

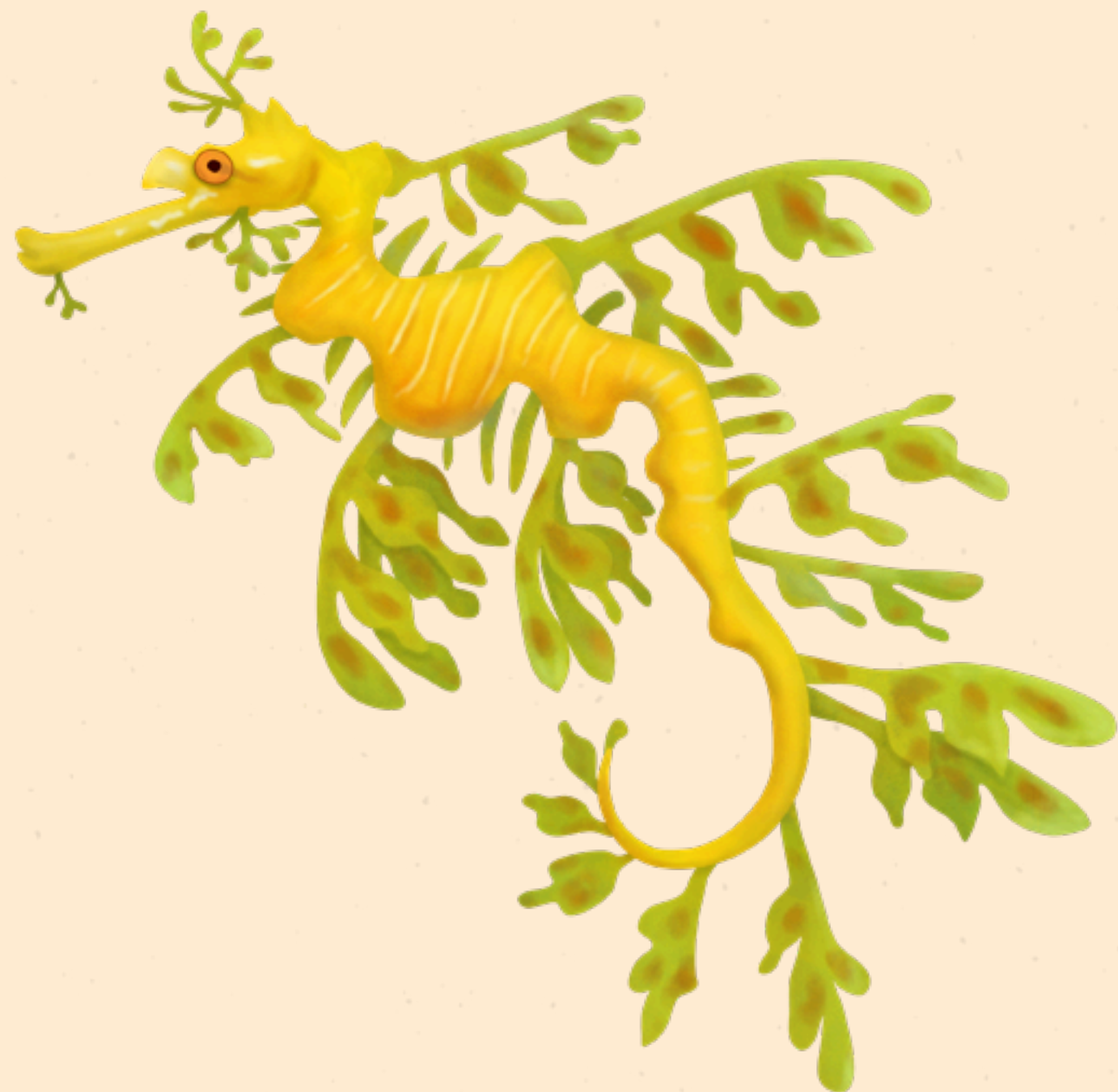
# Encyclopedia of Undersea Life

for Young Readers

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# SMALL SHARKS

There are as many as three hundred species of sharks, some of which feed on little worms and crustaceans, but most will eat any living creature they encounter. Sharks have excellent hearing and smell. They can tell where fish are fighting or where divers are from several kilometres away. They can also smell a tiny drop of blood from a distance of several hundred metres. According to oceanologists, sharks are also very curious about the world – they like to explore new things.

