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Research Article

MODERN METHODS OF THE PREPARATION PLAN FOR THE **INTERNATIONAL BIOLOGY OLYMPIAD (IBO)**

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ABSTRACT

This article describes the curriculum used by students in the process of preparing for the International Biology Olympiad. The article contains recommendations on the correct allocation of time during the educational process. Types and characteristics of educational plans are mentioned.

KEYWORDS

International Biology Olympiad, curriculum, weekly curriculum, annual curriculum.

INTRODUCTION

We know that working with gifted students in any time and place has occupied a central and most relevant place in education. This aspect is also reflected in the law on education and the national program of personnel training. The reforms implemented in the field of education in our country in recent years are aimed at improving the quality of education and improving the

system of working with talented students. As a vivid example of this, the President's decision "On measures to identify talented young people and establish a continuous system of highly qualified personnel training" adopted on May 3, 2019 can be cited. Based on this decision, the Department Science Olympiads" "Working with

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established under the Ministry of Public Education (Preschool and School Education).

The main task of the department is to identify talented students, organize national international olympiads, organize educational courses for students participating in international olympiads and provide them with methodical assistance. For this reason, in 2020-2023, on the basis of local and international trainers, systematic online and offline classes were organized for students who are part of the Uzbekistan team, and many methodological recommendations were developed. As a result, the results of the national team of Uzbekistan increased significantly. In particular, our students won 3 bronze in 2019, 1 gold and 2 silver in 2020, 2 gold and 1 silver in 2021, and 1 bronze and 1 Merit certificate in 2022.

One of the important factors of increasing the effectiveness of the preparatory processes for science Olympiads and the quality of education is the correct implementation of the curriculum.

Curriculum is an official pedagogic document that defines the subjects taught in educational institutions, their sections, the order of teaching, and the teaching of each subject throughout the year, the number of subjects to be taught per academic year and per week. The general and obligatory nature of the curriculum ensures the continuity of the stages of the educational system and the same opportunities for learning for all members of society.

The curriculum consists of certain parts, which take into account the scientific, spiritual, professional qualities and practical skills and qualifications that should be formed in the student.

A well-chosen curriculum allows you to use your time effectively. It is an urgent task to get acquainted with the analysis of the materials of the international biology olympiad before drawing up the curriculum.

The percentage distribution of subjects in IBO exams is as follows:

Cell Biology (20%) (includes the structure and function of cells and their components. microbiology and biotechnology)

- 1. Plant anatomy and physiology (15%) (about seed plants)
- 2. Animal anatomy and physiology (25%) (about vertebrates and humans)
- **3.** Ethology (5%)
- **4.** Genetics and evolution (20%)
- **5.** Ecology (10%)
- **6.** Biosystematics (5%)

Time and effort should be allocated according to these percentages. Logically, spending six months studying biosystematics from a university-level textbook and spending a week or so on animal anatomy and physiology would not be a sensible thing to do. One thing to note is that you should spend enough time studying the three big subjects: cell biology, animal anatomy and physiology, genetics, and evolution.

There are two different ways to plan your studies, which we divide into topic-based learning and book-based learning. The table below lists the differences between them.

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Features	Learning by topic	Study by book
	This technique is aimed at learning the same topic from many books at the same time.	This technique is aimed at learning only one book at a time.
Useful		
aspects	You can quickly become an expert in a certain field (for example, in genetics and animal physiology)	It is possible to have a broader understanding of the information in the topics
	When we come across the same information in different books, it becomes easier for us to remember	This method is economical and does not require many resources.
	them.	We may not fully understand any information on a particular topic.
	This method can help in preparing for the Olympiad, because the topics	
	specified in the Olympiad are, for example, (cell biology 20%, animal anatomy and physiology 25%). We can allocate our power accordingly.	TLINE
Harmful		
aspects	After some time, we can easily forget the topics, because at this time we	We may not fully understand any information on a particular topic.
	read the same topic and do not pay attention to others.	It becomes difficult to remember new information without knowing a
	It requires a lot of resources and books.	lot about the subject.
	It may take more time to repeat and understand the topics.	Almost all topics are not covered in detail, but only superficially explained, which can cause various confusions.

Which method to choose depends on our internal capabilities. It is also possible to try one method the first year and another the next year. Both have advantages and disadvantages, of course. We can combine both methods. It is possible to split up the next year and study only cell biology for the next few months, then genetics for a few months, and then plants and other biology departments.

Knowing how much time we need to prepare for the Olympics, it is very important to allocate our time wisely. If we only have a few months left, it's

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not a good idea to focus on one or two sections like Animal Physiology or Botany (eg subject learning). A review of general biology (ie, book learning) is appropriate. On the other hand, if you have a year or more to prepare, you should start studying by books and first go through general biology textbooks. Then, we should move on to study on the topic and start specializing in different areas.

