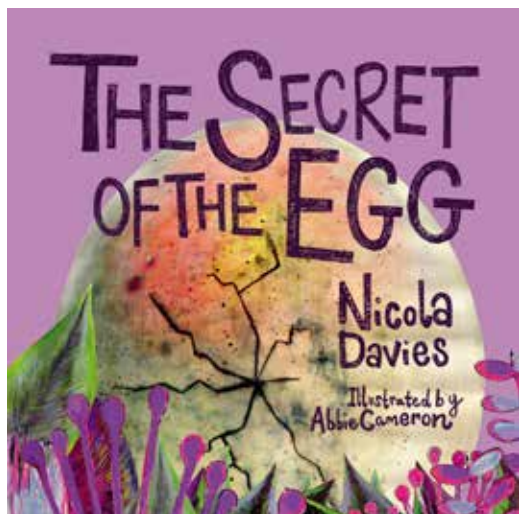


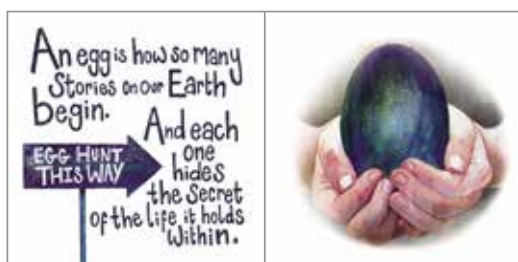
# *The Secret of the Egg* by Nicola Davies illustrated by Abbie Cameron



- Author Nicola Davies
- Illustrator Abbie Cameron
- Publication September 2018
- Hardback, 32 pages
- Size 250 x 250mm
- Age 5-8 years
- Price £12.99
- ISBN 9781912213672

Author website:

[www.nicola-davies.com](http://www.nicola-davies.com)



## Spread 1

The majority of species that live on Earth start life inside an egg that is laid outside of its mother's body. Humans and other mammals also start life as an egg, but that remains inside mum!

An egg is a small capsule of life, containing the combined DNA of the parents, plus a store of nutrients and water to fuel the growth of a new life, all held inside a protective coat. Birds' eggs all have a hard, brittle shell, whilst reptile eggs are leathery. Look closely at birds' eggs and you can see very very tiny holes or pores - as many as 17,000 on one egg. These allow oxygen in for the growing chick and the carbon dioxide out.

The egg on this page belongs to a **cassowary**, a large flightless bird, related to emus and ostriches, from the tropical forests of north Australia and New Zealand. The female lays 5-8 eggs which are then cared for and incubated (this just means keeping them warm by sitting on them so that the chick inside can grow) by the male for around 50 days.

## Spread 2

Although all birds eggs are egg-shaped, some are longer and thinner, some more rounded. Owl eggs are almost round, whilst sandpiper eggs are more pointed. Colour varies too, some are plain and some are spotty or splurgy. Birds that lay their eggs in open nests that might be easy for predators to spot have eggs that are coloured for camouflage, whilst hole nesters have white eggs so the parents know where to sit in the dark! The patterns on eggs also help parents to recognise their own eggs, and spot



eggs laid by cuckoos, who lay their eggs in other birds nests and get their chicks raised for free.

The corkscrew egg lying in the sand on this spread is laid by a handsome black and grey patterned fish from the oceans round Australia called the **Port Jackson shark**. The female lays the egg then takes it in her mouth and places it in a rock crevice where it becomes hard and sticks fast to the rock. All the same most eggs get eaten by predators. The ones that escape hatch about a year later into baby sharks.

## Spread 3

The square eggs are also called mermaids purses and belong to a **thornback ray**, a plate-shaped fish related to sharks. The 'strings' at the corners help to anchor the egg case to underwater seaweed while the baby ray grows inside.



**Katydid**s are a kind of big green cricket (we call them bush crickets in the UK). They lay their eggs in rows, that look like lines of mini melon pips. The baby katydids hatch out looking very like miniature versions of their parents. Like all insects they have hard armour-like skin around their bodies (that we call an exoskeleton) which doesn't stretch. So, they must split that skin and shed it several times as they grow, before they reach full size.

**Butterflies** lay beautiful tiny round eggs that pop open like the top popping off a can to let the caterpillar inside hatch out. These alien space ships belong to a butterfly called the Adonis blue, although only the males are a lovely cornflower blue, the females are brown! Eggs are laid on the plant that the caterpillars like to eat and unlike many butterflies which lay a crowd of eggs all together, the Adonis blue female lays just one at a time, spacing them out over the caterpillars' favourite plant, Horseshoe vetch.

## Spread 4

Frogs are amphibians, descendants of some of the first vertebrates (animals with backbones and skeletons on the inside) to live on land. They haven't evolved a way of breeding that doesn't need water - their eggs don't have a tough coat and are just like jelly. Without water they would dry out, so different kinds of frogs have evolved clever ways of getting around this problem and you will find some of these different ways in this book. There are no ponds up trees for tree frogs to put their eggs in so they lay eggs in tiny amounts of water caught in the overlapping leaves of plants high in trees, and male **Darwin's frogs** swallow eggs and hatch them in their bodies.



The **Komodo dragon's** eggs (yes that's a Komodo dragon foot) are typical reptile eggs with a leather shell that stops them drying out. Reptiles evolved after amphibians so they have better solutions to the problems of breeding on land although they don't do much in the way of parental care! Komodo dragons lay 20-30 eggs in a burrow in the earth,

cover them and leave them to hatch in the warm ground. After 7-8 months the little dragons cut their way out of the leathery eggs with a tiny egg tooth on the end of their noses.

