

**Chapter 1 : What Organisms Eat Seaweed? | Sciencing**

*The next level of the marine food chain is made up of animals that feast on the sea's abundant plant life. On the ocean's surface waters, microscopic animals—zooplankton, which include jellyfish.*

They are naturally slow-moving and rich in protein. They are low on the food chain and for this reason have many predators. They are an ideal food for birds. Caterpillars are found in almost all climates across the world; owing to this, their predators are abundant. Apart from birds, human beings, ladybird beetles and yellow jackets eat caterpillars. Birds Caterpillars are preyed on by a litany of birds such as warbler species and tanagers, depending on seasons. Caterpillars inhabit treetops, where they feed on leaves, or on the ground, where they feed on grass or other plants. Canopy-dwelling birds, hovering around the treetops to snatch their soft-bodied meals. Other birds that feed on caterpillars are robins and woodcocks; these normally feast on caterpillars that crawl on the ground. Caterpillars are easily caught due to their slowness as well as their bright colors that make them easily spotted by the birds. The European pied flycatcher is one bird in particular that feasts on caterpillars in Eurasia. Humans Caterpillars are a delicacy to people in parts of the world like Botswana in southern Africa, as well as in East-Asian countries like China. In fact, caterpillars are harvested daily in these places, owing to their high nutritional value. In comparison with beef, lentils and fish, caterpillars have more protein and fat. Yellow Jackets Yellow jackets are predatory wasps of genera *Vestula* and *Dolichovestula*. All members of these genera are known as wasps in English-speaking countries outside of North America. According to the Gardening With the Helpful Gardener website, yellow jackets are notorious for carrying caterpillars to their nests as food for their young ones. Wasps are useful around the garden, as they oftentimes carry crawling caterpillars of virtually any size, thereby keeping them under control. However, yellow jackets feed on caterpillars mostly in the springs and early summers. As the season grows, their population sours and their diets change to other diets which are more sugar-laden. Ladybird Beetles Ladybird beetles are small, fairly round, bright-colored and spotted beetles who feed mostly on aphids. Ladybirds will eat other type of insects, notably caterpillars. Since aphids and caterpillars are harmful to plants, gardeners use ladybirds to biologically control them. Caterpillars have fairly soft bodies; ladybirds find them very soft to munch, particularly small ones.

*What Sea Animals Eat (Nature's Food Chains) Library Binding - July 1, by Joanne Mattern (Author).*

Whales are one of the most recognizable marine mammals, and people love to visit the Pacific Northwest to go whale-watching. One of the most famous whales in the Pacific Northwest is the killer whale, or orca. Some of these black and white whales eat fish, but others, known as the transient orcas, eat other marine mammals such as seals. Transient orcas move from place to place, while resident whales stay in the same general part of the ocean. These marine mammals like to munch on fish as well—usually fish like herring or salmon. What do little herring fish eat? They survive on plankton—the tiny, drifting animals and plants in the ocean. There are two broad types of plankton: The herring prefer to eat little zooplankton called copepods. They forage on other plankton, algae, dead plant materials, and bacteria. Can you think of other plants and animals that live in the ocean? What do they eat? You may have heard the terms food chain, food web, and food pyramid. What do they mean, and how are they different? A food chain is a simple chain that illustrates which organisms eat which. In a food chain, you begin with one plant. In the ocean, this might be one of the very abundant phytoplankton. A grazing copepod might eat the phytoplankton, and a herring would come along and eat the copepod for lunch. After that, a seal looking for its supper would find a few delicious herring and munch on them. If you wanted to go further, you could add your orca whale into the food chain, which likes to eat the seal. Creating a Food Chain To create a food chain, place a foot-long piece of string on the cardboard. Pin it at either end. Place the plant pin at one end of the string, followed by the copepod, the herring, and the seal. Creating a Food Web Of course, the menu in the ocean is a lot larger than what your food chain shows! Individual animals can eat many other types of plants and animals, not just one. For example, a seal likes to eat other fish like salmon, and seals in turn can be eaten by larger animals such as orca whales. Are there any other connections that you can see? Your food chain is beginning to look more like a web! Can you research any other animals that might be part of this ocean food web? Add them to push pins and continue building your web. Creating a Food Pyramid A food pyramid is different from a food chain or web. How is it different? Think about your herring. How many copepods does it eat in a week? How many herring does it take to feed your seal? As you move up the food chain, each level, or trophic level, can support fewer animals. Each trophic level represents the position an organism occupies in a food chain. A single seal ultimate consumer can eat many herring secondary consumer, and a single herring can eat many copepods primary consumer. Each copepod eats hundreds of individual bits of phytoplankton, called producers because these small plants get energy from the sun. This means that thousands and thousands of plankton end up indirectly feeding that seal at the top of the chain. A food pyramid shows the different numbers of organisms that are necessary at each level of the food chain. At the bottom of your food chain you might draw many different bits of phytoplankton, but there will be only one seal in the small triangle at the top. First, cut out the template from the image you printed. Fold the template along the diagonal lines that run through its center. From bottom to top, label the four parts of one triangle with the following names: From bottom to top, label the four parts of the second triangle with the names of the plants and animals on your food chain. The phytoplankton are the producers, the copepods are the primary consumers, the herring is the secondary consumer, and the seal is the ultimate consumer. On a third triangle, draw a picture of each plant or animal. To complete your ocean food pyramid, tape the tab on your first triangle to the underside of your third triangle. Disclaimer and Safety Precautions Education. In addition, your access to Education. Warning is hereby given that not all Project Ideas are appropriate for all individuals or in all circumstances. Implementation of any Science Project Idea should be undertaken only in appropriate settings and with appropriate parental or other supervision. Reading and following the safety precautions of all materials used in a project is the sole responsibility of each individual. Take a closer look with this colorful printable.

