BIOLOGY CURRICULUM CONTENT

Section No.	Section Title
03	Stem, Shoot.
04	Leaf.
12	Phylum Flatworms.
16	Phylum Arthropods.
22	Importance Of The Musculoskeletal System.
23	Blood.
24	Circulation.
25	Respiration.
26	Digestion.
27	Hormones.
28	Excretion.
29	Sense Organs.
30	Nervous System.
31	Higher Nervous Activity.
32	Theory of Evolution.
33	Development of The Organic World.
34	Origin of Humans.
35	Basics of Ecology.
36	Basics of The Biosphere Theory.
37	Basics of Cytology.
38	Reproduction And Individual Development of Organisms.
39	Basics of Genetics.
40	Basics of Selection.
41	Genetic Problems (Solutions).

RECOMMENDED LITERATURE
BIOLOGY

№	Authors	Title of the Textbook	Publisher
1	Subanova M., Botbaeva M.M., Zhamangulova G.U.	Biology Grade 6	Bishkek: Bilim-kompyuter, **2018**
2	Toktosunov A., Beishebayev K., Mamytova B., Kydyralieva D.	Biology (Animals)	Bishkek: Arcus Bas., 2015
3	Bykhovskiy E.E., Kozlov E.V.	Biology Grades 7–8 (Animals)	Moscow: Prosveshchenie, 2006 and later
4	Zakharov V.B. et al.	Biology	Moscow: Drofa, 2006 and later
5	Sumatokhin S.V., Traytak D.I.	Biology. Living Organisms. Animals	Moscow: Center for Educational Literature "Mnemosina", 2016
6	Pasechnik V.V. et al.	Biology	Moscow: Prosveshchenie, 2006 and later
7	Zakirov Zh., Davletova Ch.	Biology (Human and His Health)	Bishkek: Bilim-kompyuter, 2012
8	Chuzmer A.M., Petrishcheva O.L.	Biology (Human)	Moscow: Prosveshchenie, 1992
9	Batuev A.S.	Biology (Human)	Moscow: Drofa, 2006
10	Pasechnik V.V., Kamenetskiy A.A. et al.	Biology	Moscow: Prosveshchenie, 2006 and later
11	Rokhlov V.S., Trofimov S.B.	Human and His Health	Moscow: Mnemosina, 2016
12	Doolotkeldieva T. et al.	Biology Grade 9	Bishkek: Bilim-kompyuter, 2016
13	Efimova T.M., Shubin A.O., Sukhorukova L.N.	Biology: General Patterns of Life Grade 9	Moscow: Mnemosina, 2016
14	Zakharov V.B. et al.	Biology	Moscow: Drofa, 2006 and later
15	Toktosunov A.T. et al.	Biology (General Biology) Grades 10–11	KT, 2008
16	Belyaev D.K. et al.	Biology (Basic Level)	Moscow: Prosveshchenie, 2006 and later
17	Andreeva N.D.	Biology Grades 10–11 (Basic Level)	Moscow: Mnemosina, 2016
18	Polyansky Y.Yu.	General Biology Grades 10–11	Moscow: Prosveshchenie, 2004 and later
19	Teremov A.V., Petrosova R.A.	Biology. Biological System and Processes (Advanced Level)	Moscow: Mnemosina, 2012
20	Zakharov V.B. et al.	General Biology (Advanced Level)	Moscow: Drofa, 2006 and later

BIOLOGY

Multiple Choice Questions
Each question is followed **by 2–4 answer choices, of which only one is correct**.
Indicate the correct answer.

Q1. What are the main functions of a plant stem?

