

FIRST TERM MODEL QUESTION PAPER 2024 WITH ANSWER KEY SET 1

BASIC SCIENCE - Standard V

Time: 2 hours

(Prepared by www.educationobserver.com)

Activity 1: The Chain of Life

a. Observe the picture



- Identify the bird shown in the picture.
- What is its main source of food?
- Describe the habitat where this bird is usually found.
- Why do you think this bird prefers such a habitat?

b. Discuss the concept of a food chain.

- Create a simple food chain involving the bird from the previous question.
- Add two more organisms to this food chain and explain their roles.

Activity 2: Food and Habitat

a. Look at the illustration

- List all the creatures you see in the picture.
- Identify which of these creatures are herbivores and which are carnivores.



b. Explain the concept of a food web.

- Using the creatures listed in part (a), create a food web showing their interrelationships.
- What might happen if one species in your food web were to disappear? Discuss.

Activity 3: Coexistence and Biodiversity

a. Define the term "biodiversity."

- Observe a biodiversity garden (either in your school or a local area).
- List the types of organisms you observe and categorize them as either living or non-living.

b. Discuss the importance of non-living things in a habitat.

- How do non-living things support the survival of living organisms?
- Give examples from the biodiversity garden.

Activity 4: Photosynthesis and Respiration

a. Explain the process of photosynthesis.

- What are the main components needed for photosynthesis?
- Why is chlorophyll important in this process?

b. Discuss the process of respiration in plants.

- How does it differ from photosynthesis?
- Draw and label a diagram showing the exchange of gases in a plant.

Activity 5: Seed Germination

a. List the factors necessary for seed germination.

- Conduct an experiment where you grow seeds under different conditions (e.g., with or without sunlight)
- Record and compare the results.

b. Explain the concept of hydroponics.

- How does it differ from traditional soil-based planting?
- What are the advantages of hydroponics?

Activity 6: Water and Life

a. Explain why water is essential for all living beings.

- What are the different ways in which water is used by humans daily?
- Estimate your daily water usage and compare it with the standard provided in the textbook.

b. Discuss the importance of water conservation.

- What are some methods of rainwater harvesting?

- Suggest ways to reduce water wastage in your home or school.

Activity 7: Communicable Diseases

a. Define communicable diseases and give examples.

- What are pathogens, and how do they spread?
- List down common preventive measures against communicable diseases.

b. Explain the concept of immunity.

- What is the difference between natural immunity and acquired immunity?
- Name some vaccines and the diseases they prevent.

Activity 8: Environmental Conservation

a. Discuss the role of humans in conserving natural habitats.

- What are the consequences of habitat destruction?
- Provide examples of endangered species in your locality and discuss the reasons for their decline.

b. Suggest ways to protect and conserve endangered species.

- What actions can students take to contribute to environmental conservation?
 - Propose a project or activity that can be done in your school to promote environmental awareness.
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ANSWER KEY

Activity 1: The Chain of Life

a.

- **Bird:** The bird in the picture is a kingfisher.
- **Main Food:** Its main source of food is fish.
- **Habitat:** This bird is usually found near water bodies like rivers, ponds, or lakes.
- **Reason:** The bird prefers such habitats because it feeds on fish, which are abundant in water bodies.

b.

- **Food Chain:**
 - Plant → Insect → Fish → Kingfisher
- **Additional Organisms:**
 - Add an eagle at the top of the chain as a predator of the kingfisher.
 - Include algae at the base as a producer that supports aquatic life.

Activity 2: Food and Habitat

a.

- **Creatures:** Small fishes, large fishes, grasshopper, crane, etc.
- **Herbivores:** Snail, Tortoise, grasshopper.
- **Carnivores:** Large fishes, crane.

b.

- **Food Web:**
 - Plants → Grasshopper → Frog → Snake
 - Plants → Deer → Tiger
 - Plants → Small fish → Large fish → Crane
- **Impact of Species Disappearance:** If a species disappears, the balance of the ecosystem is disturbed. For example, if frogs disappear, the snake population may decrease due to a lack of food, and the insect population may increase due to fewer predators.

