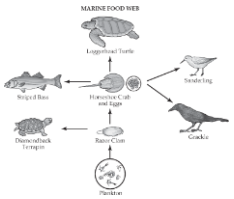


You Seek, I'll Hide [ME]

Adapted from Smithsonian Institute Ocean Portal

Grades: K-2
Time: 45 minutes to 1 hour

Goal: To understand a basic aquatic food chain and feeding habits of several known species.

Objectives:
Students will be able to: define a food chain, a food web, and predator-prey interactions; give examples of local species; and understand diurnal and nocturnal feeding in aquatic ecosystems.

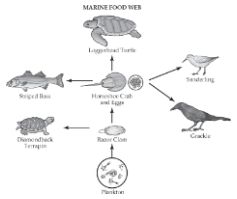
Materials:

Photos of coastal ecosystem (found on page 310)
Photos of small prey species (found on page 53)
Photos of one diurnal predator (found on page 137)
Photos of one nocturnal predator (found on page 136)
String
One-hole punch
Large playing area

Preparation: Set up the predator and prey species cards so the students can wear them around their necks. Laminate the photos and punch two holes at the top of each. Thread the string through each hole and tie a knot in them so students can wear them during the game. The ecosystem picture should be laminated and placed at one of the room, so the students known where "home base" is.

Procedures:

1. Pre-Activity (introduction): Begin a discussion with the class about what they eat and where their food comes from. Elaborate on simple food chains in relation to what they eat (i.e. sun → grass → cows → beef/milk). Give examples of an aquatic food chain from the sun to large fish such as sharks, using species they would be familiar with. Introduce the terms predator and prey species and day-time and night-time feeders (for older students, you can use the terms diurnal and nocturnal). Explain they are going to play a tagging game about eating and being eaten in an aquatic ecosystem. Have the students clear the center of the room of their chairs so there is a playing area. You can also have them play in the gym or outside if space is available.



2. Activity: Pass out the predator and prey cards. There should only be two diurnal predators and two nocturnal predators; the rest of the students can be various prey species. The rules of the game are simple: swim and eat without being eaten. Small prey species (plankton and small fish) can move around day or night. Medium fish eat during the day and must tag the plankton and small fish (at least 7) in order to survive the next round. At night, they can hide in the ecosystem ("home base") but they are allowed to venture out if they choose. Large predators feed at night, so for the first round (daytime), they are to stand around the edge of the classroom while the medium fish are feeding. Turn off the lights to stimulate night and allow the predators to hunt for food. They must tag at least two medium fish or 4 small fish to survive. Go through several days and nights in the game before asking the students to take their seats again.

3. Post-Activity (review): Compare their predator-prey relationships to those found in other aquatic ecosystems. Explain that sometimes more than one predator can consume more than one prey species, so they create a food web, instead of just one food chain. If time allows, have the students recreate their food chains by drawing them out.

Key Words:

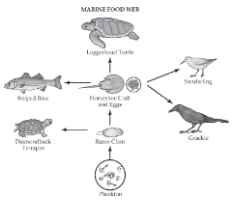
Food Chain	Food web	Predator
Prey	Diurnal	Nocturnal
Ecosystem	Habitat	

Background Information:

Adapted from Wisegeek

Animal behavior within an ecosystem varies depending on whether a species is considered to be prey or predator. As a prey species, their behavior coincides with being always aware of their surroundings, on the lookout for something that can harm them, and scurrying about, with movements that are quick and short. As a predatory species, their behavior can be slow and methodical or lie in wait, ready to pounce. These types of behaviors can also be altered by feeding habits and avoidance of predation and many species have adapted these behaviors to their specific habitats and ecosystems.

Species that demonstrate a majority of their normal activity (e.g. building homes or nests, finding mates, feeding) during the daylight hours are known as diurnal. This gives species with poorer darkness vision an opportunity to utilize the sun for their everyday activities. Their time to rest or not be visible is at night. They will try to utilize the darkness, along with other adaptations, such as color, to camouflage themselves to their habitat.



Nocturnal species, by contrast, are more active at night. They tend to have much better eyesight in darkness and will utilize this adaptation to seek out food and mates. Some species cannot expose their bodies to the heat of the sun during the day, which is the case for some reptiles, so they tend to venture out when the night air is cooler. Nocturnal species have also adapted a much better sense of hearing and some use a form of sonar or echolocation to find their prey in the darkness.

Any human disturbances to these natural day and night rhythms can cause serious harm to these species. If they are forced out of their burrows or nests by deforestation practices or construction noise, if they are fed by humans at different times of the day than they are used to feeding, or if they become stressed by the ongoing activities of humans within their habitats, they are more likely to become more vulnerable to predation. Humans, then, must learn to balance their own productivity, construction, and other activities with the natural rhythms and activities of the ecosystems they are interacting with.