

2021 Annual Teaching Plans

LIFE SCIENCES FET



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Shuter & Shooter Publishers (Pty) Ltd
Shuters House, 110 CB Downes Road, Pietermaritzburg 3201, South Africa
PO Box 61, Mkondeni 3212, South Africa

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Why choose our books?

- Fully CAPS compliant
- Lots of activities and exercises
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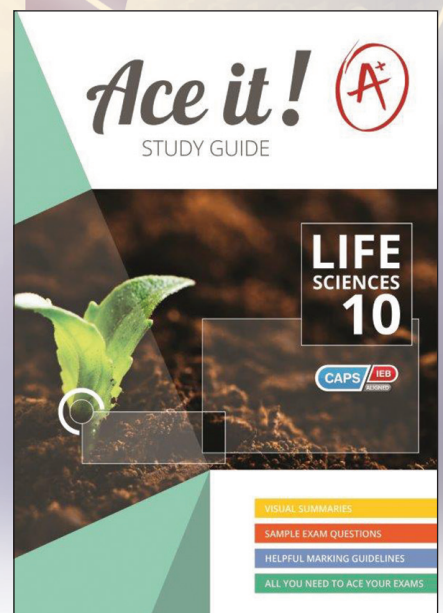
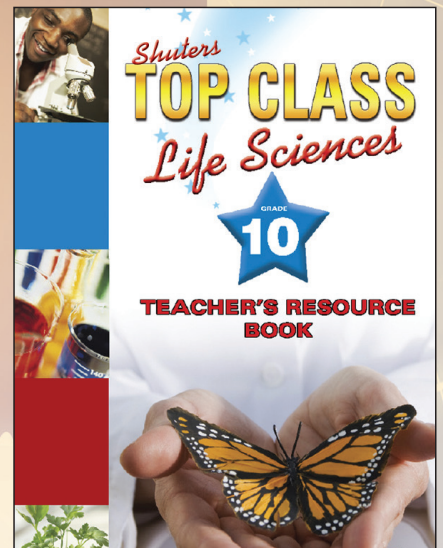
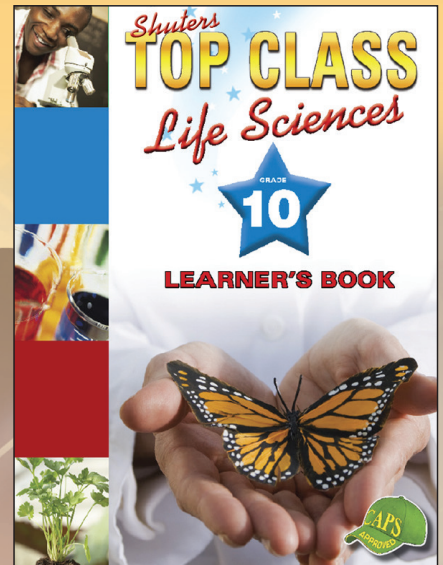
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- Improves learners' results
- Assess progress easily
- Reduce the administrative burden
- Helps save planning and preparation time
- Follows the CAPS precisely, making teaching easier
- Most of our titles are also available as e-Books

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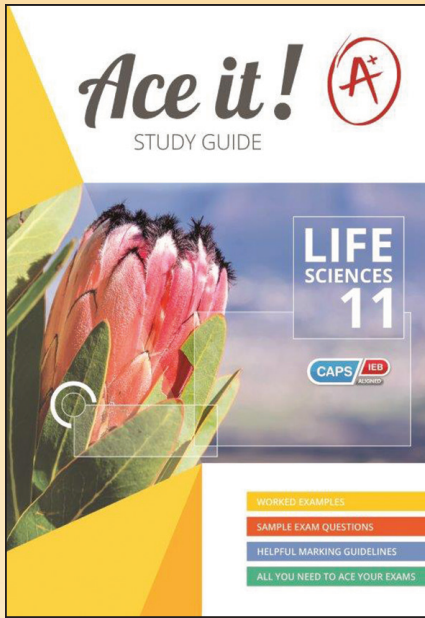


