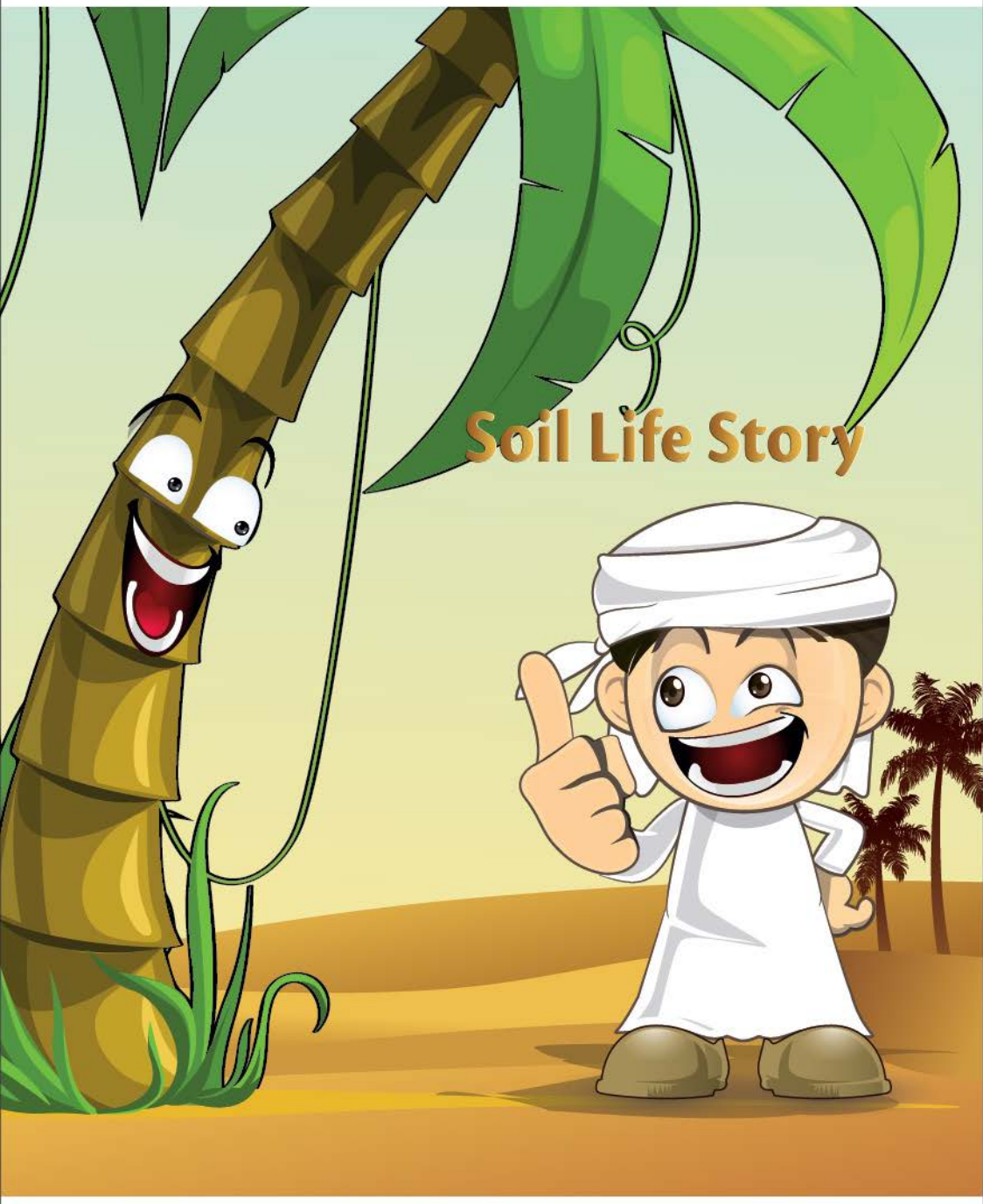
بلدية دبي
DUBAI MUNICIPALITY




Soil Life Story


What is soil and where does it come from?
Soil is a mixture of small particles made from the breaking of rocks and fragmentation over long periods spanning thousands of years.
And how do rocks break?
My friend, rocks break, due to factors involved in weather such as rain, heat, wind, and snow melt.


