

Welcome Back!

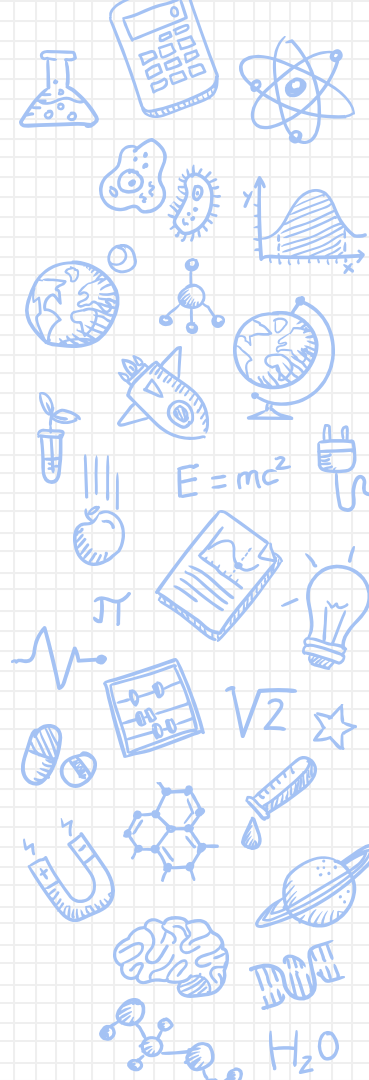




Solve It – Riddle Review

As we get ready to begin today's lesson, let's try these riddles!

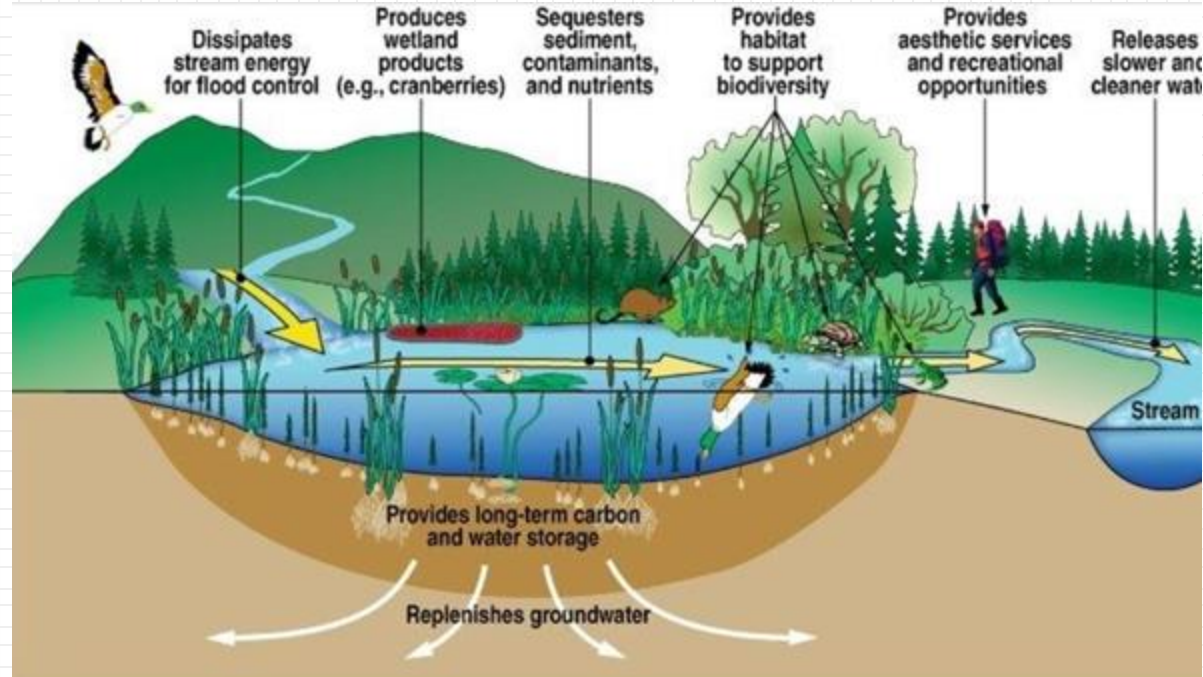
1. I stop by wetlands for food or to rest a bit. I do not live there year round. What am I?
2. I am a type of relationship where both species benefit. What am I?





