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Infographic Contest Winner

PETRICHOR

The Smell of Rain

The word *petrichor* sounds like an answer you would need to finish a crossword puzzle. What would the clue be? Maybe "The perfume of a rainy day." Michelle Prunier from *Guilderland High School in Guilderland Center, N.Y.*, created this month's winning infographic to teach us more about the chemistry of petrichor, the smell that greets us as we step out, umbrella in hand, into a rainy day.

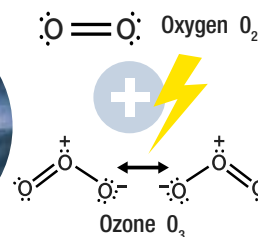
What Is Petrichor?

The term petrichor was coined by Australian scientists in 1964 to describe the unique, earthy smell associated with rain. It is caused by rainwater falling on dry soil, along with certain compounds like ozone, geosmin, and plant oils.

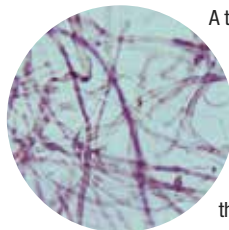
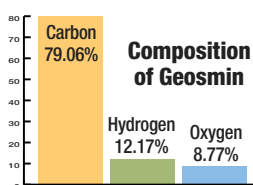


Ozone & Lightning

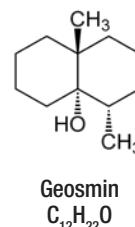
During a lightning strike, diatomic molecules of oxygen and nitrogen (containing two atoms) are split and re-arranged to create nitric oxide (NO) and ozone (O₃). Ozone molecules are carried down by raindrops to contribute to the scent.



Geosmin



A type of bacteria found in soil, known as actinomycetes, secrete a compound called geosmin, which is released from soil into the air by raindrops. The human nose can detect geosmin in the air at less than five parts per trillion.

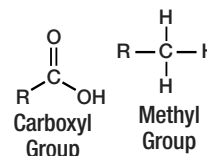
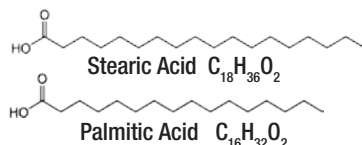


Volatile Plant Oils

During dry weather, plants produce compounds that accumulate between rocks and in soil. When it rains, these compounds, called volatile plant oils, are released into the air to add to the earthy smell of petrichor.



Stearic acid and palmitic acid are two such compounds. They are fatty acids—long hydrocarbon chains with a carboxyl group on one end and a methyl group on the other end.



PHOTOS: SHUTTERSTOCK

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