Topic	Content	Time allocation	Where to find it in <i>Top Class Life Sciences Grade 10</i>		
			Unit	LB	TG
Orientation to Life Sciences: Subject Orientation	- How science works - Scientific skills - Organisation of learning and rules	Week 1	Orientation to Life Sciences: subject orientation	v	
Strand: Life at the molecular, cellular and tissue level					
The chemistry of life	- Molecules for life - Inorganic compounds - Organic compounds	Weeks 2 to 4	Unit 1: The chemistry of life	2	2
Cells: the basic units of life	- Molecular make-up - Cell structure and function: roles of organelles - Cells differ	Weeks 5 to 7	Unit 2: Cells: the basic unit of life	25	15
Cell division: mitosis	- The cell cycle, including mitosis - Chromosomes - Role of mitosis - Cancer	Weeks 8 to 9	Unit 3: Cell division: mitosis	57	30

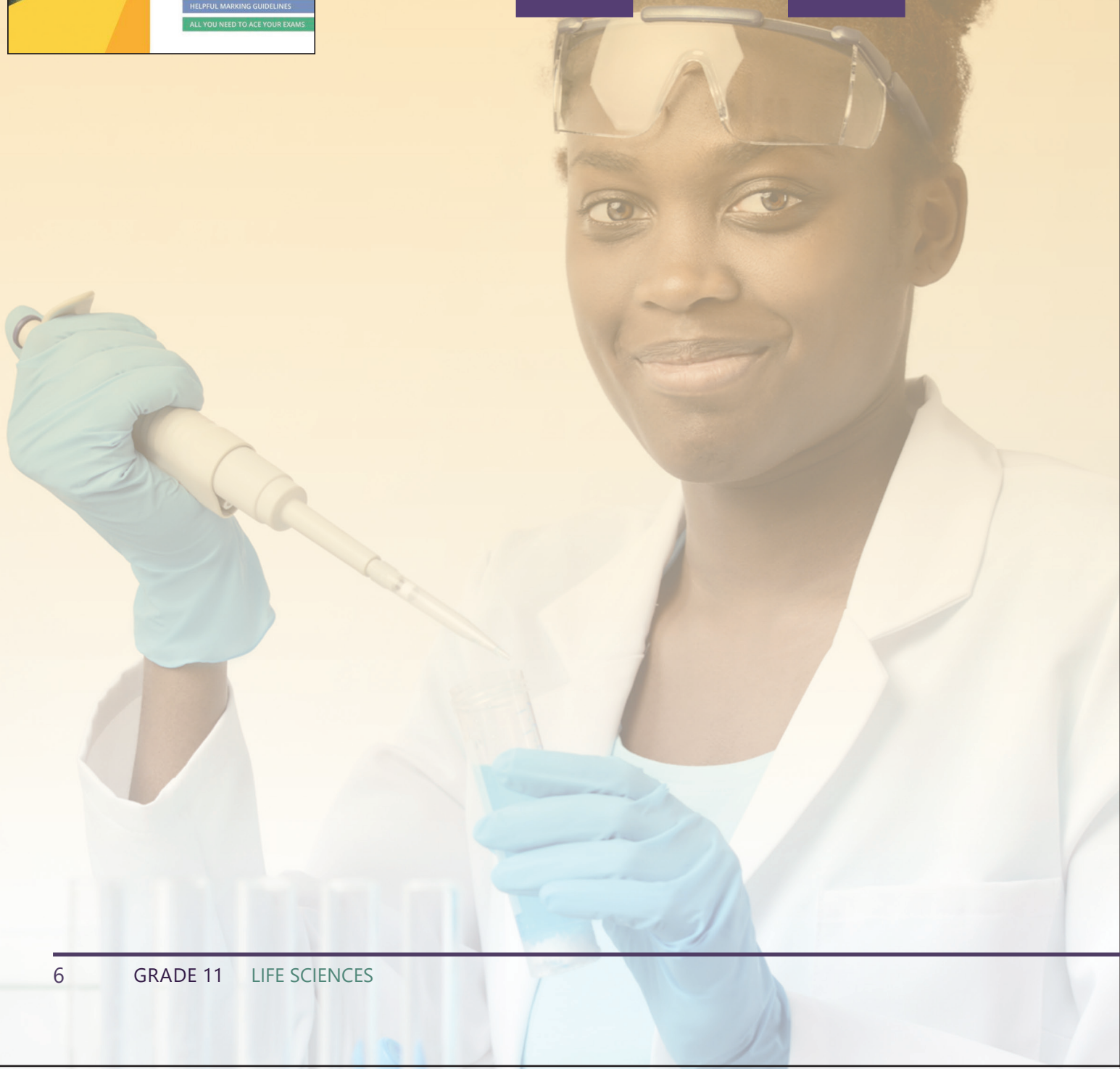
Strand: Life processes in plants and animals					
Plant and animal tissues	- Tissues - Animal tissues	Week 1	Unit 4: Plant and animal tissues	70	36
Organs	- Tissues - Plant tissues	Weeks 2 to 3	Unit 5: Organs	99	45
	- Anatomy of dicotyledonous plants - Organs consist of a number of tissues - Root and stem - Structure of cells in different tissues				
	Leaf structure	Week 4			
Support and transport systems in plants	- Transpiration - Wilting and guttation - Uptake of water and minerals into xylem in roots - Transport of water and minerals to leaves - Translocation of manufactured food	Weeks 5 to 6	Unit 6: Support and transport systems in plants	110	54
Support systems in animals	- Skeletons - Human skeleton - Functions of skeleton - Structure of long bone - Structure and functions of tissues - Joints - Roles of tissues in human locomotion - Structure of voluntary skeletal tissue - Diseases that affect the skeleton	Weeks 7 to 8	Unit 7: Support systems in animals	131	65
Transport systems in mammals (humans)	- Circulatory system - Blood circulation system - Direction of blood flow - Mechanisms for controlling cardiac cycle and heart rate - Blood vessels - Lymph - Diseases of heart and circulatory system	3 weeks (12 hours)	Unit 8: Transport systems in mammals (human)	155	74