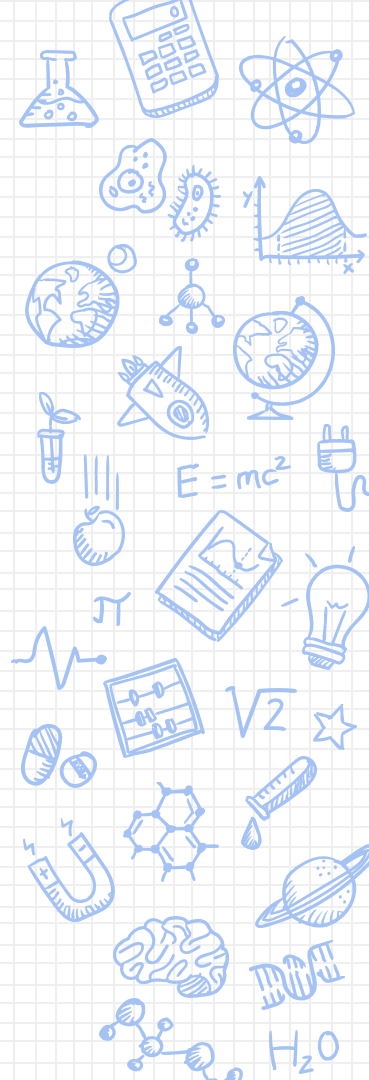
Wetlands: Environmental Importance

- Protect coastlines from damaging storms
- Purify water
- Provide a habitat for many different species





How Do Wetlands Protect the Coastline?





Wetlands: Protect the Coastlines

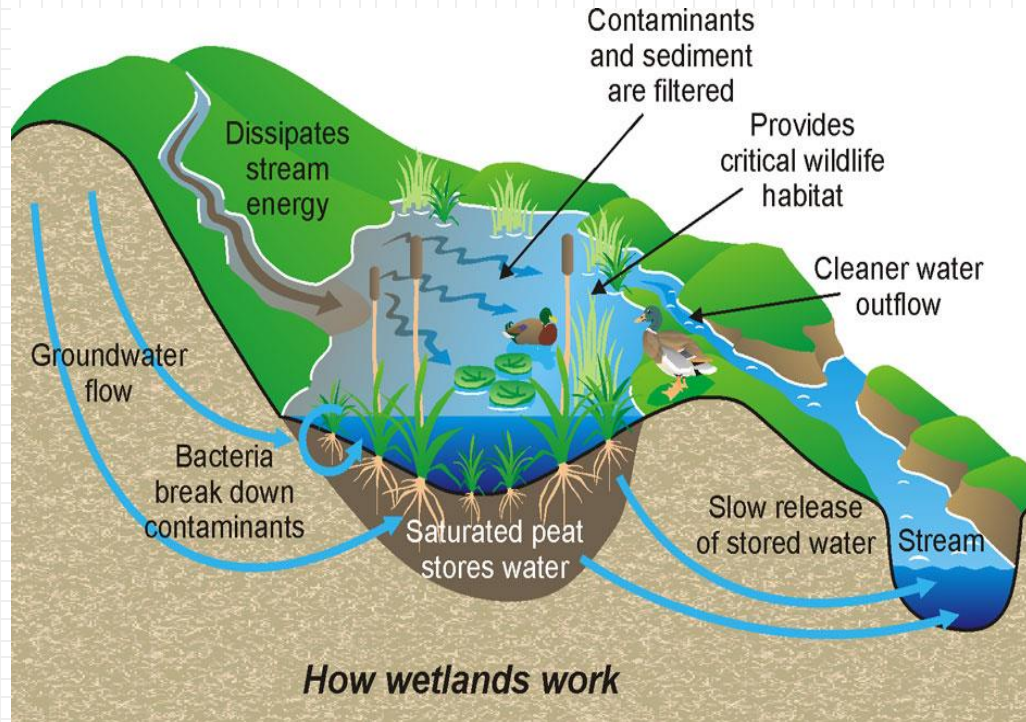
- Natural defense barrier
- Soaks up and stores the water
- Slows wind wave action and storm surges created by tropical storms and hurricanes





