PLANIT TEACHERS

Mapping Biodiversity through Remote Sensing

Learning Objectives

- Understand key concepts in biodiversity and remote sensing
- Develop practical skills in ecosystem mapping
- Apply scientific observation techniques
- Analyze environmental data patterns

Section 1: Understanding Key Terms (15 minutes)

Work with a partner to complete these definitions. Use your textbook or provided resources to ensure accuracy.

1. Define these essential terms:

Biodiversity	
Ecosystem	
Remote Sensing	
Habitat	

Ecosystem Relationships (10 minutes)

Draw lines to connect each ecosystem role with its correct description. Then provide an example of each from your local environment.

Role	Description	Local Example
Producer	Creates food through photosynthesis	
Consumer		

| Decomposer | | Eats other organisms for energy | |
| | | Breaks down organic matter | |

Section 2: Ecosystem Mapping Activity (30 minutes)

You will create a detailed map of a designated area in your school environment. This activity combines observation skills with scientific recording techniques.

Step 1: Planning Your Survey

Survey Area Location:	
Approximate Size (in meters):	
Weather Conditions:	

Step 2: Create Your Map

Draw your ecosystem map here. Include a legend and label all important features.

Step 3: Biodiversity Recording

Type	Count	Description
Plant Species		
Insect Species		
Other Wildlife		

Using your ecosystem mapping data, complete the following analysis activities.

Population Density Calculations

Species Type	Number Counted	Area (m²)	Density (per m²)

Density Formula: Population Density = Number of Individuals ÷ Area

Show your calculations here:

Biodiversity Index Calculation

Simpson's Diversity Index (D) = 1 - $\Sigma(n/N)^2$

where: n = number of individuals of each species

N = total number of all individuals

Species	Number (n)	n/N	(n/N)²

Explore how remote sensing technologies help us understand biodiversity patterns.

Remote Sensing Tools

Technology	Purpose	Applications
Satellite Imagery		
LiDAR		
Thermal Imaging		

Satellite Image Analysis

Using the provided satellite image, identify and label:

- Different vegetation types
- Water bodies
- Human infrastructure
- Potential wildlife corridors

Draw and label your analysis here

Section 5: Conservation Planning (40 minutes)

Develop a conservation plan based on your ecosystem analysis.

Threat Assessment

Identified Threat	Impact Level (1-5)	Proposed Solution

Conservation Action Plan

Short-term Goals (1-6 months):

1.

2.

3.

Long-term Goals (1-5 years):

1.

2.

3.

Section 3: Analysis and Reflection

Complete these final questions to analyze your findings and reflect on your learning.

1. What patterns did you observe in the distribution of species across your mapped area?

2. How might seasonal changes affect the biodiversity in your mapped area?

3. What human activities might impact the ecosystem you studied?

Key Takeaways

List three main things you learned from this mapping activity:

1.

2.

3.