EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE
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2025 NSC CHIEF MARKER'S REPORT

SUBJECT	LIFE SCIENCES
QUESTION PAPER	1
DURATION OF QUESTION PAPER	2 ½ HOURS
PROVINCE	EASTERN CAPE
NAME OF THE INTERNAL MODERATOR	RENE SCHONEGEVEL-BISHOP
NAME OF THE CHIEF MARKER	NOBUHLE MAMPOFU
DATES OF MARKING	1-12 DECEMBER 2025
HEAD OF EXAMINATION:	MR EM MABONA

**SECTION 1: (General overview of Learner Performance in the question paper as a whole)**

The general performance of the candidates was evaluated from a sample of 100 scripts from the 12 districts in the province. Scripts were randomly selected from the 100 centres. Only one script was sampled per centre to allow sampling over a wide range of centres.

The graph below depicts the average performance of the candidates per question and average performance in the paper as a whole:

AVERAGE PERFORMANCE PER QUESTION
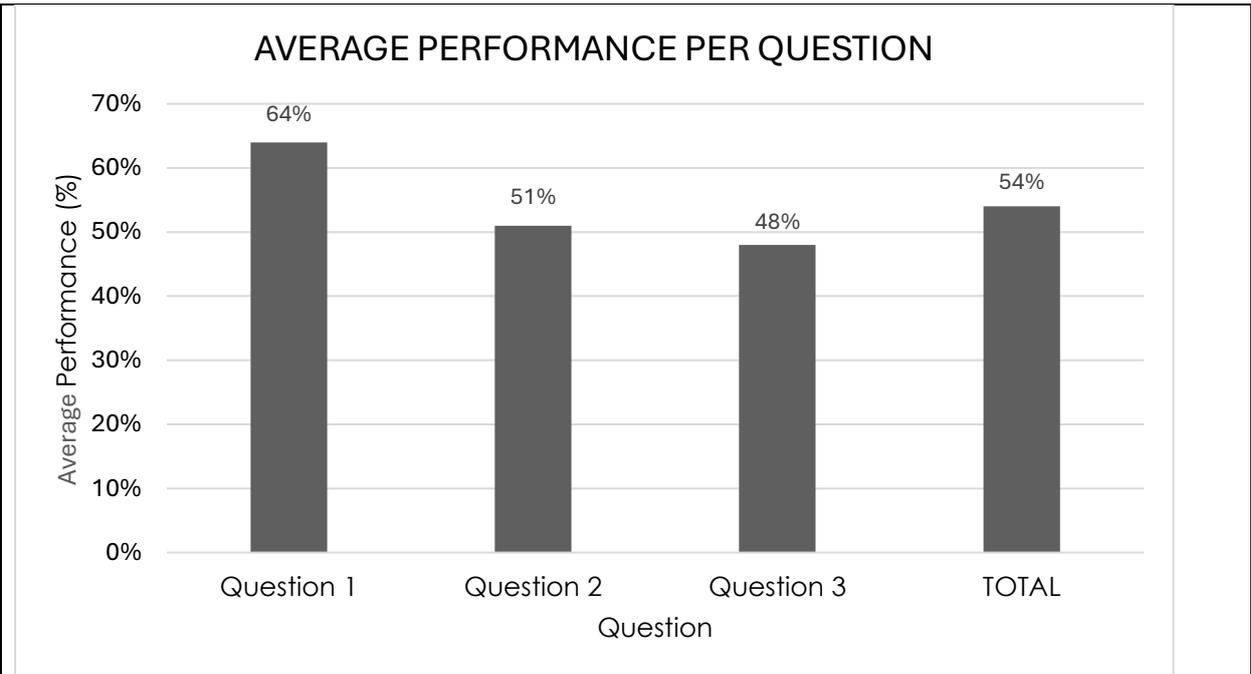
The overall average performance of the sampled candidates shows a slight increase of 2% compared to 2024. Candidates performed best in Question 1, achieving an average of 64%, although this reflects a 5% decline from the 2024 performance. Performance in Question 2 improved by 2% compared to 2024.