## Blacktip reef shark

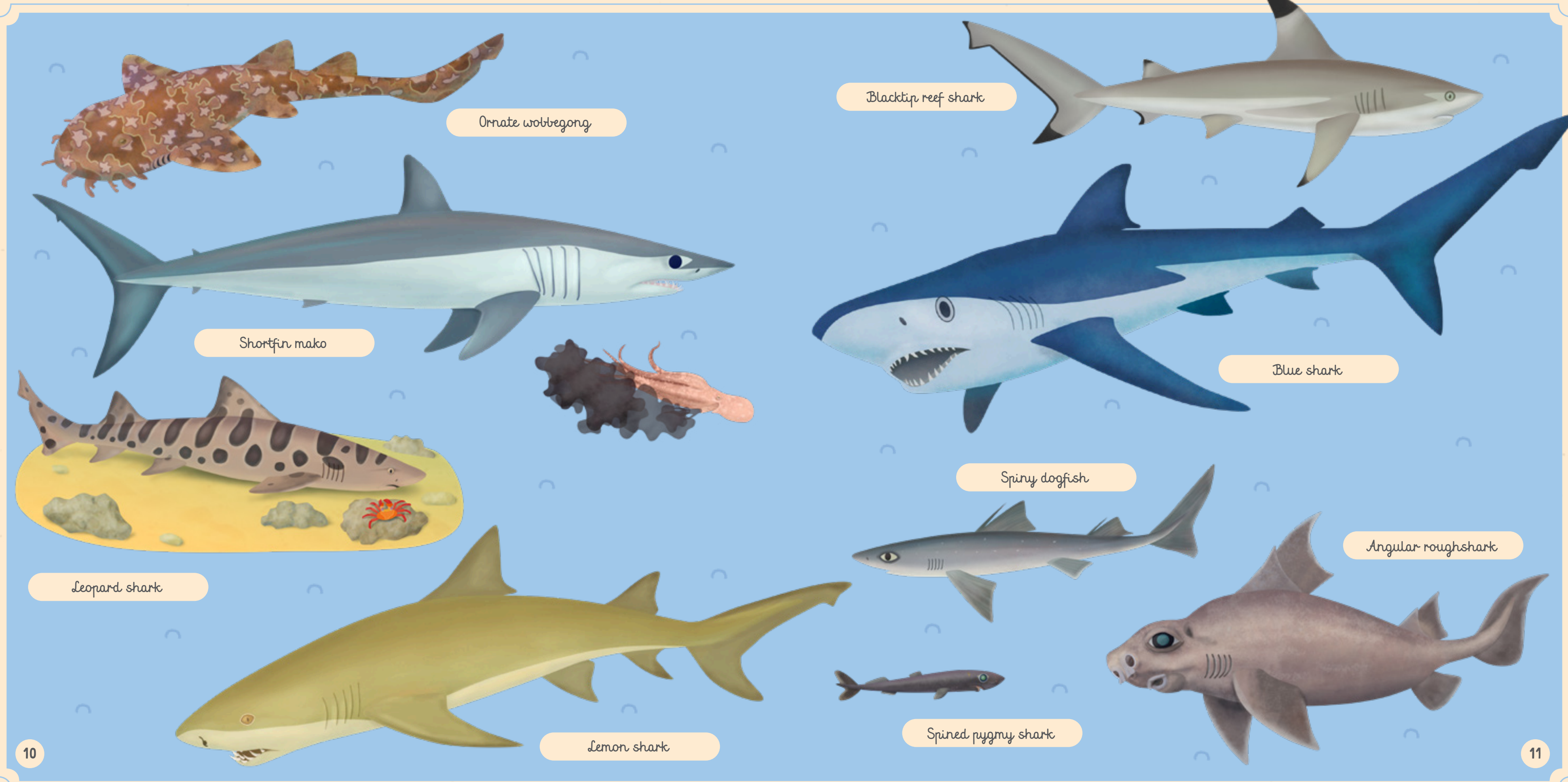
The black tips of its dorsal and tail fins often stick out above the water's surface. It lives in the shallow coastal waters of the Pacific and Indian oceans. It is a timid shark and will only attack a human if it mistakes them for food.

