



## **CHIEF MARKER'S REPORT**

<b>SUBJECT:</b>	<b>LIFE SCIENCES P2</b>
-----------------	-------------------------

### 1. ANALYSIS OF QUESTION-BY-QUESTION PERFORMANCE

#### **QUESTION 1 (Average percentage = 60.1%)**

The average percentage is a clear indication that our learners performed very well in this question. From the analysis done, it shows that the learners understood this question and they subsequently achieved good marks out of 10, 6 and 12 respectively.

**Question 1.1 (Average of 62%):** A fair question, which only tested the learner knowledge of the specific learning area. Learners performed very well.

**Question 1.2: (Average of 42%):** The terminology question seems every year to be a problem area for our learners. It is common knowledge that in every question paper, terminology will form part of the question paper. Educators should therefore spend time on teaching learners the terms associated with the knowledge area, which they are teaching.

**Question 1.3: (Average of 59%):** Learners achieved good marks for this question, because all possible answers were given in the memorandum.

**Question 1.4: (Average of 60%):** This question had the sole objective of learners trying to distinguish between specific evolutionary structures on perceiving two diagrammatic plans visually. Question 1.4.1 - 1.4.4 was then adequately answered by our learners. Educators should teach homologous structures as structures which are similar suggesting a common ancestor.

**Question 1.5 (Average of 48%):** Question 1.5.1 - 1.5.3 response was generally positive from our learners, as they had to interpret values from the different evolutionary eras and periods. Learners should be taught that they should always give the units as well, even if it was not asked. They lost one mark in question 1.5.1. Question 1.5.4 was a challenge for learners, because they had to use knowledge gained in previous grades (ex. respiration and photosynthesis). Most of the learners gave one statement without a desired explanation for one type of bacterium appearing before the other on the geological time scale.

**Question 1.6: (Average of 68%):** Inferences by many of our learners for 1.6.1 and 1.6.2 (a) were extremely positive. It is extremely pleasing to see our learners being able to tabulate as a form of illustration and this is indicative that this skill is being

taught well in our classrooms. The definition for recycling in 1.6.2 (a) elicited the desired responses. However, 1.6.2 (b) desired a bit more cognitive ability from our learners. Surprisingly, learner's responses to this subsection were generally positive. This section of our curriculum (Environmental Studies) was thus tutored properly in the classes across the Province. This question was thus generally well answered by the majority of our learners and is a "feather in the cap" for our teachers.

## **QUESTION 2 (Average percentage = 39%)**

Learner's achievement for this question was not at the standard required. This question was the most poorly answered question from the question paper. The average percentage achieved for this question was 39%

### **Question 2.1: (Average 44%)**

2.1.1 / 2.1.2 and 2.1.3: realised positive learner responses.

2.1.4: Many learners answered the question without including values from the table (Not asked for in question paper) and were at a disadvantage by one mark. The concept of "direct/indirect proportionality" should be emphasised by our teachers in their exposition of finding relationships between two variables. They should always be specific when answering a question like this and not only give a general explanation.

2.1.5 / 2.1.6: Learners gave even more explanations in answering especially 2.16 even though the maximum number of "effects" was 3 (3 marks)

### **Question 2.2: (Average of 18%)**

Learners generally could not formulate a hypothesis and their answer affected negatively on the question that followed i.e. 2.2.1 - 2.2.6. The question overall was thus poorly answered. Learners could not write a hypothesis or answer most of question 2.2, which can be attributed to inadequate experience/exposure about Experimental Design/Scientific Method at school level. Most of them only transcribed the aim of the investigation. Learners also showed lack of quantitative measurement as they leave out units or write wrong units with quantitative data. More practical / applicable worksheets should be drawn up to take learners / teachers through the steps needed to plan investigations with specific emphasis on formulating hypothesis to successfully carry out scientific investigations to their logical and positive conclusion.

Training by experts / education specialists needs to be a

Continuous exercise in order to make this "difficult", but extremely important skill become second nature to learners and those teaching them.

### **Question 2.3 (Average 58%)**

Learners answered this question very well.

2.3.1: Learners could easily identify the answer from the comprehension passage.

2.3.2 / 2.3.3: Questions with descriptions seems to be an obstacle for many learners. Learners had to use the passage but their answers had to reflect other information not mentioned in the passage. Many learners did not respond too well to these questions but in certain schools, the majority got maximum marks. Some learners also just regurgitating answers relating to over-exploitation of animals while the question 2.3.3 was asking for strategies to reduce over-exploitation of plants (rooibos).



### **QUESTION 3 (Average percentage = 42.8%)**

Learners did not perform very well in this question (43% Average) when comparing to that of Question 1.

#### **Question 3.1 (Average of 34%)**

3.1.1: Interpretation from the passage was answered well by most learners. Some learners could not identify the phrase, which meant that they do not know what is meant by variation. (For most, English is their second language).

