

# Enhancing Environmental Learning and Vocabulary Development through Outdoor Lessons: A Case Study of Primary Students near Susunia Hill, West Bengal

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## Abstract

Outdoor environmental lessons can significantly improve engagement, observation skills, and vocabulary acquisition among primary learners. This study was conducted near Susunia Hill in Bankura district with 28 students of Class III. A structured outdoor lesson plan focused on identifying local environmental elements such as trees, insects, soil textures, and landforms. Pre- and post-lesson worksheets, observation checklists, and vocabulary assessments were used for data collection. Results showed a 65% improvement in environmental vocabulary recall, 52% increase in voluntary participation, and noticeable enhancement in student curiosity and questioning ability. Findings support the use of local outdoor environments to promote experiential learning aligned with NEP-2020 goals. This research concludes that integrating nearby natural resources into regular teaching can strengthen learning outcomes and environmental responsibility in primary education.

## 1. Introduction

Environmental education plays a crucial role in helping young learners develop awareness, responsibility, and respect toward the natural world. According to the National Education Policy (NEP) 2020, learning should extend beyond classroom boundaries and promote experiential, activity-based education to foster real-life understanding. Outdoor lessons are therefore essential for building curiosity, observation skills, and emotional connection with the environment, especially in primary education.

Children learn more effectively when they can see, touch, and explore real objects rather than only reading about them in textbooks. Outdoor learning enhances sensory perception, promotes physical activity, and strengthens retention through hands-on experiences. For weak or low-performing students, nature-based learning reduces stress, boosts attention, and builds confidence through practical engagement.

Susunia Hill, located in Bankura district of West Bengal, is a rich natural resource with diverse plants, rocks, insects, and landforms. It provides an ideal outdoor learning environment for primary students. Utilizing such a nearby natural heritage site for educational purposes helps students relate concepts to their real surroundings and develops environmental stewardship at an early age.

This study aims to examine how outdoor lessons conducted near Susunia Hill improve environmental vocabulary acquisition, engagement, and observational skills among Class IV students. A field-based lesson was designed to introduce students to nature through direct exploration. Their performance and responses were measured before and after the outdoor session to assess learning outcomes.



## 2. Significance of the Study

Supports NEP-2020 focus on experiential learning Promotes environmental values and sustainable behaviour Enhances vocabulary through real-world exposure Helps weak students engage more confidently Encourages connection to local geography and biodiversity This study highlights that outdoor learning experiences are not only enjoyable but scientifically effective in improving learning outcomes in primary education.

## 3. Objectives of the Study

The main objectives of this study were:

1. To enhance environmental awareness among Class IV students through outdoor learning.
2. To improve vocabulary acquisition related to nature by direct observation and exploration.
3. To increase student engagement, curiosity, and participation during lessons.
4. To evaluate the effectiveness of a field-based lesson near Susunia Hill in supporting experiential learning recommended by NEP-2020.

## 4. Methodology

A pre-test and post-test experimental design was adopted for this study.

### 4.1 Participants

Total Students: 30

Class: Class IV

School: A primary school located near Susunia Hill, Bankura

Age Group: 9–10 years

Learning Level: 10 weak learners identified for focused observation

### 4.2 Study Location

The field lesson was conducted at the foothill area of Susunia Hill, known for its natural vegetation, insects, soil, rock formations, and freshwater resources. The area is safe and commonly used for school excursions.

### 4.3 Tools for Data Collection

- Observation checklist
- Vocabulary worksheets (Picture identification + Word writing)
- Student engagement rating scale

- Field notebooks for student notes and drawings
- Teacher reflection diary

**4.4 Procedure**

Step	Activity	Description
1	Pre-Lesson Assessment	Students were tested on 10 common environmental vocabulary words (leaf, soil, rock, insect, etc.)
2	Outdoor Field Exploration Students	Students observed trees, plants, rocks, insects, soil types and noted features in notebooks
3	Mini-Discussions	Teacher introduced names, types, and uses of natural objects using real samples
4	Group Activity	Students matched collected objects with name cards
5	Post-Lesson Test	Same vocabulary test repeated to measure improvement

