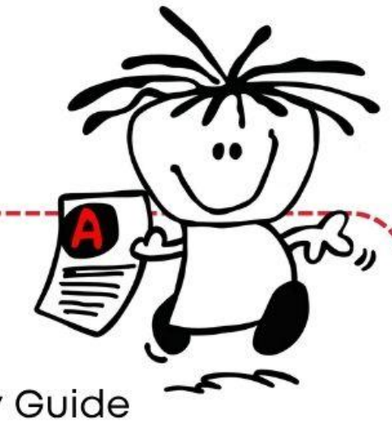
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CONTENT, TRACKER & RESOURCES

GRADE 10

Life Sciences



2027

A **one-stop-teaching-tool** created by combining:

- the official DBE ATP
- **T**he **A**nswer **S**eries Life Sciences Class Text & Study Guide
- **TAS** resources
- curated online resources
- shared resources from our **TAS** WhatsApp Teacher Community

Important Note

This TAS ATP & Lesson Planner is based on the DBE ATP. However, many provinces have chosen to make adjustments to either the timing or content. ***It is the responsibility of each educator to follow their provincial ATP.***

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ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS		SUGGESTED EXERCISES	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE CONTENT WAS COMPLETED
		Based on The Answer Series Gr 10 Life Sciences 3-in-1 Class Text & Study Guide				
WEEK 1 & 2 *13 – 22 Jan* Lesson Plan Lesplan	**Orientation to Life Sciences** *8 school days*	How science works – the Scientific Method	p. *iii – vii*	Work through the 'Worked Example of Scientific Investigation Question' with learners on p. *vi* Watch the webinar	Use 'Teaching Scientific Investigations' resources: - Summary handout of Scientific Method process - How to read and interpret a scientific investigation question - Scientific skills test and memo	
		Representing data – tables & graphs	p. *viii – xii*			
		Biological drawings	p. *xii*			
WEEK 3 – 5 *25 Jan – 12 Feb* Lesson Plan 1 Lesplan 1 Lesson Plan 2 Lesplan 2 Lesson Plan 3 Lesplan 3	**Chemistry of Life** *15 school days* PAPER 1: 33 marks	Revise: atoms, molecules, elements and compounds	p. 2	p. 48: Q1 – Q3	NOTE: Not all shared resources are TAS creations – some are shared contributions from our Teacher WhatsApp group.	
		Molecules for life – Inorganic molecules: Water	p. 3	p. 48: Q4		
		Molecules for life – Inorganic molecules: Mineral salts	p. 3 –4	p. 50: Q13 & Q14		
		Molecules for life – Organic molecules: Carbohydrates	p. 5 – 6	p. 49: Q7	Watch this useful video on carbohydrates	
		Test for carbohydrates	p. 6	NOTE: Questions are suggested according to when learners will be able to do them.	'How to' video here; Food Tests (Prac)	
		Molecules for life – Organic molecules: Lipids	p. 6 – 8		Watch this useful video on lipids	
		Test for fats	p. 8		'How to' video here; Food Tests (Prac)	
		Molecules for life – Organic molecules: Proteins	p. 8 – 9	p. 48: Q5 & Q6; p. 49: Q8 & Q9	Watch this useful video on proteins	
		Test for protein	p. 9	p. 51: Q17 – Q19	'How to' video here; Food Tests (Prac)	
		Enzymes	p. 9 – 12	p. 49: Q7; p. 52 – 54: Q20 – Q27	Watch this video; Washing Powder OR Catalase Enzyme (Pracs)	
		Molecules for life – Organic molecules: Nucleic acids	p. 12	p. 54: Q28	- Test for Vit C content (Prac) – instructions here ; read more here - Revise biological terms for this topic here & on p. 64 **Unit 1** - Summary of topic in ENG | AFR	
		Molecules for life – Organic molecules: Vitamins	p. 12	p. 50: Q10 – Q12; p. 51: Q15 & Q16; p. 54: Q29		