**Chapter 3 : Food Chain - Kid's Corner**

*Covering 71 percent of the Earth's surface, the ocean provides a magnificent variety of creatures. Each of these creatures occupies a unique position on the food web, or trophic web, which is composed of producers, consumers, and decomposers.*

**Search Food Chains and Webs** All living organisms depend on one another for food. By reviewing the relationships of organisms that feed on one another, this lesson explores how all organisms are linked. If students understand the relationships in a simple food chain, they will better understand the importance and sensitivity of these connections, and why changes to one part of the food chain almost always impact another. **Interactions, Energy and Dynamics.** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. Construct an explanation about how the different parts of the food chain are dependent on each other. Develop a model to describe the cycling of matter and flow of energy among living parts of the food chain. Construct an argument, supported by evidence gathered through observation and experience, showing how changes to physical or biological components of an ecosystem affect populations. Evaluate competing design solutions for maintaining biodiversity and ecosystem services. Answer questions about how pollution affects food chains by applying scientific principles to design a monitoring plan for minimizing the human impact on the environment. Answer questions about the interdependence of herbivores, carnivores and producers as members of a food chain. Answer questions about how pollution affects food chains. **Background** A food chain is a simplified way to show the relationship of organisms that feed on each other. Green plants, called producers, form the basis of the aquatic food chain. They get their energy from the sun and make their own food through photosynthesis. Herbivores, such as ducks, small fish and many species of zooplankton animal plankton eat plants. Carnivores meat eaters eat other animals and can be small e. Omnivores are animals including humans that eat both plants and animals. Each is an important part of the food chain. In reality, food chains overlap at many points because animals often feed on multiple species forming complex food webs. Food web diagrams depict all feeding interactions among species in real communities. These complex diagrams often appear as intricate spider webs connecting the species. This lesson demonstrates that changes in one part of a food chain or web may affect other parts, resulting in impacts on carnivores, herbivores, and eventually on producers. An example of this might be the harmful effects of pollution. The point that should be made is that when something disrupts a food web, humans should try to understand and minimize the disturbance. Students should also come to recognize that humans, too, are part of this complex web of life. They also act as food, providing energy for other organisms. In the Great Lakes, most producers are phytoplankton, or microscopic floating plants. An example of phytoplankton is green algae. Large rooted plants, another type of producer, provide food and shelter for different organisms, fish and wildlife. **Primary Consumers** The next level in the food chain is made up of primary consumers, or organisms that eat food produced by other organisms. Examples of primary consumers include zooplankton, ducks, tadpoles, mayfly nymphs and small crustaceans. **Secondary Consumers** Secondary consumers make up the third level of the food chain. Secondary consumers feed on smaller, plant-eating animals primary consumers. Examples of secondary consumers include bluegill, small fish, crayfish and frogs. **Top Predators** Top predators are at the top of the food chain. They can be carnivores or omnivores. Top predators typically sit atop the food chain without predators of their own. Examples include fish such as lake trout, walleye, pike and bass, birds such as herons, gulls and red tailed hawks, bears and humans! **Food Webs** In reality, many different food chains interact to form complex food webs. If one organism in a chain becomes scarce, another may be able to assume its role. In general, the diversity of organisms that do similar things provides a type of safety, and may allow an ecological community to continue to function in a similar way, even when one species becomes scarce. However, some changes in one part of the food web may have effects at various trophic levels, or any of the feeding levels that energy passes through as it continues through the ecosystem. At the base of the aquatic food web are: **Plankton** Plankton are microscopic plants and animals whose movements are largely