## Blue shark

A nocturnal hunter with blue colouring on its back and sides. This slim elegant shark feeds on octopus, mackerel and tuna. Sometimes it circles its prey for several minutes before attacking.

## Spiny dogfish

It lives in shallow waters off the coasts of most continents and travels in packs close to the sea floor. Its name comes from the spines near its dorsal fins, which can inflict painful injuries.



## Ornate wobbegong

Most of the day it lies in wait on the sea floor for small fish, cuttlefish and shrimp. Its body is perfectly adapted for this task, as it is flat and camouflaged with a coloured pattern that looks like seaweed.

## Shortfin mako

Capable of hunting at a speed of up to 74 kilometres per hour, it is one of the fastest sharks. It is also able to jump out of the water several metres above the surface. It likes warm seas, where it feasts on tuna and swordfish.

## Leopard shark

Like a leopard, it has a pattern of black patches on its back. Its massive jaws with small sharp teeth can playfully crush crabs, lobsters and even pull out prey that has dug itself into the seabed.

## Lemon shark

This yellow and light-brown coloured shark lives in tropical seas. When it is young, it hunts during the day, but adults are more active at night. If it feels threatened, it will attack anything in near it.

## Spined pygmy shark

Measuring only around 20 centimetres, this shark is a tiddler. Even so, when it comes to hunting, it is as adept as its larger relatives. At night, it seeks out squid and shrimp.

## Angular roughshark

This shark is a little lacking in elegance. It has a flat snout like a pig's and its squat body is decorated with unusually tall dorsal fins with spiny tips. It feeds on worms on the seabed.



# FISH WITH SPECIAL SKILLS

*Evading your enemies is not an easy task. If you are one of the slower fish and want to survive, you have to be resourceful. It helps if you can disguise yourself as a predator, so no one comes near you. An alternative strategy is to live in water so cold that no one wants to go there. Another way of defending yourself is to flap your fins and fly... but, hey, why don't you read about the special skills of fish for yourself?*

## Atlantic flyingfish

This fish can fly like a bird. When it senses danger, it spreads its fins as if they were wings, flaps them a few times, and then launches itself out of the water and flies ... and after a few metres it dives back in.

## Blackspot tuskfish

This was the first fish to demonstrate to scientists that it could use tools. In 2006, diver Scott Gardner took a photograph of this species with a clam in its mouth, which it repeatedly smashed against a rock until it opened. Gotcha!

## Blackfin icefish

A lover of the icy waters of Antarctica, its blood no longer has the red blood cells that freeze easily. Instead, it has a special substance in its body that works like antifreeze. This allows it to survive in zero-degree water.



Atlantic flyingfish

Blackspot tuskfish



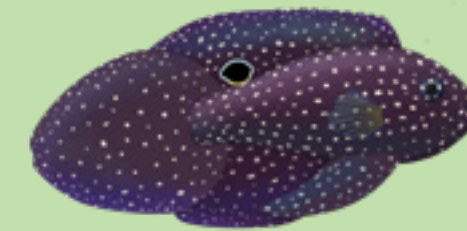
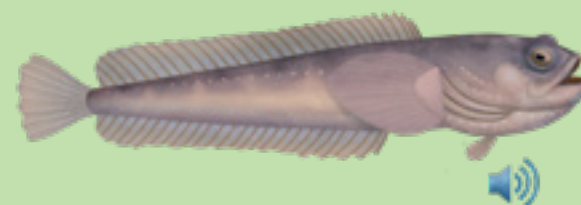
Blackfin icefish

