Subject/Grade: **Science 10** **Lesson Title:** **Balancing Equations** **Teacher: Mr.Zanidean**

Stage 1: Identify Desired Results

Established Goals: (Learning outcome/s & indicator/s from curriculum)

SCI10-CR3 Represent chemical reactions and conservation of mass symbolically using models, word and skeleton equations and Balanced Equations

(f) Differentiate between the subscripts and coefficients in representing the number of atoms and molecules present in chemical reactions.

(h) Verify whether a chemical equation is correctly balanced, and correct any errors.

Understandings: (can also be written as 'I Can' statements) U

Students will understand…
chemical equations
subscripts
Coefficiants

Essential Questions:
How do we balance atoms?
How do we balance charges?
How is this useful for chemical reactions?

Students will know… K
Periodic Table
Elements and Compounds

Students will be able to… D
Verify chemical equations
Differentiate subscripts and coefficients

Stage 2: Determine Evidence for Assessing Learning

I will use a handout with a few questions varying in difficulty that I will get each student to try and solve in groups or individually to hand in at the end of class. Since this is a new topic for them, it will allow me to look in 5th period to see how many of them have actually grasped the concept. I will also roama round the class as they work to see if they are using the counters I give them in assisting them to count.

Stage 3: Build Learning Plan

Instructional Strategies:

-I do We do You do
-Counters

Set (Engagement): Introduction **Length of Time:** 15 min I will have the word water drawn on the board and ask students to give me examples about how we can describe water in a scientific sense. I am gauging to see how they would describe it. If none of the students have mentioned it, I will show H2O as well as draw the molecule. I will then ask how we form water. I will then write out the unbalanced chemical equation of water. **Development: How to interpret Chemical Equations Time: 30 min** I will now engage the students in how to read a chemical equation step by step. First, how we can tell which side are the products, and which side are the reactants.We then look at how we use the addition sign. Once these have been established, I will try to get the students to assist in balancing the equation. This is where we will try to decipher the difference between subscripts and coefficients for molecules. I will then provide a few more examples that I will work through with the class. I will then distribute the skittles and a plate to each student. I will then do a few more examples showing how to use the skittles as counters **Closure: Worksheet Time: 20 min** I will then hand out the worksheet and ask students to solve the questions on the worksheet and hand it in at the end of class. I will walk around and assist students in balancing these equations and see if they use the counters to assist in it at all.	**Materials/Resources:** **Handout** **Pencil** **Skittles** **Plate** **Possible Adaptations/ Differentiation:** **-Use something other than skittles to count** **-spend more time talking about balancing equations** **Management Strategies:** **Ask students who seem to be disengaging for some input.** **Safety Considerations:** **-Skittles could be a choking hazard, ensure students don't eat them before end of lesson.**

Stage 4: Reflection

Professional Development Goal is…

My goal is to call students by their name to ensure to and bring their attention back in and also get more diverse answers. I don't want to rely on a handful of students to give input. I will have my paper with me at the front.