The table below shows the planned curriculum for the year, and the table after that provides a complete overview of the curriculum, complete with suggested topics and resources for revision.

Attention! The recommendation is that, first of all, it is necessary to determine what questions will be asked in the biology Olympiad and how much information you need to know, starting with the old tests. In addition, it serves as a diagnostic test that helps us identify gaps in our existing knowledge.

Curriculum samples for learning by books and topics.

WEEK 1		WEEK 2	WEEK 3	WEEK 4	
JANUARY	Old tests	Old tests	Old tests	Old tests	
FEBRUARY	General biology	General biology	General biology	General biology	
MARCH	General biology	General biology	Biochemistry	Biochemistry	
APRIL	Biochemistry	Biochemistry	Biochemistry	Biochemistry	
MAY	Molecular Biology &	Molecular Biology &	Molecular Biology &	05	
JUNE	Genetics Molecular Biology &	Genetics Molecular Biology &	Genetics Molecular Biology &	Genetics Molecular Biology &	
JULY	Genetics Plant biology	Genetics Plant biology	Genetics Plant biology	Genetics Plant biology	
AUGUST	Plant biology	Plant biology	Fungi, algae, bacteria, viruses	Animal Physiology & Anatomy	

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SEPTEMBER	Animal	Animal		Animal		Animal	
	Physiology &	Physiology	&	Physiology	&	Physiology	&
	Anatomy	Anatomy		Anatomy		Anatomy	
OCTOBER	Animal	Animal		Animal		Evolution	&
	Physiology &	Physiology	&	Physiology	&	Phylogenetics	
	Anatomy	Anatomy		Anatomy			
NOVEMBER	Evolution &	Evolution	&	Ethology		Ecology	
	Phylogenetics	Phylogenetics					
DECEMBER	Ecology	Practical		Practical		practice	
		questions		questions		questions,	

1-hafta						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
National	National	weekend	National	National	National	National
Olympiad	Olympiad		Olympiad	Olympiad	Olympiad	Olympiad
questions.	questions.		questions.	questions.	questions.	questions.
	A	TO	N 78 "		2014-	2016
	107				2015	

2-hafta	-					
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2. The	4. Carbon	Day off	Khan	7.	8. Introduction to	10.
chemical	and		Academy:	Structure	metabolism	Photosynthesis
structure	molecular		Properties	and	TT AT F	
of life	diversity		of carbon	function of		
	of life			the		
				membrane.		
				Academy:		
				Membrane		
				and		
				transport		
				functions		

3-hafta						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

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11. Cellular	13.	Day off	14.	15.	16.	KhanAcademy:
communications	Meiosis		Bisdel	Chromosome	Molecular	molecular
			and	theory of	theory of	genetics; DNA
			genetic	heredity	heredity	is the genetic
			laws			material

4-hafta						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
17.	18.	Rest	19.	20.	21.	22. Decline
From	Management		Viruses	Biotechnology	Genomes	with changes:
gene to	of gene				and their	Darwin's
protein	structure				evolution	

Week 5	107	-				
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
25. History	26.	Day off	27.	28.	29. Plant	35.
of life on	Phylogeny		Bacteria	Eukaryotes	diversity I:	structure,
Earth	and the		and		How	growth and
Khan	tree of life	1/	Archaea	1) N	plants	development
Academy:		11	Khan		covered	of plants
A History			Academy:	$T \sim T$	the earth	36. Getting
of Life on			Bacteria		30. Plant	and
Earth			and		diversity	transporting
			Archaea		II: seed	nutrients
					plants	through
					evolution	plant roots
					of	Khan
					31. Zambu	Academy:
					rugs	Plant biology

6th week						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

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37. Soil	38.	Day off	39.	32.	33.	40. The
and plant	Reproduction		Response	Animals	Invertebrates	basic rules
nutrition	of		of plants	general	34. Origin	of the form
	angiosperm		to internal	conclusion	and evolution	and
			and	about the	of	functions
			external	diversity	vertebrates	of animals
			influences	of		41.
						Feeding of
						animals
						Khan
						Academy:
						Laws of
						Physiology

7th week						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
42. Gas	43.	Day off	44.	45.	46.	Khan
exchange	Immune	-	Osmobosh	Hormones	Reproduction	Academy:
	system	1 / /	Care and	and	of animals	Human
	Khan	- A	subtraction	endocrine	Khan	Biology
-	Academy:		Khan	system	Academy:	
/ 1	Human		Academy:		Develop	
	Biology	17	Human		han biology	
			Biology		MA	

