Nucleic acids and protein synthesis

A-Level Biology · Vocabulary in context

Word	Example
nucleic acid /njuːˈklɪɪk ˈæsɪd/	DNA and RNA are both a **nucleic acid**. DNA RNA
nucleotide /ˈnjuːklɪɒtaɪd/	A **nucleotide** is made of a sugar, a phosphate and a base. 、
phosphate /ˈfɒsfeɪt/	**Phosphate** groups occur in ATP, nucleic acids and phospholipids. ATP、
base /beɪs/	The order of each **base** along DNA carries the genetic code. DNA
adenine /ˈædəniːn/	In DNA, **adenine** always pairs with thymine. DNA
ribose /ˈrɪbəʊs/	RNA contains the sugar **ribose**. RNA
energy /ˈenədʒi/	Food gives your body the **energy** it needs to move.
purine /ˈpjʊəriːn/	Adenine and guanine are each a **purine**: a base with two rings.
guanine /ˈgwɑːnaɪn/	**Guanine** always pairs with cytosine.
pyrimidine /ˈpɪrɪmɪdiːn/	Cytosine, thymine and uracil are each a **pyrimidine**: a base with one ring. 、
cytosine /ˈsaɪtəsaɪn/	**Cytosine** always pairs with guanine.
thymine /ˈθaɪmaɪn/	**Thymine** is found in DNA but not in RNA. DNA RNA
uracil /ˈjʊərəsɪl/	In RNA, **uracil** takes the place of thymine. RNA

exercises.lol exercises.com.cn

Word	Example
double helix /ˈdʌbl ˈhiːlɪks/	DNA is shaped like a **double helix**: a twisted ladder. DNA
strand /strænd/	DNA has two of them, but RNA has only one **strand**. DNA RNA
deoxyribose /diːˈɒksɪrɪbəʊs/	DNA contains the sugar **deoxyribose**. DNA
phosphodiester bond /ˈfɒsfəʊdɪstə bɒnd/	A **phosphodiester bond** joins one nucleotide to the next along a strand.
complementary base pairing /ˌkɒmplɪˈmentəri beɪs ˈpeərɪŋ/	Because of **complementary base pairing**, A always pairs with T and C with G. A T C G
hydrogen bond /ˈhaɪdrədʒn bɒnd/	A **hydrogen bond** is a weak pull between molecules, such as between water molecules.
base pair /beɪs peə/	Each **base pair** is held together by hydrogen bonds.
antiparallel /ˌæntɪˈpærəlel/	The two DNA strands are **antiparallel**: they run in opposite directions. DNA
replication /ˌreplɪˈkeɪʃn/	DNA **replication** happens before the cell divides. DNA
semi-conservative replication /ˈsemi kənˈsɜːvətɪv ˌreplɪˈkeɪʃn/	In **semi-conservative replication**, each new DNA molecule keeps one old strand. DNA
enzyme /ˈenzaɪm/	The **enzyme** speeds up the reaction.
polymerase /ˌpɒlɪməˈreɪz/	DNA **polymerase** joins new nucleotides to make a new strand. DNA
leading strand /ˈliːdɪŋ strænd/	The **leading strand** is copied in one long piece.

exercises.lol exercises.com.cn

Word	Example
lagging strand /ˈlægɪŋ strænd/	The **lagging strand** is copied in short pieces that are joined later.
ligase /ˈlɪgeɪs/	**Ligase** joins pieces of DNA together. DNA
helicase /ˈhelɪkeɪs/	The enzyme **helicase** unwinds the helix and breaks the hydrogen bonds between the bases.
gene /dʒiːn/	A **gene** is a piece of DNA that codes for one protein. DNA
polypeptide /ˌpɒlɪˈpeptaɪd/	A **polypeptide** is a long chain of amino acids.
triplet /ˈtrɪplɪt/	Each **triplet** of three bases codes for one amino acid.
amino acid /əˈmiːnəʊ ˈæsɪd/	Glycine is the simplest **amino acid**.
transcription /trænˈskrɪpʃn/	In **transcription**, the DNA code is copied into RNA. DNA RNA
template strand /ˈtempleɪt strænd/	RNA is built using the **template strand** as a guide. RNA
non-transcribed strand /nɒn trænˈskraɪbd strænd/	The **non-transcribed strand** has the same base order as the mRNA, but with T instead of U. mRNA T U
primary transcript /ˈpraɪmərɪ ˈtrænskrɪpt/	The **primary transcript** still contains introns, which are cut out later.
exon /eg'zɒn/	An **exon** is a part of the gene that stays in the final mRNA. mRNA
intron /ɪnˈtrɒn/	An **intron** is cut out of the mRNA before it leaves the nucleus. mRNA

exercises.lol exercises.com.cn

Word	Example
ribosome /ˈriːbəʊsəʊm/	The **ribosome** builds the protein.
translation /trænˈsleɪʃn/	In **translation**, the ribosome reads the RNA and builds a protein.
codon /ˈkəʊdɒn/	The **codon** AUG codes for the amino acid methionine.
anticodon /ˌæntɪˈkəʊdɒn/	The **anticodon** on a tRNA matches a codon on the mRNA.
peptide bond /ˈpeptaɪd bɒnd/	A **peptide bond** joins two amino acids.
mutation /mjuːˈteɪʃn/	A **mutation** is a change in the DNA.
substitution /ˌsʌbstɪˈtjuːʃn/	In a **substitution**, one base is replaced by another.
deletion /dɪˈliːʃn/	A **deletion** of one base changes every codon after it.
insertion /ɪnˈsɜːʃn/	An **insertion** adds an extra base into the DNA.
degenerate /dɪˈdʒenəreɪt/	The genetic code is **degenerate**: several codons can code for the same amino acid.

exercises.lol exercises.com.cn