Topic	Content	Time allocation	Where to find it in <i>Top Class Life Sciences Grade 10</i>		
			Unit	LB	TG
Strand: Environmental studies					
Biosphere to ecosystems	• Biosphere • Biomes • Environment • Ecosystems • Abiotic factors • Biotic factors • Energy flow and relationship to trophic structure • Ecotourism	Weeks 1 to 6	Unit 9: Biosphere to ecosystems	180	88
Biodiversity and classification	• Enormous biodiversity • Classification schemes • Main groups of living organisms	Weeks 7 to 8	Unit 10: Biodiversity and classification	218	98
History of life on Earth	• Life's history • Geological timescale • Cambrian explosion • Changes in species over last four million years	Weeks 9 to 10	Unit 11: History of life on Earth	232	105

Strand: Diversity, change and continuity				
History of life on Earth	• Mass extinctions • Fossil formation and methods of dating • Key events in life's history for which there is evidence in southern Africa • Impact of humans on biodiversity and the natural environment • Fossil tourism	Weeks 1 to 2	Unit 11: History of life on Earth	232
				105



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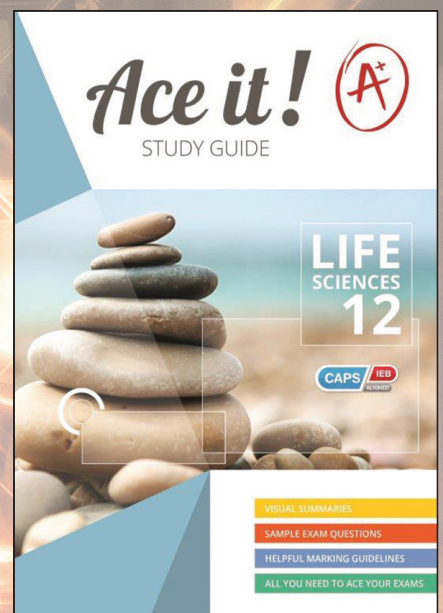
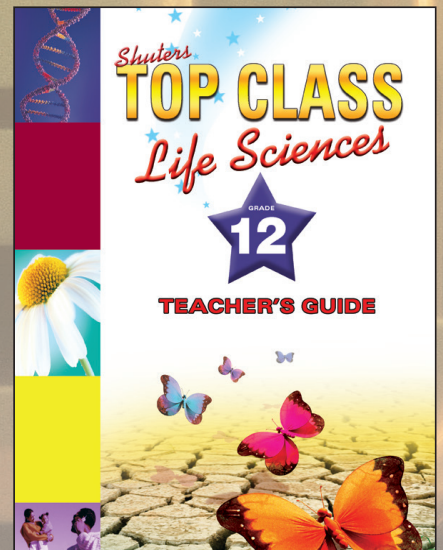
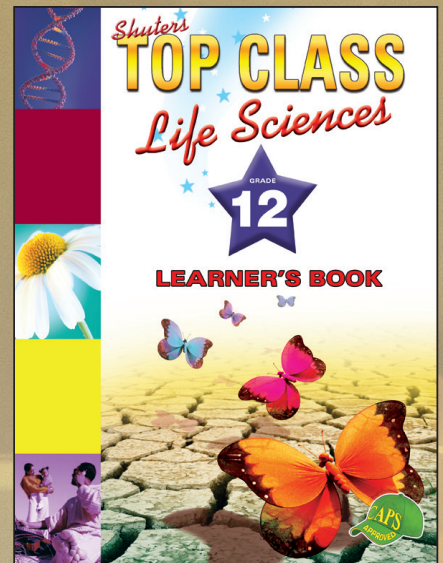
Topic	Content	Time allocation	Where to find it in <i>Top Class Life Sciences Grade 11</i>		
			Unit	LB	TG
Strand: Diversity, change and continuity					
Biodiversity and classification of micro-organisms	• Micro-organisms – viruses, bacteria, Protista and fungi • Roles of maintaining balance in the environment and web of life • Symbiotic relationships • Effect and management of one disease of one of each of the four groups • Immunity • Use of drugs • Use of micro-organisms to produce medicines • Traditional technology to produce beer, wine and cheese	Weeks 1 to 4	Unit 1: Biodiversity and classification of micro-organisms	2	2
Biodiversity of plants and reproduction in plants	• Grouping of Bryophytes, • Pteridophytes, Gymnosperms and Angiosperms • Asexual and sexual reproduction • Flowers as reproductive structures • Significance of seeds	Weeks 4 to 6	Unit 2: Biodiversity of plants and reproduction in plants	45	17
Biodiversity of animals: Invertebrates	• Relationship between body plan and grouping of animals into phyla • Six phyla – Porifera, Cnidaria, Platyhelminthes, Annelida, Arthropoda and Chordata • Key features in respect of body plans • Role of invertebrates in agriculture and ecosystems	Weeks 7 to 9	Unit 3: Biodiversity of animals: Invertebrates	76	35

