Downloaded from https:// www.studiestoday.com CONTENTS

1. INTRODUCING BIOLOGY

1.1	Growth of biology	1
1.2	Branches of biology	2
1.3	Study of biology helps us in many ways	4

UNIT 1 : BASIC BIOLOGY

2. CELL : THE UNIT OF LIFE

2.1	What is a cell ?	6
2.2	The Invention of the microscope and the discovery of cell	6
2.3	Cell theory	7
2.4	Cells – How numerous?	8
2.5	Cells – How small?	8
2.6	Cell Shapes – To suit functional requirement	9
2.7	Structure of a cell	9
2.8	The plant and animal cells	15
2.9	Protoplasm	16
2.10	Prokaryotic and eukaryotic cells	16
2.11	Every activity of a living organism is the outcome of cellular activity	16

3. TISSUES : PLANT AND ANIMAL TISSUES

3.1	Tissues — "The teams of workers"	20
3.2	Plant tissues	20
3.3	Animal tissues	23

UNIT 2 : FLOWERING PLANTS

4. THE FLOWER		
4.1	Structure of a bisexual flower	
4.2	General description of the floral parts	

4.3 Inflorescence and placentation









v

29 30

31

Downloaded from https:// www.studiestoday.com POLLINATION AND FERTILIZATION

5.1	Pollination	34
5.2	Some examples of pollination	38
5.3	Fertilization	39

UNIT 3 : PLANT PHYSIOLOGY

5.

6. SEEDS — STRUCTURE AND GERMINATION

6.1	What is a seed?	43
6.2	Classification and structure of seeds	43
6.3	Germination	45
6.4	Some experiments on germination	45
6.5	Types of germination	46
6.6	Germinattion in some common seeds	47

7. RESPIRATION IN PLANTS

7.1	What is respiration?	50
7.2	Respiration vs. Burning (combustion)	51
7.3	The entire plant respires	51
7.4	Two kinds of respiration – Aerobic and anaerobic	51
7.5	Experiments on respiration in plants	52
7.6	Respiration contrasted with photosynthesis	55
7.7	Respiration in plants compared with	
*	respiration in animals	55

UNIT 4 : DIVERSITY IN LIVING ORGANISMS

8. FIVE KINGDOM CLASSIFICATION

8.1	What is species?	59
8.2	Categories higher than species	60
8. <i>3</i>	Drawbacks of the old two kingdom classification	60
8.4	Five kingdom classification	61
8.5	Naming on organism	63
8.6	Major groups of animals	64
8.7	Invertebrata and vertebrata	64
8.8	Invertebrate phyla – Porifera to	
	echinodermata	65
8.9	Phylum chordata (vertebrata)	69





photosynthesis and respiration occur during the day







Protista





Monera

Downloaded from https:// www.studiestoday.com 9. ECONOMIC IMPORTANCE OF BACTERIA AND FUNGI

9.1	Bacteria — A general study	76
9.2	Useful role of bacteria in medicine	78
9.3	Bacteria – Role in agriculture	79
9.4	Bacteria – Role in industry	80
9.5	Spoilage of food by bacteria	80
9.6	Bacterial diseases in plants and animals	81
9.7	Bioweapons	81
9.8	Fungi — A general study	83
9.9	Useful and harmful fungi	84
9.10	Useful role of fungi	84
9.11	Fungi — Role in industry	85

UNIT 5 : HUMAN ANATOMY AND PHYSIOLOGY

10. NUTRITION

10.1	Need of nutrition	88
10.2	Classes of nutrients (food substances)	88
10.3	Balanced diet	93

11. DIGESTIVE SYSTEM

11.1	Why the digestive system	95
11.2	The digestive system	95
11.3	Assimilation of food	102
11.4	Liver	103
11.5	Certain experiments on digestion	103
11.6	Practical work on food tests	104

12.	SKELETON - MOVEMENT	AND LOCOMOTION
12.1	Functions of human skeleton	107
12.2	Bone	107
12.3	The human skeleton	108
12.4	Joints	109
12.5	Muscles	113
12.6	Lever mechanisms	113









vii

Downloaded from https:// www.studiestoday.com 13. SKIN — "THE JACK OF ALL TRADES" (

14. THE RESPIRATORY SYSTEM

14.1	The need for respiration	124
14.2	Animals need more energy	124
14.3	Glucose has no alternative for respiration	125
14.4	Two kinds of respiration —	
	Aerobic and Anaerobic	125
14.5	Parts of respiration	126
14.6	Respiratory organs (breathing)	127
14.7	Breathing — Respiratory cycle	129
14.8	Capacities of the lungs	132
14.9	Inspired air vs expired air	132
14.10	Hypoxia and asphyxiation	133
14.11	Some experiments on breathing	
	and respiration	133

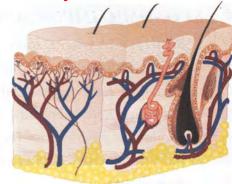
UNIT 6 : HEALTH AND HYGIENE

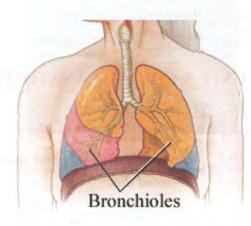
15. HYGIENE — [A KEY TO HEALTHY LIFE]

15.1	Simple personal hygiene	138
15.2	Social hygiene and sanitation	139
15.3	Mosquitoes and diseases	140
15.4	Cockroaches	140
15.5	Rats	140
15.6	Contamination of water and	
	water-borne disease	141
15.7	The three common water borne diseases	141

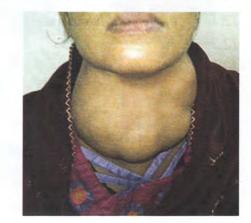
16. DISEASES : CAUSE AND CONTROL

16.1	What is a disease?	144
16.2	Categories of diseases	144
16.3	Categories of diseases based on the extent of occurrence	144
16.4	Categories of diseases based on communicability	144









viii

Downloaded from https:// www.studiestoday.com

16.5	Diseases caused by bacteria	146
16.6	Diseases caused by protozoa	148
16.7	Diseases caused by parasitic worms	148
16.8	Viral diseases	149

17. AIDS TO HEALTH

17.1	Need to keep healthy	153
17.2	Immunity	153
17.3	Vaccination and Immunisation	157
17.4	Antitoxins (More appropriately called antibodies)	158
17.5	Antiseptics and Disinfectants prevent catching diseases	159
17.6	Antibiotics – Penicillin and othersy	159
17.4	Sulphonamide group of medicines	160

18. HEALTH ORGANISATIONS

18.1	Common health problems in India	163
18.2	International bodies	164





19. WASTE GENERATION AND MANAGEMENT

19.1	What is a waste?	166
19.2	Categories of wastes	166
19.3	Methods of safe disposal of wastes	168

Selected Glossary of Biological Terms