Question 3 was the poorest-performing section, with an average of 48%, which is 11% higher than the 2024 performance. The performance in each question was more equal than previous years due to level 1 & 2 questions being spread throughout the paper at the start of each sub-question. Question 3 also contained the scientific investigation question which only performed at 38%.

AVERAGE PERFORMANCE PER SUB-QUESTION
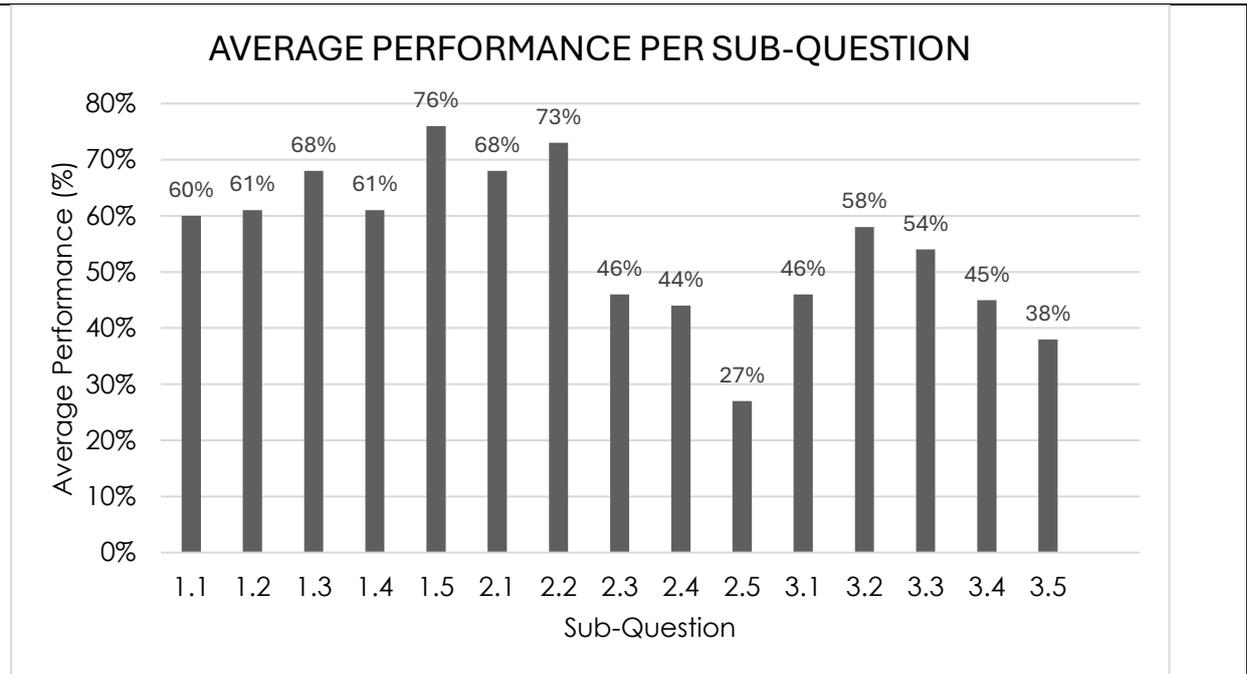
The graph indicates that candidates performed best in Question 1.5, achieving an average score of 76%. This question was based on a sensory neuron diagram and consisted of all level 1 questions.

Other questions in which candidates performed relatively well included:

- Question 2.2 (73%) – Male reproductive system, function of the scrotum and spermatogenesis
- Question 1.3 (68%) – Matching columns
- Question 2.1 (68%) – Reproductive strategies question based on the amount of yolk in an egg

The weakest performance was observed in questions where candidates scored below 50%:

- Question 2.5 (27%) – Based on a scientific investigation on added growth hormones in children with ISS. In 2024 the scientific investigation question obtained a 24% average
- Question 3.5 (38%) – Data response question based on insulin levels in the blood
- Question 2.4 (44%) – Question based on vasodilation of the arteriole in the skin.
- Question 3.4 (45%) – Question based on Balance & Noise Induced Hearing Loss.
- Question 2.3 (46%) – Question based on Female menstrual cycle which continues to perform poorly.
- Question 3.14 (46%) – Question based on astigmatism in the eye.