Wetlands: Purify Water

- **Hydrophytes** (plants) slow the flow of water
- Clears up water quality and takes out toxins/pollutants from the water
- Hydrophytes recycle nutrients such as nitrogen and phosphorus
- Captures CO₂ from the atmosphere through photosynthesis





Wetlands: Habitat for Species

- Highly productive ecosystems
- 43% of USA's endangered or threatened species' are connected to wetlands
- Spawning site and nursery for juvenile species







Coral Reefs: Environmental Importance

- Most biologically diverse and complex structure in the marine environment!



Indicator Species: their presence, population size & health tell us the health of the reef!

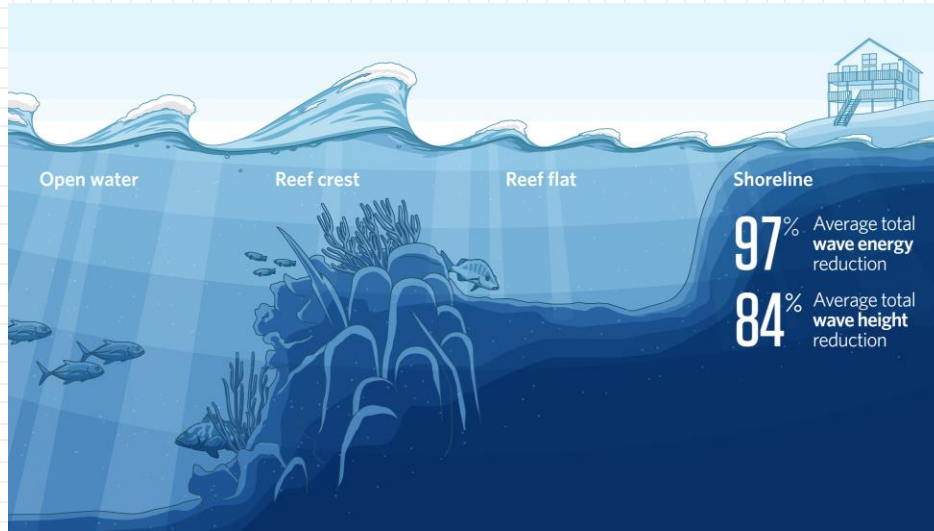


- $\frac{1}{4}$ of all marine species depend on coral reefs food and shelter
- Protect coastlines by absorbing storm energy





