

WAYFINDER Ecosystems

The following North Carolina State Science Standards are relevant to this Wayfinder:

Grade 5	1.01, 1.02, 1.05
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Introduction

The Museum of Life and Science's *Explore the Wild* exhibit is home to its very own ecosystem. The wetland area is a great place to bring your students to observe and interact with nature. Students should keep a watchful eye out for frogs, dragonflies, ducks and many other animal species. While they explore the area, the following concepts can be reinforced: ecosystems can support a variety of organisms; organisms interact within an ecosystem; and, organisms depend on one another for a balanced ecosystem.

In the *Magic Wings* Butterfly House, students will have a chance to consider how this artificial environment may differ from a natural ecosystem.

Before your visit

Provide and discuss many examples of ecosystems around the world. Compare and contrast them to one another.

Review the following terms: organism, ecosystem, producer, consumer, decomposer.

Consider that ecosystems can support multiple organisms by allowing for organisms to fill their own niches within it. Discuss the following examples that exist in the wild or come up with your own: How can your backyard support many different kinds of small bird? How does the African savanna support numerous large mammals? How can wooded areas support large birds of prey like hawks and owls?

Review the concept that ecosystems can support themselves continuously as each organism fulfills its role and recycling of resources occurs.

During your visit

Visit the wetland in *Explore the Wild*. While carefully exploring the area and keeping a watchful eye for organisms living here, have students work on the Wetland Scavenger Hunt, which will identify parts of this ecosystem. You can discuss results back in the classroom.

Visit the *Magic Wings* Butterfly House conservatory. Have students spend time looking around at the various aspects of this contained, man-made "ecosystem". Think about and answer these questions:

- 1) What type of ecosystem does this Conservatory resemble? *Tropical, rainforest*

- 2) Can you find examples of producers, consumers and decomposers? Are these organisms actually performing their duties in this “ecosystem” (i.e. Are producers giving out something that is actually consumed here? Is there actual decomposition going on?, etc.)? *Producers and consumers may be easy to find here. Students would not be wrong to guess that there may be decomposition going on here, but there may not be visible evidence.*
- 3) In what ways does this “ecosystem” perform natural functions? Are there organisms that depend on each other to survive?
- 4) What has been added to this “ecosystem” by the Museum staff? What is in this “ecosystem” that sustains itself and does not need to be maintained by humans? *Staff adds some food for butterflies, they make sure the water is clean and they try to control plant-destroying insects.*
- 5) Can you argue that this is a complete, sustainable ecosystem? Why or why not?
- 6) If there were no human effort put in to maintain this Conservatory, what might happen to the butterflies? The flowers? The birds? The leafy plants?

After your visit

Discuss the findings of the Wetland Scavenger Hunt. Consider the following questions/activities as results are reported:

- 1) All of the animals listed in the chart have been seen at one time in the wetland. If you did not find any trace of an animal, why might that be?
- 2) Have students pick an animal from the list and make a mini food chain including that animal and others from the list. What role does their animal of choice have in the food chain?
- 3) Why are producers/consumers/decomposers important to an ecosystem?
- 4) Can there be multiple answers within the chart at the bottom? Why? What are some other answers that you can think of that you may not have seen at the wetland?

**Please see
Wetland Scavenger Hunt Activity on next page...**

Wetland Scavenger Hunt

While exploring the wetland area keep an eye out for the following items below. Many may be hard to find - so be quiet, patient and observant.

Fill in the chart for each animal found in this ecosystem as you find them. For some animals, you may be able to put something in every column!

Animal	Saw it (√)	Heard it (√)	Saw a sign (What was the sign?)
Bird of Prey (Hawk, Eagle, etc.)			
Dragonfly			
Fish			
Frog/Tadpole			
Large Wading Bird (Heron, etc.)			
Muskrat			
Opossum			
Small songbird			
Spider			
Turtle			
Waterfowl (Duck, Goose, etc.)			

Find 2 organisms that act as producers in this ecosystem. What are they?

Find 3 organisms that act as consumers in this ecosystem. What are they?

Find an organism that acts a decomposer in this ecosystem. What is it? _____

If you can not find any, name a decomposer that might be living in this ecosystem.

Find something that...	What did you find?
<i>...provides the energy that a lily pad needs to grow.</i>	
<i>... is providing food for a decomposer.</i>	
<i>...helps keep the insects from overpopulating the area.</i>	
<i>...provides the energy for a muskrat to grow.</i>	
<i>...might destroy the turtle population if it were to die out.</i>	