

Contents 4ESO Biology and Geology

BLOCK I		
THE DYNAMICS OF THE EARTH		
UNIT	CONTENT	FINAL SECTIONS
1 Tectonic plates	<ol style="list-style-type: none"> 1. Methods for studying the interior of the Earth 2. The layers and dynamics of the geosphere 3. How do plate tectonics work? 4. Types of plate boundaries and how they act 	Revision activities Science practical The essentials of testing a hypothesis
		Work on your key competences LS
2 Geological processes and the Earth's relief	<ol style="list-style-type: none"> 1. Plate movements and rock deformations 2. The origins of mountain ranges 3. The creation and sculpting of relief 4. Geological risks: internal and external 5. Global effects of tectonic activity 	Revision activities Science practical Working with topographic maps
		Work on your key competences LS
3 Geological time	<ol style="list-style-type: none"> 1. The Earth: a planet in continuous change 2. How is geological time calculated? The concept of dating 3. Relative dating methods 4. Absolute dating methods 5. The great time divisions in the history of the Earth 	Revision activities Science practical Working with geology cross-sections
		Work on your key competences LS
PROJECT I	Researching a period of the Earth's history LS	
BLOCK II		
THE EARTH IN THE UNIVERSE		
UNIT	CONTENT	FINAL SECTIONS
4 The origin of the universe and the solar system	<ol style="list-style-type: none"> 1. The first conceptualisations of the origin of the Universe 2. Modern theories about the origin of the Universe 3. The composition of the Universe 4. The origin of the Solar System 5. The structure of the Solar System 6. The formation of the Earth and the Moon 7. How old are different parts of the Earth? 	Revision activities Science practical Creating a Hertzsprung-Russell diagram
		Work on your key competences LS
5 The origin of life on Earth	<ol style="list-style-type: none"> 1. Hypotheses on the origin of life 2. Evidence for how long life on Earth has existed 3. The stage on which life developed: the first molecules 4. Models of the origin of life 5. The RNA world 6. The iron-sulphur world 7. Hybrid models 8. The formation of protobionts 9. The first cells 10. The search for life on other planets: astrobiology 	Revision activities Science practical Simulating the formation of coacervates
		Work on your key competences LS

PROJECT II		Space exploration LS
BLOCK III		LIFE: ITS MAINTENANCE AND ITS EVOLUTION
UNIT	CONTENT	FINAL SECTIONS
6 The cell	<ol style="list-style-type: none"> 1. The cell: structure and function 2. Different types of cells 3. Prokaryotic cells 4. Eukaryotic cells 5. The cell cycle 6. Cell reproduction: mitosis and meiosis 	Revision activities Science practical Observing the stages of mitosis under the microscope
		Work on your key competences LS
7 Molecular genetics	<ol style="list-style-type: none"> 1. Nucleic acids 2. DNA 3. Genetic expression 4. Mutations 5. Genetic engineering 	Revision activities Science practical Obtaining DNA
		Work on your key competences LS
8 Genetic inheritance	<ol style="list-style-type: none"> 1. How characteristics are inherited: Mendel's laws 2. How chromosomes are involved in inheritance 3. Sex inheritance 4. Inheritance in the human species: the human karyotype 5. The application of genetic knowledge 	Revision activities Science practical Studying the distribution of a quantitative parameter
		Work on your key competences LS
9 Genetic alterations	<ol style="list-style-type: none"> 1. Alterations in Mendelian inheritance 2. The evolutionary importance of genetic variation 3. Genetic alterations and illness in humans 4. Congenital anomalies 5. The diagnosis of genetic disorders 	Revision activities Science practical Creating a family tree
		Work on your key competences LS
10 The origin and evolution of life	<ol style="list-style-type: none"> 1. From the first cell to biodiversity 2. Why do we say that evolution is a fact? 3. Theories of evolution 4. How does the evolutionary process happen? 5. The appearance of the human species 	Revision activities Science practical Constructing a phylogenetic tree
		Work on your key competences LS
PROJECT III		Simulating natural selection LS