Coral Reefs: Protection of Coastline

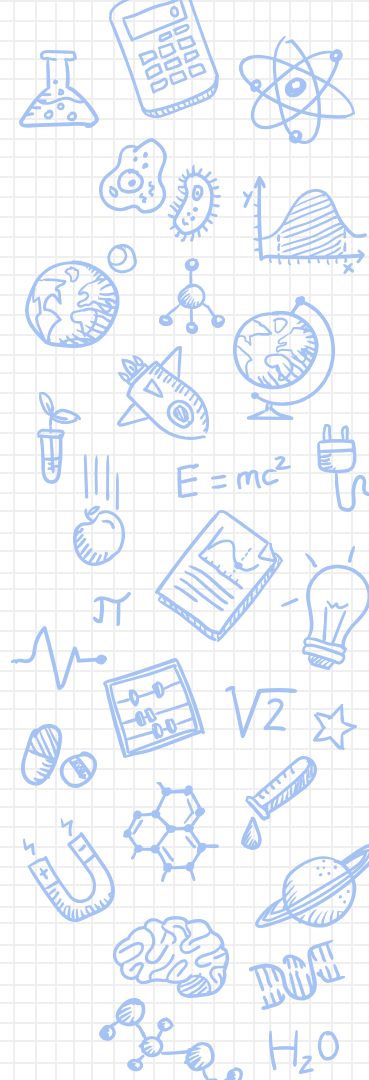


- Coral polyps build their calcium carbonate exoskeleton
- Natural defense to absorb wave energy
- 90% of wave energy is absorbed by coral reefs!



Coral Reefs: Indicator Species

How does an
indicator species
show the health of
the habitat?





Coral Reefs: Indicator Species in Action

- Do you know what this is a picture of?
- Coral bleaching is when coral expel zooxanthellae which make their food
- Coral are sensitive to changes in temperature, pH, and water quality





Coral Reefs: Biodiversity

- Coral reefs are the rainforest of the ocean even though occupy less than 1% of the ocean floor!
- 25% of all marine species rely on coral reefs either directly or indirectly for survival



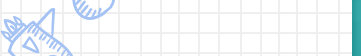
H_2O



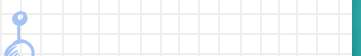
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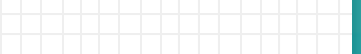
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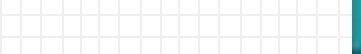
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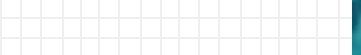
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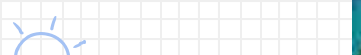
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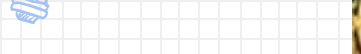
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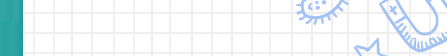
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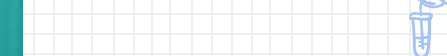
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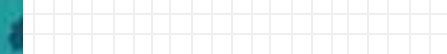
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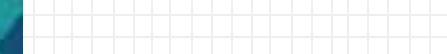
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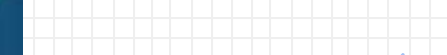
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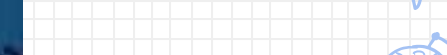
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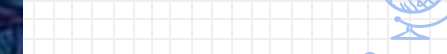
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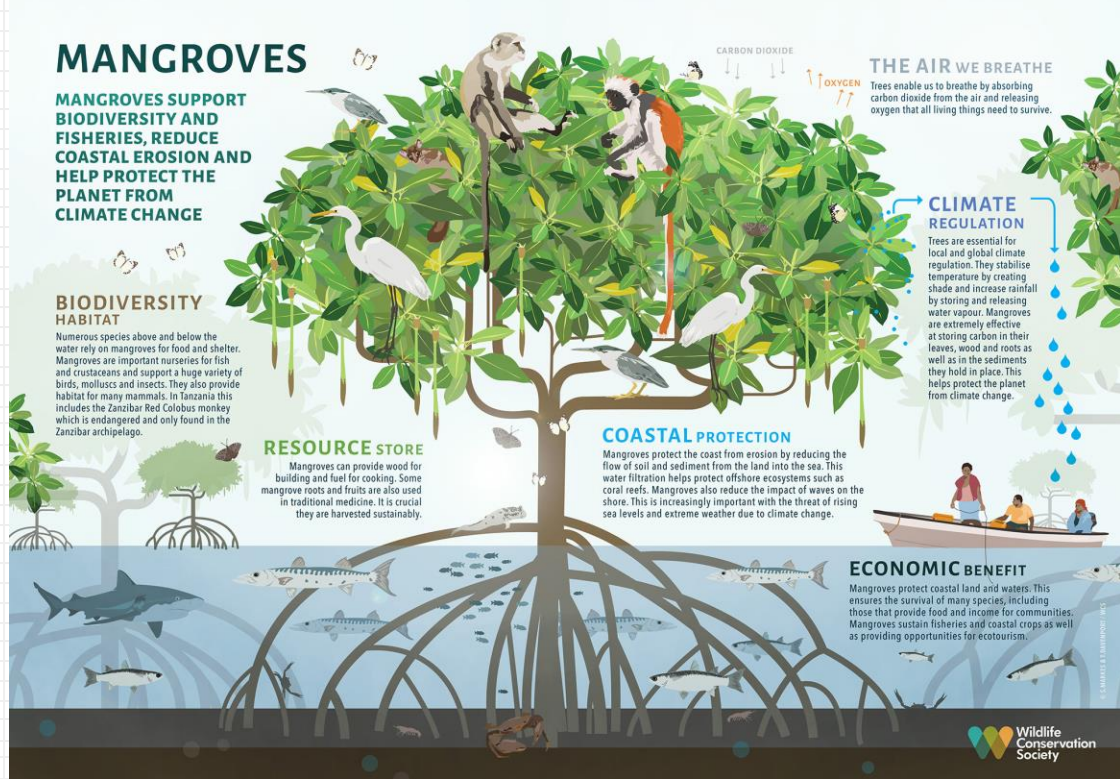