Moonfish



Spot-fin porcupinefish

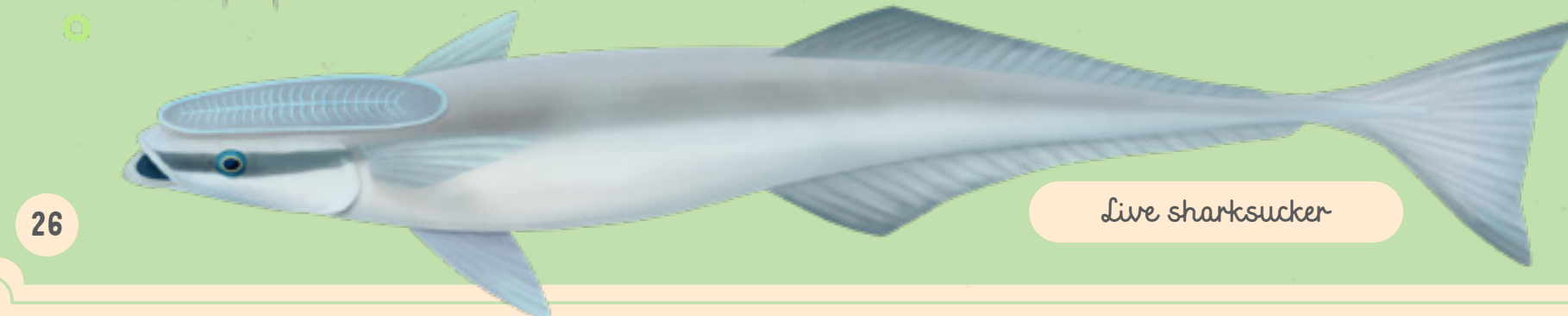
Plainfin midshipman



Comet



Northern stargazer



Live sharksucker

## Spot-fin porcupinefish

The defence strategy of this large-eyed fish is remarkable. When it feels threatened, it puffs itself up like a ball by swallowing lots of water. This also raises spines all over its body like a hedgehog.

## Plainfin midshipman

An inhabitant of the eastern shores of the Pacific. During courtship, it serenades its mate when the sun goes down. The male attracts the female by humming loudly, a sound it creates by vibrating its swim bladder.

## Live sharksucker

This slender fish has a dorsal fin with a conspicuous large oval disc. It functions as a suction cup that allows it to cling a shark, for example. It then feeds on whatever falls out of the host's mouth. It can also attach itself to a ship.

## Comet

This solitary fish outwits both predators and prey. When it's scared, it sticks its head into a hole and exposes the end of its tail, which looks like the head of a dreaded moray eel. Small fish are afraid of the eye on its side.

## Moonfish

This is a warm-blooded fish that generates heat by moving its fins while it swims. Which means it has its own little heater. And so it's hardly surprising that it can be found in cold waters hunting fish and jellyfish.

## Northern stargazer

It buries itself in the sand so that only his eye and jaws are visible. When its prey approaches, it takes a big swig of water, along with the unfortunate fish. Unwanted visitors are welcomed with an electric shock.



# Other inhabitants CEPHALOPODS

*Octopuses are fascinating cephalopods. Scientists have discovered that they are extremely intelligent. They can imitate other animals and set traps for their prey. They have a beak like birds, which is the only hard part of their body. Wherever the beak goes, the whole body can follow. They can even move on land, albeit slowly.*

## ★ Vampire squid

This red cephalopod looks a little like a rocket. It has lived at depths of around a kilometre for tens of millions of years. It has membranes between its eight tentacles and feeds on anything that sinks down to it from the waters above.

## ★ Greater blue-ringed octopus ★ Giant squid

Small but dangerous, this tiny octopus that lives around the coasts of the Pacific is one of the most venomous creatures in the oceans. When something upsets it, blue circles appear on its body. Its bite is very dangerous for humans.

It is one of the least known creatures in the ocean. Scientists believe it can grow up to 20 metres with tentacles. It can even tackle sperm whales. It has the biggest eyes in the world. One eye measures 30 centimetres.



