



**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2023

**LIFE SCIENCES P2
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists of 11 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 national memo 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 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 appear(s) 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.

SECTION A**QUESTION 1**

- | | | | | |
|-----|-------|--|-------------|------|
| 1.1 | 1.1.1 | C ✓✓ | | |
| | 1.1.2 | D ✓✓ | | |
| | 1.1.3 | B ✓✓ | | |
| | 1.1.4 | B ✓✓ | | |
| | 1.1.5 | D ✓✓ | | |
| | 1.1.6 | A ✓✓ | | |
| | 1.1.7 | C ✓✓ | | |
| | 1.1.8 | C ✓✓ | | |
| | 1.1.9 | B ✓✓ | (9 x 2) | (18) |
| 1.2 | 1.2.1 | predator ✓ | | |
| | 1.2.2 | census ✓ | | |
| | 1.2.3 | (alcoholic) fermentation ✓ | | |
| | 1.2.4 | prokaryotic ✓ | | |
| | 1.2.5 | phylogenetic tree ✓/ cladogram | | |
| | 1.2.6 | through ✓ gut | | |
| | 1.2.7 | pathogen ✓ | | |
| | 1.2.8 | food security ✓ | (8 x 1) | (8) |
| 1.3 | 1.3.1 | Both A and B ✓✓ | | |
| | 1.3.2 | A only ✓✓ | | |
| | 1.3.3 | Both A and B ✓✓ | (3 x 2) | (6) |
| 1.4 | 1.4.1 | Logistic ✓/S-shaped | | (1) |
| | 1.4.2 | (a) Equilibrium ✓/ stationary phase | | (1) |
| | | (b) carrying capacity ✓ | | (1) |
| | 1.4.3 | The population is sexually immature ✓
They are getting used to the environment ✓
They are still looking for mates ✓ | (Any 2 x 1) | (2) |
| | 1.4.4 | disease ✓
competition/lack for/of food ✓
competition/lack for/of water ✓
competition/lack for/of space ✓
predation ✓
parasitism ✓ | (Any 2 x 1) | (2) |
| | 1.4.5 | natality ✓
immigration ✓ | | (2) |
| 1.5 | 1.5.1 | Gymnosperms ✓ / Spermatophyte | | (1) |
| | 1.5.2 | They have well developed vascular tissue ✓
They have true roots, stems and leaves ✓/ not thallus | | (2) |

- 1.5.3 Plant **A** does not need water for fertilisation ✓/reproduction.
Gametes are transported by wind ✓
Plant **B** requires water for male gamete to swim to female gamete ✓ (3)
- 1.5.4 (a) rhizome ✓ (1)
- (b) frond ✓ (1)
- 1.5.5 It has true roots, stems and leaves ✓ (1)
- [50]**

