

Molecular Genetics & DNA Unit

- ✓ **Multi-format Activities:** Labs, scavenger hunts, readings, project, and assessments.
- ✓ **Student-Centered Learning:** Hands-on tasks, research, diagrams, videos, and comprehension questions.
- ✓ **Fully Editable, Digital & Printable**



Bundle Includes

Genetic Material - DNA and RNA

- Structure of Nucleotides
- Functions of Nucleic Acids
- Humans vs. Chimps
- DNA vs. RNA
- Nitrogenous bases
- DNA Facts
- Genes
- DNA Hierarchy



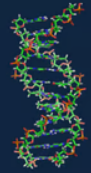
Device-Based Scavenger Hunt Genetic Material



- Includes
- 5 Unique Locations
 - Online form submission
 - Answer Key

Works on all smartphones, tablets, Chromebooks, and laptops

- 100% Digital
- Simulations
- Quizzes
- Videos
- Games
- Word Scramble
- and more



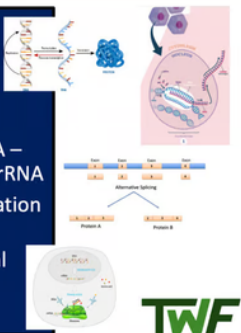
DNA, Genes, Chromosomes, and Alleles

1. Mendel
2. Laws of Inheritance
3. DNA
4. Genes
5. Chromosomes
6. Alleles



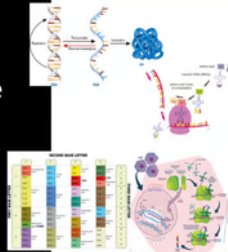
Protein Synthesis - Transcription

- One gene – one polypeptide
- Transcription
- DNA vs. RNA
- Three types of RNA – mRNA, tRNA, and rRNA
- Initiation → Elongation → Termination
- Post transcriptional Modifications



Protein Synthesis - Translation

- Transcription Review
- Codons and the Genetic Code
- Amino Acids
- Ribosomes
- tRNA
- Start and Stop Codons



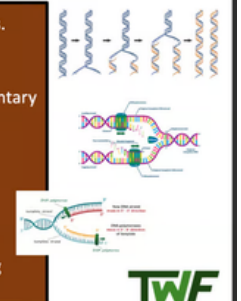
Transcription and Translation Lab Station Activity



7 Lab Station Activities to get your kids out of their seats and engaged in their learning

DNA Replication and Repair

- Semiconservative vs. Conservative
- Strand Separation
- Building Complementary Strands
- Correcting Errors
- DNA Polymerase, Helicase and RNA Primase
- Okazaki Fragments
- Leading and Lagging Strands



DNA and DNA Replication - High School Crossword Puzzle

- 15 - Term Crossword
- Includes 2 Versions
 - Version 1 - No Word Bank
 - Version 2 - Includes a Word Bank



DNA Paternity Tests Scientific Reading Comprehension Article and Extension Activity



Improve your students' Literacy and Analysis Skills, use as an Emergency Substitute Plan, or create Applicability in your classroom

Genetic Engineering and Gene Therapy

- What Genetic Engineering is
- Case Study – Insulin Production
- CRISPR Technology
- Biopharming
- Transgenic Organisms
- Viruses and Gene Therapy
- Creating Vaccines using Viral Vectors
- Cloning



Teaching Timeline and Resources Outlined and Explained

Molecular Genetics & DNA Unit – Teaching Timeline

Day	Resource (Exact TPT Title)	Focus in the Unit
1	Genetic Material: DNA and RNA – Google Slides and Distance Learning Ready	Introduce DNA vs. RNA — structure, nucleotides, base pairing, and differences.
2	Genetic Material: DNA and RNA – A Digital Scavenger Hunt Activity	Reinforce the DNA/RNA basics interactively with videos, quizzes, simulations and puzzles.
3	DNA, Genes, Chromosomes and Alleles – A Genetics Introduction Lesson	Build on the foundation: structure of DNA, relationship to genes and chromosomes.
4	Transcription – Protein Synthesis Lesson	Describes DNA and RNA and explain how the DNA code is transcribed into RNA which will be translated into proteins during translation.
5	Translation – Protein Synthesis Lesson	Explains how RNA is translated into proteins.
6	Transcription and Translation – Protein Synthesis 7 Lab Station Activities	Hands-on station rotations to practice transcription and translation steps.
7	DNA Replication and Repair – Google Slides and Distance Learning Ready	Cover how DNA is duplicated before cell division, enzyme roles and error correction.
8	DNA and DNA Replication Crossword Puzzle Activity	Vocabulary reinforcement and review via crossword on DNA structure and replication.
9	DNA Paternity Tests – Science Reading Article	Students apply knowledge of DNA markers, inheritance patterns and real-world genetic testing in a literacy-based activity.
10	Genetic Engineering and Biotechnology Lesson	Present applications like CRISPR, cloning, GMOs, and discuss ethical implications.
11-14	Genetic Technology Presentation Project	Assessment to check student understanding of genetics and genetic technologies.

Assessment:

- Lesson practice questions and scavenger hunt quizzes check DNA/RNA basics
- Lab station passports confirm understanding of transcription & translation
- Crossword reviews vocabulary for replication
- Reading includes comprehension questions for formative assessment
- **Genetic Technology Project** provides a summative evaluation of the unit

Customization: All resources are **editable**. Teachers can:

- Simplify or expand replication vocabulary depending on grade level
- Add STR allele data to the CSI project for honors/AP students
- Differentiate between a debate or paper format for the genetic technology project
- Adapt scavenger hunts and station activities for remote learning



Who is this Bundle for?

- **Science teachers who want multiple resources at their fingertips including lessons and a variety of activities, in order to engage their students.**
- **Teachers who don't have time to develop their own resources or organize what to teach and when.**