MBD

Super Refresher Science 8

- **NCERT Textbook Activities** and **Exercises** with answers
- Comprehensive explanation of each sub-topic
- Large pool of objective, short and long answer type questions

Highlights important information which must be remembered

Includes **HOTS** and **VALUE BASED** questions

Based on the latest syllabus and textbook(s) issued by CBSE/NCERT

MBD

Super Refresher Science 8

By
Harsha Singh
Dimple Ahuja

Based on the latest syllabus and textbook(s) issued by **CBSE/NCERT**

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We are committed to serve students with best of our knowledge and resources. We have taken utmost care and attention while editing and printing this book but we would beg to state that Authors and Publishers should not be held responsible for unintentional mistakes that might have crept in. However, errors brought to our notice, shall be gratefully acknowledged and attended to.

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SYLLABUS

SCIENCE (CLASS - VIII)

Questions	Key Concepts	Resources	Activities/Processes
1. Food			(Periods - 22)
Crop production			
Crop production: How are different food crops produced? What are the various foods we get from animal sources?	Crop production: Soil preparation, selection of seeds, sowing, applying fertilizers, irrigation, weeding, harvesting and storage; nitrogen fixation, nitrogen cycle.	Interaction and discussion with local men and women farmers about farming and farm practices: visit to cold storage, go-downs; visit to any farm/ nursery/garden.	Preparing herbarium specimens of some crop plants; collection of some seeds etc.; preparing a table/chart on different irrigation practices and sources of water in different parts of India; looking at roots of any legume crop for nodules, and section of nodules.
Micro-organisms			
What living organisms do we see under a microscope in a drop of water? What helps make curd? How does food go bad? How do we preserve food?	Micro organisms – useful and harmful.	Microscope, kit materials; information about techniques of food preservation.	Making a lens with a bulb; Observation of drop of water, curd, other sources, bread mould, orange mould under the microscope; experiment showing fermentation of dough – increase in volume (using yeast) – collect gas in balloon, test in lime water.
2. Materials			(Periods - 26)
Materials of daily use			
Are some of our clothes synthetic? How are they made? Where do the raw materials come from? Do we use other materials that are synthetic?	Synthetic clothing materials. Other synthetic materials, especially plastics; usefulness of plastics and problems associated with their excessive use.	Sharing of prior knowledge, source materials on petroleum products.	Survey on usage of synthetic materials. Discussion.
Do we use cloth (fabric) for purposes other than making clothes to wear? What kind of fabric do we see around us? What are they used for?	There are a variety of fibrous materials in use. A material is chosen based on desired property.	Collection of material from neighbourhood or should be part of the kit.	Testing various materials – for action of water, reaction on heating, effect of flame, electrical conductivity, thermal conductivity, tensile strength.
Different kinds of materials and their reactions			
Can a wire be drawn out of wood? Do copper or aluminium also rust like iron? What is the black material inside a pencil? Why are electrical wires made of aluminium or copper?	Metals and non-metals.	Kit items.	Simple observations relating to physical properties of metals and non-metals, displacement reactions, experiments involving reactions with acids and bases. Introduction of word equations.
How things change/react with one another			
What happens to the wax when a candle is burnt? Is it possible to get this wax back?	Combustion, flame	"The Chemical History of a Candle", by M. Faraday, 1860.	Experiments with candles.
What happens to kerosene/natural gas when it is burnt? Which fuel is the best? Why?	All fuels release heat on burning. Fuels differ in efficiency, cost etc. Natural resources are limited. Burning of fuels leads to harmful by products.	Collecting information from home and other sources.	Collecting information. Discussions involving whole class.