TOTAL SECTION A: 50

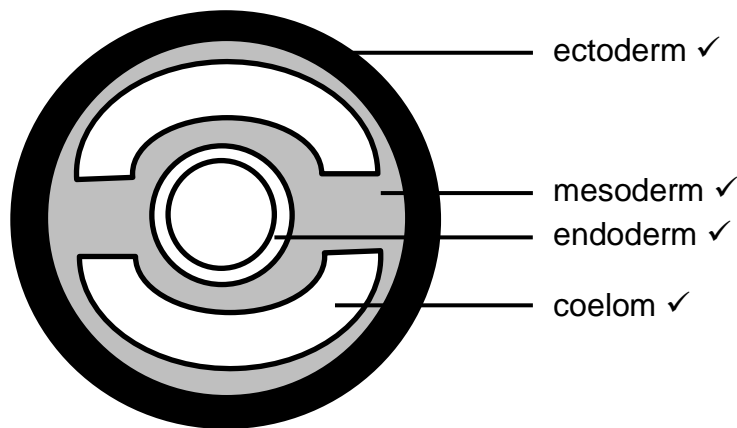
QUESTION 2

- 2.1 2.1.1 Fungi ✓ (1)
- 2.1.2 A – sporangium ✓
B – sporangiophores ✓ (2)
- 2.1.3 hyphae ✓ (1)
- 2.1.4 warm ✓
moist ✓
dark ✓
(Mark first TWO only) (Any 2 x 1) (2)
- 2.1.5 wine ✓ / beer / alcoholic drinks
bread ✓
soy sauce ✓
cheese ✓ / yoghurt / maas
(Mark first TWO only) (Any 2 x 1) (2)
- 2.1.6 • Act as decomposers breaking down dead/decaying organic ✓
matter returning recycled nutrients to the soil ✓
• Mushrooms are a food source ✓ for other animals ✓
• Fungi have mutualistic relationship ✓ with algae to form lichen ✓
• Mycorrhiza fungi live on roots of plants and act as root hairs for the plants ✓
• They grow on rocks and are pioneer plants, ✓ starting the process of soil formation ✓
• They are pathogenic ✓ and cause diseases in plants and animals ✓
(Mark first ONE only) (Any 1 x 2) (2)
- 2.2 2.2.1 (a) (amount of) petals ✓ (1)
(b) fertilisation of ovule ✓ (1)
- 2.2.2 (a) anther ✓ (1)
(b) sepal ✓ / calyx (1)
(c) ovary ✓ / ovule (1)
- 2.2.3 Pollinators are attracted by the petals ✓ and therefore visit the flowers with petals more ✓ (2)
- 2.2.4 self-pollination occurred ✓
the pollen tube did not reach the ovary ✓ (2)
- 2.2.5 ensure all flowers have same exposure to insects ✓
use same species of flower ✓
use same colour flower ✓
(Mark first TWO only) (Any 2 x 1) (2)

- 2.2.6 The greater the number of petals the greater the chance/amount of fertilisation ✓✓
OR
 The number of petals increases the chance/amount of fertilisation that occurs ✓✓ (2)
- 2.2.7 Angiosperms
 have seeds ✓
 have vascular tissue ✓
 have a cuticle ✓
 Do not rely on water for reproduction ✓
(Mark first TWO only) (Any 2 x 1) (2)
- 2.2.8 Spermatophytes ✓ (1)
- 2.2.9. offspring genetically different ✓
 zygote covered in thick protective coat ✓ (2)
- 2.3 2.3.1 Protozoa ✓/ Protista (1)
- 2.3.2 • It is non-biodegradable ✓
 • It builds up in the food chain and affects animals at the top of the food chain ✓
 • It caused the decline of many birds of prey as it made the shells of their eggs very thin
(Mark first ONE only) (Any 1 x 1) (1)
- 2.3.3 • It will have a negative impact on the economy ✓
 • Because there will be less people working ✓/ earning money/ more money spent on medical care (2)
- 2.3.4 • The mosquito sucks up blood containing plasmodium from infected person ✓
 • When it bites another person the mosquito spits some of it's saliva containing plasmodium into it's victim's blood ✓ (2)
- 2.3.5 • Take medication before entering the malaria area ✓
 • Prevent mosquito from biting them ✓/ or an example (2)
- 2.3.6 • Liver ✓ cells
 • Red blood ✓ cells / erythrocytes (2)
- 2.4 2.4.1 Porifera ✓ (1)
- 2.4.2 (a) Y ✓ (1)
 (b) X ✓ (1)
 (c) X ✓ (1)
- 2.4.3 Bilateral ✓ (1)

- 2.4.4
- They have sense organs accumulated in the area that enters the new environment first ✓/ **show cephalization.**
 - They have developed a mesoderm from which muscles originate. ✓
 - They have a **coelom** that separates the body wall from the gut wall so muscles can work independently. ✓
- (3)

- 2.4.5 Caption: **Body Plan of organism Y (fly) showing tissue layers** ✓
Correct drawing ✓
Any 2 correct labels ✓✓
(Body layers must be in correct position to be awarded mark)



(4)

[50]

QUESTION 3

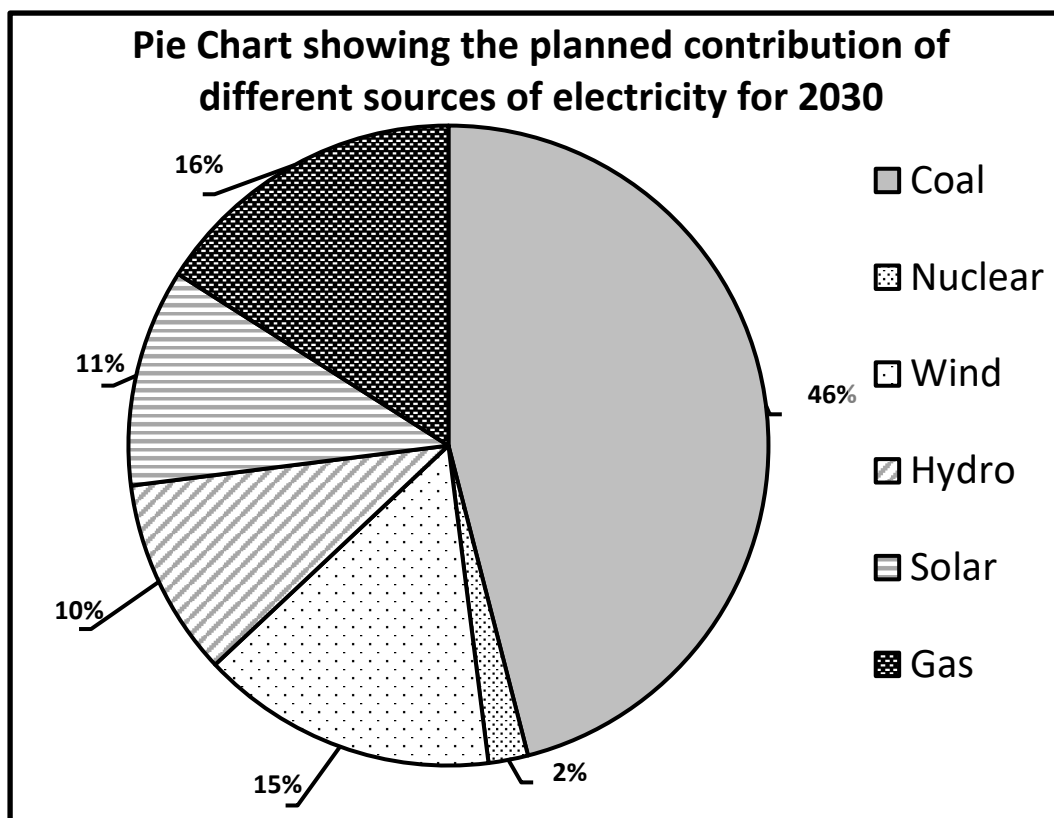
3.1 3.1.1 Coal ✓ (1)

