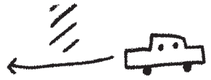
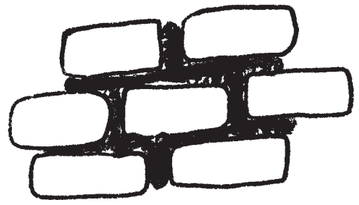
To Raphael. Never stop asking
questions. – C.D.

To my beloved frog, Y. – Y.Y.







Christiane Dorion • Yeji Yun

BUILT by ANIMALS

MEET THE CREATURES WHO
INSPIRE OUR HOMES AND CITIES



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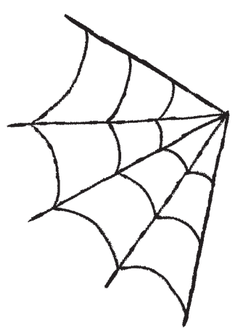
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DEAR READER,

How does an army of ants move tons of soil without a digger? How do honey bees work together to build a hive? And how do we, busy beavers, fell trees to build dams without giant machines?

In this book, you will meet some of the best architects, designers and builders of the animal (and plant!) world. Although we have a limited toolbox, we certainly know how to construct amazing structures, produce super-strong materials and find clever ways of keeping warm or cool. We do all this with very little energy and we don't waste anything. It's not surprising that humans are turning to us to help them create better designs, shapes and materials for their own buildings and homes.

To be fair, we've been around for millions of years so we've had plenty of time to test our building techniques and materials. Thank you to all my fellow animals for sharing their talents!

Yours sincerely,

Beaver



··· Honey bee ···

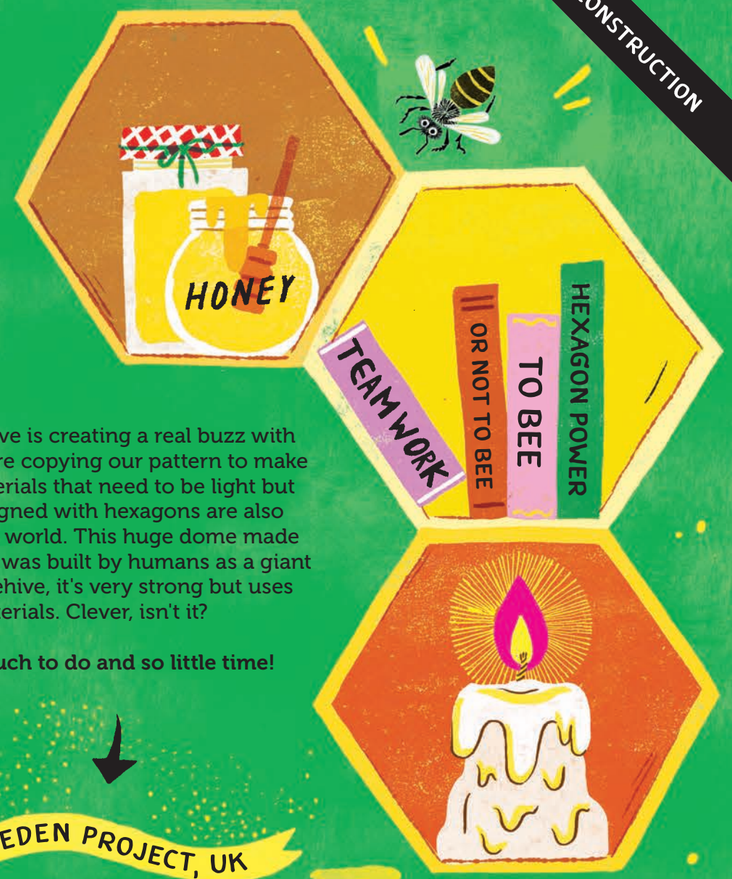
MASTER OF GEOMETRY

I am a busy worker bee. So much to do and so little time! Each one of us has an important job to do in our huge colony. As an older bee, mine is to find food. I buzz from flower to flower to collect sweet nectar and dusty pollen to feed us all. Back at the hive, young worker bees turn nectar into honey and store it away for the winter months. They also tend to our queen, look after her young, clean the hive and guard it against intruders. In a bee's world, it's all work, work, work!



This is the splendid hive we build for our queen to lay her eggs in. It also shelters the drones who mate with the queen. The hive is our home and food larder. To build it, we make our own materials. With special glands, we produce wax, chew it until soft and shape it into a perfect honeycomb.

Since ancient times humans have enjoyed the scrumptious honey we make. Now they are dazzled by our smart building skills. We might have a brain the size of a sesame seed but we certainly know how to build the perfect home for thousands of busy bees. Our secret is the hexagon, a shape with six equal sides. It's compact, light and strong and it gives us the most space using as little precious wax as possible.



The structure of our hive is creating a real buzz with human builders. They are copying our pattern to make new construction materials that need to be light but strong. Buildings designed with hexagons are also popping up around the world. This huge dome made of clear panels and steel was built by humans as a giant greenhouse. Like a beehive, it's very strong but uses minimum materials. Clever, isn't it?

Must buzz off! So much to do and so little time!



