

To bodily go ...

Ian Jones

In the film *Fantastic Voyage* (1966), a group of doctors are miniaturized and sent into the body of a defecting scientist to clear an untreatable blood clot. They witness close up processes at the heart of life — the oxygenation of a red blood cell, an electrical impulse in the brain. Journeying around the body is also the theme of *Inside You* (8–14 years), a book and accompanying CD-ROM. A futuristic 'nanocam' patrols the body providing "breaking news from the front lines of the body battlefield". It shows what happens when we get stung by a bee, vomit, squeeze a spot and urinate.

It is a laudable attempt to convey science to children aged 8–14 years. The implicit assumption is that exposure to the beauty of science will encourage the young to find out more and learn new things.

Yet the landscape of science education is more complex than is sometimes appreciated. It has been tempting to see the promul-

gation of science as a linear causal process in which specialist knowledge is transmitted to lay audiences who are blank slates that learn and become positively disposed to science.

This view is now seen as a caricature. There are a multitude of stakeholders with different, and not necessarily compatible, agendas: scientists keen to share their enthusiasm; advocates promoting positive attitudes to science; public-engagement professionals stimulating dialogue and debate; politicians concerned with national competitiveness; and audiences that are active interpreters of the information they receive.

Moreover, it is not just facts but the nature and process of science that need to be communicated. UK schools now include a course on 'How science works'. Arguably, it is better to know the principles of a randomized controlled trial than the names of all the vertebrae.

Mediators end up being pulled in different directions. Take science centres — their funders may have clear ideas about what they should promote, and they have to attract visitors to survive. Hence the proliferation of exhibitions on *Star Wars* and *The Hitchhiker's Guide*, and the accompanying cries of dumbing down. Publishing is little different. It is a commercial activity and will survive only if it can make a profit.

Where does *Inside You* fit?

The digital world provides great opportunities for communicating dynamic processes, and biology is nothing if not dynamic. The animations on the CD-ROM succeed admirably in bringing body processes to life, even if the abstraction at

times borders on the psychedelic excesses of *Fantastic Voyage*.

Translated to paper, though, some images take on a strange quality, caught between vague forms and elaborate, confusing textures. The text is mostly clear and simple, though sometimes quite technical. In a book that uses 'conjugation', 'scolex', 'proglottids' and 'protists'. If Stephen Hawking can avoid equations, can't biologists avoid unnecessary jargon?

Despite its high-tech premise, there is something old-fashioned about *Inside You* — the subject matter is practically *Fantastic Voyage* era. Hardly any recent developments in medical science are included. Readers get no sense of the innate and acquired immune responses, or the revolution in genomics. The notion of microbial communities is barely touched upon — every microbe is an enemy out to do us harm. If you are hoping to find out something about science or scientists, forget it. The book's fascination with the uglier side of the working body will no doubt appeal to its target audience. As a visually striking package it will engage children and they may well learn some facts.

The rumour mill suggests that *Fantastic Voyage* is being remade. Presumably, it will be another computer-generated spectacular. It may even be educational and tell us something about science — or is that asking too much? ■

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Inside You: How Your Body Makes it Through Every Day
by Mark Hamilton
Dorling Kindersley: £12.99



Mathematics not shopping

Joanna Sabatino-Hernandez

Winnie Cooper has written a maths book? This is improbable for two reasons. Winnie is a fictional character in the American 1980s TV series *The Wonder Years* and she was more interested in boys than in education. Yet Winnie Cooper, otherwise known as the actress Danica McKellar, is the author of *Math Doesn't Suck* (10–14 years).

McKellar offers study tips and encouragement for the girl who just isn't into maths, or doesn't see how it relates to her life. She also writes for that brainy girl who needs reassuring that being great with logic and numbers doesn't

mean you are nerdy. Like a teen magazine for the mathematics classroom, *Math Doesn't Suck* empowers young girls with a funny, light and interesting tone.

As a middle-school maths teacher and mother, I see the daily struggle of girls who say, as the talking Barbie doll of the 1990s used to, "maths is hard, let's go shopping!". McKellar speaks to those kids with chapters such as, 'You Can Never Have Too Many Shoes' to teach multiples, and 'Is Your Sister Trying to Cheat You out of Your Fair Share?' to explain how to compare and convert fractional slices of pizza. Each chapter reinforces a single topic, from adding basic fractions to solving pre-algebra word problems.

She adds maths horoscopes, tips, quizzes ('Are you a Mathphobe?') and testimonials from girls who used to think that maths "sucked" and who now love the subject. There is even a