- 3.1.2
- Burning coal releases carbon dioxide ✓
 - Carbon dioxide is a greenhouse gas ✓
 - An increase in carbon dioxide traps more heat in the atmosphere ✓
 - This increases the atmospheric temperature ✓
- (4)

- 3.1.3
- Coal is a non-renewable resource ✓ / there is a limited amount of coal / coal is expensive / it pollutes the atmosphere.
 - Wind and solar power are free resources ✓ / cost of wind and solar generated electricity is lower / it does not pollute the environment.
- (2)

3.1.4 **Mark allocation**

Caption (C)	Caption has both dependant and independent variables	✓
Type of graph (T)	Pie chart drawn	✓
Calculations	1–5 calculations correct ✓ All 6 calculations correct ✓✓	✓✓
Portions correct size (S)	1–5 portion drawn to correct size ✓ All portions are drawn to correct size ✓✓	✓✓
Segments are labelled (L)	Labels on chart or in key	✓



3.1.5 $16 - 0,8 \checkmark = 15,2 \checkmark\%$ (2)

- 3.2 3.2.1 Simple sampling ✓/ Quadrat method (1)
- 3.2.2 Samples should be random ✓
They should represent the whole area ✓ (2)
- 3.2.3 Average number of dandelions:
 $(22+3+7+4+15+0+3+0+12+3+0+14+4+7+2) \checkmark / 15 = 6,4 \checkmark$
Total number of dandelions:
 $\frac{6,4 \times 2\,500 \text{ m}^2 \checkmark}{1 \text{ m}^2 \checkmark} = 16\,000 \checkmark$ dandelion weeds (5)
- 3.2.4 To increase reliability ✓ (1)
- 3.2.5 • To know how much weedkiller/herbicide to use ✓
• To know how long it would take him to pull out all the weeds ✓
(Mark first ONE only) (Any 1 x 1) (1)
- 3.3
- | Developed country | Developing country |
|--|--|
| Good medical care ✓ | Poor medical care ✓ |
| Low birth rate ✓ | High birth rate ✓ |
| Low death rate ✓ | High death rate ✓ |
| High economic standards ✓/ high standard of living | Low economic standards ✓/ low standard of living |
- Table ✓ + (Any 2 x 2) (5)
- 3.4 3.4.1 Water seeps through the pyrite rock ✓
And dissolves the sulphur ✓ in the rock,
Forming sulphuric acid ✓ (3)
- 3.4.2 • It contaminates soil so that plants do not get the required nutrients to grow ✓
• It contaminates drinking water, disrupts the growth and reproduction of aquatic organisms ✓ (2)
- 3.4.3 • Lime must be mined ✓ which would cost more money ✓
• Slag is a waste product ✓ and is therefore free ✓/would not cost more (4)
- 3.4.4 • Causes thermal pollution ✓ (1)
- 3.5 3.5.1 **Alien plants** do not grow naturally in an area ✓
Indigenous plants grow naturally in an area ✓ (2)
- 3.5.2 They use a lot of water and nutrients and grow quickly ✓/ they have no predators and pathogens (1)

- 3.5.3 Chemical control ✓/ or example
Mechanical control ✓/ or example
Biocontrol ✓/ or example
(Mark first TWO only) (Any 2 x 1) (2)
- 3.5.4 It blocks out the sun light ✓
plants cannot photosynthesise ✓
reduces the oxygen in the water ✓
and causes organisms to die ✓* (4)
- [50]**

TOTAL SECTION B: 100
GRAND TOTAL: 150