



Province of the  
**EASTERN CAPE**  
EDUCATION

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 10**

**NOVEMBER 2018**

**LIFE SCIENCES P2  
MARKING GUIDELINE**

**MARKS: 150**

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This marking guideline consists of 11 pages.

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**PRINCIPLES RELATED TO MARKING LIFE SCIENCES****1. If more information than marks allocated is given**

Stop marking when maximum marks are reached and put a wavy line and 'max.' in the right-hand margin.

**2. If, for example, three reasons are required and five are given**

Mark the first three irrespective of whether all or some are correct/ incorrect.

**3. If the whole process is given when only part of it is required**

Read all and credit relevant part.

**4. If comparisons are asked for and descriptions are given**

Accept if differences/similarities are clear.

**5. If tabulation is required but paragraphs are given**

Candidates will lose marks for not tabulating.

**6. If diagrams are given with annotations when descriptions are required**

Candidates will lose marks.

**7. If flow charts are given instead of descriptions**

Candidates will lose marks.

**8. If sequence is muddled and links do not make sense**

Where sequence and links are correct, credit. Where sequence and links are incorrect, do not credit. If sequence and links become correct again, resume credit.

**9. Non-recognised abbreviations**

Accept if first defined in answer. If not defined, do not credit the unrecognised abbreviation but credit the rest of answer if correct.

**10. Wrong numbering**

If answer fits into the correct sequence of questions but the wrong number is given, it is acceptable.

**11. If language used changes the intended meaning**

Do not accept.

**12. Spelling errors**

If recognisable accept provided it does not mean something else in Life Sciences or if it is out of context.

**13. If common names are given in terminology**

Accept provided it was accepted at the memo discussion meeting.

**14. If only letter is asked for and only name is given (and vice versa).**

Do not credit.

**15. If units are not given in measurements**

Candidates will lose marks. Marking guideline will allocate marks for units separately.

**16. Be sensitive to the sense of an answer, which may be stated in a different way****17. Caption**

All illustrations (diagrams, graphs, tables, etc.) must have a caption.

**18. Code-switching of official languages (terms and concepts)**

A single word or two that appears in any official language other than the learners' assessment language used to the greatest extent in his/her answers should be credited, if it is correct. A marker that is proficient in the relevant official language should be consulted. This is applicable to all official languages.

**19. Changes to the marking guideline**

No changes must be made to the marking guideline without consulting the examiner.

## SECTION A

## QUESTION 1

1.1	1.1.1	D ✓✓		
	1.1.2	B ✓✓		
	1.1.3	A ✓✓		
	1.1.4	D ✓✓		
	1.1.5	C ✓✓		
	1.1.6	A ✓✓		
	1.1.7	C ✓✓		
	1.1.8	C ✓✓		
	1.1.9	A ✓✓		
	1.1.10	D ✓✓	(10 x 2)	(20)
1.2	1.2.1	Palaeontology ✓		
	1.2.2	Pangea ✓		
	1.2.3	Edaphic ✓		
	1.2.4	Heterotrophic / Consumers ✓		
	1.2.5	Ecosystem ✓		
	1.2.6	Wetland ✓		
	1.2.7	Altitude ✓		
	1.2.8	Decomposers ✓	(8 x 1)	(8)
1.3	1.3.1	BOTH A AND B ✓✓		
	1.3.2	NONE ✓✓		
	1.3.3	A only ✓✓	(3 x 2)	(6)
1.4	1.4.1	Monera ✓		(1)
	1.4.2	Plantae ✓		(1)
	1.4.3	Prokaryote ✓		(1)
	1.4.4	Eukaryote ✓		(1)
	1.4.5	Eukaryote ✓		(1)
	1.4.6	Unicellular ✓		(1)
	1.4.7	Multicellular ✓		(1)
	1.4.8	Saprophytic ✓		(1)
	1.4.9	Autotrophic ✓		(1)
	1.4.10	<u>Paramecium cordatum</u> ✓ (MUST be underlined separately)		(1)
1.5	1.5.1	A – Nitrates ✓		
		B – Ammonia ✓		
		C – Nitrites ✓		(3)
	1.5.2	Denitrification ✓		(1)
	1.5.3	Legumes ✓		(1)
	1.5.4	Lightning ✓		(1)

**TOTAL SECTION A: 50**

**SECTION B**

**QUESTION 2**

- 2.1 2.1.1 - Sugar ✓  
 - Bread ✓  
 - Pasta ✓  
 - Soda drinks ✓  
 - Candy ✓ **(Mark first TWO only)** (Any 2 x 1) (2)

2.1.2 Trans fats ✓ (1)

2.1.3 Most people believe you must stay away from saturated fats ✓  
 But Dr Sinatra promotes saturated fats ✓ / He says we should rather stay away from sugar (2)

