Lesson Title	Studying with Chemical Compounds
Length of Lesson	30 minutes
Created By	Lucas Pounders
Subject	Physical Science
Grade Level	9^{th} - 12^{th}
State Standards	1, 4b, 5a
DOK Level	1, 2
DOK Application	Classify, Organize
National Standards	Physical Science 9-12 Science as Inquiry
Graduate Research Element	Soil Moisture Retention

Student Learning Goal:
This lesson is designed to help students to understand the parts of naming and classifying chemical compounds, balancing equations and knowing the differences between chemical bonds. Another goal of this lesson is to provide the students with another organization tool for studying topics that will be on upcoming tests.

State Standards

1. Draw conclusions from scientific investigations including controlled experiments.
    a. Design, conduct, and analyze conclusions from an investigation that includes using experimental controls.
4. Develop an understanding of the atom.
    b. Explain the difference between chemical and physical changes and demonstrate how these changes can be used to separate mixtures and compounds into their components.
5. Investigate and apply principles of physical and chemical changes in matter.
    a. Write chemical formulas for compounds comprising monatomic and polyatomic ions.

National Standards
LEVELS 9-12

Abilities necessary to do scientific inquiry

Understanding about scientific inquiry

Materials Needed (supplies, hand-outs, resources):
Powerpoint presentation on how to make a foldable study sheet and chemical bonding
Construction or copy paper
Stapler and Staples

Pen or Pencil

Lesson Performance Task/Assessment:
Start the lesson by telling the students that they will be doing a small arts and crafts lesson today along with their usual lecture. Students will then receive pieces of construction paper to make into the foldable study sheets that they are to all fill out during the class period. After the study sheets have been assembled according to the directions in the PowerPoint they will then have to fill them in as they follow along with the lecture. Students are to write the topic on the outside flap of one of the sheets and, in their own words write an explanation of the topic on the interior of the flap. The students are not to copy an established explanation of the topic but develop their own understanding of the material. It may also be good to have the students come up with some sort of memory cue that they can remember. This cue does not have to make sense to anyone but them. After filling out the flaps on the foldable study sheet the students can then use the study sheets to go through a review with the teacher on the blackboard. Give the students an example of chemical compound from the PowerPoint and have them name the compound, balance the compound and write the type of bond. The students should be able to complete these simple tasks with no problem.

Lesson Relevance to Performance Task and Students:
At a later date the students are to be tested on chemical compounds and naming chemical compounds. Also the students can apply this method of foldable study sheets to most all classes as an aid to help them study the information that they need to know for testing purposes.

Anticipatory Set/Capture Interest:
In order to capture the interest of the students, you can include different color paper with the foldable study sheets activity. This lesson incorporates studying a topic with an activity that is fun for the students.

Guided Practice:
After the PowerPoint presentation there will be a guided practice with chemical compounds from the PowerPoint. You may or may not allow the students use their foldable study sheets in this part of the lesson.

Independent Practice:
Students can use the foldable study sheets in their independent study for exams and quizzes as needed.

Remediation and/or Enrichment:
Follow student IEP. The foldable study sheets can be used for activity enrichment at any later date by having them add to them as the semester continues.

Check(s) for Understanding:
The checks for understanding will come from the balancing chemical equation part of the PowerPoint. If a student cannot complete the three parts of balancing, naming the compound and naming the bond they most likely do not understand.

Closure:
Closure comes in the form of class discussion where the students are to ask questions that they have about the activities and the topic of chemical compounds.

Possible Alternate Subject Integrations:
General Science, Botany, Ecology, A&P, Mathematics, Botany, Zoology, Etc.

Teacher Notes:
Always be sure to know the material that you are presenting and make a dry run through your lectures before trying to attempt them in class. Do not be afraid to substitute and alter the lesson as needed.