Week 8						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
47.	48.	Day off	49.	50. Sensory	51. Animals	53.
Development	Neurons,		Nervous	and base	the actions of	Population
of animals	synapses		system	movement	52.	ecology
	and			mechanism	Introduction	54
	exposure				to ecology	Community
					Khan	Ecology
					academy:	Khan
					Ethology	academy:
						Bio-
						diversity
						and its
						protection

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	9th week									
Monday	Tuesday	Wednesda	Thursday	Friday	Saturday	Sunday				
		у								
55.	Genetic	Day off	Genetic	Genetics	Hereditary	Molecular				
Restoratio	extension		linkage	Information	variation in	structure of				
n of	s of		and	transfer and	chromosom	DNA and				
ecosystem	Bizdel's		genetic	Bacteria and	e structure	RNA				
and	laws		mapping	Bacteriophag	without	Chromosom				
ecology			of	e	Bizdel's law	e and its				
			eukaryote	mapping	happiness	molecular				
			S			structure,				
						DNA				
						Replication				

10th week						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Genetics	Translation	Day off	Genetics	Genetics	Genetics	Genetics
Gene	of		Gene control in	Gene	Recombinant	DNA testing
transcription	messenger	1 \ '	bacteria and	control in	DNA	Population
and RNA	RNA		bacteriophages	eukaryotes	Technology	genetics
modification	107				Biotechnology	Evolutionary
	//	TZ	NT TI	T 7	TAT	Genetics $_$ $_$

	97	0.13	7 .	/ I \ I	N/A	1 71 7		
11th week	11th week							
Monday	Tuesday	Wednesda	Thursday	Friday	Saturday	Sunday		
		у						
Biochemistr	Biochemistr	Day off	Biochemistr	Biochemistr	Biochemistry	Biochemistry		
у	у		y fibrillar	у_	Bioenergetics	Access to		
Structure of	Globul y ar		protein	Ferbists	and Oxidative	carbohydrates,		
amino acids	Proteins				Phosphorylati	gluconeogenesi		
in proteins					on Glycolysis,	S,		
					3 carboxylic	Glycogen		
					acid scli	Metabolism		

12th week						
Monday	Tuesday	Wednesda y	Thursday	Friday	Saturday	Sunday

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Biochemistry	Biochemistr	Day off	Biochemistr	Biochemistr	Biochemistr	Biochemistry
Carbohydrat	у		у	у	у	nutrition,
e metabolism	Pentose		Lipid	Fatty acid	Amino acid,	Vitamins
	Phosphate		metabolism	and	Nitrogen	Biotechnolog
	pathway and			Triglycerol	release,	y and human
	NADFH			Metabolism	Insulin and	disease
					Glucagon	

Week 13						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Human	Human	Day off	Human	Human	Human	Human
physiology	physiology		physiology	physiology	physiology.	physiology
Humoral	Muscle		Body	Respiratory	Heart	Subtraction
and	physiology		protection	system	physiology	system
nervous					Blood	Fluid and
connection	100				vessels and	acid-base
		TO	V 7V	TOTAL	blood	balance
	AN	\sim \sim			pressure	\
		11 \ \	///	M I I	Blood	N I

14th week									
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
Human	Human	Day off	Human	Human	Plant	Plant biology			
physiology	physiology		physiology	physiology	biology	Movement of			
Digestive	si		Laws of	Increase	Plant cell	substances			
system	Energy		endocrinology		molecular	into and out of			
	balance and		Peripheral		composition	the cell			
	body		endocrine		of	Breathing			
	temperature		system		Plant cell	Photosynthesis			
	control				and life				
					cycle				

15th week						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

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Plant biology	Plant	Day off	Plant	Plant	Plant biology	Plant biology
Plant	biology		biology	biology	fungus	Bryophytes
biotechnology	Life		Systematics	Prokaryotes	S	without seeds
	processes			and Viruses	Algae and	root crops,
	are				Heterotrophic	Gymnosperms
	evolution				Algae	
	Si					

16th week						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Plant biology	Plant biology	Day off	Plant	Plant biology	Plant	Plant
Introduction	Early		biology	Root	biology	biology
to	Development		Plant	formation	Hormonal	External
Angiosperm	of Plant		tissues	and	plant	factors,
Evolution of	Biology			development	hormones	Plants
Angiosperms	100					growth,
	///	Γ	N TA T	TOT	TA	nutrition
	107	\sim \sim				and soil
		1 / /	$I \mid N$		/ L '	water
						movement
1		-				and
		-				solutes

