7TH GRADE BIOLOGY • 1ST TERM EVALUATION

Mission: The Genome Secret Code

Interactive decoding activity & conceptual challenge on DNA fundamentals and the Human Genome Project.

STUDENT NAME	TARGET GRADE	TOPIC SECTION	TOTAL SCORE
[Student Name]	Grade 7 (Age 13)	Genetics & HGP	___ / 100 Points

Mission Briefing: DNA is the chemical alphabet of living organisms. Complete the 3 operational missions below to unlock the secrets mapped by the international scientific team in April 2003.

Mission 1: The Chemical Alphabet & Base Pairing (20 Pts)

Rule: In DNA molecules, **Adenine (A)** always pairs with **Thymine (T)**, and **Cytosine (C)** always pairs with **Guanine (G)**.

A	T	C	G
Adenine	**Thymine**	**Cytosine**	**Guanine**
Pairs with Thymine (T)	Pairs with Adenine (A)	Pairs with Guanine (G)	Pairs with Cytosine (C)

Decode the Complementary DNA Strand below:

A	T	G	C	A	A	C	T	G	T
[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]	[?]

Mission 2: Conceptual Decoder (40 Pts)

1. What constitutes the biological definition of a "Genome"? 20 Pts

- ☐ Only the coding genes inside cell ribosomes
- ☐ Complete set of genetic info (nuclear + mitochondrial DNA)
- ☐ The proteins modified inside the Golgi apparatus

2. Sequence Length: How many chemical base pairs make up the human genome? 20 Pts

- ☐ Approximately 3 million pairs
- ☐ Roughly 3 billion base pairs
- ☐ Exactly 46 base pairs

Mission 3: Project Milestones & Diversity Code (40 Pts)

3. Genetic Similarity: Why are all humans so closely related biologically? 20 Pts

Complete: The genome of any two humans is roughly _____ % identical, leaving only _____ % for variations.

4. Scientific Timeline: The Human Genome Project (HGP) 20 Pts

Complete: The international project was launched in year _____ and completed in _____ of year _____.

LIVEWORKSHEETS