The above performance shows that the paper was well scaffolded within question 2 & 3 as more challenging questions were placed towards the end.

It also indicates that this paper was not easy as 6 sub-questions performed below 50%

SECTION 2: Comment on candidates' performance in individual questions

SECTION A: QUESTION 1

QUESTION 1

General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Candidates performed very well in this question as it consisted mostly of level A and B questions. The majority of the learners attempted to answer all questions. Very few questions were left unanswered.

The average for the question in the item analysis was 64%

QUESTION 1 ITEM ANALYSIS (AVERAGE PERCENTAGE PER SUB-QUESTION)				
1.1	1.2	1.3	1.4	1.5
60%	61%	68%	61%	76%

Question 1.1 Multiple Choice

Candidates performed poorly in questions 1.1.8

Questions 1.1.1 & 1.1.3 were the best performed Multiple Choice questions.

Question 1.2 Terminology

There has been an overall improvement in the terminology question this year. Spelling was generally better, showing a concerted effort by teachers.

The following terms were poorly answered

Question 1.2.6 (Chorion) with a 48% average

Question1.2.7 (Abscisic acid) with a 32% average

Question 1.3

This question was attempted by all learners, but results were not as favourable as previous years

Question 1.4

This question on Plant Hormones had an average performance and showed this topic is still underperforming

Question 1.4.3 (b) was very poorly answered as learners did not associate high auxin concentration with high rate of cell division.

Question 1.5

This question on the neuron was the best performed question that consisted of cognitive level A questions. All questions got higher than a 60% average

QUESTION 2

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

Question 1.1

1.1.6 Learners wrote the letter 'P' instead of choice D. In Multiple Choice only the letter A - D
       should be written.

1.1.8 This question was sperm cell asked learners to give a reason why the sperm cell shown was

       not structurally suitable. Many learners selected B (absence of an acrosome to improve

       motility). The correct answer was D (absence of mitochondria to provide energy). The

       acrosome is not responsible for motility. Many learners only read the first part of the

       distractor before selecting.

Question 1.2

1.2.1 "LH' written instead of 'Progesterone'

1.2.2 Cataracts was poorly spelled.

       'Astigmatism' was also a common incorrect answer

1.2.3 'Ovulation' written instead of 'Oogenesis'

1.2.4 'Black/dark' spot written instead of 'Blind spot'

1.2.5 'Ovarian cycle' written instead of 'Ovulation'

1.2.6 Learners still writing 'choroid' instead of 'chorion'. This was not credited

       'Chorionic villi' was also not accepted as this does not refer to the membrane.

1.2.7 'Abscisic hormone' was not accepted instead of 'Abscisic acid'

       'Gibberellins' was a common answer as they did not know function of Abscisic acid which

       Is not emphasised but found in the Examination Guidelines.

1.2.8 'Negative feedback mechanism' written instead of 'Homeostasis'

Question 1.3

1.3.2 'Ciliary muscle' was confused with 'Circular muscle'

Question 1.4

1.4.1 Learners writing the letters X and Y instead of the letters of diagrams A - C

1.4.1 (b) Learners wrote only 1 letter instead of 2. The mark allocation was (2) marks. Learners

need to pay attention to mark allocation.

1.4.2 Learners wrote the stimulus (gravity/unilateral light) instead of the growth response (geotropism/phototropism)

Learners also wrote a full description when only the growth response was required.

1.4.3 Learners do not understand how auxins affect cell growth (by increasing rate of cell division & cell elongation). Learners knew which side had the higher auxin concentration but in (b) they could not associate that with higher cell division. Higher auxin concentration in the stem means there will be greater cell division.

Question 1.5

1.5.1 Learners could not distinguish between sensory and motor neuron.
They also did not pay attention to the direction of the impulse and therefore confused 'dendrites' for axon 'terminals'.

