**DIRECTORATE OF SCHOOL EDUCATION, GOVERNMENT OF TAMILNADU, CHENNAI - 600 006.**
**BIOLOGY - ZOOLOGY SYLLABUS**

## I Human Physiology

**STANDARD XII**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls various nutritive methods in animals<br><br>2. Recollects types of carbohydrates, proteins and fats<br><br>3. Knows the importance of vitamins in the diet.<br><br>4. Knows the calorine value of carbohydrates and Lipids<br><br>5. Understands the cause for obesity<br><br>5. Realises the role of hormones in Glucose metablosim | **1.1. Nutrition**<br><br>**1.1.1 Carbohydrates**<br><br>**1.1.2 Proteins**<br><br>**1.1.3 Lipids**<br><br>**1.1.4 Vitamins**<br><br>**1.1.5 Minerals**<br><br>**1.1.6 Water**<br><br>**1.1.7 Balanced diet**<br><br>**1.1.8 Calorie values (ICMR standards)**<br><br>**1.1.9 Obesity**<br><br>**1.1.10 Hyperglycemia, Hypoglycemia, Diabetes mellitus**<br><br>**1.1.11 Malnutritious** | 1. Charts | 1. Diagrams showing sources of nutrients<br><br>2. Suitable tables related to vitamins and minerals. | 1. Name any 3 polysacharides<br><br>2. What are essential amino acids?<br><br>3. What is 'PUFA"?<br><br>4. What is the calorie requirement of an Indian?<br><br>5. Write notes on Diabetes mellitus | |

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| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls the importance of oral hygiene<br>2. Understands the cause for peptic ulcer.<br>3. Knows the causes for liver damage<br>4. Recollects the processes of digestion of Carbohydrates, Proteins and Lipids. | **1.2. Digestion - Enzymes and enzyme action. Brief account of following :**<br>**1.2.1. Pyorrhoea**<br>**1.2.2. Dental caries - Root canal therapy**<br>**1.2.3. Peptic ulcer**<br>**1.2.4. Hernia**<br>**1.2.5. Appendicitis**<br>**1.2.6. Gall bladder stone**<br>**1.2.7. Liver cirrhosis**<br>**1.2.8. Hepatitis** | Using charts and diagrams | 1. Diagrams showing dental caries and other illnesses | 1. Desribe the process of diagestion of lipids.<br>2. Name the carbohydrate digesting enzymes<br>3. What is root canal treatment?<br>4. What is viral hepatitis?<br>5. What is endoscopy? | 3 periods |

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| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls the importance of oral hygiene<br><br>2. Understands the cause for peptic ulcer<br><br>3. Knows the causes for liver damage<br><br>4. Recollect the processes of digestion of carbohydrates, proteins and lipids. | **1.3. Bones and Joints (Major types)**<br><br>**1.3.1. Fractures**<br><br>**1.3.2. Dislocations**<br><br>**1.3.3. Arthritis**<br><br>**1.3.4. Rickets and osteomalasia**<br><br>**1.3.5. Orthopaedics**<br><br>**1.3.6. Gout** | Using charts and diagrams | 1. Relevant pictures | 1. Give an account of various types of fractures<br><br>2. Differentiate Rickets and Osteomalacia<br><br>3. What is Gout?<br><br>4. Mention the various types of bone joints with suitable examples.<br><br>5. What is Orthopaedics? | 2 periods |

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**STANDARD XII**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls the mechanism of muscle action<br><br>2. What is the role actin and myosin in muscle contraction?<br><br>3. Knows the importance of physical exercise | **1.4. Muscles**<br><br>**1.4.1. Muscle action**<br><br>**1.4.2. Muscle tone, Rigor mortis**<br><br>**1.4.3. Muscle Pull (Hernia)**<br><br>**1.4.4. Isometric and aerobic exercises (Body building)**<br><br>**1.4.5. Myasthenia gravis** | Charts | Relevant diagrams or Photographs | 1. What is rigor mortis?<br><br>2. What is Myopathy? | 2 periods |

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**BIOLOGY - ZOOLOGY SYLLABUS**