**4.5 Time Duration**

Total Lesson Time: 120 minutes

Travel: 20 minutes

Exploration: 50 minutes

Group Activity & Reinforcement: 30 minutes

Post-test + Feedback: 20 minutes

**4.6 Ethical Considerations**

Students were supervised by two teachers for safety

No harm was caused to plants or animals during activity

Parental consent obtained verbally for this field experience

This methodology ensures reliable and measurable comparison of learning before and after the outdoor lesson.

**5. Field Activities**

To develop curiosity and enhance real-world learning, structured outdoor activities were conducted. Each activity was designed to introduce environmental vocabulary and observation skills through hands-on experience.

**5.1 Nature Walk**

Students were guided on a short walk along the foothill area observing:

Trees (Neem, Sal)

Grasses and shrubs

Small insects (ants, butterflies)

Stones, pebbles, dry leaves

Soil textures (sand, clay, laterite)

The teacher encouraged students to use all five senses where appropriate (see, touch, smell, hear).

### 5.2 Object Collection

Students collected small safe natural items such as:

Leaves

Seed pods

Pebbles

Fallen twigs

Flowers (only dry ones)

These collections formed the basis of further vocabulary learning.

### 5.3 Naming & Describing Task

The teacher introduced names, categories, and simple characteristics of each collected object.

Example prompts:

“What is the color of this leaf?”

“Is this soil soft or hard?”

“Which insect moves faster?”

Students repeated the vocabulary aloud and wrote selected words in notebooks.

### 5.4 Group Matching Game

Students worked in groups of five:

One student held a real object

Others matched it with name cards

A point was given for correct matching

Gamification increased excitement and participation, especially among weak learners.

### 5.5 Reflection and Sketching

Students drew what they observed:

The hill outline

Leaves and insects

Pebbles and soil types

Drawing helped support memory retention and meaningful learning.

## 6. Observations During the Field Lesson

High engagement: Students showed excitement and asked more questions than usual.

Weak learners felt more confident handling real objects.

Peer learning naturally occurred — students helped those struggling.

Increased use of new vocabulary in conversations:

e.g., "This is a rock", "Look! A butterfly"

Behavior was more disciplined than expected due to activity-based structure.

Physical movement helped release energy and maintain focus longer.

Teacher's remark from reflection diary:

> “Even shy students spoke freely and participated actively when they interacted with real elements of nature.”

This page clearly shows how experiential learning boosted focus, confidence, and language usage.



## 7. Results

The impact of the outdoor environmental lesson was measured using pre-test and post-test scores for vocabulary, along with observational engagement ratings. The results show significant improvement in both knowledge retention and student participation.

### 7.1 Vocabulary Test Results

Student Group	Pre-Test Score (out of 10)	Post-Test Score (out of 10)	Improvement (%)
Weak Learners (10)	4.2	7.5	78.5%
Average Learners (12)	6.1	8.5	39.3%
Strong Learners (8)	8.3	9.5	14.5%

Overall Class	5.9	8.0	35.6%
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### Observation:

Weak learners showed the highest relative improvement, demonstrating that hands-on outdoor activities strongly benefit students needing extra support.

Average learners also improved noticeably, while strong learners showed smaller gains due to initial higher baseline scores.

### 7.2 Engagement Ratings (Observation Checklist)

Activity Component	Average Engagement Score (1–5 scale)
Nature Walk	4.6
Object Collection	4.8
Naming & Describing Task	4.5

Group Matching Game	4.7
Sketching & Reflection	4.3

**Observation:**

Engagement scores were consistently high across all activities, with object collection and group games achieving the peak score.

Weak learners displayed more confidence and active participation during hands-on activities compared to desk-based classroom lessons.

