Investigating Local Biodiversity - Student Activity Worksheet

Learning Objectives

- Understand and define key biodiversity concepts
- Develop field investigation skills
- Practice species identification and data collection
- Analyze ecosystem relationships

Section 1: Understanding Biodiversity Basics (15 minutes)

Complete the following activities individually:

1. Key Terms Investigation

Research and write detailed definitions for these important terms:

Term	Your Definition	Draw an Example
Biodiversity		
Ecosystem		
Habitat		
Species		

Biodiversity Quiz

Circle the correct answer for each question:

1. Which statement best describes biodiversity?

- ○ a) The number of plants in an area
- ○ b) The variety of all living things in an area
- ○ c) The number of animals in an area
- ○ d) The size of organisms in an area

2. Which factor is NOT considered an abiotic factor?

- ○ a) Sunlight
- ○ b) Temperature
- ○ c) Grass
- ○ d) Soil pH

Section 2: Field Investigation Planning

Complete these pre-investigation tasks:

1. Equipment Checklist

List and explain the purpose of five essential pieces of equipment needed for a biodiversity survey:

Equipment Item	Purpose	Safety Consideration

2. Quadrat Design Activity

Design and label a quadrat that could be used for sampling. Include measurements and materials needed.

[Space for quadrat design drawing]

Explain your design choices:

Section 3: Species Identification Practice

Using the provided local species guide, complete these identification tasks:

1. Species Identification Chart

Species Image	Species Name	Key Features	Habitat Type
[Image A]			
[Image B]			
[Image C]			

2. Adaptation Analysis

For each species identified above, describe one specific adaptation and explain how it helps the organism survive:

Species A Adaptation: _____

Species B Adaptation: _____

Species C Adaptation: _____

Section 4: Field Data Collection

Record your observations and measurements in the following tables:

1. Environmental Conditions

Factor	Measurement	Time of Day	Notes
Temperature (°C)			
Light Intensity (lux)			
Soil Moisture (%)			

2. Species Count Data

Quadrat Number	Species Name	Number Counted	Distribution Pattern
1			
2			
3			

Section 5: Data Analysis and Calculations

1. Calculate Species Density

Species Density = Number of individuals ÷ Area of quadrat

Species	Calculation	Result (per m²)

2. Calculate Species Frequency

Frequency = (Number of quadrats containing species ÷ Total number of quadrats) × 100

Species	Calculation	Result (%)

Section 6: Ecosystem Interactions

1. Food Web Construction

Using the species you observed, construct a food web in the space below:

[Space for food web diagram]

2. Interaction Analysis

Type of Interaction	Species Involved	Description of Interaction
Competition		
Predation		
Symbiosis		

Section 7: Conclusions and Recommendations

1. Biodiversity Assessment

Based on your findings, evaluate the biodiversity of your study area:

Species Richness (number of different species):

Species Evenness (distribution of individuals):

Overall Biodiversity Rating (Low/Medium/High):

2. Conservation Recommendations

Suggest three specific actions to maintain or improve biodiversity in this area:

1.
2.
3.

3. Error Analysis

Potential Source of Error	Impact on Results	How to Improve