**I Human Physiology**

**STANDARD XII**

**1.5. Respiration**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Knows the mechanism of pulmonary respiration.<br>2. Becomes familiar with alveolar structure and exchange of gases.<br>3. Knows about nervous control of respiration.<br>4. Understands the importance of yoga. | **1.5. Respiration**<br>**1.5.1. Process of pulmonary respiration**<br>**1.5.2. Inspiration - Expiration**<br>**1.5.3. Exchange of gases at alveolar level**<br>**1.5.4. Control of respiration**<br>**1.5.5. Pneumonia**<br>**1.5.6. Pleurisy**<br>**1.5.7. Tuberculosis**<br>**1.5.8. Bronchitis**<br>**1.5.9. Beathing exercises - Yoga, Transcendental meditation** | 1. Bell-Jar and baloons expt.<br>2. Practicing breathing exercises | 1. Diagrams showing inspiration and expiration | 1. How does exchange of gases happen at the alveolar surface?<br>2. What is pleurisy?<br>3. What is the treatment for Tuberculosis?<br>4. What is the importance of Transcendental meditation? | 3 periods |

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## I Human Physiology

**STANDARD XII**

### 1.6. Circulation

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls the functioning of human heart.<br>2. Understands the importance of coronary blood vessel<br>3. Becomes familiar with various types of heart ailments.<br>4. Understands the importance of blood pressure.<br>5. Knows the mechanism of blood clotting. | **1.6. Circulation**<br>**1.6.1. Functioning of heart**<br>**1.6.1.1. Origin and conduction of heart beat. Artificial pacemaker**<br>**1.6.1.2. Coronary blood vessel and its significance**<br>**1.6.1.3. Myocardial infarction, Angina pectoris**<br>**1.6.1.4. Angiogram, angioplasty and coronary bipass surgery**<br>**1.6.1.5. Atherosclerosis - Heart attack.**<br>**1.6.1.6. Heart block**<br>**1.6.1.7. ECG and Echo cardiograph**<br>**1.6.1.8. Heart valves**<br>**1.6.1.9. Rheumatic Heart Disease (RHD)**<br>**1.6.1.10. ICCU**<br>**1.6.2. Arterial and venous systems**<br>**1.6.2.1. Blood pressure**<br>**1.6.2.2. Pulse rate**<br>**1.6.2.3. Heart transplantation**<br>**1.6.2.4. Resuscitation in Heart attack (First Aid)**<br>**1.6.2.5. Blood components - Functions**<br>**1.6.2.6. Plasma**<br>**1.6.2.7. Corpuscles**<br>**1.6.2.8. Blood clotting - Anticoagulants - Thrombosis**<br>**1.6.2.9. Embolism**<br>**1.6.2.10. Blood related diseases like Polycythemia Leukemia, Anaemia etc.**<br>**1.6.2.11. Blood donation, Blood banks**<br>**1.6.2.12. Lymph fluid - Physiological role** | Charts, Diagrams models, Video clipping | 1. Structure of heart showing SA node, AV node and bundle of his.<br>2. ECG | 1. What is an artificial pacemaker?<br>2. What is heart attack?<br>3. What is myocardial infarction?<br>4. Why is RHD caused?<br>5. What is the role of lymph? | 4 Periods |

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## I Human Physiology

**STANDARD XII**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls the functions of various regions of the brain.<br><br>2. Understands conditioned reflex<br><br>3. Becomes familiar with hormones and their mode of action. | **1.7. Co-ordinating Systems**<br>**1.7.1. Brain -Functioning of different regions**<br>**1.7.1.1. Memory**<br>**1.7.1.2. Sleep**<br>**1.7.1.3. Stroke**<br>**1.7.1.4. Alzhemier's disease**<br>**1.7.1.5. Meningitis / Brain fever**<br>**1.7.1.6. Conditioned reflex**<br>**1.7.1.7. Electro encephalography**<br>**1.7.1.8. Right brain - left brain concept**<br>**1.7.2. Spinal cord - Functioning**<br>**1.7.2.1. Reflex action**<br>**1.7.2.2. CSF**<br>**1.7.3. Chemical co-ordination**<br>**1.7.3.1. Pituitary (Hormones of Adenohypophysis Neurohypophysis and their regulations)**<br>**1.7.3.2. Thyroid, Parathyroidal hormones**<br>**1.7.3.3. Insulin and Glucagan**<br>**1.7.3.4. Hormones of Adrenal cortex and Medulla**<br>**1.7.3.5. Reproductive Hormones**<br>**1.7.3.6. Problems related to Secretion - Non Secretion of Hormones.** | Charts, Diagrams, Pictures, Video clippings. | 1. Suitable diagrams.<br><br>2. Flow charts for hormonal actions. | 1. What is the role of medulla oblongata.<br><br>2. What is the role of CSF?<br><br>3. Mention the names of Reproductive hormones and their functiions.<br><br>4. Mention the importance of Insulin and Glucagon. | 5 Periods |

