Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Department van Onderwys
Porafensie Ya Kapa Botjahabela: Lefapha la Thuto

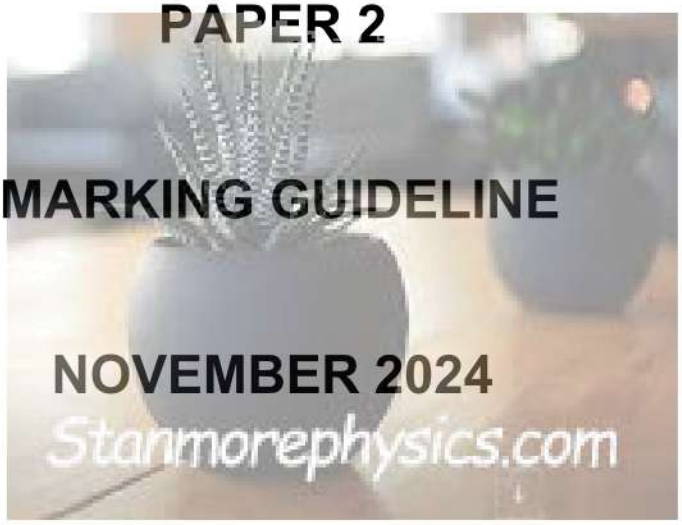
GRADE 10



LIFE SCIENCES

PAPER 2

MARKING GUIDELINE



MARKS: 150

This marking guideline consist of 09 pages.

PRINCIPLES RELATED TO MARKING LIFE SCIENCES

1. **If more information than marks allocated is given**
   Stop marking when maximum marks is 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 whole process is given when only a part of it is required**
   Read all and credit the relevant part.
4. **If comparisons are asked for but descriptions are given**
   Accept if the 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 the 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 the answer, 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 marking guideline discussion meeting.
14. **If only the letter is asked for but only the name is given (and vice versa)**
    Do not credit.
15. **If units are not given in measurements**
    Candidates will lose marks. Marking guideline 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 appear(s) in any official language other than the learner's 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.

SECTION A

QUESTION 1

1.1

	1.1.1	C✓✓	
	1.1.2	B ✓✓	
	1.1.3	A✓✓	
	1.1.4	D ✓✓	
	1.1.5	B✓✓	
	1.1.6	D✓✓	
	1.1.7	D✓✓	
	1.1.8	B✓✓	**(16)**
1.2	1.2.1	Prokaryotes✓	
	1.2.2	Endemic✓	
	1.2.3	Palaeontology✓	
	1.2.4	Glaciation✓	
	1.2.5	Biodiversity✓	
	1.2.6	Monera✓	
	1.2.7	Biome✓	
	1.2.8	Food chain✓	**(8)**
1.3	1.3.1	B only✓✓	
	1.3.2	None✓✓	
	1.3.3	B only✓✓	
	1.3.4	Both A and B✓✓	**(8)**
1.4	1.4.1	Geological✓ timescale	(1)
	1.4.2	(a) Triassic✓	(1)
		(b) Caenozoic✓	(1)
	1.4.3	Cambrian✓	(1)
	1.4.4	Permian✓	(1)
	1.4.5	Not all organisms become fossilised✓ Some fossils have not yet been found✓	(2)
	1.4.6	Ice ✓ Tar ✓ Amber✓/resin Any **(Mark the first TWO only)**	(2) **(9)**
1.5	1.5.1	C✓ – Pulmonary artery✓	(2)
	1.5.2	Blood with less oxygen but rich in carbon dioxide✓ / deoxygenated	(1)
	1.5.3	Right atrium✓	(1)
	1.5.4	Septum✓	(1)
	1.5.5	To enable the left ventricle to forcefully pump the blood to the rest of the body✓	(1)
	1.5.6	Prevents blood flowing back into the right ventricle✓ when it relaxes	(1)
	1.5.7	Less blood enters the left ventricle✓ / heart must work harder to pump blood into the left ventricle	(1)
			(9)
			[50]

SECTION B
QUESTION 2

2.1 2.1.1 A well-defined area✓ in which there is a close interaction between plants, animals and the environment✓ (2)