1.5.2 (a) Auxin/Auxon written instead of axon. This was not credited

(b) 'Body cell' and 'nucleus' were responses not accepted for 'cell body'

(c) 'Terminal branches/ends' of dendrites was a response not accepted

1.5.4 'Multi-sclerosis' and 'Multiply sclerosis' written instead of 'Multiple Sclerosis'. This was not credited

In Afrikaans 'veelvoudige' was written instead of 'veelvuldige' sclerose. This was not credited.

Learners also confused 'Myelin Sheath' with 'Multiple Sclerosis'

QUESTION 3
Provide suggestions for improvement in relation to Teaching and Learning.

- Functions of all three plant hormones should be explained to learners. Teachers are in the habit of just listing the functions of the plant hormones instead of explaining how each works. This has led to the misconception that auxin causes leaf abscission. However, it is when auxin concentration decreases that leaf abscission takes place. Leaf abscission is caused by an increase of Abscisic Acid.
- Learners should understand the difference between the stimulus and growth response in Geotropism and Phototropism.

	Roots grow downwards	Stem grows towards light
Stimulus	Gravity	Light
Growth response	Geotropism	Phototropism

- Continued drilling of terminology in the form of daily quizzes, spot tests and crossword puzzles.
- Continue to stress words that have similar sounds i.e. choroid/chorion, auxin/axon during teaching.

QUESTION 4

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

- Learners need to pay attention to mark allocation and answer accordingly.
- Subject advisors should draw up lists of similar sounding and confusing terminology, together with their descriptions and avail these to teachers and learners
- Teachers must highlight terminology related to each topic while teaching the topic.
- Learners must see and write the terms to improve their spelling and understanding. It is evident that many learners spell phonetically because they have only heard the terms.
- Cluster workshops to be organized for teachers. These enable teachers to be confident in the language of assessment.

SECTION B: QUESTION 2

QUESTION 1

General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Learner performance remained consistent in question 2 as compared to November 2024 which had a 49% average. The question contained a good mixture of level 1 and 2 questions as well as level 3 and 4.

The average for the question in the item analysis was 51%

QUESTION 1 ITEM ANALYSIS (AVERAGE PERCENTAGE PER SUB-QUESTION)				
2.1	**2.2**	**2.3**	**2.4**	**2.5**
68%	73%	46%	44%	27%

Question 2.1 Reproductive Strategies

Learners generally responded well to this question. Learners were required to utilise data presented from a table and apply content knowledge of reproductive strategies to the novel context. Data based question responses have improved.

Question 2.2 Male Reproductive System

Question 2.2.1 (a) and (b) were the best answered question. Learners are able to correctly associate male reproductive structures with functions. Learners were also able to correctly describe the process of spermatogenesis, as per exam guidelines, for 2.2.3. The worst performing question for 2.2 was 2.2.2. Learners are unable to explain the role of the scrotum in sperm production.

Question 2.3 Female Menstrual Cycle

2.3.1 (a) and 2.3.2 were the worst performing questions for 2.3. Learners are unable to describe or correctly explain the roles of ovarian hormones. Learners generally performed better in 2.3.4 with drawing of a bar graph.

Question 2.4 Thermoregulation

2.4.3 was the worst performing sub-question for 2.4.3. Learners are not able to substantiate 'significance' for vasodilation. Most learners were able to correctly identify arteriole size on a cold day for 2.4.2.

Question 2.5 Growth Hormone Scientific Investigation

2.5 was the worst performing sub-question in Question 2. Almost all learners could not answer 2.5.3 correctly. Learners are unable to explain the purpose of a control. This question consisted mostly of level C and D type questions. Learners also struggled with 2.5.5, giving a conclusion for the investigation.

QUESTION 2

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

Question 2.1

2.1.1   Learners struggle to link how <u>yolk size</u> influences the <u>amount of nutrition available</u> for the <u>developing embryo</u> and how this influences the degree of <u>development of the hatchling</u> (precocial and altricial development).

