Contents

About your book 4

ANNEX. Mathematical tools					
UNIT	CONTENT	FINAL SECTIONS			
1 Scientific research 10	 What are the stages of the scientific method? What information do tables and graphs provide? Physical quantities and their units How do we work in the Physics and Chemistry lab? What's the structure of a scientific report? What impact has scientific research had on industry and social development? 	Revision activities 24 Science practical Measuring the density of an irregular solid 28			
		Work on your key competences US Women in Science 29			
BLOCK I	MATTER AND HOW IT CHANGES	30			
2 The atom and the periodic table 32	and the proton 35 3. Where are the proton and the electron positioned in the atom? The first atomic models 4. How are atoms identified? The atomic number and the mass number 5. Bohr's atomic model (1913) 6. How are ions formed? What's their electron	Revision activities 46 Science practical Atomic spectra 50			
	configuration? 7. Can the atoms of the same element have different mass numbers? Isotopes 8. How are the elements arranged in the periodic table? 41 42	Work on your key competences LS The 'healthy' elements of the periodic table 51			
3 Elements and compounds 52	 How are the atoms grouped in chemical elements? What chemical compounds form molecules? What chemical compounds are in the form of crystals? How can we discover the properties of substances? What is the molecular mass of an element or compound? 63 	Revision activities 66 Science practical The components of water 70 Work on your key competences LS			
	7. The amount of substance: the mole8. What's the mass of one mole of a substance? Molar mass65	Chemical elements and compounds of special interest 71			
4 Chemical reactions 72	 Changes in matter What's a chemical reaction? Is mass conserved in a chemical reaction? The law of conservation of mass Can substances react with each other in any proportion? The law of constant proportions Chemical equations and the law of conservation of mass 78 What information does a chemical equation give us? Stoichiometric calculations How can we speed up or slow down a chemical reaction? Reaction rates 	Revision activities 86 Science practical What causes rust? 90			
	8. What reactions are important to society? The chemical industry 84 9. How can we protect the environment? 85	Work on your key competences LS The chemical industry and economic development 91			
ANNEX. Inorganic chemical formulas and nomenclature					
PROJECT	Is your environment sustainable?	104			

BLOCK II	INTERACTION			106
UNIT	CONTENT		FINAL SECTIONS	
5 Forces and their effects 108	1. Forces 110 2. Measuring and representing forces 112 3. Movement 114	112	Revision activities Science practical Construction and calibration of a dynamometer	120
			Work on your key competences LS Reaction time and safety distance	125
6 Newton's laws 126	 The law of universal gravitation Weight The acceleration of falling bodies 	128 131 133 135 136	Revision activities Science practical Centre of gravity and balance	138 142
			Work on your key competences LS Newton's laws and road safety	143
PROJECT	Road safety for pedestrians, drivers and passengers			144
BLOCK III	ENERGY			146
7 Electric current and electric circuits 148	3. Electric circuits 155	154 155 159	Revision activities Science practical Experimental verification of Ohm's law	162 166
		160 -	Work on your key competences LS Guidelines for safe and sustainable use of domestic electricity	167
8 Forms and sources of energy 168	 Thermal energy, heat and temperature Electrical power and energy consumption What are energy sources? The greenhouse effect and global warming 	170 172 175 178	Revision activities Science practical Experimental verification of Joule's first law	184
		183		189
PROJECT Is your school sustainable?			190	
Language practice activities				