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Mangroves: Environmental Importance

- Coastal protection from erosion, storms, and waves
- Vital role in food cycles
- Roots capture and hold on to carbon





Mangroves: Protection of Coastline

- Almost 2 million people live in coastal communities
- Intricate root systems break wave energy from storms protecting those communities





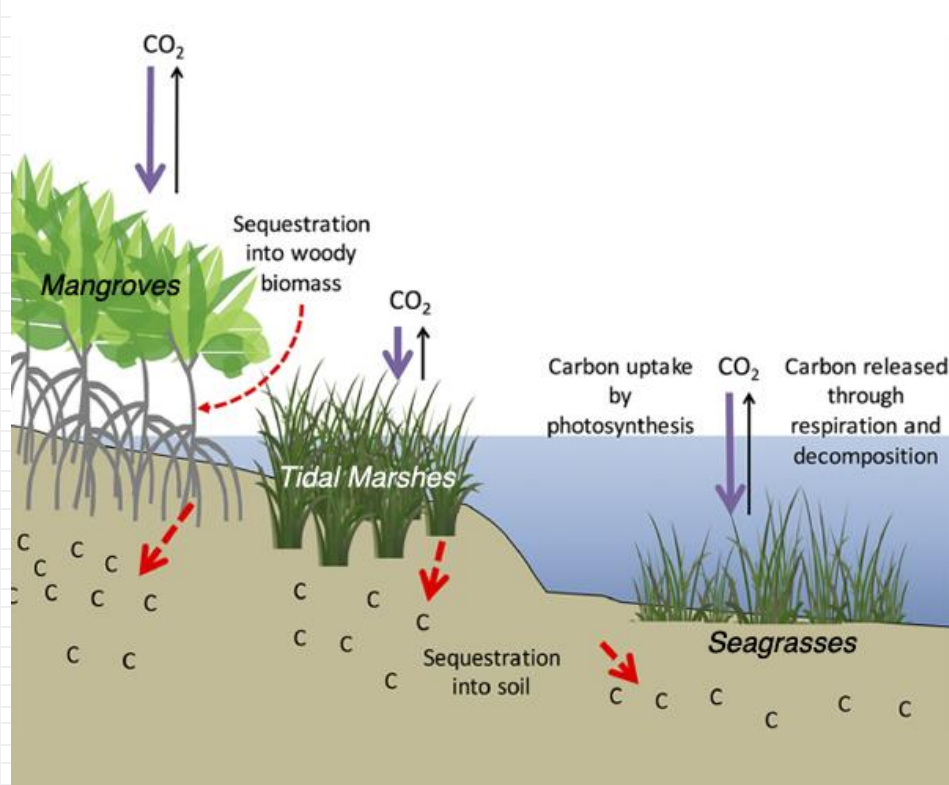
Mangroves: Vital Role in Food Cycle

- Leaves fall into the water and are broken down by marine fungi and bacteria into detritus
- Detritus is organic matter that can be used as food by other organisms – the cycle of life!