Vampire squid



Greater blue-ringed octopus



Giant squid



Common octopus

Giant Pacific octopus

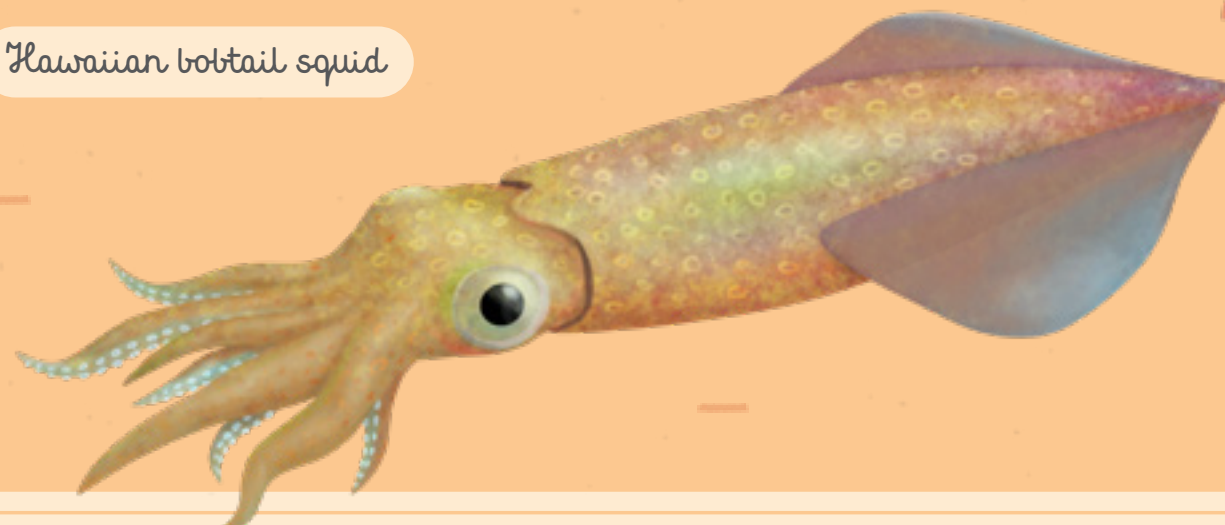


Chambered nautilus



Hawaiian bobtail squid

European squid



Common cuttlefish



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## ★ Chambered nautilus

It is one of the most ancient cephalopods and is covered by a hard shell from mother-of-pearl. The shell is spiral shaped and is divided into chambers.

## ★ Hawaiian bobtail squid

An inhabitant of coral reefs around the islands of Hawaii, this nocturnal hunter emits a light similar to that of the moon from the under part its body. This means it casts no shadow and is therefore more difficult to see.

## ★ European squid

This cephalopod has a well-developed head and ten tentacles with suckers. It is an excellent swimmer and hunter. It can reach speeds of up to 30 kilometers per hour in pursuit of prey and moves by pushing water out of its body cavity.

## ★ Common cuttlefish

One of the largest cuttlefish. It has ten arms and changes colour to blend in with its environment, like a chameleon. According to scientists, it has a great memory and can remember what, when and where it ate.

## ★ Giant Pacific octopus

Along with the giant squid, it is one of the largest molluscs. It lives at great depths, where it moves along the sea floor using its tentacles. When it's frightened, it turns pale and when it's angry, it turns red.

## ★ Common octopus

This octopus is one of the most intelligent creatures. It lives around rocky coasts. You will find lots of empty crayfish and crustacean shells scattered around its home.



# CRUSTACEANS

Even though their sharp claws and many legs may be rather scary, there are lots of creatures in the sea that can make a meal of them. Plenty of fish are able to crush their carapace like an eggshell. For this reason they have a lot of practice in manoeuvres for escaping to safety. They are able to walk backwards, disguise themselves as rocks or put their long legs into the smallest of crevices. And, hey presto, it's as if they've vanished!

## Japanese spider crab

Living at a depth of three hundred metres in seas around Japan, this is the largest crustacean in the world. The leg span of this crab may be as long as four metres. It is bright orange. Although it looks ferocious, it doesn't hunt. It's a scavenger.

