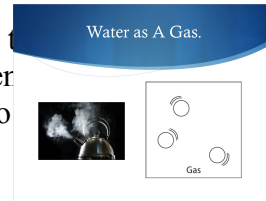
Lesson Plan



Students investigate the completion of the lesson in all the three phase transitions between

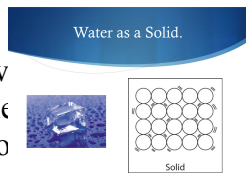


Students investigate and will be able to identify and will also be able to



SOL's:

6.5 The student will understand and its roles in the environment
b) The properties and characteristics of water



understand and its roles in the environment
all three



properties and characteristics of water concepts include

Materials:

Hot Plate
Food Coloring Dye
Glue Sticks

Beaker
Zip Lock Bags
Paper

Water
Glue

Safety / Accommodations:

During the engagement, students will only observe the boiling of water. Students will not come in contact with the dyes or hot water. On an as need basis, students with any physical disabilities preventing participation with the phase change dance will be able to participate through choosing a song for the class to dance to.

Procedure (1 day / 60 mins):

1. Engage (10mins): The teacher will engage the students by having three easily labeled beakers in front of the class. One beaker will be on hot plate with water, another with cold water, and the last one with ice cubes. The students will be asked what they think will happen when we add color dye to each beaker. Teachers will ask each other to demonstrate to the students what kind of response is expected. Next, the color dye will be added and the class will observe how quickly they each change color.
2. Explore (5mins): Students will be given some time to draw their own explanations for the differences in how the dye reacted with the different states of water.
3. Explanation (15mins): The teachers will present in the form of a PowerPoint the different properties of water at the molecular level in all three states. The students will draw these three states correctly on the opposite side of the sheet they used for their own explanations. The students will discuss how their drawings differ from the teachers.

4. Elaboration (20mins): The class will be divided into three different groups (solid, liquid, gas). The solid and group will dance really slowly. The liquid group will dance moderately. The gas group will dance extremely fast. We will introduce the terms evaporation, condensation, melting, and freezing. If a member of a group is chosen to experience one of these terms then they will have to switch to another group with the appropriate dance.

5. Evaluation (10mins): The students will be evaluated in small group assessments (2-4 members). Each group will obtain a blank outline, zip-lock bag full of phase change clippings, and a glue stick. The groups will be expected to glue the clippings accurately on the outline [view Activity Sheet for Students]. The teachers at this time will assist any students that need any clarification.

Zip Lock Assessment Rubric*		
Grade (%)	Criteria	Evidence
90-100	Students understand the three phases of water at the molecular level. Students accurately use key vocabulary and images for the phases and their transitions.	Complete zip-lock activity accurately.
80-89	Students understand the three phases of water at the molecular level. Students use key vocabulary and images for the phases and their transitions.	Complete zip-lock activity with minor errors.
70-79	Students understand the three phases of water at the molecular level. Students inaccurately use key vocabulary and images for the phases and their transitions.	Complete zip-lock activity many errors.
60-69	Students do not understand the three phases of water at the molecular level. Students inaccurately use key vocabulary and images for the phases and their transitions.	Complete zip-lock activity.
<59	N/A	Incomplete Assignment

* *Completing the zip-lock activity shows the students are using the English language appropriately and have an understanding on the phase changes vocabulary.*

Reflection

The National Science Teacher Association assessment 6B on curriculum states that a teacher must be able to plan and implement internally consistent units of study that address the diverse needs and abilities of students. This assessment was met through the teaching of water and phases changes at Jackson Middle School in Roanoke, VA. It took three major steps to accomplish assessment 6B: observing, planning, and then finally teaching. During the entire process, we worked cooperatively with an ESL student teacher.

Our initial observation at Jackson Middle School was intended to help us see what diverse needs and abilities needed to be addressed to make a successful lesson plan. The classes observed were one 6th grade science class and one ESL only class. In the science class, it was observed that many of the ESL students were easily distracted and naturally drawn toward other ESL students. Also, it was noticeable that a too loud and chaotic classroom setting didn't help the students stay on task. Next an ESL only class of about 6 students was observed. This class was much more structured, organized, and had cooperation from all students. The interactive teaching, the many images and manipulatives, and the lack of distractions by other students allowed for this cooperation to occur. It seemed like almost night and day between the two classes observed.

Using the observations at Jackson Middle School and subject of water phase changes, a lesson plan was brainstormed up. From our observations we knew we wanted our students to have an interactive lesson that included many manipulatives. However, we needed to make sure our lesson was structured enough to keep everyone on task. Some of the manipulatives we used in our lessons were images, in-person examples, and analogies. To get the students to be interactive we created an activity to get all the students moving around like water molecules. Lastly, we ended with an activity sheet that required all the students to work in pairs. This activity sheet would allow for ESL students to interact with native English speakers if possible. Once the lesson plan was developed, last minute fine-tuning was done to assure all the WIDA standards were met.

Finally on November 14, our lesson plan was put to the test with a small class of 5 students at Jackson Middle School. The class appeared to be a more advanced ESL class for the students' English were clear and their writing skills were good. The smaller more advanced class allowed the lesson to go by smoothly. Only a very few minor accommodations had to be made during the lesson. One accommodation was during the interactive activity where an observer had to join in to make equal size groups. The other accommodation occurred during the activity sheet where we paired up partners so a more advanced student and lower level student had the opportunity to work together. Overall, the teaching experience was a success.

In the end, Assessment 6B was accomplished by our ESL lesson. We met this assessment by using our observations to formulate an appropriate lesson to meet the needs of a diverse classroom. We further more met the assessment by tweaking the lesson as we taught. During the lesson, we made sure all the students were participating and gaining more knowledge of water and its phase changes. None of this could of successfully happened if it wasn't for the assistance of our ESL student teacher. Working cooperatively with another teacher allowed for another perspective when making up the lesson plan. This experience will no doubt continue to influence my teaching in diverse classrooms throughout my career.