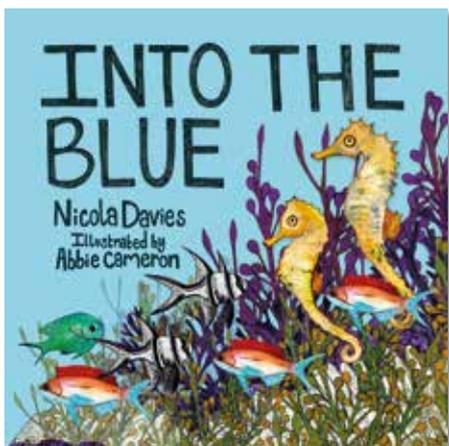


# Into the Blue by Nicola Davies Resource Notes



## Into the Blue

- Author Nicola Davies
- Illustrator Abbie Cameron
- Publication June 2016
- Hardback, 32 pages
- Size 250 x 250mm
- Age 5-8 years
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## Extra Information about the animals in this book



**Sharks and rays** are part of the same family of fish, one that's been around in the ocean for more than 400 million years. They all have skeletons made of cartilage – the bendy stuff your ears are made of – and only have proper hard bone in their jaws and teeth.

Some give birth to live young, but many lay eggs. After the young sharks or rays hatch, these eggs sometimes wash up on the beach. We call them mermaid's purses because they are like square bags with little handles at each corner.

You can collect the egg cases and then identify which kind of ray or shark laid them, to find out which species live off your beach.

Go to this website to find out how to do this and how to take part in a UK wide survey of sharks and rays eggs

[www.sharktrust.org/en/eggcase\\_identification](http://www.sharktrust.org/en/eggcase_identification)



**Shells** are usually the hard protective outer cases of molluscs – animals related to snails and slugs. There are two main kinds: bivalves, which live inside a pair of matching shells (like mussels, cockles and razor shells), and gastropods which live inside a single, usually twisty, shell (just like a snail). These are things like whelks, periwinkles and spindle shells.

Different parts of the world have different shells, but you can easily learn to identify the different shells you'll find on the UK beach.

My favourites are cowrie shells. Worldwide there are many different species of cowrie, mostly in tropical seas. Some of these are almost as big as your hand, but European cowries are tiny, little pink stripy shells that you find on Atlantic beaches on the coast of Cornwall, Ireland and western Scotland. They are hard to find, but once you know what to look for you'll become a cowrie-spotting expert in no time.

It's really tempting to collect shells and bring them home to remind you of the sea, but remember that other creatures recycle shells as their homes – hermit crabs don't have a hard shell, and have to use the used shells of molluscs. So leave gastropod shells for the hermit crabs.

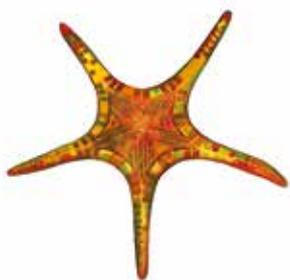


Exploring **rock pools** is WONDERFUL. So much to see and SO many animals to learn about.



**Sea urchins** are another kind of animal with a shell, but they aren't molluscs. They belong to a group of creatures called echinoderms, which means spiny skin, and is one of the most ancient animal groups on earth. Sea urchins have a fragile shell-like outer layer covered in spines with a squishy, watery body inside. Their mouths are on the bottom of their round shells and they walk on their spines.

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**Starfish** are echinoderms too. Look under the weed and stones in a rock pool and you may find several kinds, including cushion stars (my personal favourites).



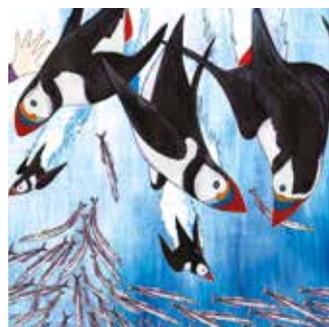
**Anemones** look like plants but they too belong to a very ancient group of animals – Cnidaria (you don't pronounce the c) – along with jellyfish. Like jellyfish, sea anemones have stinging tentacles which capture tiny prey and then bend to put what they have caught into their mouth, which is at the centre of the tentacle ring.



## Crabs

There are lots of kinds of **crabs** you might find in a rock pool. Crabs' bodies are covered in a tough shell, but one that's much more

complicated than a mollusc. It's called an exoskeleton (which just means skeleton on the outside). Crabs have five pairs of legs and the front pair, those super huge claws, are what crabs use to grab food – or your finger if you get too close. And even though they are small they can pinch, so be careful. The commonest crab you'll find is a shore crab, whose shell is sort of dark green but the one in the picture is my favourite. You find them in pools and under weed lower down the beach when the tide is far out. They are navy blue with red eyes and are called Velvet Swimming Crabs, but I prefer their other name – Warrior Crabs. They are very feisty so don't try picking one up.



