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## EVERYDAY CHEMISTRY AUGMENTED REALITY BOOK

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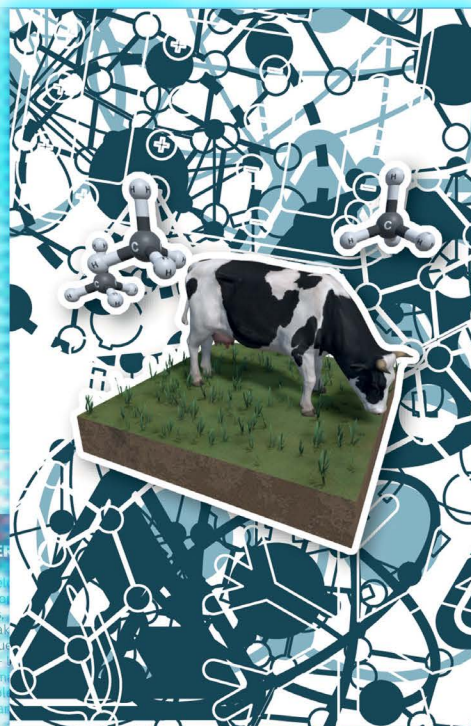
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## CHEMISTRY BELOW & ABOVE

Chemistry is present in all aspects of life, such as agriculture: from fertilisation to problems caused by livestock.

### CHEMISTRY IN THE SOIL

Today, the **mineral content** of arable soils is fully exploited due to the constant and high food demand of mankind. The valuable elements in the soil are partly replaced by both naturally and industrially produced fertilisers.



### WHAT IS FERTILISER?

Soil is mainly depleted in **nitrogen**, **phosphorus** and **potassium** compounds. If natural fertilisers are not available in sufficient quantities, fertilisers are applied by specialists and absorbed by the plants in the form of a water solution. Fertilisers are modern agrotechnical methods. Their professional and optimised use helps to achieve **better yields**.

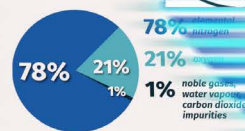
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### EXCESSIVE FERTILISATION

The environment is **negatively** affected by excessive, possibly inappropriate, fertilisation. Nitrogen leaching from the soil and migrating into groundwater causes algae growth in surface water and increases nitrate levels in drinking water. Some of the active ingredients of phosphorus and potassium fertilisers not taken up by plants are also leached and migrate with groundwater, contaminating wells and water bodies. Increasing the dissolution of calcium can lead to soil acidification, which adversely affects its micro-nutrient content.

### THE CHEMISTRY OF THE ATMOSPHERE

The atmosphere is 78% oxygen. Oxygen, essential for oxygen-based life forms, survival of mankind, makes up the air and is entirely diatomic – remaining 1% of air is various components – noble gases, carbon dioxide and water vapour.



### HAZARDOUS GASES

Have you heard the surprising claim that cattle are largely responsible for global warming? Ruminants emit large amounts of **methane**, a highly greenhouse gas. Another cause of methane production in agriculture is rice cultivation. Methane is also produced as a by-product of the decomposition of organic matter in the oxygen-depleted environment of waterlogged rice paddies. In addition to methane, **carbon dioxide** is also a major environmental pollutant, contributing to global warming.



### DID YOU KNOW?

Greenhouse gases absorb infrared wavelengths of light and emit the absorbed energy back to Earth. This prevents some of the energy emitted from the Earth's surface from reaching outer space, thus contributing significantly to global warming.