Questions	Key Concepts	Resources	Activities/Processes
3. The World of the Living			**(Periods - 44)**
Why conserve			
What are reserve forests/ sanctuaries etc.? How do we keep track of our plants and animals? How do we know that some species are in danger of disappearing? What would happen if you continuously cut trees?	Conservation of biodiversity/ wildlife/ plants; zoos, sanctuaries, forest reserves etc. flora, fauna, endangered species, red data book; endemic species, migration.	Films on wildlife, TV programmes, visit to zoo/ forest area/sanctuaries etc.; case study with information on disappearing tigers; data on endemic and endangered species from MEF, Govt. of India, NGOs	Discussion on whether we find as many diverse plants/ animals in a 'well kept area' like a park or cultivated land, as compared to any area left alone. Discussion on depletion of wildlife, why it happens, on poaching, economics.
The cell			
What is the internal structure of a plant–what will we see if we look under the microscope? Which cells from our bodies can be easily seen? Are all cells similar?	Cell structure, plant and animal cells, use of stain to observe, cell organelles – nucleus, vacuole, chloroplast, cell membrane, cell wall.	Microscope, onion peels, epidermal peels of any leaves, petals etc., buccal cavity cells, Spirogyra; permanent slides of animal cells.	Use of a microscope, preparation of a slide, observation of onion peel and cheek cells, other cells from plants e.g. Hydrilla leaf, permanent slides showing different cells, tissues, blood smear; observation of T.S. of stem to see tissues; observing diverse types of cells from plants and animals (some permanent slides).
How babies are formed			
How do babies develop inside the mother? Why does our body change when we reach our teens? How is the sex of the child determined? Who looks after the babies in your homes? Do all animals give birth to young ones?	Sexual reproduction and endocrine system in animals, secondary sexual characters, reproductive health; internal and external fertilisation.	Counsellors, films, lectures.	Discussion with counsellors on secondary sexual characters, on how sex of the child is determined, safe sex, reproductive health; observation on eggs, young ones, life cycles. Discussion on Gender issues and social taboo's.
4. Moving Things, People and Ideas			**(Periods - 16)**
Idea of force			
What happens when we push or pull anything? How can we change the speed, direction of a moving object? How can we change the shape of an object?	Idea of force-push or pull; change in speed, direction of moving objects and shape of objects by applying force; contact and non-contact forces.	Daily-life experience, kit items.	Observing and analysing the relation between force and motion in a variety of daily-life situations. Demonstrating change in speed of a moving object, its direction of motion and shape by applying force. Measuring the weight of an object, as a force (pull) by the earth using a spring balance.
Friction			
What makes a ball rolling on the ground slow down?	Friction – factors affecting friction, sliding and rolling friction, moving; advantages and disadvantages of friction for the movement of automobiles, airplanes and boats/ships; increasing and reducing friction.	Various rough and smooth surfaces, ball bearings.	Demonstrating friction between rough/ smooth surfaces of moving objects in contact, and wear and tear of moving objects by rubbing (eraser on paper, card board, sand paper). Activities on static, sliding and rolling friction. Studying ball bearings. Discussion on other methods of reducing friction and ways of increasing friction.
Pressure			
Why are needles made pointed? Why does a balloon burst if too much air is blown into it? Why does an inverted glass/ bottle/pitcher resist being pushed down into water? How can air/ liquids exert pressure?	Idea of pressure; pressure exerted by air/liquid; atmospheric pressure.	Daily-life experiences; Experimentation-improvised manometer and improvised pressure detector.	Observing the dependence of pressure exerted by a force on surface area of an object. Demonstrating that air exerts pressure in a variety of situations. Demonstrating that liquids exert pressure. Designing an improvised manometer and measuring pressure exerted by liquids. Designing improvised pressure detector and demonstrating increase in pressure exerted by a liquid at greater depths.

Questions	Key Concepts	Resources	Activities/Processes
Sound			
How do we communicate through sound? How is sound produced? What characterises different sounds?	Various types of sound; sources of sound; vibration as a cause of sound; frequency; medium for propagation of sound; idea of noise as unpleasant and unwanted sound and need to minimise noise.	Daily-life experiences; kit items; musical instruments.	Demonstrating and distinguishing different types (loud and feeble, pleasant/musical and unpleasant/noise, audible and inaudible) of sound. Producing different types of sounds using the same source. Making a 'Jal Tarang'. Demons-trating that vibration is the cause of sound. Designing a toy telephone. Identifying various sources of noise. (unpleasant and unwanted sound) in the locality and thinking of measures to minimise noise and its hazards (noise-pollution).
5. How things work			**(Periods - 14)**
Electric current and circuits			
Why do we get a shock when we touch an electric appliance with wet hands?	Water conducts electricity depending on presence/absence of salt in it. Other liquids may or may not conduct electricity.	Rubber cap, pins, water, bulb or LED, cells, various liquids.	Activity to study whether current flows through various liquid samples (tap water, salt solution, lemon juice, kerosene, distilled water, if available).
What happens to a conducting solution when electric current flows through it?	Chemical effects of current.	Carbon rods, beaker, water, bulb, battery.	Emission of gases from salt solution. Deposition of Cu from copper sulphate solution. Electric pen using KI and starch solution.
How can we coat an object with a layer of metal?	Basic idea of electroplating.	Improvised electrolytical cell, $CuSO_4$	Simple experiment to show electroplating.
6. Natural Phenomena			**(Periods - 24)**
Rain, thunder and lightning			
What is lightning? What safety measures should we take against lightning strikes?	Clouds carry electric charge. Positive and negative charges, attraction and repulsion. Principle of lightning conductor.	Articles on clouds and lightning; kit items.	Discussion on sparks. Experiments with comb and paper to show positive and negative charge. Discussion on lightning conductor.
Light			
What are the differences between the images formed on a new utensil and an old one? Why is there this difference?	Laws of reflection.	Mirror, source of light, ray source (torch covered with black paper with a thin slit).	Exploring laws of reflection using ray source and another mirror.
When you see your image in the mirror it appears as if the left is on the right – why?	Characteristics of image formed with a plane mirror.	Plane glass, candle, scale.	Locating the reflected image using glass sheet and candles.
Why don't we see images on all surfaces around us?	Regular and diffused reflection.	Experience.	Discussion with various examples.
What makes things visible?	Reflection of light from an object to the eye.		Activity of observing an object through a straight and bent tube; and discussion.
How do we see images of our back in a mirror?	Multiple reflection.	Mirrors and objects to be seen.	Observing multiple images formed by mirrors placed at angles to each other.
Why do we sometimes see colours on oil films on water?	Dispersion of light.	Plane mirror, water.	Making a kaleidoscope. Observing spectrum obtained on a white sheet of paper/wall using a plane mirror inclined on a water surface at an angle of 45°.
What is inside our eye that enables us to see?	Structure of the eye.	Model or chart of the human eye.	Observing reaction of pupil to a shining torch. Demonstration of blind spot.

