NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

Scholarship, 2005

Science
93104

National Statistics

Assessment Report

Science, Scholarship, 2005
93104

National Statistics

No. Scholarship Results	Results			
27	**Outstanding Scholarship**		**Scholarship**	
	No. Awards	% of L3 Cohort	No. Awards	% of L3 Cohort
	4	0.5%	23	2.6%

Commentary

The standard of work presented by candidates gaining Scholarship was very pleasing. Candidates were well prepared.

The best-performing candidates most commonly demonstrated the following skills and / or knowledge:

- read and understood the passages, diagrams and photographs supplied
- carefully read and understood the requirements of the questions
- drew links between key points from the information provided and existing knowledge
- gave evidence of critical thinking
- applied scientific knowledge to unfamiliar contexts
- answered questions in a logical and considered manner
- drew on knowledge from all aspects of Science Curriculum Level 3
- drew on skills required to critically analyse scientific data
- used formulae where appropriate
- managed the examination time so that all questions were attempted
- effective use of knowledge of Curriculum Level 3
- evidence of extra scientific thought, such as bringing into an answer relevant knowledge from other disciplines
- provision of original interpretations or additional perspectives to the material provided
- factors important in the integrated context
- presentation of well developed arguments.

Specific ways in which these abilities were demonstrated:

Question 1(a): Candidates realised the importance of the shorter fatty acid chains and its implication in terms of the softness and, hence, flexibility of the fat. They also talked about the flexibility of soft fat rather liquid fat. Candidates showed perception when they realised that branched fatty acids would also affect fat flexibility. They realised that whales and dolphins are warm-blooded and explained the implications of this on fat flexibility.

Question 1(b): Candidates fully answered all five parts, showing excellent understanding of how a whale or dolphin would be able to navigate and locate objects in its environment. They wrote statements such as "*bigger* sizes reflect *larger* amplitudes" rather than the less clear "*different* sizes (of object) reflect *different* amplitudes (of wave)".

Question 1(c): Candidates comprehensively discussed all three points, exhibiting excellent skills in discussing how to collect sufficient, reliable and valid data, and in formulating solutions. They drew on general knowledge from wider reading or study to answer this question.

Question 2(a): Candidates stated a suitable range for the isotopes of up to five to 10 half lives, rather than give a specific number of years.

Question 2(b): They identified that the age at which a person dies will affect their *Pb-210* levels, and the need for a large number of samples to establish a valid benchmark.

Question 2(c): Candidates discussed most of the problems mentioned in the schedule but weighed them up with the advantages of catching more criminals, especially for vicious crimes.

Question 3(a): Candidates had a very good understanding how tectonic plate composition and movement shape New Zealand.

Question 3(b)(i): They noticed that they needed to comment on what could be observed *and* measured to show evidence of tectonic activity.

Question 3(b)(ii): They related activity in the core, mantle *and* crust.

Other candidates most commonly demonstrated the following skills and / or knowledge:

- displayed a consistent standard in answering most questions
- effectively used knowledge of Curriculum Level 3
- provided evidence of extra scientific thought such as using general knowledge in an answer
- gave accurate interpretations of the material provided
- recognised factors important in the integrated context.

Specific ways in which these abilities were demonstrated:

Question 1(a): Candidates realised the importance of the shorter fatty acid chains and the link with the softness and, hence, flexibility of the fat. They sometimes remembered that whales and dolphins are warm-blooded and realised that this would affect fat flexibility.

Question 1(b): Candidates answered all five parts of the question, showing a good understanding of how a whale or dolphin would be able to navigate and locate objects in its environment. They wrote "*bigger* sizes reflect *larger* amplitudes" rather than the less clear "*different* sizes (of object) reflect *different* amplitudes (of wave)".

Question 1(c): They discussed all three points, especially exhibiting good skills in discussing how to collect sufficient, reliable and valid data, and in formulating solutions. They drew on general knowledge to answer this question.

Question 2(a): Candidates stated a suitable range for the isotopes of up to five to 10 half lives, rather than give a specific number of years.

Question 2(b): They identified that the age at which a person dies will affect their *Pb-210* levels, and the need for a large number of samples to establish a valid benchmark.

Question 2(c): They discussed many problems in the schedule.

Question 3(a): Candidates had a good understanding of how tectonic plate composition and movement shape New Zealand.

Question 3(b)(i): They noticed that they needed to comment on what could be observed *and* measured to show evidence of tectonic activity.

Question 3(c)(ii): They related activity in the core, mantle *and* crust.

Less-able candidates most commonly lacked the following skills and / or knowledge:

- ability to attempt all questions and, in so doing, show the range of skills required for a scholarship pass
- ability to use knowledge from Curriculum Level 3 effectively
- ability to maintain scholarship standard over more than one or two questions.

Less able candidates specifically lacked ability in the following ways:

Question 1(a): Candidates did not realise the importance of the shorter fatty acid chains and the link with the softness and, hence, flexibility of the fat. They did not remember that whales and dolphins are warm-blooded.

Question 1(b): They did not show an understanding of how a whale or dolphin would be able to navigate and locate objects in its environment. They wrote that "*different* sizes (of object) reflect *different* amplitudes (of wave)" rather than "*bigger* sizes reflect *larger* amplitudes".

Question 1(c): They were only able to state some key points. They were not able to show how to collect sufficient, reliable and valid data.

Question 2(a): Candidates did not read the question carefully. They stated a specific number of years rather than a suitable range for the isotopes of up to five to 10 half lives.

Question 2(b): They were not able to identify that the age at which a person dies will affect their *Pb-210* levels, and the need for a large number of samples to establish a valid benchmark.

Question 2(c): They only *stated* rather than discussed problems.

Question 3(a): Candidates had no idea how tectonic plate composition and movement shape New Zealand.

Question 3(b)(i): They only commented on what could be observed and did not comment on what could be measured to show evidence of tectonic activity.

Question 3(b)(ii): They only related activity in the core and mantle, and forgot to include the crust.