2.1.2 Food web✓ (1)

2.1.3 (a) Bee✓
Hare✓
Rabbit✓
Grouse✓
Beetle✓ Any (1)
(Mark first ONE only)

(b) Heather✓ (1)

(c) Adder✓
Eagle✓ Any (1)
(Mark first ONE only

2.1.4 (a)
- Decrease✓
- no food for them to eat✓
- they will need to find another source of food✓or emigrate Any (2)

(b)
- Increase✓
- they are not eaten by the shrews✓ / only grouse eats them (2)

2.1.5

Food pyramid of energy



Mark allocation:

Heading ✓
Correct organisms filled in at each level according to the given food chain + correct energy content ✓✓✓✓ (5)

2.1.6 Adder has one source of food, the shrew✓
Stout eats the shrew, if it dies out, there are other food sources - hare and rabbits✓ (2)
(17)

2.2 2.2.1 (a) Type of plant✓/ different plants (1)
(b) (Rate of) absorption of CO_2 ✓ (1)

2.2.2 - To have a baseline✓/control
- to be used to compare the results after carbon dioxide has been absorbed✓ Any (1)

2.2.3 - They chose plants of the same height ✓
- They put the plants in equal sized pots✓
- All plants had the same type of soil ✓
- All plants had the same amount of soil✓
- All plants were in the same location✓
- All plants received the same amount of water✓ Any (2)

(Mark the first TWO only)

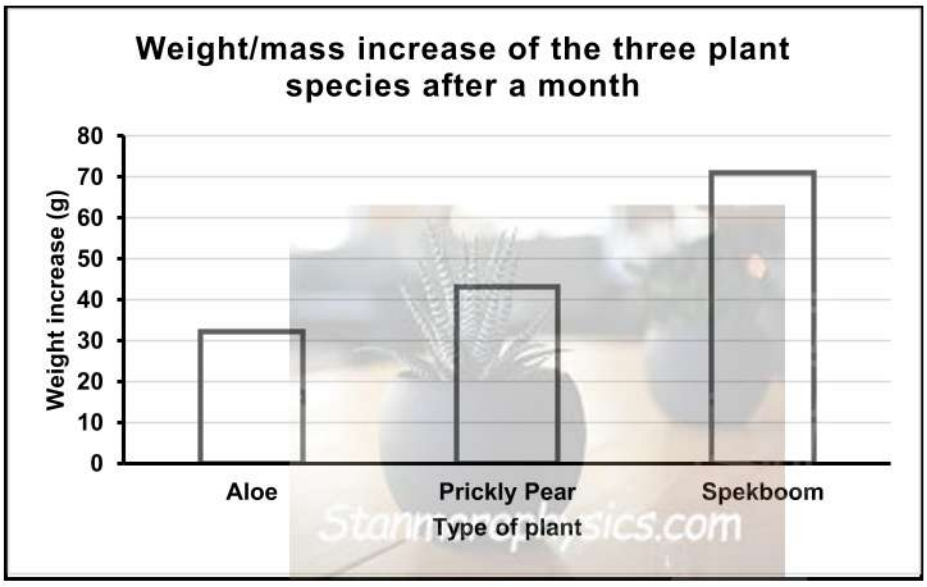
2.2.4 - Increase the types of plants used✓
- Repeat the investigation✓ Any (1)

(Mark the first ONE only)

2.2.5 $\frac{96}{800}$ ✓ x 100 ✓
= 12% ✓ (3)

2.2.6 - Plants use CO_2 to create organic compounds ✓/ carbohydrates
- which they use to grow✓
- The more they grow the more they gain weight✓ Any (2)

2.2.7



Rubric for marking the graph

Correct type of graph (T)	1
Correct caption (with both variables) (C)	1
X and Y axes labels including unit (L)	1
X and Y axes scales, bars same width, and equal space between bars (S)	1
Plotting of points (P): 1-2 bars correct	1
All 3 bars correct	1

(6)

(17)

2.3 2.3.1 A – *Haliaeetus lucocephalus*✓
B – *Rynchops niger*✓
C – *Recurvirostra avosetta*✓
D – *Buceros rhinoceros*✓
E – *Ammodrammas bairdii*✓
F – *Pandion hallaetus*✓ (6)