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## I Human Physiology

**STANDARD XII**

### 1.8. Receptor Organs

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls the functioning of Eye and Ear<br>2. Becomes familiar with *eye* ailments.<br>3. Knows the causes for hearing impairments<br>4. Knows the effects of solar radiations on the skin. | **1.8. Receptor Organs**<br>**1.8.1. EYE**<br>**1.8.1.1. Focussing Mechanism & Photo chemistry of retina**<br>**1.8.1.2. Short sightedness - Long sightedness**<br>**1.8.1.3. Optometry**<br>**1.8.1.4. Retinopathy**<br>**1.8.1.5. Cataract**<br>**1.8.1.6. Lens replacement**<br>**1.8.1.7. Nyctalopia**<br>**1.8.1.8. Eye infections**<br>**1.8.1.9. Conjunctivitis / Glaucoma**<br>**1.8.1.10. Eye care**<br>**1.8.2. EAR**<br>**1.8.2.1. Hearing mechanism - Organ of corti**<br>**1.8.2.2. Hearing impairments and aids**<br>**1.8.2.3. Noise pollution and its importance**<br>**1.8.3. SKIN**<br>**1.8.3.1. Melanin - Functions**<br>**1.8.3.2. Effect of solar radiations / UV**<br>**1.8.3.3. Skin Grafting**<br>**1.8.3.4. Dermatitis**<br>**1.8.4. TONGUE**<br>**1.8.4.1. Gustatory reception** | Charts, Diagrams, Models and Video clippings. | Appropriate diagrams | 1. How do we feel what we see?<br>2. What is Optometry?<br>3. What are types of the hearing aids available?<br>4. How should we take care of our *eyes*? | 5 periods |

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**I Human Physiology**

**STANDARD XII**

**1.9. Excretion**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Knows the process of synthesis of urea.<br><br>2. Recalls the functioning of Nephrons<br><br>3. Knows the influence of diabetes mellitus on the kidney functioning | **1.9. Excretion**<br><br>**1.9.1. Ureotelism - Urea Biosynthesis (Orninthine Cycle)**<br><br>**1.9.2. Nephron ultrafiltration, tubular reabsorption and tubular secretion**<br><br>**1.9.3. Renal failure - Dialysis - Kidney stone - formation**<br><br>**1.9.4. Kidney Transplantation**<br><br>**1.9.5. Diabetes** | Charts, Diagrams and Models. | Diagram showing filtration and reabsorption by the nephrons | 1. Mention the quantities of substances filtered, reabsorbed and secreted through Nephrons.<br><br>2. What are the types of Dialysis?<br><br>3. What is dialysis?<br><br>4. What are the problems related to kidney transplantation? | 3 periods |

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| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls the stages of spermatogenesis and Oogenesis<br><br>2. Understands the methods and importance of birth control.<br><br>3. Knows all about the sexually transmitted diseases. | **1.10. Reproductive system**<br><br>**1.10.1. Brief account of spermatogenesis Oogenesis - Menstrual cycle**<br><br>**1.10.2. Invitro fertilization**<br><br>**1.10.3. Birth control**<br><br>**1.10.4. Sexually Transmitted Diseases (STD), AIDS** | Charts and Diagrams | Diagrams showing invitro fertilisation | 1. What is sex hygiene?<br><br>2. Describe menstrual cycle<br><br>3. Write an essay on AIDS. | 2 periods |

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**II- Microbiology**

**STANDARD XII**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Becomes familiar with the pioneering works on medical microbilogy.<br><br>2. Knows all about Louis Pasteur<br><br>3. Understands the importance of the study of virolgy<br><br>4. Knows all about diseases and micro-organisms | **2.1. Introduction**<br>**2.2. History of Medical Microbiology**<br>**2.3. The Influence of Pasteur, Koch and Lister**<br>**2.4. Virology - Structure, Genetics, Culture and diseases**<br>**2.5. AIDS and its control**<br>**2.6. Bacteriology - Structure, Genetics and diseases.**<br>**2.7. Protozoan microbiology - Disease related**<br>**2.8. Larval microbiology - Disease oriented**<br>**2.9. Pathogenecity of Micro - organism**<br>**2.10. Anti microbial resistance**<br>**2.11. Chemotherapy** | Charts, Diagrams, Paper clippings | Relevant diagrams. | 1. What was the contribution of Koch and Lister to Microbiology?<br><br>2. Give an account of diseases caused by micro-organisms.<br><br>3. What is disease resistance? | 6 periods |