1. Absorbs water from the soil
2. Absorbs carbon dioxide from the air
3. Transports nutrient solutions
4. Stores nutrients
5. Produces mineral substances

a) 1, 2
b) 2, 3
c) 3, 4
d) 4, 5

Q2. What is transpiration?
a) **The evaporation of water from leaves**
b) Water absorption
c) Temperature regulation
d) Gas exchange

Q3. Into what does the larva of a tapeworm develop in the muscles of cattle?
a) **A cysticercus (finna)**
b) A cyst
c) A pupa
d) A small worm

Q4. What is the structure of the heart in a freshwater crayfish?
a) Tube-shaped heart
b) Pentagonal-shaped heart
c) Two-chambered
d) Three-chambered

Q5. Which of the following reflects the stability of the chemical composition of cells and tissues?
a) **Blood glucose level**
b) Organ size
c) Reaction speed to external stimuli
d) Speed of nerve impulse conduction

Q6. Which of the following defines a vein (venous vessel)?
a) A blood vessel that carries blood toward the heart
b) A blood vessel that carries blood away from the heart
c) A vessel carrying oxygenated blood
d) A vessel carrying deoxygenated blood

Q7. What are the main functions of nutrients entering the human body?

1. Structural
2. Energy-providing
3. Movement-related
4. Transport

a) 1, 3
b) 1, 2
c) 2, 4
d) 3, 4

Q8. Which of the following is not a function of human skin?
a) Protection
b) Excretion
c) Sensory perception
d) Producing immunity

Q9. Where is the center that controls urination located in the brain?
a) Medulla oblongata
b) Midbrain
c) Spinal cord
d) Diencephalon

Q10. What are the main shapes of human muscles?
a) Spindle-shaped, strap-like, circular
b) Flat, round
c) Long and short
d) Oblique

Q11. What type of tissue forms the pulmonary pleura?
a) Muscle tissue
b) Epithelial tissue
c) Connective tissue
d) Nervous tissue

Q12. Where are light rays refracted in the human eye?
a) In the cornea
b) In the pupil
c) In the lens
d) In the vitreous body

Q13. Which microevolutionary factor transforms populations and has a creative role in evolution?
a) Mutation process
b) Genetic drift (population waves)
c) Isolation
d) Natural selection

Q14. The emergence of which organisms created the conditions necessary for the development of animal life?
a) Cyanobacteria (blue-green) and green algae
b) Spore-producing plants

c) Flowering plants
d) Bacteria

Q15. What are human races?
a) Groups that evolved from different ancient human species
b) Ecological groups within the species *Homo sapiens*
c) Different species of humans
d) People with different religions

Q16. What is the term for mating between closely related individuals?
a) Consulting
b) Doping
c) Inbreeding
d) Camping

Q17. What does the somatic nervous system control?
a) Digestive organs
b) Heart activity
c) Circulatory system
d) Skeletal muscle movement

Q18. What type of reflex is sucking and swallowing in newborns?
a) Defensive reflex
b) Feeding reflex
c) Orienting reflex
d) Reproductive reflex

Q19. What is a synapse?
a) A junction between nerve cells or between a nerve and another tissue
b) A substance released by nerve impulses
c) The ending of sensory nerve fibers
d) The “power station” of the cell

Q20. The release of sulfur into the atmosphere leads to:
a) Destruction of the ozone layer
b) Breakdown of the atmosphere
c) Acid rain formation
d) Decrease in atmospheric oxygen

Q21. Which unicellular organisms have a distinct nucleus?
a) Cyanobacteria (blue-green algae)
b) Cocci (bacteria)
c) Chlorella
d) Vibrios (bacteria)

Q22. What is the body structure of pre-cellular organisms (like viruses)?
a) Protoplasm
b) Nucleus
c) Protein-based
d) A DNA or RNA molecule enclosed in a protein coat

Q23. How does the primary body cavity (blastocoel) form during development?
a) From the cavity of the blastula
b) As a result of cell migration in the blastula

c) When a two-layered embryo forms
d) From the cavity in the gastrula that remains

Q24. What structure is formed during the cleavage of a zygote?
a) Gastrula
b) Neurula
c) Blastula
d) Neurogastrula

Q25. What is most essential for the functioning of any ecosystem?

