

Welcome Back!

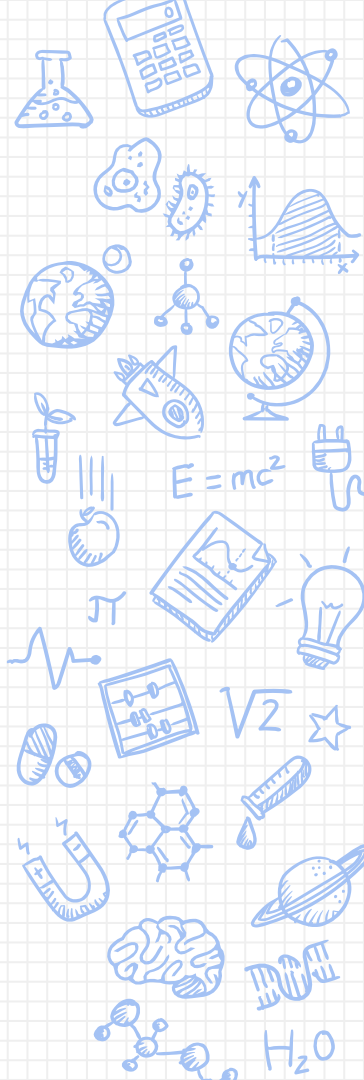




Solve It – Riddle Review

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

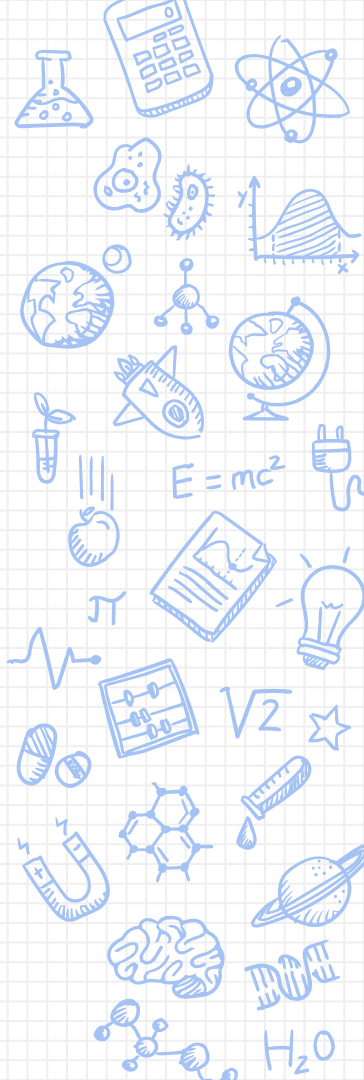
1. What consumes but does not have a mouth, grows but will not stop and dies to live again?
2. What is the only chain we eat?

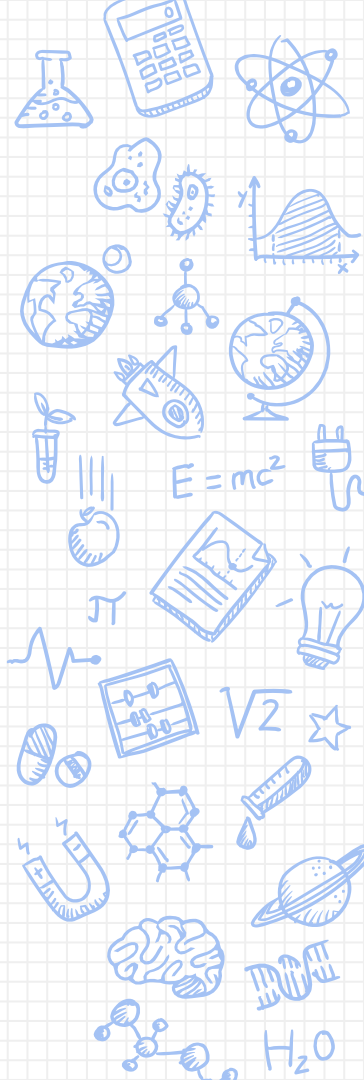




Last Week Recap

- An **ecosystem** is community of living and nonliving things in an environment
 - ◆ Organisms only survive when their needs are met (food, water, space, shelter)
- Energy flows in an ecosystem
 - ◆ A **food chain** shows how energy is passed from one organism to another
 - ◆ A **food web** shows the various chains of feeding between organisms in an ecosystem
 - ◆ **Interdependence**: species depend on each other for survival





