

# UNDERSTANDING SCIENCE OF **LIFE**

Learn Invent and Forever Explore

3



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# Contents

Chapter	Page	Description	Values Learnt
1. Characteristics of Living and Non-Living Things	7	Describes the differences between living and non-living things.	The student will understand that in spite of common factors that living things have, there are differences in the way they eat, breathe, move etc.
2. Parts of A Plant and their Functions	12	Describes the two main systems in plants; Also explains about the many uses of a plant and the functions of the parts of a plant.	The student will learn that apart from food, plants are also useful to us in other ways- medicine, furniture, paper etc.
3. More About Birds	18	Describes the characteristics of Birds; Also explains about the body of a bird and its nesting habits.	The student will realize that different types of body parts help different birds.
4. Some More About Animals	26	Describes the feeding habits of animals; Also explains about the food chain.	This chapter will make the student realise that not all animals eat everything; the student will also realise the importance of the food chain.
5. More About The Human Body	31	Describes the major organ systems of the human body.	An important chapter which will make the student understand how our different organ systems contribute to an active body.
6. Our Houses And Clothes	36	Describes the different types of houses; Also explains about the materials used to build a house and the structure of a house; Explains about the different types of clothes and fibres.	The student will appreciate the fact that man has been able to make use of different materials to build houses and manufacture clothes.

<b>Chapter</b>	<b>Page</b>	<b>Description</b>	<b>Values Learnt</b>
7. Weather And Seasons	<b>42</b>	Describes the factors affecting weather; Also explains about the different seasons in a year and why the seasons change.	The student will understand how the position of the earth contributes to different seasons.
8. Air And Water	<b>47</b>	Describes Air, its uses and its properties; Describes Water, its uses and its properties.	The student will appreciate the importance of Air and Water in our life.
9. Soil	<b>53</b>	Describes Soil and how it is formed; Also explains about the uses of soil and various types of soil.	This chapter will make the student understand how various types of soil are helpful to us in their own ways.
10. Heavenly Bodies	<b>60</b>	Describes the heavenly bodies; Also explains about the effects of Rotation and Revolution.	An interesting chapter where the student will understand how we get day and night and different seasons because of the rotation and revolution of the Earth.
11. Sound, Light And Force	<b>65</b>	Describes Sound, Light and Force.	The student will appreciate the importance of sound and light in our daily life.
12. Safety Aid	<b>72</b>	Describes Safety measures at Home, School and Road.	A very important chapter where the student will understand the importance of being careful.
13. Grams, Metres And Litres	<b>77</b>	Describes the measurement of Length, Weight, Volume, Time and Temperature.	This chapter will teach the student that different products need to be measured with different instruments.

<b>Chapter</b>	<b>Page</b>	<b>Description</b>	<b>Values Learnt</b>
14. Solids, Liquids and Gases	<b>82</b>	Describes Solids, Liquids and Gases.	An interesting chapter which will teach the student about Solids, Liquids and Gases.
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# 1 Characteristics of Living And Non-Living Things



## Backtrack

In Class 2 you studied about:

- What are plants and animals?
- What are living and non-living things?



## Up Ahead

- Differences between living and non-living

### PUT ON YOUR THINKING CAP

Look around and name 5 things that you think are living and 5 things that according to you are non-living.

How did you identify them? Do you know how living things are different from non-living things?

Come let us find out...

Sachi has a pet cat named Furry and her brother Saurabh has a toy plane named Superjet.

Furry eats food, drinks water, plays and has grown bigger since the time she was brought home, while Superjet does not need any of that and looks exactly the same since it was bought from the toy shop.

### What do you think is the reason for this difference?

Well Furry eats, drinks, plays and can grow because it is a living thing and Superjet cannot do any of that as it is a non-living thing.



So can non-living things move?

They can if they are moved by someone or if they are powered by battery, but they cannot move on their own.



## Differences Between Living and Non-Living

All living things have certain characteristics which differentiate them from non-living things. They are:

### Eating and Drinking:

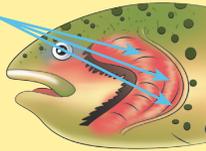
All living things need food and water to live, grow and maintain themselves. Living things eat different kinds of foods. Non-living things do not need food or water.

### Breathing

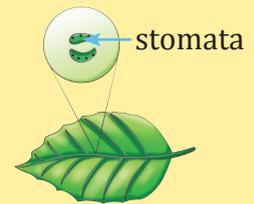
Living things need air to stay alive. Most living things breathe through the nose. Non-living things do not breathe.



gills



Fishes have **gills**<sup>1</sup> to breathe, mosquitoes or cockroaches breathe through holes in their body and plants take in air through small holes called stomata on their leaves.



### Movement

Living things move on their own in search of food and shelter. Dogs, cats and other land animals move with their legs, fishes swim in water using their **fins**<sup>2</sup> and birds fly with their wings. Most plants can't move except creepers like money plants which move towards sticks, walls or sometimes other stronger plants to support their weak stems. Non-living things cannot move on their own.



*A cat jumping*

### Excretion

All living things **excrete**<sup>3</sup>. Excretion is the process of removal of waste products from the body. Waste products like Carbon-dioxide is excreted through breath, liquid waste is excreted through **urine**<sup>4</sup> and solid waste is excreted through **faeces**<sup>5</sup>. Non-living things do not excrete.

