

House In The Wood Lesson Plan

Using GPS to Visit the Ecosystems of House In The Wood

Common Core Math Standards-6th Grade

Marsh

- 6.RP.3c-Find the percent of invasive plants
- 6.GA.1-Find the area of the marsh on either side

Forest

- 6.RP.A.1-describe the ratio relationship between two quantities.
- 6.EE.B.9-write an inequality of the form $<$ or $>$ in real world problems.

Lawn

- 6.EE.B.7-Solve real world math problems of the form $x+p=q$ or $(h \text{ of person} + \text{Base of triangle}=\text{tree height})$

NGSS-6th Grade

LS2.A: Interdependent Relationships in Ecosystems

- Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1)
- In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. (MS-LS2-1)
- Growth of organisms and population increases are limited by access to resources. (MS-LS2-1)
- Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. (MS-LS2-2)

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

- Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. (MS-LS2-4)
- Biodiversity describes the variety of species found in Earth's terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health. (MS-LS2-5)

Definitions

Ecosystem: An ecosystem includes all of the living things (plants, animals and organisms) in a given area, interacting with each other and also with their non-living environments (weather, earth, sun, soil, climate, atmosphere)

Biodiversity: Biodiversity is the variety of life. Greater species diversity ensures natural sustainability for all life forms. Healthy ecosystems can better withstand and recover from a variety of disasters.

Abiotic: Physical, or nonliving, factors that shape an ecosystem. Examples include rocks, climate, pressure, soils, precipitation, sunlight, winds, and humidity. These abiotic factors have a direct influence on living things.

Biotic: Living factors such as plants, animals, fungi, and bacteria are all biotic or living factors. Biotic factors depend on abiotic factors to survive. The kind of biotic factors (living organisms) in a given area is often a result of abiotic conditions of that area.

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Usually, biotic members of an ecosystem, together with their abiotic factors depend on each other. This means the absence of one member or one abiotic factor can affect all parties of the ecosystem.

Key Concepts

1. Math can be used to solve real world problems.
2. We identify various ecosystems by their biotic and abiotic factors
3. Organisms are interdependent and any change in biotic and abiotic factors can affect all parties

Basic Lesson:

Use GPS coordinates to get to the various ecosystems of House In The Wood. Look for the cache and do the activities in the cache.

Visit Marsh—the story and everything to do the story will be in the cache.

- Use the House In The Wood dichotomous key to determine wetland type
- Draw a picture of the marsh with its biotic members and abiotic factors in your science journal.
- Make a food chain and introduce the muskrat food chain.
- Introduce the concept of invasive plants/animals and how the muskrat AND OTHER biotic members may lose their food source if we do not have biodiversity in the plant world.
- Do Math Problem to determine the area of the marsh and the percentage of Phragmites

NOTE:

Muskrat is a popular dish at wild game banquets where the tasty critter is found in North America - so people are on the list of **Muskrat** eaters. ... In addition the normal predators - foxes, cougars, owls, hawks, river otters, dogs, pike, muskies, snapping turtles, snakes, martins and minks.

Next you will visit the forest cache. As you leave the marsh ask them if they can tell WHEN they have left the marsh ecosystem and have entered another ecosystem. Ask them to take note so they can write it in their science notebooks.