3.1.2: Many learners had difficulty applying / analysing the question by relating Darwinian principles to the passage. Other examples were used in learner's answers. Learners find difficulty in theory application.

#### **Question 3.2: (Average of 38%)**

3.2.1: The explanation of Lamarck's Laws did not materialise as many learners only mentioned examples of giraffes / snake.

3.2.2: Most learners responded well especially with regard to the second option of the answer.

#### **Question 3.3: (Average of 49%)**

3.3.1 (a): Most learners drew a table properly and answered the question adequately. However, some learners due to NOT reading the question included the skull and foot. (b) Learners used the words "thumb / fingers" for toes, which was accepted by the National Internal Moderator due to Xhosa interpretation. This subsection had positive responses.

3.3.2: many learners answered this subsection correctly.

3.3.3: The reason given by many learners saw the foramen magnum at the "back of the skull" thus losing two marks.

#### **Question 3.4 (Average of 38%)**

3.4.1: Wrong responses were Sympatric speciation, Continental + Genetic Drift. Most learners answered this subsection correctly.

3.4.2: Many learners could not distinguish between speciation and natural selection. These learners wrote down three types of speciation instead of the explanation of the process. However, many learners from better performing schools had a clear understanding of the process reflected on the three diagrams thus achieving the maximum five marks.

Evolutionary study still remains an obstacle due to belief systems but more and more teaching can hopefully eradicate the stigma as it is part and parcel of the curriculum

### **QUESTION 4 (Average percentage = 42.7%)**

The two main subsections for this question (4.1 / 4.2) demanded two important skills from the learners viz perceiving / observing data given and reorganising it to draw a pie chart (4.1.4) as well as writing a short essay by listing strategies with added reasons (4.2). Many learners failed on both counts and here follows reasons for this observation:

#### **Question 4.1 (Average of 38%)**

4.1.1: Majority of learners gave the correct answer without the unit thus losing one mark.



4.1.2 (a) + (b): Many problems previously alluded to beset the desired response by many of our learners to these questions. The “open-ended” nature of these questions realised poor responses (not in memorandum) from many learners. Meanings of key words such as: impact”, “arguments”, “persuade”, seems alien to the majority of our learners and their desired responses were poor to say the least. Logical explanations, expected throughout this question, challenged most of our learners and they were found wanting.

4.1.4: Most graphs were drawn without a proper protractor + compass, learners could not calculate the proportions in degrees (in memorandum) as well as reflect all calculations, Many only used the % given, Many did not have calculators to do accurate calculations, Many left out the caption / heading, Many lack mathematical skills (i.e. no multiplication / addition etc.). Many probably did not expect the pie chart to be part of the question paper. Some learners gave the correct answers in degrees on the pie chart but did not show all calculations forfeiting all six marks.

**Question 4.2 (Average of 37%):**

More possible answer (even though the memorandum included a wide range of answers), could have been accepted.

\* Many learners did not give reasons for listed strategies;

\* One could also speculate in poor performing schools that the content was not covered;

\* Expression by many learners remains a major drawback. and

\* The kind of learner responses were:

1. factories should be reduced / shut
2. Factories should be moved from town area / away from the community.
3. smoke from cars causes pollution; etc

**7. ANY ADVICE THAT YOU COULD GIVE TO EDUCATORS TO HELP LEARNERS TO REACH THE EXPECTED LEVELS**

1. Curriculum policy of Life Sciences as a whole and the practical implementation of the specifics thereof have to become a decided reality.
2. A close / intimate relationship between teachers and subject advisors for our subject must be strongly developed to eradicate misconceptions and to allay teacher fears in their tutelage of the subject.
3. Teachers training on the more problematic areas - investigative planning + hypothesis formulation + data analysis + evolution should be continuous in order to generate “best practice” techniques that are ultimately to benefit of all our learners. Key concepts + biological terms to be emphasised / understood during training
4. Experts to train our less versed teachers to a level of confident understanding regarding the access of subject knowledge, interpretation thereof as well as its application
5. We have to “marry” content with practice before our Lie Sciences subject can be made exciting and one to be taken notice of by both learners and teachers alike.
6. Learners need to me taught how to answer an essay question.
7. Educators should spend enough time on LO1: Scientific Enquiry and problem solving.



8. The drawing of graphs and especially adding a correct caption, naming the axis and know what is the dependant- and independent variable.
9. When learners are, ask to describe a relationship between two things they should use all information given.
10. When making a hypothesis, learners should read all relevant information before doing so.
11. When tabulating there should be a match between the opposing and corresponding points.

## 8. ANY OTHER COMMENTS

In conclusion, better results achieved by our learners in this question paper compare to the previous years. One can only complement educators and subject advisor for their hard and diligent work throughout the year.