



7TH GRADE SCIENCE LAB PACKET

Ecosystems: Interactions, Energy & Dynamics

Aligned to Alabama Course of Study 7.6

Student Name: _____

Date: _____

Part I – Observational Data Collection

During your visit, record evidence from both ecosystems.

Environmental Factor	Cavern Ecosystem	Surface Forest Ecosystem
Sunlight Availability		
Plant Life		
Animal Diversity		
Temperature Variation		
Water Sources		
Evidence of Adaptation		

Part II – Data Analysis

1. Which ecosystem demonstrates greater biodiversity?
Explain using evidence.

2. Identify three limiting factors present in the cavern ecosystem.

3. How does resource availability influence population density?

4. How does temperature stability affect organism survival?

Part III – Scientific Explanation (CER Format)

Claim

Which ecosystem supports greater biodiversity and why?

Evidence

(List at least three pieces of data from your observations.)

1. _____

2. _____

3. _____

Reasoning

Explain how limiting factors and carrying capacity support your claim.

 **MAJESTIC CAVERNS**

**7TH GRADE EVOLUTION & FOSSIL
ANALYSIS PACKET**

Unity & Diversity

Aligned to Alabama Course of Study 7.16

Student Name: _____

Date: _____

Part I – Fossil Comparison Table

Compare an extinct organism (example: Mastodon) with a modern organism (example: Elephant).

Anatomical Feature	Fossil Organism	Modern Organism	Similarity or Difference?
Skull Shape			
Tooth Structure			
Limb Structure			
Body Size			
Habitat			

Part II – Analysis Questions

1. Which anatomical similarities suggest a shared ancestry?

2. Which differences suggest environmental adaptation?

3. Why is fossil evidence essential when constructing evolutionary explanations?

Part III – Cladogram Builder

Draw a simplified cladogram including:

- Mastodon
- Elephant
 - Horse
- Alligator

Label shared characteristics at each branching point.

(Provide blank diagram space in PDF layout.)

Part IV – Evidence-Based Explanation

Construct a paragraph explaining evolutionary relationships using morphological evidence.

 **MAJESTIC CAVERNS**

**7TH GRADE GEOGRAPHY & SPATIAL
THINKING PACKET**

Aligned to Alabama Course of Study 7.1

Student Name: _____

Date: _____

Part I – Map Analysis

Using a historical or geographic map of Alabama:

1. Identify major rivers and landforms.
 2. Trace the route of early exploration through Alabama.
 3. Identify geographic barriers (mountains, rivers, terrain).
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Part II – Geographic Influence Analysis

1. How did rivers influence exploration routes?

2. Why were settlements commonly located near waterways?

3. How might terrain influence military movement?

4. How does map projection or scale influence perception of distance?

Part III – Applied Spatial Thinking

Using map scale, calculate the approximate distance between two major historical locations.

Show your work:

 **MAJESTIC CAVERNS**

**7TH GRADE SYSTEMS CONNECTION &
CER PACKET**

Interdisciplinary: Science + Social Studies

Student Name: _____

Date: _____

Part I – Systems Cause & Effect Chain

Complete the flow below:

Natural Resource → Human Use → Economic Impact →
Environmental Impact → Long-Term Consequence

Topic: _____

Stage	Description
Natural Resource	
Human Use	
Economic Impact	
Environmental Impact	
Long-Term Consequence	

Part II – Constructing an Argument

Prompt:

How does resource availability influence biodiversity within an ecosystem?

Claim

Evidence

(At least three pieces of evidence)

1.

2.

3.

Reasoning

Explain how ecological principles connect your evidence to your claim.

Part III – Post-Visit Systems Reflection

1. How are natural systems and human systems interconnected in Alabama?

2. Provide one scientific example and one historical example.

3. What evidence did you observe that supports your conclusions?



7TH GRADE TEACHER FACILITATION GUIDE

Majestic Caverns Academic Extension

Purpose

This guide is designed to help teachers extend field experience learning into structured classroom analysis aligned with Alabama Course of Study standards.

Suggested Pre-Visit Discussion Questions

- What are limiting factors within an ecosystem?
 - How does geography influence exploration and settlement?
 - How do scientists construct evolutionary explanations?
 - Can human economic systems exist without natural resources?
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Suggested Post-Visit Debrief Structure

1. Review observational data tables
 2. Facilitate small-group CER discussions
 3. Compare ecosystem data between cavern and forest
 4. Analyze fossil evidence and cladograms
 5. Connect geographic location to historical decisions
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Academic Vocabulary (Middle School Level)

- Limiting Factors
- Carrying Capacity
 - Biodiversity
 - Morphology
- Phylogenetic Tree
 - Adaptation
- Population Density
 - Map Projection
 - Spatial Analysis
- Environmental Constraints
 - Economic System
 - Resource Allocation