Adaptations:

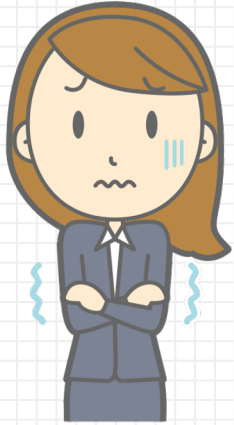
Biodiversity:

Resilience:

“bouncing back” after something bad happens



Matching: Adaptations!



Shivering to
generate heat



Coloring changing
to help blend in



A bear hibernating

Which
description
matches the
kind of
adaptation?

Physiological

Behavioral

Structural



Coastal Ecosystems

→ We will look at three (3) coastal ecosystems

- ◆ Wetlands
- ◆ Coral Reefs
- ◆ Mangroves

→ *What do the three ecosystems have in common?*

Wetlands



Coral Reefs

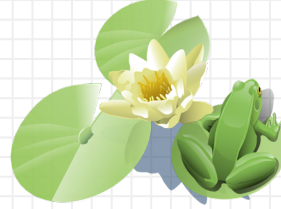


Mangroves

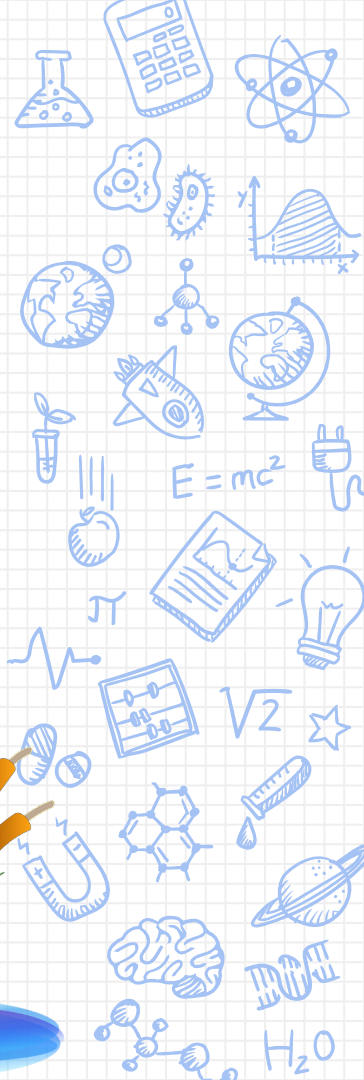




Wetlands

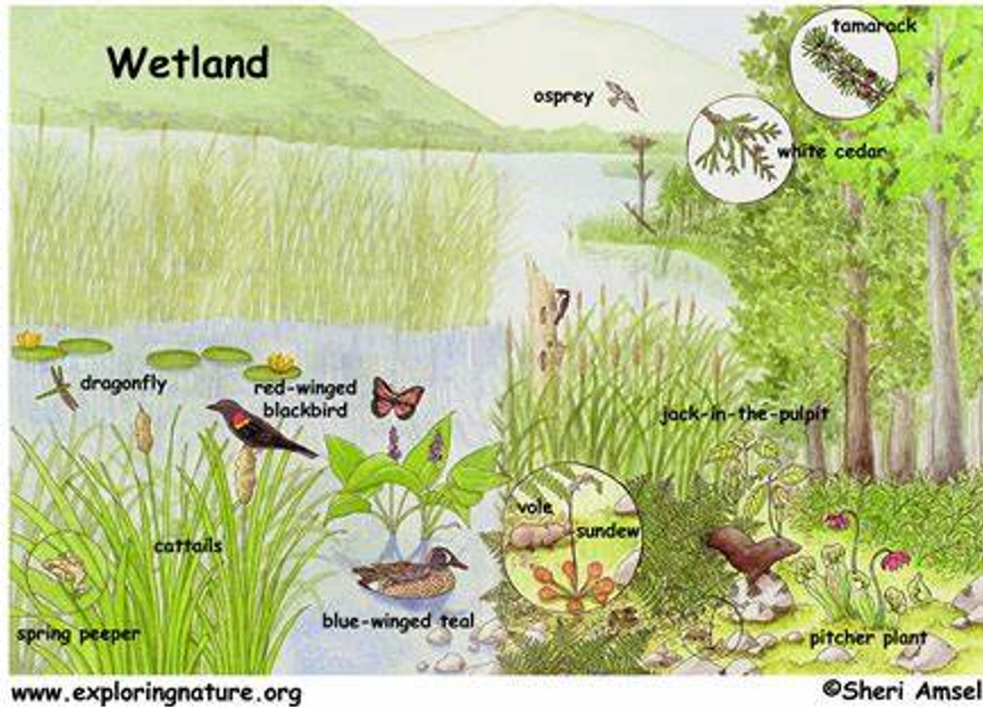