Topic	Content	Time allocation	Where to find it in <i>Top Class Life Sciences Grade 11</i>		
			Unit	LB	TG
Strand: Life processes in plants and animals					
Energy transformations to sustain life: Photosynthesis	- Photosynthesis: its role, importance, and effects of variable amounts of light, carbon dioxide and optimum temperatures - Role of ATP as an important energy carrier in the cell	Weeks 1 to 4	Unit 4: Energy transformations to sustain life: Photosynthesis	103	50
Animal nutrition (mammals)	- Differences in respect of dentition for herbivorous, carnivorous and omnivorous lifestyles - Human nutrition: Identification of macrostructure of the alimentary canal and associated organs and the functions of the different parts - Processes of ingestion, digestion, absorption, assimilation and egestion and the significance of each - Homeostatic control - The relationships between food intake, energy, growth and health requirements - Tooth decay related to diet - Effects of alcohol and drug abuse and the dangers associated with their misuse	Weeks 5 to 8	Unit 5: Animal nutrition (mammals)	121	60
Energy transformations to sustain life: Cellular respiration	- Cellular respiration – aerobic respiration and anaerobic respiration - Role of anaerobic respiration in industry - Comparison between aerobic and anaerobic respiration	Weeks 9 to 10	Unit 6: Energy transformations to sustain life: Cellular respiration	159	81

Strand: Life processes in plants and animals				
Gaseous exchange	- Distinguish between cellular respiration, breathing and gas exchange - Need for gas exchange - Requirements of efficient gas exchange organs - Human gas exchange - Disease and abnormalities - Artificial respiration and effect of mouth-to-mouth resuscitation - Effects of altitude on gaseous exchange	Weeks 1 to 3	Unit 7: Gaseous exchange	171 93
Excretion in humans	- Excretion in various organs - Structure of urinary system, kidney, nephron - Homeostatic control of water and salts - Disease affecting kidney function	Weeks 4 to 6	Unit 8: Excretion in humans	212 110
Strand: Environmental studies				
Population ecology	- Population size - Interactions in the environment - Social organisation - Community change over time: Succession - Human population	Weeks 7 to 10	Unit 9: Population ecology	235 123

