# *Very Short Introductions to Evolution, Human Evolution and the History of Life*

**By Brian and Deborah Charlesworth (*Evolution*), Bernard Wood (*Human Evolution*) and Michael J Benton (*The History of Life*)**

**Reviewed by Colin Johnson, UK**

How short is 'very short'? Well, pretty short – between 120 and 150 pages. The pages are small, too, 175 mm x 110 mm, but then so is the type. 'Introduction?' …well, it depends what's being introduced. These are cleverly written books, compressing a great deal of material and a reasonable number of black and white illustrations into a small space. It would be a mistake to confuse brevity with accessibility, however. So – from the point of view of a school-teacher considering purchases – what are we looking at here?

*Evolution: A Very Short Introduction* follows a path you would expect: the evolutionary processes, evidence for evolution, adaptation and natural selection, and the formation and divergence of species. Had the book been written today, the word 'creationism' would surely have been in the index, but the final chapter does not shirk what the authors have called "difficult problems" – complex adaptations, ageing, the evolution of sterile social castes, and the origin of living cells and of human consciousness. This is tough going – a solid read for an advanced teacher, but unlikely to engage many school students. It's a book for the teacher's shelf – perhaps to be dipped into as a refreshing summary of a key topic: the 'evidence for evolution' chapter would be a good brief source of reference.

*Human Evolution: A Very Short Introduction* is by 'a medically qualified palaeo-anthropologist' – and it shows. It deals with the fossil record, early hominins, transitional hominins and early *Homo* before turning to the people who inhabit the globe today. There's a chronology "of thought and science relevant to human origins and evolution", which – though brief – is seriously academic. Individual sections of this book contain engaging narratives, and thorough explanations, but the sheer density of the writing must take it beyond school science and well into specialist reading at university level. Teachers will find the 'points to watch' sections at the end of each chapter very valuable, however. They provide caveats for teaching and some really good starting points for discussion and wider reading.

*The History of Life: A Very Short Introduction* would appear to have the toughest task of all: the origins of life, sex, skeletons, life on land, forests and flight, the biggest mass extinction, the origin of modern ecosystems and the origins of humans. Happily, however, the author manages to cover all this ground deftly – almost conversationally – and with considerable clarity. Of course, the depth of detail isn't there and a few academic noses may be turned up at the lively personal style, but this book communicates with the non-specialist reader in a way that the others struggle to achieve. It is indeed an 'introduction', and many a school student will enjoy reading it. Try leaving it lying around in your lab for someone to pick up, or – in more traditional mode – make sure that it is on your students' reading list.

## Details

***Evolution: A Very Short Introduction***

Publisher: Oxford University Press
Publication year: 2003
ISBN: 9780192802514

# *A Private Universe* online resources

**By Dr Matthew H Schneps and Dr Philip M Sadler**
**Reviewed by Erik Stengler, Spain**

***Human Evolution: A Very Short Introduction***

Publisher: Oxford University Press
Publication year: 2005
ISBN: 9780192803603

***The History of Life: A Very Short Introduction***

Publisher: Oxford University Press
Publication year: 2008
ISBN: 9780199226320

## Resources

For a review of two other *Very Short Introductions*, see:

Demoncheaux E (2007) Review of *Fossils: A Very Short Introduction* and *Dinosaurs: A Very Short Introduction*. *Science in School* **6**: 85. www.scienceinschool.org/2007/issue6/fossils

To browse all the other reviews of resources published in *Science in School*, see: www.scienceinschool.org/reviews

*A Private Universe* depicts a very familiar situation for teachers worldwide, namely that students do not let go of their misconceptions as easily as might be expected after a detailed and thorough learning process.

This series started with an award-winning short documentary feature in 1987. Even 23 years after its production, a collaboration between the Harvard-Smithsonian Center for Astrophysics[w1] and Annenberg Media[w2] (then Annenberg / CPB), it has not lost its relevance. This first part focuses on the astronomical topic of the seasons, particularly on the fact that despite years of education in physical sciences and astronomy, even Harvard graduates still think that it is hotter in summer because the Sun is nearer to the Earth than in winter. The film also mentions another aspect in which misconceptions prevail over formal teaching: the phases of the moon, which are often wrongly explained in terms of obscuration by clouds, rather than by the relative positions of the Sun, Moon and Earth.

This situation is indeed quite widespread, and it is not uncommon to hear complaints by teachers and professors about it. It becomes even more alarming when it is the teachers themselves who pass on these misconceptions to their students. This is often the case in countries where primary-school teachers are not taught any content related to the topics they will be teaching at school. Instead, the focus lies on educational issues, assuming the candidates still know the topics they will teach well enough from their own days at school. The reality is quite different, as is clearly seen in the first minutes of *A Private Universe*.

But *A Private Universe* does not stop at detecting the problem. In order to diagnose its scope and possible causes, the documentary closely follows the learning process of a particular high-school student, considered to be one of the brightest of her class. Her teacher makes quite an effort to explain how Earth orbits around the Sun, and how the seasons are produced by a combination of this and the 23.5° tilt of Earth's axis of rotation. Viewers will be as surprised as the teacher herself when the student, after having shown clear signs of understanding, still tries to save and include her previous misconceptions into her new and even elaborate view on the matter.

Particular misconceptions can be traced back to confusing or ambiguous graphics in a school book, but to lay the blame solely on these accessory aspects would be to completely miss the point, and is definitely not