- **Wetland:** a flooded ecosystem where water covers the soil for varying amounts of time of time
- The vegetation, or plants, act as natural filters in streams and lakes
- What kind of species and adaptations do we think we might find in a wetland?

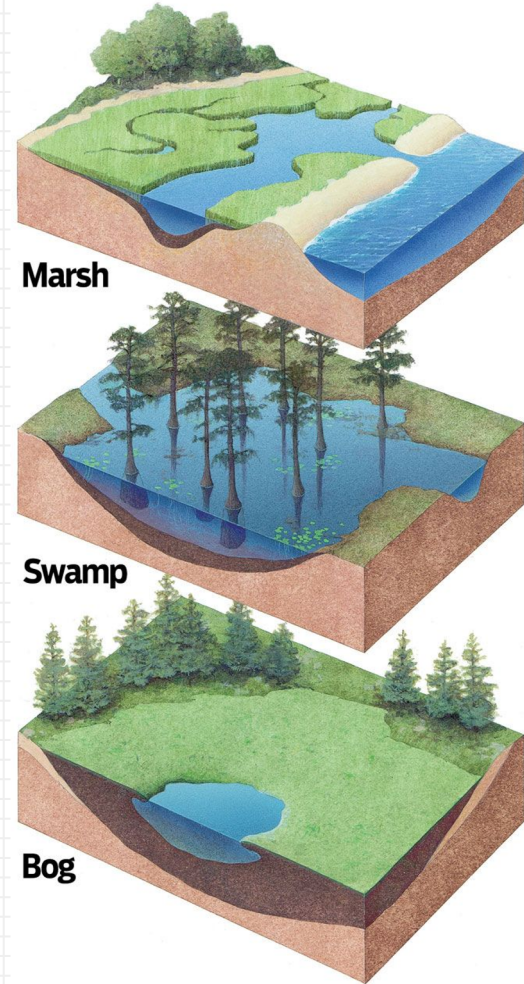




Characteristics of Wetlands



Different
types of
wetlands



Biodiversity of species in a wetland!



Wetland Species



Year-round Residents

Take advantage of resources



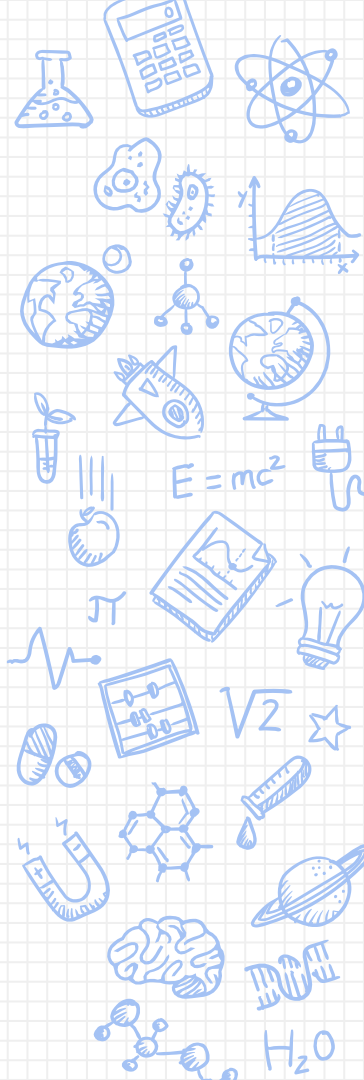
Migratory Species

Depend on the fish, amphibians, insects, & crustaceans



Nursery Grounds

Many species rely on the ecosystem to raise their young, to forage, and for shelter