Does that mean soil is just fragmented small rocks?
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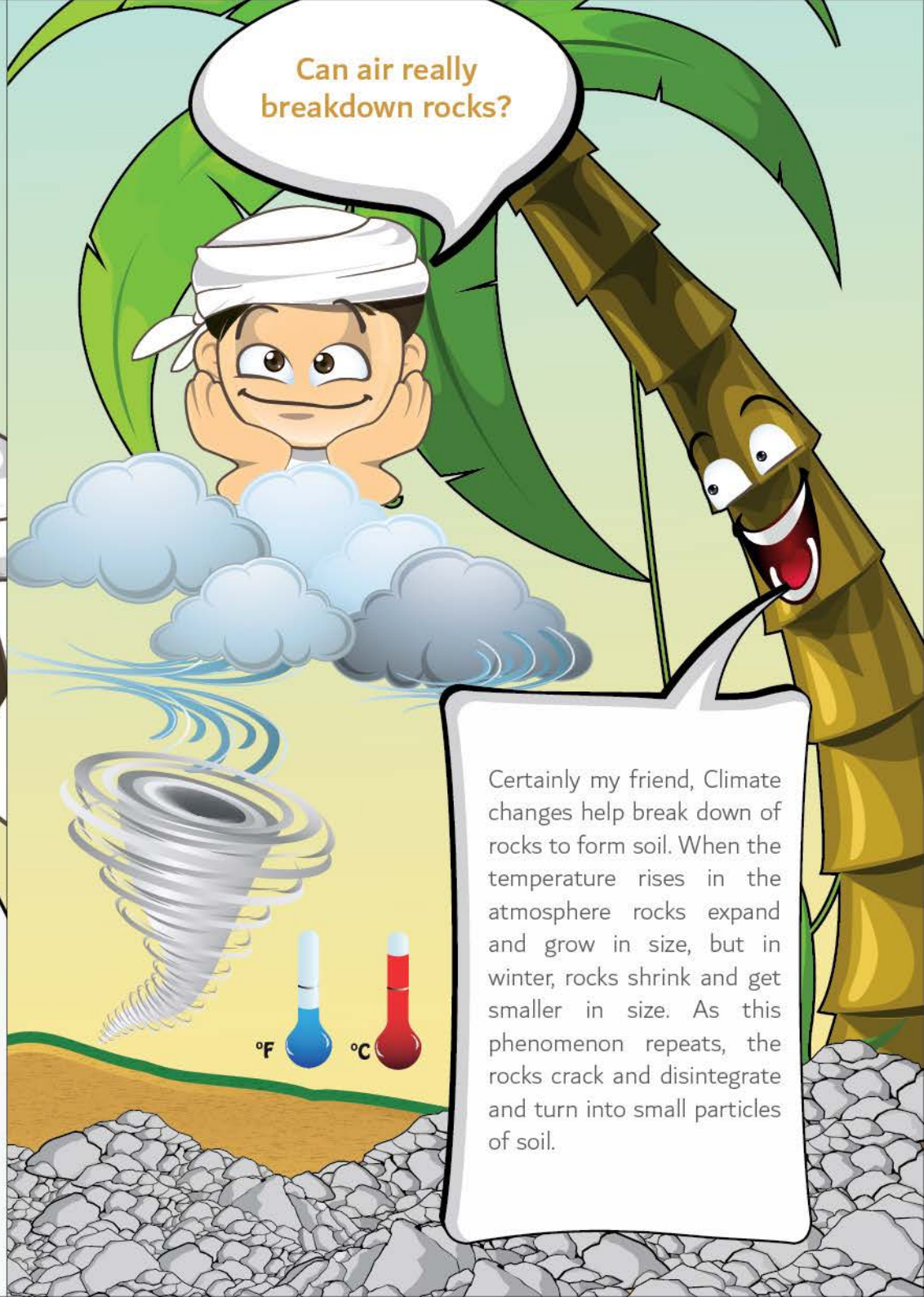
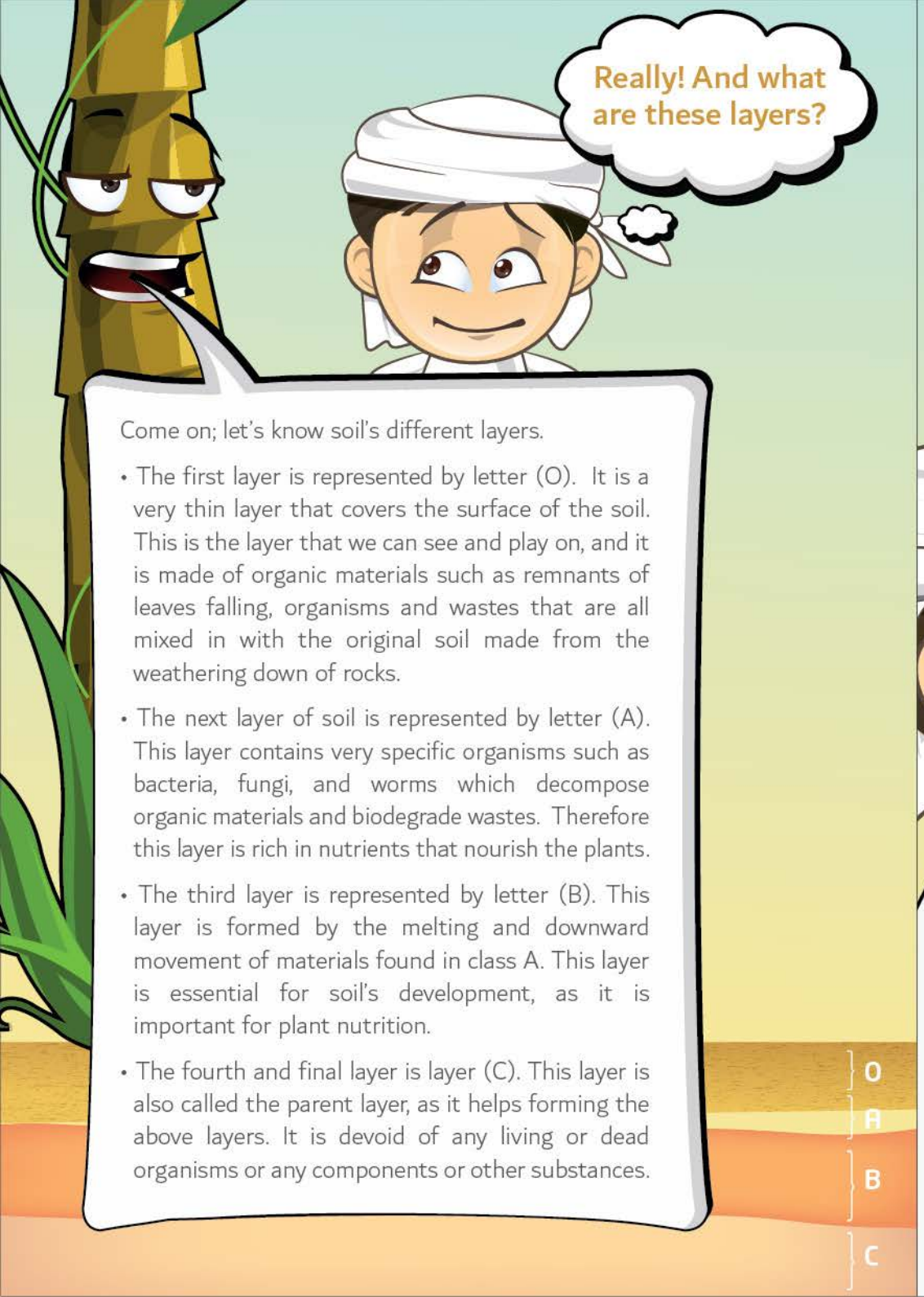
ooo!
Yes, but not completely. Most of soil is made of fragmented rocks, but it also consists of remains of dead plants and roots, organisms, and materials resulting from human activities.


