

**Subject Area:** Science  
**Unit Title:** Introduction to Ecosystems and Biodiversity  
**Grade Level:** 9  
**Lesson Number:** 1 of 10

**Duration:** 60 minutes  
**Date:** March 10, 2024  
**Teacher:** Ms. Johnson  
**Room:** 205

## Curriculum Standards Alignment

### Content Standards:

- Understand the basic components of an ecosystem
- Identify and describe different types of ecosystems
- Explain the importance of biodiversity

### Skills Standards:

- Critical thinking and problem-solving skills
- Communication and collaboration skills

### Cross-Curricular Links:

- English Language Arts: reading and writing skills
- Mathematics: data analysis and graphing skills

## Essential Questions & Big Ideas

### Essential Questions:

- What is an ecosystem and how does it function?
- Why is biodiversity important for the health and stability of ecosystems?

### Enduring Understandings:

- Ecosystems are complex systems that consist of living and non-living components
- Biodiversity is essential for the health and stability of ecosystems

## Student Context Analysis

**Class Profile:**

- Total Students: 25
- ELL Students: 5
- IEP/504 Plans: 2
- Gifted: 3

**Learning Styles Distribution:**

- Visual: 40%
- Auditory: 30%
- Kinesthetic: 30%

## Introduction

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Welcome to the lesson on Introduction to Ecosystems and Biodiversity with Visual Aids for Language Support. This lesson is designed for 14-year-old students and aims to introduce them to the fundamental concepts of ecosystems and biodiversity, with a special focus on incorporating visual aids to support English Language Learners (ELL) and English as a Second Language (ESL) students.

## Learning Objectives

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### Learning Objectives:

- Define and explain the basic components of an ecosystem
- Identify and describe different types of ecosystems
- Explain the importance of biodiversity
- Apply critical thinking and problem-solving skills to real-world environmental issues

## ELL/ESL Support Strategies

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### ELL/ESL Support Strategies:

- Use of visual aids such as diagrams, pictures, and videos
- Simplified language and sentence structures
- Graphic organizers and concept maps to support note-taking and organization
- Opportunities for group work and peer-to-peer support


## Components of an Ecosystem

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An ecosystem is a community of living and non-living things that interact with each other in a specific environment. It includes plants, animals, microorganisms, soil, water, and air. Ecosystems can be found on land, in water, or in the air.

## Visual Aid: Diagram of a Basic Ecosystem

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 Ecosystem Diagram

## ELL/ESL Support

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Provide a simplified definition of an ecosystem and use visual aids to illustrate the concept.

## Types of Ecosystems


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There are many different types of ecosystems, including:

- Terrestrial ecosystems (forests, grasslands, deserts)
- Freshwater ecosystems (rivers, lakes, wetlands)
- Marine ecosystems (coral reefs, oceans)

## Visual Aid: Pictures of Different Ecosystems

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 Ecosystem Pictures

## ELL/ESL Support

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Provide a graphic organizer to help students compare and contrast different ecosystems.

## Importance of Biodiversity

Biodiversity is essential for the health and stability of ecosystems. It provides many benefits, including:

- Food and shelter for animals
- Pollination and seed dispersal
- Climate regulation
- Soil formation

## Visual Aid: Diagram of the Importance of Biodiversity

 Biodiversity Diagram

## ELL/ESL Support

Use simple language and provide examples of how biodiversity affects everyday life.

## Human Impact on Ecosystems


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Human activities can impact ecosystems and biodiversity, including:

- Pollution
- Deforestation
- Climate change
- Overfishing

## Visual Aid: Pictures of Human Impact on Ecosystems

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 Human Impact Pictures

## ELL/ESL Support

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Provide a case study or real-life example of human impact on ecosystems.

## Conclusion

In conclusion, ecosystems and biodiversity are essential for the health and stability of our planet. It is important for us to understand the components of an ecosystem, the different types of ecosystems, and the importance of biodiversity. By applying critical thinking and problem-solving skills, we can work towards protecting and preserving ecosystems and biodiversity for future generations.

## ELL/ESL Support

Provide a summary of the key concepts and a graphic organizer to help students review and reflect on what they have learned.

## Assessment

### Assessment:

- Quiz on ecosystems and biodiversity
- Group presentation on a specific ecosystem
- Written reflection on the importance of biodiversity

## Extension

### Extension:

- Design a sustainable ecosystem
- Research and present on a specific conservation effort
- Create a public service announcement on the importance of protecting ecosystems and biodiversity

## Parent Engagement

### Parent Engagement:

- Volunteer in the classroom
- Participate in a school science fair
- Encourage your child to explore and learn about ecosystems and biodiversity at home

## Safety Considerations

### Safety Considerations:

- Conduct a thorough risk assessment of the classroom and any outdoor areas



- Ensure all visual aids and equipment are in good working condition
- Provide clear instructions and safety guidelines in a language that ELL/ESL students can understand

### Pre-Lesson Reflection

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**Pre-Lesson Reflection:**

- What challenges do I anticipate?
- Which students might need extra support?
- What backup plans should I have ready?

### Post-Lesson Reflection


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**Post-Lesson Reflection:**

- What went well?
- What would I change?
- Next steps for instruction?


### Appendix A: Ecosystem Diagrams

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 Ecosystem Diagrams

### Appendix B: Biodiversity Handouts

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 Biodiversity Handouts

### References

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- Example Reference 1
- Example Reference 2
- Example Reference 3