

BIOLOGY - SYLLABUS

8th CLASS

1. What is Science ?

- 1.1 Science - The individual perspective
- 1.2 Science - The Social perspective
- 1.3 Science and Change
- 1.4 How do scientists work ? - Scientific Method
- 1.5 Process Skills
- 1.6 Reading to learn - Writing to Communicate
- 1.7 Safety in the Laboratory - Safety in Science
- 1.8 Some of the divisions in Science (Science - Some Divisions)

2. Cell - The Basic Unit of Life

- 2.1 Discovery of the cell
 - Observing cells in a match stick
 - Observing cells in an onion peel
 - Observing human cheek cells
- 2.2 Cell - Nucleus - Robert Brown Experiment
 - Observing the Nucleus in onion peel
 - Observing the Nucleus in human cheek cell
- 2.3 Diversity in cells
 - Observing the cells in the leaf
 - Observing the different cells in Human body.

3. Microbial World -1

- 3.1 Invention of Microscope - Discovery of Microorganisms
- 3.2 Groups of Microorganisms - Observation

- Observing microorganisms in water
- Observing fungi
- Observing Bacteria
- Observing Algae
- Observing Protozoans and Micro-arthropods
- Observing Soil Microorganisms

3.3 Viruses - Introduction

3. Microbial World - 2

3.1 Useful Microorganisms

- 3.1.1 Observing microorganisms in Maida - Yeast Mixture

3.2 Commercial use of Microorganisms

- Medicinal use of Microorganisms

- 3.2.1 Antibiotic - Invention of Penicillin

3.3 Vaccines

- 3.3.1 Invention of Vaccine against Smallpox

3.4 Soil Microorganisms and Soil Fertility

- 3.4.1 Nitrogen Fixation

3.5 Harmful Microorganisms

- 3.5.1 Microorganisms causing disease in Man
- 3.5.2 Microorganisms causing diseases in Animals
- 3.5.3 Microorganisms causing diseases in Plants

3.6 Food Preservation

- 3.6.1 Preserving food in heat and cold method, packing
- 3.6.2 Pasteurisation

4. Reproduction in Animals

- 4.1 Oviparous and Viviparous Animals
- 4.2 Identifying the method of reproduction based on ears, hair on the skin and feathers
- 4.3 Kinds of/ types of Reproduction in Animals - Sexual and Asexual Reproduction
- 4.4 Asexual Reproduction
 - 4.4.1 Budding in Hydra
 - 4.4.2 Binary fission in Amoeba
- 4.5 Sexual Reproduction
 - 4.5.1 Male Reproductive System in Human Beings
 - 4.5.2 Female Reproductive System in Human Beings
 - 4.5.3 Fertilization - Development of an Embryo
 - External and Internal Fertilization
- 4.6 Life cycle of Frog
- 4.7 Cloning

5. Adolescence

- 5.1 Changes at Adolescence
 - 5.1.1 Measuring increase in Height and observing growth rate
 - 5.1.2 Observing the changes in the body - Secondary sexual characters
 - 5.1.3 Adam's apple - Voice change
- 5.2 Reproduction in Human Beings
 - 5.2.1 Menstrual cycle

- 5.3 Child Marriages - Demerits
- 5.4 Adolescence - Behavioural changes
- 5.5 Adolescence - Effect of Endocrine glands
- 5.6 Adolescence and Health
 - Sweat and Pimples
 - Balanced Diet
 - Hygiene / Cleanliness
 - Physical Exercise

6. Biodiversity and its Conservation

- 6.1 Conference on Biodiversity - Information
- 6.2 Biodiversity
 - Identifying biodiversity in the surroundings
 - Diverse world of life under microscope
 - 6.2.1 Diversity / variations in plants
 - 6.2.2 Observing variations in plants
 - 6.2.3 Observing variations in animals
 - 6.2.4 Observing variations in human beings
- 6.3 Degradation of forests - concept of Biodiversity
 - 6.3.1 Endangered species, Endemic species
 - 6.3.2 Information on Endangered species - Red Data Book
- 6.4 Biodiversity - Balance in Nature
- 6.5 Biodiversity and its Conservation
 - 6.5.1 National Parks and Sanctuaries
- 6.6 Conservation of forests - preparation / making of recycled paper