WEEK 6 & 7 *15 – 26 Feb* Lesson Plan 1 Lesplan 1 Lesplan 2 (No Eng.)	**Cells: Basic units of life** *10 school days* PAPER 1: 19 marks	History of the microscopy (not in ATP)	p. 13	p. 55: Q1	- Wet mount (onion epidermis/epithelial cells) p. 14 - 17 (Prac) - Virtual microscope: use to view different cells here - Useful videos: Plant cell mount ; Animal cell mount	
		The light microscope	p. 14 – 17	p. 55: Q2		
		Magnification calculations	p. *xii – xiv*	p. 55: Q3		
		Concept of surface area to volume ratio (not in ATP)	p. *xv – xvi*	p. 56: Q4	Useful animations for area : volume here and here and here	
		Role of organelles: cell wall	p. 18	p. 56: Q5	Watch this useful introductory video to cells	
		Role of organelles: cytoplasm	p. 19			
		Role of organelles: cell membrane	p. 19 – 20	p. 56/57: Q6 – Q9	- Osmosis in eggs / Diffusion (Prac); Useful simulation here - Useful videos: Diffusion ; Osmosis; Active Transport	
		Movement across membranes	p. 20 – 22			
		Role of organelles: nucleus	p. 22		Watch this useful video on the nucleus	
		Role of organelles: mitochondria	p. 22		Watch this useful video on mitochondria	
		Role of organelles: ribosomes, ER & Golgi body	p. 23		Watch this useful video on the ribosomes, ER and Golgi Body	
		Role of organelles: plastids	p. 23 – 24			
		Role of organelles: vacuoles	p. 24		- Revise biological terms for this topic here & on p. 64 **Unit 2** - 3D model of cells to explore, add/remove organelles here - Watch this useful video to summarize this chapter	
		Role of organelles: centrosome	p. 25	p. 57: Q10 & Q11		
		Differences between plant and animal cells	p. 25	p. 57: Q12		
WEEK 8 & 9 *1 – 12 Mar* Lesson Plan Lesplan	**Cell Division: Mitosis** *10 school days* PAPER 1: 19 marks	Introduction and chromosomes	p. 26	p. 58: Q3		
		The cell cycle: Interphase	p. 27			
		The cell cycle: Prophase	p. 27	p. 58/59: Q4.4		
		The cell cycle: Metaphase	p. 28	p. 58/59: Q4.1	- Study micrographs of different phases of mitosis (Prac); see an activity for this here - View mitosis phases in micrographs here - Useful animation to show cell division here - Useful videos: Cancer; What is cancer?; Chemotherapy - Revise biological terms for this topic here & on p. 65 **Unit 3**	
		The cell cycle: Anaphase	p. 28	p. 58/59: Q4.2		
		The cell cycle: Telophase	p. 28	p. 58: Q2; p.58/59: Q4.3		
		The role of mitosis	p. 28	p. 58: Q1		
		Cancer (ATP requires only brief description)	p. 28 – 29	p. 59: Q5		

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WEEK 10 *15 – 19 Mar*	**Plant Tissues** *5 school days* PAPER 1: *28 marks* (shared with animal tissues)	Introduction	p. 42			
		Meristematic tissue	p. 42 – 43	p. 62: Q1.1 – Q1.4		
		Permanent tissue: Epidermis	p. 43	p. 62: Q4		
		Permanent tissue: Parenchyma	p. 44			
		Permanent tissue: Sclerenchyma	p. 44			
		Permanent tissue: Collenchyma	p. 44	p. 62: Q2	- Exercise on plant tissues & memo here - Revise biological terms for this topic here & on p. 66 **Unit 5**	
		Permanent tissue: Vascular tissues	p. 44 – 46	p. 62: Q1.5; p. 62: Q3; p. 63: Q5 *(only the plant tissues)*		
Formal assessments: TASK 1 – Practical (min 30) **TASK 2 – Test (min 50)**						



