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 Antiboitic - 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 ins 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 Reporductive 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 sorroundings
- 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, Peticides.

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 pllutants

10.2.3 Pollution - The Reasons

- Natural Calamities
- Human Activities
- Nuclear Power Generation Plants
- Chemical fertilizers, Insecticides
- Deforestation
- Industrial Effluents - Chloro - fluro 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