7. Different Ecosystems

- 7.1 Concept of Ecosystem
 - 7.1.1 Structure of an Ecosystem
- 7.2 Ecosystem - Relationship between biotic components
- 7.3 Changes in the Ecosystem
- 7.4 Types of Ecosystem :
 - Grassland Ecosystem
 - Forest Ecosystem
 - Desert Ecosystem
 - Fresh water Ecosystem
 - Marine Ecosystem
- 7.5 Ecosystem - Biotic and Abiotic components
 - Producers
 - Consumers
 - Decomposers
 - Abiotic Components
- 7.6 Energy Flow in an Ecosystem

8. Food Production from plants

- 8.1 Crops in India
 - 8.1.1 Crops in our Village, District and State
- 8.2 Duration of crops
 - Long-term crops and short-term crops
 - Kharif crops and rabi crops
 - Duration of night and its effect on crop production

8.3 Cultivation of Paddy

- Preparing the soil (ploughing, manuring)
- Leveling the soil
- Selection of seeds, cleaning the seeds
- Different types of sowing the seeds
- Developing seed beds
- Transplanting

8.4 Manures, Pesticides.

- 8.4.1 Crop protection, methods of management
- 8.4.2 Identification of pests, controlling the pests
- 8.4.3 Pest controlling practices

8.5 Obtaining high yield

- 8.5.1 Manures / fertilizers - Natural and Artificial manures
- 8.5.2 Irrigation, modern methods of irrigation - Drip irrigation
- 8.5.3 Weeding methods

8.6 Rotation of crops - methods

8.7 Methods of storing grains - godowns and cold storage units

9. Food Production from animals

9.1 Animal Husbandry

- 9.1.1 Rearing animals - Rearing animals in villages - challenges

9.2 Milk Production

- 9.2.1 Milk collection - Pasteurization and Chilling
- 9.2.2 Selection of live stock
- 9.2.3 Livestock - Methods of Management

9.3 Poultry

- Types / varieties of hen - Broilers, Layers
- Poultry Farms, Incubator

9.4 Apiculture

- 9.4.1 Types of Honey bees and their life
- 9.4.2 Honey extraction sources of Nectar

9.5 Fisheries

- Marine fishes
- Fresh water fishes (Aqua culture)

10. Not for Drinking - Not for Breathing

10.1 Vehicles - Pollution check - Pollution under control certificate

10.2 Atmospheric pollution

- 10.2.1 Air pollution - Pollutants
- 10.2.2 Primary pollutants, Secondary pollutants
- 10.2.3 Pollution - The Reasons
 - Natural Calamities
 - Human Activities
 - Nuclear Power Generation Plants
 - Chemical fertilizers, Insecticides
 - Deforestation
 - Industrial Effluents - Chloro - fluoro carbons
 - Mining

10.2.4 Air Pollution - The Effects

- Aerosols, Hydrogen, Sulphide, Carbon monoxide

10.2.5 Air Pollution - Controlling Measures

10.3 Water Pollution

- 10.3.1 Testing the pollutants in water samples
- 10.3.2 Pollution of River Musi
- 10.3.3 Definite, Indefinite Pollutants
- 10.3.4 Plants - Nutrients
- 10.3.5 Biodegradable wastes
- 10.3.6 Heat - Water pollution
- 10.3.7 Solid wastes, toxic chemicals
- 10.3.8 Controlling water pollution

11. Why do we fall ill ?

11.1 Health - its significance - What do we mean by 'Being healthy'?

- 11.1.1 Individual, social problems
 - Community Health, Personal Health

11.2 Distinction between 'Being healthy and Disease free'

11.3 Disease - and its causes

- 11.3.1 Infections and non-infections diseases
- 11.3.2 Short-term, Long-term diseases - Illhealth
- 11.3.3 Diseases - Carriers of diseases
 - Bacteria, Viruses, protozans etc.
- 11.3.4 How does a disease spread ?
- 11.3.5 Disease causing organisms (Pathogens) - the changes in organ systems in the body

11.4 Prevention of diseases - Principles, Actions