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ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS *Based on The Answer Series Gr 10 Life Sciences 3-in-1 Class Text & Study Guide*		SUGGESTED EXERCISES	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE CONTENT WAS COMPLETED
WEEK 1 *6 – 9 Apr*	**Plant Organs** *4 school days* PAPER 1: 9 marks	Leaf functions	p. 46			
		Leaf external structure	p. 46		Counting stomata here (Prac)	
		Leaf internal structure	p. 46 – 47	p. 63: Q6	Watch this useful video on the leaf structure under a microscope	
		Leaf adaptations	p. 47 – 48	p. 63: Q7	- Investigate the leaf (Prac): Task & Memo - Revise biological terms for this topic p. 66 **Unit 5** - Self-marking quiz on the leaf here	
WEEK 2 & 3 *12 – 23 Apr* Lesson Plan 1 Lesplan 1 Lesson Plan 2 Lesplan 2	**Support and Transport Systems in Plants** *10 school days* PAPER 1: 23 marks	Introduction and root functions	p. 77			
		Root structure: external (not in ATP)	p. 77	p. 114: Q1	NOTE: *Questions are suggested according to when learners will be able to do them.*	
		Root structure: internal	p. 77 – 78			
		Functions of the tissues in the root	p. 78	p. 114: Q2	Self-marking quiz on the root here	
		Stem structure: external (not in ATP)	p. 79	p. 114: Q3		
		Stem structure: internal	p. 79 – 80			
		Functions of the tissues in the stem	p. 80	p. 115: Q4 & Q5	- Self-marking quiz on the stem here - Observing Xylem tissue in stem here (Prac)	
		Secondary thickening (not in ATP)	p. 81 – 83	p. 115: Q6 & Q7	NOTE: *Not all shared resources are TAS creations – some are shared contributions from our Teacher WhatsApp group.*	
		Uptake of water and mineral salts by root	p. 83 – 84			
		Movement of water and mineral salts in the root	p. 84	p. 116: Q8		
		Upward movement of water from the roots to the leaves	p. 84	p. 116: Q9	p. 86 Water movement through xylem (Prac)	
		Transpiration pull	p. 85	p. 116: Q10		
		Translocation of substances	p. 86		- Self-marking quiz on the transpiration here - p. 88 External factors and the rate of transpiration (Prac) - Virtual labs on factors affecting transpiration here - Watch this useful video on factors affecting transpiration rate	
		Importance of transpiration & structural adaptations	p. 86 – 87			
		External factors influencing transpiration	p. 87	p. 116: Q11 & Q12; p. 117: Q14 & Q15		
		Wilting and guttation (not in ATP)	p. 87 – 88	p. 116: Q13	Revise biological terms for this topic here & on p. 124 **Unit 1**	
WEEK 4 & WEEK 5 (½) *28 Apr – 5 May* Lesson Plan Lesplan	**Animal Tissues** *6 school days* PAPER 1: 28 marks *(shared with plant tissues)*	Introduction and overview	p. 29			
		Epithelial tissues: squamous, cuboidal, columnar and ciliated	p. 30 – 31	p. 59: Q1		
		Connective tissues: areolar (not in ATP), dense connective tissue (tendons and ligaments), cartilage, bone and blood	p. 31 – 35	p. 59/60: Q2 – Q6	- Self-marking quiz on Bone tissue here - Self-marking quiz on Blood tissue here	
		Muscle tissues: skeletal, smooth and cardiac	p. 35 – 36		Self-marking quiz on Muscle tissue here	
		Nerve tissues: sensory, motor and interneurons	p. 36 – 37	p. 61: Q7; p. 63: Q5 *(only the animal tissues)*	- Self-marking quiz on Nervous tissue here - Plant & Animal Tissue (Prac): ENG | AFR | MEMO | SLIDES	
		Traditional biotechnology: Devil's claw and African potato (not in ATP)	p. 37		- Animal Tissue Revision ENG/AFR: Exercise 1 - Animal Tissue Revision ENG/AFR: Exercise 2 - Animal Tissue Revision ENG/AFR: Exercise 3 - Animal Tissue Revision ENG/AFR: Exercise 4 | MEMO - Self-marking quiz on Plant & Animal Tissues here	
		Medicinal biotechnology: Immunity, immunisations and vaccinations, antibiotics, blood groups and blood transfusions (not in ATP)	p. 38 – 41	p. 61: Q9 & Q10		
		Cloning and stem cell research (not in ATP)	p. 41		- Self-marking quiz on Biotechnology, Cloning & Stem cells here - Revise biological terms for this topic here & on p. 65 **Unit 4**	

