

LCT 2023



1. Packing with Care

(Audiotrack: QR-Code rechts / Aufgaben S. 1)

- 1** Our juice company focusses on fresh fruit drinks that are shipped all over the continent. We use a type of packaging that keeps our direct juices safe from the sun. It preserves all the vitamins and natural ingredients.
- 2** We specialize in making packaging that has the same characteristics as cheap plastic, but uses no oil as a foundation. Instead, we take corn starch and sugar cane to produce a plant-based foil that is just as easy to handle as the plastic "original".
- 3** In our factory we produce hospital supplies from syringes to masks. It is crucial that these products stay free from germs or bacteria. This is why we use special plastic packaging that can provide a sterile environment, even though it cannot be recycled, unfortunately.
- 4** We sell bottled water on a huge scale. Even though some customers ask for glass bottles, we stick to recycled plastic. Our water often travels long distances, you know, and plastic is lighter than glass, which makes transportation easier.
- 5** I love takeaway food, which often comes in cartons. These have a low carbon footprint but cannot be urned into new ones, as they contain plastic or foil liners to keep the paper from getting wet. My start-up produces boxes whose components can be separated and reused, so they are more eco-friendly.

Adapted from: Kramer, Lindsay. The 7 Types of Packaging [online available on: <https://en.99designs.de>] Bizongo. Different Types of Packaging [online available on: <https://www.bizongo.com>]

2. Nature's Best Practice

(Audiotrack: QR-Code oben / Aufgaben S. 1)

- Interviewer** Our guest today on Radio Science is Megan Sanders. Megan studied biology and has been working for the Biomimicry Foundation for several years. Welcome to our show "Ask Nature".
- Ms Sanders** Thanks, it's a pleasure to be here.
- Interviewer** Megan, what exactly is biomimicry?
- Ms Sanders** Well, it is a way of asking: "What would nature do here?" Biomimicry can lead to new ideas and bring about innovations.
- Interviewer** Could you give us an example?
- Ms Sanders** Look at the world of packaging. Today, we're trying to improve in the fields of sustainability and resource management. Nature has already found solutions for the problems that we're trying to solve.
- Interviewer** U-hm.
- Ms Sanders** Biology can be a tremendous teacher.
- Interviewer** In what way?
- Ms Sanders** Consider bees. They create honeycombs made of wax, perfectly geometrically shaped, a wonder in themselves. What form do they have?
- Interviewer** Well, they're six-sided little cells next to each other, I believe?
- Ms Sanders** Exactly! This is not only visually attractive, but also extremely lightweight and effective. Designing a similar structure for industrial packaging means using a minimal amount of resources. This in turn leads to lower production costs. Isn't that wonderful?
- Interviewer** Indeed.
- Ms Sanders** Or ... just imagine the queen of nuts, the Macadamia, which is extremely well protected in its round, woody seed coat.
- Interviewer** What's so special about that nutshell?
- Ms Sanders** Well, it's extremely tough and hard. The structure of the Macadamia nutshell is made up of fibers of random orientation, unlike those in wood which breaks easily in the direction of the fiber.
- Interviewer** Hm.
- Ms Sanders** The shell consists of up to seven different layers, in a kind of sandwich structure.
- Interviewer** I see.
- Ms Sanders** You need a force of 4000 Newton to crack this approximately 1.5 to 4 mm thick shell. We apply these principles to our work.

- Interviewer** Amazing. Do you have another example?
- Ms Sanders** Of course! Any idea which is the largest and heaviest citrus fruit in the world? Up to 2 kg?
- Interviewer** Hm. A grapefruit? No ... hang on, a Pomelo!
- Ms Sanders** Exactly. The shell of the Pomelo is characterized by excellent shock-absorbing properties. In drop tower tests, for example, it was shown that the fruit can withstand an impact from a drop height of ten metres onto a concrete floor without visible damage.
- Interviewer** Wow.
- Ms Sanders** That's largely due to its open-pored structure. The peel in the outer edge area is very fine-pored, before it becomes relatively rough-pored, a bit like a sponge or a kind of foam one might say.
- Interviewer** We can use that principle for shock-absorbing packaging, I suppose?
- Ms Sanders** That's right.
- Interviewer** Fascinating – thanks for this interview, Ms Sanders.
- Ms Sanders** My pleasure.

Adapted from: Biomimicry Institute. Nature-Inspired Innovation. Ask Nature [online available on: <https://biomimicry.org>] Yilmaz, Simal. From Honey Combed Dresses to Hexed Out Houses [online available on: <https://www.trendhunter.com>]

3. A Road Full of Bottlenecks

(Audiotrack: QR-Code S. 12 / Aufgaben S. 2)

In 2018, the world's first plastic bicycle trail made of recycled bottles and packaging opened in the Netherlands. The 30 metre track is made of recycled plastic equivalent to more than 218,000 plastic **caps**, and three times more durable than an asphalt alternative. It also contains sensors to monitor the road's performance, including its temperature, its **ability** to cope with the traffic and the number of bikes that pass over it. The prefabricated sections of the bicycle **line** are light and hollow. This makes them easy to transport and 70 percent quicker to **fix**. Cables and utility pipes can be easily installed inside, and the path is designed to drain off **intense** rainfall. Despite its advantages, some doubts have been raised about the plastic **part**. Scientists have warned that small particles of the plastic could find their way into the living environment. Nevertheless, the successful trial run has paved the way for larger scale projects worldwide.

