Photosynthesis

Grade: 7th-8th	**Subject:** Science
Materials: homework worksheet, textbook, lab materials	**Technology Needed:** PowerPoint system, computer, projector
Instructional Strategies: *Direct instruction *Guided practice *Learning Centers *Lecture *Technology integration * Peer teaching/collaboration/ cooperative learning *Visuals/Graphic organizers *Discussion/Debate	**Guided Practices and Concrete Application:** *Large group activity *Independent activity *Pairing/collaboration *Simulations/Scenarios *Hands-on *Technology integration
Standard(s) Standard 4: Students understand the basic concepts and principles of life science.	**Differentiation** **Below Proficiency:** If a student identifies as below proficiency I would put them into groups or with a partner to aid them. **Above Proficiency:** If a student identifies as above proficiency I would have them look further into the topic by researching on the computer the functions of different cell types. **Approaching/Emerging Proficiency:** If students are emerging proficiency they should be able to complete and understand the homework. **Modalities/Learning Preferences:** I encourage students to move around the classroom, interact with students, and ask questions.
Objective(s) 7.4.1 Explain the functions of the cell (e.g., growth, metabolism, reproduction, photosynthesis, response) 9-10.4.12. Compare and contrast photosynthesis and cellular respiration **Bloom's Taxonomy Cognitive Level:** Application, Analysis	
Classroom Management- (grouping(s), movement/transitions, etc.) During the lecture students will be arranged in tables with 3 to 4 students. It's the students' responsibility to take notes during the lecture and participate in group activities. I will create a positive environment by engaging the students in an activity. I will provide instruction for moving around the room during transition times.	**Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)** I expect students to sit through the lecture and ask questions as we go through the content. I will regain students' attention and assign homework for the evening.

Minutes	Procedures
30	**Set-up/Prep:** Create PowerPoint notes/group activity/worksheet. Set up PowerPoint before class. Print worksheets.
5	**Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)** I will start class by accessing students' prior knowledge to photosynthesis. I will ask questions regarding cellular movement and the components of cellular respiration and photosynthesis. I will start the lesson by showing an interesting video of photosynthesis from YouTube to engage the student. https://youtu.be/yHVhM-pLRXk
20	**Explain: (concepts, procedures, vocabulary, etc.)** The main concepts and components of photosynthesis and cellular respiration will be explained. I will use the PowerPoint lecture to guide and build on the cell. I will break down the steps of each process, so students are able to grasp the information. The important terms will be discussed deeply and relevant to students' prior knowledge. I will ask questions to promote student engagement and provide real world examples to help students connect with the content. I will make sure to explain all the pictures.
20	**Explore: (independent, concreate practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)** After the lesson is taught I will ask student to research components that increase and decrease the effect of photosynthesis. After they have a stronger understanding I will ask the students to diagram the process of

	photosynthesis and cellular respiration. They need to include major components listed in the notes and label important structures.
5	**Review (wrap up and transition to next activity):** I will ask students if they have any remaining questions and have them clean up/pack up for their next class.

Formative Assessment: (linked to objectives) **Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.** What do you need for photosynthesis to start? Where does cellular respiration take place? **Consideration for Back-up Plan:** I have prepared an additional worksheet for the students. I also have created vocabulary games to help study for the test.	**Summative Assessment (linked back to objectives)** **End of lesson:** As you can see Photosynthesis produces oxygen and glucose, and cellular respiration produces CO2 and water. Without those components these processes could not take place. **If applicable- overall unit, chapter, concept, etc.:** NA
Reflection (What went well? What did the students learn? How do you know? What changes would you make?): To be reflected after lesson is taught.	

Assessment: Students will label and draw a diagram showing the important components and structures needed for photosynthesis and cellular respiration to take place. They must include the chemical formulas and important plant structures in additions to the mitochondria associated with cellular respiration.