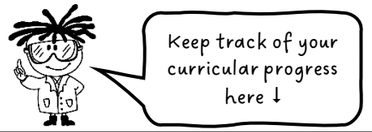
WEEK 5 (½) & WEEK 6 *6 – 14 May* **Lesson Plan 1** **Lesplan 1** **Lesson Plan 2** **Lesplan 2**	**Support System in Animals** *7 school days* PAPER 1: 19 marks	Types of skeletons and their advantages/disadvantages (not in ATP)	p. 90 – 91	p. 117: Q1		
		Functions of the human skeleton	p. 91			
		Overview of human skeleton structure	p. 91 – 92			
		Axial skeleton: skull, vertebral column, rib cage	p. 92 – 94	p. 118: Q3 – Q5	- Self-marking quiz on Axial Skeleton 1 here - Self-marking quiz on Axial Skeleton 2 here	
		Appendicular skeleton: pectoral girdle, upper limb, pelvic girdle and lower limb	p. 95 – 96	p. 117: Q2; p. 118/119: Q6 & Q7	Self-marking quiz on Appendicular Skeleton here	
		Bone, cartilage, tendons and ligaments (not in ATP) *(already covered in Animal Tissues)*	p. 96 – 97			
		Structure of a long bone (not in ATP)	p. 97			
		Joints (not in ATP)	p. 98 – 99	p. 119: Q8 & Q9	- Various activities & colouring pages on bone anatomy here - Various activities & colouring pages on the skeleton here	
		Skeletal muscles: characteristics, structure (briefly), contraction and antagonistic functioning (not in ATP)	p. 99 – 101	p. 119/120: Q10 – Q12	Dissection of chicken wing (Prac) – ENG | AFR	
		Diseases that affect the skeleton (not in ATP)	p. 101 – 102	p. 120: Q13	- Revise biological terms for this topic here & on p. 124 **Unit 2** - Revision self-marking quiz on the Skeleton here - Skeleton quiz game here - Skeleton exercise: ENG & MEMO | AFR & MEMO	
WEEK 7 & 8 *17 – 28 May* **Lesson Plan 1** **Lesplan 1** **Lesson Plan 2** **Lesplan 2**	**Transport System in Animals** *10 school days* PAPER 2: 32 marks	Blood circulatory systems introduction	p. 102			
		Closed blood circulatory system	p. 102			
		The heart external structure	p. 103		Look at this video for an overview of the heart anatomy	
		The heart internal structure	p. 103 – 105		Colour in pages: heart external | heart internal	
		Functioning of the heart – cardiac cycle	p. 106		Watch how to perform a heart dissection: ENG | AFR **(TAS Video)**	
		Blood vessels – arteries, veins and capillaries	p. 106 – 107	p. 121/122: Q1 – Q3		
		Human circulatory system – pulmonary and systemic circulatory systems	p. 108 – 109	p. 122: Q4	- Heart dissection & skeleton: ENG & MEMO | AFR & MEMO (Prac) - Heart dissection walk-through here and step-by-step guide with downloads here - A useful video of the cardiac cycle here	
		Mechanisms controlling the heartbeat: how does the heart beat, control of the heartbeat, effect of exercise (not in ATP)	p. 109 – 110	p. 122/123: Q5 & Q6		
		Lymphatic system overview (not in ATP)	p. 110 – 111			
		Structure of the lymphatic system (not in ATP)	p. 111		What is the Lymphatic System? Watch here	
		Functions of the lymphatic system (not in ATP)	p. 112	p. 123: Q7		
		Cardiovascular diseases – blood pressure, stroke, heart attack (not in ATP)	p. 113 – 114		- Revise biological terms for this topic here & on p. 125 **Unit 3** - Revision exercise: ENG & MEMO | AFR & MEMO	
		Treatment of cardiovascular diseases (not in ATP)	p. 114	p. 123: Q8	- Watch this useful video	
WEEK 9 – 12 *31 May – 25 Jun*	**Time for June examinations**				**Formal assessments: TASK 3 – Assignment (min 50) ENG & MEMO | AFR & MEMO** **TASK 4 – June Exam (150 marks)**	