Questions	Key Concepts	Resources	Activities/Processes
Why are some people unable to see?	Lens becomes opaque, light not reaching the eye. Visually challenged use other senses to make sense of the world around. Alternative technology available. Role of nutrition in relation to blindness.	Experiences of children; case histories. Samples of Braille sheets.	Description of case histories of visually challenged people who have been doing well in their studies and careers. Activities with Braille sheet.
Night sky			
What do we see in the sky at night? How can we identify stars and planets?	Idea about heavenly bodies/ celestial objects and their classification–moon, planets, stars, constellations. Motion of celestial objects in space; the solar system.	Observation of motion of objects in the sky during the day and at night; models, charts, role-play and games, planetarium.	Observing and identifying the objects moving in the sky during the day and at night. Observing and identifying some prominent stars and constellations. Observing and identifying some prominent planets, visible to the naked eye, (Venus, Mars, Jupiter) in the night sky and their movement. Design and preparing models and charts of the solar system, constellations, etc. Role-play and games for understanding movement of planets, stars etc.
Earthquakes			
What happens during an earthquake? What can we do to minimise its effects?	Phenomena related to earthquakes.	Earthquake data; visit to seismographic centre.	Looking at structures/large objects and guessing what will happen to them in the event of an earthquake; activities to explore stable and unstable structures.
7. Natural Resources			(Periods - 24)
Man's intervention in phenomena of nature			
What do we do with wood? What if we had no wood? What will happen it we go on cutting trees/grass without limit?	Consequences of deforestation: scarcity of products for humans and other living beings, change in physical properties of soil, reduced rainfall. Reforestation; recycling of paper.	Data and narratives on deforestation and on movements to protect forests.	Narration and discussions. Project- Recycling of paper.
What do we do with coal and petroleum? Can we create coal and petroleum artificially?	Formation of coal and petroleum in nature (fossil fuels) Consequences of over extraction of coal and petroleum.	Background materials, charts etc.	Discussion.
Pollution of air and water			
What are the various activities by human beings that make air impure? Does clear, transparent water indicate purity?	Water and air are increasingly getting polluted and therefore become scarce for use. Biological and chemical contamination of water; effect of impure water on soil and living beings; effect of soil containing excess of fertilisers and insecticides on water resources. Potable water.	Description of some specific examples of extremely polluted rivers.	Case study and discussion. Purification of water by physical and chemical methods including using sunlight. Discussion on other methods of water purification.

CONTENTS

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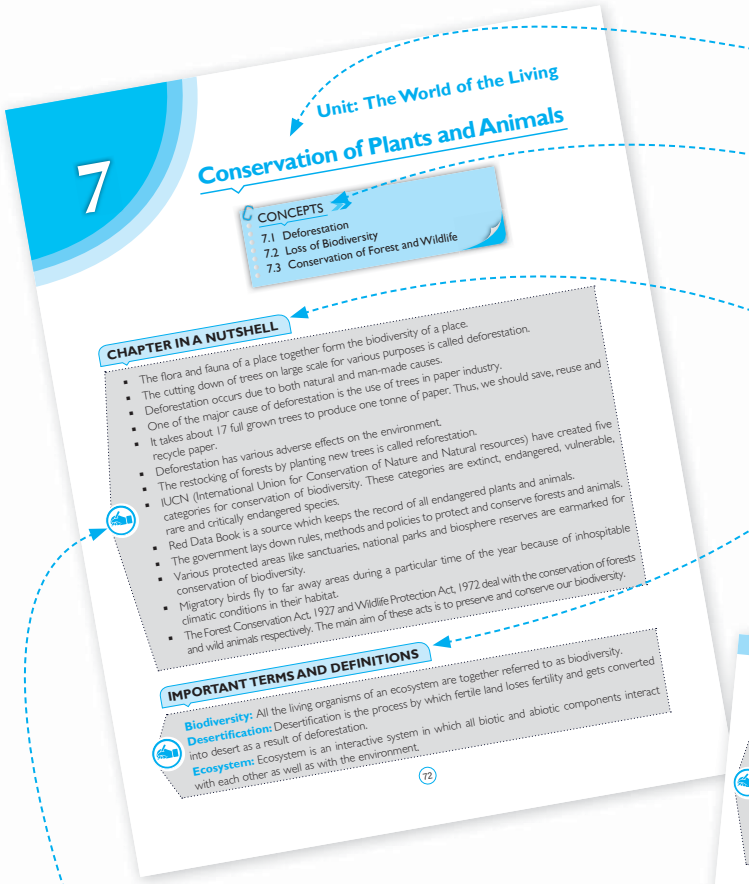
Super Refresher


Unit: The World of the Living

7

Conservation of Plants and Animals

CONCEPTS
7.1 Deforestation
7.2 Loss of Biodiversity
7.3 Conservation of Forest and Wildlife