**Geckos**, small cousins of the Komodo dragon, also leave their eggs to hatch and their babies to survive on their own, but they lay their eggs under leaves or in nooks and crannies of rooms, wherever they happen to be running about chasing insects.

Birds, who evolved from dinosaurs, have got the breeding on land thing AND caring for their babies off to a tee! They keep their eggs warm by sitting on them and make elaborate nests to care for eggs and the chicks that hatch from them. The **humming bird** eggs on the top right-hand page are much bigger than real life. In reality the nest, made of cobwebs and lichen, would be the size of a walnut half and the eggs the size of a pea. All the same, humming bird eggs are still large in relation to the size of their parents. When the babies hatch they are naked, blind and helpless. The parents feed the chicks by delivering insects and nectar with their long beaks, which make the chicks look a bit like tiny sword swallowers.



## Spread 5

The biggest eggs laid on earth today are those of the biggest bird, the **ostrich**. Each ostrich egg is the equivalent of around 20 chicken eggs. Several females share the same nest, each laying about 10 eggs, and then male and females share incubation. After 42 days the chicks hatch, with stripy fluff, open eyes and ready to run about and feed themselves.

Many common **British butterflies** lay their eggs on nettles. The stinging leaves keep the eggs safe from ending up in a cow's tummy by mistake! But the stings don't bother the caterpillars which hatch out and start eating the leaves.



## Spread 6

**Turtles** are related to tortoises which have left the land behind and live in the sea. But they can't lay eggs in the sea as fish do so they must come to land to do it. They crawl up the beach, dig a hole with their hind flipper and lay round eggs like squidgy ping pong balls. Then they cover them up and go back to the sea; as far as the mummy turtle is concerned her job is done. When they hatch the baby turtles make for the sea as fast as possible. Sadly they are snack sized and most get eaten before they have the chance to get far.

**Clown fish** care for their eggs very carefully. As mum and dad clown fish already live in the protective stinging tentacles of an anemone they already have some protection. They guard their eggs and fan them to keep them clean and supplied with oxygen. The baby fish stay on and grow amongst the tentacles of their anemone home.



## Spread 7

Birds make all kinds of nests! The **Hammerkopf** is a strange looking bird from South Africa which makes a huge nest in the trees up to 1.5m wide, made from thousands of sticks. In this stick pile the bird makes a nest chamber inside and a mud lined entrance and hallway. The whole thing can take three months to complete.

**Weaver birds** also come from South Africa and make nests from grass like upside down woven baskets. They attach their nests to the ends of branches and this, together with putting the entrance on the underside of the nest, make it hard for snakes to crawl in and steal eggs and the young chicks. Males make the nest then cling to the underneath flapping and calling, hoping that a passing female will be impressed enough with their home-making skills to come by and mate.

**Emperor penguins** nest in the heart of the Antarctic winter when temperatures can drop to three times colder than your freezer. There are no trees to provide nest material and anyway, the whole place is covered in ice. However do you keep an egg warm in a place like that? The answer is you balance it on top of your feet and cover it in a thick cosy fold of feather-covered skin. As females use up so much energy just making an egg, after it's laid they have to go back to sea to feed themselves up, leaving the dads to do the incubation, shifting around in the winter storms, each one with a precious egg balanced on his feet.



## Spread 8

**Ocean sunfish** or mola (they are often known by their proper scientific name, which means millstone) are some of the biggest and most mysterious fish in the world. The adults are almost the size of a smart car and shaped like a sort of flying saucer with weird little fins on the top and bottom. They feed on almost anything that flows their way, including fish, squid and jellyfish. They are amazing for many reasons including being the world's champion egg layers. A female can lay 300,000,000 eggs in one go (that's 300 million) and each develops into a teeny baby mola the shape of a star.

**Flamingos** make nests out of mud that look a bit like very tall upside-down plant pots. They make them tall because it makes them easier to hatch their egg without having to crouch down with their long legs. Also the height keeps the egg safe from flooding when water levels around the lakes where they breed rise in storms. Just one egg is laid on the top of the 'pot' and the two adults care for their gangly grey baby. As flamingos like company when breeding, there can be a huge flock of little grey chicks in a forest of long pink legs.

Not all reptiles are like turtles and komodo dragons, laying eggs and just leaving them to their fate. Some snakes like **ball pythons** make a nest out of their own curled bodies

and stay wrapped around their eggs protecting them and keeping them just a teeny bit warmer so the babies can develop and hatch safely, unlike **turtles** which, as we already know just lay and run!



## Spread 9

One of the features by which we can differentiate mammals from reptiles and birds is that they give birth to live young. But actually there are some reptiles that have babies rather than laying eggs, including vipers like the common adder and even sharks, including the great white shark. And there are some mammals, closely related to the first sorts of mammals that evolved on earth, that still lay eggs.

**Echidnas** or spiny anteaters for example lay small white eggs which they keep in a fold of skin on their tummies and feed on milk that oozes out of patches of skin and drips off their fur for the baby, called a 'muggle', to suck.

And talking of giving birth to live young, that's what the **Darwin's frog** does. After dad swallows mum's eggs, the babies grow into tadpoles and then frogs inside him and when they are grown, dad sort of sick up his children!

For **sea horses** it's the dad who gets pregnant! Females put their eggs into the male's breeding pouch and he then gives birth to hundreds of little sea foals.

This book has shown you just a few of the many ways that animals have solved the problem and difficulties of bringing babies safely into the world. I hope it will start you on your own journeys of exploration.



These notes may contain links to third party websites. Graffeg does not endorse such website(s) or their contents and is not responsible for such contents and makes no representations or warranties regarding the contents, accuracy or functionality of such website(s).