··· Coral polyp ···

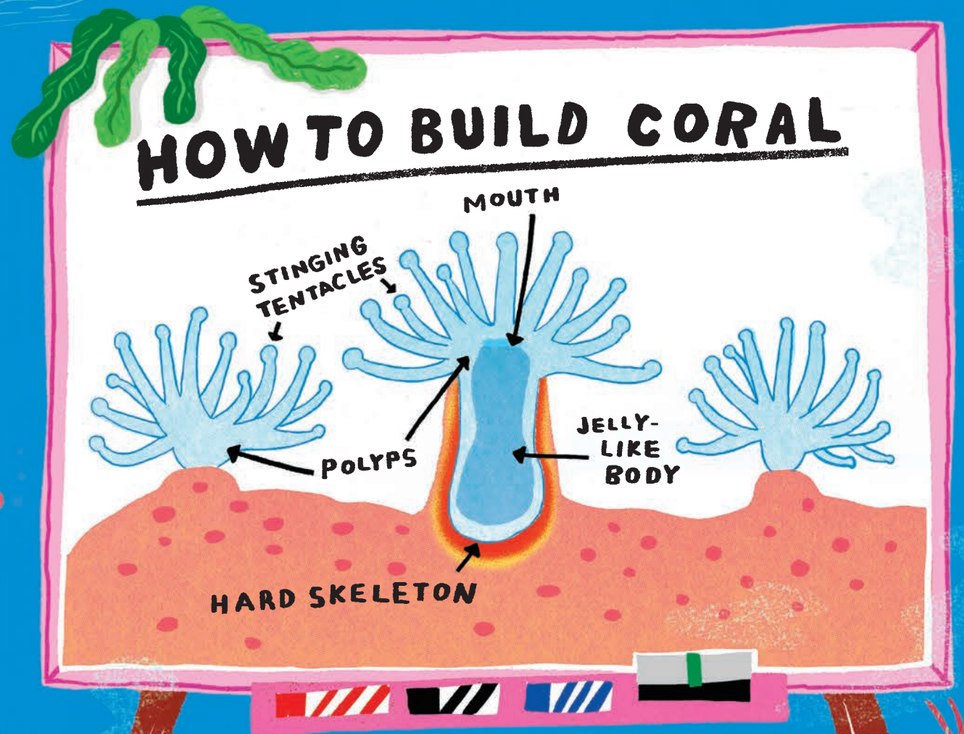
MARINE BUILDER

I may resemble a dazzling plant or a strange-looking rock but I'm actually a tiny animal, and very much alive! I'm a coral polyp and I live in shallow tropical seas where there's plenty of light and the water is warm. Unlike other animals, I am stuck in one place but that's okay. With my stinging tentacles, I can catch food drifting by and sweep it into my mouth. I'm connected to thousands of other polyps in a massive colony.



I protect my jelly-like body by building a hard outer skeleton, extracting minerals from seawater to make limestone. Very slowly, over hundreds of years, the hard cases all the polyps build gradually stack up to form a beautiful reef. The reef is our home and it also provides food and shelter for many kinds of fish and other creatures. It's like a bustling city under the sea.

Humans also build giant constructions. To hold these together they make a material called cement. They dig huge amounts of limestone from the ground with mighty machines. They crush and grind the rocks, heat them in a giant oven and grind them again. Cement factories pollute the air, adding to global warming. As the oceans are warming up, our reefs are in danger of disappearing.



Some clever humans have turned to us for a solution. Inspired by the way we construct our reefs, they have created a new type of cement by capturing polluting gases (CO_2) from a power plant and mixing it with seawater.

It's much better for the planet and for our reefs too!

CORAL CONSTRUCTION

Global Warming

NO to PLASTIC

… Ant …

UNDERGROUND ARCHITECT

Ants are famous for marching in an orderly line, raiding kitchen cupboards and ruining picnics. But did you know that we're also super-talented architects? We build the most fabulous underground multi-storey homes. As we live with thousands of others, we have to be tidy, well organised and extremely good at teamwork.

Humans are in awe of how we can design such impressive underground cities. Inspired by our teamwork, they have created instructions for their super-smart computers to make large numbers of robots and other machines connect with each other and work together more efficiently.

We may be teeny-tiny but when we join together we become a superpower!



Our home is a network of tunnels and connected rooms. Some are used as food larders, others as nurseries or to store waste. The largest chamber is for our dear queen to lay her eggs in. All of this is built without a plan or instructions. We move dirt with our jaw-like mandibles and communicate with each other using scent trails. And we never get stuck in traffic jams!

··· *Beaver* ···

DAM ENGINEER

Making our home is a family affair and even our young ones have to chip in. We cut down trees with our sharp teeth and gather sticks and mud to construct a dam. It slows the flow of the river and creates a pool of water where we build our lodge. We then add the finishing touch – secret underwater entrances so we can come and go as we please. The new pool also provides a home and food to ducks, fish, insects and many other animals.

I am a hard-working beaver, and an expert at building dams in rivers and streams. I have the perfect toolkit for the job: chisel-like teeth, waterproof fur, large webbed feet and a wide flat tail which serves as a rudder. No crane or chainsaw required!

DAM

POND

RIVER LODGE

UNDERWATER ENTRANCE

BEAVER BUILDING SITE

Our engineering work could be good for humans too! With climate change bringing more floods and droughts, we can help by slowing down the flow of rivers and storing water when it rains a lot. A natural beaver solution to flood defence! We just need a bit of space to get on with our building work.

Can't stay, must beaver away!