

90719



907190



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA



For Supervisor's use only

Level 3 Biology, 2009

90719 Describe trends in human evolution

Credits: Three

2.00 pm Thursday 19 November 2009

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–8 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

| For Assessor's use only | | Achievement Criteria | |
|-------------------------------------|--------------------------|------------------------------------|-----------------------------|
| Achievement | | Achievement with Merit | Achievement with Excellence |
| Describe trends in human evolution. | <input type="checkbox"/> | Explain trends in human evolution. | <input type="checkbox"/> |
| Overall Level of Performance | | <input type="checkbox"/> | |

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From: M. Pigliucci, 'Evolution: the overwhelming evidence', *Science* 323 (2009), pp 716–717.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

QUESTION TWO: CULTURAL EVOLUTION

- (a) At least 27 000 years ago, people living in what is now Austria buried two newborn babies in a grave. The babies were found side-by-side, covered with red ochre, and under the shoulder-blade of a mammoth. More than 30 ivory beads were also found in the grave.

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Einwogener et al. (2005) Upper Palaeolithic infant burials. *Nature* 444: 285.

Discuss what this burial **and** the associated evidence suggest about social behaviour **and** abstract thought in stone-age *Homo sapiens*.

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<http://www.lithiccastinglab.com/gallery-pages/2002februarycolbysitepage1.htm>

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QUESTION THREE: DISPERSALAssessor's
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Possible phylogenetic relationships between Neandertals,
modern humans, and chimpanzees, based on DNA analyses.
*From S. Freeman & J. C. Herron, *Evolutionary Analysis*, 3rd edition (Pearson, 2004).*

- (a) Explain which theory of modern human origins is best supported by these data.

- (b) Discuss the patterns and timing of dispersal in **both** Neandertals and modern humans. **Your discussion should be based on the information given in the diagram on the facing page.**

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**Extra paper for continuation of answers if required.
Clearly number the question.**

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Question
number

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