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**III Immunology**

**STANDARD XII**

**3.1. Immunity**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Become familiar with immune systems.<br>2. Knows about natural immunity.<br>3. Understands acquired immunity. | **3.1. Immunity**<br>**3.1.1. Immune system**<br>**3.1.2. Innate immunity**<br>**3.1.3. Acquired immunity - Humoral** | | Appropriate diagrams | 1. Define immunity.<br>2. Differentiate innate and acquired immunity. | 2 periods |

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**III Immunology**

**STANDARD XII**

**3.2. Innate imunity**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Understands the importance of Lymphiod cells in immunity.<br><br>2. Knows about immunoglobulins<br><br>3. Realises the role of phagocytes. | **3.2. Innate immunity**<br><br>3.2.1. Lymphoid cells<br><br>3.2.2. Mono nuclear phagocytes<br><br>3.2.3. Poly morpho nuclear phagocytes<br><br>3.2.4. Cytokines<br><br>3.2.5. Structure of Antibody (Ig)<br><br>3.2.6. Antigen - antibody reactions | Charts, Diagrams | Relevant diagrams | 1. What are mono nuclear phagocytes?<br><br>2. What are cytokines?<br><br>3. Explain Antigen - antibody reactions. | 3 periods |

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**III Immunology**

**STANDARD XII**

**3.3. Acquired immunity, 3.4 Infections and immunity**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls types of acquired immunity<br><br>2. Knows the role of monoclonal antibodies.<br><br>3. Understands the process of infection. | **3.3. Acquired immunity**<br><br>**3.3.1. Development of immune system**<br><br>**3.3.2. T-cell activation**<br><br>**3.3.3. Monoclonal antibodies**<br><br>**3.3.4. Cytotoxicity**<br><br>**3.4. Infections and Immunity** | Charts and Diagrams | Relevant diagrams | 1. Describe the process of developement of immunity?<br><br>2. What is cytotoxicity? | 3 periods |

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**III Immunology**

**STANDARD XII** **3.5. Immunology of Tissue Transplantation 3.6. Immune deficiency diseases (or) Immunopathology**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Knows various types of transplantations.<br>2. Understands problems related transplantations<br>3. Realises that diseases become serious due to immune deficiency | **3.5. Immunology of Tissue Transplantation**<br>**3.6. Immune deficiency diseases (or) Immuno - pathology** | | Suitable diagrams? | 1. What is xeno transplantation ?<br>2. What are the organs that are transplanted?<br>3. What is tissue rejection?<br>4. Name the immune dificiency disesases. | 2 periods |

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## IV Modern Genetics

**STANDARD XII**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Realises the scope of applied genetics<br><br>2. Knows about genetic diseases<br><br>3. Understands the importance of Human Genome project.<br><br>4. Knows the application of Bio-informatics. | **4.1. Introduction - Scope**<br>**4.2. *Human Genetics***<br>**Karyotyping, Chromosome gene mapping, Recombinant DNA technology and segmenting**<br>**4.3. Genetic diseases**<br>**4.4. Human Genome project**<br>**4.5. Cloning**<br>**4.6. Transgenic organisms - Genetically Modified Organisms (GMO)**<br>**4.7. Genetherapy**<br>**4.8. Bio informatics - application**<br>**4.9. DNA sequencing and protein sequencing and Protein structure. Biological database** | Charts, diagrams, paper clippings | Suitable diagrams, Photographs. | 1. What is recombinant DNA technology?<br><br>2. What are transgenic organisms?<br><br>3. Discuss the importance of genetheraphy. | 8 periods |

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**V Environemtal Sciences**

**STANDARD XII**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1.Understands problems related to human population increases.<br><br>2. Recalls the issues related to global warming<br><br>3. Understands the significance of waste management<br><br>4. Realises that poverty can cause environemental degradation | **5.1. Human population and explosion - Issues**<br>**5.2. Global warming - Crisis - Green House Effect**<br>**5.3. Ozone layer depletion**<br>**5.4. Waste mangement**<br>**5.5. Biodiversity conservation (Biosphere reserves) - Government and Non Govermental organisations involved.**<br>**5.6. Energy crisis and Environmental impact.**<br>**5.7. Poverty and environment**<br>**5.8. Fresh water crisis and management** | Charts, Diagrams, Photographs, Paper Clippings. | Suitable Diagrams | 1. How can population increase cause environmental damage?<br><br>2. Can we prevent ozone layer depletion?<br><br>3. Write an essay on energy requirement and environmental degradation.<br><br>4. How can we solve fresh water crisis? | 8 periods |