Topic	Content	Time allocation	Where to find it in <i>Top Class Life Sciences Grade 11</i>		
			Unit	LB	TG
Strand: Environmental studies					
Human impact on the environment	• The atmosphere and climate change • Water – availability and quality • Food security • Loss of biodiversity • Solid waste disposal	Weeks 1 to 4	Unit 10: Human impact on the environment	273	147

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Topic	Content	Time allocation	Where to find it in <i>Top Class Life Sciences Grade 12</i>		
			Unit	LB	TG
Strand: Life at molecular, cellular and tissue level					
DNA: The code of life	- Deoxyribonucleic acid (DNA) - Ribonucleic acid (RNA)	Weeks 1 to 3	Unit 1: DNA: the code of life	2	2
Meiosis	- Meiosis: the process of reduction division - Mitosis and meiosis: similarities and differences	Weeks 4 to 5	Unit 2: Meiosis	20	11
Strand: Life processes in plants and animals					
Reproduction in vertebrates	- Diversity of reproductive strategies - Appropriate examples of different groups in the animal kingdom to illustrate maximising reproductive success in different environments	Week 6	Unit 3: Reproduction in vertebrates	39	22
Human reproduction	- Structure of male and female systems - Unique human characteristics of some aspects of reproduction: - puberty - gametogenesis - menstrual cycle - fertilisation and development of zygote to blastocyst - gestation - implantation and development	Weeks 7 to 9	Unit 4: Human reproduction	49	28

Strand: Life at molecular, cellular and tissue level Strand: Diversity, change and continuity				
Genetics and inheritance	- Genes - Mention of Mendel, father of genetics - Inheritance and variation - Monohybrid crosses - Dihybrid crosses - Sex chromosomes - Mutations - Genetic engineering - Mention mitochondrial DNA - Paternity testing and DNA finger printing (forensics)	Weeks 1 to 4	Unit 5: Genetics and inheritance	78
				48
Strand: Life at molecular, cellular and tissue level				
Responding to the environment: humans	- Humans have two systems - Human nervous system - Central Nervous System - Peripheral Nervous System - Autonomic Nervous System - Nerves - Reflex arc - Disorders - Injuries - Effects of drugs - Receptors - Human eye - Human ear	Weeks 5 to 7	Unit 6: Responding to the environment: humans	113
				72
Strand: Life processes in plants and animals				
Human endocrine system	- Endocrine glands - Examples of negative feedback mechanisms	Weeks 8 to 9	Unit 7: Human endocrine system	157
Homeostasis in humans	- Homeostasis - Negative feedback - Thermoregulation		Unit 8: Homeostasis in humans	173
Responding to the environment: plants	- Plant hormones - Geotropism and phototropism - Plant defence mechanisms	Week 10	Unit 9: Responding to the environment: plants	186
				106

Topic	Content	Time allocation	Where to find it in <i>Top Class Life Sciences Grade 12</i>		
			Unit	LB	TG
Strand: Diversity, change and continuity					
Evolution by natural selection	• Origin of ideas about origins • Darwin's theory of evolution by natural selection • Evolution (change) through natural selection • Artificial selection: ONE example of a domesticated animal and ONE example of a crop species • Formation/emergence of new species • Mechanisms for reproductive isolation • Evolution in present times	Weeks 1 to 5	Unit 10: Evolution by natural selection	201	115
Human evolution	• Evidence of common ancestors for living hominids including humans • Out of Africa hypothesis • Importance of the Cradle of Humankind • Main fossil sites in South Africa • Alternatives to evolution		Unit 11: Human evolution	238	134

PROGRAMME OF ASSESSMENT

Grade 10

Term	Assessment task
1	Practical
	Test
2	Practical
	Mid-year exam
3	Project/Assignment
	Test
4	Final examination

Grade 11

Term	Assessment task
1	Practical
	Test
2	Practical
	Mid-year exam
3	Project/Assignment
	Test
4	Final examination

Grade 12

Term	Assessment task
1	Practical
	Test
2	Practical
	Test
3	Assignment
	Trial examination



