Contents

UNIT		CONTENT		FINAL SECTIONS	
1 Project planning	8	 What's technology? Stages of a technological project Tools used in technology Workshops Businesses 	10 11 14 14 15	Revision activities Working with a computers Creating a personal compter-based learning environment Technology workshop Formal, technical, functional and socioeconomic analysis of an object Working with technology Workshop safety Reinventing Galileo Emerging technologies and sustainability Ecological cooling Work on your key competences Design a portable air conditioning unit	16 18 19 20 21 22
2 Systems of representation	24	/ / /	26 28 30 32 33	Revision activities Working with a computers Making a mobile phone stand with TinkerCAD Emerging technologies and sustainability Medical applications of 3D printing Work on your key competences Objects that improve health	36 38 42 43
3 Mechanisms	44	 Linear transmission of motion Rotary transmission Transmission of motion Mechanisms that control motion 	46 48 52 55 57 58 59 59	Revision activities Technology workshop Building simple mechanisms Working with a computers Making a pulley with a 3D printer Simulating mechanisms Technology workshop Basic bicycle maintenance Which parts of my bike should I check? Emerging technologies and sustainability Personal transporters	60 62 64 66 68 69 70
# Electrical and electronic circuits	72	 Electrical quantities Series and parallel circuits Electromagnet control systems 	74 76 78 80 82	Work on your key competences LS Tune up your bike Revision activities Technology workshop How to build circuits How to use a multimeter How to install four speakers Using technology to save water Working with a computers Simulating electrical and electronic circuits Technology workshop Electric vehicles (EVs) Emerging technologies and sustainability Unmanned aerial vehicles Work on your key competences	71 86 88 90 91 92 94 96

UNIT		CONTENT		FINAL SECTIONS	
5 Programming and control systems	100	 Elements of an automatic control system Robots Learning to program Arduino. Programming robots Robot components How do control systems present information? 	102 104 106 108 110	Revision activities Working with technology Assembling circuits Working with a computers BBC micro.bit board Artificial intelligence Control systems simulator Technology workshop Can an object connect to the Internet? Emerging technologies and sustainability Robots that take care of us Work on your key competences Trainer robot: exercise your brain	118 120 120 123 124 126 128
6 Computers and our projects	130	 Hardware and software The operating system Installing and uninstalling software Spreadsheets Project presentations Infographics Working with video 	132 134 136 138 142 144 145	Revision activities Working with a computers Operating systems: installation and configuration How to install and configure Windows 11 Design a class quiz game Emerging technologies and sustainability The flash Joule method. Linear vs. circular economy Work on your key competences LS Human influence on climate change	146 148 149 150 152
7 Digital information	154	 What's a communication system? Wired and wireless communication Networks The Internet What is the web? Web 1.0, Web 2.0 and Web 3.0 The power of information User licences 	156 155 165 160 162 164 172	Revision activities Working with a computers How to create a home network to share files and folders Mobile applications Digital wellbeing Emerging technologies and sustainability The Internet devours energy Work on your key competences A personal learning environment	174 176 178 179 180
8 Technological developments	182	1. Technological developments 2. Social models 3. Environmental damage 4. Factors that determine new relationships and social and economic uses 5. Sustainable development	184 186 192 194 195	Revision activities Technology workshop Planned obsolescence Historical analysis of different writing systems Making a workplace safety plan Emerging technologies and sustainability C-V2X will redefine transportation thanks to 5G Work on your key competences The evolution of technological objects	196 198 200 201
PROJECTS					204
PROJECT I My ideal classroom					206
PROJECT II In the footsteps of Leonardo					208
PROJECT III		Smart traffic light			210
GUIDED PROJECT		Design and build a car			212
Language practice activities					