## Sand eels and puffins

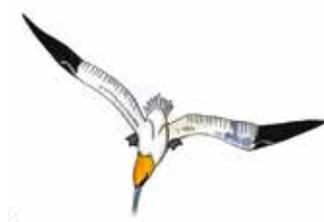
You can see **puffins** off the rocky coasts of the western UK and Ireland. They are smaller than a milk carton, like mini penguins, but unlike penguins they can swim AND fly. They use their wings for underwater flapping so they can dive down and catch their favourite dinner – tiny silvery fish called **sand eels**, which shoal close to the coast in summer. The puffin's beak has little spines on so they can hold onto lots of sand eels at a time, and carry them back to their nests in

burrows on the clifftops to feed their chicks.

In winter they lose the bright coloured covering of their beaks and fly off, far out to sea to spend the winter months catching fish far from shore.



**Guillemots** are another pint-sized sea bird that balance a need to fly with a need to dive to catch food. They like steep cliffs to nest on and they crowd together in big colonies. Their eggs are very pointed so they spin round rather than rolling off the ledge into the sea!



**Gannets** are huge! They have a six-foot wingspan but fold their wings into an arrow shape to drive like torpedoes into the sea to catch fish. Watch out for their distinctive white and black-tipped wings out at sea. Keep watching and if the gannets start to dive, look at the sea below, as there's a good chance you'll spot dolphins feeding on the same shoal of fish!



## Haddock and pollock

If you move carefully when you snorkel you can fish-watch! Seaweed waves like a jungle and fish dart in and out. Animals that you have only heard of 'with chips' actually have lives underwater. The **haddock** (the one with the forked tail in the picture) is a predator of crabs and any fish smaller than itself. It can live for more than ten years and grow to almost half a meter long.

**Pollock** too are predators but they are more active than haddock and will chase shoals of little fish to catch them.



**Conger eels** are sinister looking predators that spend the day hiding in holes in the rock and then creep out to hunt at night. They have mouths full of needle sharp teeth and can grow to be the size of small dog.

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## Dolphins

You don't have to go to another country to see **dolphins**. There are pods of bottlenose dolphins that live year-round off the UK coast. They love to ride on the bow wave of fast moving boats and when they do you can get a really close look at them. Like all dolphins, bottlenoses are highly sociable. They travel and often hunt together. That rounded head is called a melon and it has their sonar equipment inside: a fatty 'lens' for bending the sound of their clicks and whistles into a beam, to whose echoes the dolphins listen to get a picture in sound, so they can hunt after dark and in water too deep for sunlight to reach.



**Grampus**, or Risso's dolphins come close to UK coasts in summertime. The grown ups are covered in scars from scratches and fights but the calves are smooth and grey.



## Sea turtles

There are seven different species of sea turtles. They

all prefer warmer waters near the tropics and lay their eggs on beaches in warm countries. But the largest species, the leatherback turtle, follows the Gulf Stream (that's the warm current that flows up the UK's western coast ) north in the summer, feeding on the jellyfish that drift with the water. They come right past the UK as far as the north of Scotland in the summer.



That ghostly light is called **phosphorescence**. It's a magical thing. If you swim, your body is covered in green glowing water; boats leave a wake that glows for minutes after they pass and any creature swimming underwater in the dark can be seen by the glowing track it leaves. It isn't magic, just millions of microscopic animals whose way to stop being eaten by other microscopic animals is to give out light that startles their predators.



## Penguins

You have to go a long way to see penguins. Most live round Antarctica but there are some in south Africa and around the Galapagos

islands in Ecuador. Penguins can only live where they can be entirely safe from predators on land because, unlike guillemots and puffins, they don't balance between swimming and flying. They stopped being able to fly a long time ago so their wings are only rubbery flippers, great for swimming and diving but no good at all for flying.



**Corals** are animals, not plants, and are related to sea anemones. There are corals in colder seas, like the ones around the UK but they don't build reefs. Reef-building corals need warm, clear water and lots of light. Their bodies contain a microscopic plant (called Zooxanthellae) which makes food for the coral and gives it the energy to build a stony skeleton which turns into reef.

Like the trees in a forest, reef-building corals make homes for many other creatures – fish, sea slugs, anemones, and worms. So coral reefs are some of the most diverse habitats on earth, and are treasure troves of biodiversity.



**Whale sharks** are the biggest fish in the sea. An average sized one is 11m long and they can be much bigger.

They feed on plankton that they filter from the water using comb-like structures on the edge of their gills. The spotted pattern on each whale shark is unique. Scientists can use the pattern to identify individuals and are beginning to find out more about these mysterious and little-known creatures that wander huge distances through the world's oceans.



**Humpback whales** wander too, but their wandering is very predictable, from polar seas (the north or south poles) in summer where they just eat all they can (such shoals of small fish and krill filtered from the water using their baleen plates) to their typical breeding grounds in winter. There they have their babies, mate and court. During this process the male humpbacks sing incredible, long, complicated songs composed of repeated phrases of whoops, rumbles, whistles and howls. It doesn't sound attractive and yet it is; humpback song is beautiful and the most complex display made by any non-human animal. But here is the really mind blowing bit: all the male humpbacks in one location sing the same song as each other, but next year the song will have changed. Gradually over time the song evolves, as if all the males decide on adding a new verse or a different melody, each year.