



The Super Microbes!



Acknowledgements

(Or the Super Microbes says Thanks to...)

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Author: Maria Lorena Falco

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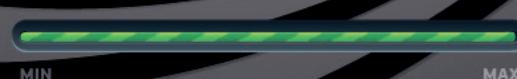
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Meet the microbes!

Do you know what a microbe is? Can you give an example of a microbe, or an example of something they do?

A microbe is a very small organism. It is so tiny that we cannot even see it! We need a microscope to be able to observe a microbe.

But there are lots of ways we can see their work in our everyday life, especially in the foods we eat: thanks to them we can enjoy delicious foods like bread, yogurt, and even cheese...

Even though these microbes do some wonderful things for us, they are often seen negatively: lots of people only know about the ones that make us sick, or dirty...

But did you know that there are microbes that can be very beneficial to the world around us? Let's call them 'The Super Microbes' because they are silent superheroes!

This is the story of two related groups of Super Microbes:

One of them eats petrol to make plastics that disappear in nature.

The other eats the waste left behind in agricultural fields after harvests and produces fuels made out of plants.

Super Microbes changing the world!

Once upon a time, there was a group of microbes that lived in a unique spot where a river ends and its waters mix with the sea. They lived in total harmony with the fresh water and clean air which surrounded them.





But one day, a group of very big and scary creatures, the humans, started to make lots of huge loud machines, like cars, boats, trucks and airplanes. These machines used lots of petrol to run, and because of this, the air, water and soil started to smell horrible and feel strange to the microbes, pollution was everywhere!

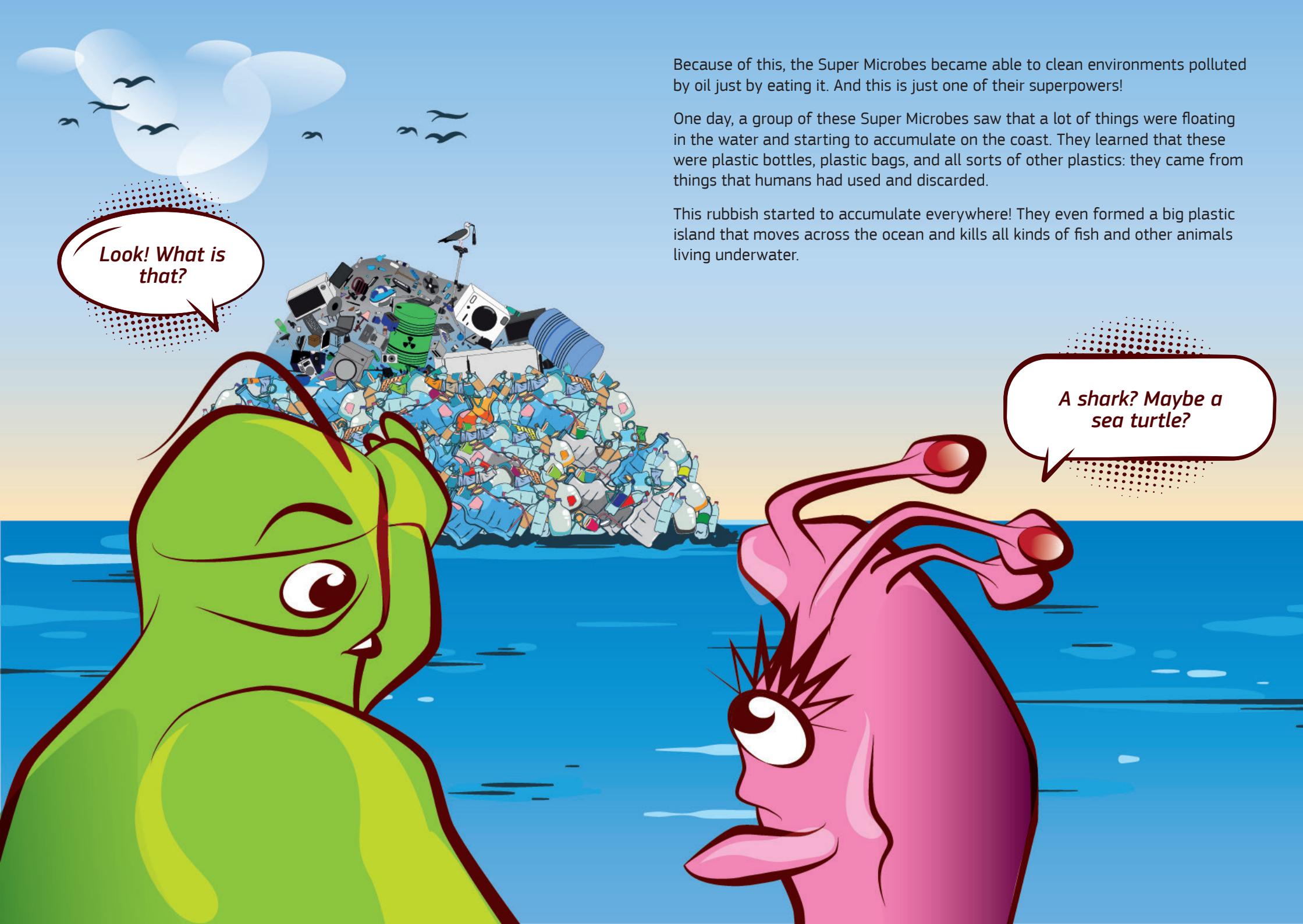


Sadly, many of the microbes did not survive... they struggled to adapt to the new world around them: it was just too different from what they were used to!