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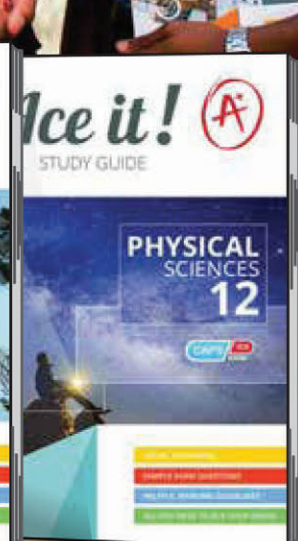
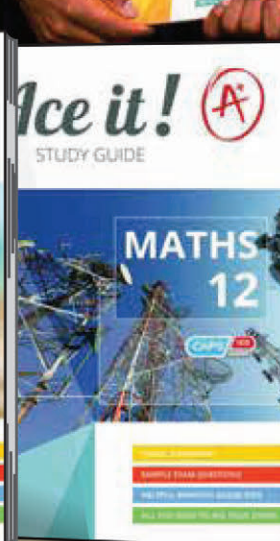
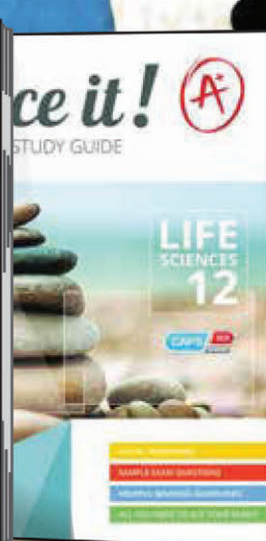
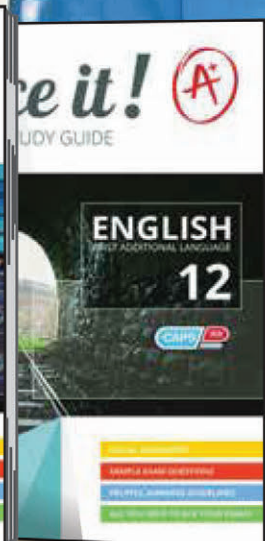
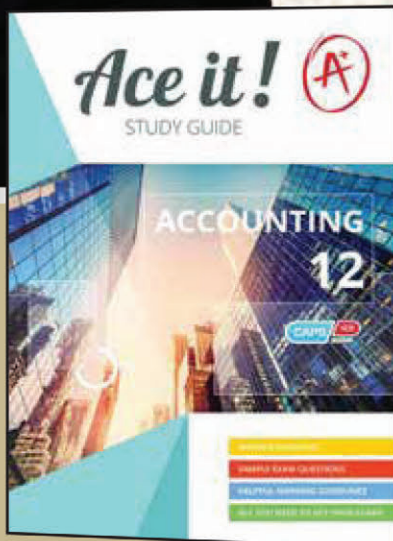
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SALES CONTACTS

TVET Colleges	Vaasna Sing	063 251 8566	vaasna@shuter.co.za
Booksellers	Vaasna Sing	063 251 8566	vaasna@shuter.co.za
Eastern Cape	Sydney Nquma	083 253 6761	sydney@shuters.com
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Gauteng	Themba Msimanga	082 445 6435	themba@thuter.co.za
KwaZulu-Natal	Khanyo Cele	083 281 0849	khanyo@shuters.com
Limpopo	Dimagatso Makhurane	083 215 6835	dimagatso@shuters.com
Mpumalanga	Sharmlla Naik	083 287 6883	sharmlla@shuter.co.za
Northern Cape	Colette van der Merwe	071 851 1814	colette@shuters.com
North West	Phemelo Maiphehlo	083 378 8725	phemelo@shuters.com
Western Cape	Colette van der Merwe	071 851 1814	colette@shuters.com
Teacher Training	Vickesh Thandray	060 545 2264	vickesh@shuters.com

CUSTOMER SERVICES:

Sylvie Doarsamy	+27 (0) 33 846 8723	sylvie@shuter.co.za
Thandeka Ngcobo	+27 (0) 33 846 8724	thandeka@shuter.co.za
Zandile Mthethwa	+27 (0) 33 846 8721	zandilem@shuter.co.za
Mbali Kunene	+27 (0) 33 846 8722	mbali@shuter.co.za

HEAD OFFICE

Tel: +27 (0) 33 846 8721 / 22 / 23 / 24
Fax: +27 (0) 33 846 8701

Pietermaritzburg · Johannesburg · Cape Town · East London



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