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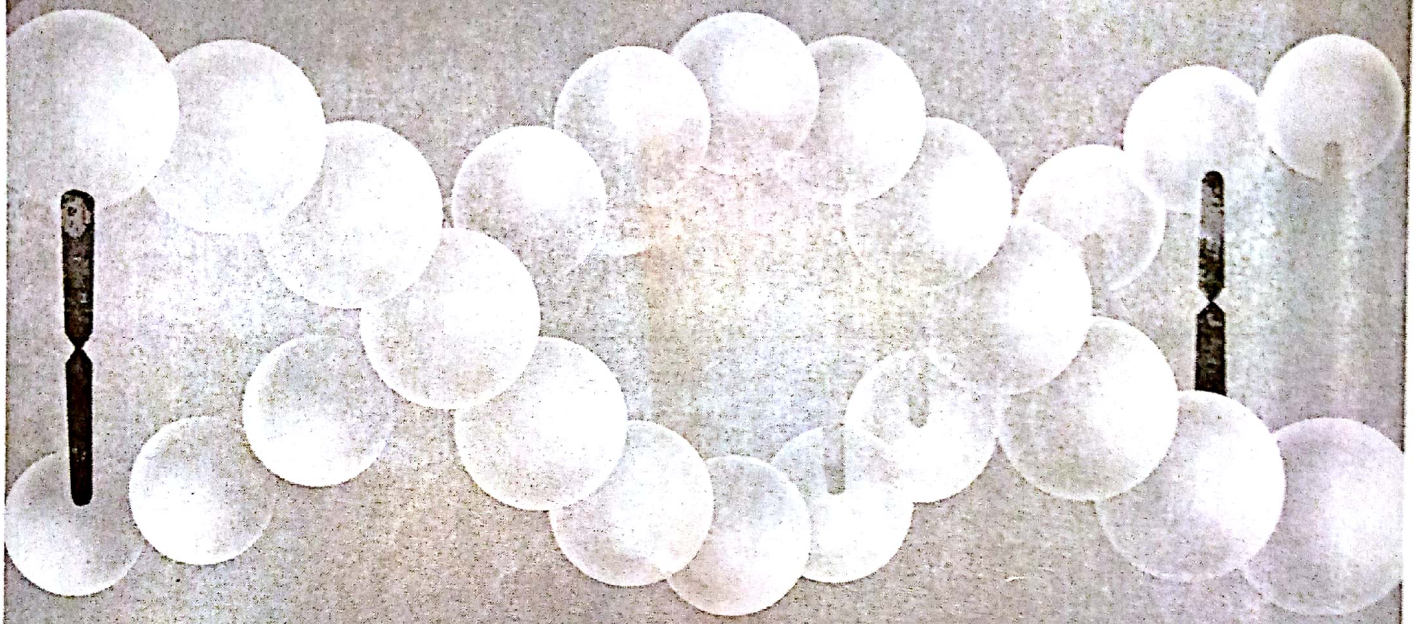

BIOLOGY TEXTBOOK

SENIOR ONE

LOWER SECONDARY CURRICULUM

NCDC
NATIONAL CURRICULUM
DEVELOPMENT CENTRE

BIOLOGY
PROTOTYPE

SENIOR ONE

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The stem is the main part of the shoot and comprises: 72

CHAPTER 1

INTRODUCTION TO BIOLOGY

Key Words	By the end of this chapter, you should be able to learn:
• biology • life processes • zoology • botany • physiology	• that Biology is the science of living things. • that Biology is applied in everyday life. • the importance of life processes and how they are manifested differently in different organisms.

Introduction

An introduction to biology will enable you to appreciate that biology is the study of life, and application of the characteristics of living things will enable you identify living things from the non-living things.

The practical nature to biology will help you acquire skills such as inquiry, observation, making conclusions and informed decisions about life/living things. Therefore understanding Biology will enable you to develop concern for yourself, the environment and promote its conservation.

Meaning of Biology

Do you remember the knowledge of science you studied in the Primary school? Some of the knowledge relates to living things while the other relates to non-living things.

Activity 1.1: Sorting pictures of things into living and non-living

Key question

Is it possible to sort materials into living and non-living?

What you need

- pictures of different items

What to do

Look at the items in the picture below.

i) Draw lines to connect all the living things to the middle circle.
ii) Suggest any reasons why you chose those items.

Biology is a branch of science that deals with the study of living organisms.

Activity 1.2: Identifying areas where knowledge of biology is applied

Key Question

Name any occupation or job you know of that requires the knowledge of biology or deals with the wellbeing of living things?

What you need

i) pens/pencils
ii) notebook
iii) pictures of various occupations based on the knowledge of biology

What to Do

1. In small groups, look at the pictures provided, discuss and write down what work you can do after studying

Zoology is a branch of biology that deals with the study of animals.