2.1.2   Due to being unable to link yolk amount in the egg to the degree of development, some learners struggled to associate parental care requirements for altricial bird species. Being under development means that there will be greater need for parental care.

Question 2.2

2.2.1   Learners do not read the question correctly. The question required learners to GIVE the LETTER and the NAME. Some learners only give letter or name.

2.2.2   Learners state that the scrotum maintains the temperature of 'sperm cells' instead of the testis. Many learners could not explain the scrotum's role in temperature maintenance (two degrees below body temperature) for high quality/quantity sperm production. Learners were prone to saying that the testes needed to be at 2^0C.

2.2.3   Some learners write 'testone' instead of testosterone. Terms such as spermatocytes, spermatagonia and spermatids are not included in the examination guidelines. Learners do not need to know this degree of detail. They are only credited if used in the correct context. Some learners use spermatids instead of haploid sperm cells/ haploid spermatozoa. Spermatids are an immature form of a sperm cell.

Question 2.3

2.3.1   A female's 'period' is not a suitable biological replacement for the process of menstruation. Some learners also confused the process of menstrual cycle with menstruation. Menstruation is only a phase of the menstrual cycle.
Learners commonly confuse the functions of ovarian hormones oestrogen and progesterone with the pituitary hormones FSH and LH. Some learners also confuse the structures which secrete the various ovarian/pituitary hormones.
Learner lost a mark if they wrote that the follicle secretes oestrogen. The follicles do not secrete oestrogen. It is the developing Graafian follicle that secretes oestrogen. The other ovarian follicles remain dormant.

2.3.2   Learners correctly state that oestrogen is responsible for the primary thickening of the endometrium however forget that progesterone causes the further thickening of the endometrium making it 'more' vascular and glandular as time progresses.

2.3.3   Learners wrote that the endometrium is significant to 'maintain pregnancy' and are not specific enough. They need to state how it maintains pregnancy by allowing for implantation of the embryo / development of the placenta / increased blood supply for nutrition of the foetus.

2.3.4   Marks awarded for graph drawing varied greatly.
Caption
Learners regurgitated the aim of the investigation as a suitable title, instead of saying Endometrial thickness (mm) over days of the menstrual cycle. Learners cannot include the 'complete menstrual cycle' as not all days are included in the graph. Learners also wrote 'vs' when linking independent and dependent variables which is incorrect.

The caption should specifically explain what the graph is showing as this is a level 3 question and requires application to the particular graph. The caption should include the variables on the x- and y- axis.

Label

Learners forgot to include the unit of measurement (mm) with endometrial thickness. Learners were also confused with x-axis independent variable (discontinuous data). They drew a scale on the x-axis instead of individual points. Many could not include a '0' on the x-axis.

Scale

Some learners had an inconsistent y-axis scale and moved up in varied amounts. Learners are still not drawing bars and spaces the same size and therefore losing a mark.

Type

Learners drew histograms and line graphs instead of a bar graph.

Plotting

Most learners were awarded marks.

Question 2.4

2.4.2   Learners still confuse how cold and/or warm conditions influence the diameter of blood vessel size.

2.4.3   Some learners confused the question with the pupillary mechanism of the iris. Other learners were also confused vasoconstriction with vasodilation when applying content knowledge to this diagram application type question. A few learners also did not describe the full process in sufficient depth. I.e. Arteriole dilates (vasodilation occurs) > <u>More</u> blood flowing to the surface of the skin > <u>More</u> heat is lost > to decrease temperature.
Learners lost a mark as they did not state that it resulted in a decrease in temperature.

Question 2.5

2.5.1   Learners included 'average' into height which was not according to the investigation hypothesis. Learners must strictly follow the given hypothesis when identifying variables for the investigation. The independent and dependent variables should be read directly from the aim.

2.5.3   Learners could not state the purpose of the control

Purpose

	To show that it is only the <u>independent variable</u> is causing a <u>change in the dependent variable</u> and not any other factor.

Learners should apply this definition to the specific investigation they are given. E.g. To show that it is only the <u>added growth hormone</u> that causes the <u>increase in height</u> and not any other factor

2.5.4   Learners forget to use the unit of measurement correctly. Some could not calculate a multiplication sum correctly.