Activity 3: Coexistence and Biodiversity

a.

- **Biodiversity:** Biodiversity refers to the variety of life forms in a habitat or ecosystem.
- **Organisms in a Biodiversity Garden:**
 - **Living:** Plants, insects, birds, small mammals.
 - **Non-Living:** Soil, rocks, water, sunlight.

b.

- **Importance of Non-Living Things:** Non-living things like water, sunlight, and soil provide essential resources that support the survival of living organisms.
- **Examples:**
 - **Water:** Needed for hydration and nutrient transport in plants.
 - **Sunlight:** Essential for photosynthesis in plants.

Activity 4: Photosynthesis and Respiration

a.

- **Photosynthesis Process:** Photosynthesis is the process by which plants use sunlight, carbon dioxide, and water to produce food (glucose) and oxygen.
- **Components:** Carbon dioxide, water, sunlight, and chlorophyll.
- **Importance of Chlorophyll:** Chlorophyll is the pigment that captures light energy necessary for photosynthesis.

b.

- **Respiration:** Respiration in plants is the process of breaking down glucose to release energy. It differs from photosynthesis as it occurs in all living cells, both day and night, and uses oxygen while producing carbon dioxide.
- **Diagram:** The diagram should show stomata, through which gas exchange occurs.

Activity 5: Seed Germination

a.

- **Necessary Factors:** Water, air, sunlight, and a suitable temperature.
- **Experiment Results:** Seeds with access to all factors (water, air, sunlight) will germinate, while those lacking any of these factors will not.

b.

- **Hydroponics:** Hydroponics is a method of growing plants without soil, using mineral nutrient solutions in a water solvent.
- **Differences:** In hydroponics, plants receive nutrients directly from water, which allows for controlled growing conditions and can lead to faster growth.
- **Advantages:** Saves water, can be done in areas with poor soil quality, allows for year-round farming.

Activity 6: Water and Life

a.

- **Importance of Water:** Water is essential for hydration, digestion, temperature regulation, and the transportation of nutrients in the body.
- **Daily Uses:** Drinking, cooking, bathing, cleaning, and sanitation.
- **Daily Water Usage:** Students should compare their usage with the table provided (e.g., 121.5 - 125.5 liters per person per day).

b.

- **Water Conservation:** It involves practices like reducing water wastage, reusing water, and rainwater harvesting.
- **Rainwater Harvesting Methods:**
 - **Check Dams:** To store rainwater and recharge groundwater.
 - **Rainwater Storage Tanks:** To collect and store rainwater from rooftops.

Activity 7: Communicable Diseases

a.

- **Communicable Diseases:** Diseases that spread from person to person via pathogens.
 - **Examples:** Tuberculosis, COVID-19, influenza.
- **Pathogens:** Microorganisms such as bacteria, viruses, and fungi that cause diseases.

- **Preventive Measures:**
 - Vaccination, maintaining personal hygiene, using masks, and ensuring clean water and sanitation.

b.

- **Immunity:** The body's ability to resist infections.
 - **Natural Immunity:** Immunity that a person is born with.
 - **Acquired Immunity:** Immunity gained through exposure to diseases or through vaccination.
- **Vaccines and Diseases:**
 - **Polio Vaccine:** Prevents poliomyelitis.
 - **Tetanus Vaccine:** Prevents tetanus.

Activity 8: Environmental Conservation

a.

- **Human Role:** Humans can protect natural habitats by reducing pollution, conserving resources, and supporting wildlife conservation efforts.
- **Consequences of Habitat Destruction:** Leads to loss of biodiversity, extinction of species, and disruption of ecosystems.
- **Endangered Species Examples:** Malabar tree toad, lion-tailed macaque.
 - **Reasons for Decline:** Habitat destruction, poaching, climate change.

b.

- **Protecting Endangered Species:** By creating protected areas, breeding programs, and reducing human-wildlife conflict.
- **Student Actions:** Participate in clean-up drives, plant trees, create awareness campaigns.
- **Proposed Project:** Organize a "Green Week" at school to promote environmental awareness through activities like tree planting, recycling drives, and seminars on conservation.