CHAPTER IN A NUTSHELL

- The flora and fauna of a place together form the biodiversity of a place.
- The cutting down of trees on large scale for various purposes is called deforestation.
- Deforestation occurs due to both natural and man-made causes.
- One of the major cause of deforestation is the use of trees in paper industry.
- It takes about 17 full grown trees to produce one tonne of paper. Thus, we should save, reuse and recycle paper.
- Deforestation has various adverse effects on the environment.
- The restocking of forests by planting new trees is called reforestation.
- IUCN (International Union for Conservation of Nature and Natural resources) have created five categories for conservation of biodiversity. These categories are extinct, endangered, vulnerable, rare and critically endangered species.
- Red Data Book is a source which keeps the record of all endangered plants and animals.
- The government lays down rules, methods and policies to protect and conserve forests and animals.
- Various protected areas like sanctuaries, national parks and biosphere reserves are earmarked for conservation of biodiversity.
- Migratory birds fly to far away areas during a particular time of the year because of inhospitable climatic conditions in their habitat.
- The Forest Conservation Act, 1927 and Wildlife Protection Act, 1972 deal with the conservation of forests and wild animals respectively. The main aim of these acts is to preserve and conserve our biodiversity.

IMPORTANT TERMS AND DEFINITIONS

Biodiversity: All the living organisms of an ecosystem are together referred to as biodiversity.
Desertification: Desertification is the process by which fertile land loses fertility and gets converted into desert as a result of deforestation.
Ecosystem: Ecosystem is an interactive system in which all biotic and abiotic components interact with each other as well as with the environment.

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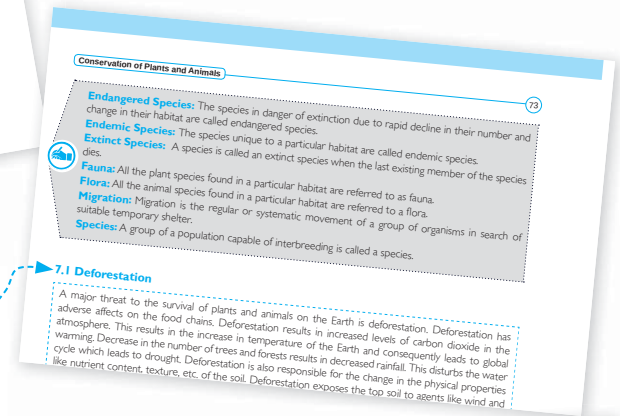
All chapters as per **NCERT Textbook**

Every chapter divided into **CONCEPTS** and each **CONCEPT** dealt with as a complete topic

Chapter in a Nutshell and **Important Terms and Definitions** provide a complete and comprehensive summary of the chapter

Highlights essential information which must be remembered

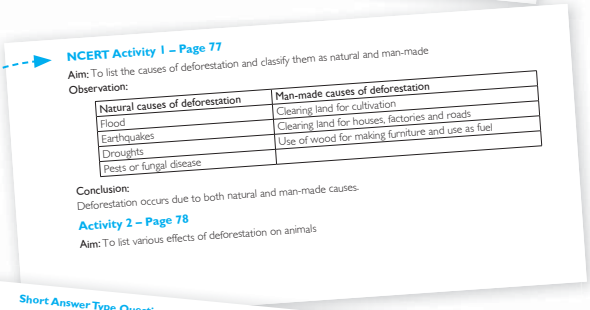

Conservation of Plants and Animals 73

Endangered Species: The species in danger of extinction due to rapid decline in their number and change in their habitat are called endangered species.
Endemic Species: The species unique to a particular habitat are called endemic species.
Extinct Species: A species is called an extinct species when the last existing member of the species dies.
Fauna: All the plant species found in a particular habitat are referred to as fauna.
Flora: All the animal species found in a particular habitat are referred to a flora.
Migration: Migration is the regular or systematic movement of a group of organisms in search of suitable temporary shelter.
Species: A group of a population capable of interbreeding is called a species.

7.1 Deforestation

A major threat to the survival of plants and animals on the Earth is deforestation. Deforestation has adverse affects on the food chains. Deforestation results in increased levels of carbon dioxide in the atmosphere. This results in the increase in temperature of the Earth and consequently leads to global warming. Decrease in the number of trees and forests results in decreased rainfall. This disturbs the water cycle which leads to drought. Deforestation is also responsible for the change in the physical properties like nutrient content, texture, etc. of the soil. Deforestation exposes the top soil to agents like wind and

Each sub-topic dealt with as a **complete unit**


NCERT Activity 1 – Page 77

Aim: To list the causes of deforestation and classify them as natural and man-made
Observation:

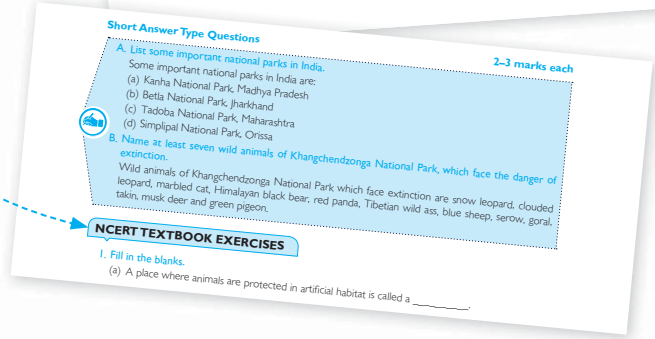
Natural causes of deforestation	Man-made causes of deforestation
Flood	Clearing land for cultivation
Earthquakes	Clearing land for houses, factories and roads
Droughts	Use of wood for making furniture and use as fuel
Pests or fungal disease	

Conclusion:
Deforestation occurs due to both natural and man-made causes.

