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Nota di contenuto	1. Chemistry in a capsule. 1.1. What is matter made of? 1.2. What are we made of? 1.3. Let us observe chemical changes. 1.4. Let us prepare a few elemental gases. 1.5. Atomic and molecular nature of substances. 1.6. Laws of chemical combination. 1.7. Man and metals. 1.8. Classification of substances. 1.9. Electrolysis. 1.10. Carbon compounds. 1.11. States of substances. 1.12. Materials. 1.13. Similar looks but different properties. 1.14. Pure and impure. 1.15. Explosions and fireworks. 1.16. The food we eat. 1.17. Our atmostphere. 1.18. Water -- 2. Elements and the periodic table. 2.1. Modern concept of elements. 2.2. The modern atom. 2.3. Arranging elements. 2.4. The modern periodic table. 2.5. Periodic table and properties of elements. 2.6. Coming back to the story of the elements -- 3. The chemical bond. 3.1. How are chemical bonds formed? 3.2. Ionic bond. 3.3. Covalent bond. 3.4. Bond distances and bond energies. 3.5. Resonance. 3.6. Coordinate bond. 3.7. Metallic bond -- 4. Structures and shapes of molecules. 4.1. What are the factors that determine the shapes of simple molecules? 4.3. Hybridization. 4.3. Shapes of simple molecules. 4.4. Isomers. 4.5. Some complex structures and shapes. 4.6. The Hydrogen bond. 4.7. Molecules of life. 4.8. Man-made polymers -- 5. Chemical energy. 5.1. Energy changes in chemical reactions. 5.2. Nature of energy. 5.3. Heats of reactions. 5.4. Energy storage. 5.5.

Energy from the sun. 5.6. Future options -- 6. Chemical reactions. 6.1. Which reactions occur? 6.2. Chemical equilibrium. 6.3. Rates of reactions. 6.4. Factors that affect reaction rates. 6.5. How reactions occur. 6.6. Some reactions. 6.7. Redox reactions (reduction-oxidation reactions). 6.8. Catalysis. 6.9. Chemical synthesis. 6.10. Supramolecular chemistry -- 7. Two chemists. Objectives. Michael Faraday. Linus Pauling.

Sommario/riassunto

This is the international edition of Prof Rao's popular science book, an elementary introduction intended for high school students and others interested in appreciation of chemistry. Ideas and facts are presented, and a few questions raised, in order to interest the reader in the subject and to arouse curiosity. The book covers essential aspects of chemistry, features of the modern periodic table, bonding between atoms in molecules and substances, shapes and structures of molecules, metals and materials, alkalis and acids, carbon compounds, electronic structure of atoms, classification of elements, simple chemical reactions, biopolymers and man-made polymers and aspects of energy. There are also life sketches of chemists and procedures for a few experiments.