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ACADEMIC WEEKS	CAPS TOPIC	CORE CONTENT & PAGE NUMBERS *Based on The Answer Series Gr 10 Life Sciences 3-in-1 Class Text & Study Guide*		SUGGESTED EXERCISES	POSSIBLE PRACTICAL TASKS / CONSOLIDATION	DATE CONTENT WAS COMPLETED
WEEK 1 – 3 *20 Jul – 6 Aug* Lesson Plan 1 Lesplan 1 Lesplan 2 (No Eng.)	**History of Life on Earth** *14 school days* PAPER 2: 43 marks	History of life - introduction	p. 171		- History of life on earth in 10 minutes – useful video here - Continental drift activity here	
		Important events: increase in oxygen levels, climate change, geological events	p. 171 – 172	p. 186: Q1 & Q2	- Continental drift and its evidence – watch here - How high oxygen levels almost killed us all – watch here	
		Fossil evidence for changing sea levels	p. 173			
		Fossils – ideal conditions for fossilisation	p. 173	NOTE: Questions are suggested according to when learners will be able to do them.	- What is a fossil? Watch here - How to become a fossil? Watch here	
		Formation of fossils in sedimentary rocks	p. 174	p. 188: Q9		
		Different types of fossils – body fossils, moulds, cast and trace fossils	p. 174 – 175	p. 187: Q5		
		Fossil dating – radiometric and relative dating	p. 175 – 176	p. 188/189: Q10 & Q11	- How to date fossils? Watch here - Fossil dating here (Prac)	
		The geological timescale	p. 176 – 177	p. 186: Q3; p. 187: Q7	- Scroll through the geological time scale to get a sense of its size - Geological timescale activity here	
		The Cambrian explosion	p. 177		The most successful animal ever – watch here	
		Life forms of the past and the present	p. 178 – 179	p. 188: Q8	Fossil record labs – Download free activities here	
		Mass extinctions	p. 179 – 180	p. 187: Q4 & Q6	- An interactive look at the major mass extinction events here - Understand how the dinosaurs really went extinct here	
		The impact of humans on biodiversity and the natural environment	p. 180	p. 189: Q13		
		Fossils in South Africa – fossil evidence	p. 181 – 182	p. 189: Q12 & Q14	- Revise biological terms for this topic on p. 190 **Unit 2** - Watch this documentary on YouTube to see this chapter's content in action	
		Fossil tourism (not in ATP)	182			
WEEK 4 – 6 *10 – 27 Aug* Lesson Plan 1 Lesplan 1 Lesson Plan 2 Lesplan 2 Lesson Plan 3 Lesplan 3 Lesson Plan 4 Lesplan 4	**Biosphere to ecosystems** *14 school days* PAPER 2: 54 marks	Biosphere – atmosphere, lithosphere and hydrosphere	p. 135	p. 153: Q1; p. 155: Q11		
		Biomes – terrestrial (savannah, grassland, nama-karoo, succulent karoo, fynbos, forests and thicket) (ATP does not require detail on the biomes)	p. 136 – 139	p. 153: Q2	Interactive map of South African biomes here	
		Biomes – aquatic (oceans, coral reefs, estuaries, wetlands, streams and rivers, ponds, lakes and dams) (ATP does not require detail on the biomes)	p. 139 – 142	p. 153: Q3; p. 155: Q10		
		Ecosystems – abiotic factors (physiographic, edaphic, light, temperature, water, atmospheric gases and wind)	p. 143 – 147	p. 153: Q4 & Q5; p. 154: Q7 & Q8 p. 156: Q14	NOTE: Not all shared resources are TAS creations – some are shared contributions from our Teacher WhatsApp group.	
		Ecosystems – biotic factors (autotrophic and heterotrophic components)	p. 147	p. 154: Q6		
		Energy flow – trophic levels	p. 147 – 148	p. 155: Q12 & Q13; p. 156: Q15	- Understand energy flow here - Build food chains and food webs activity here - Explore trophic cascades / disturbances in food chains here - Interpreting a food web and trophic levels worksheet here	
		Energy flow – ecological pyramids	p. 149	p. 157: Q16 – Q18		
		Water cycle	p. 145	p. 155: Q9		
		Nutrient cycles – oxygen	p. 150	p. 157: Q19		
		Nutrient cycles – nitrogen	p. 150 – 151	p. 158: Q20	Interactive nitrogen cycle here	
		Nutrient cycles – carbon	p. 151 – 152	p. 158: Q21	Biosphere and biomes task: ENG & MEMO | AFR & MEMO (Prac)	
		Ecotourism in South Africa (not in ATP)	p. 152	p. 158: Q22 & Q23	Revise biological terms for this topic here & on p. 159	