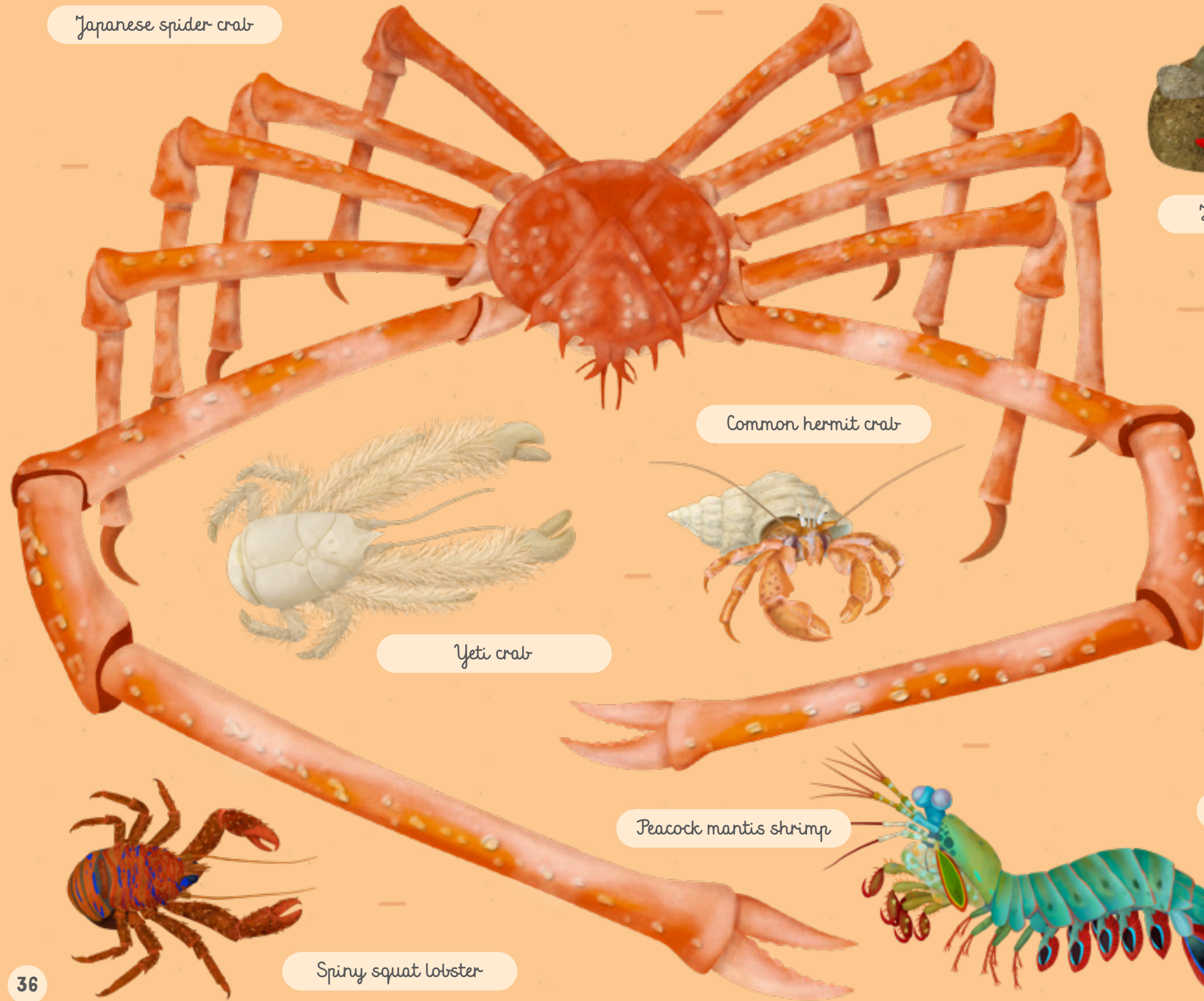
## Harlequin lobster

Did you know there are over two thousand species of shrimp in the oceans? Most of them live on corals, where they serve as cleaners for fish. But some are more particular, such as this harlequin shrimp, which feeds exclusively on starfish.

## Ornate rock lobster

This lobster looks like jewelry in the water and can be seen around the coasts of Australia and Japan. But you'd have to be lucky, because it hides among rocks during the day and only ventures out at night in search of food.