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**VI Applied Biology**

**STANDARD XII** **6.1. Livestock and Management, 6.2. Poulthy - Farming Techniques 6.3. Piscicultures.**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Recalls livestock management<br>2. Becomes familiar with breeds of cattle<br>3. Knows the value of exotic varieties<br>4. Knows about "White Revolution"<br>5. Understands the basic principles of fish farming.<br>6. Becomes familiar with local fishes. | **6.1. Livestock and Management**<br>**6.1.1. Dairy**<br>**6.1.2. Breeds of cattle**<br>**6.1.3. Miltch breed**<br>**6.1.4. Draught breed**<br>**6.1.5. Dual purpose**<br>**6.1.6. Common diseases and control**<br>**6.1.7. Exotic and cross breds**<br>**6.1.8. Techniques adapted in caltle breeding**<br>**6.2. Poultry - Farming techniques**<br>**6.2.1. Breeds**<br>**6.3. Pisciculture**<br>**6.3.1. Fish farming**<br>**6.3.2. Edible fishes of Tamilnadu** | 1. Visit to dairies and Aquaculture farms<br>2. Seeing actual and preserved edible fishes of Tamilnadu. | Diagrams of various breeds. | 1. What is the importance of cross breds?<br>2. What are the common diseases of cattle?<br>3. Mention the names of edible fishes of Tamilnadu? | 7 periods |

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**VI Applied Biology**

**STANDARD XII**

**6.4. Medical Lab-Techniques**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Knows the basic principle involved in the functioning of BP apparatus.<br><br>2. Understands the "PQRST" wave in ECG.<br><br>3. Knows the application of CT Scan | **6.4. Medical Lab - Techniques**<br>**6.4.1. Stethescope**<br>**6.4.2. Sphygmomono meter**<br>**6.4.3. Heamocytometer**<br>**6.4.4. Urine - Sugar analysis**<br>**6.4.5. ECG - 'PQRST' wave**<br>**6.4.6. CT Scan**<br>**6.4.7. Endoscopic (Laproscopic) techniques**<br>**6.4.8. Artificial pacemaker**<br>**6.4.9. Auto analyser** | 1. Visit to a medical laboratory<br><br>2. Visit to an hospital<br><br>3. Showing an electrocardio graph | Relevant picturer | 1. What is the use of a stethescope?<br><br>2. Mention the method for finding sugar in the urine?<br><br>3. What is CT Scan?<br><br>4. What are auto analysers? | 7 periods |

**DIRECTORATE OF SCHOOL EDUCATION, GOVERNMENT OF TAMILNADU, CHENNAI - 600 006.**
**BIOLOGY - ZOOLOGY SYLLABUS**

**VII Theories of Evolution**

**STANDARD XII**

| Expected Specific Outcomes of Learning | Contentent in terms of Concepts | Curriculum Transactional Strategies | Illustrations | Evaluation | Suggested No. of Periods |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Becomes familiar with the theories of evolution.<br><br>2. Understands the basic idea of evolution provided by Lamarck and Darwin.<br><br>3. Realises the importance of isolating mechanisms in maintenance of a species. | **7.1. Lamarckism**<br><br>**7.2. Neolamarckism**<br><br>**7.3. Darwinism**<br><br>**7.4. Neo Darwinism / Modern Concept of Natural selection**<br><br>**7.5. Species concept**<br><br>**7.6. Origin of species and Isolating Mechanisms** | | Appropriate diagrams | 1. What is Neolamarckism?<br><br>2. Write an essay on modern concept of natural selection?<br><br>3. Define species<br><br>4. What are the various isolating mechanisms? | 9 periods |

## SYLLABUS FOR PRACTICAL

## ZOOLOGY - (Short Version)

## STANDARD - XII

1. **Qualitative test for carbohydrates, proteins and lipids - 1 test each**
2. **Test of urea in urine of a mammal**
3. **Rate of activity of human salivary amylase in relation to temperature and pH**
4. **Study of prepared slides - Entamoeba, Scolex of tapeworm, mature proglottid, Red blood corpuscles, white blood corpuscles**
5. **Models and spicimens - Mammalian Brain / model, Eye model, Ear model, Mammalian Kidney - Nephron model, Heart model**
6. **Instruments / Drugs -**
    1. Stethescope
    2. Sphygmomonometer
    3. An eye drop bottle having antibiotic fluid
    4. Eye lotion
    5. Bifocal eye lens
7. **Project Report**
    1. Visit to Medical Laboratory / Hospital / Research Laboratory
    2. Visit to a Dairy / Polutry / Fish farm
    3. Visit to a site having rain water harvesting