2.3.2 (a) Mammalia✓ (1)
(b) Pan troglodytes✓✓ (2)
(c) Pan✓ (1)
(d) - To avoid confusion/ be accurate✓
- common names vary from region to region✓ (2)
(12)

2.4 Animals depend on other organisms for food whereas plants manufacture their own food✓✓/ Animal cells do not have chloroplasts whereas plant cells have chloroplasts
Cells making up animals do not have cell walls whereas those of plants have cell walls✓✓
Plants can produce seeds whereas animals produce eggs or young one✓✓ **(4)**
[50]

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QUESTION 3

3.1 3.1.1 1 – combustion✓
3 – respiration✓
4 - decomposition✓ (3)

3.1.2 Photosynthesis✓ -reduces the concentration of carbon dioxide in the atmosphere✓ by trapping it for the manufacturing of food✓ (3)
(6)

3.2 3.2.1 Biogeography✓ (1)
3.2.2 Pangea✓ (1)
3.2.3
- The continents were originally one landmass called Pangaea✓
- It broke into Laurasia and Gondwanaland✓ (225 – 200 MYA)
- Gondwanaland formed – S. America, Africa, Madagascar, Australia, India & Antarctica✓
- Laurasia formed – N America, Europe, Middle East, Asia and China✓ (4)
(6)

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3.3 3.3.1
- The organism dies and is covered rapidly by sediment / silt ✓
- The flesh of the organism decays and only the bone is left behind✓
- As time passes layers of sediment build up over the body✓
- The layers compress / are squashed by immense pressure building up✓
- Minerals begin to replace animal tissues✓
- and the body petrifies ✓ Any (5)

3.3.2 Relative dating✓
Radiometric dating✓ (2)
(7)

3.4 3.4.1
- Long tail✓
- Clawed hands✓
- Spiky/ Sharp/Serrated teeth✓ (3)

(Mark the first THREE answers)

3.4.2

Pigeon	Archaeopteryx
1. Short 'parson's nose'✓	Long tail✓
2. No teeth✓	Spiky teeth✓
3. Pubis rotated backwards✓	Pubis: bird- or reptile-like✓
4. A large breastbone✓	No breastbone✓
	T✓ + 2x2 (Mark the TWO answers)

(5)

3.4.3
- This is a transitional fossil✓
- It shows intermediate characteristics of fossils✓
- Evidence for evolution✓ Any (2)

(10)

3.5
- Large amount of dust particles moved up✓
- and blocked out the sun✓
- leading to less photosynthesis✓
- and therefore, less oxygen and food✓
- Temperature on Earth decreased✓
- This caused many organisms to go extinct ✓
- as they could not adapt✓ Any **(5)**

3.6 3.6.1
(a) Vein✓
(b) Artery✓ (2)

3.6.2
- To withstand the high pressure ✓
- created by the pumping of the heart ✓ (2)

3.6.3
- Single layer of cells ✓
- to allow oxygen and nutrients to diffuse into the tissues✓ /CO_2 and excretory waste to diffuse from the tissues (2)

3.6.4

Pulmonary artery	Pulmonary vein
1. High level of CO_2✓	Low level of CO_2✓
2. Low level of oxygen✓	High level of oxygen✓

1 table ✓ + (2 x 2) (5)

(Mark the first TWO only)

(11)

3.7 3.7.1 Fruit✓
Vegetables✓
Grains✓ Any (1)
(Mark the first ONE only)

3.7.2
- Cholesterol floats in blood and stick into the walls of the blood vessels✓
- Blood vessels to get stiffer, narrower, or clogged✓
- Resulting in heart attack ✓/ stroke Any (2)

(3)

3.8
- Left and right ventricles contract✓
- Atria relax✓
- Right ventricle pushes blood into pulmonary artery✓
- Left ventricle pushes blood into aorta✓
- Bicuspid and tricuspid valves close to prevent backflow✓ Any **(3)**

[50]

TOTAL SECTION B: 100
GRAND TOTAL: 150

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