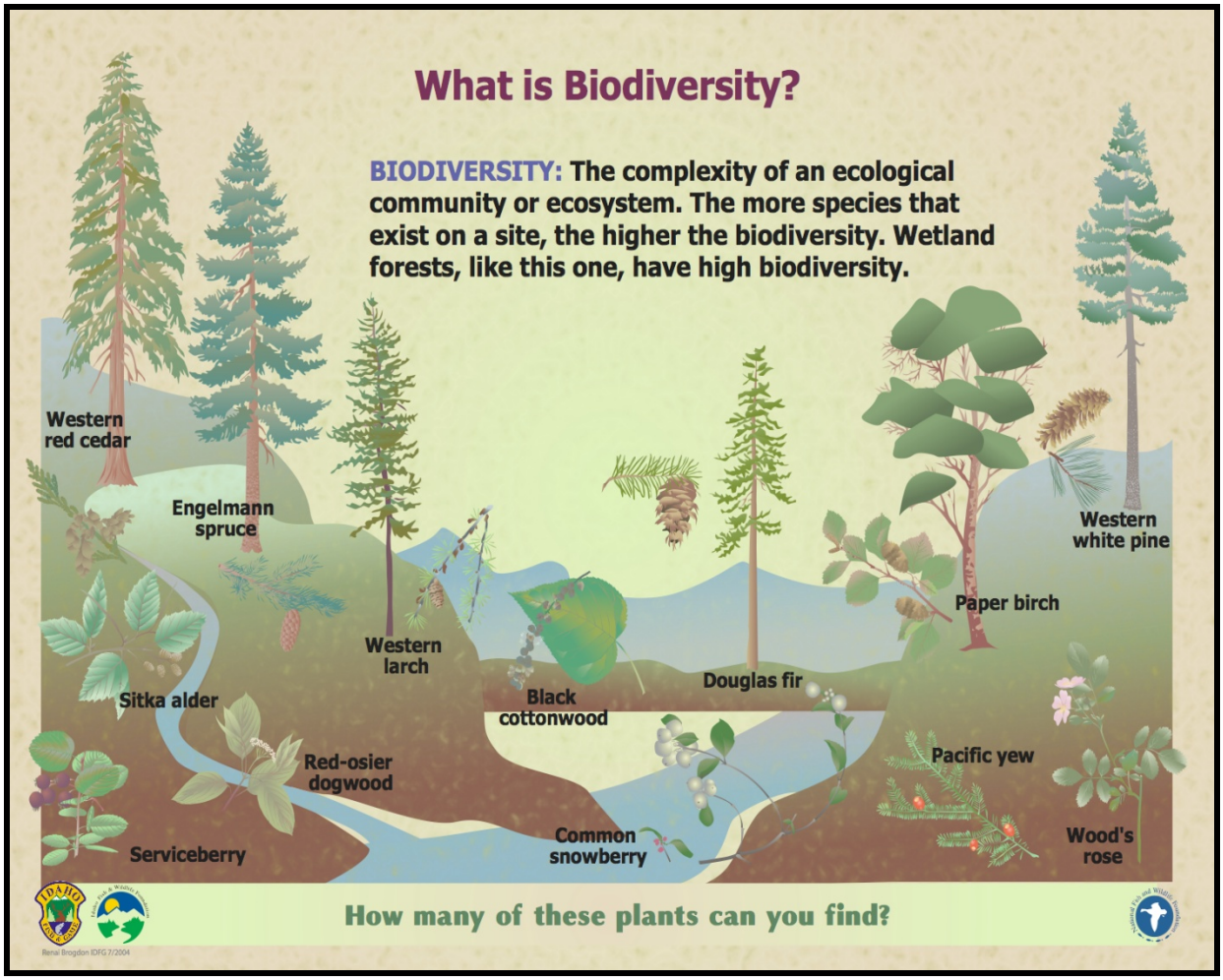

Learning Objectives-after this lesson, students will be able to:

Explain why places with high biodiversity are more stable than places with low biodiversity

Vocabulary Words

Biodiversity	Ecological Stability
Species Richness	Monoculture
Species Abundance	

BIODIVERSITY

The word “biodiversity” is a contraction of the phrase “biological diversity.” Biodiversity is the complexity of an ecological community or ecosystem, which includes genetic variation within species, the variety of species in an area, and the variety of habitat types within a landscape. Wetland forests, like this one, have high biodiversity.

Globally, biodiversity is greatest in the tropics. Estimates of the number of species living on Earth falls between 5 million and 30 million, largely because most living species are microorganisms and tiny invertebrates. However, roughly 1.75 million species have been formally described and given official names. Over half of the described species are insects, which comprise almost 75% of the known animal species.

A significant proportion of drugs are derived, directly or indirectly, from biological sources. In most cases these medicines cannot presently be synthesized in a laboratory setting. Additionally, a wide range of industrial materials are derived directly from biological resources. There is enormous potential for further research into sustainably utilizing materials from a wider diversity of organisms.

Healthy ecosystems support abundant wildlife, which the people of Idaho enjoy through recreational activities such as hunting, fishing, and wildlife viewing. Hunting and fishing fees pay for much of the conservation of fish and wildlife species in Idaho.

At the WaterLife Center

Notice the biodiversity of trees on this site, including cottonwood, fir, and cedar. The different species of trees and bushes present provide various nesting and feeding opportunities for wildlife and contribute unique chemical and physical variation to the area.

Some birds, such as flickers and brown creepers, nest in tree cavities while others such as wrens and song sparrows nest low in bushes. Still others, like crows and western tanagers prefer high tree tops. This forested wetland generally provides greater opportunities for a greater variety of inhabitants than the surrounding upland areas.

Wildlife

Wetlands support a diverse array of wildlife species. Forested wetlands generally support a greater variety of wildlife than nearby upland forests. Wetland ecosystems are second only to the rain forests in the number of wildlife and plant species that depend on them for feeding and habitat. One third of all U.S. bird species, about 230 out of 686 species, depend on wetlands for one or more of their life requirements.

Wetlands are important to mammals as a source of food and cover. Many of our local game and non-game species are dependent on the biodiversity in wetlands. For example, bears are omnivorous consumers and feed on fish, frogs, eggs, and berries found in wetlands.

Approximately 190 species of amphibians, including frogs, salamanders and toads, require wetlands for reproduction activities further illustrating the high level of biodiversity found in wetlands.

Suggested Activities

Hula-Hoop Biodiversity Count

Have students:

1) make observations and hypotheses before they go through the motions of the activity,
2) think critically about what they might find before they begin,
3) apply the ecological concepts they learned through the background information. After the lesson, if some students arrive at different answers to the question about biodiversity, get them to think about why.)

1. Divide students up into groups of three and give each group a hula hoop.
2. Instruct students to toss the hula hoop "randomly" onto the forest floor.
3. Students then go count the number of different kinds of plants they see inside the boundary of the hula hoop. Explain that they don't have to know the names of the plants. They can make up names for each type of plant if it makes it easier to tell them apart (for example, ferny plant, stringy plant, yellow flowered plant, and clover plant).
4. One student keeps track of the number of plants found inside the hula hoop. If there is time, have each group toss the hula hoop randomly a total of three times.
5. Perform the same activity across the street at the Waterlife Discovery Center lawn.
6. As a group at the WLDC or as a class back at school, collectively record the number of species found in each location and compare.
7. Compare the relative biodiversity of the two locations and ask student where they think more wildlife will be found.

WETLAND	**YARD or FIELD**
# Plants per Hula Hoop Toss	# Plants per Hula Hoop Toss