Wetland Adaptations

Flora Adaptations

- Longer than usual stems with special air pockets to deliver more oxygen to the roots
- Root systems that allow the plant to live in very wet conditions





Wetland Adaptations

Fauna Adaptations

- Stagnant water has less dissolved oxygen
 - Fish & crustaceans have special gills and breathable skin
- They also have more hemoglobin which carries oxygen in their blood

Hemoglobin is a type of protein that carries oxygen in our red blood cells throughout our body!

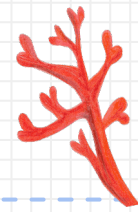


Special gills

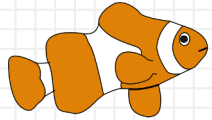
Breathable skin!



Coral Reefs



- Coral Reef: large underwater structures made of calcium carbonate
- Coral reefs are made of individual corals called polyps



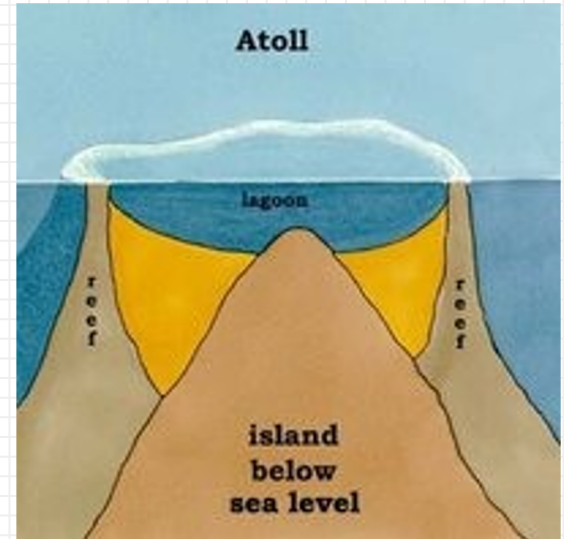
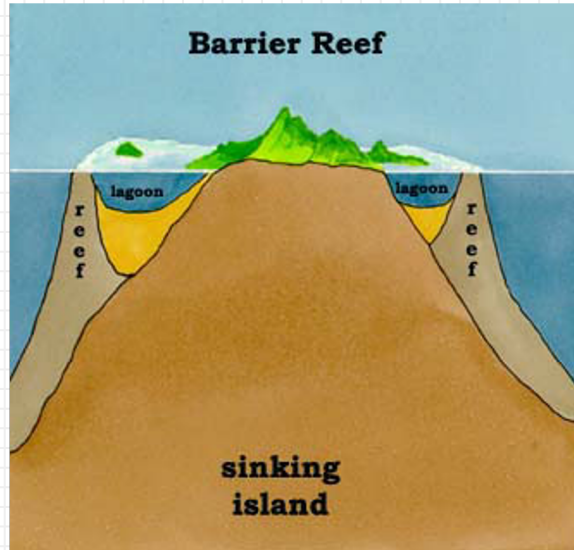
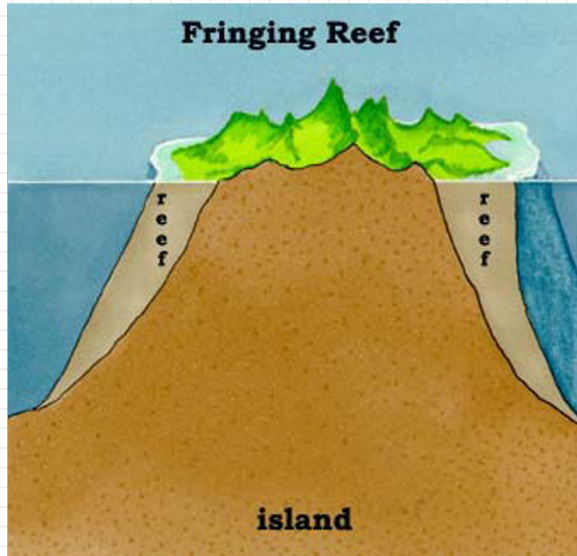
What kind of organisms can we find at coral reefs?