Can air really breakdown rocks?
°F
°C
Certainly my friend, Climate changes help break down of rocks to form soil. When the temperature rises in the atmosphere rocks expand and grow in size, but in winter, rocks shrink and get smaller in size. As this phenomenon repeats, the rocks crack and disintegrate and turn into small particles of soil.

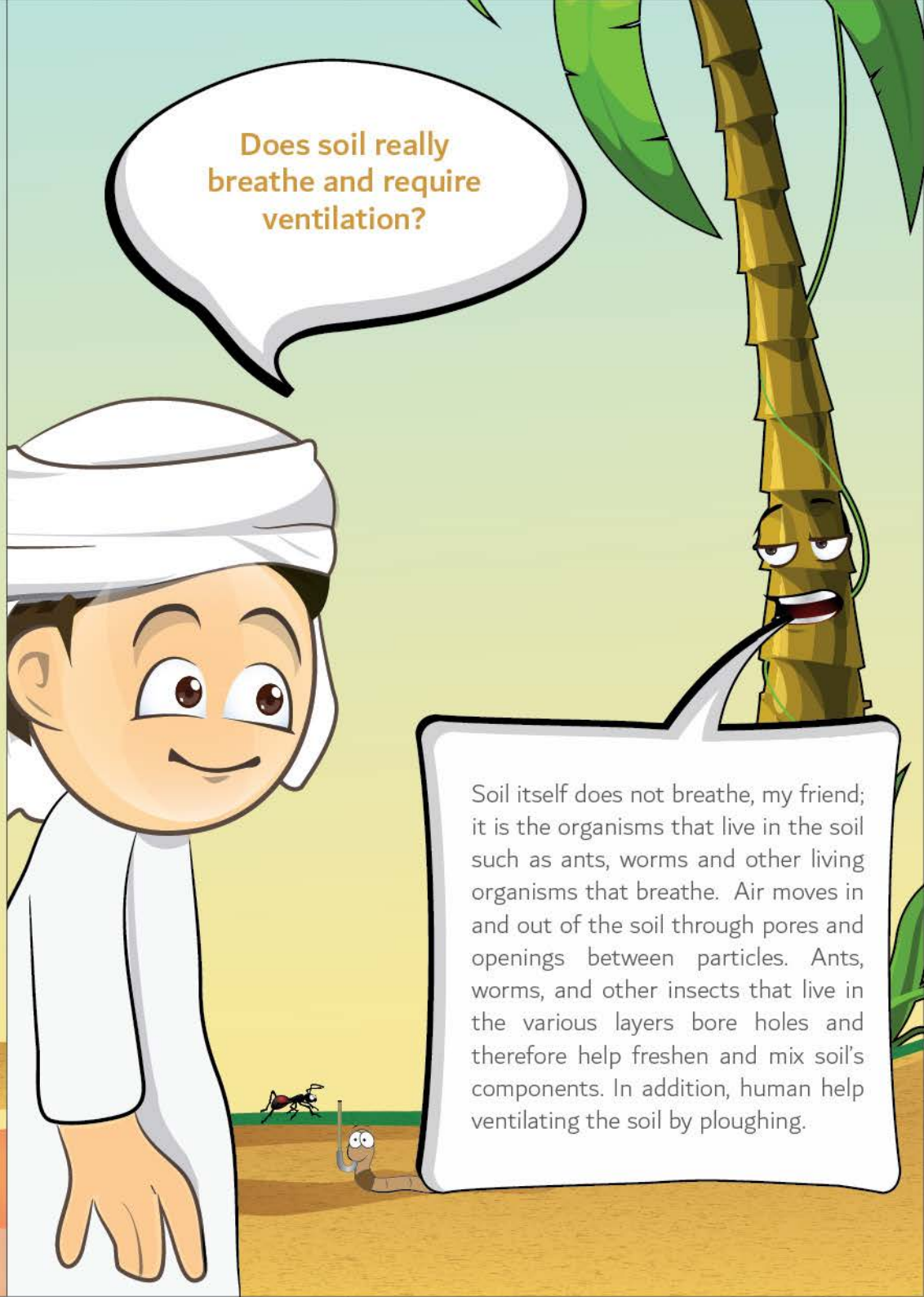

How does water contribute in forming the soil?
My friend, rain and snow, help forming of soil by breaking large rocks into smaller particles. They also dissolve lots of materials in rocks, change its components and create clay that is soft. It is the most important soil component as it plays a large role in nourishing the plants.
Did you know that just one inch of soil takes thousands of years to form !!


