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► **COVER:** 'Numbers' by Lara Crow, inspired by the Perspective on p221, which discusses mathematical models in cancer research.



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How long is it since you last had to solve an equation? Most biologists have happily forgotten about these beasts since their move to the microscope or Petri dish, but mathematics is becoming an essential partner in cancer research as we move forwards into a new decade.

In a Timeline article on page 221 Helen Byrne outlines the use of mathematical models in cancer research, focusing on early epidemiological studies through to more complex models that aim to solve issues such as the timing of drug delivery to maximize tumour cell kill, and the subtle effects of tumour angiogenesis on tumour development. This article contains a number of equations, illustrating how mathematicians have started to define aspects of tumour growth through constants and variables. Some might argue that the inclusion of equations in a cancer review journal will scare biologists and put them off collaborating with mathematical modellers. However, we have survived having to relearn our basic biochemistry, including the Krebs cycle, now that altered metabolism is such an important part of tumour evolution: surely we can tolerate some maths as well?

In an era of ever more complex data sets combined with our in-depth knowledge of how cancer evolves, our need for larger, more intricate and therefore more costly experiments in the laboratory is increasing. Wouldn't it be useful if first of all we could run several 'thought experiments' or mathematical models to make sure that we were on the right track? This will require detailed and in-depth discussion with mathematical biologists, and no doubt some language barriers will exist, but there are many mathematicians who are willing to help solve the complexities of cancer development and treatment.

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