dependent upon currents. Plankton are the foundation of the aquatic food web. Plankton are vital in the food supplies of fish, aquatic birds, reptiles, amphibians and mammals. Phytoplankton Plant plankton are called phytoplankton and may be single cells or colonies. Several environmental factors influence the growth of phytoplankton: Zooplankton Animal plankton are called zooplankton. Zooplankton can move on their own, but their movement is overpowered by currents. Zooplankton may be herbivores or plant-eaters eat phytoplankton , carnivores or meat eaters eat other zooplankton or omnivores, which eat both plants and animals eat phytoplankton and zooplankton.

**Chapter 4 : BBC Bitesize - What types of food do animals eat?**

*Of course, many different animals eat grass, and rabbits can eat other plants besides grass. Foxes, in turn, can eat many types of animals and plants. Each of these living things can be a part of multiple food chains.*

**Predators and Prey** A food chain represents the transfer of body-building substances and energy when one organism eats another. Click on the image to show greater detail. As far as we know, nearly all life in the ocean is dependent on plants. Only plants have the ability to manufacture food out of inorganic substances, such as energy from the sun. Thus all animals are dependent on plants, since animals cannot derive nutrition from inorganic substances. Plants produce; animals consume. Being producers, plants form the first link in the food chain. A food chain is a sequence of organisms in which each is food for the next member in the sequence. The surface of the sea swarms with billions of microscopic plants, called diatoms. With other plants such as seaweed, diatoms form the first link in most marine food chains. All subsequent links in the food chain are consumers, or the animals. Orcas killer whales often eat cod and cod eat bivalves, especially mussels and cockles. In turn, the bivalves feed on tiny zooplankton that they filter out of the water. These zooplankton eat even tinier plants: Thus the diatoms are the producers and the zooplankton, bivalves, cod and orca are all consumers. In the ocean there are innumerable individual food chains overlapping and intersecting to form complex food webs. Most marine creatures eat a variety of foods. If one link in a chain is depleted, the other consumers in the chain have alternate food sources. Organisms generally belong to several different food chains that are linked to form a food web. The rich diversity of life in the sea forms a delicately balanced network of predators and prey and all organisms are dependent on one another for survival.

**Chapter 5 : Food Chains and Webs | Teaching Great Lakes Science**

*When it comes to ruling the sea, bigger isn't always better. Surprisingly, some of the largest ocean creatures aren't dangerous at all. The blue whale is the largest animal on the planet, weighing as much as 33 elephants, and all it eats is krill.*

At the bottom of the food chain are microscopic plants and at the top are well-known predators like sharks and seabirds. Depending on their size and place within the food chain, fish serve a variety of purposes and help to balance the ecosystem in many ways. Producers create their own food. These single-celled, microscopic plants float on top of the ocean, take in energy from the sun and use it to convert carbon dioxide and other nutrients into carbohydrates, which nourish other ocean life. They make up 95 percent of the primary producers on earth. Zooplankton Zooplankton are small, floating animals. They include fish larvae, jellyfish, microscopic copepods and small, bottom-dwelling animals. They drift through the ocean and feed on phytoplankton. Copepods make up the majority of zooplankton. Nearly all fish living in temperate or polar waters eat copepods to survive at some point in their lives. Sciencing Video Vault Small Predators The next level in the food chain consists of small predators that feed on copepods and other plankton which they strain from the water. Mollusks, small crustaceans, such as shrimp and krill, and small fish like sardines and herring, eat large amounts of the zooplankton. Large schools of small fish can quickly diminish plankton populations, but only temporarily. Top Predators Large predators, such as sharks, tuna, squid and octopus as well as marine mammals like seals and some whales, form the top of the food chain. Birds and humans are also included in this group. Large predators feed on a wide variety of smaller fish. Species such as bluefish and striped bass are not only some of the most popular targets for human recreational fishing, but they are also eaten by larger fish like swordfish and sharks, as well as ospreys and other sea birds that grab them from the water. This shows how even fish at the top of the food chain can become food for other top predators. The very top predators will eat whatever is available, including each other. The Food Chain Begins Again The food these large predators waste drifts to the bottom of the ocean where lobsters and other bottom dwellers feed on it. Some of the food is also decomposed by bacteria and returned to the soil where plants can use its nutrients. The waste of whales and sea turtles, creatures that do not have immediate predators, is also broken down by bacteria. The Marine Food Web About the Author Megan Martin has more than 10 years of experience writing for trade publications and corporate newsletters as well as literary journals.