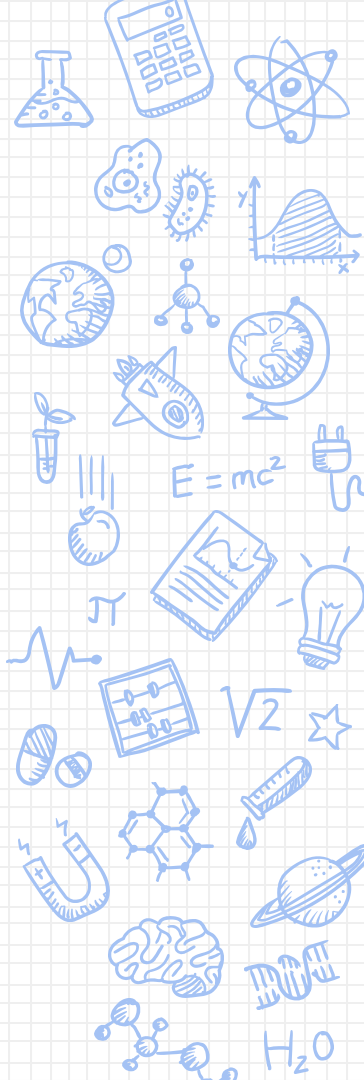
Mangroves: Carbon Sink



- Mangrove forests cover 75% of tropical coastlines
- Collect carbon dioxide in their roots
- They can hold as much as 22.8 million metric tons of carbon



75 BILLION LBS OF
CARBON





Matching: Coastal Habitat Environmental Importance!



I help purify water

$\frac{1}{4}$ of all marine species depend
on me for food and shelter

My unique roots
help slow waves
from storms

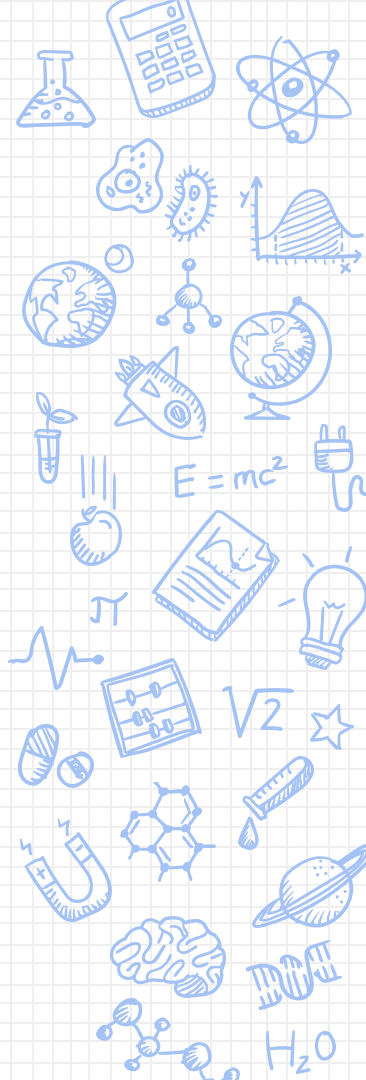


Which
description
matches the
coastal habitat?

Coral Reef

Mangrove

Wetland



Summary of Lesson 3

→ **Wetlands:**

- ◆ Coastline protection
- ◆ Purify water
- ◆ Biodiverse habitat

→ **Coral Reefs:**

- ◆ Coastline protection
- ◆ Indicator species
- ◆ Biodiverse habitat

→ **Mangroves:**

- ◆ Coastline protection
- ◆ Vital role in food cycles
- ◆ Roots capture and hold on to carbon