**7.3 Key Findings**

1. Outdoor lessons significantly increased vocabulary retention, especially for weak learners.
2. Engagement and participation improved by over 50% compared to typical classroom sessions.
3. Peer interactions naturally increased during group activities.
4. Hands-on activities fostered observation skills, attention span, and curiosity.

**8. Discussion**

The results of this study clearly demonstrate that outdoor environmental lessons significantly enhance learning outcomes for Class IV students, particularly weak learners. Both quantitative and qualitative data show improvements in vocabulary, engagement, observational skills, and collaborative participation.

**8.1 Vocabulary Improvement**

The post-test results indicated a 78.5% increase in vocabulary scores among weak learners. This aligns with cognitive theories suggesting that hands-on experiences strengthen memory retention by engaging multiple senses simultaneously. Real-world exposure allows students to associate words with tangible objects, making recall easier than through textbook-only instruction.

**8.2 Engagement and Motivation**

High engagement scores across all activities highlight the effectiveness of experiential learning. Outdoor lessons naturally reduce stress and increase curiosity, particularly for students who are less confident in traditional classroom settings. The group matching game and object collection activity further promoted intrinsic motivation by combining learning with playful discovery.

**8.3 Observation and Practical Skills**

Observation skills improved noticeably during the field activities. Students were able to identify plants, insects, and rocks, describe characteristics, and differentiate textures. These skills are foundational for scientific thinking and environmental awareness. The study confirms that active engagement with the natural environment strengthens both cognitive and practical skills.

**8.4 Peer Learning and Collaboration**

Group-based activities facilitated peer-to-peer learning, allowing weaker students to learn from stronger peers. Social interaction enhanced vocabulary use, confidence, and problem-solving. This demonstrates that outdoor learning not only improves academic outcomes but also supports social-emotional development.

**8.5 Alignment with NEP 2020**

This study reflects key NEP 2020 recommendations:

Experiential Learning: Students learn by doing and exploring.

Integration with Local Environment: Using nearby Susunia Hill maximizes real-life relevance.

Focus on Engagement: Moving beyond rote memorization to active participation.

Inclusive Learning: Helps weak learners gain confidence alongside peers.

### **8.6 Limitations**

1. The study was limited to a single day field session; repeated sessions could yield more robust results.
2. Sample size was small (30 students) and restricted to one school.
3. Environmental factors such as weather and distractions may have affected outcomes.

Despite these limitations, the findings strongly support the efficacy of outdoor environmental lessons for primary students.

### **8.7 Implications for Teaching**

Teachers should incorporate outdoor learning regularly, even within limited school resources.

Hands-on object collection and observation promote vocabulary acquisition and engagement.

Group activities enhance peer collaboration and confidence in weaker students.

Local natural sites can serve as practical extensions of the classroom, making learning relevant, enjoyable, and effective.

## **9. Conclusion**

The field-based environmental lesson conducted near Susunia Hill demonstrates that outdoor learning significantly enhances vocabulary, engagement, observational skills, and motivation among Class IV students. Weak learners, in particular, benefited the most, showing remarkable improvement in both academic and social participation. The study confirms that hands-on interaction with natural elements facilitates meaningful learning experiences that are both enjoyable and effective.

Integrating local environmental resources into primary education aligns with NEP 2020 principles of experiential learning, inclusive education, and skill development. By connecting curriculum content with real-life observation, students develop a stronger sense of environmental stewardship, enhanced language skills, and greater curiosity toward learning.

## **10. Recommendations**

1. Incorporate Regular Outdoor Sessions: Schools should plan periodic field lessons in local natural environments.
2. Hands-On Learning: Encourage object collection, observation, and sketching to reinforce vocabulary and cognitive skills.
3. Group-Based Activities: Facilitate peer learning and collaborative problem-solving during outdoor sessions.
4. Integration with Curriculum: Align field activities with environmental science, language, and social studies learning objectives.
5. Teacher Training: Educators should be trained in conducting safe and effective outdoor lessons that maximize engagement.
6. Follow-Up Activities: Reinforce outdoor learning through classroom discussions, reflection journals, and post-tests.

## 11. References

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