But some of them became stronger in contact with that pollution (especially from oil spills) and this is how the Super Microbes were born!

The Super Microbes not only learned to survive in the presence of oil, they started to use it as food! And they gradually became stronger and resistant to pollution.





Because of this, the Super Microbes became able to clean environments polluted by oil just by eating it. And this is just one of their superpowers!

One day, a group of these Super Microbes saw that a lot of things were floating in the water and starting to accumulate on the coast. They learned that these were plastic bottles, plastic bags, and all sorts of other plastics: they came from things that humans had used and discarded.

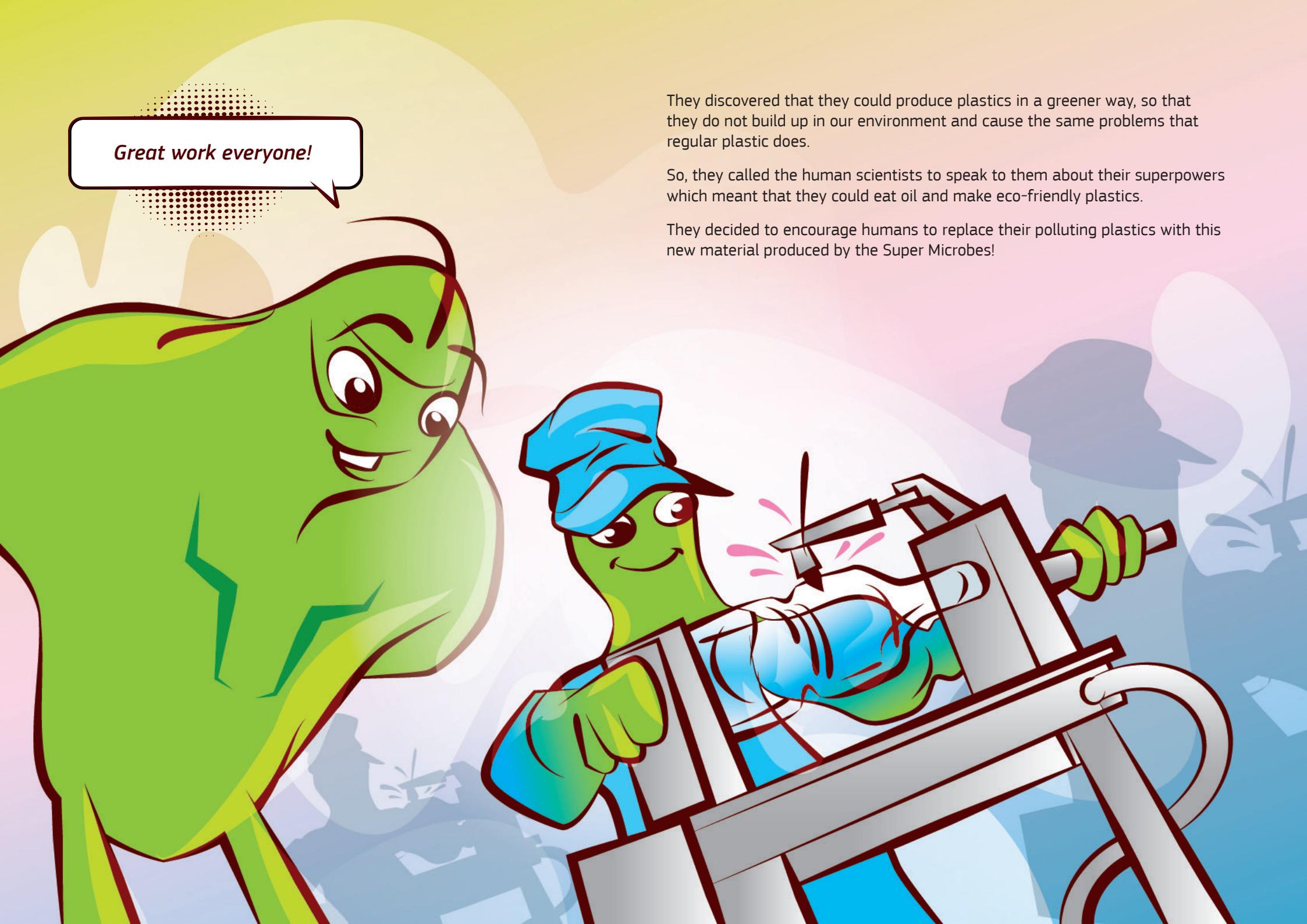
This rubbish started to accumulate everywhere! They even formed a big plastic island that moves across the ocean and kills all kinds of fish and other animals living underwater.