				T 13	J A	
17th week		\cup	$/ \cup $ $_{1}$	L 1	M T F	الله / السال
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Cell	Molecular	Day off	Molecular	Cell	Cell	Cell
molecular	biology of		biology of	molecular	molecular	molecular
biology	cellular		DNA,	biology	biology	biology
	proteins		chromosomes	How a cell	Gene	Membrane
			and genomes	transfers a	control	structure,
				gene from	Effects on	Transport
				DNA to	protein,	of
				protein	DNA and	substances
					RNA	through
						the
						membrane,
						Electrical
						properties

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			of membrane

18th week						
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Cell	Cell	Day off	Cell	Cell	MIT	MIT
molecular	molecular		molecular	molecular	course	course
biology	biology		biology	biology	5.07SC	5.07SC
Mitochondria	Sexual		Pathogens,	Adaptive	(2013) -	(2013) -
and in	reproduction		Infection	immune	Module I	Module II
chloroplasts	450		and	system		
energy	<i>M</i> -		natural		-	
connections) (immunity			

19th week									
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
MIT	MIT	Day off	MIT	MIT	MIT	MIT			
course	course	1 (course	course	course	course			
5.07SC	7.03	$J \setminus J$	7.03	7.03	7.03	7.03			
(2013) -	(2004)		(2004)	(2004)	(2004)	(2004)			
Module III									

20th week										
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday				
MIT	MIT	Day off	MIT	MIT	MIT	MIT				
course	course		course	course	course	course				
7.06 (7.06 (7.06 (7.06 (7.01SC	7.01SC				
Spring	Spring		Spring	Spring	(2011)	(2011)				
2007)	2007)		2007)	2007)						

21st week							
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	

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MIT	MIT	Day off	MIT	MIT	MIT	MIT
course	course		course	course	course	course
7.01SC	7.01SC		7.012	7.012	7.012	7.012
(Fall	(2011)		(2004)	(2004)	(2004)	(2004)
2011)						

22nd week									
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
MIT	MIT	Day off	MIT	MIT	MIT	MIT			
course	course		course	course	course	course			
7.012	7.013 (7.013 (7.013 (7.013 (7.013 (
(2004)	Spring		Spring	Spring	Spring	Spring			
	2006)		2006)	2006)	2006)	2013)			

23rd week									
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
MIT	MIT	Day off	MIT	MIT	MIT	MIT's			
course	course	1 / 1	course	course	course	cousin			
7.013 (7.013 (and the team	7.013 (7.014 (7.014 (7.014 (
Spring	Spring		Spring	spring	Spring	Spring			
2013)	2013)	-	2013)	2005)	2005)	2005)			

24th week			· ·	$\Gamma \wedge \Gamma$	$A \subset \mathcal{I}$	
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
MIT	MIT	Day off	MIT	MIT	MIT	MIT
course	course		course	course	course	course
7.014 (7.014 (7.016	7.016	7.016	7.016
spring	Spring		(2014)	(2014)	(2014)	(2014)
2005)	2005)					

25th w	25th week												
Monda	ıy	Tuesda	ay	Wedne	esday	Thurso	day	Friday		Saturd	lay	Sunda	У
IBO	old	IBO	old	IBO	old	IBO	old	IBO	old	IBO	old	IBO	old
tests		tests		tests		tests		tests		tests		tests	
2004-		2006-		2008-2	2009	2010-		2012-		2014-		2016	
2005		2007				2011		2013		2015			

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26th week						
Monday	lay Tuesday W		Thursday	Friday	Saturday	Sunday
MCAT	MCAT	Day off	MCAT	MCAT	MCAT	MCAT
Biological	ological Biological		Biological	Biological	Alive	Biological
and	id and		and and		systems of	and
biochemical	chemical biochemical		biochemical	biochemical	biological	biochemical
foundations	foundations		foundations	foundations	and	foundations
of living	of living		of living	of living	biochemistry	of living
systems	systems		systems	systems	vii basics	systems
Solving	Solving		Solving	Solving	Solving	Solving
problems	problems		problems	problems	problems	problems

Although proper planning is not done by many students, by applying it, it can be successfully repeated for the Biology Olympiad and completed in a short time. When you start planning, you need to think about how, when and what you need to repeat. The main thing is to identify. Determining gaps in knowledge, choosing topics and creating an annual or monthly study plan.

Sunday should be the day to make a study plan that shows what to do next week. It is necessary to draw up a study plan on the planning day. It's just not good to be too dreamy. Unexpected things always happen in life. Personal and academic commitments (besides the Biology Olympiad) must be taken into account. It also works well to motivate ourselves with some kind of reward (such as a tea/coffee break, calling a friend, or exercising). By achieving these small rewards at different intervals, we will increase our motivation and enthusiasm for the journey to the Olympics.

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