Lesson: DNA	Name:
Teacher:	Date:

Deoxyribonucleic Acid (DNA) Lesson Plan

Duration: 2–3 class periods (40–50 minutes each)
NGSS Alignment:

- **MS-LS3-1:** Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.
  Science and Engineering Practices: Developing and Using Models
  Crosscutting Concept: Structure and Function

Lesson Objective

Students will:

1. Explain the structure and function of DNA.
2. Identify the nitrogen bases and base pairing rules (A–T, C–G).
3. Build a 3D model of DNA demonstrating the double helix structure.
4. Demonstrate understanding of DNA concepts through a quiz.

Materials

- Plastic straws (4 different colors)
- 2 thin cardboard strips (10 in × 1 in)
- Pencil
- Plastic cup
- Folder (rolled to fit pencil)
- Tape, glue stick, glue gun, scissors
- Markers or labels
- DNA quiz handout
- PPT slides and DNA video

Lesson Procedure

Day 1 – Introduction & Direct Instruction (40 min)

1. **Bell Work (5 min):** Ask students what they know about DNA and its function in cells.
2. **PPT & Discussion (15 min):** Show key slides on DNA structure, base pairs, and double helix. Facilitate discussion.
3. **Video (10 min):** Play a short educational video about DNA structure and function.
4. **Guided Notes & Diagram (10 min):** Students fill in a labeled DNA diagram and key vocabulary.

Day 2 – DNA Model Project (50 min)

1. **Introduction (5 min):** Explain the 3D DNA model project and the materials.
2. **Project Activity (30 min):**
    - Cut straws to represent nitrogen bases.
    - Connect base pairs with tape using correct A–T, C–G pairing.
    - Roll folder to fit pencil and glue base pairs in a spiral (double helix).
    - Attach pencil to cup for spinning model and label all parts.
3. **Wrap-Up & Clean-Up (15 min):**
    - Students clean up materials and workstations.
    - Share and discuss models with classmates.

Day 3 – Assessment (40 min)

1. **Quiz (20 min):** Students take the DNA quiz to assess understanding of DNA structure, base pairing, and function.
2. **Reflection & Discussion (10 min):** Students reflect on the project and quiz results.
3. **Project Review (10 min):** Display models and provide peer feedback on accuracy and creativity.

Differentiation & Supports

- **ELL/ESL:** Use visuals, color-coded base pairs, and a vocabulary list.
- **ESE/504:** Extra time, guided templates, verbal explanations.
- **Advanced:** Encourage research on DNA applications (forensics, genetics, medicine).

Assessment

- Observation of **DNA model project** for accuracy of base pairing and double helix construction.
- Completion of **quiz** to check understanding of DNA structure, base pairing, and function.
- Participation in class discussions, reflections, and clean-up responsibility.