<sup>1</sup> **gills:** special organs that fishes use to breathe      <sup>2</sup> **fins:** a special organ of fish, which helps them to swim

<sup>3</sup> **excrete:** expel or throw out waste      <sup>4</sup> **urine:** liquid waste of the body containing excess water, etc

<sup>5</sup> **faeces:** waste matter remaining after food has been digested



## Growth

All living things grow and develop. Growth is when they increase in size and weight, and development happens by **transformation**<sup>6</sup> in the body as they go through the process of growth. Non-living things do not grow.

## Sensitivity to their Environment

All living things are sensitive to their environment, which means that they detect and respond to changes around them. For example: If you touch a hot object, you will immediately feel the heat and let go of that object.



Touching a hot object

## Giving Birth

All living things reproduce, which means they produce young ones just like them. Some lay eggs like birds while others give birth to young ones. Plants produce new plants usually through their seeds.



## Workout

Match the following columns to make correct sentences:

A	B
1. All living things change over a period of time	• carbon-dioxide, urine and faeces.
2. A crow gives birth	• because they grow.
3. Waste products from our body include	• because living things are sensitive to their environment.
4. You feel hot in the Sun	• by laying eggs.



### INDIA IN SCIENCE

Sir Jagadish Chandra Bose was an Indian scientist who did research on plants. *Response in the Living and Non-Living*, is one of the many books he has written.



### SOCIAL

### RESPONSIBILITY

All living things should be loved and respected. Never hurt or let anyone hurt any living thing. If possible help animals. For example, if you find a puppy is homeless in your locality, ask your parents to call an animal shelter home.

<sup>6</sup> **transformation:** changes in form or appearance





1. Which of the following has been wrongly classified?

Living things	Non Living things
Tiger	Chair
Wool	Leather bag
Dog	Paper clip

- a. Dog                      b. Leather bag              c. Chair              d. Wool



### IN A NUT SHELL

- Living things eat and drink while non-living things don't.
- Living things breathe while non-living things don't.
- Living things move, while non-living things don't.
- Living things excrete, while non-living things don't.
- Living things grow, while non-living things don't.
- Living things are sensitive to the environment while non-living things are not.
- Living things give birth to young ones, while non-living things don't.



### Wordstock

*gills, fins, excrete, urine, faeces, transformation, development*



### Eureka!

#### A. Fill in the blanks.

1. A pen is an example of a \_\_\_\_\_ thing. (living/non-living)
2. Most plants grow from \_\_\_\_\_. (eggs/seeds)
3. Living things can \_\_\_\_\_. (grow/not breathe)
4. If I eat, breathe, grow and reproduce, then I am a \_\_\_\_\_. (rat/table)
5. Fish move in water by \_\_\_\_\_. (swimming/crawling)
6. All living things need air to \_\_\_\_\_. (eat/live)
7. We don't have to feed our \_\_\_\_\_. (toys/pets)
8. Eating, drinking, breathing and \_\_\_\_\_ are some characteristics of living things. (growing/not moving.)



## B. Choose the correct answer.

- Birds reproduce by:
  - laying eggs
  - giving birth to young ones
  - dividing into two
  - from seeds
- Plants breathe through their:
  - nose
  - gills
  - stomata
  - They don't breathe at all
- Fishes breathe through:
  - nose
  - gills
  - stomata
  - skin

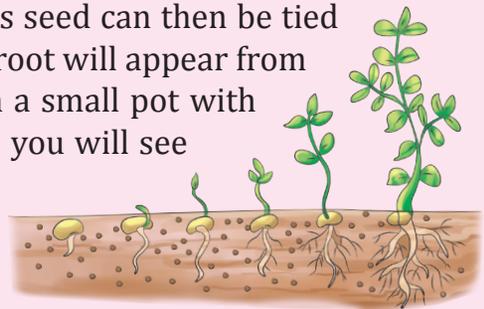
## C. Explain briefly in 2-3 lines.

- How can a non-living thing move?
- How is a living thing different from a non-living thing?
- What is growth and development?



### SCIENCE LAB

In order to see the process of growth and development, let us take a bean seed, soak it in water. Drain the excess water the following day. This seed can then be tied in a wet cotton cloth and you will observe that a small root will appear from this seed after a day. This seed can then be planted in a small pot with some soil in it. Water the pot every day. In 2 to 3 days you will see a small shoot or stem appearing. This will then slowly grow leaves and start looking like a small bean plant and with time, regular water and sunlight it will grow into a bean plant.



## MY CHAPTER REPORT

SKILL	SKILL LEVEL	TEACHER			PARENT		
Concept	Able to understand the difference between living and non-living things.	1	2	3	1	2	3
	Able to understand that only living things eat, breathe, excrete, move, grow, respond to environment and produce young ones.	1	2	3	1	2	3
Mental Activity	Able to recall the characteristics of living things.	1	2	3	1	2	3
	Able to recall that differences exist even among living things.	1	2	3	1	2	3
Applications in real life	Able to appreciate the importance of all living things and therefore love and respect them.	1	2	3	1	2	3