1. Solar energy
2. Water and nutrients
3. Autotrophic and heterotrophic organisms

a) 1, 2
b) 2, 3
c) 1, 3
d) 1, 2, 3

Q26. What is starch?
a) A high-molecular-weight polysaccharide found in plants
b) A high-molecular-weight protein
c) A high-molecular-weight lipid
d) Plant fiber (cellulose)

Q27. What type of variation results from changes in chromosome structure?
a) Phenotypic variation
b) Chromosomal variation
c) Gene-level variation
d) Genotypic variation

Q28. What do biological rhythms help organisms do?
a) Find food
b) Avoid predators
c) Adapt to periodic environmental changes
d) Orient in space

Q29. The release of sulfur into the atmosphere leads to:
a) Destruction of the ozone layer
b) Destruction of the atmosphere
c) Formation of acid rain
d) Decrease in atmospheric oxygen

Q30. What is the structural organization of pre-cellular organisms (like viruses)?
a) Protoplasm
b) Nucleus
c) Protein-based
d) A DNA or RNA molecule enclosed in a protein coat

Q31. What is the name of the single-layered stage of the embryo?
a) Neurula
b) Blastula

c) Gastrula
d) Neurogastrula

Q32. During which stage does the three-layered embryo (gastrula) form?
a) Cleavage
b) Organogenesis
c) Gastrulation
d) Histogenesis

Q33. What does it mean if an individual is heterogametic for sex?
a) The sex chromosomes differ in shape
b) The sex chromosomes are the same
c) Traits are inherited only through the maternal line
d) Traits are inherited only through the paternal line

Q34. A father does not have hemophilia. The mother is healthy but a carrier (heterozygous). Their son has hemophilia. From which parent did he inherit the disorder?
a) From the father
b) From the mother
c) From the grandmother
d) From the grandfather

MATCHING TEST

Test items for establishing correspondence. Next to each lettered item in the left column, write the number of the corresponding item from the right column (i.e., match each pair appropriately). Each letter on the left corresponds to only one number on the right.

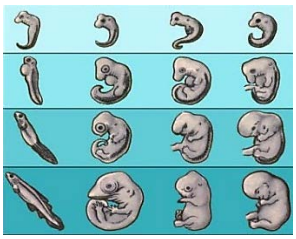
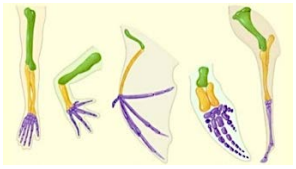
Q35. **Match the biological terms with the correct examples.**

Term	**Example**
A. Atavisms	1. Wings of a bat and flippers of a seal
B. Vestigial structures	2. Remnant of the third eyelid in the inner corner of a human eye
C. Homologous organs	3. Multiple nipples in humans
D. Analogous organs	4. Sixth finger on the hand (polydactyly)
	5. Wings of a butterfly and wings of a bat (extra/unmatched)

Answer:

A	
B	
C	
D	

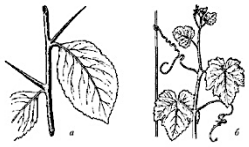
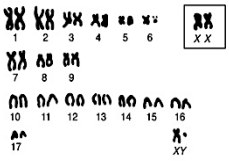
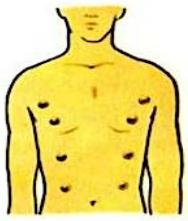
Q36. Match the examples of evolutionary evidence with the branches of science that study them.

vidences	**Branches of Science**
A. 	1. Comparative anatomy
B. 	2. Paleontology
C. 	3. Embryology
D. 	4. Biochemistry
	5. Biogeography

Answer:

A	
B	
C	
D	

Q37. Match the biological terms with the corresponding images that represent comparative anatomical evidence of evolution.

Biological Terms	Images representing evidence
A. Vestigial organ	1. 
B. Atavism	2. 
C. Homologous organs	3. 
D. Analogous organs	4. 
	5. 

Answer:

A	
B	
C	
D	