Year 13 Science: How hominins spread across the world

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Which hominin was the first known to leave Africa, and about when?

2. From which parent do you inherit your mitochondrial DNA?

3. A haploid human genome is about 3.1 billion bases. How many bases is 4% Denisovan DNA?

4. Explain why African populations are the most genetically diverse.

5. Put these in order of first settlement: Aotearoa, Tonga, the Society Islands.

Exam-style question: our mixed ancestry

Fossils show that Homo sapiens lived in Africa from about 300 000 years ago, while Neanderthals lived in Europe and western Asia and Denisovans in Asia. Living people of European and Asian descent carry about 1 to 2% Neanderthal DNA, and Papuans carry about 4 to 6% Denisovan DNA. African populations have the greatest mtDNA diversity of any region.

6. Describe the Out of Africa (replacement) model.

7. Explain how mtDNA evidence supports an African origin for Homo sapiens.

8. Explain why Papuans carry Denisovan DNA but most Europeans do not.

9. Discuss whether the evidence supports a strict replacement model, the multiregional model, or something between.

Fix the mistake

10. Correct this statement: "Homo sapiens was the first hominin to leave Africa."

11. Correct this statement: "Mitochondrial Eve was the only woman alive at the time."

12. Correct this statement: "Mitochondrial DNA comes from both parents."

13. Correct this statement: "The Out of Africa model is wrong because people carry Neanderthal DNA."