How do they adapt to the reefs?





Types of Coral Reefs



What are the differences between these three types of coral reefs?



Coral Reef Species



Year-round Residents

Sessile species



Visitor Species

Some species visit for a cleaning, to forage, or for shelter



Nursery Grounds

Reef fish rely on coral reefs to provide a safe space for their young





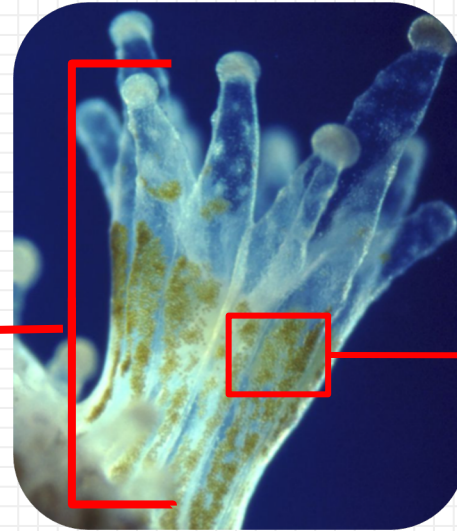
Coral Reef Adaptations

What kind of symbiotic relationship is this?

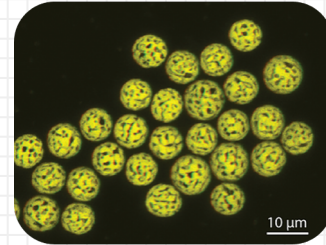
Fauna Adaptations

- Zooxanthellae provide corals with up to 60% of their nutrition from photosynthesis
- In return the microscopic algae gets a home!

Coral polyp



Zooxanthellae





Coral Reef Adaptations

What kind of adaptations might we see for protection?

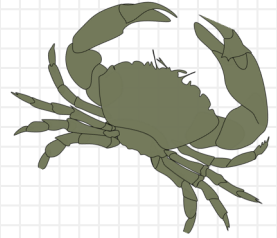


Fauna Adaptations

- Reef fish have flatter bodies which allows them to maneuver in the crevices
- Reef fish vibrant colors camouflage them from predators
- Butterfly fish has a dot on its dorsal fin to trick predators into thinking it's their back!



Mangroves



- **Mangroves:** refer to the species of a tree that makeup a Mangrove Forest. They are trees or shrubs that in grow in coastal swamps
- Bi-daily following with high tide, intense sun exposure, and roots overwhelmed with salt
- What kind of species and adaptations do we think we might find in a mangrove?





Characteristics of Mangroves



What kind of
characteristics
do we see?





Mangrove Adaptations

Snorkel Roots

- Extend from the underwater root to above the water level
- Provides a way for the mangrove to breath





Mangrove Adaptations

Buttressing Trunks

- Shallow roots so a large trunk provides stability
- Architecture seen for buildings are made similarly to these trunks





Mangrove Adaptations

Prop Roots

- Grow from the branches of the tree and extending down into water and sand/mud
- Provide structure & support
- Especially during tropical storms and hurricanes



Matching: Coastal Habitat Adaptations!



Prop roots help during intense weather for mangroves



Fish hiding in a reef to protect itself from predators



Fish being able to carry more hemoglobin for oxygen

Which
description
matches the
kind of
adaptation?

Physiological
Behavioral
Structural



Summary of Lesson 2

- We looked at three distinct coastal habitats
 - ◆ Wetlands
 - ◆ Coral Reefs
 - ◆ Mangroves
- Each habitat hosts a variety of species - **biodiversity**
- In order for organisms to thrive in these habitats they have unique **adaptations**
 - ◆ **Wetlands:** Able to survive in salt water at various times with little oxygen present
 - ◆ **Coral Reefs:** Protection from predators!
 - ◆ **Mangroves:** Strong, salt tolerant roots for structure and support

