Computers are everywhere. We all need to learn how to use them, and many of us use them every day. But how do they work? How do they think? And how can people make them go faster and better? Computer Science is a fascinating subject that explores these very questions. The easy and fun activities in this book, designed for children of a range of ages, introduce you to some of the building blocks of how computers work—without the children using a computer at all! This book can be effectively used in enrichment and extension programmes, or even in the regular classroom. You don’t have to be a computer expert to enjoy learning these principles with your children. The book contains a range of activities, with background information explained simply. Answers to all problems are provided, and each activity ends with a ‘what’s it all about?’ section that explains the relevance of the activities. Many of the activities are mathematically based, e.g. exploring binary numbers, mapping and graphs, patterns and sorting problems, and cryptography. Others link in well with the technology curriculum, and the knowledge and understanding of how computers work. The children are actively involved in communication, problem solving, creativity, and thinking skills in a meaningful context. This book was written by three Computer Science lecturers and two school teachers, and is based on our experience in classrooms. We have found that many important concepts can be taught without using a computer—in fact, sometimes the computer is just a distraction from learning. So unplug your computer, and get ready to learn what Computer Science is really about!

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