

## Chapter 10



### Practice questions on p. 105

The following source and two-part question are typical of those that will be used in Section B of the Unit 2 examination.

Darwin's theory of evolution caused a considerable stir. It showed that science, and scientific methods, had the potential to explain things which previously had puzzled many people. It also shocked many people and challenged the thoughts and beliefs of people in Victorian society.

Yet, the theory of evolution has stood the test of time and scientists recognise that the work of Charles Darwin involved careful research and scientific methods, which made evolution an essential part of science teaching. Creationism and intelligent design are interesting theories but they rely more on faith and belief than methods that can be recognised as scientific.

- (1) For what reasons is Darwin's theory of evolution important in helping to explain the origins of life?** (17 marks)
- (2) Discuss the view that creationism and intelligent design should be included as part of a science programme teaching about the origins of life.** (18 marks)

### Answer

This question clearly involves some background knowledge about the work of Charles Darwin and his theory of evolution in part 1. Part 2 moves on a number of years to the current debate about the extent to which the science curriculum in schools, which has taught about evolution for many decades, should also include teaching about creationism and its more recent manifestation in the form of intelligent design.

#### Part 1

The introductory paragraph should set the scene in terms of establishing who Darwin was, when he did his work and why he remains, some 150 years later, such an important scientific figure.

Key points in the main body of the essay are likely to include:

- The extent to which Darwin's work was based on close observation and scientific methods in the field of geology and biology.
- The way in which he kept detailed records of his observations after setting sail in *HMS Beagle* for South America and the South Pacific.
- What is understood by 'the survival of the fittest' – the constant battles faced by birds and animals against predators and famine and the constant competition that might lead to survival. (Darwin noted how ptarmigans turned white in winter to blend more easily into the snowy background.)
- The way in which Darwin traced lines of 'descent with modification' over the very long period of evolution and the protracted process of natural selection. In time, complex creatures evolved from less complex ancestors as beneficial mutations were passed on to the next generation.
- The shock that resulted from Darwin's work because of the way in which science seemed to challenge religion and the role of God in creating humankind. In 1859 the first printing of Darwin's *On the Origins of Species by Means of Natural Selection* sold out in a day. The extent to which Darwin's theory of evolution challenged the biblical view of God's creation.

## **Conclusion**

In Victorian times, Darwin's theory of evolution was extremely controversial because of its direct challenge to the teaching of the church. Theologians often challenged Darwinist beliefs. Scientists supported the thorough methodology of Darwin's research. Since Darwin's time there have been few serious scientific challenges to the theory.

## **Part 2**

- Identify some of the key questions. How did humans first populate the Earth? Did humans evolve or were they created? Were we produced by an act of God? Were we produced by some purposeful intelligence? What does the evidence say?
- The belief of creationists and literal belief in the Bible.
- The strength of creationists in the USA and the more recent emergence of intelligent design (ID) supporters.
- The extent to which there is evidence to support the various theories.
- Why scientists believe that creationism and ID do not offer sufficient scientific evidence.
- Should science teaching be based only on those things that display the typical characteristics of scientific evidence and scrutiny?
- Should those learning science be exposed to alternative theories of the origin of species or should these be confined to areas such as religious education in the curriculum?

## **Conclusion**

Most scientists see little or nothing in creationist and ID theories to warrant their inclusion in science teaching. Not all scientists and science teachers agree, and they support the wider teaching of the origins of the species so that students can make up their minds on the basis of wider evidence. Much may depend on the individual's beliefs and values.