Week 1: Science - Control and Coordination

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Subject: Science
Grades: 10

Ø=ÜÚ Lesson Overview Subject: Science Grade: 10 Week: 1 Curriculur
Objectives To understand the fundamental concept of control and coordination in living organisms.To describe the structure and functions of the human nervous system, including reflex actions.To explain the role of the endocrine system and hormones in animals.To elucidate the mechanisms of coordination in plants, including plant hormones and tropisms.To appreciate the integrated functioning of different systems for survival and adaptati
Monday - Introduction to Control and Coordination & Reflex Action Ø<
and coordination in living organisms.Identify and explain stimulus and response.Explain the concept of reflex action and describe a reflex arc. Ø<ßª Activities (40 minutes
a quick interactive scenario: 'What happens when you accidentally touch a hot utensil while helping in the kitchen during Diwali preparations?' Lead a discussion on quick reactions.**Explore (15 min):** Introduce key terms: stimulus, response, receptors, effectors. Discuss various everyday Indian examples like blinking when a dust particle enters the eye on a windy day, or the instinctive ducking motion when a firecracker unexpectedly bursts nearby during a festival. Introduce the concept of reflex action as a rapid, automatic response.**Explain (10 min):** Teacher explains the reflex arc using a simple, clear diagram on the whiteboard. Highlight the path of nerve impulse from receptor to effector. Refer to NCERT Figure 7.2 for visual aid.**Elaborate (5 min):** Class discussion: 'Why are reflex actions crucial for our survival, especially in potentially dangerous situations?' Students share their thoughts.**Recap (5 min):** Quick Q&A session on the day's concepts. Ø=Üæ Materials: Whiteboard/Blackboard and markers/chalkN
(Chapter 7, Figure 7.2) Ø=ÜÝ Homework: Define: Stimulus, Response,
action, Reflex arc. Draw a neat, labeled diagram of a reflex arc (aligns with NCERT concepts introduced). Ø=ÜÖ NCERT Reference: Chapter 7: Control and Coordina
Ø=ÜË Teaching Notes: Emphasize the involuntary nature and speed of
Human Nervous System - Central Nervous System (CNS) Ø<ß¯ Objectiv
components of the human nervous system (CNS).Describe the structure and primary functions of the brain (forebrain, midbrain, hindbrain).Explain the role and prote
Activities (40 minutes): **Engage (5 min):** Recap yesterday's reflex arc. Ask: 'Where does the information from our senses (like seeing the vibrant colours of a Rangoli or hearing devotional songs) finally get processed? What allows us to think and make decisions?' Introduce the brain.**Explore (15 min):** Present a large, clear diagram of the human brain (or project NCERT Figure 7.3). Discuss its three major parts: Forebrain, Midbrain, and Hindbrain. Briefly explain their primary functions with relatable examples (e.g., Forebrain for thinking about exam strategies, Hindbrain for balancing while playing Kabaddi). Introduce the spinal cord as the main communication pathway.**Explain (10 min):** Discuss the protective mechanisms of the brain (cranium, meninges, CSF) and spinal cord (vertebral column). Relate this to practical safety measures like wearing helmets while riding a two-wheeler, a common sight on Indian roads.**Elaborate (5 min):** Pair-share activity: Students discuss different actions they perform daily and try to identify which part of the brain might be primarily involved (e.g., singing a folk song, calculating a bill at a market, preparing for a festival).**Recap (5 min):** Quick oral quiz on brain parts and functions. Ø=Üæ Materials: Whiteboard/Blackboard and mark
Textbook (Chapter 7, Figure 7.3)Projector (optional, for displaying b
List the main parts of the human brain and state one function for each. How are the brain and spinal cord protected? (Aligns with typical NCERT end-of-chapter qu
Reference: Chapter 7: Control and Coordination, Section 7.1.3 (up to 'What happens at the synapse?') Ø=ÜË Teaching Notes: Emphasize the complexity and vital
The Human Nervous System - Peripheral Nerves & Types of Actions Ø
of nerves in transmitting information.Describe the process of nerve impulse transmission at a synapse.Differentiate between voluntary, involuntary, and reflex actions with appropriate examples. Ø<ßª Activities (40 minutes): **Engage (5 min):** Show a short video
performing intricate Mudras or a fast-paced sport like Kho-Kho. Ask: 'What incredible coordination is required here? How do messages travel so quickly?'**Explore (15 min):** Introduce the concept of nerves (sensory, motor, mixed) as pathways for information. Explain the 'synapse' – the tiny gap between neurons where chemical signals transmit impulses. Use an analogy like a 'message