Adapted from: Boffey, Daniel. A Road Full of Bottlenecks: Dutch Cycle Path is Made of Plastic Waste [online available on: <https://www.theguardian.com>]

4. Customer Service

(Audiotrack: QR-Code S. 12 / Aufgaben S. 3)

- Mr Barley** A & C – Arts and Crafts customer service, Samuel Barley speaking.
- Ms Stevens** Good morning, this is Laura Stevens. I've got a problem with an art print I ordered in your online shop.
- Mr Barley** How can I help you?
- Ms Stevens** Well, you see, the print was shipped in a cardboard tube. Unfortunately, the tube was broken and the print inside got crumpled, too. So disappointing.
- Mr Barley** Absolutely. As the damage was caused during delivery, you'll need to contact the parcel service CP Express that brought you the package.
- Ms Stevens** Oh, dear. You can't do that for me, can you?
- Mr Barley** I'm sorry, Ms Stevens, you'll have to file a claim yourself, I'm afraid. But all our parcels are insured so you won't have any problems with that.
- Ms Stevens** Okay, so what should I send them?
- Mr Barley** You'll certainly need your tracking number. I hope you can find it. The next thing is that CP Express will require a proof of value, like a digital bill, for example.
- Ms Stevens** Right, got that. Anything else?
- Mr Barley** Let's see, well, yes. You might have to e-mail photos of the damaged product to CP Express, too.
- Ms Stevens** OK, fine. I'll do that right after this phone call.
- Mr Barley** No need to hurry, Ms Stevens, just make sure you report the issue within 60 days after the mailing date. That's the deadline. After that, your complaint will be rejected.

Ms Stevens Good to know. I really hope CP Express will refund the full price of the print. To be honest, the issue is a bit annoying ...

Mr Barley I do understand that, Ms Stevens, and I am sorry for the inconvenience. How about this: On your next order, we can offer you free shipping. After all, we want our customers to be happy. In addition, we'll arrange a 20% discount which you can unlock with a special code. I'll give it to you right away.

Ms Stevens Thank you, that's very kind of you.

Mr Barley Have you got something to write with?

Ms Stevens Sure.

Mr Barley That's Y3 – 0068 – HA92. Was that too fast?

Ms Stevens No, perfect. Thanks a lot. Goodbye.

Mr Barley Goodbye Ms Stevens.

Adapted from: DoNotPay. Do Some Damage Control – Dealing with a Delivered Damaged Package [online available on: <https://donotpay.com>]

5. Alternative Packaging

(Audiotrack: QR-Code S. 12 / Aufgaben S. 3)

Presenter Welcome everyone to Mr Mark's Morning Show on Radio One. Are you just enjoying a nice cup of tea on your way to the office? In single-use takeaway packaging, maybe? Then stay with us and listen to my guests, Ms O'Toole and Mr Khan, who are both into eco-friendly packaging. Would you introduce yourselves?

Mr Khan Ladies first.

Ms O'Toole Good morning, I'm Louise O'Toole and I work for a cleantech company called NewWays. We're a sustainable start-up producing packaging solutions with RevoMat, a material made from seagrass and other plants.

Presenter Thank you for this brief introduction. Mr Khan, what about you? Tell us about your job.

Mr Khan I work at the university of York and my research aims at ensuring food security, which is becoming more and more important nowadays, and at reducing the demand for natural resources.

Ms O'Toole Oh, we're almost in the same business, the two of us, aren't we?

Presenter Sounds like it. Ms O'Toole, what makes your products so special?

Ms O'Toole Well, they are quite extraordinary. RevoMat is neither plastic nor bio-plastic. It's a completely new material which is fully compostable in four to six weeks.

Mr Khan Oh, I've heard about this material. It can't just hold liquids, it also adds minerals to the food when it dissolves in hot water. Right?

Ms O'Toole Precisely. Imagine a package of instant tea or coffee creamer made from RevoMat, for example.

Mr Khan Sounds really good. Not all alternatives to plastic are reasonable though.

Presenter Could you explain that, Mr Khan? I thought everything's better than plastic.

Mr Khan No way! Sometimes, what seems sustainable at first glance is not so green upon closer inspection. Look at aluminium cans that are infinitely recyclable. A growing market for aluminium cans would require more raw material as we are not even close to a point where new cans are made from 100 per cent recycled material. And consequently, we would produce thousands of tons of toxic waste in the process of mining.

Presenter Not cool at all ... just goes to show that we need start-ups like New Ways.

Mr Khan Absolutely.

Ms O'Toole By the way, we are nominated for the Stella Ford Award in the category "Combining materials that nature can handle". This award encourages innovation and rewards good alternatives to plastic. The winners will receive funding for further research. We are one of the eight finalists for this prize.

Mr Khan I'll keep my fingers crossed, Ms O'Toole!

Presenter And good luck! Thank you for being here, Mr Khan and Ms O'Toole.

both Ah, thank you ... (fade out)

Adapted from: University of York. Environmental Sustainability and Resilience. Waste and Resource Use [online available on: <https://www.york.ac.uk>] Benson, Imogen. Plastic Alternatives May Cause Greater Environmental Harm, Says New Report [online available on: <https://www.resource.co>] Spellings, Sarah. Tom Ford's Plastic Innovation Prize Announces Its Eight Finalists [online available on: <https://www.vogue.com>]