**Chapter 6 : Oceans Alive! | Life in the Sea | Predators and Prey**

*If looking for the ebook What Polar Animals Eat (Nature's Food Chains) by Joanne Mattern in pdf form, then you have come on to the correct site.*

What is a food web? Some animals, such as foxes, eat a variety of foods, so chains can be interconnected to form a food web. In a food web, large numbers of different herbivores feed on plants. The plants get their energy from the Sun. Smaller numbers of carnivores eat the herbivores. Earthworms, bacteria, and fungi are decomposers. They break down plant and animal bodies when they die, returning nutrients to the soil so that they can be reused for plant growth. They break down the remains as they feed on them. Death When living things die, they stop taking energy from the food chain. But their dead bodies can provide energy for other creatures and nutrients that help plants to grow. Plant Plants get their energy directly from the Sun, so they are often at the bottom of the chains that form a food web. Thrush The song thrush is found from Western Europe to Siberia. This bird feeds on berries, insects, and invertebrates such as worms and snails. It smashes snails against a stone or other hard surface, breaking open their shells so it can get to the flesh inside. Snail The garden snail feeds on plants. It rasps away at leaves with a rough tongue called a radula. Peregrine falcon This predator dive-bombs other birds, killing them in the air. It will sometimes grab prey on the ground, including rabbits and other small mammals. Red fox The red fox is found in most parts of the world. But the fox will also feed on anything edible it can find, including birds, beetles, worms, frogs, eggs, mice, voles, fruit, and much more. Rabbit Rabbits are herbivores. They generally eat grass and other fleshy plants. They spend much of their time feeding. Fungi Fungi feed on other living things and recycle the remains. This fungus, called the pale brittlestem, is found in Europe, Asia, and North America. It is found in clusters on rotting wood in early summer.

## Chapter 7 : Examples of Food Chains

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The Food Chain The food chain is the order in which animals and plants eat each other in order to survive. Every living creature needs to eat other creatures below it. Every ecosystem has a different food chain, depending on which animals and plants live there. The lowest part of the food chain are the plants. This process is called photosynthesis. Animals are the consumers of the food chain. They eat other plants and animals. Some animals only eat plants. Among this group of herbivores are rabbits, mice and cows. Carnivores are animals that eat other animals, like wolves, foxes or lions. Each food chain has a predator, the strongest animal that is not eaten by others. Hawks or polar bears are such predators that dominate their habitats. Typical food chain Many creatures belong to more than one food chain. Grass, for example, is eaten by many other animals as well as insects. Food chains that are connected to each other are called food webs. When an animal dies it is eaten up by worms, bacteria and other organisms. These so-called decomposers break down animals and plants into small parts and enrich soil so that other plants can grow better. The nutrients of dead animals and plants are converted back to the soil so that plants can use them again. The balance of plants and animals within a food chain is determined by nature. For example, if there are too many zebras in a tropical habitat many of them will die because they cannot get enough food to feed on. This also means that there is less food for predators, like lions, to eat. And when there are fewer lions the zebra population will grow again. How plants and animals are related in a food chain.

## Chapter 8 : Build a food chain. An online game for kids

*Animals can be put into groups based on the types of food they eat. Some animals called carnivores only eat meat. Others are called 'herbivores'. They only eat plants. Animals that eat meat.*

## Chapter 9 : The Sagebrush Sea: Food Web | Nature | PBS

*A food chain differs from a food web, because the complex network of different animals' feeding relations are aggregated and the chain only follows a direct, linear pathway of one animal at a time. Natural interconnections between food chains make it a food web.*