Japanese spider crab



Harlequin lobster

Ornate rock lobster



Common hermit crab



Smooth gooseneck barnacle



Yeti crab



American lobster



Peacock mantis shrimp



Spiny squat lobster



## Spiny squat lobster

This squat lobster has a bright red carapace with blue stripes and lives in the seas ranging from Scandinavia in the north to Spain in the south. It walks slowly, but when danger threatens, it can reverse very quickly.

## Yeti crab

This is a white crustacean that was only discovered this century. It was nicknamed the yeti crab because of its hairy claws and legs. It lives at a depth of two and a half kilometres below the surface. Scientists think it is blind.

## Common hermit crab

This little crab finds an abandoned mollusc shell and moves in and makes itself at home. It then carries it wherever it goes like a snail. And when it gets bigger, it leaves its little abode and goes looking for a larger one.

## Peacock mantis shrimp

One of the most ferocious predators in the deep sea. This mantis shrimp is able to strike its prey with its claws at a lightning speed of 23 metres per second. That's as fast as a hare in full flight.

## Smooth gooseneck barnacle

Unlike lobsters, we don't find barnacles on their own. They live in colonies on rocks, shipwrecks and even on turtle shells. From a distance, this species resembles a goose's neck, but it is a crustacean that feeds on plankton.

## American lobster

Weighing up to 20 kilogrammes, it is the heaviest crustacean in the ocean. It inhabits the northwest coastal waters of the Atlantic and spends its time alone. If it avoids predators, it can live to be a hundred years old.



# ECHINODERMS

If you cut a starfish, it wouldn't bleed. That's because it doesn't have any blood. Instead, it has sea water, which flows through its body and distributes important nutrients to all parts. On the other hand, it has dozens of eyes, and there is one at the end of each of its arms. And how many arms does it have? Well, some species only have four, but others have as many as fifty. And some starfish even have legs that grow into new starfish.

## Fire urchin

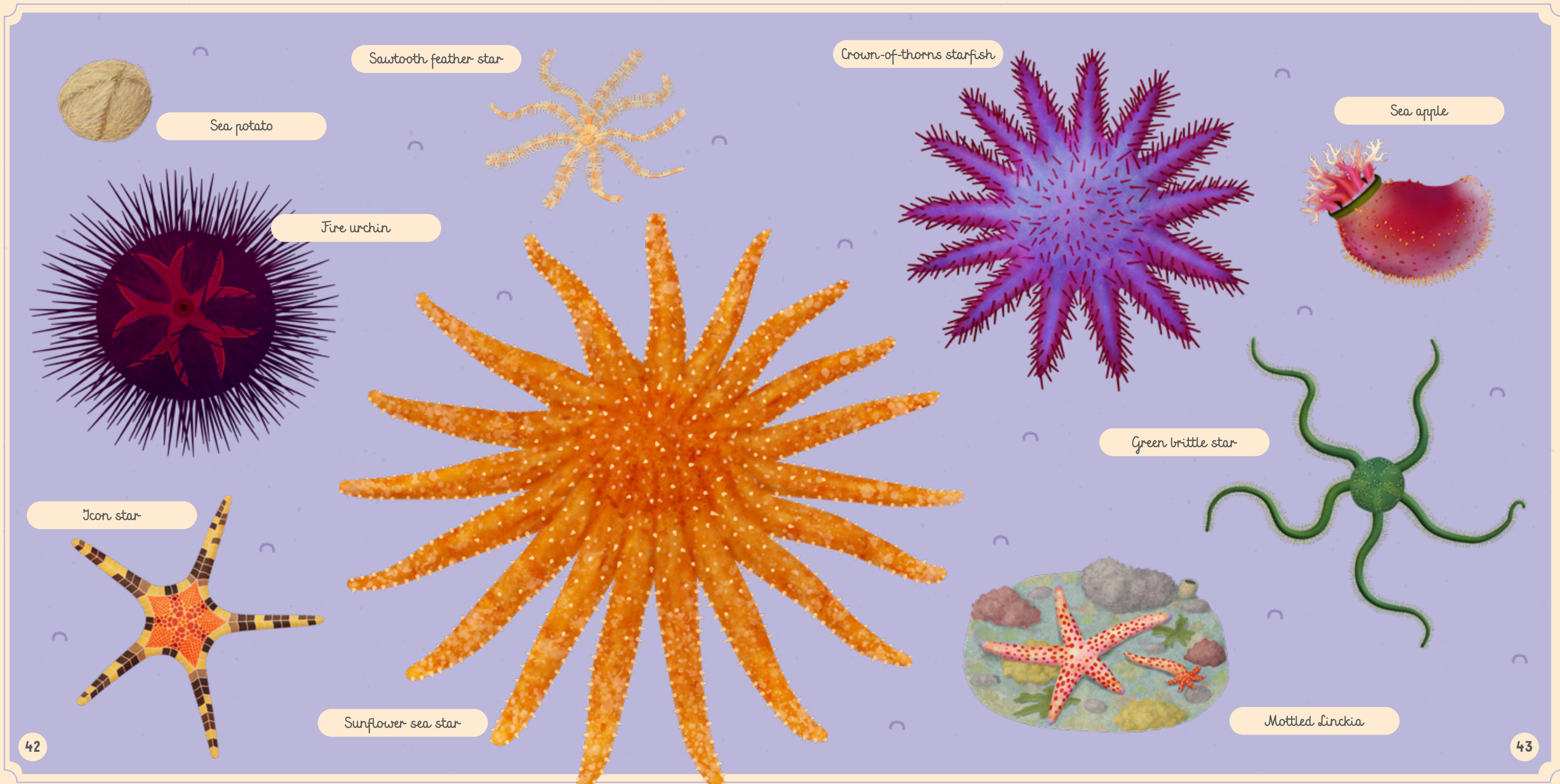
This dark purple to black-coloured urchin has four-centimetre-long spines which stick out in all directions. It lives in groups in bays and ranges from the African coast to Hawaii.