WEEK 7 & 8 *30 Aug – 10 Sept* **Lesson Plan 1** **Lesplan 1**	**Biodiversity and classification** *10 school days* PAPER 2: 21 marks	Biodiversity of life on Earth	p. 165			
		Biodiversity in South Africa – indigenous, exotic/alien and endemic species	p. 165 – 166	p. 183: Q1 – Q4		
		Classification of organisms – History of classification	p. 166 – 167	p. 183: Q5	- Video: Levels of classification here - Video: Classification systems here	
		Prokaryotes and eukaryotes	p. 167		Video: Domains and Kingdoms of life here	
		General characteristics of the five kingdoms:		p. 184: Q6	Class activity: print out these cards of various organisms, mix them up and have learners work in groups to try and classify them into the correct kingdoms	
		• *Kingdom Monera*	p. 168			
		• *Kingdom Protista*	p. 168			
		• *Kingdom Fungi*	p. 168 – 169			
		• *Kingdom Plantae*	p.169			
		• *Kingdom Animalia*	p. 169 – 170	p. 184: Q7	Practice taxonomy slides and worksheet here	
		Naming species	p. 170	p. 184: Q8	- Just for fun – 10 ridiculous scientific names video here - Revise biological terms for this topic here & on p. 190 **Unit 1** - Overview of classification video here	
		Biological keys	p. 170	p. 184/185: Q9 & Q10		
WEEK 9 & 10 *13 – 22 Sept*	**Time for consolidation and revision – TERM 3 REVISION ENG & MEMO | AFR & MEMO**				**Formal assessments: TASK 5 – Practical (min 30)** **TASK 6 – Test (min 50)**	



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ACADEMIC WEEKS	CAPS TOPIC	RESOURCES
WEEK 1 – 4 *5 – 29 Oct*	**Consolidation & Revision**	2023 KZN Step Ahead Revision & Memo Gauteng RELAB booklets AFR Gauteng RELAB booklets ENG WCED Revision Booklets per Term WKOD Hersieningsboekies per Kwartaal Practice Paper 1: ENG | AFR | MEMO Practice Paper 2: ENG | AFR | MEMO
WEEK 5 – 11 *1 Nov – 8 Dec*	**Final Exams**	

NOTE
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TASK 7: November Exam Paper 1	150 marks; 2 ½ hours
Chemistry of life	33 marks
Cells: Basic units of life	19 marks
Cell division (Mitosis)	19 marks
Plant and animal tissues	28 marks
Plant organs	9 marks
Support and transport in plants	23 marks
Support systems in animals	19 marks



TASK 8: November Exam Paper 2	150 marks; 2 ½ hours
Transport systems in animals	32 marks
Biosphere to ecosystems	54 marks
Biodiversity and classification	21 marks
History of life on earth	43 marks