**DNA Replication, Transcription, Translation & DNA Digital Storage**

**DNA Replication, Transcription, Translation (Revision)**

* Replication → DNA copying.
* Transcription → DNA → RNA.
* Translation → RNA → Protein.
* Role of enzymes (DNA polymerase, RNA polymerase, ribosome).

**DNA Digital Data Storage**

* Concept: DNA as an **archival storage medium**.
* Encode binary data into DNA nucleotides.
* Advantages: density, durability.
* Real-world projects: Microsoft & University of Washington storing digital files in DNA.

Analogy: DNA = natural hard drive.

**🧪 Lab/Activity**

* Classroom demo (thought experiment): Encode “HELLO” into DNA (ASCII → binary → A/T/G/C).
* Example: “H” (binary 01001000) → DNA bases.

Activity: Try encoding their initials into DNA bases.

**Quick Review**

1. How is transcription different from translation?
2. Why is DNA considered a good medium for long-term data storage?