What lies under the soil?
My friend, soil, is a developing body that changes and evolves with time. Due to frequent exposure to different factors that affect soil formation, what lies on the surface differs greatly than what lies underneath. Soil is divided into 4 different layers according to the materials it is composed of, like its colour, size of its particles, and the degree of cohesion. These layers are identified by a small set of characters.

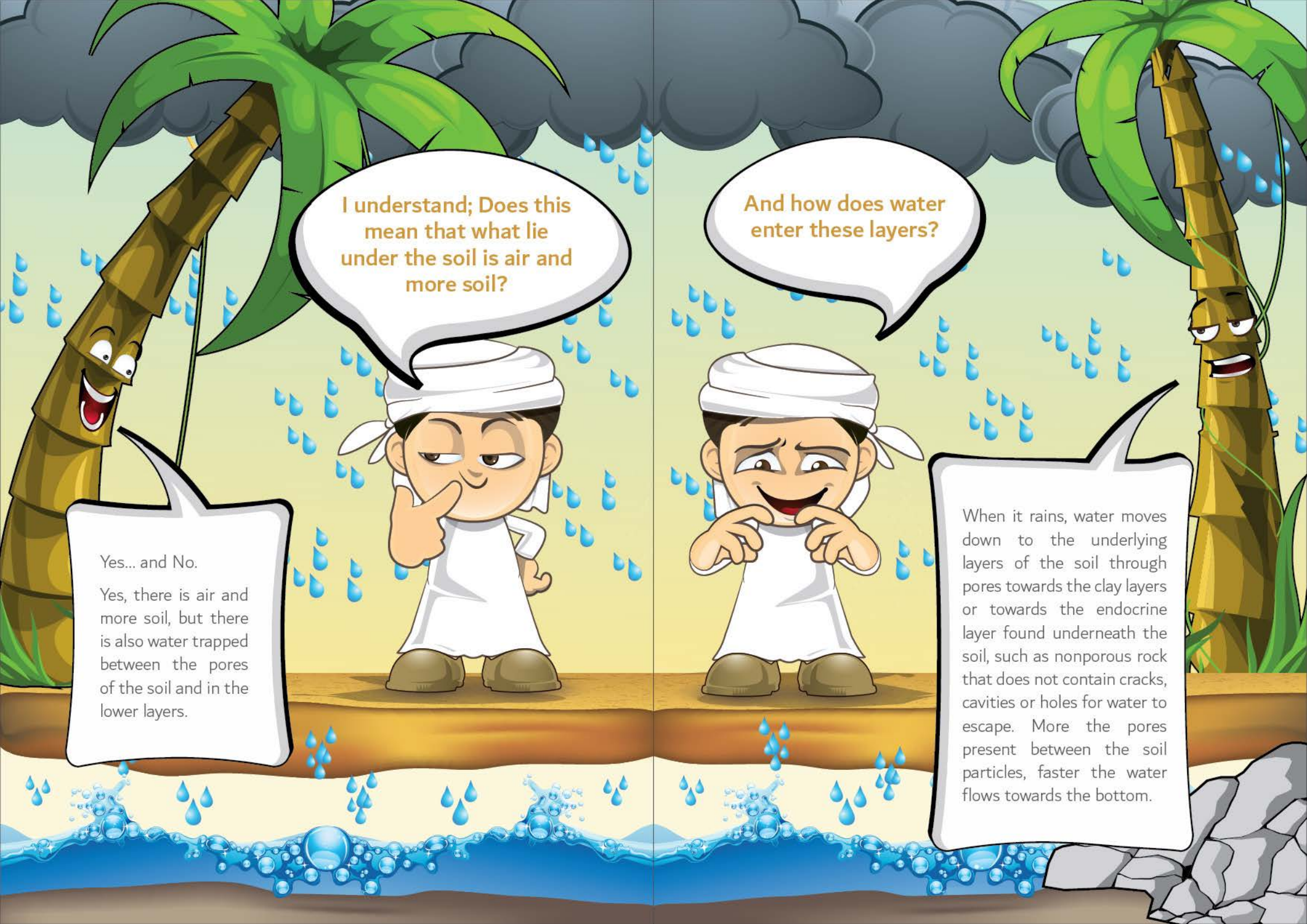


Come on; let's know soil's different layers.

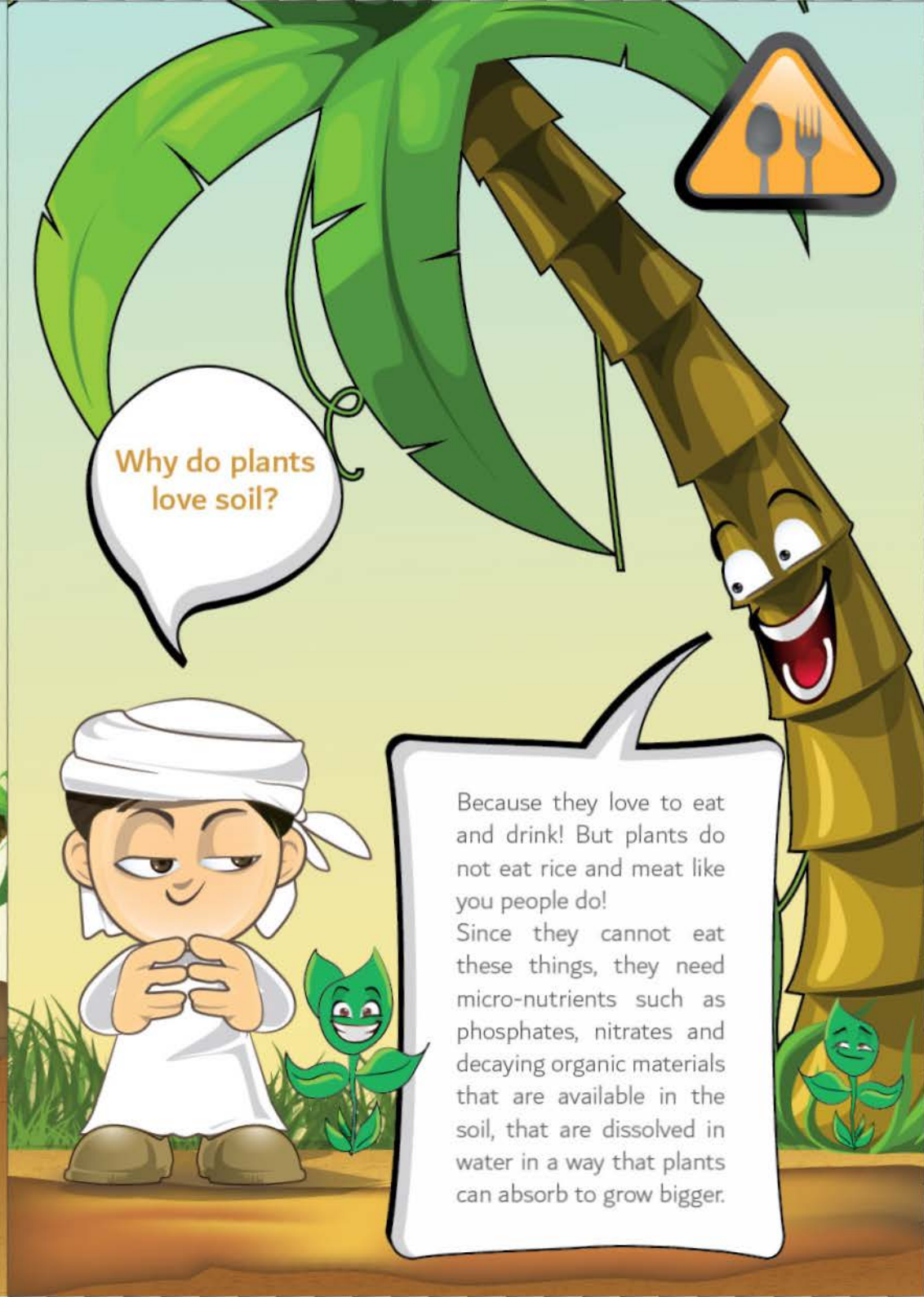
- The first layer is represented by letter (O). It is a very thin layer that covers the surface of the soil. This is the layer that we can see and play on, and it is made of organic materials such as remnants of leaves falling, organisms and wastes that are all mixed in with the original soil made from the weathering down of rocks.
- The next layer of soil is represented by letter (A). This layer contains very specific organisms such as bacteria, fungi, and worms which decompose organic materials and biodegrade wastes. Therefore this layer is rich in nutrients that nourish the plants.
- The third layer is represented by letter (B). This layer is formed by the melting and downward movement of materials found in class A. This layer is essential for soil's development, as it is important for plant nutrition.
- The fourth and final layer is layer (C). This layer is also called the parent layer, as it helps forming the above layers. It is devoid of any living or dead organisms or any components or other substances.