Activity 2 – Page 78

Aim: To list various effects of deforestation on animals

Includes NCERT Textbook **Activities** and **Exercises** with answers

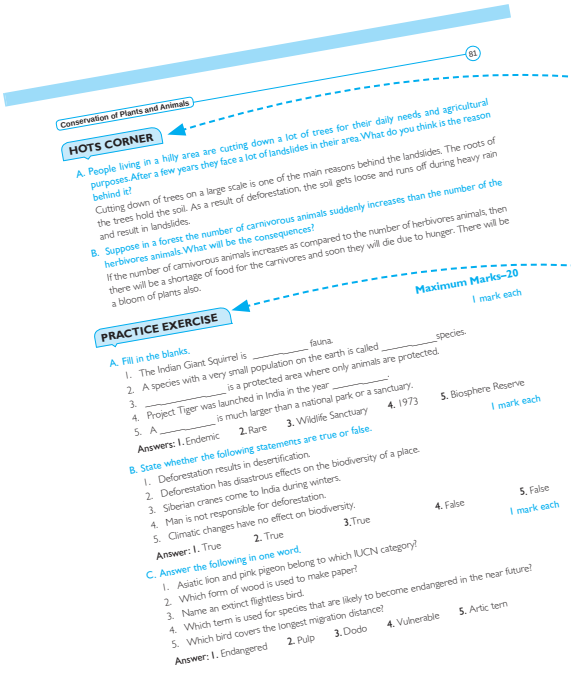

Short Answer Type Questions

A. List some important national parks in India. 2–3 marks each
Some important national parks in India are:
(a) Kanha National Park, Madhya Pradesh
(b) Betla National Park, Jharkhand
(c) Tadoba National Park, Maharashtra
(d) Simplipal National Park, Orissa
B. Name at least seven wild animals of Khangchendzonga National Park, which face the danger of extinction.
Wild animals of Khangchendzonga National Park which face extinction are snow leopard, clouded leopard, marbled cat, Himalayan black bear, red panda, Tibetian wild ass, blue sheep, serow, goral, takin, musk deer and green pigeon.

NCERT TEXTBOOK EXERCISES

1. Fill in the blanks.
(a) A place where animals are protected in artificial habitat is called a _____

Science



Conservation of Plants and Animals

HOTS CORNER

A. People living in a hilly area are cutting down a lot of trees for their daily needs and agricultural purposes. After a few years they face a lot of landslides in their area. What do you think is the reason behind it?

Cutting down of trees on a large scale is one of the main reasons behind the landslides. The roots of the trees hold the soil. As a result of deforestation, the soil gets loose and runs off during heavy rain and result in landslides.

B. Suppose in a forest the number of carnivorous animals suddenly increases than the number of the herbivores animals. What will be the consequences?

If the number of carnivorous animals increases as compared to the number of herbivores animals, then there will be a shortage of food for the carnivores and soon they will die due to hunger. There will be a bloom of plants also.

PRACTICE EXERCISE

Maximum Marks–20

A. Fill in the blanks. 1 mark each

1. The Indian Giant Squirrel is _____ fauna.
2. A species with a very small population on the earth is called _____ species.
3. _____ is a protected area where only animals are protected.
4. Project Tiger was launched in India in the year _____.
5. A _____ is much larger than a national park or a sanctuary.

Answers: 1. Endemic 2. Rare 3. Wildlife Sanctuary 4. 1973 5. Biosphere Reserve

B. State whether the following statements are true or false. 1 mark each

1. Deforestation results in desertification.
2. Deforestation has disastrous effects on the biodiversity of a place.
3. Siberian cranes come to India during winters.
4. Man is not responsible for deforestation.
5. Climatic changes have no effect on biodiversity.

Answer: 1. True 2. True 3. True 4. False 5. False

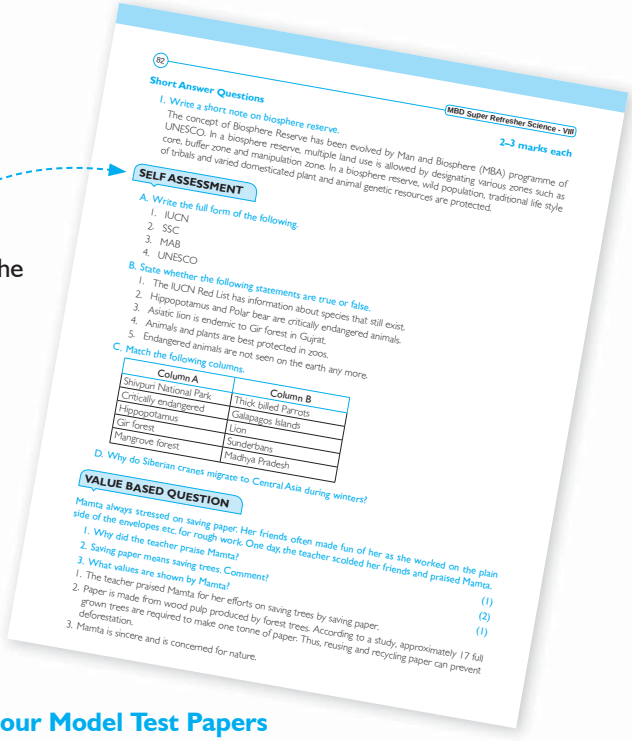
C. Answer the following in one word.