- 2.1.4 - The build-up of fatty deposits/ cholesterol on the artery wall causes them to become narrow ✓  
 - This is called atherosclerosis ✓  
 - This causes blood clots which block the arteries ✓  
 - The blood cannot flow through ✓  
 - Heart muscle served by the artery dies from lack of oxygen ✓  
 - causing a heart attack. (Any 3 x 1) (3)

2.2 2.2.1 An area with a distinct climate ✓ together with the plants and animals that live there ✓ (2)

2.2.2 C – Grasslands ✓  
 D – Nama Karoo ✓ (2)

2.2.3 (a) B ✓ (1)  
 (b) E ✓ (1)

2.2.4 Cool, wet winters ✓ Hot, dry summers ✓ (2)

2.2.5

Forest	Grassland
Thick humus layer ✓ Thin litter layer ✓ of fallen debris like leaves etc. Fertile ✓	Thin humus layer / Sandy ✓ Thick litter layer ✓ of fallen debris like leaves etc. May be infertile ✓ in many forests although deciduous forests are fertile

(Any one difference) **Mark first ONE only** (2)

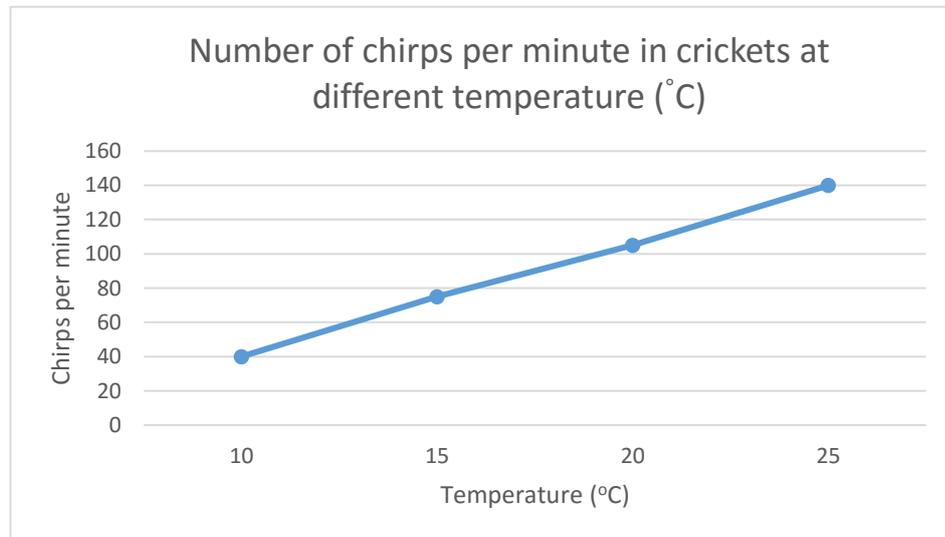
- 2.2.6 - Thick cuticle / small leaf size ✓ to prevent water loss ✓  
 - Leaves reduced to thorns / spines ✓ to prevent evaporation of water ✓  
 - Retain water in their leaves ✓ to prevent desiccation / drying out ✓  
 - Short growing season ✓ so survive dry periods as seeds ✓  
 (Any ONE) **Mark first ONE only** (2)

2.3 2.3.1 To determine if temperature ✓ affects the number of chirps per minute in crickets ✓ (2)

2.3.2 Size of the boxes ✓  
 Environmental conditions ✓ (learners may also list an environmental condition but only one mark is awarded regardless of the number of conditions they list)  
 Amount of food / water ✓  
 The person recording the chirps ✓ / method of recording the number of chirps

**(Mark first TWO only)** (Any 2 x 1) (2)

2.3.3



Mark Allocation

Heading	✓
Type of graph	✓
Y-axis label and scale	✓
X-axis label and scale	✓
Plotting: 1 – 3 points correct	✓
4 points correct	✓✓

(6)

2.3.4 - Repeat the experiment ✓  
 - Use a larger sample size ✓ (2)

2.3.5 Summer ✓  
 The temperatures are higher ✓ / crickets chirp more at high temperatures. (2)

2.3.6 Nocturnal ✓ (1)

- 2.4 2.4.1 The direction of the flow of energy ✓ (1)
- 2.4.2 Locust ✓ (1)
- 2.4.3 - At each trophic level energy is lost ✓  
- Through respiration / reproduction / excretion ✓  
- Therefore, the next trophic level will receive less energy ✓ (3)
- [40]**