So, this group of Super Microbes got organized. They wanted to do something to fix this problem which was starting to become very serious because plastics in the ocean can take hundreds of years to break down, and leave even more pollution once they do!



A colorful illustration featuring three cartoonish microorganisms. In the center is a pink microbe with a large mouth, two antennae-like appendages, and a small red flower on its head. To its right is a green microbe with a more robust, segmented body, large eyes, and a determined expression. A speech bubble above the green microbe contains the text "Let's go team!". The background consists of a gradient of yellow, orange, and red, with several green, leaf-like shapes partially visible at the bottom.

Let's go team!



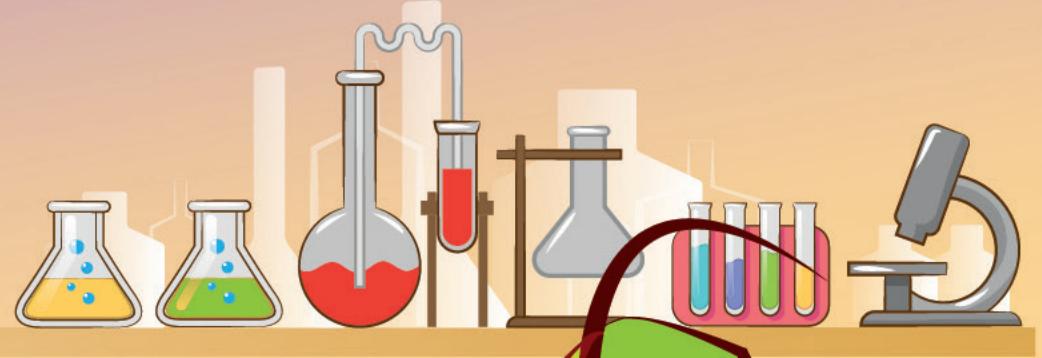
Great work everyone!

They discovered that they could produce plastics in a greener way, so that they do not build up in our environment and cause the same problems that regular plastic does.

So, they called the human scientists to speak to them about their superpowers which meant that they could eat oil and make eco-friendly plastics.

They decided to encourage humans to replace their polluting plastics with this new material produced by the Super Microbes!

This clever group of microbes called themselves 'The Green Plastic Makers' or GPMs for short. The Scientists were so happy to welcome them to their labs and find out how to make the production of those plastics suitable for all kinds of human activities.



I love solving problems!



NEWS



Nowadays, the news about the new plastics produced by microbes has spread across many research labs, and scientists from all over the world are working hard to find out how to make this plastic available for everybody and replace the old polluting plastics with this new material.

In the meantime, there was a second group of microbes, who were working in the agricultural fields near their home, and who noticed that after each harvest a lot of waste was left behind from the plants that the humans ate.

So, being curious as they are, they decided to taste it!

They found that the waste from the harvest was very tasty! So, they started to eat it, and started to feel stronger and more energetic! They too had a new superpower! They were able to transform the waste from the harvest into biofuel: a special kind of fuel made from plants.



*We love making energy
from waste!*

BIOFUEL



Then, like their cousins the GPMs, they contacted the scientists to give them the good news: they could produce biofuels by eating agricultural waste!

And that is how the second group of Super Microbes was born: 'The Biofuel Producers' or BPs.

Their superpower to produce biofuels means we don't have to use as many fuels made from petroleum, so all kinds of pollution like oil spills, dangerous gases and other dirty effects of petrol can be stopped.

A few years later, the humans replaced the old polluting plastics and fuels which came from petroleum with the bioplastics and biofuels produced by the Super Microbes!

This meant that a huge amount of pollution stopped, and the planet started to become cleaner and cleaner. The air became fresh again, and the water became crystal clear once more. Our superheroes organized a big party to celebrate.

And they lived happily and healthy ever after!

*We did it!
Our planet is clean again!*





You can be a superhero too!

Like all fairy tales, this story has a happy ending, but unfortunately, we are not quite there yet... The good news is that the Super Microbes are real, and they are working hard to save the planet!

But... be careful! We have to help them! We can also be superheroes in our everyday life, for example recycling our plastics, driving less and cycling or walking more... just like them!

QUIZ: Can you rise to the challenge?

How do you think you can be an environmental superhero in your everyday life?

- 1- **In the supermarket:** how do you choose the products you buy? How do you transport them?
- 2- **During the summer holidays at the sea, or in the mountains:** how do you travel? What do you do with the waste that you produce (during a picnic, for example)? What would you do if you find a plastic waste in the beach? Or in the forest?
- 3- **At school:** how are you getting to school? How do you transport your lunch? And the water that you drink? What are you doing with the rubbish from your snacks?
- 4- **At home:** Do you prefer to have a shower or take a bath? How long is your shower? What do you do with the waste that you generate in your everyday life (food waste, packaging, plastic bottles, etc.)?

*Now it's
your turn!*