2.5.5   Learners are unable to write a consolidated conclusion according to the aim of the investigation and the investigation's results. A conclusion must be written based on the results given but should show clear linkage to the variables in the aim of the investigation. It is important to use the same variables as in the aim.

QUESTION 3

Provide suggestions for improvement in relation to Teaching and Learning.

- The use of the 2021 LFSC Examination Guidelines is essential for the underpinning of learning. Learners still refer to content which is out of the scope of the required syllabus. This content knowledge unfortunately carries no credit.
- English must be used as the LoLT in a LFSC classroom especially when teaching scientific terminology.
- Teachers need to teach learners cause and effect relationships which are encapsulated in research aims and investigative questions. Learners need to refer to the research aim when determining the independent and dependent variables. Conclusion(s) MUST be deduced from the research aim and results of the investigation.
- Workshops (online or in-person) focusing on teacher development in scientific skills are required. Teachers who have attended marking sessions must be utilised as a source of information
- Teachers need to spend time teaching calculations each year to ensure candidates have basic mathematical skills. These skills should be assessed from Grade 10 to ensure that candidates have a good understanding by Grade 12.
- Scientific Investigation should be taught at the start of each year and questions should be included at the end of each topic as practice.
- Application questions also need to be added at the end of each topic and should be included in all tests All skills should also be tested in informal tasks so as to expose candidates to all cognitive levels and levels of difficulty. These informal tasks should be marked according to the memo, which will train candidates on how to answer.

QUESTION 4

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

- Learners struggle to integrate content knowledge with data presented in tables, diagrams, and investigative scenarios. Although improvement was noted in Question 2.1 (Reproductive Strategies), many learners are still unable to infer relationships—such as linking yolk content with degree of embryo development or parental care demands. This reflects a broader challenge with understanding cause-and-effect relationships, which affects performance across multiple topics.

- Misconceptions remain strongly entrenched, particularly in human reproduction and homeostasis. Learners frequently confuse structures, hormones, functions, and processes, especially in the menstrual cycle and thermoregulation. Errors such as mixing pituitary and ovarian hormones, misusing everyday language (e.g., "period" instead of menstruation), and incorrectly identifying structures (e.g., scrotum vs. testes) indicate that conceptual clarity is not yet secure, and that terminology is not consistently taught or reinforced using the correct scientific language.

- Graphing and scientific-skills questions continue to be a major barrier for learners. Many do not understand the components of a graph (caption, label, scale, type), struggle with selecting the correct graph format, and fail to link variables meaningfully to the investigative aim.

- Scientific investigations (Question 2.5) were particularly poorly answered, reflecting an urgent need for explicit instruction in research methodology, variable identification, formulating conclusions based on results, and understanding the purpose of a control. Errors suggest that learners memorise procedures rather than understanding their purpose. Integrating scientific skills throughout the year, rather than treating investigations and graphing as isolated topics.

- In addition, errors such as not reading instructions carefully, omitting required components, and misinterpreting command words (e.g., "explain," "describe," "substantiate") were common. This highlights the need for teachers to explicitly teach exam-writing techniques and scaffold learners' understanding of question terminology. Many incorrect responses reflect gaps in English literacy as the LoLT, which affects scientific communication, graph descriptions, and the ability to follow detailed instructions.

- Providing more application-based questions in classwork and assessments, with structured feedback aligned with marking guidelines to improve learners' assessment literacy.

- Developing teachers through focused workshops, especially on data-handling, scientific investigations, and common misconceptions identified through marking.

- Building learners' ability to draw connections, explain processes, and justify answers using correct scientific reasoning.

SECTION B: QUESTION 3

QUESTION 1

General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?

Question 3 was well answered compared to previous years. The average for the question in the item analysis was 48% compared to 37% in 2024. This was due to more level 1 & 2 being placed in question 3 rather than question 1.