**QUESTION 3**

- 3.1 3.1.1 Biogeography ✓ (1)
- 3.1.2 Gondwanaland ✓ (1)
- 3.1.3 The fossils of Mesosaurus / Glossopteris / Cynognathus ✓  
Are found on both South America and Africa ✓ (2)
- 3.1.4 Glossopteris ✓ (1)
- 3.1.5 Glossopteris ✓ (1)
- 3.1.6 - The continents are situated on large tectonic plates ✓  
- These plates are moving ✓  
- because of molten rock in the Earth's mantle ✓  
- as the plates move apart they cause the continents to move  
- apart ✓ (Any 3 x 1) (3)
- 3.2 3.2.1 Estcourt / Mooi River ✓ (1)
- 3.2.2 Grahamstown ✓ (1)
- 3.2.3 G ✓ (1)
- 3.2.4 - The coelacanth was thought to be extinct ✓ for 70 my  
- only fossils of the coelacanth had been found ✓  
- Until a living specimen was found ✓ off the coast of East  
London and later on the KwaZulu-Natal coast. (3)
- 3.2.5 - The coelacanth dies and sinks to the bottom of the ocean ✓  
- Mineral salts in the water also settle to the bottom ✓  
- Soft body parts decay ✓ leaving only bones  
- Mineral salts filter into the bones of the organism ✓  
- Turning it into stone ✓ / this is called petrification  
- Layers of sediment are deposited on top over the years ✓  
- As the layers pile up their weight presses down on the older  
ones which turn into rock. ✓  
- Alternatively, the bones may completely decay leaving a cast  
of the organism. ✓  
- The void left behind may then fill with minerals making a stone  
replica of the organism. ✓ (5)
- 3.2.6 Radiometric ✓ dating  
Relative ✓ dating (2)

3.2.7 Some organisms decay too quickly ✓ to fossilise  
 Only organisms covered in sediment fossilise quickly ✓  
 Soft bodied organisms do not fossilise ✓ as they decay too quickly  
**(Mark first TWO only)** (Any 2 x 1) (2)

3.2.8 Source of income for area ✓  
 Source of employment for locals ✓ (may give examples)  
 Education about fossils ✓  
**(Mark first TWO only)** (Any 2 x 1) (2)

3.3 3.3.1 Million Years Ago ✓ (1)

3.3.2 245 ✓ mya ✓ (accept 245 – 250 mya) (2)

3.3.3 Era – Cenozoic ✓  
 Period – Quarternary ✓ (2)

3.3.4 500 – 440 ✓ mya = 60 ✓ mya ✓ (3)

3.3.5 Pennsylvanian ✓ (1)

3.3.6 Cambrian Explosion ✓ (1)

3.3.7 Cretaceous ✓ (1)

3.3.8 **Learner must only describe ONE theory. Mark first theory described.**

Volcanic activity ✓ - around India  
 - released dust particles into the atmosphere ✓  
 - caused global cooling ✓

**OR**

Asteroid impact ✓ - large dust clouds blocked out the sun ✓  
 - caused global climate change ✓

**OR**

Continental drift ✓ - as continents move away from each other ✓  
 - caused climate change ✓

(3)  
**[40]**

**TOTAL SECTION B: 80**

**SECTION C****QUESTION 4****Pathway of the Red Blood Cell (Rbc)**

- This is called the pulmonary circuit / circulation ✓\*
- When right atrium contracts ✓
- deoxygenated blood/rbc ✓ is pumped
- through the tricuspid valve ✓
- into the right ventricle. ✓
- When the right ventricle contracts ✓
- the blood is forced through the semi-lunar valves ✓
- into the pulmonary artery. ✓
- The pulmonary artery branches to the right and left lung. ✓
- The arteries branch into smaller arterioles. ✓
- transporting the blood/ rbc to the lungs. ✓
- In the lung the blood vessels branch to form the capillaries of the lung ✓
- The capillaries reform to form venules which form larger veins ✓
- The oxygenated blood travels along the pulmonary veins ✓ from each lung
- The blood from the right and left lung enters the left atrium ✓

**\*Compulsory mark      Max. any 10 + 1\* (11)**

**Difference between Arteries and Veins**

- Arteries have a thick layer of smooth muscle tissue ✓ while veins have a thinner smooth muscle layer. ✓
- Arteries do not have valves ✓ while veins have valves. ✓
- Arteries have a smaller lumen ✓ while veins have a large lumen ✓
- Arteries carry blood away from the heart ✓ while veins carry blood to the heart. ✓
- The blood in arteries is under pressure ✓ while the blood in veins is not under pressure. ✓

(Any 3 x 2)      **Max. 6**      (6)

**Content:** (17)  
**Synthesis:** (3)  
**[20]**

**ASSESSING THE PRESENTATION OF THE ESSAY**

<b>Criterion</b>	<b>Relevance (R)</b>	<b>Logical sequence (L)</b>	<b>Comprehensive (C)</b>
<b>Generally</b>	All information provided is relevant to the topic.	Ideas are arranged in a logical/cause-effect sequence.	All aspects required by the essay have been sufficiently addressed.
<b>In this essay</b>	Only information relevant to pathway of the red blood cell and differences between arteries and veins.	Information regarding the pathway of the red blood cell is given in a logical sequential manner.	All aspects (pathway of the red blood cell and difference between arteries and veins) attempted and at least <b>8/11</b> correct points on pathway of red blood cell, <b>4/6</b> correct points on differences between arteries and veins.
<b>Mark</b>	1 mark	1 mark	1 mark

**TOTAL SECTION C: 20**  
**GRAND TOTAL: 150**