DNA Replication Lesson Plan

1. Benchmarks:
    a. B4.2.c. Describe the structure and function of DNA.
    b. B4.2.g. Describe the processes of replication, transcription, and translation and how they relate to each other in molecular biology.
2. Behavior Objective:
    a. Given a DNA sequence, the student will replicate DNA.
    b. Given a DNA sequence, the student will explain DNA replication with greater than 80% accuracy.
3. Anticipatory Set:
    a. The student will draw the DNA structure and label its components. The students will also answer the following question: Why is DNA important? The students will reflect in their journals.
4. Objective/Purpose:
    a. "Today, we will discuss and learn the process DNA replication. We will learn how replication is achieved in eukaryotes, the roles of the molecules involved into DNA replication and why DNA replication is necessary for life to exist on earth. This is important in order for cells to duplicate and makes copies of its DNA before entering into mitosis and meiosis."
5. Input:
    a. Task Analysis:
        i. The teacher will review the agenda for the day.
        ii. The students will work on their warm-up and answer the question of the day. The students will write in their journals until the class is ready to review the warm-up session.
        iii. The teacher will introduce DNA replication and present the Prezi presentation.
            1. The students will take notes from the presentation about DNA Replication.
            2. The teacher will incorporate DNA replication videos and animations into the Prezi.
            3. The students will have opportunities of Think, pair share within the lecture to discuss with their peers before class discussions.
        iv. The students will work on the "DNA Replication" worksheet with their partners.
        v. The students will take turns playing a "DNA replication" game on the I-pads.
    b. Thinking Levels:
        i. Knowledge: define DNA replication.
        ii. Comprehension: explain the process of DNA replication
        iii. Application: demonstrate their understanding of the DNA replication to their neighbors
        iv. Analysis- Differentiate the roles of the molecules need for DNA replication.
        v. Synthesis: create DNA strands and use DNA replication to make a new DNA strand.

vi. Evaluation: justify why DNA replication is necessary for life.

c. Learning Styles:
    i. Auditory- Students will listen to the teacher's instruction about DNA replication as well as listen to their peers as they work and discuss the "DNA Replication" worksheet.
    ii. Interpersonal- Students have a choice to work independently on the "DNA Replication" worksheet.
    iii. Intrapersonal- Students have a choice to work independently on the "DNA Replication" worksheet.
    iv. Naturalistic: Students will learn the natural phenomena of the DNA replication and its role in nature.
    v. Visual- The students will watch the various DNA animations and DNA replication videos, which are incorporated into the notes.
d. Methods and Materials:
    i. Ways of Presenting- small groups, discussions, document camera, projector, and Youtube Videos/animations
    ii. Materials needed: "DNA Replication" worksheet, Elmo and white board

6. Modeling:
    a. The teacher will explain process of DNA replication and the role of the molecules involved in DNA Replication.
7. Check for Understanding:
    a. The teacher will ask students to use hand signals throughout the lecture.
    b. The teacher will ask some of the following open ended questions during notes and within the small groups:
        i. How can you explain the process of DNA replication?
        ii. What natural phenomena are modeled by DNA replication?
        iii. Where do we use DNA replication?
            1. Are there any particular examples? If so, what are they?
        iv. Why is DNA replication important in nature?
        v. What are the roles of the molecules involved in DNA replication?
        vi. How does the DNA structure affect DNA replication?
        vii. How do mutations occur in DNA replication?
            1. What causes mutations?
        viii. Why is DNA replication important for mitosis and meiosis?
    c. The students will work on the "DNA Replication" worksheet.
    d. Teacher will circulate to help with difficulties.
8. Independent Practice:
    a. The students will work on the "DNA Replication" worksheet by themselves or within their learning groups. The students will complete the homework and turn in the worksheet before the next class begin.
9. Closure:
    a. The students will create two test questions. The students need to turn in the questions with the answers before they leave.
    b. Announce there will be a quiz on Wednesday.