Botany is a branch of biology that deals with the study of plants.

Physiology is a branch of biology that deals with the study of functions and processes of living organisms or their parts.

biology to improve your life and for those in the community.

2. Present what you have discussed.
3. Group the pictures under the following branches of biology i.e. zoology, botany and physiology based on the definitions provided.

Life Processes

In order to decide whether what we are observing is living or non-living, a set of characteristics called life processes are used. In the next section, you will find out the life processes.

Life processes are common to all living things. They feed (Nutrition), take in and use air (Respiration), produce and remove waste (Excretion), grow and develop (Growth), move (Movement), produce young ones (Reproduction) and respond to changes in their environment (Sensitivity). Each life process has particular functions that are important to living things for their survival.

Activity 1.3: Identifying a life process

Key question

Can you tell a life process?

Fig 1.1 (a): A water fall

Fig 1.1(b): A lion eating a zebra

What to do

Observe the pictures in Figures 1.1(a) and (b) above.

i) Which of them is a life process and why?

ii) Which of them is not a life process and why?

Activity 1.4: Finding out life processes and their importance

Key question

Can you tell a life process?

What you need

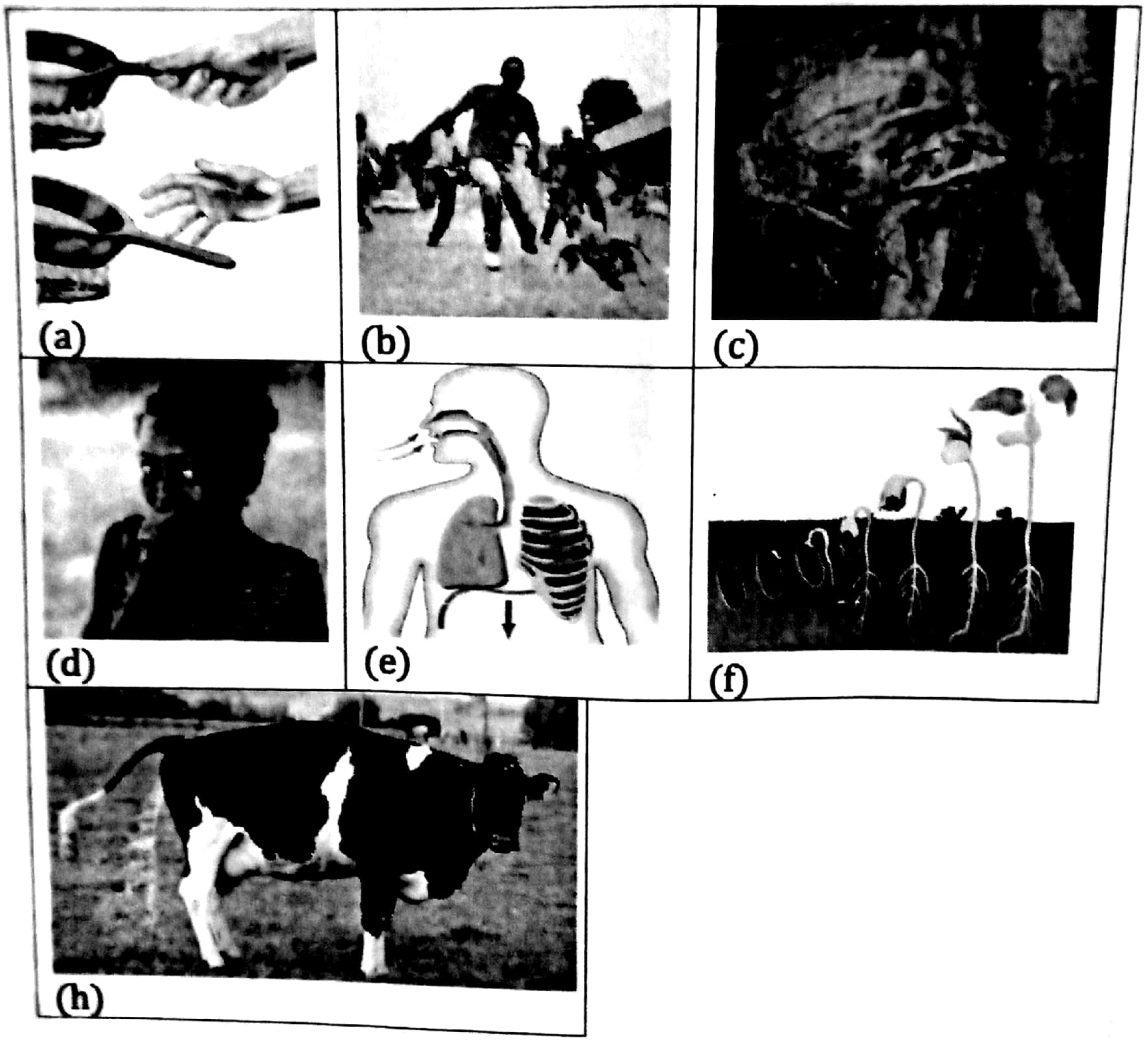
- pictures of living things involved in life processes

What you do

The pictures below show living things involved in life processes.

i) In pairs, study the pictures carefully.

ii) Identify the life process shown in each picture and state its importance(s) to the living organism. Fill the answers in the table provided below the pictures.