Soil itself does not breathe, my friend; it is the organisms that live in the soil such as ants, worms and other living organisms that breathe. Air moves in and out of the soil through pores and openings between particles. Ants, worms, and other insects that live in the various layers bore holes and therefore help freshen and mix soil's components. In addition, human help ventilating the soil by ploughing.


I understand; Does this mean that what lie under the soil is air and more soil?
Yes... and No.
Yes, there is air and more soil, but there is also water trapped between the pores of the soil and in the lower layers.
And how does water enter these layers?
When it rains, water moves down to the underlying layers of the soil through pores towards the clay layers or towards the endocrine layer found underneath the soil, such as nonporous rock that does not contain cracks, cavities or holes for water to escape. More the pores present between the soil particles, faster the water flows towards the bottom.


What do plant roots do beneath the soil?
Roots play an important role beneath the soil. They absorb water between soil particles, which are rich in nutrients which plants need to grow. Roots also play an important role in cracking rocks and soil formation.


Why do plants love soil?
Because they love to eat and drink! But plants do not eat rice and meat like you people do!
Since they cannot eat these things, they need micro-nutrients such as phosphates, nitrates and decaying organic materials that are available in the soil, that are dissolved in water in a way that plants can absorb to grow bigger.


Why can't I grow all the types of plants in my house?
My friend, no one can grow all the varieties of plants at home, for some reasons. First, plants cannot live in all weather conditions. My family and I, for example, love to live in UAE or neighbouring countries with similar climate. But we may find difficulty to survive in a cold country. This applies to other plants as well.
I understand now; And what is the other reason?
The second reason, as I said earlier, is that plants like to eat and drink just like human beings. There are some who eat and drink in large quantities, and there are some who eat just enough to live. Same happens with plants too, some require large amounts of water and nutrients such as rice, and some plants can live on few drops of water for long periods of time, like cactus. That is what allows for different countries to produce different types of plants according to the abundance of water, air and soil quality.


Then what type is my city's soil?!
The Soil of Dubai is very similar to those of other seven emirates'. There are areas, however, where the quality or type of soil varies depending on the location and weather factors such as change in temperature, rainfall, and types of rock it contains.
However, I must say that most of Emirates' soil is not fertile and genetically ranks as dry soil, which is coarse and contains no clay; this means that the soil cannot hold large quantities of water for long periods of time. This is what makes it less cohesive and leakier. Additionally this makes the soil scarce in nutrients that are essential for healthy plants.


How could that be? I see plenty of plants and flowers on the streets and parks of Dubai!
Yes that is true, and this is due to the ability of providing nutrients into the soil by adding various fertilizers mixed with soil. This way we can grow many plants in homes and parks.