

DNA & RNA: Chapter 12, 13 & 14 Test: What to know

Biology - Landis

What's covered: Chapter 12-1 → 12-4, 13-1, 13-4, 14-3

- Structure of DNA
 - Components
 - Nucleotides
 - Bases and base-pair bonding rules
 - Chargaff's rule and base-pairing
 - Pyrimidines & purines
 - Geometric shape of DNA molecule
- Process of DNA replication
- Location of DNA in prokaryotes & in eukaryotes
- RNA – structure
 - Differences between RNA and DNA
 - 3 different types of RNA and their functions
- “Central dogma” – DNA makes RNA makes protein
 - Process of transcription – location, how it happens, what molecule is produced?
 - Process of translation
 - Location
 - What molecules are involved
 - What is produced (what is a polypeptide?)
 - Genetic code – codons, anti-codons, how to read the Genetic Code wheel
- Mutations
 - Definition
 - Point mutations – deletions, insertions, substitutions
 - Frameshift mutations – which kind of mutations are frameshift mutations, what are the results of a frameshift mutation compared with the results of a non-frameshift mutation?
 - Chromosomal mutations – deletion, duplication, inversion, translocation
- Changing the living world
 - Selective breeding, hybridization, inbreeding, increasing variation
- Genetic engineering
 - Definition
 - Transgenic organisms
 - Recombinant DNA - definition
 - How they're made,
 - Advantages of transgenic plants
 - Cloning – how it's done, results of cloning
 - Gene therapy - purpose