1. Asiatic lion and pink pigeon belong to which IUCN category?
2. Which form of wood is used to make paper?
3. Name an extinct flightless bird.
4. Which term is used for species that are likely to become endangered in the near future?
5. Which bird covers the longest migration distance?

Answer: 1. Endangered 2. Pulp 3. Dodo 4. Vulnerable 5. Artic tern

HOTS questions with answers in every chapter

Practice Exercise equaling 20 marks for every chapter



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MBD Super Refresher Science - VIII

Short Answer Questions 2–3 marks each

1. Write a short note on biosphere reserve.

The concept of Biosphere Reserve has been evolved by Man and Biosphere (MBA) programme of UNESCO. In a biosphere reserve, multiple land use is allowed by designating various zones such as core, buffer zone and manipulation zone. In a biosphere reserve, wild population, traditional life style of tribals and varied domesticated plant and animal genetic resources are protected.

SELF ASSESSMENT

A. Write the full form of the following.

1. IUCN
2. SSC
3. MAB
4. UNESCO

B. State whether the following statements are true or false.

1. The IUCN Red List has information about species that still exist.
2. Hippopotamus and Polar bear are critically endangered animals.
3. Asiatic lion is endemic to Gir forest in Gujrat.
4. Animals and plants are best protected in zoos.
5. Endangered animals are not seen on the earth any more.

C. Match the following columns.

Column A	Column B
Shivpuri National Park	Thick billed Parrots
Critically endangered	Galapagos Islands
Hippopotamus	Lion
Gir forest	Sunderbans
Mangrove forest	Madhya Pradesh

D. Why do Siberian cranes migrate to Central Asia during winters?

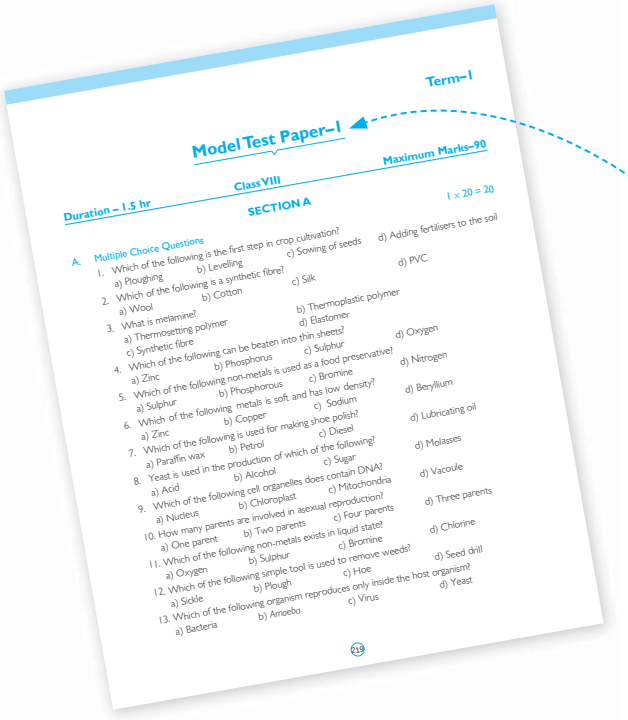
VALUE BASED QUESTION

Mamta always stressed on saving paper. Her friends often made fun of her as she worked on the plain side of the envelopes etc. for rough work. One day, the teacher scolded her friends and praised Mamta.

1. Why did the teacher praise Mamta?
2. Saving paper means saving trees. Comment?
3. What values are shown by Mamta?

1. The teacher praised Mamta for her efforts on saving trees by saving paper. (1)
2. Paper is made from wood pulp produced by forest trees. According to a study, approximately 17 full grown trees are required to make one tonne of paper. Thus, reusing and recycling paper can prevent deforestation. (2)
3. Mamta is sincere and is concerned for nature. (1)