QUESTION 1 ITEM ANALYSIS (AVERAGE PERCENTAGE PER SUB-QUESTION)				
3.1	**3.2**	**3.3**	**3.4**	**3.5**
46%	58%	54%	45%	38%

Question 3.1 Astigmatism
Question 3.1.1 was answered well, as it required only basic Level 1 labelling. However, learners struggled with Questions 3.1.2 and 3.1.3, which required higher-level application.

Question 3.2 Human Nervous System
Learner performance on the nervous system question was good, although learner performance in 3.2.3 was poorer than expected at 49%. Learners lost marks as they did not mention the path of the sensory and motor neuron through the spinal nerve. The Spinal nerve is stated in the description given in the examination guidelines.

Question 3.3 Accommodation
This question was poorly answered for a level 1 question. Many learners only scored 2 marks as they could not describe the whole process. Learners also confused accommodation with pupillary mechanism.

Question 3.4 Human Ear
Learners performed well question 3.4.1 (labelling the ear) which had a 95% average.

However, overall performance in this question was poor due to questions 3.4.4 (a) and (b) which required application, analysis and synthesis

Question 3.5 Insulin Treatment

This question was very poorly answered. In 3.5.3 learners compared the graphs rather than what the graphs told us about the two types of insulin treatment. Question 3.5.5 was one of the poorest performing questions as learners did not associate the drop in glucose with the lack of energy due to not enough glucose being available for cellular respiration.

QUESTION 2
Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

Question 3.1

3.1.1(a) aqueous humour was very poorly spelt, often costing learners the mark.

3.1.2 Learners battled to describe the shape of the astigmatic cornea. Description is an important scientific skill. Learners referred to it as uneven rather than unevenly curved. Other incorrect answers included: 'convex' or 'concave' shape. Many answers were incomplete.

3.1.3 Learners are confusing reflection and refraction which are two opposing scientific terms. Learners also wrote that light 'fell on the retina' instead of 'focussed on the retina', when describing an image forming on the retina. Light is always refracted onto the retina, but a clear image is only formed when the light is focus in the retina. When light focuses before or after the retina, or if it is refracted in different direction it won't focus on the retina and therefore no clear image will form.

3.1.4 Learners lost marks for saying 'sunglasses', 'concave/convex lenses'. These are not solutions for astigmatism. The type of lens required for astigmatism would depend on the type and severity of the astigmatism and therefore a concave or convex lens would not necessarily be suitable.

Question 3.2

3.2.2 Learners confused the function of the cerebrum and cerebellum.
   The cerebrums controls while the cerebellum co-ordinates skeletal muscles.
   Some learners only wrote the NAME or the LETTER when both were required.

3.2.3 In the description of the pathway of a reflex action learners lost marks as they did not describe the pathway of the sensory and motor neuron through the spinal nerve into the spinal cord. The parts of a reflex arc is described in the 2021 Examination Guidelines as

follows:

- Structure of a reflex arc and functions of each part, using a diagram: receptor, sensory neuron, dorsal root of spinal nerve, spinal cord, interneuron, motor neuron, ventral root of spinal nerve, effector

Learners lost marks as they describe the sensory neuron moving to the interneuron rather that the impulse moving along the sensory neuron,

Question 3.3

Many learners confused accommodation with pupillary mechanism.

Learners lost a mark as the stated the light falls/refracted on the retina. However, light falling on

the retina does not produce a clear image. Light will always fall on the retina but unless it is focussed the image will be blurry.

Learners are also losing a mark as the write that 'suspensory ligaments contract' instead of 'become taut'. Ligaments cannot contract. Only muscles can.

In Afrikaans learners wrote "suspensoriese ligamente trek saam' instead of suspensoriese ligament trek styf'.

Learners still confuse 'ciliary' and 'circular' muscles.

Learners also write both accounts for near and distant vision. Only the first one was marked.

Question 3.4

3.4.3 Learners referred to both Cristae and maculae being stimulated when the head changes

speed and direction. They lost the mark for not identifying the receptor involved as they were expected to identify the correct ONE.

Learners lost a mark as they as they wrote 'impulse is generated' instead of '<u>stimulus is converted</u> into an impulse'.

