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MICROBES

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Zara did biology when she was in high school. She took a great interest in microbes. She studied hard so that she could get good grades and end up in a lab one day.



All of that hard work paid off.
Zara now works with microbes. It
is her job to try to find microbes
that we do not know about yet.
These microbes might be able to
do great things.





There is a bad smell in the fridge. Some fruit has gone off. Zara is going to test the fruit to see what microbes are there. She wants to see how they make the fruit rot and stink.



Zara starts by working on smell. Since it is just fruit, this is ok. She would never smell the flasks in the lab. From the smell, she can start to rule some microbes out.



When we draw air in, tiny molecules go into our nose. They tell our brain what we are near. Zara has a good sense of smell.



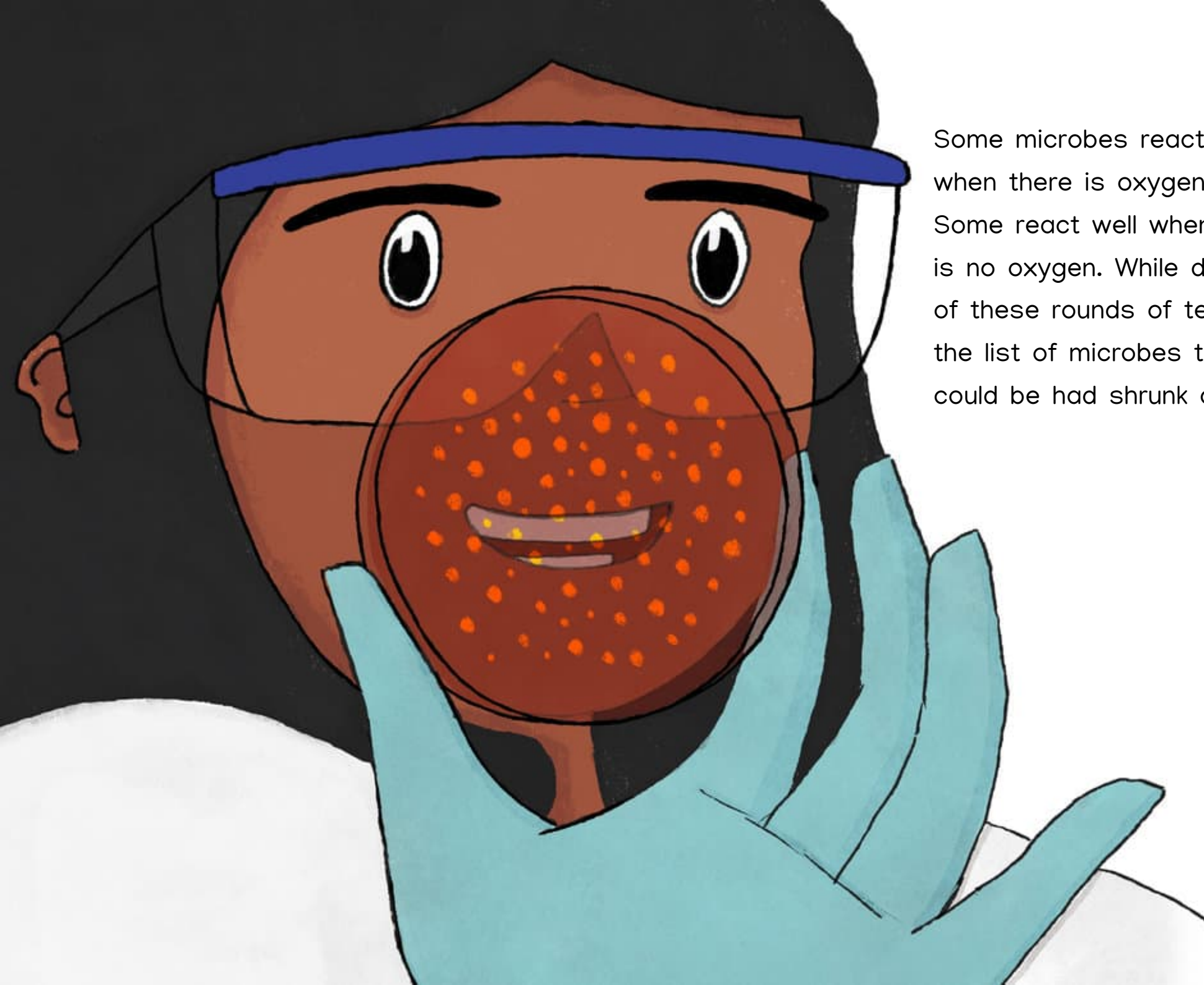
She takes some flesh from the fruit and makes it into a solution. She starts to do tests on them. She keeps some of the solution as controls. This means that she makes no changes to the solution. For the others, she adds different substances and puts them under different conditions.



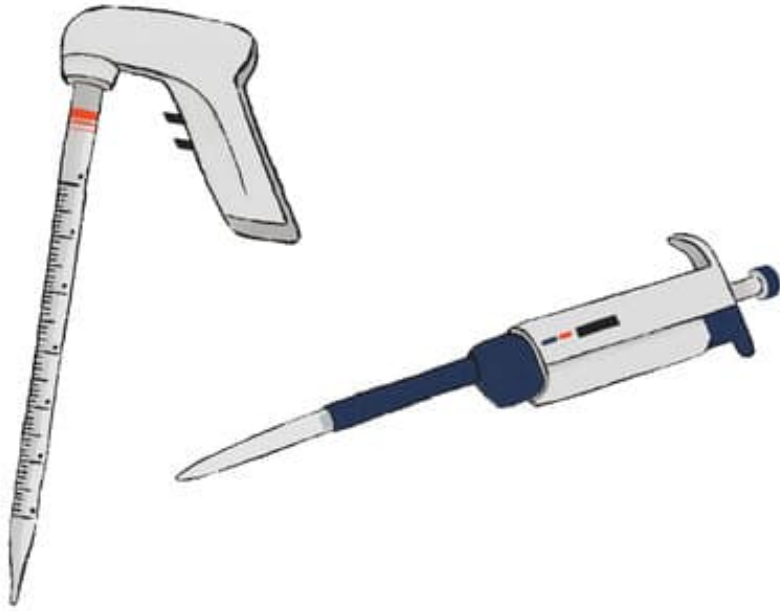
Zara checks each of the flasks over weeks. She takes notes about changes that she sees. After a few weeks, she puts all of these notes together as her data. She can use the data to look for patterns.



Based on these patterns, Zara does more tests. She plates some of the microbes on different kinds of mediums called agar. Some are based on blood. Some have a beef broth or yeast extract. Different microbes feed on different agar. When we see them, it means that they can grow on that kind of agar.



Some microbes react well when there is oxygen there. Some react well when there is no oxygen. While doing all of these rounds of tests, the list of microbes that it could be had shrunk a lot.



As she works, Zara keeps her tools clean. This is an autoclave. It keeps the tools clean by pumping in steam and making it hot. This kills microbes so that they don't change the results of the tests.

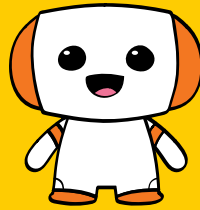




Zara gets one of her workmates at her lab to run the tests as well. She wants to be sure that he gets the same results if he does the same tests as her. He does. That means that Zara has found a new microbe!



We use microbes for all kinds of things. Some of them help us make food and stop it from rotting. Some of them help make our water clean. They are also used in farming to look after crops and animals. They are even used in medicine for our health. What will Zara's new microbe be able to do?



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