



GOVERNMENT OF TAMIL NADU

HIGHER SECONDARY SECOND YEAR

ZOOLOGY

A publication under Free Textbook Programme of Government of Tamil Nadu

Department of School Education

Untouchability is Inhuman and a Crime

Government of Tamil Nadu

First Edition - 2019

Revised Edition - 2020, 2022

(Published under New Syllabus)

NOT FOR SALE

Content Creation



State Council of Educational Research
and Training

© SCERT 2019

Printing & Publishing



Tamil NaduTextbook and Educational
Services Corporation

www.textbooksonline.tn.nic.in

CONTENTS

ZOOLOGY

UNIT	CONTENTS	PAGE No.	MONTH
UNIT I			
Chapter 1	Reproduction in Organisms	01	June
Chapter 2	Human Reproduction	11	
Chapter 3	Reproductive Health	32	
UNIT II			
Chapter 4	Principles of Inheritance and Variation	45	July
Chapter 5	Molecular Genetics	61	
Chapter 6	Evolution	92	August
UNIT III			
Chapter 7	Human Health and Diseases	112	August
Chapter 8	Immunology	129	
Chapter 9	Microbes in Human Welfare	148	September
UNIT IV			
Chapter 10	Applications of Biotechnology	157	October
UNIT V			
Chapter 11	Organisms and Populations	176	October
Chapter 12	Biodiversity and its Conservation	197	November
Chapter 13	Environmental Issues	219	



E-book



Assessment



New life for woolly mammoth DNA-researchers can now re-create the genes of mammoth and study the proteins they encoded

Chapter Outline

Conceptual picture with caption relating to every chapter is given in this text book.

Presents a complete overview of the chapter



Learning Objectives:

Goals to transform the classroom processes into learner centric with a list of bench marks



Amazing facts, Rhetorical questions to lead students to biological inquiry

Activity

Directions are provided to students to conduct activities in order to explore, enrich the concept.

Infographics

Visual representation of the lesson to enrich learning .

HOW TO USE THE BOOK?



Superfluous information about a personality or day to day life experience relating to the content



To motivate the students to further explore the content digitally and take them to virtual world



ICT

To enhance digital Science skills among students

Concept Map

Conceptual diagram that depicts relationships between concepts to enable students to learn the content schematically

Glossary

Explanation of scientific terms

Evaluation

Assess students to pause, think and check their understanding

References

List of related books for further details of the topic

Web links

List of digital resources

Prospects of Zoology

National and International Biology Olympiad Exam

Who can participate? : Secondary and Higher Secondary students

Five stages of Exam

Stage I : National Standard Examination in Biology

Stage II : Indian National Biology Olympiad

Stage III : Orientation cum Selection Camp in Biology

Stage IV : Pre-departure Training Camp for
International Biology Olympiad
(IBO) (for 4 members)

Stage V : Participation in IBO

Weblink: <https://www.entrancei.com>



Scholarship for Biology Students

Ministry of Science and Technology offers biology scholarship to 100 students from schools around the country. Among them 52 (two from each state board) are selected for the award which carries a cash prize of Rs 20,000, a certificate and a medal. <http://www.dbtindia.nic.in>

It also offers INSPIRE programme for science students. www.online.inspire.gov.in

Tamilnadu State Council of Science and Technology offers Young Scientists Fellowship Scheme to encourage scientist below 40 years, who are working in educational institutions. They are given Rs.10000 for 2- 6 months. (<http://www.tanscst.nic.in/>)

Tamilnadu State Council of Science and Technology offers Student project scheme for Science and Technology useful to our society. Student scientists are awarded with the cash prize of Rs.5000 - 10000 for their best project or model. (<http://www.tanscst.nic.in/>)

Institutes affiliated to Dr. M.G.R. Medical University, Chennai.

Occupation Therapy Colleges:

- College of Occupational Therapy, Christian Medical College, Vellore

Physiotherapy Colleges:

- Govt. College of Physiotherapy, Trichy
- Govt. Institute of Rehabilitation Medicine, Chennai
- College of Physiotherapy, Christian Medical College, Vellore
- Tamilnadu Paramedical Institutions College of Physiotherapy, Chennai

Siddha Colleges:

- Govt. Siddha Medical College, Chennai
- Govt. Siddha Medical College, Tirunelveli
- National Institute of Siddha, Chennai



Prospects of Zoology

Pharmacy Colleges:

- Coimbatore Medical College, Coimbatore
- College of Pharmacy, Madras Medical College, Chennai
- College of Pharmacy, Madurai Medical College, Madurai
- Thanjavur Medical College, Thanjavur
- College of Allied Medical Sciences, Madurai
- Department of Pharmacy, Annamalai University, Cuddalore

Nursing Colleges:

- College of Nursing, Madras Medical College, Chennai
- College of Nursing, Madurai Medical College, Madurai

Medical Colleges:

- Cancer Institute, College of Oncological Sciences, Chennai
- Chengalpattu Medical College, Chengalpattu
- Christian Medical College, Vellore
- Coimbatore Medical College, Coimbatore
- Government Dharamapuri Medical College, Dharamapuri
- Kanyakumari Govt. Medical College, Kanyakumari
- Kilpauk Medical College, Chennai
- Madras Medical College and Research Institute, Chennai
- Madurai Medical College, Madurai
- Stanley Medical College, Chennai
- Thanjavur Medical College, Thanjavur
- Theni Government Medical College, Theni
- Thoothukudi Govt. Medical College, Thoothukudi
- Tirunelveli Medical College, Tirunelveli

- Vellore Govt. Medical College, Vellore

Homeopathy Colleges:

- Govt. Homeopathic Medical College and Hospital, Tirumangalam
- Tamilnadu Homeopathy Medical College, Salem

Dental Colleges:

- Tamilnadu Govt. Dental College, Chennai

Ayush Institutions In Tamilnadu

- Ayurveda College, 242-B, Trichy Road, Sulur, 215 Pathanjaliपुरी (Post), Coimbatore – 641402
- Venkataramana Ayurveda College, 216 596, A1&A2, 31st St. TNHB Colony, Periyar Nagar, Korattur, Chennai
- Sri Sai Ram Ayurvedic Medical College & 217 Research Centre, Saileo Nagar, Poonthandalam Village, Sriperumbudur, Chennai – 600044
- Dharma Ayurvedic Medical College and Hosp, 48 218 Grand West Trunk Road, Sriperumbudur, Kanchipuram, 602 105
- Sri Sankara College of Ayurveda, Sannasipatti, 219 Poolankulathupatti (Post) Trichy-620009

List of Tamilnadu Veterinary colleges affiliated to Tamilnadu Veterinary University

- Tamilnadu Veterinary University, Chennai
- Veterinary College and Research Institute, Namakkal
- Fishery College and Research Institute, Thoothukudi

Prospects of Zoology

List of Tamilnadu Agricultural colleges affiliated to Tamilnadu Agricultural University in Tamilnadu

- Tamilnadu Agricultural University, Coimbatore
- Agricultural College and Research Institute, Kanniyakumari
- Agricultural Engineering College and Research Institute, Coimbatore
- Avvaiyar Government College for Women, Kodaikanal
- Horticulture College and Research Institute, Periyakulam

Institutes conducting Researches in Zoology

Indian Institute of Science (IISC) Bangalore

- Biochemistry (BC)
- Central Animal Facility (CAF)
- Centre for Ecological Sciences (CES)
- Centre for Infectious Disease Research (CIDR)
- Centre for Neuroscience (CNS)
- Microbiology and Cell Biology (MCB)
- Molecular Biophysics Unit (MBU)

Salim Ali Centre for Ornithology and Natural History (SACON) Coimbatore

- National Ornithological Databank (NOD) Cell
- GIS Laboratory
- Ecotoxicology Laboratory
- Conservation Genetics Laboratory

Institute of Basic Medical Science (IBMS) Tharamani, Chennai

- Blood transfusion
- Chromatography
- Mass spectroscopy
- Clinical Data interpretation
- Diagnosis of blood courses

Centre for Marine Fisheries and Research Institute (CMFRI)

- Marine capture fisheries
- Mariculture
- Biodiversity
- Marine Biotechnology
- Fishery environment

National Environmental Engineering Research Institute (NEERI)

- Air Pollution control
- Climate sustainability and skill development
- Cleaner technology and modeling
- Environmental Biotechnology and Genomic division

IFS (Indian Forest Service) Examination

- Conducting authority - UPSC
- Educational Qualification: - B.Sc. in any one degree like Physics, Chemistry, Botany, Zoology, Agriculture, Maths, Geology, or B.E or B.V.Sc.
- Age - Minimum 21, Maximum 32 Yrs
- Weblink - <https://upsconline.nic.in>



HIGHER SECONDARY SECOND YEAR

ZOOLOGY