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Pre-Intermediate Student’s Book

Life

Designs from nature

*When we have a problem, nature often has the answer.*

In a room at Stanford University, scientists are studying a small animal called a gecko. It’s an amazing animal because it can move very quickly up and down a tree and it can even walk upside down on ceilings. The scientists are particularly interested in the gecko’s feet. They want to use the same design on their own robot. The metal robot looks very similar to the gecko. It has four feet which can also walk up walls made of glass or plastic. However, it still has a more diﬃcult time when it tries to walk upside down.

Animals and plants can teach humans a lot about design and engineering. As a result, many engineers, scientists and designers spend time studying them. When they have a problem, nature often has the answer. This science is called biomimetics. *Bio-* means ‘studying living things’ and *mimetics* means ‘copying the movement of things’. In other words, scientists – or biomimeticists – study animals and plants in order to copy the design.

Take, for example, a whale. Engineers in Canada are studying their ﬂippers because they move so eﬀectively through water. The engineers believe the shape can also improve the movement of wind turbines. Similarly, the boxﬁsh is another animal from the sea which is helping car manufacturers in Germany. Mercedes Benz is using the shape of the ﬁsh for one of its new cars. The shape makes it faster and more fuel eﬃcient.

Velcro is probably the most famous example of biomimetics. Most people have some Velcro on an item of clothing. It was invented by the Swiss engineer George de Mestral in 1948. He was walking in the countryside when he pulled a plant’s bur from his trousers. He noticed how the bur stuck so well to his clothes. He worked on his idea and the result was Velcro, which became an aﬀordable alternative to the traditional zip.

In 1982, Wilhelm Bartlott was another inventor who had a great idea when he was studying the leaves of a lotus plant. Bartlett noticed that water always ran oﬀ the leaf. When he had a closer look, he also noticed how the leaf cleaned itself. Bartlott copied the leaf’s special surface and now you can ﬁnd it in specialised paint products where water and dirt never stay on the paint.

In conclusion, biomimetics has helped to design our world and there are many more future possibilities. Unfortunately, it might take a long time to discover all the possibilities. This isn’t really surprising because it’s taken nature thousands of years to design its animals and plants.

ﬂipper (n) /ˈflɪpə/ the ﬂat arm or leg of a sea animal, used for swimming

bur (n) /bɜ:/ a seed from a plant

zip (n) /zɪp/ two rows of metal teeth-like parts which come together (e.g. on a coat)

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