Self Assessment with answers at the back of the book



Term–I

Model Test Paper–I

Duration – 1.5 hr Class VIII Maximum Marks–90

SECTION A 1 × 20 = 20

A. Multiple Choice Questions

1. Which of the following is the first step in crop cultivation?
a) Ploughing b) Levelling c) Sowing of seeds d) Adding fertilisers to the soil
2. Which of the following is a synthetic fibre?
a) Wool b) Cotton c) Silk d) PVC
3. What is melamine?
a) Thermosetting polymer b) Thermoplastic polymer c) Synthetic fibre d) Elastomer
4. Which of the following can be beaten into thin sheets?
a) Zinc b) Phosphorus c) Sulphur d) Oxygen
5. Which of the following non-metals is used as a food preservative?
a) Sulphur b) Phosphorous c) Bromine d) Nitrogen
6. Which of the following metals is soft and has low density?
a) Zinc b) Copper c) Sodium d) Beryllium
7. Which of the following is used for making shoe polish?
a) Paraffin wax b) Petrol c) Diesel d) Lubricating oil
8. Yeast is used in the production of which of the following?
a) Acid b) Alcohol c) Sugar d) Molasses
9. Which of the following cell organelles does contain DNA?
a) Nucleus b) Chloroplast c) Mitochondria d) Vacoule
10. How many parents are involved in asexual reproduction?
a) One parent b) Two parents c) Four parents d) Three parents
11. Which of the following non-metals exists in liquid state?
a) Oxygen b) Sulphur c) Bromine d) Chlorine
12. Which of the following simple tool is used to remove weeds?
a) Sickle b) Plough c) Hoe d) Seed drill
13. Which of the following organism reproduces only inside the host organism?
a) Bacteria b) Amoeba c) Virus d) Yeast

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Four Model Test Papers of 90 marks each (two per term)

Unit: Food

1 Crop Production and Management

CONCEPTS

CHAPTER IN A NUTSHELL

- The process of growing, cultivating and harvesting crops is known as **agriculture**.
- Plants of the same kind that are cultivated in fields on a large scale for food, clothing or commercial purposes are known as **crops**.
- Several crops like rice, wheat, maize, cotton, vegetables, etc., are grown on a large scale for food, clothing and commercial purposes.
- On the basis of the season in which they grow, crops grown in India are classified into *kharif* and *rabi* crops.
- *Kharif* crops are planted in the rainy season and harvested in October. Few examples of *kharif* crops are paddy, maize, cotton, etc.
- *Rabi* crops are planted in the winter season and harvested in March or April. Few examples of *rabi* crops are wheat, mustard, pea, gram, etc.
- For growing crops, farmers perform several activities known as **agricultural practices**. They include:
  - **Preparing the soil:** It involves ploughing, levelling and applying fertilisers. **Ploughing** is the process of loosening and turning the soil with a plough, hoe, etc. A wooden leveller is used for pressing the soil and fertilisers or manures are then applied to the soil.
  - **Selection of good quality seeds:** Good quality seeds are clean and healthy seeds of a good variety.
  - **Sowing of seeds:** Planting seeds into the soil is called **sowing**. Seeds can be sown by broadcasting or scattering; using seed drills or by transplantation. In **transplantation**, seeds are sown in a nursery. Small plants that grow out of these seeds are transferred to the fields.
  - **Adding manures and fertilisers to the soil:** Manures are organic substances obtained by the decomposition of dead plants and animal wastes. Manures are not nutrient specific. Besides adding nutrients to the soil, manures also improve the texture of the soil and add beneficial soil organisms to the soil. Fertilisers are chemicals, which increase the fertility of soil by providing specific nutrients to the soil. Examples of fertilisers are urea, ammonium phosphate, NPK (nitrogen, phosphorous and potassium), etc.
  - **Irrigation:** It is the artificial supply of water to the soil at regular intervals and in a regular quantity as per the need of the crop. It can be done by traditional or modern methods. Traditional methods of irrigation include canal irrigation, furrow irrigation, chain pumps, etc.

They are cheaper but often lead to wastage of water. Sprinkler irrigation and drip irrigation are modern methods of irrigation and help in saving water.

- **Weeding:** Weeds are unwanted plants, which grow along the main crops and compete with them for sunlight, nutrients, water and space. Removal of unwanted plants from a field is called **weeding.** It can be done manually with a hoe or by using chemicals known as **weedicides**.
- **Harvesting:** Cutting and gathering of crops upon maturity is called harvesting. It is done manually using a sickle or with the help of a machine called a harvester.
- **Threshing:** Harvested crops are separated from the plant bulk by beating the bulk on floors or with the help of machines. This process is called **threshing.**
- **Winnowing:** Grains are separated from the chaff by a process called **winnowing.**
- **Storage:** Harvested and cleaned grain must be stored in a safe and dry place. Stored grain may be sprayed with pesticides to keep away pests. The grain is usually stored in jute bags or metallic bins.
- Large scale storage of grains is done in **silos** and **granaries.**

- With the increase in population, several techniques are used for increasing crop yield.
- Mixed cultivation and crop rotation is used so that the nutritional needs of one crop are fulfilled by another crop.
- Atmospheric nitrogen is fixed into the soil by nitrogen-fixing bacteria called *Rhizobium*, which is present in the root nodules of leguminous plants.
- **Nitrogen cycle** is the process of the circulation of nitrogen between the soil, organisms and the atmosphere.
- Rearing of animals on a large scale for products such as milk, meat, eggs, fibre, hide, honey, etc., is known as **animal husbandry**.

1.1 Types of Crops

Until around 10,000 BC, human beings were nomads and went from one place to another in search of food. They ate raw fruits, vegetables and meat of animals. It was much later that agriculture was discovered and human beings started growing crops. Crops can be classified in many different ways. Based on the type of food they provide, crops can be classified as cereals, fruits, vegetables, oilseeds and nuts, legumes, sugar crops, etc. Crops can also be classified on the basis of the season in which they grow. Crops grown in India are classified as *kharif* and *rabi* crops. *Kharif* crops are planted in the rainy season and harvested in October. Few examples of *kharif* crops are paddy, maize, cotton, etc. *Rabi* crops are planted in winter and harvested in March or April. Few examples of *rabi* crops are wheat, mustard, pea, gram, etc. Pulses and vegetables are generally grown in summer.