Learners also lost marks as they did not include the cerebellum sending an impulse to the skeletal muscles to bring a response, in their explanation.

3.4.4 (b) Learners describes the process of hearing rather than explaining how earplugs affected the sound waves entering the auditory canal. They also confused earplugs with earbuds.

This higher order question required learners to understand that anything placed in the auditory canal would prevent soundwaves from passing through to the tympanic membrane. This would mean that fewer vibrations would pass through the middle ear and fewer pressure waves would form in the cochlea.

Learners should also refer to the cochlea' when describing the hearing process and not

the 'inner ear' as not all parts of the inner ear are involved in hearing.

Question 3.5

3.5.1 Learners wrote 'kidney' instead of 'pancreas' when identifying the organ that secretes insulin.

Learners also lost marks if the wrote 'Isles of Langerhans' as this is not an organ as asked for in the question. The pancreas is the organ that secretes insulin.

3.5.3 Learners lost marks as they did not describe the difference in the insulin treatment. The asked for the difference in the two treatments over a 23-hour period. Therefore, answers that referred to specific times were incorrect.

Incorrect learner responses included:

- o Describing increases and decreases on the graphs at specific times rather than the overall effect of the treatment. E.g. at 23:00 insulin levels increase in long-acting treatment but in rapid-acting treatment it goes down
- o Referring to glucose increasing and decreasing rather than insulin given in the graph.
- o Insulin lasts a long time for long-acting and insulin act quickly for rapid -acting insulin. This is describing the type of insulin, not differences in the treatment.

There were also learners who did not draw a table but rather explain, thus losing a mark for the table being drawn.

3.5.5 Learners did not describe how the insulin injection would FURTHER decrease the already low glucose level which would mean that there would not be enough glucose for cellular respiration to provide energy. Very few learners associated the glucose availability with energy provided by cellular respiration. Some learners wrote that there would be no cellular respiration without giving the reason that glucose was not available for cellular respiration.

QUESTION 3
Provide suggestions for improvement in relation to Teaching and Learning.

Teaching the Eye and Ear:

- Learners could not describe how astigmatism affects vision. Teachers need to emphasise how the unevenly curved cornea resulting in multiple focal points instead of one can cause blurred vision.
- Teaching of the Eye and Ear should also exposed learners to various conditions that affect sight and hearing, rather than only teaching what is in textbooks. These conditions should be discussed in terms of how they affect the process of hearing.

- Learners also seem to lack the understanding of the form of transmission in the different parts of the ear teachers must emphasise the concepts of
  - Sound waves in the outer ear
  - Vibrations in the middle ear
  - Pressure waves in the cochlea

The use of the 2021 Examination Guidelines is a vital teaching tool and should be the first document that should be consulted when teaching. The Examination Guidelines contains explanations for certain concepts that are meant to guide teachers as to the depth of understanding candidates require. E.g. spermatogenesis, parts of the reflex arc, etc. Learners should all have access to their own copy for study purposes.

Learners still have many misconceptions and are confusing similar terms such as:

Auditory canal and auditory nerve

Earplug and earphones/earbuds

Impulse and stimulus

Glucose and glycogen

QUESTION 4

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

- The use of Past question papers is an important resource, but they should not be used a finite guide. Questions may change slightly and learners are not able to answer with understand the question being asked. Learners should be taught full explanations as questions may change and may require a slightly different answer. Learners need to answer with full understanding. It is clear that many teachers are using marking guidelines as concise notes as learners go as far as to even write the answer in the form of bullets as stated in the marking guidelines.
- Learners still need to learn how to read with understanding. Many learners answer questions incorrectly as they misunderstand the question.
- Learners should be trained to leave a line between each question as many learners handwriting makes it difficult to see where one question stops and the other starts.
- The Provincial Examinations should also consider printing booklets with a margin to write question numbers in. This would prevent number being hidden between writing and make it easier to distinguish where a question starts.
- Educators need to sensitise learners to the various action verbs e.g. Describe, explain etc. Continued practice answering these types of questions is important