Picture	Life process	Importance of the life process
(a)		
(b)		
(c)		
(d)		
(e)		
(f)		
(h)		

Exercise 1.0: Characteristics of living organisms' word search

Instructions: Search for and circle seven words that refer to life processes. The words may appear straight across, backward straight across, up-down, down-up, or diagonally.

A	X	E	B	H	F	H	T	W	O	R	G	P	D	J
N	Y	A	L	Q	Z	K	Z	C	N	I	D	R	N	I
S	E	N	S	I	T	I	V	I	T	Y	E	O	S	L
M	N	O	I	T	E	R	C	X	E	S	I	W	F	T
H	K	F	U	B	D	Z	P	Z	P	T	L	Q	N	I
N	C	W	G	X	C	K	G	I	C	F	Z	E	M	C
P	O	B	J	L	M	V	R	U	N	S	M	Q	R	S
U	D	I	M	X	Y	A	D	H	Q	E	I	X	V	J
H	Q	F	T	B	T	O	T	M	V	P	D	H	R	U
W	J	N	E	I	R	L	W	O	H	O	E	X	A	Y
E	U	C	O	P	R	N	M	C	M	D	N	Z	S	R
F	X	N	E	Z	C	T	S	K	P	A	Q	O	U	V
E	Q	R	C	D	K	G	U	Z	D	W	K	V	T	Q
H	C	Z	P	E	V	L	Y	N	T	A	T	G	X	L
U	W	K	W	N	I	F	I	D	W	U	I	B	T	H

For each word found, use it in a sentence or statement that makes scientific sense.

2.0 Adam says plants take in carbon dioxide during the day and give out oxygen. Eve says plants take in oxygen throughout the day and at night. In your opinion, who would you agree with? Give reason(s) for your response.

Differentiating Between Animals and Plants

From **Activity 1.3**, both plants and animals are living things and have common characteristics. However, some of the characteristics in plants and animals are carried out in different ways.

Activity 1.5: Finding out the differences in characteristics of plants and animals

Key question

How do plants and animals differ in their life processes?

What you need

- A plant in a pot
- A small animal e.g. a rat in a cage or an ant in a glass container

What you do

In small groups, observe the life processes of the two organisms and record your observations. Write what you observe for the plant and animal. Describe how the organism will carry out the life process.

Note: in some cases it may be **difficult** or **impossible** to observe the processes. In that case use textbooks, the Internet to prepare your findings or consult a teacher for guidance.

1. **Feeding**
   Plant_____
   Animal_____
2. **Movement**
   Plant_____

Animal_____

3. **Sensitivity**

   Plant_____

   Animal_____

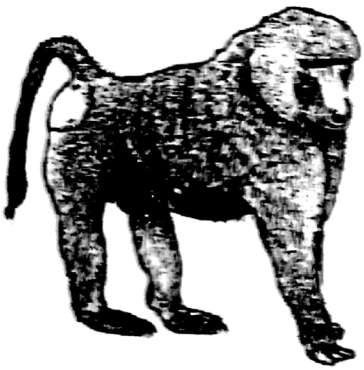
4. **Excretion**

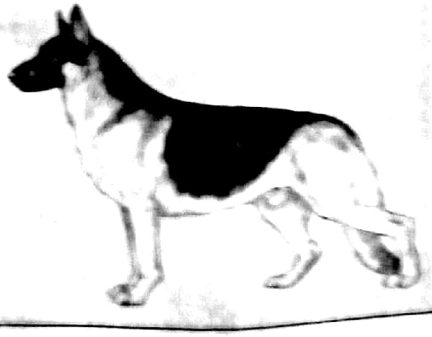
   Plant_____

   Animal_____

Activity of Integration

You are a member of the Nature Club at your school. The club is developing an envorimental campaign for members of a community that lives next to a forest which is home to a troop of baboons. The baboons regularly destroy the crops in the community's gardens. The community members plan to get rid of the baboons permanently. The Nature Club has to raise awareness about repect for living things. You are given these 4 organisms and you are to elaborate a message showing their relation:





Task: Using your knowledge of life processes, draw a poster including all 4 organisms to show their relations.

Chapter Summary

- Biology is a branch of science that deals with living organisms.
- Biology has several branches that can be applied in everyday life.
- All living organisms undergo/perform life processes that distinguish them from non-living things.
- There are seven life processes that enable all living organisms to survive.