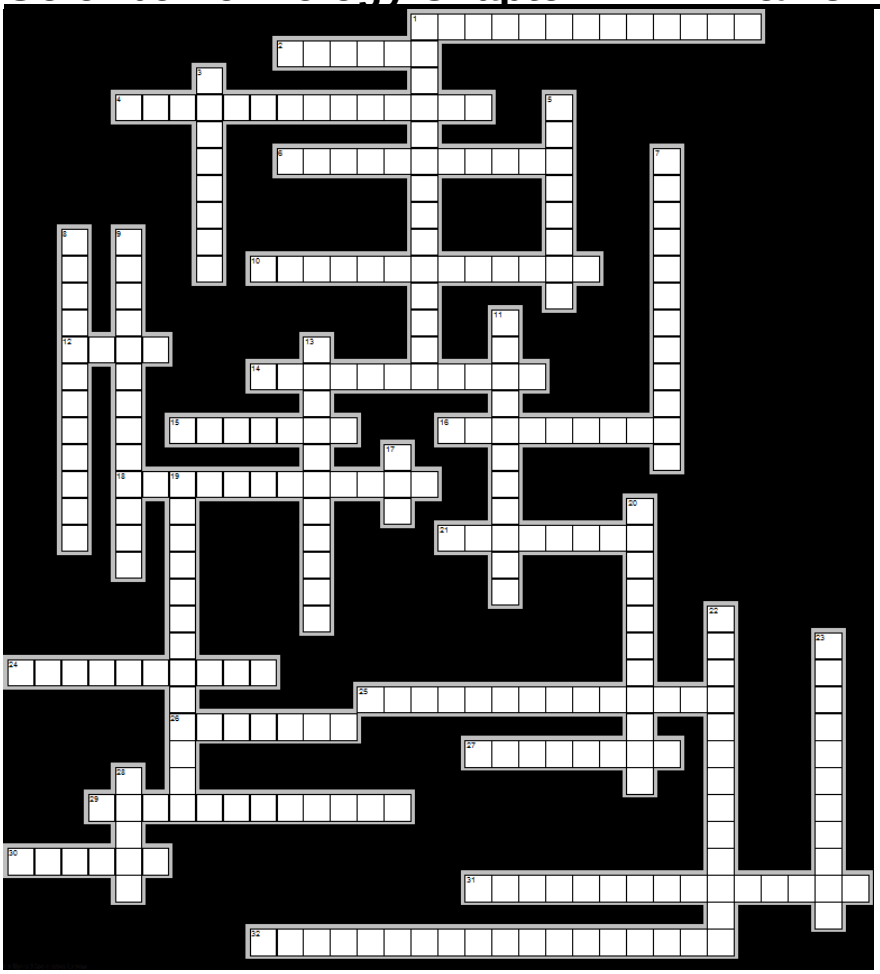
# Golenberke Biology Chapter 12 DNA & 13 RNA & Protein Synthesis



## Across

1. links together RNA nucleotides during transcription
2. a group of genes that operate together
4. process in which a gene produces its product and carries out its function (2)
6. chain of amino acids that makes proteins
10. process in which part of the nucleotide sequence of DNA is copied into a complementary sequence in RNA
12. sequence of DNA; codes for a protein
14. carries amino acids to a ribosome (2)
15. agents in the environment that may change DNA
16. group of 3 bases on a tRNA molecule that are complementary to codons of mRNA
18. combines with proteins to form ribosomes (2)
21. place where RNA polymerase can bind and begin transcription
24. organism with an extra set of chromosomes
25. process in which one strain of bacteria is changed by a gene or genes from another strain of bacteria
26. a group of homeotic genes clustered together that determine the head to tail identity of body parts in animals. All hox genes contain the homeobox DNA sequence (2)
27. change in a DNA sequence that affects genetic information
29. master control gene in many organisms that directs development of body parts (2)
30. DNA that is not involved in coding a protein
31. process in which cells become specialized in structure and function
32. shifts reading frame by inserting or deleting a nucleotide (2)

## Down

1. the blocking of gene expression by means of an miRNA silencing complex (2)
3. repetitive DNA at the end of a eukaryotic chromosome
5. region of chromosome in an operon to which the repressor binds when the operon is "turned off"
7. master control genes that regulate cellular differentiation and morphogenesis (2)
8. carries instructions for assembly of amino acids into proteins from DNA to rest of the cell (2)
9. principle enzyme involved in DNA replication (2)
11. collection of codons of mRNA (2)
13. principle that bonds in DNA can form only between adenine and thymine and between guanine and cytosine (2)
17. consists of long single chains of nucleotides
19. kind of virus that infects bacteria
20. the process where genetic information coded in messenger RNA directs the formation of a specific protein at a ribosome in the cytoplasm
22. single base pair in DNA has been changed (2)
23. process of copying DNA prior to cell division
28. group of 3 nucleotide bases

**WORD BANK**

anticodon
bacteriophage
basepairing
codon
differentiation
DNApolymerase
exon
frameshiftmutation
geneexpression
geneticcode
homeoboxgene
homeoticgene
Hoxgene
intron
messengerRNA
mutagen
mutation
operator
operon
pointmutation
polypeptide
polyploidy
promote
replication
ribosomalRNA
RNA
RNAinerference
RNApolymerase
telomere
transcription
transferRNA
transformation
translation