## Sawtooth feather star

It looks like a flower, but unlike a flower on land, it can move. In fact, it is a sea creature that is able to swim using its arms. It comes in a variety of colours – they can be red, yellow or even striped.

## Crown-of-thorns starfish

The venomous thorns that cover this starfish show it is not a harmless creature. On the contrary, it is a predator that leaves behind only the dead shell of coral. It has up to 18 purple arms.



## Sea potato

With its yellow-brown colour and shape, it looks a bit like a potato. Unlike other urchins, its protective spines don't stick up but curve inwards towards its body. It lives burrowed in the sandy seabed.

## Icon star

What does this honey-coloured starfish remind you of? Divers compare it to a beautifully framed picture. It can be found along the shores of the South China Sea at a depth of several tens of metres.

## Sunflower sea star

It is one of the largest and also the heaviest starfish. It can measure up to a metre across and weigh five kilogrammes. From a distance, it looks as if a sunflower has settled on the seabed. It feeds on sea urchins.

## Mottled Linckia

This little starfish has one remarkable ability. It can separate one of its arms from its body and from that arm a new starfish will grow within a year. That's why they are rarely found with all five arms intact.

## Sea apple

Round and red like an apple, this is, in fact, a kind of a sea cucumber. There are over a thousand species of sea cucumbers. This one has a wreath of tentacles around its mouth, which it cleans one by one after eating.

## Green brittle star

Resembling a little octopus, it has five arms that allow it to move along the seabed. It is primarily a scavenger and feeds mostly on dead fish, but it is also able to hunt live prey.





Seas and oceans cover over two-thirds of the surface of our planet. This means that the undersea world is twice as big as the dry land we live on. We know about the continents, and that polar bears live in the North Pole and lions and cheetahs roam the plains near the equator. But have you wondered what creatures glide through the salty waters of the Pacific, Atlantic, Arctic and Indian oceans? Turn a few pages of this book and you'll be able to observe this undersea world with your own eyes without having to go scuba diving. You'll see coral reefs and descend to kilometre depths, where the scariest fish on the planet live. You'll examine the teeth of sharks and whales and swim alongside shoals of sardines. Did you know that there are angels, butterflies and clowns in the ocean? The undersea world is colourful, mysterious, beautiful and dangerous, but never boring.

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