Objective Type Questions — 1 mark each

A. State whether the following statements are true or false.

1. Wheat is a *rabi* crop.
2. Crops can be categorised on the basis of the type of food they provide.
3. Gram is a *kharif* crop.

Answers: **1.** True **2.** True **3.** False

B. Multiple Choice Questions.

1. In which category of crops would you place wheat and rice?
   a) *Rabi* crops b) *Kharif* crops c) Fruits d) Cereals
2. Which of the following is a *kharif* crop?
   a) Linseed b) Mustard c) Groundnut d) Pea
3. Which of following constitute the food that early human beings ate?
   a) Cereals b) Raw fruits, vegetables and meat
   c) Milk products d) None of these
4. Under which of the following type of crops would you categorise mustard?
   a) Cereals b) Fruits and vegetables c) Oilseeds and nuts d) Sugar crops

Answers: **1.** d) Cereals **2.** c) Groundnut
3. b) Raw fruits, vegetables and meat **4.** c) Oilseeds and nuts

C. Fill in the blanks.

1. _____ crops are planted in winter and _____in March or April.
2. _____ and _____ are grown in summers.

Answers: **1.** d) *Rabi*, harvested **2.** c) Pulses, Vegetables

Short Answer Type Questions 2–3 marks each

A. Define *rabi* and *kharif* crops with two examples of each.

Crops which are grown in the winter season and harvested in March or April are known as *rabi* crops. Examples of *rabi* crops are wheat and mustard. Crops which are grown in the rainy season and harvested in October are known as *kharif* crops. Examples of *kharif* crops are paddy and cotton.

B. Define agriculture.

The process of growing, cultivating and harvesting crops is known as agriculture.

C. What is staple food?

The food which forms the main part of our diet is called staple food, e.g. rice and wheat. They are grown on a large scale in vast fields as they are consumed in large amounts.

1.2 Basic Practices of Crop Production

Farmers perform several activities for producing crops and these are known as agricultural practices. The basic steps of growing crops include the following step:

1. Soil preparation which includes ploughing, levelling and applying fertilisers. Ploughing is the process of loosening and turning soil using a plough, hoe, etc. Soil is loosened and overturned to make it better ventilated and suitable for the growth of tiny organisms living in it. During dry season, ploughing turns soil into big mud pieces or crumbs, which are broken down by a plank. At times, a wooden leveller is used for pressing the soil.
2. The process of planting seeds in the soil is called sowing. Before sowing, good quality seeds must be selected. Seeds can be sown in fields by hand (broadcasting) or with the help of a seed drill.
3. Manure or artificial fertilisers are added to the soil to provide nutrients for the healthy growth of crops.

4. Water is supplied to the soil at regular intervals and in regular quantity. This is called irrigation and it can be done by traditional or modern methods. Traditional methods of irrigation include canal irrigation, furrow irrigation, chain pumps, etc. They are cheaper but often lead to wastage of water. Sprinkler and drip irrigation are modern methods of irrigation and help in saving water.
5. Unwanted plants are removed from fields either manually or by using chemicals called weedicides. Examples of weedicides are linazine, dalapon, etc.
6. Cutting and gathering of crops upon maturity is called harvesting. It is done manually using a sickle or with the help of a machine called a harvester.
7. Grains are obtained from the harvested crops by threshing and winnowing.
8. Threshing: Separation of grains from the plant bulk is called threshing. On a large scale, threshing is done using animals. In large farms, a machine called a combine harvester is used for both harvesting and threshing.
9. Harvested grains are stored in a safe and dry place before they are made available for consumption. Pesticides may be sprayed to keep away pests from stored grains. Grains are usually stored in jute bags or metallic bins. Large scale storage of grains is done in silos and granaries. Grains stored at home can be protected from pests by putting dried Neem leaves in them..

NCERT Activity 1 – Page 4

Aim: To show that damaged seeds would float on top of water

Procedure:

1. Take a beaker and fill half of it with water.
2. Put a handful of wheat seeds into it and stir well.
3. Leave the beaker undisturbed for a few minutes.

Observation: Few seeds float on top of water.

Conclusion: Damaged seeds are hollow from inside and thus, they float on top of water.

Activity 2 – Page 6

Aim: To show that manure or fertilisers are needed for good growth of crops

Procedure:

1. Germinate *moong* or gram seeds in three equal-sized containers.
2. In the first container, sow the seeds into the soil.
3. In the second container, add some cow dung to the soil.
4. In the third container, add urea to the soil.
5. Keep the three containers in a warm place and water them every day.
6. Observe after 7 to 10 days.

Observation: Growth of seeds in the second and the third container is better than in the first one.

Conclusion: Manures and fertilisers help the seeds to grow better.

Objective Type Questions — 1 mark each

A. State whether the following statements are true or false.

1. Soil preparation involves ploughing, levelling and applying fertilisers.
2. Water should be supplied to crops only when the soil seems dry and not at regular intervals.

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